



2011 Photonics West

Technical Program

spie.org/pw

Conferences/Courses: 22-27 January

BIOS Exhibition: 22-23 January

Photonics West Exhibition: 25-27 January

The Moscone Center

San Francisco, California, USA

Connecting minds for global solutions

BIOS*

- Photonic Therapeutics and Diagnostics
- Clinical Technologies and Systems
- Tissue Optics, Laser-Tissue Interaction, and Tissue Engineering
- Biomedical Spectroscopy, Microscopy, and Imaging
- Nano/Biophotonics

LASE*

- Laser Source Engineering
- Nonlinear Optics
- Semiconductor Lasers and LEDs
- Laser Micro-/Nanoengineering
- Laser Applications

MOEMS-MEMS*

- Micro/Nanofabrication
- Devices/Applications/Reliability

OPTO*

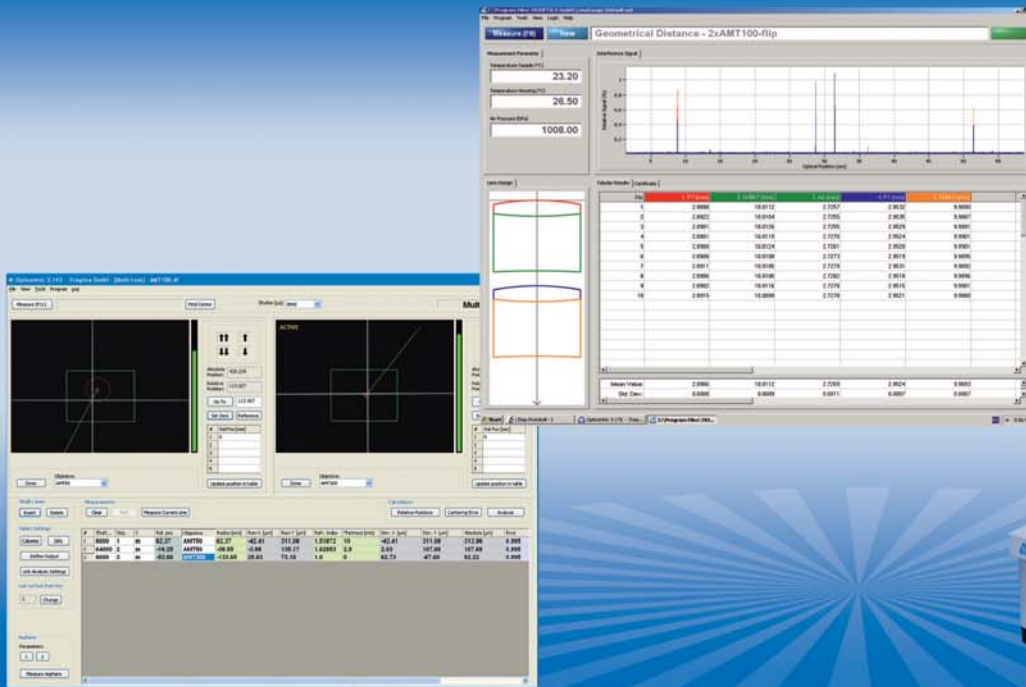
- Optoelectronic Materials and Devices
- Photonic Integration
- Nanotechnologies in Photonics
- Advanced Quantum and Optoelectronic Applications
- Semiconductor Lasers and LEDs
- Displays and Holography
- Optical Communications: Devices to Systems

GREEN PHOTONICS

- New for 2011
VIRTUAL TRACKS:
- Solid State Lighting and Displays
 - Laser-assisted Manufacturing and Micro/Nano Fabrication
 - Communications
 - Renewable Energy Generation: Fusion and Photovoltaics

The Future of Objective Lens Testing

Measuring the lens centering errors, air gaps between lens elements and center thickness of assembled optical systems with ONE Instrument



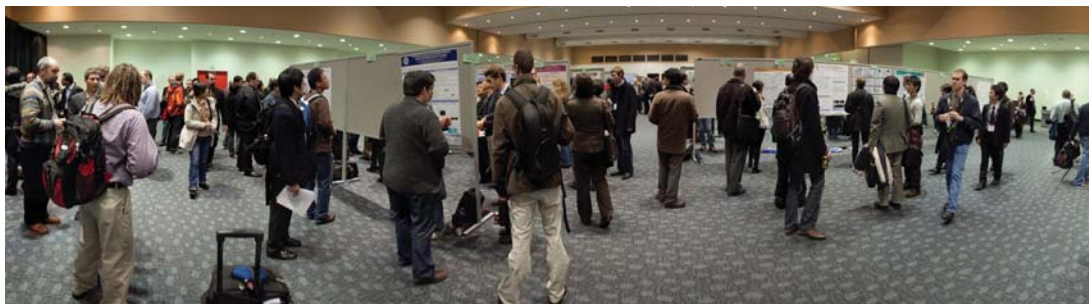
OptiCentric® 3D

provides an ideal solution for complete characterization of opto-mechanical systems in R&D and production by integrating different lens analysis technologies.

- Combination of OptiCentric® centering error measurement technology with the OptiSurf® low coherence interferometer for measuring the air gaps between lens elements and the center thickness of lenses within the optical system
- Measurement accuracy of centration errors / air spacing and center thickness: 0.1 μm / 1 μm
- Enhanced MultiLens software algorithm provides spatial coordinates of all surfaces of the optical system and enables comprehensive compliance testing of assembled optics

SPIE Photonics West

Conferences/Courses: 22-27 January
 BiOS Exhibition: 22-23 January
 Photonics West Exhibition: 25-27 January
 The Moscone Center
 San Francisco, California, USA



Facility Maps2-4

Special Events

Daily Schedule.....14-15

Plenary Sessions

BiOS.....16-17
 LASE.....20
 MOEMS-MEMS.....22
 OPTO.....24

Industry Events.....26-29

Executive Sessions | Panels | Workshops

Professional Development.....30-31

Speaker Series | Workshops | Women in Optics |
 Job Fair | Panels

Social and Networking Events.....32-37

Receptions | Student and Early Career Events

Exhibition Overviews.....38-51

**SPIE Photonics West | SPIE BiOS | Product Demonstrations |
 Sponsors**

Professional Development

Course Index.....52-55

Technical Conferences

Conference Index.....5-12

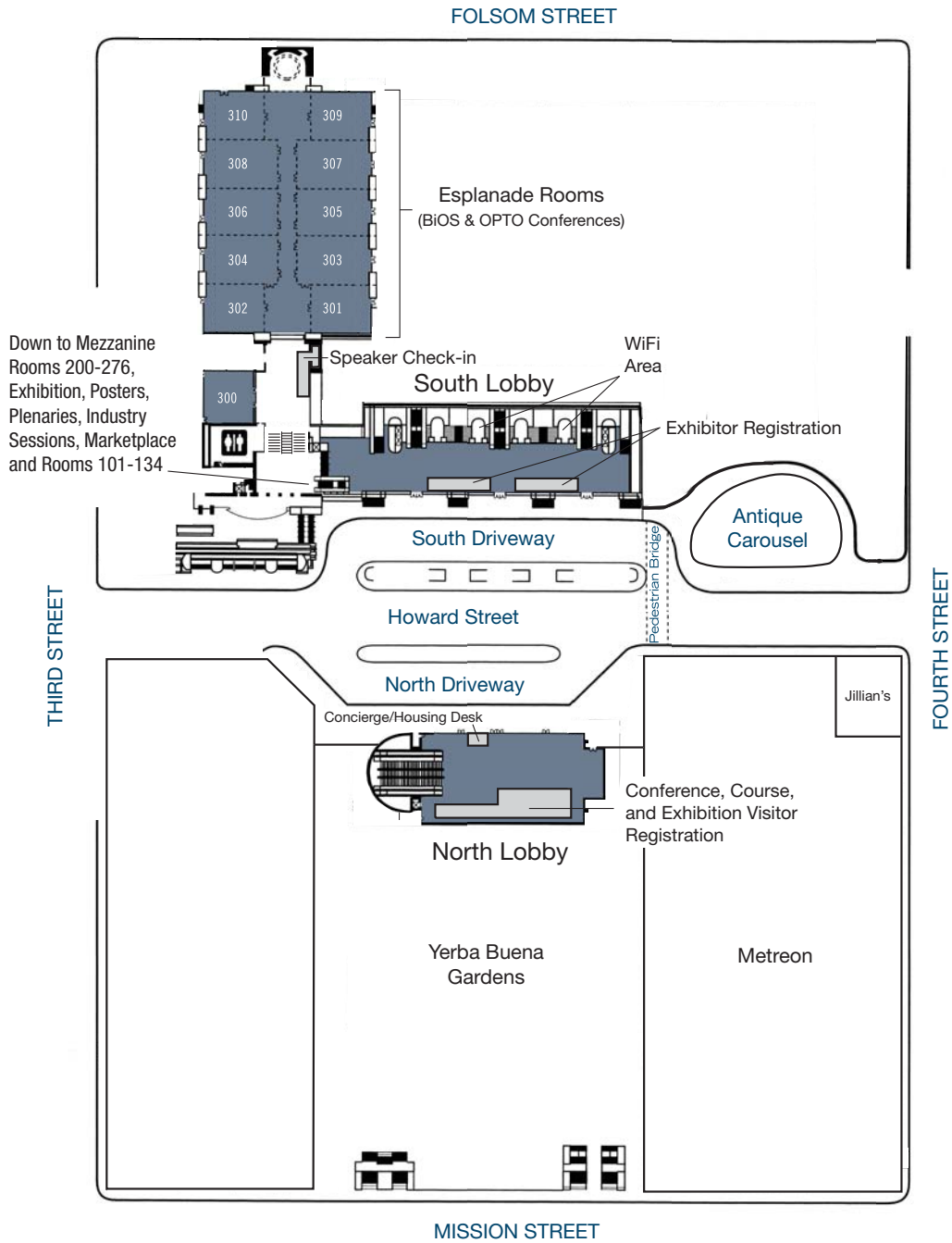
GREEN PHOTONICS.....57-59
 BiOS.....60-163
 LASE.....165-207
 MOEMS-MEMS.....208-227
 OPTO.....228-312

General Information.....370-372

Proceedings of SPIE.....374-375



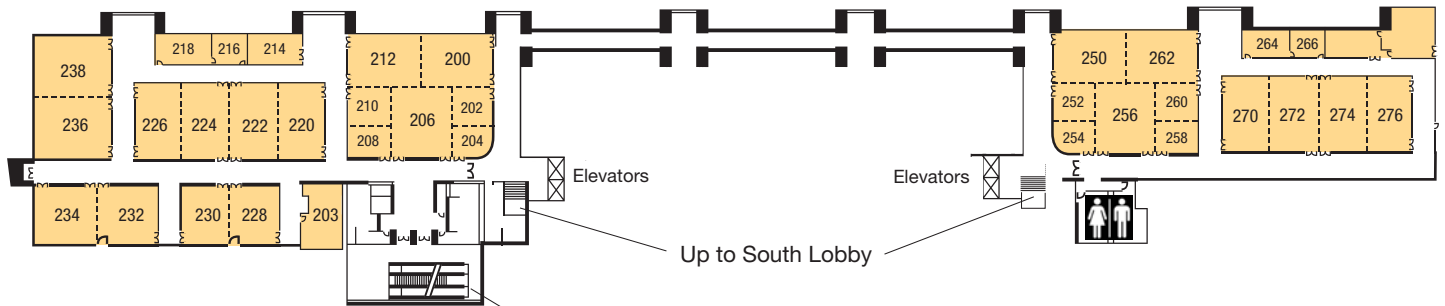
SPIE is the international society for optics and photonics founded in 1955 to advance light-based technologies. Serving more than 188,000 constituents from 138 countries, the Society advances emerging technologies through interdisciplinary information exchange, continuing education, publications, patent precedent, and career and professional growth.



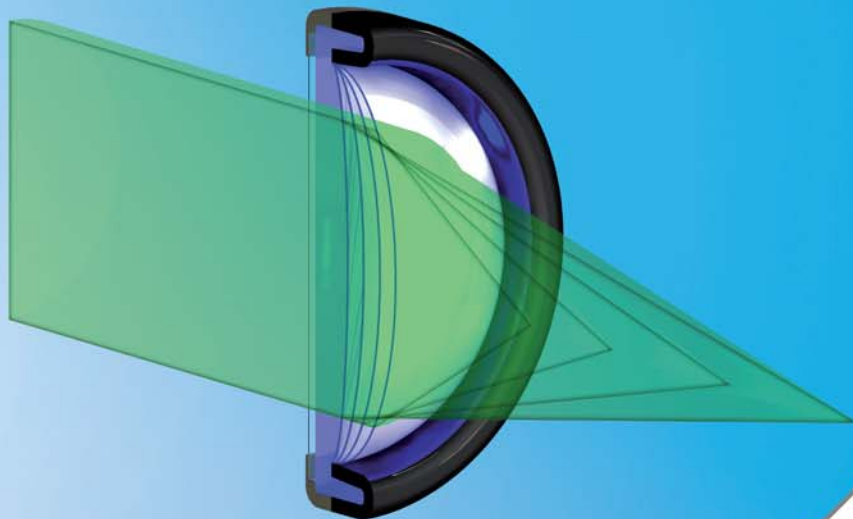
(BiOS & OPTO Conferences)
EAST

MEZZANINE LEVEL

(BiOS & OPTO + MOEMS/MEMS)
WEST



A million lenses in one



Optotune focus tunable lenses

- > Adjustable focal length
- > Apertures from 1 to 50 mm
- > Transmission > 92%
- > Damage threshold > 25W/cm²

Visit us at booth 4417

Focus tunable lenses Laser speckle reducers Optical- & mechanical design

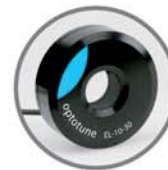
When hard glass and plastic components reach their limits, soft polymer-based materials might be your solution! As a pioneer in adaptive optics, Optotune offers a range of tunable optical products that help you add versatility, compactness and fast response to your optical systems.



Manually tunable lens

The shape of our manually tunable lens is tuned from concave to convex by rotating an adjustment ring

- > 20 mm aperture
- > Focal length from -40 to +40 mm
- > Compact design



Electrically tunable lens

The focal length of our electrical lens is tuned by applying a control voltage (0-5V)

- > 10 mm aperture
- > Focal length from 15 to 100 mm
- > 10 ms response time



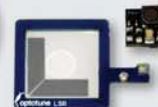
shaping the future of optics

Optotune AG | Ueberlandstrasse 129 | CH-8600 Dübendorf | Switzerland
Phone +41 58 856 3000 | www.optotune.com | info@optotune.com

Speckle problems?



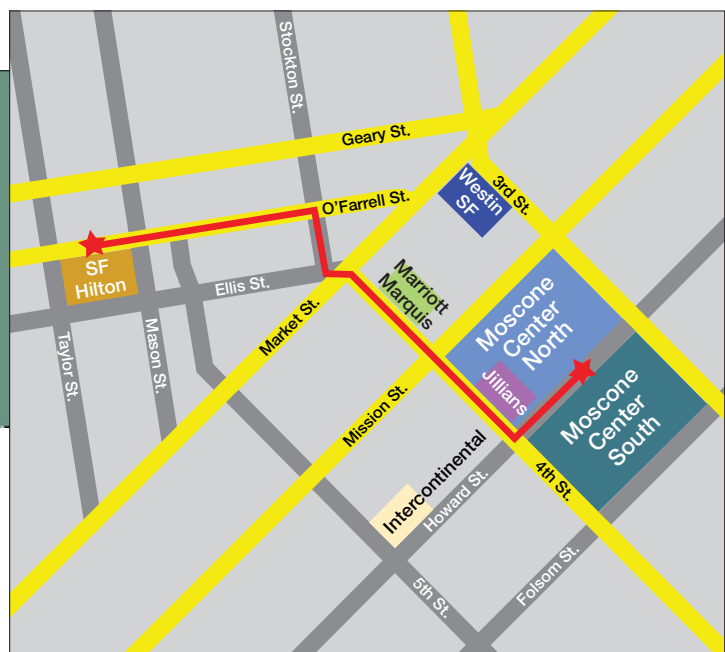
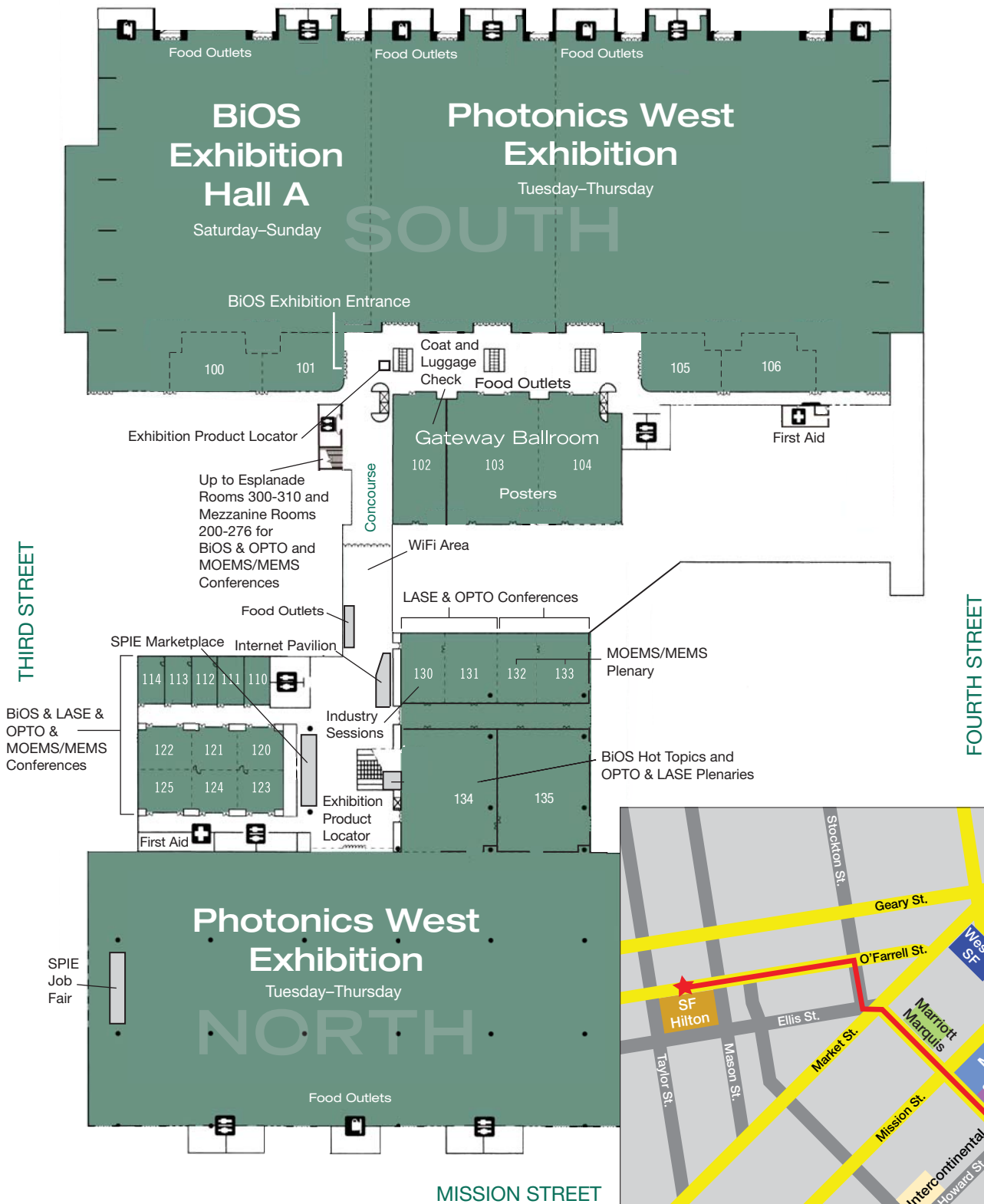
Our transmissive laser speckle reducer removes speckles in the most compact form factor.



The Moscone Center

EXHIBIT LEVEL

FOLSOM STREET





Stephen J. Eglash
Precourt Institute for Energy, Stanford Univ. (USA)

Virtual Track: Solid State Lighting and Displays

7933	Room 302	Physics and Simulation of Optoelectronic Devices XIX (Witzigmann/Henneberger/Arakawa/Freundlich)	232
7935	Room 234	Organic Photonic Materials and Devices XIII (Nelson/Kajzar/Kaino/Koike)	239
7939	Room 300	Gallium Nitride Materials and Devices VI (Chyi/Nanishi/Morkoç)	248
7940	Room 238	Oxide-based Materials and Devices II (Teherani/Look/Rogers)	254
7943	Room 226/310	Silicon Photonics VI (Kubby/Reed)	263
7954	Room 304	Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XV (Streubel/Jeon/Tu)	295
7955	Room 208/210	Emerging Liquid Crystal Technologies VI (Chien)	298
7956A	Room 238	E-papers and Flexible Displays (Blankenbach)	300

Virtual Track: Laser-assisted Manufacturing and Micro/Nano Fabrication

7913	Room 114	Laser Resonators and Beam Control XIII (Kudryashov/Paxton/Ilchenko)	273
7918	Room 130	High-Power Diode Laser Technology and Applications IX (Zediker)	189
7920	Room 122/111	Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM)XVI (Gu/Hennig/Xu/Niino)	193
7921	Room 111	Laser-based Micro- and Nanopackaging and Assembly V (Pfleger/Lu/Washio)	196
7925	Room 121/122	Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XI (Heisterkamp/Neev/Nolte)	204
7926	Room 110	Micromachining and Microfabrication Process Technology XVI (Maher/Chiao/Resnick)	210
7927	Room 110	Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV (Schoenfeld/Wang/Loncar/Suleski)	212
7928	Room 252/254/125	Reliability, Packaging, Testing, and Characterization of MEMS/MOEMS and Nanodevices X (Garcia-Blanco/Ramesham)	215
7945	Room 123	Quantum Sensing and Nanophotonic Devices VIII (Razeghi)	269

Virtual Track: Communications

7941	Room 250/252	Integrated Optics: Devices, Materials, and Technologies XV (Broquin/Nunzi Conti)	258
7942	Room 226/270/272	Optoelectronic Integrated Circuits XIII (Eldada/Lee)	261
7943	Room 226/310	Silicon Photonics VI (Kubby/Reed)	263
7944	Room 270/272	Optoelectronic Interconnects and Component Integration XI (Glebov/Chen)	266
7958	Room 202/204/206	Broadband Access Communication Technologies V (Dingel/Jain/Tsukamoto)	305
7959	Room 206	Optical Metro Networks and Short-Haul Systems III (Weiershausen/Dingel/Dutta/Srivastava)	308

Virtual Track: Renewable Energy Generation: Fusion and Photovoltaics

7916	Room 114	High Power Lasers for Fusion Research (Awwal/Dunne/Azechi/Kruschwitz)	183
7920	Room 122/111	Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM)XVI (Gu/Hennig/Xu/Niino)	193
7921	Room 111	Laser-based Micro- and Nanopackaging and Assembly V (Pfleger/Lu/Washio)	196
7933	Room 302	Physics and Simulation of Optoelectronic Devices XIX (Witzigmann/Henneberger/Arakawa/Freundlich)	232
7935	Room 234	Organic Photonic Materials and Devices XIII (Nelson/Kajzar/Kaino/Koike)	239

Green Photonics Session Matrix 57–59

Photonics West maps:

Moscone Center Maps pp. 2–4
Walking Map p. 14



Symposium Chairs



James Fujimoto
Massachusetts Institute of Technology (USA)



R. Rox Anderson M.D.
Wellman Ctr. for Photomedicine, Massachusetts General Hospital (USA) and Harvard School of Medicine (USA)

Photonic Therapeutics and Diagnostics

Program Chair: **Brian Jet-Fei Wong**, Beckman Laser Institute and Medical Clinic, Univ. of California, Irvine (USA)

7883A	Room 303	Photonics in Dermatology and Plastic Surgery (Kollias/Choi/Zeng)	65
7883B	Room 302	Urology: Diagnostics, Therapeutics, Robotics, Minimally Invasive, and Photodynamic Therapy (Kang/Knudsen)	67
7883C	Room 200	Optical Imaging, Therapeutics, and Advanced Technology in Otolaryngology and Head and Neck Surgery (Wong/Ilgner)	69
7883D	Room 309	Diagnostic and Therapeutic Applications of Light in Cardiology (Gregory/Tearney/Marcu)	72
7883E	Room 256	Optical Techniques in Neurosurgery, Brain Imaging, and Neurobiology (Hirschberg/Madsen)	74
7883F	Room 252/254	Optics in Bone Biology and Diagnostics (Mandelis)	76
7884	Room 270/272	Lasers in Dentistry XVII (Rechmann/Fried)	78
7885	Room 306	Ophthalmic Technologies XXI (Manns/Söderberg/Ho)	80
7886	Room 276	Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XX (Kessel)	84
7887	Room 206	Mechanisms for Low-Light Therapy VI (Hamblin/Waynant/ Anders)	87
7888	Room 300	Frontiers in Biological Detection: From Nanosensors to Systems (Miller/Fauchet)	89

Clinical Technologies and Systems

Program Chairs: **Tuan Vo-Dinh**, Duke Univ. (USA); **Anita Mahadevan-Jansen**, Vanderbilt Univ. (USA)

7889	Room 303	Optical Coherence Tomography and Coherence Domain Optical Methods in Biomedicine XV (Fujimoto/Izatt/Tuchin)	91
7890	Room 256	Advanced Biomedical and Clinical Diagnostic Systems IX (Mahadevan-Jansen/Vo-Dinh/Grundfest)	96
7891	Room 309	Design and Quality for Biomedical Technologies IV (Raghavachari/ Liang)	99
7892	Room 301	Multimodal Biomedical Imaging VI (Azar/Intes)	101
7893	Room 304	Endoscopic Microscopy VI (Tearney/Wang)	103

7894	Room 250/262	Optical Fibers, Sensors, and Devices for Biomedical Diagnostics and Treatment XI (Gannot)	106
7895	Room 307	Optical Biopsy IX (Alfano)	108
7896	Room 301	Optical Tomography and Spectroscopy of Tissue IX (Tromberg/Yodh/Tamura/Sevick-Muraca/Alfano)	110

Tissue Optics, Laser-Tissue Interaction, and Tissue Engineering

Program Chairs: **Steven L. Jacques**, Oregon Health & Science Univ. (USA); **William P. Roach**, U.S. Air Force (USA)

7897	Room 200	Optical Interactions with Tissue and Cells XXII (Jansen/Thomas)	115
7898	Room 307	Dynamics and Fluctuations in Biomedical Photonics VIII (Tuchin/Duncan/Larin/ Leahy/Wang)	119
7899	Room 305	Photons Plus Ultrasound: Imaging and Sensing 2011 (Oraevsky/Wang)	122
7900	Room 202/204	Biophotonics and Immune Responses VI (Chen)	128
7901	Room 208	Energy-based Treatment of Tissue and Assessment VI (Ryan)	130
7906B	Room 202/204	Design and Performance Validation of Phantoms Used in Conjunction with Optical Measurement of Tissue III (Nordstrom)	149
7883G	Room 274	Photons and Neurons III (Mahadevan-Jansen/Jansen)	77

Biomedical Spectroscopy, Microscopy, and Imaging

Program Chairs: **Ammasi Periasamy**, Univ. of Virginia (USA); **Daniel L. Farkas**, Cedars-Sinai Medical Ctr. (USA)

7902	Room 112	Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues IX (Farkas/Nicolau/ Leif)	132
7903	Room 308	Multiphoton Microscopy in the Biomedical Sciences XI (Periasamy/So/König)	136
7904	Room 220/222	Three-Dimensional and Multidimensional Microscopy: Image Acquisition and Processing XVIII (Conchello/Cogswell/Wilson/Brown)	141
7905	Room 310	Single Molecule Spectroscopy and Imaging IV (Enderlein/Gryczynski/Erdmann)	144
7906A	Room 112	Optical Diagnostics and Sensing XI: Toward Point-of-Care Diagnostics (Coté)	147
7907	Room 220/222	Biomedical Applications of Light Scattering V (Wax/Backman)	150

Nano/Biophotonics

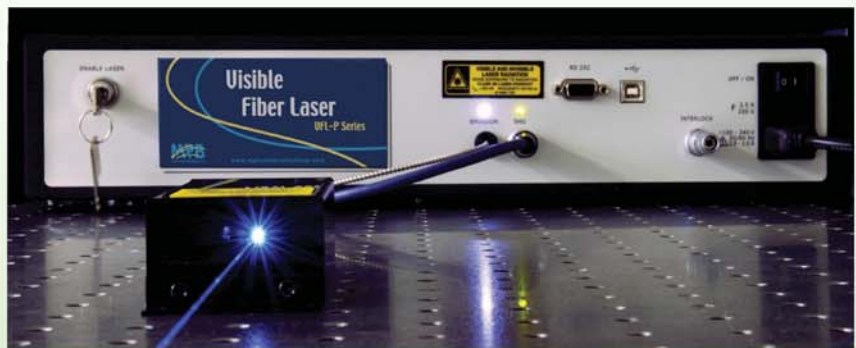
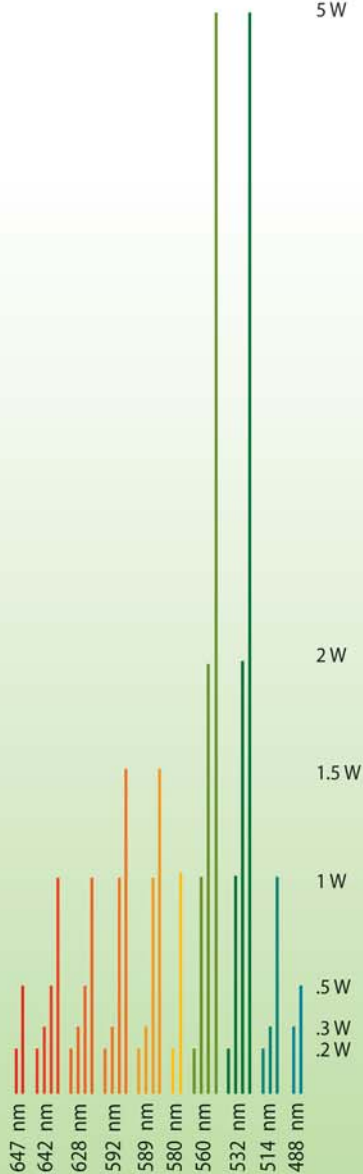
Program Chairs: **Paras Prasad**, SUNY/Buffalo (USA); **Dan V. Nicolau**, The Univ. of Liverpool (United Kingdom)

7908	Room 309	Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications VIII (Cartwright/Nicolau)	152
7909	Room 232	Colloidal Quantum Dots/Nanocrystals for Biomedical Applications VI (Parak/Yamamoto/Osin'ski)	154
7910	Room 306	Reporters, Markers, Dyes, Nanoparticles, and Molecular Probes for Biomedical Applications III (Achilefu/Raghavachari)	158
7911	Room 206	Plasmonics in Biology and Medicine VIII (Vo-Dinh/Lakowicz)	161

brilliant choices

THE VFL & 2RU-VFL FIBER LASER SERIES

offer exceptional beam quality, reliability, wavelength and power stability



Unprecedented output power

Unequaled stability

Narrow-line, diffraction limited,
linearly polarized output

Single-frequency available

Maintenance-free

Air-cooled

*biofluorescence or fluorescence • microscopy
& imaging • flow cytometry • ophthalmology •
DNA sequencing • laser sintering • industrial /
scientific / military*



www.mpbcommunications.com
phone: 514-694-8751

BIOS - #8315

PHOTONICS WEST - #311



Symposium Chairs



Friedhelm Dorsch
TRUMPF GmbH & Co. KG
(Germany)



Alberto Piqué
U.S. Naval Research Lab. (USA)

Symposium Cochairs



Donald J. Harter
IMRA America, Inc. (USA)



Peter R. Herman
Univ. of Toronto (Canada)

Laser Source Engineering

Program Chair: **Gregory J. Quarles**,
BE Meyers & Co. Inc. (USA)

7912	Room 120/ 131/133	Solid State Lasers XX: Technology and Devices (Clarkson/Hodgson/Shori)	168
7913	Room 114	Laser Resonators and Beam Control XIII (Kudryashov/Paxton/Ilichenko)	173
7914	Room 131	Fiber Lasers VIII: Technology, Systems, and Applications (Dawson)	176
7915	Room 111	High Energy/Average Power Lasers and Intense Beam Applications VI (Davis/Heaven/Schriempf)	182
7916	Room 114	High Power Lasers for Fusion Research (Awwal/Dunne/Azechi/Kruschwitz)	183

Nonlinear Optics

7917	Room 113/ 133	Nonlinear Frequency Generation and Conversion: Materials, Devices, and Applications X (Vodopyanov)	185
7935	Room 234	Organic Photonic Materials and Devices XIII (Nelson/Kajzar/Kaino/Koike)	239
7937	Room 236	Ultrafast Phenomena in Semiconductors and Nanostructure Materials XV (Tsen/Song)	243

Semiconductor Lasers and LEDs

Program Chair: **Klaus P. Streubel**, OSRAM GmbH (Germany)

7918	Room 130	High-Power Diode Laser Technology and Applications IX (Zediker)	189
7919	Room 111	Vertical External Cavity Surface Emitting Lasers (VECSELs) (Keller)	191
7933	Room 302	Physics and Simulation of Optoelectronic Devices XIX (Witzigmann/Henneberger/Arakawa/Freundlich)	232
7939	Room 300	Gallium Nitride Materials and Devices VI (Chyi/Nanishi/Morkoç)	248
7952	Room 308	Vertical-Cavity Surface-Emitting Lasers XV (Guenter/Lei)	289
7953	Room 310	Novel In-Plane Semiconductor Lasers X (Belyanin/Smowton)	291
7954	Room 304	Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XV (Streubel/Jeon/Tu)	295

Laser Micro-/Nanoengineering

Program Chairs: **Henry Helvajian**, The Aerospace Corp. (USA);
James S. Horwitz, U.S. Dept. of Energy (USA)

7920	Room 122/ 111	Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM)XVI (Gu/Hennig/Xu/Niino)	193
7921	Room 111	Laser-based Micro- and Nanopackaging and Assembly V (Pfleging/Lu/Washio)	196
7922	Room 113	Synthesis and Photonics of Nanoscale Materials VIII (Dubowski/Geohegan/Träger)	198
7926	Room 110	Micromachining and Microfabrication Process Technology XVI (Maher/Chiao/Resnick)	210
7927	Room 110	Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV (Schoenfeld/Wang/Loncar/Suleski)	212
7928	Room 252/ 254/125	Reliability, Packaging, Testing, and Characterization of MEMS/MOEMS and Nanodevices X (Garcia-Blanco/Ramesham)	215

Laser Applications

7923	Room 121	Free-Space Laser Communication Technologies XXIII (Hemmati)	200
7924	Room 121	Atmospheric and Oceanic Propagation of Electromagnetic Waves V (Korotkova)	202
7920	Room 122/ 111	Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM)XVI (Gu/Hennig/Xu/Niino)	193
7925	Room 121/ 122	Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XI (Heisterkamp/Neev/Nolte)	204
7950	Room 125	Complex Light and Optical Forces V (Andrews)	286
7951	Room 112	Laser Refrigeration of Solids IV (Epstein/Sheik-Bahae)	288

THE FIBER PUMP We've earned the title.



DILAS stands apart — offering high coupling efficiencies in a wide range of powers, wavelengths, fiber cores and configurations — perfect for solid-state laser pumping or fiber laser applications.

Superior manufacturing is at the core of every DILAS fiber pump — with 100% product testing and traceability to assure quality, longevity and reliability. With experienced technical teams and service centers globally, DILAS is your best partner for fiber coupled pump solutions. Discover why we can provide the technology advantage — see why our fiber pumps make DILAS **the** diode laser company.

DILAS

The diode laser company.

DILAS.COM

Visit North Hall, Booth 4837 at Photonics West

MOEMS- MEMS

Symposium Chair



Thomas J. Suleski
The Univ. of Carolina at Charlotte (USA)

Symposium Cochair



Harald Schenk
Fraunhofer Institute for Photonic Microsystems (Germany)

Steering Committee Chair



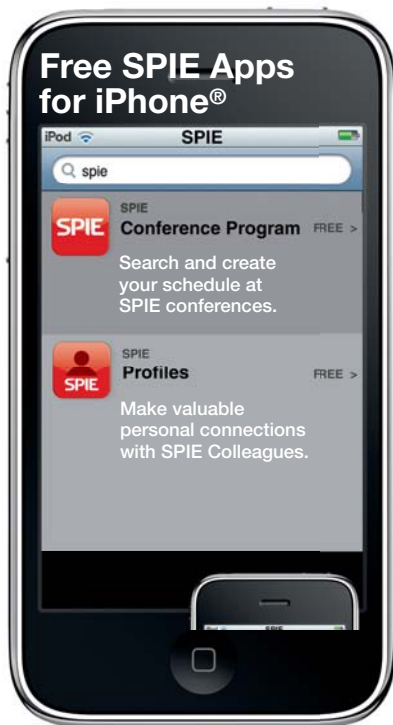
Rajeshuni Ramesham
Jet Propulsion Lab. (USA)

Micro/Nanofabrication

7926	Room 110	Micromachining and Microfabrication Process Technology XVI (Maher/Chiao/Resnick)	210
7927	Room 110	Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV (Schoenfeld/Wang/Loncar/Suleski)	212
7920	Room 122/111	Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM)XVI (Gu/Hennig/Xu/Niino)	193
7921	Room 111	Laser-based Micro- and Nanopackaging and Assembly V (Pfluegling/Lu/Washio)	196

Devices/Applications/Reliability

7928	Room 252/254/125	Reliability, Packaging, Testing, and Characterization of MEMS/MOEMS and Nanodevices X (Garcia-Blanco/Ramesham)	215
7929	Room 276/300	Microfluidics, BioMEMS, and Medical Microsystems IX (Becker)	218
7930	Room 274/304/125	MOEMS and Miniaturized Systems X (Schenk/Piyawattanametha)	221
7931	Room 274/125	MEMS Adaptive Optics V (Olivier/Bifano/Kubby)	224
7932	Room 276	Emerging Digital Micromirror Device Based Systems and Applications III (Douglass/Oden)	226



PLAN YOUR WEEK

Use the SPIE My Schedule tool on the Photonics West site

- Add Papers | Exhibitors | Courses | Special Events

Use the Entire Program webpage to view the program your way:

- By Symposium and Conference—papers, courses, special events
- By Day and Time—see what's happening now
- In a Matrix Grid by Program Track—handy at-a-glance reference



Get the free mobile app at <http://gettag.mobi>

Open the tag reader app and hold your phone's camera over the tag. You'll go to the Photonics West program page, where you can browse by technology, by day/time, or by matrix view.

See us at
BIOS - Booth #8811
Photonics West - Booth #811

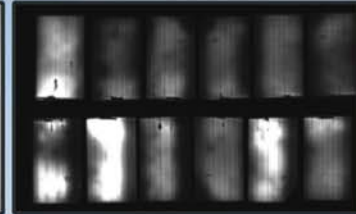
Visible image shows only color variations,
resulting from the AR coating



Thermal microbolometer image
exposes little or no detail



SWIR accurately characterizes PVC and
detects defects and junction non-uniformity



INSPECT YOUR PVC'S WITH SWIR. AND SEE THEM RISE AND SHINE.

Optimize your solar cell performance with easy, accurate shortwave infrared (SWIR) inspection. Our sensitive, powerful SWIR cameras quickly identify cell defects and variations, as well as voids and abnormalities in silicon boules, bricks, or ingots before they are sliced into wafers. This early detection eliminates waste and ensures high quality, high yield, and maximum power output of your photovoltaic cells (PVC).

For more information contact us today.
Sensors Unlimited - Goodrich ISR Systems – powering
your performance with SWIR.

phone: 609-520-0610
email: sui_sales@goodrich.com
www.sensorsinc.com

- ▶ inspect mono- & poly-crystalline, thin-film, single & multi-junction solar cells
- ▶ reveal non-uniformities with electroluminescence
- ▶ locate voids & contaminants inside ingots
- ▶ locate stress defects, cracks & saw marks
- ▶ match cells of similar efficiency with EL



right attitude/right approach/right alongside
www.goodrich.com

GOODRICH

OPTO*

Symposium Chair



Liang-Chy Chien
Kent State Univ. (USA)

Symposium Cochairs



Klaus P. Streubel
OSRAM GmbH
(Germany)



E. Fred Schubert
Rensselaer Polytechnic
Institute (USA)

Optoelectronic Materials and Devices

Program Chair: **James G. Grote**, Air Force Research Lab. (USA)

7933	Room 302	Physics and Simulation of Optoelectronic Devices XIX (Witzigmann/Henneberger/Arakawa/Freundlich)	232
7934	Room 232	Optical Components and Materials VIII (Digonnet/Jiang/Glesener/Dries)	236
7935	Room 234	Organic Photonic Materials and Devices XIII (Nelson/Kajzar/Kaino/Koike)	239
7936	Room 234	RF and Millimeter-Wave Photonics (Nelson/Prather/Schuetz)	242
7937	Room 236	Ultrafast Phenomena in Semiconductors and Nanostructure Materials XV (Tsen/Song)	243
7938	Room 236	Terahertz Technology and Applications IV (Sadwick/O'Sullivan)	247
7939	Room 300	Gallium Nitride Materials and Devices VI (Chyi/Nanishi/Morkoç)	248
7940	Room 238	Oxide-based Materials and Devices II (Teherani/Look/Rogers)	254

Photonic Integration

Program Chair: **Yakov Sidorin**, Quarles Brady LLP (USA)

7941	Room 250/ 252	Integrated Optics: Devices, Materials, and Technologies XV (Broquin/Nunzi Conti)	258
7942	Room 226 270/272	Optoelectronic Integrated Circuits XIII (Eldada/Lee)	261
7943	Room 226/ 310	Silicon Photonics VI (Kubby/Reed)	263
7944	Room 270/ 272	Optoelectronic Interconnects and Component Integration XI (Glebov/Chen)	266
7936	Room 234	RF and Millimeter-Wave Photonics (Nelson/Prather/Schuetz)	242

Nanotechnologies in Photonics

Program Chair: **Ali Adibi**, Georgia Institute of Technology (USA)

7945	Room 123	Quantum Sensing and Nanophotonic Devices VIII (Razeghi)	269
7946	Room 124	Photonic and Phononic Properties of Engineered Nanostructures (Adibi/Lin/Scherer)	274
7947	Room 133	Quantum Dots and Nanostructures: Synthesis, Characterization, and Modeling VIII (Eyink/Szmulowicz/Huffaker)	278
7927	Room 110	Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV (Schoenfeld/Wang/Loncar/Suleski)	212

Advanced Quantum and Optoelectronic Applications

Program Chair: **Zameer UI Hasan**, Temple Univ. (USA)

7948	Room 132/ 302	Advances in Photonics of Quantum Computing, Memory, and Communication IV (Hasan/Hemmer/Lee/Santori)	280
7949	Room 125	Advances in Slow and Fast Light IV (Shahriar/Hemmer)	283
7950	Room 125	Complex Light and Optical Forces V (Andrews)	286
7951	Room 112	Laser Refrigeration of Solids IV (Epstein/Sheik-Bahae)	288
7945	Room 123	Quantum Sensing and Nanophotonic Devices VIII (Razeghi)	269
7947	Room 133	Quantum Dots and Nanostructures: Synthesis, Characterization, and Modeling VIII (Eyink/Szmulowicz/Huffaker)	178

Semiconductor Lasers and LEDs

Program Chair: **Klaus P. Streubel**, OSRAM GmbH (Germany)

7952	Room 308	Vertical-Cavity Surface-Emitting Lasers XV (Guenter/Lei)	289
7953	Room 310	Novel In-Plane Semiconductor Lasers X (Belyanin/Smowton)	291
7954	Room 304	Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XV (Streubel/Jeon/Tu)	295
7918	Room 130	High-Power Diode Laser Technology and Applications IX (Zediker)	289
7919	Room 111	Vertical External Cavity Surface Emitting Lasers (VECSELs) (Keller)	191
7933	Room 302	Physics and Simulation of Optoelectronic Devices XIX (Witzigmann/Henneberger/Arakawa/Freundlich)	232
7939	Room 300	Gallium Nitride Materials and Devices VI (Chyi/Nanishi/Morkoç)	248

Displays and Holography

Program Chair: **Liang-Chy Chien**, Kent State Univ. (USA)

7955	Room 208/ 210	Emerging Liquid Crystal Technologies VI (Chien)	298
7956A	Room 238	E-papers and Flexible Displays (Blankenbach)	300
7956B	Room 238	Advances in Display Technologies (Chien/Lee/Wu)	301
7957	Room 110	Practical Holography XXV: Materials and Applications (Bjelkhagen)	302

Optical Communications: Devices to Systems

Program Chair: **Benjamin Dingel**, Nasfine Photonics, Inc. (USA)

7958	Room 202/ 204/206	Broadband Access Communication Technologies V (Dingel/Jain/Tsukamoto)	305
7959	Room 206	Optical Metro Networks and Short-Haul Systems III (Weiershausen/Dingel/Dutta/Srivastava)	308
7960	Room 256/ 206	Coherent Optical Communication: Components, Subsystems, and Systems (Li/Jäger)	311
7943	Room 226/ 310	Silicon Photonics VI (Kubby/Reed)	263
7944	Room 270/ 272	Optoelectronic Interconnects and Component Integration XI (Glebov/Chen)	266
7923	Room 121	Free-Space Laser Communication Technologies XXIII (Hemmati)	200



The Power of Choice

Experience shows that the optimization of diverse applications requires different laser technologies. Therefore, there is no "one size fits all" in the world of industrial lasers. TRUMPF offers the broadest industrial laser portfolio of any manufacturer including CO₂, Nd:YAG, disk, fiber, direct diode and more, so the best laser can be selected for any given application.

Visit TRUMPF at Photonics West and experience the power of choice. Learn the features and benefits of each of our laser technologies from our experts and determine the ideal laser for your specific application.

CO₂ Lasers
Disk Lasers
Fiber Lasers
Pulsed Lasers
Marking Lasers
Direct Diode Lasers
Short Pulsed Lasers
Ultrashort Pulsed Lasers
Fabricating Equipment



It must be a

734-454-7200 / oeminfo@us.trumpf.com

Photonics West Booth 1631

Special Events Daily Schedule

Saturday 22 January	Sunday 23 January	Monday 24 January
	<h2 style="background-color: #76923c; color: white; padding: 5px;">SPIE BiOS Exhibition</h2> <p>The world's largest biophotonics and biomedical optics show</p> <p>Exhibition Dates and Hours: Saturday 22 January . . . 12:00 pm to 5:00 pm Sunday 23 January. . . . 10:00 am to 5:00 pm</p>	PROFESSIONAL DEVELOPMENT WORKSHOP: Negotiation Strategy and Tactics (Levine) , 8:30 am to 12:30 pm, p. 31 MOEMS-MEMS PLENARY SESSION , 9:00 am to 12:00 noon, p. 22 <ul style="list-style-type: none"> Welcome and Opening Remarks (<i>Suleski, Schenk</i>) Announcement of the Best 'Green Photonics' Paper Awards in MOEMS-MEMS (<i>Egash</i>) Microsystem Pathways to a Greener World (<i>Lal</i>) Lateral Spread of MEMS WDM Technologies (<i>Toshiyoshi</i>) What I Have Learned from Playing with Toys about the Physics of Living Cells (<i>Austin</i>)
BIOS HOT TOPICS , 7:00 to 9:00 pm, p. 16 <ul style="list-style-type: none"> Welcome and Introduction (<i>Fujimoto</i>) Tribute to Michael Feld: Sensing Glucose by Spectroscopy and Imaging Cells by Tomography (<i>Ramachandra</i>) Tribute to Britton Chance (<i>Tromberg</i>) 3D Optoacoustic Tomography (<i>Oraevsky</i>) New Developments in OCT for Ophthalmology (<i>Huang</i>) Fluorescence Lifetime Techniques for Intravascular Diagnostics (<i>Marcu</i>) Clinical Multiphoton Tomography (<i>Koenig</i>) Multiplex Biophotonic Platform for Analyzing Macromolecular Dynamics in Live Cells (<i>Prasad</i>) Controlling the Brain with Light (<i>Boyden</i>) Novel Uses of Femtosecond Laser Pulses in Biophotonics (<i>Mazur</i>) 		PROFESSIONAL DEVELOPMENT WORKSHOP: Hit-the-Target Laser Activity Workshop (Sparks) , 8:30 to 11:30 am, p. 31 A BiOS Student Networking Event: Lunch with the Experts , 12:30 to 1:30 pm, p. 32 Industry and Entrepreneurship for Beginners , 1:30 to 5:00 pm, p. 30 <ul style="list-style-type: none"> Can a Scientist Find a Rewarding Career in Industry? (<i>Giltner</i>) Innovation—Some Assembly Required (<i>Hargadon</i>) The Innovation Lifecycle—A Panel Discussion Practical Networking for Future Entrepreneurs (<i>Levine</i>)
Roundtable on Standards for Biophotonics , 5:00 to 6:00 pm, p. 18	Pascal Rol Award Announcement , Ophthalmic Technologies XXI (Conf. 7885)—5:00 to 5:10 pm, p. 19 Student Chapter Meeting , 5:30 to 7:00 pm, p. 32 PicoQuant Young Investigator Award , Single Molecule Spectroscopy and Imaging IV (Conf. 7905) 5:30 to 5:40 pm, p. 19 BiOS Interactive Poster Session , 5:30 to 7:00 pm, p. 18	

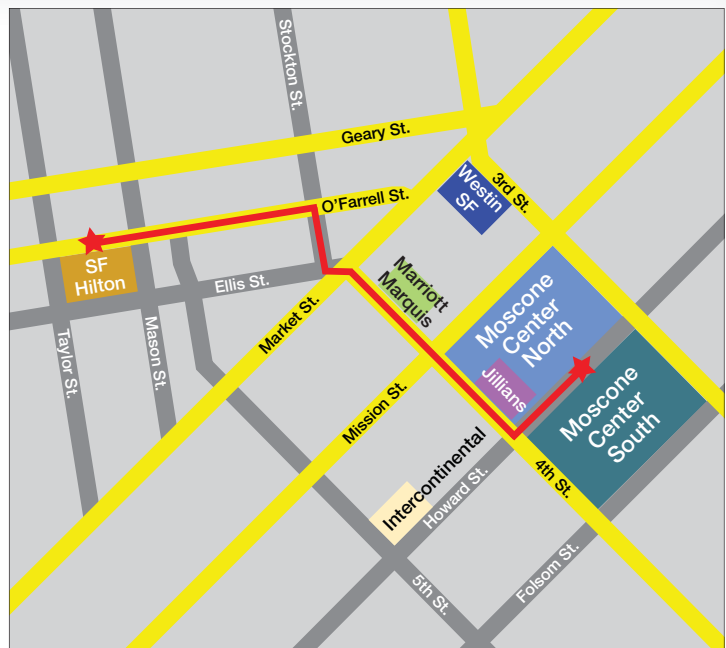


SPIE Photonics West Welcome Reception

Monday 24 January · 7:00 to 8:30 pm
 San Francisco Hilton Hotel,
 Golden Gate and Continental Ballrooms

“Teatro Photonica”

Enjoy a night of photonics-inspired theatrics, conversations with your colleagues, and food tasting with an Italian flair. Please remember to wear your conference registration badges. Dress is casual.



Special Events Daily Schedule

Tuesday	Wednesday	Thursday
25 January	26 January	27 January
 	<p>SPIE Photonics West Exhibition Walk the floor of the world's hottest photonics marketplace</p> <p>Exhibition Dates and Hours: Tuesday 25 January 10:00 am to 5:00 pm Wednesday 26 January . . . 10:00 am to 5:00 pm Thursday 27 January 10:00 am to 4:00 pm</p>	
<p>OPTO PLENARY SESSION, 8:00 to 10:10 am, p. 24</p> <ul style="list-style-type: none"> Welcome and Opening Remarks (<i>Chien</i>) Announcement of the Best 'Green Photonics' Paper Awards in OPTO (<i>Eglash</i>) Technology Challenge in E-Paper to Flexible Display Application (<i>Kim</i>) Nanoscopy with Focused Light (<i>Hell</i>) Metal Optics: The New Frontier (<i>Yablonovitch</i>) 	<p>Best Student Paper Competition and Ceremony, Frontiers in Ultrafast Optics: Biomedical, Scientific and Industrial Applications XI (Conf. 7925), p. 21 Competition and Award Ceremony, 8:00 to 10:00 am</p>	<p>INDUSTRY EVENT, p. 27</p> <ul style="list-style-type: none"> The Future of Photonics: a Forum to Gather Industry Input, 8:45 to 9:30 am
<p>INDUSTRY WORKSHOP: Valuation of Closely Held Technology Companies, Product Lines and Intellectual Property (<i>Smith</i>), 8:30 am to 12:30 pm, p. 29</p>	<p>INDUSTRY WORKSHOP: Basic Laser Technology (<i>Sukuta</i>), 8:30 am to 12:30 pm, p. 28</p>	<p>Best Oral Student Paper Competition and Ceremony, Fiber Lasers VII: Technology Systems, and Applications (Conf. 7914), p. 21 Award Ceremony, 5:40 to 5:50 pm</p>
<p>Maximizing Your Career Fair Experience, 10:00 to 11:00 am, p. 31</p>	<p>PROFESSIONAL DEVELOPMENT WORKSHOP: The Craft of Scientific Presentations: A Workshop on Technical Presentations (<i>Alley</i>), 8:30 am to 12:30 pm, p. 31</p>	
<p>A Student Networking Event: Lunch with the Experts, 12:30 to 1:30 pm, p. 34</p>	<p>LASE PLENARY SESSION, 10:20 am to 12:30 pm, p. 20</p> <ul style="list-style-type: none"> Welcome and Opening Remarks (Dorsch, Piqué) Announcement of the Best "Green Photonics" Paper Awards in LASE (Eglash) Of Light, Electronics, and Metamaterials (Engheta) Using Lasers in Particle-based Applications (Ostendorf) Advances in Lasers and their Impact on Industrial Applications (Denney) 	
<p>NANO/BIPHOTONICS PLENARY SESSION, 1:30 to 3:00 pm, p. 17</p> <ul style="list-style-type: none"> Optical biosensors and a perspective on the future (<i>Ligler</i>) Nanostructures for biological investigations (<i>Craighead</i>) 	<p>PROFESSIONAL DEVELOPMENT WORKSHOP: The Craft of Scientific Presentations: A Workshop on Technical Writing (<i>Alley</i>), 1:30 to 5:30 pm, p. 31</p>	
<p>INDUSTRY WORKSHOP: Smart Patenting (<i>Gortych</i>), 1:30 to 5:30 pm, p. 29</p>	<p>INDUSTRY WORKSHOP: Complying with the ITAR: A Case Study (<i>Scarlett</i>), 1:30 to 5:30 pm, p. 29</p>	
<p>Student Chapter Info Session, 1:45 to 2:30 pm, p. 34</p>	<p>INDUSTRY EVENT, p. 26-27</p> <ul style="list-style-type: none"> Executive Perspectives on the World of Optics and Photonics (<i>Hausken</i>) 2:00 to 3:00 pm Hot Markets in Green Photonics (<i>Eglash</i>) 3:30 to 4:30 pm 	
<p>INDUSTRY EVENT, p. 26</p> <ul style="list-style-type: none"> Silicon Photonics and Photonic Integrated Circuits (<i>Moderator: Hallett</i>), 2:00 to 3:00 pm 	<p>Ultrafast Networking Social, 5:00 to 7:00 pm, p. 37</p>	
<p>PANEL DISCUSSION: Getting Hired in 2011 and Beyond, 3:30 to 4:30 pm, p. 31</p>	<p>OPTO Interactive Poster Session, 6:00 to 7:30 pm, p. 25</p>	
<p>Photons Plus Ultrasound: Imaging and Sensing Best Oral and Poster Presentation Award (Conf. 7899), 5:45 pm, p. 19</p>	<p>Prism Awards Ceremony and Banquet, 6:30 to 10:30 pm, p. 36</p>	
<p>LASE Interactive Poster Session, 6:00 to 7:30 pm, p. 21</p>	<p>Student Event: "No Ties" Student Social, 8:00 to 11:00 pm, p. 37</p>	
<p>MOEMS-MEMS Interactive Poster Session, 6:00 to 7:30 pm, p. 23</p>	<div style="background-color: #00a09a; color: white; padding: 10px;"> <p>SPIE Career Center</p> <h2 style="margin: 0;">Job Fair</h2> <h3 style="margin: 0;">Two Days Only</h3> <p style="margin: 0;">North Hall Aisle 5600</p> <p style="margin: 0;">Employers are coming together to interview and hire candidates at Photonics West!</p> <p style="margin: 0;">Tuesday 25 January · 10:00 am to 5:00 pm Wednesday 26 January · 10:00 am to 5:00 pm</p> <p style="margin: 0;">spie.org/careercenter </p> </div>	
<p>PANEL DISCUSSION: Need for Standards for the Qualification of MEMS/MOEMS and Nanodevices for Use in Space: Present and Future Trends (<i>Shea</i>), 7:30 to 8:15 pm, p. 23</p>		
<p>TECHNICAL EVENT: Laser Communications (<i>Hemmati</i>), 7:30 to 9:00 pm, p. 21</p>		
<p>IBOS—International Biomedical Optics Society (<i>Barton, Wang</i>), 7:30 to 9:00 pm, p. 18</p>		
<p>TECHNICAL EVENT: Holography (<i>Bjelkhagen</i>), 7:30 to 9:00 pm, p. 25</p>		
<p>TECHNICAL EVENT: Workshop on The Nature of Light: What Are Photons? (<i>Prasad</i>), 7:30 to 9:00 pm, p. 25</p>		
<p>SPIE Member Reception, 8:00 to 9:30 pm, p. 34</p>		
<p>PANEL DISCUSSION: Progress and Prospects in Microfluidics (<i>Becker</i>) 8:00 to 10:00 pm, p. 23</p>		
<p>PANEL DISCUSSION: Does Space want MEMS? (<i>Noell</i>), 8:15 to 9:00 pm, p. 23</p>		



BiOS

SPIE Photonics West

HOT TOPICS

Saturday 22 January | 7:00 to 9:00 pm | Room 134 (Exhibit Level)

Hear the latest technical breakthroughs and directions from leading worldwide experts. Access to the Hot Topics and the Nano/Biophotonics plenaries is included with your registration.

7:00 to 7:10 pm

Welcome and Introduction



James Fujimoto
Massachusetts Institute of Technology (USA)
BiOS 2011 Symposium Chair



R. Rox Anderson M.D.*
Wellman Ctr. for Photomedicine, Massachusetts General Hospital (USA) and Harvard School of Medicine (USA)
BiOS 2011 Symposium Chair



7:10 to 7:30 pm

Tribute to Michael Feld: Sensing Glucose by Spectroscopy and Imaging Cells by Tomography

Dasari Rao Ramachandra
Massachusetts Institute of Technology (USA)

7:30 to 7:40 pm

Tribute to Britton Chance

(1913–2010)



Bruce J. Tromberg
Univ. of California/Irvine (USA)



Arjun G. Yodh
Univ. of Pennsylvania (USA)



7:40 to 7:45 pm

Hot Topics Moderator

Sergio Fantini
Tufts Univ. (USA)



7:45 to 7:55 pm

3-D Optoacoustic Tomography

Alexander Oraevsky
TomoWave Laboratories, Inc. (USA)



7:55 to 8:05 pm

New Developments in OCT for Ophthalmology

David Huang
Casey Eye Institute (USA)



8:05 to 8:15 pm

Fluorescence Lifetime Techniques for Intravascular Diagnostics

Laura Marcu
Univ. of California/Davis (USA)



8:15 to 8:25 pm

Clinical Multiphoton Tomography

Karsten Koenig
Saarland Univ. and JenLab GmbH(Germany)



8:25 to 8:35 pm

Multiplex Biophotonic Platform for Analyzing Macromolecular Dynamics in Live Cells

Paras Prasad
Univ. of Buffalo. (USA)



8:35 to 8:45 pm

Controlling the Brain with Light

Ed Boyden
Massachusetts Institute of Technology (USA)



8:45 to 8:55 pm

Novel Uses of Femtosecond Laser Pulses in Biophotonics

Eric Mazur
Harvard Univ. (USA)

**R. Rox Anderson will be unable to attend due to an ongoing medical mission in Vietnam.*

NANO/BIOPHOTONICS PROGRAM TRACK PLENARY SESSION

Tuesday 25 January | 1:30 to 3:00 pm | Room 306 (Esplanade)

Session Chair: **Dan Nicolau**, Univ. of Liverpool (United Kingdom)

1:30 to 2:15 pm

Optical biosensors and a perspective on the future



Frances S. Ligler

Center for Bio/Molecular Science & Engineering,
Naval Research Lab.

Optical biosensors are moving from the laboratory to the point of use. New concepts for molecular recognition, nanostructured materials, integration of microfluidics and optics, simplified fabrication technologies, systems integration concepts, and public concerns drive this movement. These factors are discussed and examples of innovations are identified that will lead to smaller, faster, cheaper optical biosensors with capacity to provide effective and actionable information. Research on NRL biosensors will be described to illustrate the process of biosensor systems development.

Frances S. Ligler is the Navy's Senior Scientist for Biosensors and Biomaterials, an SPIE Fellow, and a member of the Bioengineering Section of the National Academy of Engineering. She earned a B.S. from Furman University and both a D.Phil. and a D.Sc. from Oxford University. Currently working in the fields of biosensors and microfluidics, she has also performed research in biochemistry, immunology, and proteomics. She has over 300 full-length publications and patents, which have been cited over 6700 times and generated an H-index of 45. She is the winner of the Navy Superior Civilian Service Medal, the National Drug Control Policy Technology Transfer Award, the Chemical Society Hillebrand Award, Navy Merit Award, NRL Technology Transfer Award, three NRL Edison Awards for Patent of the Year, the Furman University Bell Tower and Distinguished Alumni of the 20th Century Awards, and the national Women in Science and Engineering (WISE) Outstanding Achievement in Science Award. She serves as an Associate Editor of Analytical Chemistry and a regional editor for North and South America for Biosensors & Bioelectronics. She is the American representative on the organizing committees for the International Biosensors Congress and Europt(r)odes, the European Conference on Optical Sensors. In 2003, she was awarded the Homeland Security Award (Biological, Radiological, Nuclear Field) by the Christopher Columbus Foundation and the Presidential Rank of Distinguished Senior Professional by President Bush.

2:15 to 3:00 pm

Nanostructures for biological investigations



Harold G. Craighead

School of Applied & Engineering Physics, Cornell Univ.

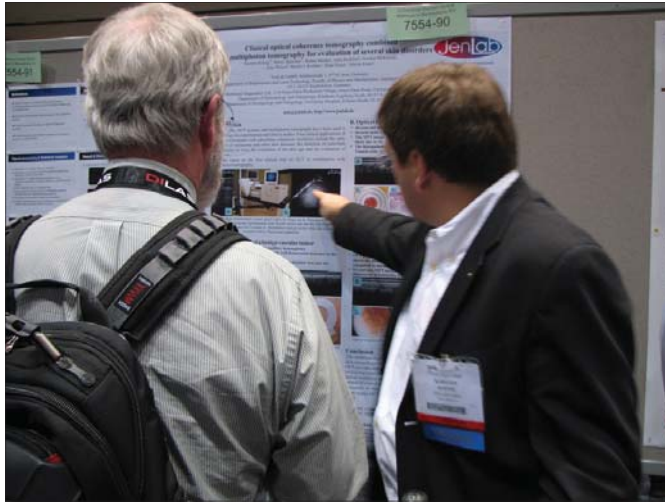
For some time we have been exploring a new paradigm of molecular analysis based on isolation, control and interrogation of many individual molecules. With this approach one can consider analyzing small amounts of materials such as that from a few selected cells, and one can also obtain information that would be lost in ensemble averages. We have explored a variety of lithographic and non-lithographic methods to engineer nanostructures for integration into optical systems for the exploration of new approaches for biomolecular analysis. We have studied, for example, the use of fluidic nanostructures for manipulating the confirmation and position of DNA molecules and for isolating individual nucleic acid fragments for optical detection. This allows us to explore the biophysical processes that influence the biopolymer motion in confined geometries, and to exploit these effects in devices may provide more rapid analysis. One target for the molecular isolation has been sequence and genetic information, but we also have been targeting individual chromatin fragments for epigenetic analysis. By identification of one or more labeled epigenetic marks on individual chromatin fragments we are quantifying the occurrence of epigenetic features. In addition to identification and quantification of the presence of labeled marks, we are attempting to automatically sort and recover selected nucleic acid fragments for subsequent analysis.

Harold Craighead received his Bachelor of Science Degree in Physics, with High Honors, from the University of Maryland, College Park in 1974. He received his Ph.D. in Physics from Cornell University in 1980. His thesis work involved an experimental study of the optical properties and solar energy applications of metal nanoparticle composites. From 1979 until 1984 he was a Member of Technical Staff in the Device Physics Research Department at Bell Laboratories. In 1984 he joined Bellcore where he formed and managed the Quantum Structures research group. Dr. Craighead joined the faculty of Cornell University as a Professor in the School of Applied and Engineering Physics in 1989. From 1989 until 1995 he was Director of the National Nanofabrication Facility at Cornell University. Dr. Craighead was Director of the School of Applied and Engineering Physics from 1998 to 2000 and the founding Director of the Nanobiotechnology Center from 2000 to 2001. He served as Interim Dean of the College of Engineering from 2001 to 2002 after which he returned to the Nanobiotechnology Center as Director. He has been a pioneer in nanofabrication methods and the application of engineered nanosystems for research and device applications. Dr. Craighead's recent research activity includes the use of nanofabricated devices for biological and biomedical applications. His research continues to involve the study and development of new methods for nanostructure formation, integrated fluidic/optical devices, nanoelectromechanical systems and single molecule analysis.

BiOS Special Events

BiOS Interactive Poster Sessions

Sunday 23 January and Monday 24 January
5:30 to 7:00 pm | Room 103/104 (Exhibit Level)



Conference attendees are invited to attend the BiOS poster sessions on Sunday and Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors will be able to set up their posters between 10 am and 5 pm of their respective session, and poster presentation. See p. 370 for set-up instructions.

Roundtable on Standards for Biophotonics

Saturday 22 January
5:00 to 6:00 pm | Room 113 (Exhibit Level)

The next step in bringing Biophotonics into widespread clinical practice is to present a unified front to the clinical community, in which a standard set of nomenclature, dosimetry, calibration and performance evaluations are established for the variety of optical methods and techniques which our field is developing. Such standardization was a key step for the movement of radiation therapy into widespread clinical practice. Our community needs to discuss this next move.

To kick off the Roundtable, three short perspectives (7 min each) will be presented by:

Brian Wilson, Univ. of Toronto

Gary Tearney, Massachusetts General Hospital,
Harvard Medical School

Steven Jacques, Oregon Health and Science University

After the presentations, the Roundtable will involve the audience in discussing the topic. Please attend. This effort needs your input.

IBOS – International Biomedical Optics Society

Tuesday 25 January
7:30 to 9:00 pm InterContinental Hotel, Cathedral Hill Room

Chairs: **Jennifer K. Barton**, The Univ. of Arizona (USA);

Lihong V. Wang, Washington Univ. in St. Louis (USA)

Biomedical optics is a major growth area in modern medicine. The International Biomedical Optics Society is a nonprofit interdisciplinary group that provides a unique channel for communications among physicians and clinicians employing optics in medicine and the scientists and engineers who provide foundations for advancements in this field.

The BiOS symposium, where IBOS meets, is the premier annual international forum for discussions and announcements of technical/clinical and educational/pedagogical developments in the use of lasers, optical fibers, spectroscopic diagnostic techniques, and related areas of optical medicine.

The 2011 IBOS meeting will feature a tutorial by renowned expert Bruce Tromberg, Ph.D., The University of California, Irvine (USA), speaking on "Imaging physiology and metabolism with diffuse optics".

All registered conference participants are encouraged to attend this evening session. Attendees are requested to wear their conference badges.

Biophotonics Start-up Challenge

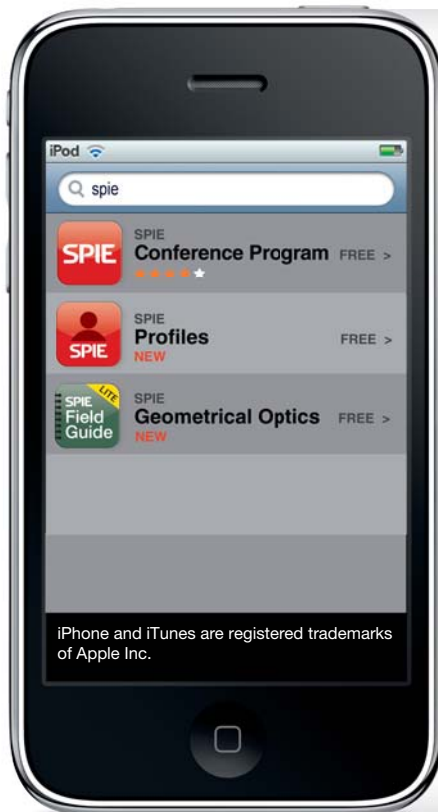
Monday 24 January
4:30 to 5:30 pm | Room 110

Does your research project have commercial potential? Can you convince others?

SPIE is pleased to host the first Biophotonics Start-up Challenge at Photonics West.

Interested in entrepreneurial opportunities in the high tech field? Come to this event to hear research projects that have real commercial potential. This rapid-fire event will feature start-up pitches from students and young professionals as they compete to take their ideas to the next level. Vote for your favorite start-up proposal via text messaging.

The top three winners of the Start-up challenge will be sponsored to attend the UC-Davis Biomedical Engineering Entrepreneurship Academy courtesy of Newport. This 5-day academy will help winners construct a business case, analyze markets, and develop a network of connections to help drive their new venture.



Free SPIE Apps for iPhone®

Conference Program

Create your schedule—search and browse the Technical Program and special events, participants, and exhibitors.

Profiles

Make valuable personal connections—find and contact colleagues based on SPIE research publications, conference involvement, and courses taught.

Geometrical Optics Field Guide Lite

Take Field Guides to a new level—access and use equations, linked terms, bookmarks, and interactive figures, and take notes.

Available from iTunes® and at spie.org/mobile



PicoQuant Young Investigator Award

Single Molecule Spectroscopy and Imaging IV (Conf. 7905)

Sunday 23 January

5:30 to 5:40 pm

Room 310 (Esplanade)

We are pleased to announce that a prize in the amount of US\$750.00 will be awarded to the best oral presentation by a presenter under the age of 35 within Conference 7905: Single Molecule Spectroscopy and Imaging IV. The prize money has been donated by PicoQuant GmbH Berlin, Germany.

Prize donated by



Pascal Rol Award 2011

Ophthalmic Technologies XXI (Conf. 7885)

Sunday 23 January

5:00 to 5:10 pm | Room 306

(Esplanade)

Outstanding extended abstracts submitted to the Ophthalmic Technologies XXI conference will be nominated for the Pascal Rol Award for Best Paper in Ophthalmic Technologies. The award and prize will be presented after the last scientific session of the conference to recognize the best paper and presentation. The 2010 recipient of the Pascal Rol Award was Dr. Daniel X. Hammer and his colleagues from Physical Sciences Inc. (see www.pascalrolfoundation.org).

The Pascal Rol Award will be given to the Best Paper in Ophthalmic Technologies.

Award Sponsor



Topcon Advanced Biomedical Imaging Laboratory, through the Pascal Rol Foundation

Ocean Optics Young Investigator Award

Colloidal Quantum Dots/
Nanocrystals for Biomedical
Applications VI (Conf. 7909)

Monday 24 January

1:20 to 1:30 pm | Room 232

(Mezzanine)

Ocean Optics Young Investigator Award will be given for the best paper presented by a leading author who is either a graduate student or has graduated within less than five years of the paper submission date. The award consists of a \$1,000 cash prize to the Young Investigator and \$1,000 Ocean Optics equipment credit to the laboratory where the work was performed.

Prize donated by



Photons Plus Ultrasound: Imaging and Sensing Best Oral and Poster Presentation Award

Photons Plus Ultrasound: Imaging and Sensing 2011 (Conf. 7899)

Tuesday 25 January

5:45 to 6:00 pm | Room 305

(Esplanade)

Session Chairs: **Alexander A. Oraevsky**, TomoWave Labs., Inc.; **Lihong V. Wang**, Washington Univ. in St. Louis

Fairway Medical Technologies of Houston, Texas, will sponsor two Awards for this Conference: Best Paper and Best Poster presented

Sponsored by



Yes! High Voltage! VMI CalRamic

Diodes



Power Supplies

Opto-couplers



Multipliers



Voltage Multipliers, Inc.

559.651.1402

www.VoltageMultipliers.com

Booth 4325

Capacitors



CALRAMIC
TECHNOLOGIES LLC

www.CalRamic.com
775.851.3580

LASE Special Events



LASE PLENARY SESSION

Wednesday 26 January | 10:20 am to 12:30 pm | Room 134 (Exhibit Level)

10:20 to 10:25 am

Welcome and Opening Remarks

Session Chairs:



Friedhelm Dorsch
TRUMPF GmbH & Co.
KG (Germany);



Alberto Piqué
U.S. Naval Research
Lab. (USA)

10:25 to 10:30 am



Announcement of the Best Green Photonics Paper Awards in LASE

Stephen J. Eglash
Precourt Institute for Energy, Stanford Univ. (USA)

10:30 to 11:10 am



Of Light, Electrons, and Metamaterials

Nader Engheta
Univ. of Pennsylvania (USA)

Metamaterials are engineered composite media formed by collections of properly designed subwavelength elements and inclusions. Owing to the ability to tailor their material parameters to desired values, metamaterials may manipulate and control microwave, THz, IR and optical signals at various length scales. When we merge the concept of extreme-parameter metamaterials with the fields of nanooptics and nanoelectronics, various interesting possibilities may arise. These include metamaterial-inspired optical nanocircuitry ("metatronics"), graphene-based metamaterials and transformation optics and electronics for taming and routing photons and electrons on 'flatland' structures, supercoupling in narrow channels, and control of one-way flow of photons and electrons in desired directions. In this talk, I review these concepts and forecast future possibilities and directions.

Nader Engheta is the H. Nedwill Ramsey Professor of Electrical and Systems Engineering and Professor of Bioengineering at the University of Pennsylvania. He received his Ph.D. from Caltech. Selected as one of the Scientific American magazine 50 Leaders in Science and Technology in 2006, he is a Guggenheim Fellow, an IEEE Third Millennium Medalist, Fellow of IEEE, OSA, APS, and AAAS, and the recipient of the 2008 George H. Heilmeyer Award for Excellence in Research, Fulbright Naples Chair Award, NSF Presidential Young Investigator award, and several teaching awards.

11:10 to 11:50 am



Using Lasers in Particle-based Applications

Andreas Ostendorf (pictured), **Reza Ghadiri**, **Mario Surbek**, **M'Barek Chakif**, Ruhr-Univ. Bochum (Germany); **Stephan Barcikowski**, Laser Zentrum Hannover e.V. (Germany); **Cemal Esen**, Thomas Weigel, Ruhr-Univ. Bochum (Germany)

Particles can exhibit interesting effects when illuminated by laser irradiation. Depending on the size, refractive index and the used wavelength high-quality optical resonances can occur making dielectric particles an interesting probe in many sensor applications. Also, a set of particles can be trapped and manipulated by tightly focused laser beams. It will be shown how this technology can be used in a new all-optical assembly line for microstructures when joining the particles e.g. by chemical and thermal processes. Finally, laser pulses are capable of generating nanoparticles with unique properties. Size, constitution and functionality can be tailored by choosing the right laser parameters.

Andreas Ostendorf studied EE at University Hannover, Germany. He received his PhD in 2000 at the Laser Zentrum Hannover (LZH). In the following he was appointed CEO and Board Member of LZH. In 2008 he became full professor at Ruhr-University Bochum where he holds the Chair of Laser Applications Technology. Dr. Ostendorf is Fellow of SPIE and LIA (Laser Institute of America).

11:50 am to 12:30 pm



Advances in Lasers and Their Impact on Industrial Applications

Paul E. Denney
Connecticut Ctr. for Advanced Technology, Inc. (USA)

Industries have accepted lasers for a number of applications over the past twenty plus years. Laser cutting, drilling, additive manufacturing, marking, scribing/etching, and welding have been accepted as common practices by industries ranging from electronics to automotive. These applications primarily utilized carbon dioxide (CO₂) and Nd:YAG lasers which had become "mature". With development of direct diode, fiber, and disk based laser technologies, the type of lasers for industrial applications are again in flux. These new laser technologies offer economic and technical advantages over the traditional industrial lasers resulting in replacement of older system, expansion in applications for economic or technical reasons, and development of new applications. The presentation will concentrate on how the differences in the new laser technologies are impacting industrial applications and will give some examples.

Paul Denney is an Application Engineer at Lincoln Electric. He has over 28 years in laser materials processing previously working at the CCAT, EWI, ARL Penn State, Westinghouse Electric R & D Center, and the Naval Research Laboratory. Mr. Denney has his BS and MS in metallurgy from MIT. He is a Fellow Member of LIA and a member of ASM and AWS. He is a co-inventor on 14 laser related patents.

LASE Interactive Poster Session

Tuesday 25 January
6:00 to 7:30 pm | Room 103/104 (Exhibit Level)



Conference attendees are invited to attend the LASE poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on p. 370.

TECHNICAL EVENT

Laser Communications

Tuesday 25 January
7:30 to 9:00 pm | InterContinental Hotel, Nob Hill Room

Session Chair: **Hamid Hemmati**, Jet Propulsion Lab. (United States)

This technical event on Laser Communications will hold its annual meeting in conjunction with the Free-Space Laser Communication Technologies XXIII and Atmospheric and Oceanic Propagation of Electromagnetic Waves V conferences. All professionals involved in theory and applications of free-space, atmospheric and oceanic laser communications, remote sensing and supporting technologies are invited to participate in an open discussion on a variety of topics related to the challenges and advancement of the field. Attendees are invited to bring suggestions for discussion topics.

Best Student Paper Competition

Frontiers in Ultrafast Optics: Biomedical, Scientific and Industrial Applications XI (Conf. 7925)

Wednesday 26 January

Competition and Award Ceremony · 8:00 to 10:00 am
Room 121 (Exhibit Level)

For conference 7925: Frontiers in Ultrafast Optics: Biomedical, Scientific and Industrial Applications XI, we are pleased to announce that a cash prize will be awarded to the best student presentation in this conference (both poster and oral papers considered).

Papers submitted by **graduate and undergraduate** students are eligible. In order to ensure a fair evaluation, the conference chairs and the program committee will judge the students during a special student competition session held during the conference. Here the students present a brief **5 minute summary** of their original talk or poster presented at the conference.

Following the student competition, the judges will meet and decide on the winner. The winner and runner-up will be announced at the end of this session and awarded a **cash prize**.

Best Oral Student Paper Competition

Fiber Lasers VII: Technology, Systems, and Applications (Conf. 7914)

Thursday 27 January

Award Ceremony · 5:40 to 5:50 pm
Room 131 (Exhibit Level)

For conference 7914: Fiber Lasers VIII: Technology, Systems, and Applications, we are pleased to announce that a prize in the amount of **\$1,000 U.S. will be awarded** to the best student oral presentation in the conference.

Qualifying student presentations will be evaluated by a conference steering committee, led by the 2010 student prize winner, Steffen Hädrich. Student presentations will judge based on scientific merit, impact, and clarity of the presentation (not the manuscript). While the award is not judged by the manuscript, a manuscript must be submitted.

To be eligible for consideration, a student must be listed as an author on an accepted paper, must have conducted the majority of the work being presented, and must make the oral presentation.

Award Sponsors:



MOEMS-MEMS Special Events



MOEMS- MEMS

SPIE Photonics West

MOEMS-MEMS PLENARY SESSION

Monday 24 January | 9:00 am to 12:00 pm | Room 132/133 (Exhibit Level)

9:00 to 9:05 am

Welcome and Opening Remarks



Thomas J. Suleski
Univ. of North Carolina
at Charlotte (USA)



Harald Schenk
Fraunhofer Institute
for Photonic
Microsystems
(Germany)

9:05 to 9:10 am



Announcement of the Best Green Photonics Paper Awards in MOEMS-MEMS

Stephen J. Eglash
Precourt Institute for Energy, Stanford Univ. (USA)

9:10 to 10:00 am



Microsystem Pathways to a Greener World

Amit Lal
Cornell Univ. (USA)

MEMS and Microsystems technologies have traditionally aimed at providing greater functionality for integrated electronics with sensing and actuation. This level of integration provides small systems that can save lives and help prevent disasters, and even help sustain environment, via small wireless sensor nodes. If all of these sensor nodes are powered by batteries, the proliferation of batteries and sensor nodes may not be a sustainable technology. This talk will present advances in MEMS based power sources that may lead to greener power sources. Micro power harvesters can harness power from vibration, radioisotopes, light, sound, and biology may provide pathways to minimize or even eliminate batteries in sensor nodes.

Amit Lal (BSEE Caltech 1990, Ph.D. UC Berkeley 1996) is an associate professor at Cornell University, in the School of Electrical and Computer Engineering. Most recently, he served as a Program Manager at DARPA in the Microsystems Technology Office, from 2005-2009. He has published ~150 papers and 17 patents.

10:00 to 10:20 am · Coffee Break

10:20 to 11:10 am



Lateral Spread of MEMS WDM Technologies

Hiroshi Toshiyoshi
Research Ctr. for Advanced Science and Technology
(RCAST), The Univ. of Tokyo (Japan)

Optical MEMS technologies originally developed for the WDM system have found a wide range of lateral spreading applications. For instance, we have constructed a novel power-over-fiber type OCT endoscope by using two different wavelengths for powering an electrostatic MEMS scanner and for optical probing; this work is on the extension of a MEMS variable optical attenuator. Another example is a Fabry-Perot interferometer for wavelength filtering that has been redirected to a new use of a tunable color pixel developed in a plastic sheet of large area. We will look into the diverging potential of microelectromechanical modulation in optics.

Hiroshi Toshiyoshi received Ph.D. degree in EE from the University of Tokyo (U-Tokyo) in 1996, after which he joined the Institute of Industrial Science of U-Tokyo as an Assistant Professor. Since 2009, he is a Professor with Research Center for Advanced Science & Technology of U-Tokyo, where he conducts Optical MEMS projects.

11:10 am to 12:00 pm



What I Have Learned from Playing with Toys about the Physics of Living Cells

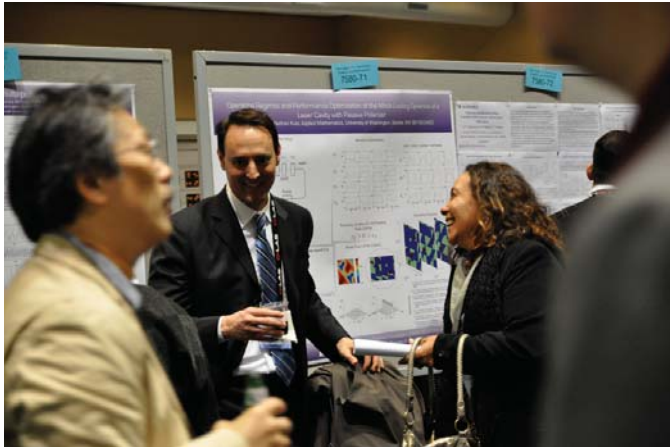
Robert H. Austin
Princeton Univ. (USA) and Hong Kong Univ. of Technology
(Hong Kong, China)

Yogi Berra noted that you can observe a lot by just watching. I have learned that you can also learn a lot about the physics of cells by playing with toys and applying those lessons to micro/nanofabrication. I'll discuss how playing with Rubber Duckies played a role in connecting Maxwell's Demon to how bacteria move through structures, and from there to how cells evolve resistance to drugs rapidly.

Robert H. Austin, PhD, is a Professor in the Department of Physics, Princeton University. He received a PhD Physics in 1975 from The University of Illinois Urbana-Champaign studying under Prof. Hans Frauenfelder. Dr Austin trained with Dr Thomas Jovin and Prof. Manfred Eigen as a Postdoctoral Fellow at the Max Planck Institute for Biophysical Chemistry in Goettingen, Germany from 1976-1979. He joined in 1979 the faculty at Princeton University, where he is now a Professor of Physics. He is a member of the National Academy of Sciences and the American Academy of Arts and Sciences.

MOEMS-MEMS Interactive Poster Session

Tuesday 25 January
6:00 to 7:30 pm | Room 103/104 (Exhibit Level)



Conference attendees are invited to attend the MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on p. 370.

PANEL DISCUSSION

Need for Standards for the Qualification of MEMS/MOEMS and Nanodevices for Use in Space: Present and Future Trends

Tuesday 25 January
7:30 to 8:15 pm | InterContinental Hotel, Sutter Room

In order to accelerate the introduction of MEMS/MOEMS and nanodevices in space missions, sufficient reliability data should be available in order to prove that these micro- nano-devices can be space qualified. However, lack of space heritage of such microsystems makes this task hard to achieve. In this panel, panelists representing different space agencies will discuss the current issues associated with MEMS/MOEMS qualification for space applications as well as the need for standardization.

Moderator:

Herbert R. Shea, Ecole Polytechnique Fédérale de Lausanne (Switzerland)

Panelists:

Dr. Alex Dommann, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland)

Dr. Paul Bierden, Boston Micromachines Corp. (USA)

Dr. Alan Scott, ComDEV (Canada)

Light Refreshments Sponsored By:



PANEL DISCUSSION

Progress and Prospects in Microfluidics

Tuesday 25 January
8:00 to 10:00 pm | InterContinental Hotel, Telegraph Hill Room
Moderator: **Holger Becker**, microfluidic ChipShop GmbH (Germany)

8:00 pm: Student Paper Award Ceremony

Award Sponsored By:



8:10 pm: Panel Discussion

In the past decade, microfluidics has rapidly emerged and become main stream. Some of the microfluidic products have become commercially available with many more to come in the near future. Most microfluidic devices today are made of glass and polymer materials. The main reason for this trend is that the biomedical researchers and analytical chemists have been using these materials for many years and accumulated enough know-how and knowledge. As a matter of fact, this rapid development of microfluidics has been driven by compelling applications in analytical chemistry and biomedical sciences, with enormous potential in developing new technologies and reducing costs. Recent years have seen a number of microfluidic chips brought to market, including those by Agilent and Fluidigm. One of the markets with is promising high potentials for the use of microfluidics is the diagnostics market, especially in the field of point-of-care and molecular diagnostics. This panel discussion will provide an overview of microfluidic applications and technologies for the use in diagnostics, outlining trends and possible obstacles.

PANEL DISCUSSION

Does Space want MEMS?

Tuesday 25 January
8:15 to 9:00 pm | InterContinental Hotel, Sutter Room

One of the benefits of MEMS is the added functionality within a given volume. Although MEMS and nanodevices are very small, all of the periphery to drive and control them might be large. So the total system is maybe not that much smaller than alternative systems. What are other advantages that justify the investments to bring MEMS into space? In this Panel, both supporters and skeptics will be brought together to answer the question: Does space want/need MEMS?

Moderator:

Wilfried Noell, Ecole Polytechnique Fédérale de Lausanne (Switzerland)

Panelists:

Dr. Henry Helvajian, The Aerospace Corp. (USA)

Dr. Tor-Arne Gronland, Nanospace (Sweden)

Dr. Volker Gass, RUAG Space (Switzerland)

Dr. Benedikt Guldemann, ESA (Netherlands)

Dr. Milind Primpikar, CANEUS International (Canada)

Light Refreshments Sponsored By:





OPTO PLENARY SESSION

Tuesday 25 January | 8:00 to 10:10 am | Room 134 (Exhibit Level)

8:00 to 8:05 am

Welcome and Opening Remarks



Liang-Chy Chien
Kent State Univ. (USA)



Klaus P. Streubel
OSRAM GmbH
(Germany)

8:05 to 8:10 am



Announcement of the Best Green Photonics Paper Awards in OPTO

Stephen J. Eglash
Precourt Institute for Energy, Stanford Univ. (USA)

8:10 to 8:50 am



Technology Challenge in E-Paper to Flexible Display Application

Chang-Dong Kim
LG Display R&D Ctr. (Republic of Korea)

E-paper displays have been attractive since the launch of e-book applications because of the unique properties as of paper-like looks, extremely low power consumption, and easy flexible application. In this presentation, the market outlook for e-paper and the technologies for e-paper applications will be reviewed. Specific technical issues like flexible substrates, device, color, optical properties, and large size extension for flexible e-paper will also be described. Finally, the current technology status of LGD in e-paper and flexible display development will be presented.

Chang-Dong Kim received his B.S. and M.S. degrees in Materials Science & Engineering from Korea University, Seoul, Korea in 1985 and 1988, respectively. He also received his Ph.D. degree in Physical Electronics from Tokyo Institute of Technology, Japan, in 1996. He is currently the Vice President of LG Display R&D Center and leading the department of New Devices with specific regards to advanced TFT device, e-paper, flexible OLED, and new future displays.

8:50 to 9:30 am



Nanoscopy with Focused Light

Stefan W. Hell
Max Planck Institute for Biophysical Chemistry
(Germany)

For a long while, to apply microscopy with focused light meant that details smaller than half the wavelength of light (200 nm) could not be resolved. Today it is known that using conventional optics it is possible to image at least fluorescent samples with a level of detail far below the diffraction limit. Stimulated Emission Depletion (STED) microscopy and newer far-field optical approaches can provide resolutions better than 20 nm, and in principle are able to resolve molecular detail. Thus far-field optical nanoscopy ushers in non-invasive access to the nanoscale of the living cell.

Stefan W. Hell is a director at the Max Planck Institute for Biophysical Chemistry in Göttingen and also leads a research division at DKFZ in Heidelberg. He is credited with having conceived, validated and applied the first viable concept for breaking Abbe's diffraction-limited resolution barrier in a light-focusing microscope.

9:30 to 10:10 am



Metal Optics: The New Frontier

Eli Yablonovitch
Univ. of California, Berkeley (USA)

There are two conflicting narratives of Electromagnetics in metals:

1. The microwave circuit narrative in which metals, distributed capacitors, and distributed inductors function together in a high frequency circuit, albeit as distributed components. Here there is a rich tradition of various electromagnetic functions, including the antenna function.
2. This is countered by the optical-plasmonic narrative, in which metallic electromagnetics is thought to be dominated by plasmons, electromagnetic normal modes in which the inertia of the electrons plays a major role.

In resolving the conflict, the most exciting new opportunities arise from optical antennas, which are well-poised to change the rules of optical physics.

Eli Yablonovitch is at the Electrical Engineering and Computer Sciences at Univ of California, Berkeley, where he is the Nortel Distinguished Professor. Dr. Yablonovitch is regarded as one of the Fathers of the Photonic BandGap concept, and he coined the term "Photonic Crystal." In his photovoltaic research, Yablonovitch introduced the 4n² light-trapping factor that is used commercially in almost all high performance solar cells.

TECHNICAL EVENT

Holography

Tuesday 25 January
7:30 to 9:00 pm | InterContinental Hotel, Ballroom B

Session Chair: **Hans I. Bjelkhagen**, Glyndwr Univ. (United Kingdom) and Technium OpTIC (United Kingdom)

The Holography Technical Group is involved with the whole record of research, engineering, recording materials, and applications of holography. The main fields of interest are display holograms, commercial and artistic, holographic optical elements (HOEs), holographic interferometry and holographic non-destructive testing (HNNT), computer-generated holography (CGH), electro and digital holography, holographic microscopy, and holographic data storage (HDS). This meeting will focus on recent developments and directions, in particular, in regard to new materials, color display holography, digital holography, CGHs and HOEs.

WORKSHOP

The Nature of Light: What Are Photons?

Tuesday 25 January
7:30 to 9:00 pm | InterContinental Hotel, Ballroom A

Session Chair: **Narasimha S. Prasad**, NASA Langley Research Ctr. (USA)

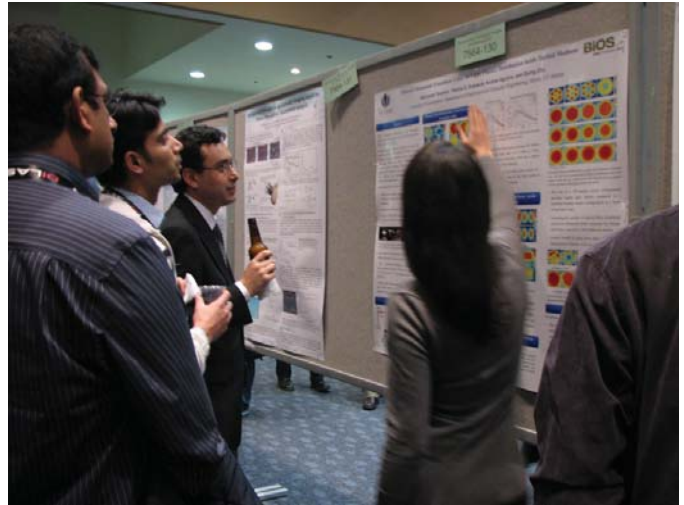
SPIE has been holding a very successful conference series, "The nature of light: What are photons?" [Vol. 5866 (2005), 6664 (2007) and 7421 (2009)] led by Prof. Chandrasekhar (Chandra) Roychoudhuri, at the SPIE Optics + Photonics Symposium (San Diego) to promote a deeper understanding of the nature of light based on light-matter interaction process mapping. The purpose of this workshop is to stimulate the engineers to explore the nature of light much deeper so the new knowledge can open up new fountains of engineering innovations guided by our capacity to emulate light-matter interaction processes, hitherto not explored.

Theories of physics have been evolving for centuries based on a methodology of thinking (epistemology) that can be characterized as Measurable Data Modeling Epistemology or MDM-E, effectively a "curve fitting" technique. In fact quantum epistemology categorically tells us not to waste time trying to visualize (or try to map) what the detailed interaction processes the photons and detectors undergo to make detectable transformation become manifest in our instruments. So, we are proposing that engineers independently need to promote their own epistemology for research, Interaction Process Mapping Epistemology, or IPM-E. IPM-E will help accelerate the rate of new technology innovations through emulation of nature's interaction processes.

The speaker, Chandra Roychoudhuri, will lead the discussions preceded by his talk on IPM-E that will guide us to easily identify a series of untenable concepts in optical sciences that we have been carrying on supported by current mathematical formulations, which pay attention only to model the measurable data rather than guiding us to understand and visualize the invisible interaction processes that give rise to the data. Under MDM-E, for centuries we have ignored the obvious NIW-principle of nature - Non-Interaction of Waves in the linear domain. Superposition effects due to many waves become manifest as some measurable transformation only when a suitable detector is placed inside the volume of superposition and, provided the quantum properties of this detector allow it to respond simultaneously to all the waves present. There is no "interference of waves", or spatial or temporal redistribution of field energies by the waves alone! This NIW-principle in optical physics helps us imagine a level deeper into the light-matter interaction processes, which then facilitates newer engineering innovations besides freeing our mind from the clutter of three hundred year of wave-particle controversy - light beams always consist of divisible but non-interacting wave packets and detectors are always quantized!

OPTO Interactive Poster Session

Wednesday 26 January
6:00 to 7:30 pm | Room 103/104 (Exhibit Level)



Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors: view poster presentation guidelines and set-up instructions on page 370.

Photonics West maps:

Moscone Center Maps pp. 2-4
Walking Map p. 14



Industry Events

Don't miss these
FREE Sessions

Hear from industry leaders on some of the biggest challenges and most promising areas of the optics and photonics marketplace. Understand market trends and lessons learned.

Open to All Attendees

EXHIBITION VISITORS, EXHIBITORS, AND TECHNICAL
CONFERENCE ATTENDEES

Silicon Photonics and Photonic Integrated Circuits

Tuesday 25 January
2:00 to 3:00 pm | Room: 130 (Exhibit Level)

Panel Moderator:
Peter Hallett, SPIE

Panel Members:

IBM ZÜRICH RESEARCH LAB.
Bert-Jan Offrein, Science and Technology Group

ORACLE/SUN LABS.
Ashok Krishnamoorthy, Distinguished Engineer

LUXTERA
Peter De Dobbelaere, Vice President of Engineering

ONECHIP PHOTONICS
Andy Weirich, Vice President of Product Line
Management

UNIV. OF WASHINGTON
Michael Hochberg, Professor, Electrical Engineering

INFINERA
Radha Nagarajan, Director of Advanced Optical Technologies

Demand for smaller and cheaper optical interconnections inside computers is a main driver for silicon photonics, which will create a new market of miniaturized, low-cost photonic components that can leverage the scale of CMOS manufacturing. Learn what industry leaders have discovered at the frontier of silicon photonics and hear how this will revolutionize industries from computing and communication, to biomedicine and imaging.

Executive Perspectives on the World of Optics and Photonics

Wednesday 26 January
2:00 to 3:00 pm | Room: 130 (Exhibit Level)

Panel Moderator:
Tom Hausken, Director, Components Practice at Strategies Unlimited

Panel Members:

HAMAMATSU CORP.
Kenneth Kaufmann, Vice President

TRUMPF INC.
Timothy Morris, Managing Director

CVI MELLES GRIOT
Stuart Schoenmann, President and CEO

EDMUND OPTICS INC.
Robert Edmund, CEO and Chairman of the Board

COHERENT
Mark Sobey, Senior Vice President of Specialty Laser Systems

NEWPORT CORP.
Dennis Werth, Vice-President, Precision Components and Systems
Business

These top executives, representing different aspects of the marketplace, will share their insight and hard-fought lessons regarding trends and opportunities in optics and photonics. Weathering 2009 and 2010 has required extraordinary skills and experience to successfully reset goals and allocate resources. Listening to and questioning these executives will help you understand the current environment better and to set priorities for your business.

Hot Markets in Green Photonics

Wednesday 26 January

3:30 to 4:30 pm | Room: 130 (Exhibit Level)

Panel Moderator:

Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ.

Panel Members:

SORAA

Steven Den Baars, Co-Founder

FIRST ANALYSIS PRIVATE EQUITY AND LIGHTWAVE ADVISORS, INC.

John Dexheimer, President

CLEAN TECHNOLOGY AND SUSTAINABLE INDUSTRIES ORGANIZATION

Patricia Glaza, Executive Director/CEO

VANTAGEPOINT VENTURE PARTNERS

Douglas Kirkpatrick, Partner

NAVIGANT CONSULTING, INC.

Paula Mints, Principal Analyst, PV Services Program & Associate Director, Energy Practice

GREENTECH MEDIA, INC.

Eric Wesoff, Senior Analyst

Even with continuing market challenges in 2010, new solar and other green energy technology and market developments provided strong growth opportunities for many companies and across varied industry segments. For makers of lasers, optical coatings, thin-film and metrology equipment and other photonics-related technologies, this represents growth opportunity. From core optical engineering to nanotechnology, materials science to funding and economic policy, there is always more to learn and game-changing developments are happening every month. These speakers bring a forward-looking understanding of market and technology trends on path to widespread commercialization in the green marketplace. Join this session to gain a better sense of the direction of green photonic technologies, worldwide markets, and opportunities for business.

Crosslight Software Tutorial on Optoelectronic Device Simulation

Thursday 28 January 1:30 to 5:30 pm

The tutorial gives an introduction to high-end simulation tools for electronic and optoelectronic devices (APSYS, LASTIP, PICS3D by Crosslight Software Inc., see www.crosslight.com.) These software packages combine electrical, thermal, optical, and quantum-mechanical models in two or three dimensions. They can be applied to a large variety of semiconductor devices such as laser diodes, light-emitting diodes, solar cells, photodetectors, modulators, amplifiers, and transistors. The tutorial explains and demonstrates the basic operation of these software tools. Model options and material parameters are discussed, and strategies for obtaining realistic simulation results are outlined. Deep insight into micro- and nano-scale physical processes is provided using realistic device examples.

INTENDED AUDIENCE: Students, device engineers, and researchers who are interested in using advanced simulation software for designing and analyzing modern optoelectronic devices.

INSTRUCTOR: Joachim Piprek received his Ph.D. degree (Dr. rer. nat.) in theoretical physics from Humboldt University in Berlin, Germany. Dr. Piprek has been using Crosslight Software tools for more than 10 years in design and analysis of practical devices. He has published three books on semiconductor device simulation, co-chairs the annual conference on Numerical Simulation of Optoelectronic Devices, and gives device simulation courses at universities and companies worldwide. Dr. Piprek is currently president of the NUSOD Institute (www.nusod.org).

To register for the tutorial and receive a free Crosslight Software software training license, please e-mail your contact information to piprek@nusod.org. More information on the tutorial is available at: <http://www.nusod.org/crosslight11pw.html>

Assessing the Impact and Future of Photonics in the United States

Give your input on a new National Academies study

Thursday 27 January

8:45 to 9:30 am | Room: 134 (Exhibit Level)

Moderators: **Eugene Arthurs**, CEO, SPIE and **Erik Svedberg**, Senior Program Officer, National Academies of Science

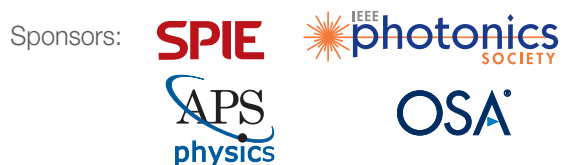
Come voice your opinion about challenges facing innovators today, and help the National Academies begin work on an update to the 1998 landmark Harnessing Light study. Discuss your thoughts on where the science is going, where the funding is going to be, current and potential market size, current employment and potential for job creation, and many other other pressing issues.

This interactive "town hall" session will look at the statement of task and gather input to the committee for a new study of optics and photonics, conducted by the National Academies and its operating arm the National Research Council, with an emphasis on impact. SPIE is supporting an effort to publish an updated version of the 1998 document called *Harnessing Light* produced by the U.S. National Research Council. This session will help harness community insight to give input to the new study and its committee, which ultimately would inform industry plans and government policy by providing a unique community view of the future directions for our science and technology and market trends. What would make such a study useful to you? Join us in dialogue that drives the collection, analysis, and sharing of information about the future of photonics.

While the original *Harnessing Light* report has been extremely useful to academic, industrial, and governmental organizations throughout the world, in the past 10 years, enormous progress has been made in photonics sciences and technologies. Irrespective of the economic conditions, optical science and engineering is headed toward another strong growth period, driven by developments in advanced materials, solid state lighting, solar technologies, sensors, lasers, imaging, fiber-optic communications, digital photography, diagnostic medicine, computing/processing, and consumer displays/TVs. The impacted markets encompass critical issues that affect society, ranging from energy and healthcare to manufacturing, communications, data storage and security. Therefore the committee will be convened to look at the following issues:

1. Review updates in the state of the science that have taken place since publication of the National Research Council report, *Harnessing Light*, in 1998.
2. Identify the technological opportunities that have arisen from recent advances in and potential applications of optical science and engineering.
3. Assess the current state of optical science and engineering in the United States and abroad, including trends in private and public research, market needs, and examples of translating progress in photonics innovation into competitiveness advantage (including activities by small businesses), workforce needs, manufacturing infrastructure, and the impact of photonics on the national economy.
4. Prioritize a set of research grand-challenge questions to fill identified technological gaps in pursuit of national needs and national competitiveness.
5. Recommend actions for the development and maintenance of global leadership in the photonics driven industry--including both near-term and long-range goals, likely participants, and responsible agents of change.

We invite you to join us in support of an updated study.



Industry Workshops

Fundamental Optics

Basic Optics for Non-Optics Personnel

WS609 · Course level: Introductory · CEU .20 \$100 / \$150 USD
Monday 1:30 to 4:00 pm

This course will provide the technical manager, sales engineering, marketing staff, or other non-optics personnel with a basic understanding of the terms, specifications, and measurements used in optical technology to facilitate effective communication with optics professionals on a functional level. Topics to be covered include basic concepts such as interference, diffraction, polarization and aberrations, definitions relating to color and optical quality, and an overview of the basic measures of optical performance such as MTF and wavefront error. The material will be presented with a minimal amount of math, rather emphasizing working concepts, definitions, rules of thumb, and visual interpretation of specifications. Specific applications will include defining basic imaging needs such as magnification and depth-of-field, understanding MTF curves and interferograms, and interpreting radiometric terms.

Kevin Harding has been active in the optics industry for over 30 years, and has taught machine vision and optical methods for over 25 years in over 70 workshops and tutorials. He is a past President of SPIE.

Basic Laser Technology

WS972 · Course level: Introductory · CEU .35 \$300 / \$355 USD
Wednesday 8:30 am to 12:30 pm

If you are uncomfortable working with lasers as “black boxes” and would like to have a basic understanding of their inner workings, this introductory course will be of benefit to you. The workshop will cover the basic principles common to the operation of any laser/laser system. Next, we will discuss laser components and their functionality. Components covered will include laser pumps energy sources, mirrors, active media, and Q-switches.

Sydney Sukuta is currently a Laser Technology professor at San Jose City College.

Registration Required

See SPIE Cashier, North Lobby.



Held in conjunction with

SPIE Photonics West

LaserFocusWorld

Lasers & Photonics Marketplace

SEMINAR

Analyzing the Business of Photonics

JANUARY 24, 2011 • SAN FRANCISCO, CA • THE INTERCONTINENTAL FRANCISCO

For more information about the global photonics marketplace, attend the Lasers & Photonics Marketplace Seminar.

FIND OUT MORE!
Visit our website at www.marketplaceseminar.com

Owned and Produced by

PennWell

Based on the *Laser Focus World* Annual Market Review and Forecast, the Lasers & Photonics Marketplace Seminar provides business leaders, investors, and technology analysts with a detailed review of worldwide laser markets, coupled with discussions of key business and technology trends for the laser and optoelectronics markets.

The Lasers & Photonics Marketplace Seminar is the only event anywhere in the world that focuses on the entire laser marketplace and presents information and analysis of market trends segmented by applications and laser technology. It provides investors, photonics manufacturers, and their suppliers with a comprehensive market perspective that is unobtainable elsewhere.

Industry Workshops

Business, Patents + IP

Smart Patenting 

WS1010 · Course level: Introductory · CEU .35 \$300 / \$355 USD
Tuesday 1:30 to 5:30 pm

Recent economic conditions have forced many high-tech companies to re-think and reform their patenting efforts. Maintaining a solid IP position with diminished resources is a serious challenge that requires developing and implementing smarter approaches to patenting. This course addresses how informed high-tech companies view the patenting process. It discusses specific steps companies and organizations can take to implement "IP best practices" and get the most IP value for their money and effort. Specific examples and issues based on audience participation and interest will be addressed and integrated into the discussion.

Joseph Gortych is a registered patent attorney and president of Opticus IP Law, PLLC, an IP law firm based in Sarasota, Florida. He specializes in the strategic development, management and protection of intellectual property for optics, photonics and semiconductor technologies. His technical experience includes working at IBM Corporation as an optical engineer.

Complying with the ITAR: A Case Study

WS933 · Course level: Introductory · CEU .35 \$300 / \$355 USD
Wednesday 1:30 to 5:30 pm

In the world of international trade, it's what you don't know that can hurt you. With the U.S. government's focus on homeland security and its increasing reliance on photonics for the development and production of defense-related products and services, your activities may well be subject to the ITAR. This workshop will begin with a brief contextual overview of U.S. export controls, then transition into a case study focused on the ITAR. Real world situations and lessons learned will be shared. You will also learn about current enforcement trends and best practices for avoiding violations.

Kerry Scarlott is a Director at the law firm of Goulston & Storrs. Kerry focuses his practice on business law and international trade law, with particular expertise in assisting technology-based companies. He serves as general outside counsel to companies and entrepreneurs, providing guidance in connection with entity formation, debt and equity financings and private offerings, mergers and acquisitions, day-to-day commercial contract matters, strategic alliances, private label manufacturing, and intellectual property protection and utilization.

Registration Required

See SPIE Cashier, North Lobby.

Valuation of Closely Held Technology Companies, Product Lines and Intellectual Property

WS973 · Course level: Introductory · CEU .35 \$300 / \$355 USD
Tuesday 8:30 am to 12:30 pm

This course focuses on the strategies and process that business leaders employ in acquisitions and divestitures and in raising capital financing. The course is centered on closely held, small and middle market technology companies (< \$200 million revenue). An overview of business and intellectual property valuation methods will be provided. The course will focus on positioning strategies to maximize the valuation in sale, divestiture, capital financing, or licensing.

Linda Smith, through Ceres Technology Advisors, provides strategic planning, business development, marketing, and M&A advisory services to buyers and sellers of small and middle market firms and to entrepreneurs and investors financing and building early stage ventures. She is an Associate Member of the American Society of Appraisers.

Negotiation Strategy and Tactics 

WS1008 · Course level: Introductory · CEU .35 \$100 / \$150 USD
Monday 8:30 am to 12:30 pm

This course is free to SPIE Student Members, but you must register to attend

Negotiation is at the heart of succeeding in every business and scientific endeavor. In this course, you will learn why nothing happens until it is negotiated and how to prepare and position yourself for a winning negotiation experience. The basics of orchestrating a win-win situation for all parties will be taught and examples will be given to clarify skills, ideas and opportunities. Teambuilding and facilitation negotiation techniques will be addressed, and you will become fluent in negotiation terms and tactics to engineer successful business partnerships, teams, and enterprises. You are constantly negotiating - you just may not realize it, and this course will ensure you approach every negotiation with a high level of skill and discipline.

Alaina Levine is President of Quantum Success Solutions, a leadership training enterprise with a focus on advancing the professional development expertise of engineers and scientists.

SPIE Career Center

Job Fair

Two Days Only

North Hall | Aisle 5600

Employers are coming together to interview and hire candidates at Photonics West!

Tuesday 25 January · 10:00 am to 5:00 pm
Wednesday 26 January · 10:00 am to 5:00 pm

spie.org/careercenter 



Industry and Entrepreneurship for Beginners

Sunday 23 January | 1:30 to 5:00 pm
Room 113 (Exhibit Level)

Open to All Attendees

Students and Early Career Professionals – attend this series of talks, discussions, and practical experiences that explore topics in innovation and entrepreneurship. Get inspired to create the next big thing and learn how to build the tools you need to make it happen.

1:35 to 2:20 pm



Can a Scientist Find a Rewarding Career in Industry?

David Giltner

Project Manager at Zolo Technologies,
President of the Colorado Photonic Industry
Association (CPIA)

Many graduate students considering a transition to a career in industry face real challenges:

- What skills do I have that are useful in industry?
- How is work in industry different than academia?
- Will I enjoy working at a company instead of a research lab?
- What do I need to learn in order to be successful in this new environment?
- Can a scientist become a successful entrepreneur?

To find answers to these questions, the speaker has interviewed many people who have successfully made the transition from research scientist to industrial scientist or successful entrepreneur. This talk will discuss what he learned from these interviews regarding the roles a scientist can play in industry, essential skills and attributes of a scientist, and patterns of thinking that a scientist may need to develop to be successful in industry. If you are considering a career in industry, this talk will provide valuable insight into how to successfully launch your career in the private sector.

David Giltner has 15 years experience in the photonics industry developing laser-based products for SDL, Inc. JDS Uniphase, Ball Aerospace, and currently Zolo Technologies. He is also the president of the Colorado Photonics Industry Association. David has a Ph.D. in Physics from Colorado State University where he performed research in precision laser spectroscopy and atom interferometry. In 2008 he began interviewing other scientists who have also pursued a career in industry. He has compiled these interviews into a book titled “Turning Science into Things People Need,” which serves as a guide to other scientists seeking to pursue a similar path.

2:25 to 3:20



Innovation – Some Assembly Required

Andrew Hargadon

Soderquist Chair in Entrepreneurship, Professor,
Graduate School of Management UC-Davis

Innovation turns ideas born in university laboratories into applications that solve real world problems. Yet few are taught what innovation really means and how to use it effectively in their research and their careers. Prof. Hargadon will discuss how breakthroughs happen, the critical role scientists and engineers play (it’s not what you think), and how this innovation process lies within everyone’s grasp.

Andrew Hargadon is a Professor of Technology Management at the Graduate School of Management at the University of California, Davis. He is the author of *How Breakthroughs Happen: The Surprising Truth About How Companies Innovate* (Harvard Business School Press 2003) and has written extensively on knowledge and technology brokering and the role of learning and knowledge management in innovation. Dr. Hargadon launched the Center for Entrepreneurship at UC-Davis, providing programming and connections that help create entrepreneurs.

3:25 to 4:10 pm

The Innovation Lifecycle – A Panel Discussion

From the University, to the garage, to the small business – innovation and innovative ideas happen everywhere. This panel discussion will feature leaders who have started with good ideas and built networks and businesses that take them to market.

Panelists:

Federico Capasso, Harvard Univ. (USA)

Sergey Egerov, Del Mar Photonics (USA)

Shibin Jiang, AdValue Photonics, Inc. (USA)

Duncan Moore, Univ. of Rochester (USA)

4:15 to 5:00 pm

Practical Networking for Future Entrepreneurs



Alaina Levine

President, Quantum Success Solutions

A broad network of contacts is essential to entrepreneurial success. Learn how to appropriately promote yourself and build a network. Discover how to “work a room”, start conversations with people you have never met before, and obtain information that can set you on a path to career victory. This session will be facilitated so that students actively practice the principles described in a small group setting. Bring your business cards!

Alaina Levine is a nationally-known science and engineering career development expert. Ms. Levine is President of Quantum Success Solutions, a leadership training enterprise with a focus on advancing the professional development expertise of engineers and scientists. She has been advising emerging and established engineers and scientists about their careers for over a decade.

Maximizing Your Career Fair Experience

Tuesday 25 January | 10:00 to 11:00 am
Exhibition Hall near the Career Fair

Working a job fair for leads is different than applying for jobs online or connecting to jobs through colleagues. Get a quick primer on how to effectively use a Career Fair to polish your portfolio, identify prospective job leads, and interact with recruiters. Learn the best tips and conversation starters from expert Alaina Levine, and immediately put them into practice at the SPIE Career Fair.

PANEL DISCUSSION

Getting Hired in 2011 and Beyond

Tuesday 25 January
3:30 to 4:30 pm | North Exhibition Hall

Join us for a panel discussion on careers in optics and photonics outside the academic world. Learn about getting hired at tech-based companies and non-academic jobs directly from human resource professionals in the optics and photonics sector.

Workshops

Registration required for the workshops below.

The Craft of Scientific Presentations: A Workshop on Technical Presentations

WS667 · Course level: Introductory · CEU .35 \$75 / \$125 USD
Wednesday 8:30 am to 12:30 pm

This course provides attendees with an overview of what distinguishes the best scientific presentations. The course introduces a new design for presentation slides that is both more memorable and persuasive from what is typically shown at conferences.

Michael Alley teaches writing and speaking to engineering students at Penn State. Alley has taught this workshop to researchers at the Army Research Laboratory, Lawrence Livermore National Laboratory, United Technologies, the University of Illinois, the University of Oslo, and Virginia Tech.

The Craft of Scientific Writing: A Workshop on Technical Writing

WS668 · Course level: Introductory · CEU .35 \$75 / \$125 USD
Wednesday 1:30 to 5:30 pm

This course provides an overview on writing a scientific paper. The course focuses on the structure, language, and illustration of scientific papers.

Michael Alley teaches writing and speaking to engineering students at Penn State. Alley has taught this workshop to researchers at the Army Research Laboratory, Lawrence Livermore National Laboratory, United Technologies, the University of Illinois, the University of Oslo, and Virginia Tech.

Negotiation Strategy and Tactics

WS1008 · Course level: Introductory · CEU .35 \$100 / \$150 USD
Monday 8:30 am to 12:30 pm

This course is free to SPIE Student Members, but you must register to attend

Negotiation is at the heart of succeeding in every business and scientific endeavor. In this course, you will learn why nothing happens until it is negotiated and how to prepare and position yourself for a winning negotiation experience. The basics of orchestrating a win-win situation for all parties will be taught and examples will be given to clarify skills, ideas and opportunities. Teambuilding and facilitation negotiation techniques will be addressed, and you will become fluent in negotiation terms and tactics to engineer successful business partnerships, teams, and enterprises. You are constantly negotiating - you just may not realize it, and this course will ensure you approach every negotiation with a high level of skill and discipline.

Alaina Levine is President of Quantum Success Solutions, a leadership training enterprise with a focus on advancing the professional development expertise of engineers and scientists.

Laser-Sharp Career Strategy: Resumes/CVs and Interviewing

WS1018 · Course level: Introductory · CEU .35 \$100 / \$150 USD
Monday 1:30 to 5:30 pm

This course is free to SPIE Student Members, but you must register to attend

Resumes and CVs don't get you jobs, they get you interviews. In the first part of this course, learn the secrets of making your resume or CV one that stands out from the crowd, ensuring it will actually be read and articulates your value to the organization and your field. Discover what to absolutely include and what to absolutely omit from your resume or CV, and how to organize both using a skill inventory tool to better communicate your problem-solving abilities. We will also discuss what documents go into a CV package, and how to discern when to use a resume vs. a CV, depending on the job opportunity.

In the second part of this course, we will address job interviewing preparation. Discover what you need to know and do to get the job from the first moment of contact with an organization to the moment you leave the interview. We will focus on tactics for researching the organization beforehand, preparing for typical and atypical interviewing questions, and interview follow-up. We will also discuss the most critical steps you should take and the most crucial mistakes you should never make to get the job.

Alaina Levine is President of Quantum Success Solutions, a leadership training enterprise with a focus on advancing the professional development expertise of engineers and scientists.

Hit-the-Target Laser Activity Workshop

WS985 · Course level: Introductory · \$10 / \$20 USD
Sunday 8:30 to 11:00 am

This workshop will train attendees on the use of a Hit-the-Target Laser activity, a hands-on education outreach kit using lasers and mirrors. The activity is intended to engage and enrich the math/science learning experience for students in the middle grades. It was developed as part of Hands-On Optics (HOO), a \$1.7 million dollar grant from the U.S. National Science Foundation (NSF) to design and implement a science enrichment program for children aged 11 to 14 years old.

Robert Sparks earned an M.S. in Physics from Michigan State University and is a Science Education Specialist at the National Optical Astronomy Observatory (NOAO) in Tucson, AZ. He taught high school physics, math and astronomy for 11 years before joining the NOAO team. He worked on developing the HOO modules as well as planning and delivering HOO professional development workshops.

Network

Networking Receptions · Student Social Events · SPIE Member Events



Join your colleagues and develop new relationships at these relaxed-atmosphere events; enjoy light refreshments as you continue the day's discussions.



Lunch with the Experts - A BiOS Student Networking Event

Sunday 23 January
12:30 to 1:30 pm | Room 133 (Exhibit Level)

Seating Limited. Ticket Provided with BiOS Student Registration.

Enjoy a casual meal with colleagues at this engaging networking opportunity, hosted by SPIE Student Services. This event features experts willing to share their experience and wisdom on career paths in biomedical optics. Lunch is complimentary to all BiOS students, on a first-come, first-served basis.

Student Chapter Meeting

Sunday 23 January
5:30 to 7:00 pm | InterContinental Hotel, Telegraph Hill Room

Open to All Student Chapter Officers and Members

Get the latest news on the Student Chapter program direct from SPIE Student Services. Learn what's coming up and discuss new directions for student chapters. Join us after the meeting for an off-site group dinner.

SPIE Photonics West Welcome Reception

Monday 24 January | 7:00 to 8:30 pm
Hilton Hotel Golden Gate and Continental Ballrooms

“Teatro Photonica”



Enjoy a night of photonics-inspired theatrics, conversations with your colleagues, and food tasting with an Italian flair. Please remember to wear your conference registration badges. Dress is casual.

Fellows Luncheon

Monday 24 January
12:00 to 1:30 pm | InterContinental Hotel, Ballroom B/C

All Fellows of SPIE are invited to join your colleagues for an SPIE hosted luncheon. The new SPIE Fellows attending Photonics West will be introduced and recognized. Please join us for this informal gathering and a chance to interact with other Fellows. Fellows planning to attend are asked to RSVP to Brent Johnson (brentj@spie.org).



Prof. Federico Capasso
School of Engineering and Applied Sciences
at Harvard Univ.

Quantum Cascade Lasers: widely tailorable light sources from the mid-infrared to Terahertz

Quantum Cascade Lasers represent a radical departure from conventional semiconductor lasers in that they don't rely on the bandgap for light emission. This freedom from bandgap slavery has many far reaching implications that will be fully explored in this talk. I will trace the path from invention to exciting advances in the applications of these revolutionary lasers which cover the mid- and far-ir spectrum and are broadly impacting applications ranging from countermeasures to gas sensing and spectroscopy in a wide range of sectors. The talk will conclude with a discussion of the ongoing commercialization.

Federico Capasso is the Robert Wallace Professor of Applied Physics at Harvard University, which he joined in 2003 after a 27 years career at Bell Labs where he did research, became Bell Labs Fellow and held several management positions including Vice President for Physical Research. His research has spanned a broad range of areas including electronics, photonics, material science, nanotechnology and quantum electrodynamics. He pioneered the approach widely known as band-structure engineering in the design of heterostructure materials and devices. He is a co-inventor of the quantum cascade laser, a fundamentally new light source, which has now been commercialized and in recent years has been involved in fundamental studies of forces associated with quantum fluctuations such as the Casimir force, including the first measurement of a repulsive Casimir force.



BORDEAUX
Route des Lasers
THE PLACE TO BE

The photonics competitiveness cluster in Aquitaine - France

Booth 1123 G

Meet Route des Lasers leaders in Laser/Photonics Industry

Bordeaux
Aquitaine region
Southwest France



Azur Light Systems 1123 I

→ Fiber lasers at novel infra-red and visible wavelengths



Amplitude Systèmes 1431

→ Diode-pumped ultrafast solid-state lasers for scientific and industrial applications



Eolite Systems 1123 K

→ High power (up to 300W) short pulsed (ns & ps) fiber lasers in IR, Green and UV



Imagine Optics 1431

→ Wavefront sensing, adaptive optics and correction technologies



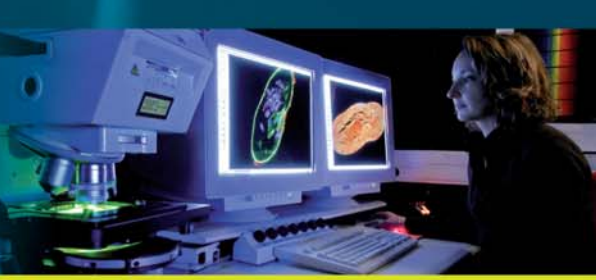
Innoptics 1123 H

→ Packaging of optoelectronic components, mostly laser diodes



ISP System 1123 J

→ High precision mechanical equipments and solutions for photonics applications



© ALPHA Route des Lasers 2010 - Photo credits: Chris James Hewitt / Digital Vision / Getty Images, CEA / Philippe Labaque

Social and Networking Events

Women in Optics Presentation and Reception

Monday 24 January
4:30 to 6:00 pm | InterContinental Hotel, Ballroom B

Open to all conference attendees.

Join us for an evening of networking and inspiration. Connect with others in our industry while enjoying wine and cheese refreshments.

SPECIAL PRESENTATION

Excellence in Research, Teaching & Family: The Juggling Act



Dr. Anita Mahadevan Jansen
Vanderbilt Univ.

The common perception amongst women interested in an academic career is that one has to wait with the family in order to “establish” one’s research and get tenure. Dr Mahadevan-Jansen will present her perspective on achieving success in career and family. She will interweave her presentation with her teaching and research interests in using light and photonics for cancer diagnosis.

Dr. Mahadevan-Jansen joined the faculty of the Biomedical Engineering Department in the fall of 1998 after completing her PhD in Biomedical Engineering from the University of Texas at Austin. Her expertise is in the area of optical detection of clinical physiology and pathology with particular interest in applying optical techniques for cancer detection. She along with her husband, Dr. Duco Jansen (also a Professor in BME) together lead the Biomedical Photonics initiative at Vanderbilt University.

Biophotonics Start-up Challenge

Monday 24 January
4:30 to 5:30 pm | Room 110

Does your research project have commercial potential? Can you convince others?

SPIE is pleased to host the first Biophotonics Start-up Challenge at Photonics West.

Interested in entrepreneurial opportunities in the high tech field? Come to this event to hear research projects that have real commercial potential. This rapid-fire event will feature start-up pitches from students and young professionals as they compete to take their ideas to the next level. Vote for your favorite start-up proposal via text messaging.

The top three winners of the Start-up challenge will be sponsored to attend the UC-Davis Biomedical Engineering Entrepreneurship Academy courtesy of Newport. This 5-day academy will help winners construct a business case, analyze markets, and develop a network of connections to help drive their new venture.

**Social and Networking Events
Continued on page 37** ➔

Lunch with the Experts - A Student Networking Event

Tuesday 25 January | 12:30 to 1:30 pm
Marriott Marquis Hotel, Golden Gate
Room

Advance Sign-up Required at Course
Materials Desk, North Lobby.
Seating Limited.

Enjoy a casual meal with colleagues at this engaging networking opportunity. This event features experts willing to share their experience and wisdom on career paths in optics and photonics and an awards presentation for Newport Spectra-Physics travel grant winners. Lunch is complimentary to all students.

Newport and Spectra-Physics Research Excellence Travel Awards

The Newport Spectra-Physics Research Excellence Travel Awards Program provides financial support for university students to attend the two largest SPIE meetings in order to present their research. These travel grants are open to any student who has an accepted paper for presentation at Photonics West or Optics + Photonics. Recipients will be selected based on both the quality of the original research described in the submitted paper(s) and financial need.

For application information for this and other SPIE travel grants visit Scholarships and Grants online at spie.org/scholarships

Student Chapter Info Session

Tuesday 25 January | 1:45 to 2:30 pm
Marriott Marquis Hotel, Pacific C Room

Open to All Attendees

Interested in starting a Student Chapter or just want to learn more about the program and its benefits? Get your questions answered at this informal information session hosted by SPIE Student Services.

SPIE Member Reception

Hilton San Francisco Union Square Hotel,
333 O'Farrell Street

Tuesday 25 January | 8:00 to 9:30 pm
Hilton Hotel Cityscape

For SPIE
Members Only

SPIE Members are invited to the Cityscape Room at the top of the Hilton for an after-dinner reception in their honor. Come relax and talk with your colleagues while enjoying dessert, coffee, and unparalleled views of downtown San Francisco. Please note: this reception is limited to SPIE Members only. Membership cards or invitations will be requested at the entrance. If you join SPIE onsite, please bring your registration receipt. Dress is casual or business attire.

SPIE Professional to hold prize drawing at Member Reception

Join the editor of *SPIE Professional* magazine at the SPIE Photonics West Member Reception for a chance to win an iPod nano or Kindle.

It's your Member magazine, and we want your input on future issues.

While enjoying dessert at the Hilton San Francisco Union Square Hotel, spend a minute telling us about an exciting technology development that other SPIE Members should know about.

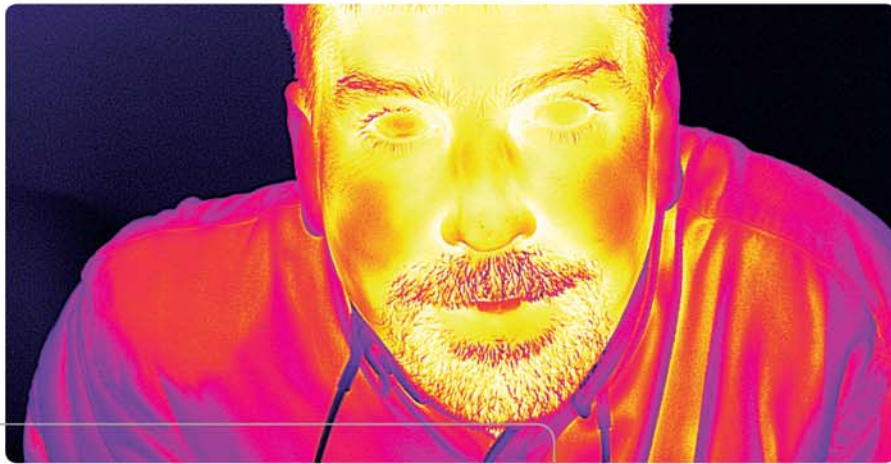


SPIE members during the
2010 Member Reception.

Sponsored by:



Looking For High-Resolution Infrared? We've got you covered.



New

SC655 High-Resolution Infrared Camera

- High-resolution 640 × 480, 17-micron pixel, uncooled VOx detector
- The world's first high-res uncooled infrared camera with 16-bit data at up to 200 Hz windowed frame rate



New

SC8300 HD Infrared Camera

- High-definition 1344 × 784, 14-micron cooled InSb detector
- Over one million points of accurate temperature measurement per frame gives you true Megapixel infrared imagery
- Variable frame rates from full-frame 1344 × 784 14-bit data at 120 fps, to 64 × 64 at 2,530 fps



See us at **SPIE Photonics West, Booth #1917**



Visit www.flir.com or call **800.464.6372** to schedule your free demo and find out why **FLIR** has been the most trusted name in thermal imaging for 45 years.

PRISM 20 AWARDS 10

PrismAwards.org

3RD ANNUAL PRISM AWARDS FOR PHOTONICS INNOVATION

SPIE and Photonics Media wish to thank and congratulate all the Prism Award Finalists.

Join 350 industry leaders, top executives and scientists for an enjoyable and important industry event.

BANQUET & AWARD CEREMONY

**WEDNESDAY 26
JANUARY 2011
6:30 pm**

**Hilton San Francisco
Union Square
Continental Ballroom**

TICKETS ARE AVAILABLE AT THE EXHIBITOR ASSISTANCE DESK, SOUTH LOBBY.

Prism Award Finalists

Defense and Security

Block Engineering[†]

LaserScan

CVI Melles Griot[†]

Xsquared™ High Extinction Plate
Polarizer

Headwall Photonics[†]

Hyperspec Point & Stare Sensor

Detectors, Sensing, Imaging, and Cameras

Ball Aerospace & Technologies

Electronically Steerable Flash Lidar

General Electric

TrueSense Personal Water Analytics

Specim, Spectral Imaging Ltd.[†]

Thermal hyperspectral imagers

Industrial Lasers

Amplitude Systems[†]

Tangerine

IPG Photonics[†]

YLR-150/1500-QCW-AC

Raydiance[†]

Smart Light Active Pulse Management

Information and Communication

PHOTONIS USA

Optical Receiver Module

Pixel Qi Corp.

3Qi Screen

Life Sciences and Biophotonics

Genia Photonics[†]

Synchronized Programmable Picosecond
Fiber Laser

JenLab GmbH[†]

MPTflex

PHOTONIS USA

Gen2 UltraFast™ Time-of-Flight Detector

Optics and Optical Components

Edmund Optics[†]

TECHSPEC Plastic Hybrid Aspheric
Lenses

Molecular Technology GmbH (MolTech)

Focal-piShaper Beam Shaping Optics

Semrock[†]

VersaChrome Tunable Bandpass Filters

Other Light Sources

Energetiq Technology[†]

EQ-99 LDLST™ Laser-Driven Light Source

Innovations in Optics[†]

1240B-100 UltraViolet LED Projector

Texas Instruments[†]

DLP LightCommander

Scientific Lasers

Coherent[†]

Legend Elite Duo HP

EKSPLA[†]

NT200 series nanosecond tunable
wavelength lasers

MPB Communications/ European Southern Observatory[†]

Visible Raman Fiber Amplifier

Test, Measurement, Metrology

4D Technology Corp.[†]

PhaseCam Sq Dynamic White Light
Interferometer

Anasys Instruments Corp.

nanolR

Lumen Dynamics

formerly EXFO Life Sciences &
Industrial Division
X-Cite XP750

Sponsored by

PHOTONICS MEDIA
LAURIN PUBLISHING

SPIE

[†]Exhibitors at Photonics West

Social and Networking Events

← Continued from page 34



Prism Awards Ceremony and Banquet

Wednesday 26 January | 6:30 to 10:30 pm
Hilton Hotel, Continental Ballroom

Seating Limited. Ticket Required—Available at the Exhibitor Assistance Desk (South Lobby).

Join this gala event in which SPIE and Photonics Media recognize the most innovative new photonic products on the market. Network with industry leaders at this VIP event. The evening begins with a reception, followed by an elegant dinner and award ceremony. Please bring tickets to the door. Dress is business attire.

Sponsors:  **SPIE** Connecting minds. Advancing light.  **PHOTONICS** MEDIA
LAURIN PUBLISHING

Speed Networking Social

Wednesday 26 January
5:00 to 7:00 pm

Open to anyone wishing to expand their network

Join us for the next generation of networking. Add a new contact to your network every three minutes while enjoying appetizers at an off-site venue. Bring plenty of business cards, practice your pitch, and prepare to expand your network.

ThirstyBear Brewing Co.

661 Howard Street

From the Moscone Center:

Head Northwest on 3rd Street
Turn right on Howard Street
ThirstyBear is just up the block on your right

“No Ties” Student Social

Wednesday 26 January
8:00 to 11:00 pm

Student Conference Attendees Only

Relax and hang out with new friends and peers while enjoying the atmosphere of a great off-site venue. No ties required but please bring photo ID.

Jillian’s Billiards Club

101 4th Street

From the Moscone Center:

Head Southwest on Howard Street
toward 4th Street
Turn right on 4th Street
Jillian’s is on the right



Easy

Precisely guiding a beam toward a moving object – as the archer fish does – is certainly not simple, but it brings competitive advantages. Precise positioning of laser beams is the key for equally dynamic, accurate and flexible tools – that help you develop new markets.

SCANLAB’s laser scan technology enables efficient and dependable processes in industry, medicine and biomedicine. From galvanometer scanners to complex scan solutions, SCANLAB products prove their worth across a diverse range of applications – from marking, cutting and drilling to welding, from 3D laser processing to “processing on the fly”.

Gain a lead over your competitors! If you’re looking for dynamic, precise and reliable scan solutions, then just ask us.

Please visit us at booth #8632 (BiOS) and #2515 (Photonics West)



www.scanlab.de





Walk the floor at Two Technology-Packed Free Exhibitions

SPIE Photonics West is the single most important event for the photonics and laser industry



25–27 January 2011
The Moscone Center
San Francisco, California, USA

There is absolutely no other photonics and laser exhibition in North America with the size and prestige of SPIE Photonics West. You will see the latest products, top companies, and industry leaders at Photonics West.

Photonics West is

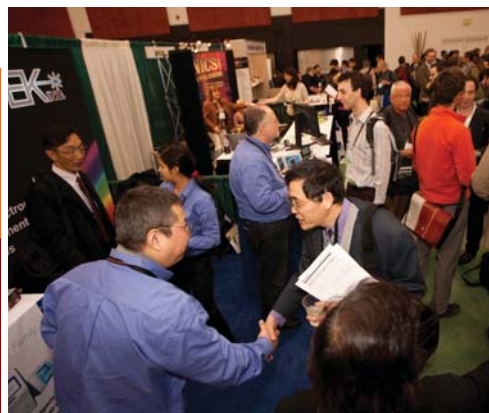
1,100 companies—talk face-to-face with suppliers

More product roll-outs than any other exhibition in the industry

The latest technology—from giants to startups

Exhibition Technologies

- Laser sources and systems
- Optical components and materials
- IR sources and detectors
- Cameras and sensors
- Electronic imaging components
- Fiber optic systems
- Optical coatings
- Lenses and filters
- Positioning and mounts
- Metrology



If you work in biomedical optics you can't afford to miss the **BIOS** Exhibition



22-23 January 2011
The Moscone Center
San Francisco, California, USA

Take advantage of this focused exhibition the opening weekend of SPIE Photonics West. SPIE BIOS is the ideal place to interact with the developers and early adopters of the newest biophotonics technologies, as well as the best venue to see new technologies for diagnostics, therapeutics, and instrumentation.

BIOS is

180 companies
2,000 attendees

Exhibition Technologies

- Molecular imaging
- Lasers
- Biomedical optics components and Instrumentation
- Nano/biophotonics
- Biosensors
- Spectroscopy
- Microscopic imaging
- Life sciences

Exhibitor Product Demonstrations

Product Demonstrations are open to all attendees. Various exhibiting companies will be showcasing new and successful products in half-hour demonstration/question and answer sessions.

Demo Areas

	Saturday, 22 January	Sunday, 23 January
	South Hall A / Demo Area	South Hall A / Demo Area
10:30 am	EXHIBITION CLOSED	92 KHz SD-OCT Camera for Use at 1.05, 1.31 and 1.6 Microns Doug Malchow, Sensors Unlimited-Goodrich ISR Systems
11:30 am	EXHIBITION CLOSED	
12:30 pm	High Performance Optical Components from SCHOTT Charles Bernheim, SCHOTT North America, Inc.	
1:30 pm		Ultrafast Fibre Coupled Oscillator for Life Science Robert Braunschweig, Amplitude Systemes
2:30 pm	Novel Interference Filters for Bio-photonic & Analytical Applications Steffen Reichel/Dr. Angela Hohl-AbiChedid, SCHOTT North America, Inc.	CORE Illumination and Imaging Subsystem for Bioanalysis Claudia Jaffe, Lumencor, Inc.
3:30 pm	New Generation SuperK Supercontinuum Systems Dr. Husain Imam, NKT Photonics Inc.	

Tuesday, 25 January

	South Hall A / Demo Area 1	South Hall C / Demo Area 2	North Hall / Demo Area 3
10:30 am	Ultra-G: Optimization for Medical and Defense Applications Kendra Gallup, Laser Operations LLC/QPC Lasers	Glasses from SCHOTT with "Ultra High Transmittance" Charles Bernheim, SCHOTT North America, Inc.	State of the ARC Fusion Splicing Technology Doug Duke, AFL
11:30 am	High Performance Coated Components from SCHOTT Steffen Reichel/Dr. Angela Hohl-AbiChedid, SCHOTT North America, Inc.	LuOcean™ - High Power Tm, Er, Nd and Yb Pump Laser Dr. Karl Eberl, Lumics GmbH	Optical Fibers for Laser Transmission Dr. Lars Leininger, LEONI Fiber Optics GmbH
12:30 pm		DLP® LightCommander™ Development Platform Gina Park, Texas Instruments	UltraStableIntegrated-DPSSL systems Tom Bruno, BrunoLaser
1:30 pm	New Maestro Touch Screen Laser Monitor Don Dooley, Gentec-EO USA	Optikos LensCheck VIS Stephen D. Fantone, Optikos Corporation	Fast and Inexpensive Customer Access to Customized 1D and 2D Dr. Jan Grahmann, Fraunhofer IPMS
2:30 pm	The Optometronic 4000™ Photonics Workstation David Lewis, Nanonics Imaging Ltd.	Micro-Mechatronic Motion Systems Dan Viggiano III, New Scale Technologies, Inc.	New Fujikura Equipment for Fiber Preparation Doug Duke, AFL
3:30 pm	2 Micron Pulsed Fiber Laser Shibin Jiang, Advalue Photonics Inc	Efficient Wavelength Conversion Mark Middleton, Covesion Ltd.	Fibercore Bow-Tie PM Fiber Splicing Made Easy! Dr. Andy Gillooly, Fibercore Ltd.

The world's first
widely tunable
bandpass filters,
only from Semrock

VersaChrome™

See the VersaChrome demonstration during
BiOS and Photonics West

BiOS Booth #8616
Photonics West Booth #616



- Bandpass Filters
- Edge Filters
- Notch Filters
- Mirrors
- Dichroic Beamsplitters
- Polarizing Filters

Semrock A Unit
of IDEX
The Standard in Optical Filters for Life Sciences, Lasers & Optical Systems

www.semrock.com

Exhibitor Product Demonstrations continued

Product Demonstrations are open to all attendees. Various exhibiting companies will be showcasing new and successful products in half-hour demonstration/question and answer sessions.

Demo Areas

Wednesday, 26 January			
	South Hall A / Demo Area 1	South Hall C / Demo Area 2	North Hall / Demo Area 3
10:30 am	A Demo of SolidWorks Integrated APEX Optical Software by BRO Dr. Mary Turner, Breault Research Organization (BRO)	OIS, Beam Deviation and Ultra Fast Focus with Liquid Lenses Olivier Jacques-Sermet, Varioptic	Fiber-Coupled Laser-Driven Light Source Paul Blackborow, Energetiq Technology, Inc.
11:30 am	Structural Chemical Nanocharacterization/Raman AFM Interface Aaron Lewis, Nanonics Imaging Ltd.	Modeling of Current Photonics Applications: LED, Lasers, Solar Cells and Si-photonics RSoft Senior Application Engineer, RSoft Design Group	The Small Micro Lithography Engine Heidelberg Instruments
12:30 pm	High Throughput Processing Using Ultrafast Solutions Robert Braunschweig, Amplitude Systems	High Speed Photon Counters for VIS & NIR Wavelengths Michael Desert, ID Quantique	Compact Laser Speckle Reducer (LSR) Dr. Yann Tissot, Optotune
1:30 pm	QUAD-4Track Laser Position Monitor Don Dooley, Gentec E-O	Field Tracing by VirtualLab™ for System Analysis and Design Michael Kuhn, JENOPTIK Optical Systems, Inc.	Light Switching for Optical Systems Matthew Webb, FiberTech-RoMack
2:30 pm	Fiber End-Caps for 405nm and High Power Cables Andy Devine, Coastal Connections	CORE Illumination and Imaging Subsystem for Bioanalysis Claudia Jaffe, Lumencor, Inc.	Zing Polarizing Fiber in the Marketplace Dr. Andy Gillooly, Fibercore Ltd.
3:30 pm	Inspection of Photovoltaics with SWIR Imaging Don Pancza and Doug Malchow, Sensors Unlimited-Goodrich ISR Systems	Progress in ZERODUR® Light Weighting Dr. Thomas Westerhoff, SCHOTT North America, Inc.	New Generation SuperK Supercontinuum Systems Dr. Husain Imam, NKT Photonics Inc.
4:30 pm	3-wavelength Q-switched DPSS Laser Ekaterina Fedyna, Laser-export Co./ Laser-compact Co.		

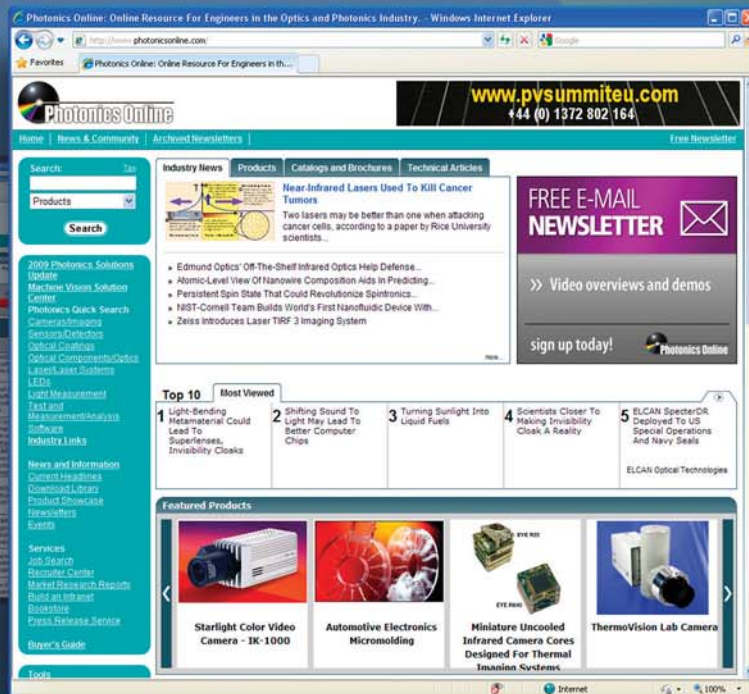
Thursday, 27 January			
	South Hall A / Demo Area 1	South Hall C / Demo Area 2	North Hall / Demo Area 3
10:30 am	Laser Gain Module TARANIS for High Power Lasers Julien Didierjean, FIBERCRYST		Low Phase Noise DFB Laser Stephen Blazo, Wavelength References
11:30 am		OEM Optics for Industrial Applications Christiane Weiss, Berliner Glas KGaA	Nanooptical Spectral and Polarisation Sensors in CMOS Dr. Stephan Junger, Fraunhofer-Institut for Integrated Circuits
12:30 pm			
1:30 pm			Reinventing Scratch and Dig Dave Aikens, Savvy Optics Corp.



Photonic Online

Where the future of photonics is found

Photonics Online is the leading Web site for the optics and photonics industry, serving the needs of industry professionals since 1997. We are your information source for everything related to optics and photonics technology, whether you are searching for product overviews, technical articles, or industry news ... or looking to market your products and services in this space. Take a guided tour below, and visit us at www.photonicsonline.com.



www.photonicsonline.com

1. Find Solutions

Locate the ideal product or services for your current project in our extensive solutions database.

2. Current Headlines

We help you keep abreast of the latest news, technology updates, product introductions, and everything else.

3. Free Newsletter

Get technical articles, product overviews, case studies, white papers, and news delivered directly to your inbox.

4. Community

Stay engaged with your peers in the industry through our active online community.

5. Top Ten

What articles, case studies, and white papers are your colleagues reading? Find out here.

Photonics For a Better World Pavilion




South Hall • Booth 1439

A showcase of world-changing organizations and ideas



SPIE Photonics West Thanks the following sponsors for their generous support

Banner	Meter Boards							
<p style="text-align: center;">laservision <small>WE PROTECT YOUR EYES</small></p> <p style="text-align: center;">Booth #8708 www.lasersafety.com</p>	<p style="text-align: center;"> OPTICS BALZERS</p> <p style="text-align: center;">Booth #8505 www.opticsbalzers.com</p>							
General Refreshment Sponsors	Promotional Partners							
<p>B&W Tek, Inc. Booth #8803</p> <p>Fiberguide Industries Inc. Booth #8701</p> <p>OFS, Specialty Photonics Division Booth #8506</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">BioOptics World</td> <td style="width: 50%;">Photonics Media</td> </tr> <tr> <td>IOP Publishing</td> <td>Photonics Online</td> </tr> <tr> <td>optics.org</td> <td></td> </tr> </table>		BioOptics World	Photonics Media	IOP Publishing	Photonics Online	optics.org	
BioOptics World	Photonics Media							
IOP Publishing	Photonics Online							
optics.org								

Thanks the following sponsors for their generous support

Lanyards	Internet Pavilion	Hotel Room Key Cards
 The diode laser company. Booth # 4837 www.dilas.com	 Booth #1223 www.princetoninstruments.com	 Booth #1631 www.us.trumpf.com
Stairway Strips	Floor Graphics	Conference Bags
 glass made of ideas Booth #1601 www.us.schott.com/advanced_optics	 THINK ULTRAFAST! Booth #4719 www.highq-us.com	 Booth #1214 www.edmundoptics.com
Banner		
 AllThingsPhotonic.com Booth #4501 www.cvimellesgriot.com	 THE LIGHT TOUCH Booth #2114 www.keopsys.com	 Booth #2217 www.laser-components.com
 BE PROTECT YOUR EYES Booth #708 www.lasersafety.com	 on your wavelength Booth #4635 www.modulight.com	 Photonics For Innovation Booth #1522 www.qioptiq.com
 A Unit of IBM Corporation Booth #616 www.semrock.com	 Booth #817 www.toptica-usa.com	 Booth #1929 www.unitedlens.com

SPIE Photonics West Sponsors

Coffee Breaks

HAMAMATSU

Booth #1313

sales.hamamatsu.com

HIGH Q LASER
THINK ULTRAFAST!

Booth #4719

www.highq-us.com

NUFERN
Driven To Light.

Booth #2105

www.nufern.com

Coffee/Dessert Break

GOODRICH

Booth #811

www.sensorsinc.com

ofs

A Furukawa Company

Booth #2201

www.specialtyphotronics.com

Conference Bag Inserts

AMERICAN ELEMENTS

www.americanelements.com

CVI Melles Griot
AllThingsPhotonic.com

Booth #4501

www.cvimellesgriot.com

eagleyard
PHOTONICS

We focus on power.

Booth #1331

www.eagleyard.com

KENTEK
"Laser Smart Products"

Booth #4431

www.kenteklaserstore.com

modulight
on your wavelength

Booth #4635

www.modulight.com

MW multiwave

Booth #837

www.multiwavephotronics.com

OptoSigma

Booth #1623

www.optosigma.com

Photonics Online

Booth #936

www.photonicsonline.com

RSOFT
Design Group

Booth #2023

www.rsoftdesign.com

DLP
TEXAS INSTRUMENTS

Booth #2309

www.ti.com/mems

SmarAct
GmbH

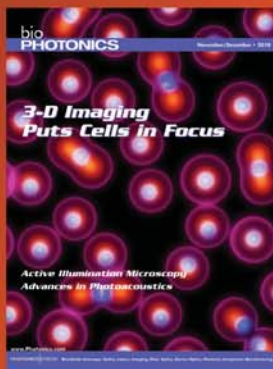
Booth #4106

www.smaract.de

CALL FOR ARTICLES

Photonics Media is currently accepting article proposals for this year's issues of Photonics Spectra and BioPhotonics.

Please submit a 100-word abstract to Managing Editor Laura Marshall at laura.marshall@photonics.com for consideration.



SECOND-QUARTER TOPICS:

Attosecond Lasers

Polymer Optics

Infrared Imaging

Active-Matrix OLEDs

3-D Displays

Laser Alignment

Optical Lithography

Ultrafast Imaging

Displays

Q-Switched Lasers

Nano-Lasers

Optical Design Software

Hyperspectral Imaging

Optofluidics

Plasmonics

Laser Surgery

Time-Lapse Microscopy

Tissue Diagnosis & Imaging

FTIR Spectroscopy

Fiber Optics for Biology

Lasers for Aesthetics

Multiphoton Microscopy

Optics & Filters for Biology

Optical Spectroscopy

Microscopy

* Other topics will be considered for possible placement in our print or online publications.

Visit us at BiOs, Booth 8526 and Photonics West, Booth 522

PHOTONICS MEDIA
THE PULSE OF THE INDUSTRY

SPIE Photonics West Sponsors

Exhibitor Reception Co-Sponsors



www.SPIE.org



Booth #1501
www.laserfocusworld.com



Booth #1501
www.industrial-lasers.com



Booth #1501
www.bioopticsworld.com



Booth #1501
www.vision-systems.com

Exhibition/City Map Sponsors



Booth #730
www.castech.com



Booth #4501
www.cvimellesgriot.com



Booth #4410
www.exciton.com



Booth #600
www.frlaserco.com



Booth #311
www.mpbcommunications.com



Booth #837
www.multiwavephotonics.com



Booth #1001
www.oclaro.com



Booth # 1837
www.opnext.com



Booth #715
www.optiwave.com



Booth #1601
[www.us.schott.com/
advanced_optics](http://www.us.schott.com/advanced_optics)



Booth #2423
www.thermoscientific.com



Booth #2317
www.trioptics.com

Northern Lights at Your Service

Photonics Industry & Technology in Canada



Visit the Canada Pavilion at Photonics West and BiOS and meet great Canadian companies, regional clusters and the Canadian Photonics Fabrication Centre. Together they offer world class products prototyping services and leading technologies.

Members of the Canada Pavilion at Photonics West (booth #5006) are:

- Alberta Centre for Advanced Micro & Nano Technology Products
- BMV Optical Technologies Inc.
- Canadian Institute for Photonic Innovations
- Canadian Photonics Consortium
- Doric Lenses Inc.
- Genia Photonics
- GiGa Concept Inc.
- IRphotonics Inc.
- O-M6 Technologies Inc.
- Ontario Photonics Industry Network
- P&P Optica
- QGLex Inc.
- Quebec Photonic Network

Members of the Canada Pavilion at BiOS (booth #8309) are:

- Alberta Centre for Advanced Micro & Nano Technology Products
- Genia Photonics
- GiGa Concept Inc.
- P&P Optica
- Photon etc. Inc.
- Quebec Photonic Network

We also invite you to visit during the Photonics West exhibition the following companies that are part of the Canadian Cluster:

- Avensys Inc. - booth 5009
- Beamtech Optronics Co. Ltd. booth 5013
- Bo Xin Photoelectric Co., Ltd – booth 5012
- Canadian Photonics Fabrication Centre – booth 5019
- Crosslight Software Inc. – booth 5010
- DALSA – booth 5014
- ESI – Pyrophotonics Lasers Inc. – booth 5018
- Firebird Technologies Inc. – booth 5017
- NorPix Inc. – booth 5016
- OZ Optics Ltd. – booth 4801
- Photon etc. – booth 5015
- World Star Tech – booth 5021

CANADIAN PHOTONICS
FABRICATION CENTRE

CENTRE CANADIEN DE
FABRICATION DE
DISPOSITIFS PHOTONIQUES



Canadian Photonics Consortium
Consortium photonique du Canada
www.photonics.ca

SPIE Photonics West Sponsors

Meter Boards



Booth #4300

www.brushceramics.com



Booth #4501

www.cvimellesgriot.com



Booth #312

www.depsci.com



Booth #600

www.frlaserco.com



Booth #1301

www.newport.com



Booth #1001

www.oclaro.com



Booth #5043

www.opticsbalzers.com



Booth #200

www.photonengr.com



Booth #5300

www.pgo.com



Booth #1223

www.princetoninstruments.com



Booth #1522

www.qioptiq.com



Booth #5414

www.thalesgroup.com

Escalator Panels



Booth #1313

sales.hamamatsu.com

Exhibition/City Map Back Cover Sponsor



Booth #837

www.multiwavephotonics.com

General Refreshment Sponsors

B&W Tek, Inc. Booth #801

Collimated Holes, Inc. Booth #735

Corning Inc. Booth #611

Fiberguide Industries Inc.
Booth #701

Heraeus Booth #1800

JENOPTIK Optical Systems
GmbH Booth #1323

OFS, Specialty Photonics Division
Booth #2201

Rainbow Research Optics, Inc.
Booth #2400

Rocky Mountain Instrument
Booth #1515

Promotional Partners

Advanced Imaging Magazine · AT-Fachverlag GmbH
 Carl Hanser Verlag · China Optoelectronics · EDP Sciences
 Electro Optics Magazine · Industrial Laser Solutions Japan
 IOP Publishing · Journal of Laser Applications
 Laser Focus World · Laser Focus World Japan · LEDinside
 Optics.org · Opto Index · The Optronics Co., Ltd.
 Photonics Industry & Technology Development Association (PIDA)
 Photonics Media · Photonics Online · Photonics Tech Briefs
 Photonics.com/Photonics Directory · Physics Today
 PhysOrg.com · Spectroscopy · Vision Systems Design

Two Days Only Job Fair

North Hall | Aisle 5600

Tuesday 25 January · 10:00 am to 5:00 pm
Wednesday 26 January · 10:00 am to 5:00 pm

Whether you're looking for a better job, re-entering the workforce or just starting your career, the Job Fair is a great place to start.

- Meet with employers and interview on the spot
- Learn more about opportunities in our industry

These companies will be on hand to discuss career opportunities.

FOCUS ON THE PERFECT MATCH

Newport
Experience | Solutions

Industry Professionals Offer Career Advice

Supporting students and early career professionals is a priority at Newport. Be sure to stop by their table at the career fair to review open positions and get advice from their staff.

- Free gift while supplies last.



spie.org/careercenter





Get the training you need to stay competitive in today's job market

Courses at SPIE Events offer an engaging experience for those who prefer face-to-face instruction, where interaction with the instructor and sharing information with other students provide increased value.

Biomedical Spectroscopy, Microscopy, and Imaging

- Sun SC978 **Light Microscopy** (*Tkaczyk*)
1:30 to 5:30 pm,
\$385 / \$440
- Mon SC981 **Biomedical Fiber Optic Sensors and Applications** (*Mendez, McLaughlin*)
8:30 am to 12:30 pm,
\$350 / \$405
- Mon SC979 **Fundamentals of Three-Dimensional Optical Microscopy** (*Martinez-Corral, Javidi*) 8:30 am to 5:30 pm,
\$575 / \$685
- Tues SC1013 **Choosing the Correct Optical Filter for Your Application** (*Reichel*)
8:30 am to 12:30 pm,
\$350 / \$405
- Tues SC868 **Optical Design for Biomedical Imaging** (*Liang*) 1:30 to 5:30 pm,
\$425 / \$480
- Weds SC865 **Microscope Design** (*Seward*) 8:30 am to 12:30 pm, \$350 / \$405

Clinical Technologies and Systems

- Sun SC312 **Principles and Applications of Optical Coherence Tomography** (*Fujimoto*)
1:30 to 5:30 pm,
\$350 / \$405
- Mon SC981 **Biomedical Fiber Optic Sensors and Applications** (*Mendez, McLaughlin*)
8:30 am to 12:30 pm,
\$350 / \$405

Displays and Holography

- Mon SC011 **Design of Efficient Illumination Systems** (*Cassarly*) 1:30 to 5:30 pm,
\$350 / \$405

Laser Applications

- Tues SC746 **Introduction to Ultrafast Technology** (*Trebino*) 1:30 to 5:30 pm,
\$350 / \$405
- Weds SC188 **Laser Beam Propagation for Applications in Laser Communications, Laser Radar, and Active Imaging** (*Phillips, Andrews*)
8:30 am to 5:30 pm,
\$695 / \$805

Laser Micro-/ Nanoengineering

- Mon SC743 **Micromachining with Femtosecond Lasers** (*Nolte, Schaffer*) 1:30 to 5:30 pm, \$350 / \$405
- Weds SC689 **Precision Laser Micromachining** (*Schaeffer*)
8:30 am to 12:30 pm,
\$350 / \$405

Laser Source Engineering

- Sat SC752 **Solid State Laser Technology** (*Hodgson*)
8:30 am to 5:30 pm,
\$575 / \$685
- Sun SC744 **Ultrafast Fiber Lasers** (*Fermann*) 8:30 am to 12:30 pm, \$350 / \$405

- Sun SC984 **Fiber Amplifiers** (*Digonnet*) 1:30 to 5:30 pm, \$350 / \$405
- Sun SC748 **High-Power Fiber Sources** (*Nilsson*) 1:30 to 5:30 pm,
\$350 / \$405
- Sun SC1020 **Splicing of Specialty Fibers and Glass Processing of Fused Fiber Components** (*Wang*)
1:30 to 5:30 pm,
\$350 / \$405
- Mon SC931 **Applied Nonlinear Frequency Conversion** (*Paschotta*) 8:30 am to 5:30 pm, \$575 / \$685
- Mon SC974 **Interconnection and Splicing of High-Power Optical Fibers** (*Yablon*) 8:30 am to 12:30 pm,
\$350 / \$405
- Mon SC1012 **Coherent Mid-Infrared Sources and Applications** (*Vodopyanov*) 1:30 to 5:30 pm, \$350 / \$405
- Tues SC818 **Laser Beam Quality** (*Paschotta*) 8:30 am to 12:30 pm, \$350 / \$405
- Tues SC977 **Fundamentals of Laser Beam Profile Measurements** (*Rypma*)
1:30 to 5:30 pm, \$350 / \$405
- Tues SC746 **Introduction to Ultrafast Technology** (*Trebino*)
1:30 to 5:30 pm, \$350 / \$405
- Weds WS972 **Basic Laser Technology** (*Sukuta*) 8:30 am to 12:30 pm, \$350 / \$405
- Weds SC860 **Resonator Design for Solid State Lasers** (*Paschotta*)
8:30 am to 5:30 pm,
\$575 / \$685



OPCO
Laboratory Inc.

Custom Precision Optics

Optical Fabrication

- Prisms, Beamsplitters, Lenses, Mirrors, Filters, Domes, Flats, Windows
- All Optical Glasses, Fused Silica, MgF₂, CaF₂, Sapphire, Borosilicate



Thin Film Coating

- Custom Designs, Modeling Capability
- AR, Broadband, Dual Band, Reflective, Protected and Enhanced Metallics
- Multi-Layer Dielectrics - 126nm to 25um



Replication

- Exact Reproduction in Accuracy and Surface Quality for Ellipsoid, Paraboloid, Toroidal, Plano, Spherical Mirrors, & Diffraction Gratings
- Unlimited Variety of Substrates, Metals, Glass, Graphite, Silicon Carbide
- Monolithic, Low Cost, Reusable



Optical Assemblies

- Multi-Element Optical/Electro/Mechanical
- Prototype and Production Quantities
- Aligned, Pre-Tested, and Certified
- Class 1000 Clean Rooms



TEL: 978-345-2522
www.opcolab.com
info@opcolab.com

Micro/Nanofabrication

- Mon SC743 **Micromachining with Femtosecond Lasers** (Nolte, Schaffer) 1:30 to 5:30 pm, \$350 / \$405
- Weds SC689 **Precision Laser Micromachining** (Schaeffer) 8:30 am to 12:30 pm, \$350 / \$405
- Weds SC532 **Micro- and Nanofluidics - Technology and Applications** (Gärtner) 8:30 am to 12:30 pm, \$350 / \$405
- Weds SC1014 **Microfabrication Technologies for Microfluidic Devices** (Becker) 1:30 to 5:30 pm, \$350 / \$405

Nano/Biophotonics

- Sun SC309 **Fluorescent Markers: Usage and Optical System Optimization** (Levi) 8:30 am to 12:30 pm, \$350 / \$405
- Sun SC463 **Biophotonics** (Prasad) 9:00 am to 6:00 pm, \$650 / \$760
- Sun SC461 **Bio-Optical Detection Systems** (Levi) 1:30 to 5:30 pm, \$350 / \$405
- Tues SC1013 **Choosing the Correct Optical Filter for Your Application** (Reichel) 8:30 am to 12:30 pm, \$350 / \$405
- Weds SC727 **Nanoplasmonics** (Stockman) 8:30 am to 5:30 pm, \$575 / \$685

Nanotechnologies in Photonics

- Sun SC608 **Photonic Crystals: A Crash Course, from Bandgaps to Fibers** (Johnson) 1:30 to 5:30 pm, \$395 / \$450

Nonlinear Optics

- Sun SC1020 **Splicing of Specialty Fibers and Glass Processing of Fused Fiber Components** (Wang) 1:30 to 5:30 pm, \$350 / \$405
- Mon SC931 **Applied Nonlinear Frequency Conversion** (Paschotta) 8:30 am to 5:30 pm, \$575 / \$685
- Mon SC974 **Interconnection and Splicing of High-Power Optical Fibers** (Yablon) 8:30 am to 12:30 pm, \$350 / \$405
- Mon SC1012 **Coherent Mid-Infrared Sources and Applications** (Vodopyanov) 1:30 to 5:30 pm, \$350 / \$405

Optical Communications: Devices to Systems

- Weds SC188 **Laser Beam Propagation for Applications in Laser Communications, Laser Radar, and Active Imaging** (Phillips, Andrews) 8:30 am to 5:30 pm, \$695 / \$805

Registration Required

See SPIE Cashier, North Lobby.

Visit **OPCO** at Booth 911 **PHOTONICS WEST 2011** San Francisco January 25, 26 & 27

Course Index

Optics and Optical Engineering

Sun	SC935	Introduction to Lens Design (<i>Bentley</i>) 8:30 am to 5:30 pm, \$675 / \$685
Sun	SC212	Modern Optical Testing (<i>Wyant</i>) 8:30 am to 12:30 pm, \$380 / \$435
Mon	SC156	Basic Optics for Engineers (<i>Ducharme</i>) 8:30 am to 5:30 pm, \$610 / \$720
Mon	SC690	Optical System Design: Layout Principles and Practice (<i>Greivenkamp</i>) 8:30 am to 5:30 pm, \$680 / \$790
Mon	SC702	Optics and Optical Quality of the Human Eye (<i>Roorda</i>) 8:30 am to 12:30 pm, \$350 / \$405
Mon	SC321	Thin Film Optical Coatings (<i>Macleod</i>) 8:30 am to 5:30 pm, \$575 / \$685
Mon	SC011	Design of Efficient Illumination Systems (<i>Cassarly</i>) 1:30 to 5:30 pm, \$350 / \$405
Mon	SC932	Ophthalmic Adaptive Optics (<i>Miller</i>) 1:30 to 5:30 pm, \$350 / \$405
Tues	SC1013	Choosing the Correct Optical Filter for Your Application (<i>Reichel</i>) 8:30 am to 12:30 pm, \$350 / \$405
Tues	SC206	Polarized Light: A Practical Hands-on Introduction (<i>Fisher</i>) 8:30 am to 5:30 pm, \$575 / \$685
Tues-SC003 Wed		Practical Optical System Design (<i>Fischer, Youngworth</i>) 8:30 am to 5:30 pm, \$1135 / \$1390
Tues	SC017	Principles of Fourier Optics and Diffraction (<i>Gaskill</i>) 8:30 am to 5:30 pm, \$680 / \$790
Tues	SC384	The Design of Plastic Optical Systems (<i>Schaub</i>) 1:30 to 5:30 pm, \$405 / \$460
Tues	SC1011	Understanding Waviness and Roughness Specifications for Optics (<i>Aikens</i>) 1:30 to 5:30 pm, \$350 / \$405
Weds	WS972	Basic Laser Technology (<i>Sukuta</i>) 8:30 am to 12:30 pm, \$350 / \$405
Weds	SC700	Understanding Scratch and Dig Specifications (<i>Aikens</i>) 8:30 am to 12:30 pm, \$420 / \$475
Weds	SC1017	Optics Surface Inspection Workshop (<i>Aikens</i>) 1:30 to 5:30 pm, \$400 / \$455

Optoelectronic Materials and Devices

Sun	SC984	Fiber Amplifiers (<i>Digonnet</i>) 1:30 to 5:30 pm, \$350 / \$405
Mon	SC931	Applied Nonlinear Frequency Conversion (<i>Paschotta</i>) 8:30 am to 5:30 pm, \$575 / \$685
Mon	SC747	Semiconductor Optoelectronic Device Fundamentals (<i>Linden</i>) 8:30 am to 5:30 pm, \$575 / \$685
Weds	SC817	Silicon Photonics (<i>Michel, Saini</i>) 8:30 am to 12:30 pm, \$350 / \$405
Weds	SC547	Terahertz Wave Technology and Applications (<i>Zhang</i>) 8:30 am to 12:30 pm, \$350 / \$405

Optomechanics

Tues- Wed	SC010	Introduction to Optical Alignment Techniques (<i>Ruda</i>) 8:30 am to 5:30 pm, \$1050 / \$1305
Tues	SC1019	Mounting of Optical Components (<i>Burge</i>) 8:30 am to 5:30 pm, \$660 / \$770
Tues	SC015	Structural Adhesives for Optical Bonding (<i>Daly</i>) 8:30 am to 12:30 pm, \$350 / \$405
Weds	SC781	Optomechanical Analysis (<i>Hatheway</i>) 8:30 am to 5:30 pm, \$575 / \$685

Photonic Integration

Mon	SC747	Semiconductor Optoelectronic Device Fundamentals (<i>Linden</i>) 8:30 am to 5:30 pm, \$575 / \$685
Weds	SC817	Silicon Photonics (<i>Michel, Saini</i>) 8:30 am to 12:30 pm, \$350 / \$405

Photonic Therapeutics and Diagnostics

Mon	SC702	Optics and Optical Quality of the Human Eye (<i>Roorda</i>) 8:30 am to 12:30 pm, \$350 / \$405
Mon	SC932	Ophthalmic Adaptive Optics (<i>Miller</i>) 1:30 to 5:30 pm, \$350 / \$405

Semiconductor Lasers and LEDs

Sun	SC1020	Splicing of Specialty Fibers and Glass Processing of Fused Fiber Components (<i>Wang</i>) 1:30 to 5:30 pm, \$350 / \$405
Mon	SC657	Accurate Measurement of LED Optical Properties (<i>Tirpak</i>) 8:30 am to 12:30 pm, \$350 / \$405
Mon	SC974	Interconnection and Splicing of High-Power Optical Fibers (<i>Yablon</i>) 8:30 am to 12:30 pm, \$350 / \$405
Mon	SC052	Light-Emitting Diodes (<i>Schubert</i>) 8:30 am to 12:30 pm, \$420 / \$475
Mon	SC747	Semiconductor Optoelectronic Device Fundamentals (<i>Linden</i>) 8:30 am to 5:30 pm, \$575 / \$685
Mon	SC1012	Coherent Mid-Infrared Sources and Applications (<i>Vodopyanov</i>) 1:30 to 5:30 pm, \$350 / \$405
Mon	SC011	Design of Efficient Illumination Systems (<i>Cassarly</i>) 1:30 to 5:30 pm, \$350 / \$405
Mon	SC958	LED & Solid-State Lighting Standardization (<i>Jiao</i>) 1:30 to 5:30 pm, \$350 / \$405
Tues	SC977	Fundamentals of Laser Beam Profile Measurements (<i>Rypma</i>) 1:30 to 5:30 pm, \$350 / \$405

Standards

Mon	SC958	LED & Solid-State Lighting Standardization (<i>Jiao</i>) 1:30 to 5:30 pm, \$350 / \$405
Tues	SC1011	Understanding Waviness and Roughness Specifications for Optics (<i>Aikens</i>) 1:30 to 5:30 pm, \$350 / \$405
Weds	SC700	Understanding Scratch and Dig Specifications (<i>Aikens</i>) 8:30 am to 12:30 pm, \$420 / \$475
Weds	SC1017	Optics Surface Inspection Workshop (<i>Aikens</i>) 1:30 to 5:30 pm, \$400 / \$455

Tissue Optics, Laser-Tissue Interaction, and Tissue Engineering

Sun SC029 **Tissue Optics** (*Jacques*)
1:30 to 5:30 pm, \$350 / \$405

Industry Workshops

Business, Patents + IP

- Mon WS1008 **Negotiation Strategy and Tactics** (*Levine*)
8:30 am to 12:30 pm,
\$150 / \$200
- Tues WS973 **Valuation of Closely Held Technology Companies, Product Lines and Intellectual Property** (*Smith*) 8:30 am to 12:30 pm, \$350 / \$405
- Tues WS1010 **Smart Patenting** (*Gortych*) 1:30 to 5:30 pm, \$350 / \$405
- Weds WS933 **Complying with the ITAR: A Case Study** (*Scarlett*) 1:30 to 5:30 pm, \$350 / \$405

Fundamental Optics

- Mon WS609 **Basic Optics for Non-Optics Personnel** (*Harding*) 1:30 to 4:00 pm, \$150 / \$200
- Weds WS972 **Basic Laser Technology** (*Sukuta*) 8:30 am to 12:30 pm, \$350 / \$405

Professional Development

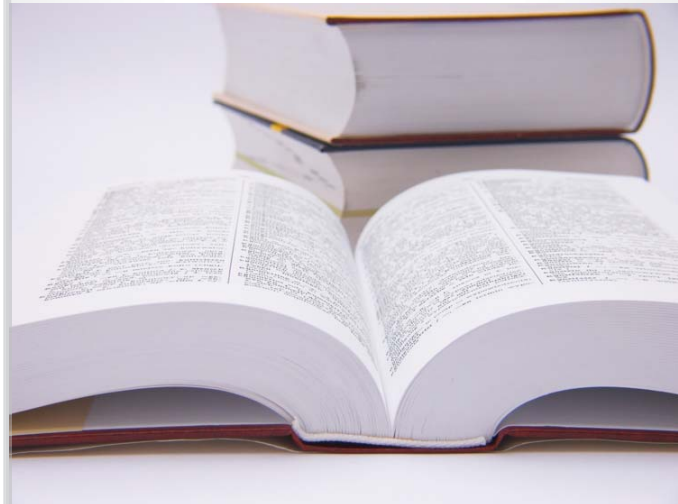
- Mon WS1008 **Negotiation Strategy and Tactics** (*Levine*) 8:30 am to 12:30 pm, \$150 / \$200
- Mon WS1018 **Laser-Sharp Career Strategy: Resumes/CVs and Interviewing** (*Levine*)
1:30 to 5:30 pm, \$150 / \$200
- Weds WS667 **The Craft of Scientific Presentations: A Workshop on Technical Presentations** (*Alley*) 8:30 am to 12:30 pm, \$125 / \$175
- Weds WS668 **The Craft of Scientific Writing: A Workshop on Technical Writing** (*Alley*)
1:30 to 5:30 pm, \$125 / \$175

Registration Required

See SPIE Cashier, North Lobby.

SPIE 
Photonics West

Visit the Marketplace



- ▶ Books
- ▶ Professional Development
- ▶ Membership
- ▶ Souvenirs
- ▶ Gifts for Children
- ▶ Free Posters
- ▶ Information



SPIE
Connecting minds. Advancing light.

2012 Photonics West

21–26 January 2012

Mark your calendar

Applications of optoelectronics, lasers,
micro/nanophotonics, and biomedical optics

Location

The Moscone Center
San Francisco, California, USA

spie.org/pw

Conference dates

21–26 January 2012

Exhibition dates

BiOS: 21–22 January
Photonics West:
24–26 January

Technologies

- BiOS–Biomedical Optics
- OPTO–Integrated Optoelectronics
- LASE–Lasers and Applications
- MOEMS–MEMS–Micro & Nanofabrication
- Green Photonics



SPIE

Connecting minds. Advancing light.

Green Photonics Conference Daily Schedule



GREEN PHOTONICS

270 Papers · 4 Virtual Tracks

Hear groundbreaking research in green technologies and applications

Energy, sustainability, and conservation are inherently interdisciplinary. The new Green Photonics virtual symposium brings together the latest developments in a broad range of photonics applications across Photonics West.



Stephen J. Eglash
Precourt Institute for Energy,
Stanford Univ. (USA)

GREEN PHOTONICS

Sunday	Monday	Tuesday	Wednesday	Thursday
--------	--------	---------	-----------	----------

Solid State Lighting and Displays

Efficient new light sources will provide long-lived and economical illumination for human activities and information display

	Sunday	Monday	Tuesday	Wednesday	Thursday
Morning Sessions	ZnO Doping: Conf. 7940 (Session 1)	Photovoltaics I: Advanced Concepts: Conf. 7933 (Session 1)	Photovoltaics III: Optical Design: Conf. 7933 (Session 5)	Lasers: Conf. 7939 (Session 8)	LEDs I: Conf. 7939 (Session 12)
		Growth I: Conf. 7939 (Session 1)	Advanced Techniques I: Conf. 7939 (Session 5)	Advances in Display Technologies: Conf. 7955 (Session 5)	High Speed VCSELs: Conf. 7952 (Session 5)
		Towards Understanding Oxides Properties: Conf. 7940 (Session 3)	Growth and Patterning of Oxides: Conf. 7940 (Session 5)	VCSEL for Optical Interconnects: Conf. 7952 (Session 1)	Fast-Switching and Novel Displays: Conf. 7956B (Session 1)
		GaN Doping: Conf. 7939 (Session 2)	Special Session on Light and Health: Human Factors for SSL: Conf. 7954 (Session 1)	Novel Devices: Conf. 7939 (Session 9)	LEDs II: Conf. 7939 (Session 13)
		Organic LED: Conf. 7935 (Session 2)		Electrowetting Displays: Conf. 7956A (Session 2)	Phosphors for LEDs: Conf. 7954 (Session 10)
				Alignment and Nanostructured Surfaces: Conf. 7955 (Session 6)	
Afternoon Sessions				Physics and Simulation of Light Emitting Diodes: Conf. 7933 (Session 9)	
				LED Manufacturing and Applications: Conf. 7954 (Session 5)	
	ZnO Nanostructures: Growth and Device Fabrication: Conf. 7940 (Session 2)	Organic Laser and Emission: Conf. 7935 (Session 3)	Photovoltaics IV: Physics and Simulation: Conf. 7933 (Session 6)	E-Paper Display Technologies and Applications: Conf. 7956A (Session 3)	Mid-IR Lasers and Applications I: Conf. 7953 (Session 14)
	Materials: Conf. 7943 (Session 2)	FET I: Conf. 7939 (Session 3)	Advanced Techniques II: Conf. 7939 (Session 6)	VCSEL Sensors and Applications: Conf. 7952 (Session 4)	LEDs III: Conf. 7939 (Session 14)
		Photonic Integration: Conf. 7941 (Session 3)	Oxide-based Devices: Conf. 7940 (Session 6)	OPTO Poster Session: Confs. 7939, 7940, and 7943	Photodetectors: Conf. 7933 (Session 14)
		Novel ZnO-based Devices/Approaches: Conf. 7940 (Session 4)	Advanced Techniques III: Conf. 7939 (Session 7)		LEDs IV: Conf. 7939 (Session 15)
	Photovoltaics II: Materials: Conf. 7933 (Session 4)				
	FET II: Conf. 7939 (Session 4)				
	Organic Electronics: Conf. 7935 (Session 4)				

Green Photonics Conference Daily Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday
--------	--------	---------	-----------	----------

Laser-assisted Manufacturing and Micro/Nano Fabrication

Optoelectronic sensors and concentrated optical energy sources will enable precision fabrication with low waste

Morning Sessions	Quantum Cascade Lasers and Applications I: Conf. 7945 (Session 1)	High Brightness Laser Diodes: Conf. 7918 (Session 4)	Ultrashort Pulse Micromachining: Joint Session with Conf. 7920 (Session 5) and 7925 (Session 8)		
	Quantum Cascade Lasers and Applications II: Conf. 7945 (Session 2)		Thin Film and Wafer Processing: Joint Session with Conf. 7920 (Session 6) and 7925 (Session 9)	Nanofabrication II: Growth and Deposition: Conf. 7927 (Session 6)	Laser-based Processing: Conf. 7926 (Session 2)
Afternoon Sessions	Quantum Cascade Lasers and Applications III: Conf. 7945 (Session 3)	High Power Laser Diodes: Conf. 7918 (Session 5)	Devices for Space Applications I: Conf. 7928 (Session 5)	Active Optical Device Fabrication: Conf. 7927 (Session 7)	Batteries and Thin Film Structuring: Conf. 7921 (Session 6)
	Laser Beam, Shaping: Conf. 7913 (Session 3)	Laser Modification of Materials: Conf. 7920 (Session 4)	Online Monitoring: Joint Session with Conf. 7920 (Session 7) and Conf. 7925 (Session 10)	Additive Manufacturing and Advanced Deposition Processes: Conf. 7921 (Session 3)	Photovoltaics/Energy Devices: Joint Session with Conf. 7920 (Session 11) and 7921 (Session 7)
	Quantum Cascade Lasers and Applications IV: Conf. 7945 (Session 4)		Devices for Space Applications II: Joint Session with Conf. 7928 (Session 6) 7930 (Session 5), and 7931 (Session 1)	Nanofabrication III: Passive Optical Devices: Conf. 7927 (Session 8)	

Sunday	Monday	Tuesday	Wednesday	Thursday
--------	--------	---------	-----------	----------

Communications

The next generation of optical networks will operate with increased bandwidth and reduced power consumption

Morning Sessions		Ultra-Performance Nanophotonics Interconnects (UNIC Program): Conf. 7944 (Session 1)			Optical Networks: Joint Session with Confs. 7958 (Session 6), 7959 (Session 6), and 7960 (Session 6)
					Green OEIC Technologies: Conf. 7942 (Session 6)
Afternoon Sessions	Materials: Conf. 7943 (Session 2)		Modulators: Conf. 7943 (Session 13)	OPTO Poster Session: Confs. 7943, 7958, and 7959	

Green Photonics Conference Daily Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday
--------	--------	---------	-----------	----------

Renewable Energy Generation: Fusion and Photovoltaics

Small carbon footprint technologies will help meet the world's increasing demand for energy in a sustainable manner

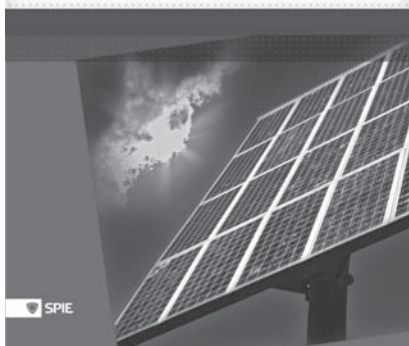
	Sunday	Monday	Tuesday	Wednesday	Thursday
Morning Sessions		Photovoltaics I: Advanced Concepts: Conf. 7933 (Session 1)	Photovoltaics III: Optical Design: Conf. 7933 (Session 5)	Physics and Simulation of Light Emitting Diodes: Conf. 7933 (Session 9)	
		Organic LED: Conf. 7935 (Session 2)			
Afternoon Sessions		Organic Laser and Emission: Conf. 7935 (Session 3)	Photovoltaics IV: Physics and Simulation: Conf. 7933 (Session 6)	Future Laser Systems I: Conf. 7916 (Session 2)	Batteries and Thin Film Structuring: Conf. 7921 (Session 6)
		Photovoltaics II: Materials: Conf. 7933 (Session 4)		Status of High Power Lasers: Conf. 7916 (Session 3)	Photodetectors: Conf. 7933 (Session 14)
		Organic Electronics: Conf. 7935 (Session 4)		Additive Manufacturing and Advanced Deposition Processes: Conf. 7921 (Session 3)	Future Laser Systems II: Conf. 7916 (Session 7)
					Photovoltaics/Energy Devices: Joint Session with Conf. 7920 (Session 11) and 7921 (Session 7)

Journal of Photonics for Energy

JUST LAUNCHED

An SPIE e-Journal

Journal of
Photonics for Energy



Free access in 2011:
SPIEDigitalLibrary.org

Published by SPIE

The *Journal of Photonics for Energy* (JPE) covers fundamental and applied research areas focused on the applications of photonics for energy harvesting, conversion, storage, distribution, monitoring, consumption, and efficient usage.

Editor-in-Chief

Zakya H. Kafafi, National Science Foundation

Editorial Board:

Sabry Abdel-Mottaleb, Ain Shams Univ., Egypt

Chihaya Adachi, Kyushu Univ., Japan

Christoph J. Brabec, Friedrich-Alexander-Univ. Erlangen-Nürnberg, Germany

Ian Ferguson, Univ. of North Carolina at Charlotte, USA

David Ginley, National Renewable Energy Lab., USA

Paul Lane, U.S. Naval Research Lab., USA

Juan Carlos Miñano, Univ. Politécnica de Madrid, Spain

Ifor D. W. Samuel, Univ. of St. Andrews, Scotland

Franky So, Univ. of Florida, USA

Loucas Tsakalakos, GE Global Research, USA

BiOS

SPIE Photonics West

Conferences and Courses: 22–27 January 2011
BiOS Exhibition: 22–23 January 2011
Photonics West Exhibition: 25–27 January 2011
The Moscone Center | San Francisco, California, USA

Symposium Chairs



James Fujimoto

Massachusetts Institute of Technology (USA)



R. Rox Anderson M.D.

Wellman Ctr. for Photomedicine, Massachusetts General Hospital (USA) and Harvard School of Medicine (USA)

Executive Organizing Committee

Samuel Achilefu, Washington Univ. in St. Louis (USA)

Robert R. Alfano, Institute for Ultrafast Spectroscopy and Lasers (USA)

Juanita Anders, Uniformed Services Univ. of the Health Sciences (USA)

Fred S. Azar, Becton, Dickinson and Co. (USA)

Vadim Backman, Northwestern Univ. (USA)

Thomas G. Brown, Univ. of Rochester Medical Ctr. (USA)

Alexander N. Cartwright, Univ. at Buffalo (USA)

Wei R. Chen, Univ. of Central Oklahoma (USA)

Bernard Choi, Beckman Laser Institute and Medical Clinic (USA)

Carol J. Cogswell, Univ. of Colorado at Boulder (USA)

Jose-Angel Conchello, Harvard Univ. (USA)

Gerard L. Coté, Texas A&M Univ. (USA)

Donald D. Duncan, Portland State Univ. (USA)

Jörg Enderlein, Eberhard Karls Univ. Tübingen (Germany)

Rainer Erdmann, PicoQuant GmbH (Germany)

Daniel L. Farkas, Cedars-Sinai Medical Ctr. (USA)

Philippe M. Fauchet, Univ. of Rochester (USA)

Daniel Fried, Univ. of California, San Francisco (USA)

James G. Fujimoto, Massachusetts Institute of Technology (USA)

Israel Gannot, Tel Aviv Univ. (Israel)

Kenton W. Gregory, Oregon Medical Laser Ctr. (USA)

Warren S. Grundfest, Univ. of California, Los Angeles (USA)

Zygmunt K. Gryczynski, Univ. of North Texas Health Science Ctr. at Fort Worth (USA)

Michael R. Hamblin, Massachusetts General Hospital (USA)

Henry Hirschberg, Beckman Laser Institute and Medical Clinic (USA)

Arthur Ho, Institute for Eye Research Ltd. (Australia)

Justus F. R. Ilgner, Univ. Hospital Aachen (Germany)

Xavier Intes, Rensselaer Polytechnic Institute (USA)

Joseph A. Izatt, Duke Univ. (USA)

Steven L. Jacques, Oregon Health & Science Univ. (USA)

E. Duco Jansen, Vanderbilt Univ. (USA)

Hyun Wook Kang, American Medical Systems Holdings, Inc. (USA)

David H. Kessel, Wayne State Univ. (USA)

Bodo E. Knudsen, The Ohio State Univ. (USA)

Nikiforos Kollias, Johnson & Johnson CPPW (USA)

Karsten König, Saarland Univ. (Germany)

Joseph R. Lakowicz, Univ. of Maryland School of Medicine (USA)

Kirill V. Larin, Univ. of Houston (USA)

Martin J. Leahy, Univ. of Limerick (Ireland)

Robert C. Leif, Newport Instruments (USA)

Rongguang Liang, Carestream Health, Inc. (USA)

Steen J. Madsen, Univ. of Nevada, Las Vegas (USA)

Anita Mahadevan-Jansen, Vanderbilt Univ. (USA)

Andreas Mandelis, Univ. of Toronto (Canada)

Fabrice Manns, Univ. of Miami (USA)

Laura Marcu, Univ. of California, Davis (USA)

Benjamin L. Miller, Univ. of Rochester (USA)

Dan V. Nicolau, Univ. of Liverpool (United Kingdom)

Robert J. Nordstrom, National Institutes of Health (USA)

Alexander A. Oraevsky, TomoWave Laboratories Inc. (USA)

Marek Osirski, The Univ. of New Mexico (USA)

Wolfgang J. Parak, Philipps-Univ. Marburg (Germany)

Ammasi Periasamy, Univ. of Virginia (USA)

Paras Prasad, SUNY/Buffalo (USA)

Ramesh Raghavachari, U.S. Food and Drug Administration (USA)

Peter Rechmann, Univ. of California, San Francisco (USA)

William P. Roach, U.S. Air Force (USA)

Thomas P. Ryan, Freefall Consulting (USA)

Eva M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (USA)

Peter T. C. So, Massachusetts Institute of Technology (USA)

Per G. Söderberg, Uppsala Univ. (Sweden)

Mamoru Tamura, Hokkaido Univ. (Japan)

Guillermo J. Tearney, Wellman Ctr. for Photomedicine (USA)

Robert J. Thomas, Air Force Research Lab. (USA)

Bruce J. Tromberg, Beckman Laser Institute and Medical Clinic (USA)

Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation)

Tuan Vo-Dinh, Duke Univ. (USA)

Thomas D. Wang, Univ. of Michigan (USA)

Ruikang K. Wang, Oregon Health & Science Univ. (USA)

Lihong V. Wang, Washington Univ. in St. Louis (USA)

Adam P. Wax, Duke Univ. (USA)

Ronald W. Waynant, U.S. Food and Drug Administration (USA)

Tony Wilson, Univ. of Oxford (United Kingdom)

Brian Jet-Fei Wong, Beckman Laser Institute and Medical Clinic, Univ. of California, Irvine (USA)

Kenji Yamamoto, International Medical Ctr. of Japan (Japan)

Arjun G. Yodh, Univ. of Pennsylvania (USA)

Haishan Zeng, The BC Cancer Agency Research Ctr. (Canada)

SPIE would like to express its deepest appreciation to the symposium chairs, conference chairs, program committees, session chairs, and authors who have so generously given their time and advice to make this symposium possible.

The symposium, like our other conferences and activities, would not be possible without the dedicated contribution of our participants and members. This program is based on commitments received up to the time of publication and is subject to change without notice.

Photonic Therapeutics and Diagnostics

Program Chair: **Brian Jet-Fei Wong**, Beckman Laser Institute and Medical Clinic, Univ. of California, Irvine (USA)

7883A	Room 303	Photonics in Dermatology and Plastic Surgery (Kollias/Choi/Zeng)	65
7883B	Room 302	Urology: Diagnostics, Therapeutics, Robotics, Minimally Invasive, and Photodynamic Therapy (Kang/Knudsen)	67
7883C	Room 200	Optical Imaging, Therapeutics, and Advanced Technology in Otolaryngology and Head and Neck Surgery (Wong/Ilgner)	69
7883D	Room 309	Diagnostic and Therapeutic Applications of Light in Cardiology (Gregory/Tearney/Marcu)	72
7883E	Room 256	Optical Techniques in Neurosurgery, Brain Imaging, and Neurobiology (Hirschberg/Madsen)	74
7883F	Room 252/254	Optics in Bone Biology and Diagnostics (Mandelis)	76
7884	Room 270/272	Lasers in Dentistry XVII (Rechmann/Fried)	78
7885	Room 306	Ophthalmic Technologies XXI (Manns/Söderberg/Ho)	80
7886	Room 276	Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XX (Kessel)	84
7887	Room 206	Mechanisms for Low-Light Therapy VI (Hamblin/Waynant/ Anders)	87
7888	Room 300	Frontiers in Biological Detection: From Nanosensors to Systems (Miller/Fauchet)	89

Clinical Technologies and Systems

Program Chairs: **Tuan Vo-Dinh**, Duke Univ. (USA); **Anita Mahadevan-Jansen**, Vanderbilt Univ. (USA)

7889	Room 303	Optical Coherence Tomography and Coherence Domain Optical Methods in Biomedicine XV (Fujimoto/Izatt/Tuchin)	91
7890	Room 256	Advanced Biomedical and Clinical Diagnostic Systems IX (Mahadevan-Jansen/Vo-Dinh/Grundfest)	96
7891	Room 309	Design and Quality for Biomedical Technologies IV (Raghavachari/ Liang)	99
7892	Room 301	Multimodal Biomedical Imaging VI (Azar/Intes)	101
7893	Room 304	Endoscopic Microscopy VI (Tearney/Wang)	103
7894	Room 250/262	Optical Fibers, Sensors, and Devices for Biomedical Diagnostics and Treatment XI (Gannot)	106
7895	Room 307	Optical Biopsy IX (Alfano)	108
7896	Room 301	Optical Tomography and Spectroscopy of Tissue IX (Tromberg/Yodh/Tamura/Sevick-Muraca/Alfano)	110

Tissue Optics, Laser-Tissue Interaction, and Tissue Engineering

Program Chairs: **Steven L. Jacques**, Oregon Health & Science Univ. (USA); **William P. Roach**, U.S. Air Force (USA)

7897	Room 200	Optical Interactions with Tissue and Cells XXII (Jansen/Thomas)	115
7898	Room 307	Dynamics and Fluctuations in Biomedical Photonics VIII (Tuchin/Duncan/Larin/ Leahy/Wang)	119
7899	Room 305	Photons Plus Ultrasound: Imaging and Sensing 2011 (Oravsky/Wang)	122
7900	Room 202/204	Biophotonics and Immune Responses VI (Chen)	128
7906B	Room 202/204	Design and Performance Validation of Phantoms Used in Conjunction with Optical Measurement of Tissue III (Nordstrom)	149
7901	Room 208	Energy-based Treatment of Tissue and Assessment VI (Ryan)	130
7883G	Room 274	Photons and Neurons III (Mahadevan-Jansen/Jansen)	77

Biomedical Spectroscopy, Microscopy, and Imaging

Program Chairs: **Ammasi Periasamy**, Univ. of Virginia (USA); **Daniel L. Farkas**, Cedars-Sinai Medical Ctr. (USA)

7902	Room 112	Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues IX (Farkas/Nicolau/ Leif)	132
7903	Room 308	Multiphoton Microscopy in the Biomedical Sciences XI (Periasamy/So/König)	136
7904	Room 220/222	Three-Dimensional and Multidimensional Microscopy: Image Acquisition and Processing XVIII (Conchello/Cogswell/Wilson/Brown)	141
7905	Room 310	Single Molecule Spectroscopy and Imaging IV (Enderlein/Gryczynski/Erdmann)	144
7906A	Room 112	Optical Diagnostics and Sensing XI: Toward Point-of-Care Diagnostics (Coté)	147
7907	Room 220/222	Biomedical Applications of Light Scattering V (Wax/Backman)	150

Nano/Biophotonics

Program Chairs: **Paras Prasad**, SUNY/Buffalo (USA); **Dan V. Nicolau**, The Univ. of Liverpool (United Kingdom)

7908	Room 309	Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications VIII (Cartwright/Nicolau)	152
7909	Room 232	Colloidal Quantum Dots/Nanocrystals for Biomedical Applications VI (Parak/Yamamoto/Osin'ski)	154
7910	Room 306	Reporters, Markers, Dyes, Nanoparticles, and Molecular Probes for Biomedical Applications III (Achilefu/Raghavachari)	158
7911	Room 206	Plasmonics in Biology and Medicine VIII (Vo-Dinh/Lakowicz)	161

Photonics West maps:

Moscone Center Maps pp. 2–4
Walking Map p. 14

BiOS Conference Daily Schedule

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
----------	--------	--------	---------	-----------	----------

Program on

Photonic Therapeutics and Diagnostics

Program Chair: **Brian Jet-Fei Wong**, Beckman Laser Institute and Medical Clinic, Univ. of California, Irvine (USA)

7888 **Frontiers in Biological Detection: From Nanosensors to Systems** (Miller, Fauchet) p. 89

7887 **Mechanisms for Low-Light Therapy VI** (Hamblin, Waynant, Anders) p. 87

7884 **Lasers in Dentistry XVII** (Rechmann, Fried) p. 78

7885 **Ophthalmic Technologies XXI** (Manns, Söderberg, Ho) p. 80

7883C **Optical Imaging, Therapeutics, and Advanced Technology in Otolaryngology and Head and Neck Surgery** (Wong, Ilgner) p. 69

7883F **Optics in Bone Biology and Diagnostics** (Mandelis) p. 76

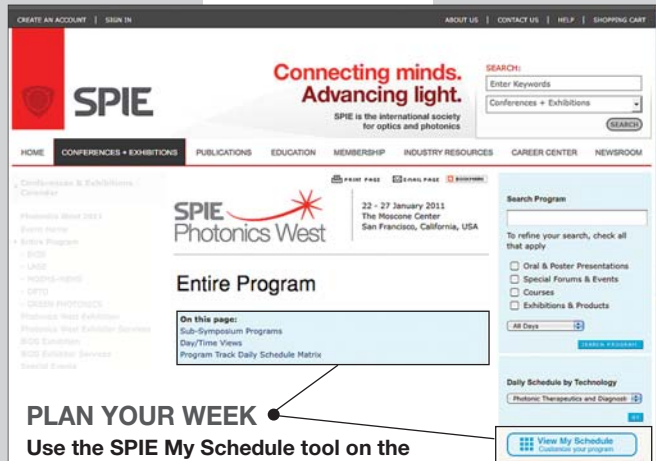
7883D **Diagnostic and Therapeutic Applications of Light in Cardiology** (Gregory, Tearney, Marcu) p. 72

7886 **Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XX** (Kessel) p. 84

7883E **Optical Techniques in Neurosurgery, Brain Imaging, and Neurobiology** (Hirschberg, Madsen) p. 74

7883A **Photonics in Dermatology and Plastic Surgery** (Kollias, Choi, Zeng) p. 65

7883B **Urology: Diagnostics, Therapeutics, Robotics, Minimally Invasive, and Photodynamic Therapy** (Kang, Knudsen) p. 67



PLAN YOUR WEEK

Use the SPIE My Schedule tool on the Photonics West site

- Add Papers | Exhibitors | Courses | Special Events

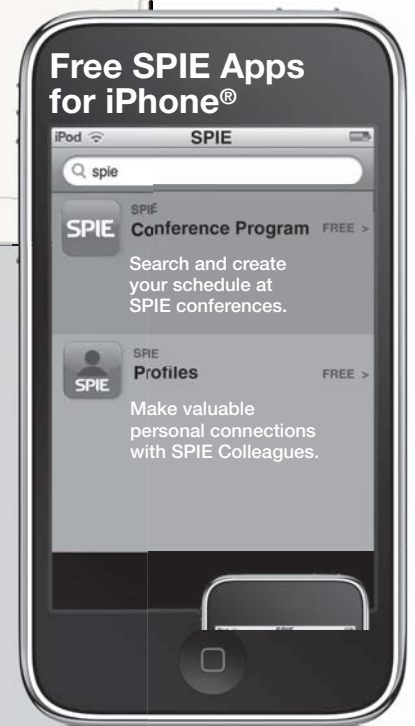
Use the Entire Program webpage to view the program your way:

- By Symposium and Conference—papers, courses, special events
- By Day and Time—see what's happening now
- In a Matrix Grid by Program Track—handy at-a-glance reference



Get the free mobile app at <http://gettag.mobi>

Open the tag reader app and hold your phone's camera over the tag. You'll go to the Photonics West program page, where you can browse by technology, by day/time, or by matrix view.



Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
----------	--------	--------	---------	-----------	----------

Program on

Clinical Technologies and Systems

Program Chairs: **Tuan Vo-Dinh**, Duke Univ. (USA); **Anita Mahadevan-Jansen**, Vanderbilt Univ. (USA)

7894 Optical Fibers, Sensors, and Devices for Biomedical Diagnostics and Treatment XI (<i>Gannot</i>) p. 106	7889 Optical Coherence Tomography and Coherence Domain Optical Methods in Biomedicine XIV (<i>Fujimoto, Izatt, Tuchin</i>) p. 91
7892 Multimodal Biomedical Imaging VI (<i>Azar, Intes</i>) p. 101	7895 Optical Biopsy IX (<i>Alfano</i>) p. 108
7893 Endoscopic Microscopy VI (<i>Tearney, Wang</i>) p. 103	
7896 Optical Tomography and Spectroscopy of Tissue IX (<i>Tromberg, Yodh, Tamura, Sevick-Muraca, Alfano</i>) p. 110	
7890 Advanced Biomedical and Clinical Diagnostic Systems IX (<i>Mahadevan-Jansen, Vo-Dinh, Grundfest</i>) p. 96	
7891 Design and Quality for Biomedical Technologies IV (<i>Raghavachari, Liang</i>) p. 99	

Program on

Tissue Optics, Laser-Tissue Interaction, and Tissue Engineering

Program Chairs: **Steven L. Jacques**, Oregon Health & Sciences Univ. (USA); **William P. Roach**, U.S. Air Force (USA)

7906B Design and Performance Validation of Phantoms Used in Conjunction with Optical Measurement of Tissue III (<i>Nordstrom</i>) p. 149	7900 Biophotonics and Immune Responses VI (<i>Chen</i>) p. 128
7898 Dynamics and Fluctuations in Biomedical Photonics VI (<i>Tuchin, Duncan, Larin, Leahy, Wang</i>) p. 109	
7901 Energy-based Treatment of Tissue and Assessment VI (<i>Ryan</i>) p. 130	
7899 Photons Plus Ultrasound: Imaging and Sensing 2011 (<i>Oraevsky, Wang</i>) p. 122	
	7897 Optical Interactions with Tissue and Cells XXII (<i>Jansen, Thomas</i>) p. 115
	7883G Photons and Neurons III (<i>Mahadevan-Jansen, Jansen</i>) p. 77

Photonics West maps:

Moscone Center Maps pp. 2-4
Walking Map p. 14

BiOS Conference Daily Schedule

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Program on Biomedical Spectroscopy, Microscopy, and Imaging Program Chairs: Ammasi Periasamy , Univ. of Virginia (USA); Daniel L. Farkas , Cedars-Sinai Medical Ctr. (USA)					
7902 Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues IX (Farkas, Nicolau, Leif) p. 132					
7905 Single Molecule Spectroscopy and Imaging IV (Enderlein, Gryczynski, Erdmann) p. 144		7904 Three-Dimensional and Multidimensional Microscopy: Image Acquisition and Processing XVIII (Conchello, Cogswell, Wilson, Brown) p. 141			
7907 Biomedical Applications of Light Scattering V (Wax, Backman) p. 150			7906A Optical Diagnostics and Sensing XI: Toward Point-of-Care Diagnostics (Coté) p. 147		
7903 Multiphoton Microscopy in the Biomedical Sciences XI (Periasamy, So, König) p. 136					
Program on Nano/Biophotonics Program Chairs: Paras Prasad , SUNY/Buffalo (USA); Dan V. Nicolau , The Univ. of Liverpool (United Kingdom)					
7909 Colloidal Quantum Dots/Nanocrystals for Biomedical Applications VI (Parak, Yamamoto, Osinski) p. 154			7908 Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications VII (Cartwright, Nicolau) p. 152		
7911 Plasmonics in Biology and Medicine VIII (Vo-Dinh, Lakowicz) p. 161					
7910 Reporters, Markers, Dyes, Nanoparticles, and Molecular Probes for Biomedical Applications (Achilefu, Raghavachari) p. 158					
<p>Don't miss the free BiOS Exhibition</p> <p>See the latest components, devices, and instrumentation for diagnostics and therapeutics</p> <p>22–23 January 2011 Saturday · 12:00 pm to 5:00 pm Sunday · 10:00 am to 5:00 pm</p>					

Photonics in Dermatology and Plastic Surgery

Conference Chairs: **Nikiforos Kollias**, Johnson & Johnson CPPW; **Bernard Choi**, Beckman Laser Institute and Medical Clinic; **Haishan Zeng**, The BC Cancer Agency Research Ctr. (Canada)

Program Committee: **Anthony J. Durkin**, Beckman Laser Institute and Medical Clinic; **Iltefat Hamzavi**, Henry Ford Hospital; **Jessica C. Ramella-Roman**, The Catholic Univ. of America

Saturday 22 January

SESSION 1

Room: 303 (Esplanade) Sat. 8:00 to 10:00 am

Session Chair: **Jessica C. Ramella-Roman**,
The Catholic Univ. of America

8:00 am: **Assessing diabetic foot ulcer development risk with advanced hyperspectral tissue spectroscopy**, Dmitry Yudovsky, Univ. of California, Los Angeles (USA); Aksone Nouvong, Western Univ. of Health Sciences (USA); Kevin Schomacker, Hypermed, Inc. (USA); Laurent Pilon, Univ. of California, Los Angeles (USA) [7883A-01]

8:20 am: **In-vivo morphological and quantitative studies of human skin aging by using 1230-nm-based harmonic-generation biopsy**, Szu-Yu Chen, Ming-Rung Tsai, Cheng-Hua Tsai, Yi-Hua Liao M.D., Chi-Kuang Sun, National Taiwan Univ. (Taiwan) [7883A-02]

8:40 am: **Hemispherical Stokes polarimeter for early cancer diagnosis**, Paul Lemaillet, Jessica C. Ramella-Roman, The Catholic Univ. of America (USA) [7883A-03]

9:00 am: **Non-invasive in-vivo micro-Raman spectroscopy of a murine skin tumor model reveals cancer-specific spectral biomarkers**, Hequn Wang, Naiyan Huang, Jianhua Zhao, The BC Cancer Agency Research Ctr. (Canada); Harvey Lui M.D., The Univ. of British Columbia (Canada); Mladen Korbelik, Haishan Zeng, The BC Cancer Agency Research Ctr. (Canada) [7883A-04]

9:20 am: **Enhancement methods of laser photon density in soft tissue: tissue temperature, laser modulation frequency, and their combination**, Changmin Yeo, Hunjeong Park, Dongyeon Kang, Byungjo Jung, Yonsei Univ. (Korea, Republic of) [7883A-05]

9:40 am: **UV doses and skin effects during psoriasis climate therapy**, Lise Lyngsnes Randeberg, Eivind L. P. Larsen, Norwegian Univ. of Science and Technology (Norway); Lill Tove Norvang Nilssen, The Norwegian Radiation Protection Authority (Norway); Anne Lene Krogstad, Oslo Univ. Hospital (Norway) [7883A-06]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 303 (Esplanade) Sat. 10:30 am to 12:10 pm

Session Chair: **Bernard Choi**,
Beckman Laser Institute and Medical Clinic

10:30 am: **Real-time laser speckle imaging during port-wine stain laser treatment**, Owen Yang, Bruce Yang, Stuart Nelson, Kristen M. Kelly, Bernard Choi, Beckman Laser Institute and Medical Clinic (USA) [7883A-07]

10:50 am: **Monitoring human melanocytic cell responses to piperine using multispectral imaging**, Ravikant Samatham, Kevin G. Phillips, Julia Sonka, Philippe Thuillier, Amala Soumyanath, Steven L. Jacques, Oregon Health & Science Univ. (USA) [7883A-08]

11:10 am: **Fluorescence lifetime imaging of skin cancer**, Rakesh Patalay, Clifford B. Talbot, Ian H. Munro, Imperial College London (United Kingdom); Georg Breunig, JenLab GmbH (Germany); Karsten Koenig, JenLab GmbH (Germany) and Saarland Univ. (Germany); Yuriy Alexandrov, Sean Warren, Mark A. Neil, Paul M. W. French, Imperial College London (United Kingdom); Anthony Chu, Imperial College Healthcare NHS Trust (United Kingdom) and Imperial College London (United Kingdom); Gordon W. Stamp, The Royal Marsden Hospital (United Kingdom) and Imperial College London (United Kingdom); Christopher W. Dunsby, Imperial College London (United Kingdom). [7883A-09]

11:30 am: **Temperature-dependent refractive index of fatty tissue measured by optical coherence tomography**, Hyunji Lim, Thomas E. Milner, The Univ. of Texas at Austin (USA) [7883A-10]

11:50 am: **Collateral damage-free debridement using 193 m ArF laser**, James J. Wynne, IBM Thomas J. Watson Research Ctr. (USA); Jerome M. Felsenstein, Private Dermatologist (USA); Robert Trzcinski, Donna Zupanski-Nielsen, Daniel P. Connors, IBM Thomas J. Watson Research Ctr. (USA) [7883A-11]

POSTER OVERVIEW Sat. 12:10 to 12:25 pm

This session will allow all poster presenters to give a quick 3-minute overview of their posters, to be displayed during the Sunday evening Poster Session.

Lunch/Exhibition Break 12:25 to 1:40 pm

SESSION 3

Room: 303 (Esplanade) Sat. 1:40 to 3:20 pm

Session Chair: **Nikiforos Kollias**, Johnson & Johnson CPPW

1:40 pm: **High-resolution multimodal clinical multiphoton tomography of skin**, Karsten Koenig, Saarland Univ. (Germany) [7883A-12]

2:00 pm: **Characterizing variability in Raman Spectra of benign lesions toward cancer detection in skin**, Isaac J. Pence, Chetan A. Patil, Elizabeth Vargis, Brittany Caldwell, Darrel L. Ellis M.D., Anita Mahadevan-Jansen, Vanderbilt Univ. (USA) [7883A-13]

2:20 pm: **In-situ and in-vivo imaging of microneedle insertion into human skin using optical coherence tomography**, Boris Považay, Medizinische Univ. Wien (Austria); Siôn Coulman, Aneesh P. Alex, Marc Pearton, Cardiff Univ. (United Kingdom); Bernd Hofer, Medizinische Univ. Wien (Austria); Conor O'Mahony, Tyndall National Institute (Ireland); Wolfgang Drexler, Medizinische Univ. Wien (Austria); James C. Birchall, Cardiff Univ. (United Kingdom) [7883A-14]

2:40 pm: **Comparison of skin responses from macroscopic and microscopic UV challenges**, InSeok Seo, Paulo R. Bargo, Melissa Chu, Eduardo C. Ruvolo, Jr., Nikiforos Kollias, Johnson & Johnson CPPW (USA) [7883A-15]

3:00 pm: **Near-infrared laser treatment of complicated hemangiomas in children: ten-year clinical experience**, Ivan A. Abushkin, Valeriy A. Privalov, Chelyabinsk State Medical Academy (Russian Federation); Alexander V. Lappa, Chelyabinsk State Univ. (Russian Federation) [7883A-16]

Coffee Break 3:20 to 3:50 pm

SESSION 4

Room: 303 (Esplanade) Sat. 3:50 to 5:50 pm

Session Chair: **Haishan Zeng**,
The BC Cancer Agency Research Ctr. (Canada)

3:50 pm: **Skin autofluorescence variation with body sites characterized by fluorescence excitation emission matrix (EEM) spectroscopy**, Jianhua Zhao, The Univ. of British Columbia (Canada) and The BC Cancer Agency Research Ctr. (Canada); Florina Feng, The Univ. of British Columbia (Canada); Haishan Zeng, The Univ. of British Columbia (Canada) and The BC Cancer Agency Research Ctr. (Canada); David I. McLean M.D., Harvey Lui M.D., The Univ. of British Columbia (Canada) [7883A-17]

4:10 pm: **Non-invasive multimodal confocal imaging of squamous cell carcinoma in mice**, Anna N. Yaroslavsky, Univ. of Massachusetts Lowell (USA); Pawel A. Mroz M.D., Harvard Medical School (USA) and Massachusetts General Hospital (USA); Victor A. Neel, Massachusetts General Hospital (USA) [7883A-18]

4:30 pm: **Reflection modality continuous-wave terahertz imaging of non-melanoma skin cancers**, Cecil S. Joseph, Anna N. Yaroslavsky, Univ. of Massachusetts Lowell (USA); Victor A. Neel, Harvard Medical School (USA); Thomas M. Goyette, Robert H. Giles, Univ. of Massachusetts Lowell (USA) [7883A-19]

4:50 pm: **The effect of pulse shape and duration in ablative fractional CO₂ laser treatment studied with high-speed thermal imaging: implications for clinical use**, Rudolf M. Verdaasdonk, Vrije Univ. Medical Ctr. (Netherlands); Vladimir G. Lemberg, Optomix (USA); Christopher Jadczyk, Ray Choye, Lumenis Inc. (USA) [7883A-20]

BIOS

5:10 pm: **Next generation Er:YAG fractional ablative laser**, Bernhard Nussbaumer, Pantec Engineering AG (Liechtenstein); Arne Heinrich, Attila Vizhanyo, Peter Krammer, Stefan Summer, Simon Gross, Thomas Bragagna, Christof Böhler, Pantec Biosolutions AG (Liechtenstein) [7883A-21]

5:30 pm: **Comparative study of skin wrinkle assessment: computer-assisted 2D image analysis and μ -CT**, Sanghee Eom, Youngwoo Bae, Changyong Ko, Han Sung Kim, Byungjo Jung, Yonsei Univ. (Korea, Republic of) [7883A-22]

BIOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

SESSION 5

Room: 303 (Esplanade) Sun. 8:00 to 10:00 am

Session Chair: Iltefat Hamzavi, Henry Ford Hospital

8:00 am: **Low-cost/high-efficiency lasers for medical applications in the 14XX-nm regime**, Edward McIntyre, John J. Callahan, David Bean, Lisa Yanusheski, SemiNex Corp. (USA) [7883A-23]

8:20 am: **Motion correction in spatial frequency domain imaging: optical property determination in pigmented lesions**, John Quan Nguyen, Rolf B. Saager, Beckman Laser Institute and Medical Clinic (USA); David J. Cuccia, Modulated Imaging, Inc. (USA); Kristen M. Kelly, David J. Hsiang, Univ. of California, Irvine (USA); Anthony J. Durkin, Beckman Laser Institute and Medical Clinic (USA) [7883A-24]

8:40 am: **In-vivo analysis of human skin anisotropy by polarization-sensitive optical coherence tomography**, Shingo Sakai, Kanebo Cosmetics Inc. (Japan); Masahiro Yamanari, Yiheng Lim, Univ. of Tsukuba (Japan); Noriaki Nakagawa, Kanebo Cosmetics Inc. (Japan); Shuichi Makita, Yoshiaki Yasuno, Univ. of Tsukuba (Japan) [7883A-25]

9:00 am: **Intravital multiphoton tomography as an appropriate tool for non-invasive in-vivo analysis of human skin affected with atopic dermatitis**, Volker Huck, Westfälische Wilhelms-Univ. Münster (Germany); Christian Gorzelanny, Ruprecht-Karls-Univ. Heidelberg (Germany); Kai Thomas, Westfälische Wilhelms-Univ. Münster (Germany); Martin Schwarz, Iris Riemann, Fraunhofer-Institut für Biomedizinische Technik (Germany); Christian Mess, Verena Niemeyer, Ruprecht-Karls-Univ. Heidelberg (Germany); Thomas A. Luger, Westfälische Wilhelms-Univ. Münster (Germany); Karsten Koenig, JenLab GmbH (Germany); Stefan W. Schneider, Ruprecht-Karls-Univ. Heidelberg (Germany) [7883A-26]

9:20 am: **In-vivo investigation of the evolution of skin barrier repair after mechanical injury**, Steven Walston, Melissa Chu, InSeok Seo, Paulo R. Bargo, Nikiforos Kollias, Johnson & Johnson CPPW (USA) [7883A-27]

9:40 am: **DNA/RNA, DNA-DNA, and DNA-protein interactions in diagnosis of skin cancers by IR microspectroscopy**, Natalja Skrebova Eikje M.D., MC Professional OÜ (Estonia) [7883A-28]

Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 303 (Esplanade) Sun. 10:30 to 11:50 am

*Session Chair: Anthony J. Durkin,
Beckman Laser Institute and Medical Clinic*

10:30 am: **Postoperative assessment in a cutaneous flap model using spatial frequency domain imaging**, Amr Yafi, Sarin Patel, Rolf B. Saager, Beckman Laser Institute and Medical Clinic (USA); David J. Cuccia, Modulated Imaging, Inc. (USA); Gregory Evans, Univ. of California, Irvine (USA); Anthony J. Durkin, Beckman Laser Institute and Medical Clinic (USA) [7883A-29]

10:50 am: **In-vivo multiphoton imaging of collagen remodeling after micro-ablative fractional rejuvenation**, Riccardo Cicchi, Dimitrios Kapsokalyvas, Michela Troiano, Piero Campolmi, Cristiano Morini, Alessandro Cosci, Daniela Massi, Torello Lotti, Francesco S. Pavone, Univ. degli Studi di Firenze (Italy) . . . [7883A-31]

11:10 am: **Dual-effect laser handpiece for modification of tissue permeability**, Kathleen McMillan, gRadiant Research, LLC (USA) . . [7883A-32]

11:30 am: **In-vivo optical investigation of psoriasis**, Dimitrios Kapsokalyvas, Riccardo Cicchi, Nicola Bruscano, Alessandro Cosci, Daniela Massi, Torello Lotti, Francesco S. Pavone, Univ. degli Studi di Firenze (Italy) [7883A-33]

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Combining optical clearing agents and penetration enhancers for in-vivo skin optical clearing, Jing Wang, Dan Zhu, Britton Chance Ctr. for Biomedical Photonics (China) [7883A-34]

Skin optical properties control by delivery of molecules and particles through a fractionally ablated skin, Elina A. Genina, Leonid E. Dolotov, Alexey N. Bashkatov, Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Gregory B. Altshuler, Ilya V. Yaroslavsky, David Tabatadze, Palomar Medical Technologies, Inc. (USA); Andrey V. Belikov, A. V. Skrypnik, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Christine C. Dierickx M.D., Skin and Laser Ctr. (Belgium) [7883A-35]

Raman spectra and optical coherent tomography images of skin, Adrian E. Villanueva-Luna, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Jorge Castro-Ramos, Sergio Vazquez-Montiel, José Alberto Delgado Atencio, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Aaron Flores-Gil, Univ. Autónoma del Carmen (Mexico); Alexis Vazquez-Villa, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) [7883A-36]

Spectral characteristics of two-photon autofluorescence and second-harmonic generation from human skin in vivo, Hans G. Breunig, Karsten Koenig, JenLab GmbH (Germany) [7883A-37]

Multispectral imaging analysis of pigmented and vascular skin lesions: results of a clinical trial, Ilona Kuzmina, Ilze Diebele, L. Valeine, Univ. of Latvia (Latvia); Anna Kempele, Univ. of Latvia (USA); J. Kapostinsh, Dainis Jakovels, Janis Spigulis, Univ. of Latvia (Latvia) [7883A-38]

Urology: Diagnostics, Therapeutics, Robotics, Minimally Invasive, and Photodynamic Therapy

Conference Chairs: **Hyun Wook Kang**, American Medical Systems Holdings, Inc.; **Bodo E. Knudsen**, The Ohio State Univ.

Program Committee: **Nathaniel M. Fried**, The Univ. of North Carolina at Charlotte; **Matthew T. Gettman**, Mayo Clinic; **Patrice Jichlinski**, Ctr. Hospitalier Univ. Vaudois (Switzerland); **Ed Koullick**, American Medical Systems Holdings, Inc.; **Unyime O. Nseyo**, North Florida Foundation for Research and Education, Inc.; **Joel M. Teichman**, St. Paul's Hospital (Canada); **Rudolf M. Verdaasdonk**, Vrije Univ. Medical Ctr. (Netherlands)

Saturday 22 January

SESSION 1

Room: 302 (Esplanade) Sat. 8:40 to 10:00 am

Optical Imaging

Session Chairs: **Rudolf M. Verdaasdonk**, Vrije Univ. Medical Ctr. (Netherlands); **Hyun Wook Kang**, American Medical Systems Holdings, Inc.

8:40 am: **The regression of a transmissible venereal tumor in a canine prostate was detected by triple-wavelength trans-rectal optical tomography under trans-rectal ultrasound guidance**, Jiang Zhen, Kenneth E. Bartels, G. Reed Holyoak, Jerry W. Ritchey, Charles F. Bunting, Oklahoma State Univ. (USA); Gennady Slobodov, The Univ. of Oklahoma Health Sciences Ctr. (USA); Daqing Piao, Oklahoma State Univ. (USA) [7883B-189]

9:00 am: **Fourier-domain versus time-domain optical coherence tomography of the prostate nerves**, Shahab Chitchian, The Univ. of North Carolina at Charlotte (USA); Gwen A. Lagoda, Arthur L. Burnett M.D., The Johns Hopkins Univ. (USA); Nathaniel M. Fried, The Univ. of North Carolina at Charlotte (USA) [7883B-39]

9:20 am: **Study on extremity oxygenation assessing of hemodialysis patients based on near-infrared spectroscopy**, Chun-Yang Wang, National Chiao Tung Univ. (Taiwan); Ching-Cheng Chuang, National Taiwan Univ. (Taiwan); Chih-Ching Lin, Taipei Veterans General Hospital (Taiwan); Yao-Sheng Hsieh, National Chiao Tung Univ. (Taiwan); Chia-Wei Sun, National Yang-Ming Univ. (Taiwan) [7883B-41]

9:40 am: **Optical biopsy using light-reflectance spectroscopy for prostate cancer diagnosis**, Vikrant Sharma, Nimit L. Patel, Hanli Liu, The Univ. of Texas at Arlington (USA) [7883B-42]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 302 (Esplanade) Sat. 10:30 to 11:50 am

Laser Lithotripsy/Nanoparticle/Optical Stimulation

Session Chairs: **Patrice Jichlinski**, Ctr. Hospitalier Univ. Vaudois (Switzerland); **Bodo E. Knudsen**, The Ohio State Univ.

10:30 am: **Holmium:YAG lithotripsy: effects of laser power parameters and backstop on lithotripsy**, Jinze Qiu, The Univ. of Texas at Austin (USA); Joel M. Teichman M.D., The Univ. of British Columbia (Canada); Thomas E. Milner, The Univ. of Texas at Austin (USA) [7883B-43]

10:50 am: **Comparison of stone retropulsion for holmium:YAG laser lithotripsy at high-pulse energies versus thulium fiber laser lithotripsy at high-pulse rates**, Richard Blackmon, The Univ. of North Carolina at Charlotte (USA); Pierce Irby, Carolinas Medical Ctr. (USA); Nathaniel M. Fried, The Univ. of North Carolina at Charlotte (USA) [7883B-44]

11:10 am: **Anticancer magnetic nanoparticles with magnetically induced hyperthermia**, Youngjin Song, Jasung Koo, Yosefine Arum, Juho Yoon, Junghwan Oh, Pukyong National Univ. (Korea, Republic of) [7883B-45]

11:30 am: **Continuous-wave optical stimulation of the prostate cavernous nerves**, Serhat Tozburun, Christopher Cilip, Univ. of North Carolina at Charlotte (USA); Gwen A. Lagoda, Arthur L. Burnett M.D., The Johns Hopkins Univ. (USA); Nathaniel M. Fried, The Univ. of North Carolina at Charlotte (USA) [7883B-46]

Lunch/Exhibition Break 11:50 am to 1:20 pm

SESSION 3

Room: 302 (Esplanade) Sat. 1:20 to 3:00 pm

Laser-Tissue Interaction I

Session Chairs: **Ed Koullick**, American Medical Systems Holdings, Inc.; **Nathaniel M. Fried**, The Univ. of North Carolina at Charlotte

1:20 pm: **Comparison of three near-infrared laser wavelengths for non-invasive laser coagulation of the canine vas deferens**, Christopher Cilip, Nathaniel M. Fried, The Univ. of North Carolina at Charlotte (USA) [7883B-47]

1:40 pm: **Computer simulations of light and heat transport in tissue for non-invasive laser coagulation of the human vas deferens**, Gino Schweinsberger, Christopher Cilip, Susan Trammell, Harish Cherukuri, Nathaniel M. Fried, The Univ. of North Carolina at Charlotte (USA) [7883B-48]

2:00 pm: **Active cooling fiber delivery device for bovine prostate vaporization with high-power 180W 532-nm laser**, Steven Peng, Hyun Wook Kang, Homa Pirzadeh, Douglas G. Stinson, American Medical Systems, Inc. (USA) [7883B-49]

2:20 pm: **Interaction between high-power 532-nm laser and prostatic tissue: in-vitro evaluation for laser prostatectomy**, Hyun Wook Kang, Steven Peng, Douglas G. Stinson, American Medical Systems Holdings, Inc. (USA) [7883B-50]

2:40 pm: **Interaction between high-power 532-nm laser and prostatic tissue: in-vitro evaluation for laser prostatectomy**, Reza S. Malek, Mayo Clinic (USA); Hyun Wook Kang, Steven Peng, Douglas G. Stinson, Michael T. Beck, Ed Koullick, American Medical Systems Holdings, Inc. (USA) [7883B-51]

Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 302 (Esplanade) Sat. 3:30 to 5:10 pm

Laser-Tissue Interaction II

Session Chairs: **Unyime O. Nseyo**, North Florida Foundation for Research and Education, Inc.; **Joel M. Teichman**, St. Paul's Hospital (Canada)

3:30 pm: **Laser laparoscopic partial nephrectomy in clinical cases(n=17)**, Oleg Teodorovich, Central Clinical Hospital No. 1 JSC RZD (Russian Railways) (Russian Federation); Natalia Zabrodina, Eduard Galljamov, Inna Yankovskaya, Central Clinical Hospital of Civil Aviation (Russian Federation); David Kochiev, A. M. Prokhorov General Physics Institute (Russian Federation); Alexei Lukashev, Astelia Technologies (USA) [7883B-52]

3:50 pm: **Ablation of uterine tissues with 522-nm GreenLight laser**, Ed Koullick, Michael T. Beck, American Medical Systems Holdings, Inc. (USA) [7883B-53]

4:10 pm: **Ablative efficiency of lithium triborate laser vaporisation and conventional transurethral resection of the prostate: a comparison using trans-rectal three-dimensional ultrasound volumetry**, Oliver Gross, Tullio Sulser, Lukas John Hefermehl, Daniel Dimitri Strelbel, Remo Largo, Ashkan Mortezaei, Cédric Poyet, Daniel Eberli, Matthias Zimmermann, Alexander Müller, Univ. Hospital Zürich (Switzerland); Maurice Stephane Michel, Univ. Mannheim (Germany); Michael Müntener, Hans-Helge Seifert, Thomas Hermanns, Univ. Hospital Zürich (Switzerland) [7883B-54]

4:30 pm: **Proper laser-fiber sweeping angle for the effective tissue vaporization using XPSTM with MoXy™ fiber**, Woo Jin Ko, Columbia Univ. Medical Ctr. (USA) and National Health Insurance Corp. Isan (Korea, Republic of); Hyun Wook Kang, American Medical Systems Holdings, Inc. (USA); Danop Rajabhandharaks, Douglas G. Stinson, American Medical Systems, Inc. (USA); Benjamin B. Choi, Weill-Cornell Univ. Medical Ctr. (USA) and Metropolitan Urology (USA) [7883B-55]



Conference 7883B

4:50 pm: The optimized laser fiber sweeping speed(SS) for the effective tissue vaporization at various power levels using XPSTM with MoXy TM fiber, Woo Jin Ko, Columbia Univ. Medical Ctr. (USA) and National Health Insurance Corp. Ilsan Hospital (Korea, Republic of); Hyun Wook Kang, American Medical Systems Holdings, Inc. (USA); Danop Rajabhandharaks, Douglas G. Stinson, American Medical Systems, Inc. (USA); Benjamin B. Choi, Weill-Cornell Univ. Medical Ctr. (USA) [7883B-56]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

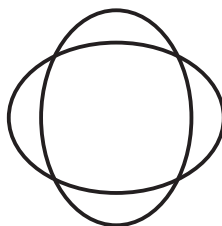
Sunday 23 January

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BiOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

A reagent-free method for diagnosing urinary tract infection: the potential of urine autofluorescence, Sandeep Menon Perinchery, Unnikrishnan Kuzhiumparambil, Subramanyam Vemulpad, Ewa M. Goldys, Macquarie Univ. (Australia) [7883B-57]



Biomedical Optics

SPIE Digital Library

Find the answer
SPIEDigitalLibrary.org

Optical Imaging, Therapeutics, and Advanced Technology in Otolaryngology and Head and Neck Surgery

Conference Chairs: **Brian Jet-Fei Wong**, Beckman Laser Institute and Medical Clinic; **Justus F. R. Ilgner**, Univ. Hospital Aachen (Germany)

Program Committee: **James A. Burns**, Massachusetts General Hospital; **Adel K. El-Naggar**, The Univ. of Texas M.D. Anderson Cancer Ctr.; **Waseem K. Jerjes**, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); **Udayan K. Shah**, Nemours/Alfred I. duPont Hospital for Children; **Henricus J. C. M. Sterenberg**, Erasmus MC (Netherlands); **Robert L. van Veen**, Erasmus MC (Netherlands)

Saturday 22 January

SESSION 1

Room: 200 (Mezzanine)..... Sat. 8:00 to 10:00 am

Novel and Emerging Clinical Imaging: Technologies in the Head and Neck

Session Chair: **Brian Jet-Fei Wong**, Beckman Laser Institute and Medical Clinic

8:00 am: **Reflectance confocal microscopy of human head-and-neck tissues in vivo and ex vivo**, Frank Palmer, Iain Nixon, Andre Moreira, Snehal Patel, Milind Rajadhyaksha, Memorial Sloan-Kettering Cancer Ctr. (USA) [7883C-61]

8:20 am: **High-frequency endobronchial ultrasonography identifies airway wall structures in patients with laryngotracheal stenosis**, Septimiu D. Murgu M.D., Henri G. Colt, Univ. of California, Irvine (USA)..... [7883C-60]

8:40 am: **Cancer histopathological diagnosis in human oral cavity by using higher-harmonic-generation microscopy**, Ming-Rung Tsai, National Taiwan Univ. (Taiwan); Dar-Bin Shieh D.D.S., National Cheng Kung Univ. (Taiwan); Pei-Jen Lou M.D., National Taiwan Univ. Hospital (Taiwan); Chi-Kuang Sun, National Taiwan Univ. (Taiwan) [7883C-63]

9:00 am: **Wide-field optical imaging and spectroscopy of premalignant lesions in the oral cavity**, Mark C. Pierce, Richard A. Schwarz, Rice Univ. (USA); Michelle D. Williams M.D., Adel K. El-Naggar M.D., The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Nadarajah Vigneswaran, Univ. of Texas Dental Branch (USA); Ann M. Gillenwater M.D., The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Rebecca R. Richards-Kortum, Rice Univ. (USA) [7883C-187]

9:20 am: **Quantitative image analysis to predict the neoplastic region in oral tissue using multiple targeted fluorescent agents**, Kelsey Rosbach, Rice Univ. (USA); Michelle D. Williams M.D., Ann M. Gillenwater M.D., The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Rebecca R. Richards-Kortum, Rice Univ. (USA) [7883C-158]

9:40 am: **Design, conduct and challenges of a clinical trial utilizing elastic light scattering spectroscopy in vivo in patients undergoing thyroidectomy**, Jennifer E. Rosen, Hyunsuk Suh, Stephanie Lee, Ousama M. Aamar, Irving J. Bigio, Boston Univ. (USA) [7883C-163]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 200 (Mezzanine)..... Sat. 10:30 am to 12:10 pm

Laryngeal Imaging with OCT and Related Technologies

Session Chair: **Justus F. R. Ilgner**, Univ. Hospital Aachen (Germany)

10:30 am: **Spatio-temporal processing of massive glottic images from high speed laryngostroboscopy** (Invited Paper), Krzysztof Izdebski, Pacific Voice and Speech Foundation (USA); Yuling Yan, Santa Clara Univ. (USA). [7883C-69]

10:50 am: **Imaging vibrating vocal cord with high speed 1um swept source OCT and ODT**, Gangjun Liu, Marc Rubinstein, Wenjuan Qi, Beckman Laser Institute and Medical Clinic (USA); Allen I. Foulad, Univ. of California, Irvine (USA); Brian J. Wong M.D., Zhongping Chen, Beckman Laser Institute and Medical Clinic (USA) [7883C-188]

11:10 am: **Multispectral imaging of the oral cavity in HIV patients**, Andres F. Zuluaga, Remicalm LLC (USA) [7883C-190]

11:30 am: **Optical coherence tomography imaging of the human airway with a piezoelectric scanning catheter**, Sucbei Moon, Marc Rubinstein, Gangjun Liu, Arya Saidi, Brian J. Wong M.D., Zhongping Chen, Beckman Laser Institute and Medical Clinic (USA) [7883C-165]

11:50 am: **Optical coherence tomography in the field of laryngology: further perspectives**, Tino Just M.D., Hans W. Pau, Univ. Rostock (Germany); Eva Lankenau, Gereon Hüttmann, Univ. zu Lübeck (Germany)..... [7883C-177]

Lunch/Exhibition Break 12:10 to 1:10 pm

SESSION 3

Room: 200 (Mezzanine)..... Sat. 1:10 to 4:20 pm

Surgical Therapeutics I

Session Chair: **Robert L. van Veen**, Erasmus MC (Netherlands)

1:10 pm: **Optical microangiography provides in vivo 3D images of intracochlear microstructures and microvascular perfusion in mice** (Invited Paper), Ruikang K. Wang, Hreesh M. Subhash, Viviana Davila, Hai Sun, Anh T. Nguyen-Huynh, Alfred L. Nuttall, Oregon Health & Science Univ. (USA) [7883C-186]

1:30 pm: **Comparison of lasers used in stapedotomy using specialized visualization techniques for mechanical and thermal effects in an inner ear model**, Rudolf M. Verdaasdonk, Vrije Univ. Medical Ctr. (Netherlands); Digna Kamalski, Tjeerd de Boorder, Wilko Grolman, Univ. Medical Ctr. Utrecht (Netherlands) [7883C-62]

1:50 pm: **Identifying dosimetry parameters for percutaneous laser blepharoplasty using the Ho:Yag (2100 nm) laser**, Allison J. Zemek, Univ. of California, Irvine (USA) [7883C-166]

2:10 pm: **Interstitial PDT for vascular anomalies**, Waseem K. Jerjes, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); Tahwinder Upile, Univ. College Hospital (United Kingdom); Charles A. Mosse, Univ. College London (United Kingdom); Simon Morley, Univ. College Hospital (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom)..... [7883C-150]

2:30 pm: **Cellular-level imaging of the functional mammalian inner ear** (Invited Paper), Shelley Batts, Stanford Univ. School of Medicine (USA); Eunice L. Cheung, Nikolas H. Blevins, Gerald R. Popelka, Stanford Univ. (USA); Mark J. Schnitzer, Stanford Univ. School of Medicine (USA) [7883C-167]

2:50 pm: **The effect of low-level laser therapy (LLLT) on noise-induced hearing loss**, Chung-Ku Rhee M.D., Chan Woong Bahk, Jin-chul Ahn M.D., Myung-Whan Suh M.D., Dankook Univ. Hospital (Korea, Republic of) [7883C-68]

Coffee Break 3:10 to 3:40 pm

3:40 pm: **Three-dimensional reconstruction of a cochlea with x-ray tomography**, Margaret Hwang, Northwestern Univ. (USA); Christoph Rau, Diamond Light Source Ltd. (United Kingdom); Andrew J. Fishman, Stephanie Shintani-Smith, Northwestern Univ. (USA); Wah-Keat Lee, Argonne National Lab. (USA); Klaus Richter, Univ. of California, Berkeley (USA) [7883C-168]

4:00 pm: **In vivo and in vitro studies on PEG-coated, biofunctionalized titanium PORP middle ear prosthesis**, Justus F. R. Ilgner M.D., Univ. Hospital Aachen (Germany); Slavomir Biedron, Ruhr-Univ. Bochum (Germany); Robert Loesel, Daniel Haamann, Doris Klee, RWTH Aachen (Germany); Elena Fadeeva, Laser Zentrum Hannover e.V. (Germany); Marian Loebler, Univ. Rostock (Germany); Martin Westhofen M.D., RWTH Aachen (Germany) [7883C-178]

BIOS

SESSION 4

Room: 200 (Mezzanine) Sat. 4:20 to 6:20 pm

Surgical Therapeutics II

Session Chair: Waseem K. Jerjes, Univ. College London Hospitals NHS Foundation Trust (United Kingdom)

4:20 pm: **Diode laser cartilage reshaping**, Ahmed M. El Kharbotly M.D., Tarek El Tayeb, Yosry Mostafa, National Institute of Laser Enhanced Sciences (Egypt); Hesham Ibrahim, Ministry of Health (Egypt). [7883C-58]

4:40 pm: **Optical imaging, therapeutics, and advanced technology in otolaryngology and head and neck surgery**, Merrill A. Biel M.D., Univ. of Minnesota, Twin Cities (USA) [7883C-172]

5:00 pm: **Finite element approach for optimal electrode configuration in electro-mechanically reshaping cartilage**, Cyrus Manuel, Univ. of California, Irvine (USA) [7883C-171]

5:20 pm: **Light-activated composite filler for soft tissue restoration**, Alexander T. Hillel, Zayna Nahas, Shimon Untermaan, Branden Reid, Jeannine Coburn, Joyce Axelman, Jeming Chae, Qiongyu Guo, Jennifer Elisseeff, The Johns Hopkins Medical Institutions (USA) [7883C-174]

5:40 pm: **Developing endoscopic ultrafast laser microsurgery of scarred vocal folds**, Christopher L. Hoy, The Univ. of Texas at Austin (USA); Murat Yildirim, ; William N. Everett, The Univ. of Texas at Austin (USA); James B. Kobler, Massachusetts General Hospital (USA); Adela Ben-Yakar, The Univ. of Texas at Austin (USA) [7883C-175]

6:00 pm: **Triggered optical coherence tomography for dynamic imaging of vocal folds during phonation**, James B. Kobler, Massachusetts General Hospital (USA); Ernest W. Chang, Boston Univ. (USA) and Wellman Ctr. for Photomedicine (USA); Steven M. Zeitelis M.D., Massachusetts General Hospital (USA); Seok-Hyun Yun, Wellman Ctr. for Photomedicine (USA). [7883C-64]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

SESSION 5

Room: 200 (Mezzanine) Sun. 8:00 to 9:40 am

Novel Therapies for Head and Neck Disease

Session Chair: James A. Burns, Massachusetts General Hospital

8:00 am: **Foscan® mediated interstitial photodynamic therapy for head and neck cancer**, R. L. P. van Veen, Henricus J. C. M. Sterenborg, Jan Bonne Aans, Dominic J. Robinson, Erasmus MC (Netherlands); Baris Karakullukcu, O. Hamming-Vrieze, F. Hoebbers, Het Nederlands Kanker Instituut - Antoni van Leeuwenhoek Ziekenhuis (Netherlands); Max Witjes M.D., Univ. Medical Ctr. Groningen (Netherlands); P. C. Levendag, Erasmus MC (Netherlands); I. B. Tan, Het Nederlands Kanker Instituut - Antoni van Leeuwenhoek Ziekenhuis (Netherlands) [7883C-164]

8:20 am: **Localized drug delivery using laser activated liposomes for head and neck cancer (Invited Paper)**, Gal Shafirstein, Laura Bernock, K. Barnes, Univ. of Arkansas for Medical Sciences (USA); Jeffrey Moran, ; Eric Hamilton, Michael Borrelli, Univ. of Arkansas for Medical Sciences (USA). [7883C-157]

8:40 am: **Enhanced transfection of tumor suppressor genes by photochemical internalization**, Henry Hirschberg M.D., Beckman Laser Institute and Medical Clinic (USA) [7883C-173]

9:00 am: **Phase I Amphinex-Bleomycin clinical photochemical internalization trial**, Waseem K. Jerjes, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); Kristian Berg, The Norwegian Radium Hospital (Norway); Zaid Hamdoon, Univ. College Hospital (United Kingdom); Charles A. Mosse, Univ. College London (United Kingdom); Anders Høgset, PCI Biotech AS (Norway); Stephen G. Bown, Univ. College London (United Kingdom); Dawn Carnell, Univ. College Hospital (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7883C-153]

9:20 am: **Hyperthermia enhanced ICG mediated laser therapy for head and neck tumors**, Gal Shafirstein, K. Barnes, Nathan Koonce, Jessica Weber, Robert Griffin, Univ. of Arkansas for Medical Sciences (USA) [7883C-156]

SESSION 6

Room: 200 (Mezzanine) Sun. 9:40 to 11:40 am

Optical Diagnostics Versus Histopathology

Session Chairs: Adel K. El-Naggar,

The Univ. of Texas M.D. Anderson Cancer Ctr.;

Ann Marie Gillenwater, The Univ. of Texas M.D. Anderson Cancer Ctr.

9:40 am: **Histopathology of oral leukoplakia premalignancy and mimics: overlapping features of optical diagnostic implications**, Adel K. El-Naggar M.D., The Univ. of Texas M.D. Anderson Cancer Ctr. (USA) [7883C-179]

10:00 am: **Oral cancer screening approach based on labeling exfoliated oral cells with molecularly-targeted optical contrast agents**, Veronica Leautaud, Charles R. Horres, Rice Univ. (USA); Vijayashree S. Bhattar, The Univ. of Texas M. D. Anderson Cancer Ctr. (USA); Michelle D. Williams M.D., Ann M. Gillenwater M.D., The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Rebecca R. Richards-Kortum, Rice Univ. (USA) [7883C-180]

Coffee Break 10:20 to 10:40 am

10:40 am: **Autofluorescence guided diagnostic evaluation of suspicious oral mucosal lesions: opportunities, limitations, and pitfalls**, Nadarajah Vigneswaran, Alliance for NanoHealth (USA) [7883C-181]

11:00 am: **Application of high resolution microendoscopy to real-time surgical margin detection and robotic surgery**, Andrew Sikora M.D., Mount Sinai School of Medicine (USA) [7883C-182]

11:20 am: **Real-time spectroscopic evaluation of oral lesions and comparisons with histopathology**, Richard A. Schwarz, Wen Gao, Rice Univ. (USA); Jennifer H. Nguyen, The Univ. of Texas Health Science Ctr. at Houston (USA); Nadarajah Vigneswaran, Alliance for NanoHealth (USA); Karen Adler-Storthz, The Univ. of Texas Health Science Ctr. at Houston (USA); Vijayashree S. Bhattar, Michelle D. Williams M.D., Ann M. Gillenwater M.D., The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Rebecca R. Richards-Kortum, Rice Univ. (USA) [7883C-183]

Lunch/Exhibition Break 11:40 am to 12:40 pm

SESSION 7

Room: 200 (Mezzanine) Sun. 1:00 to 5:00 pm

Clinical Applications of Imaging Techniques: OCT and Related Technologies

Session Chair: Brian Jet-Fei Wong,

Beckman Laser Institute and Medical Clinic

1:00 pm: **Clinical diagnosis of oral precancer and cancer with optical coherence tomography**, Meng-Tsan Tsai, Chang Gung Univ. (Taiwan); Cheng-Kuang Lee, Ting-Ta Chi, Kai-Min Yang, Chun-Pin Chiang D.D.S., Chih-Chung Yang, National Taiwan Univ. (Taiwan) [7883C-59]

1:20 pm: **In-vivo detection of oral cancer based on OCT-derived morphological and FLIM-derived biochemical biomarkers of the oral mucosa**, Paritosh Pande, Sebina Shrestha, Jesung Park, Brian E. Applegate, Javier A. Jo, Texas A&M Univ. (USA) [7883C-67]

1:40 pm: **Polarization-sensitive Optical Coherence Tomography Imaging of Benign and Malignant Laryngeal Lesions: an in-vivo Study**, James A. Burns M.D., Massachusetts General Hospital (USA); Ki Hean Kim, Pohang Univ. of Science and Technology (Korea, Republic of); Johannes F. de Boer, Vrije Univ. Amsterdam (Netherlands); R. Rox Anderson M.D., Steven M. Zeitelis M.D., Massachusetts General Hospital (USA) [7883C-65]

2:00 pm: **Optical coherence tomography in the assessment of oral squamous cell carcinoma resection margins**, Zaid Hamdoon, Univ. College Hospital (United Kingdom); Waseem K. Jerjes, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); Gordon P. McKenzie, Michelson Diagnostics Ltd. (United Kingdom); Amrita Jay, Univ. College Hospital (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7883C-151]

2:20 pm: **Developing applications for OCT in endocrine surgery and upper airway**, Marc Rubinstein, Jonathan Boyd, Sucbei Moon, Jun Zhang, Arya Saidi, Zhongping Chen, Jason Kim, Brian J. Wong M.D., Beckman Laser Institute and Medical Clinic (USA) [7883C-159]

2:40 pm: **Progress in medical applications of terahertz technology in the head and neck**, Vincent P. Wallace, The Univ. of Western Australia (Australia) [7883C-176]

Coffee Break 3:00 to 3:20 pm

3:20 pm: **Optical coherence tomography in the assessment of suspicious oral lesions: prospective study**, Zaid Hamdoon, Univ. College Hospital (United Kingdom); Waseem K. Jerjes, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); Gordon P. McKenzie, Michelson Diagnostics Ltd. (United Kingdom); Amrita Jay, Univ. College Hospital (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7883C-152]

3:40 pm: **In-vivo application of OCT for tissue inspection with artifact reduction and automated segmentation**, Alexander Heisterkamp, Sabine Donner, Laser Zentrum Hannover e.V. (Germany); Frank Witte, Ivonne Bartsch, Medizinische Hochschule Hannover (Germany); Bodo Rosenhahn, Leibniz Univ. Hannover (Germany); Alexander Krüger, Laser Zentrum Hannover e.V. (Germany) [7883C-184]

4:00 pm: **Optical coherence tomography of the middle ear: clinical applications**, Justus F. R. Ilgner M.D., Univ. Hospital Aachen (Germany); Csaba Farkas, European Laser Institute (Germany); Martin Westhofen M.D., RWTH Aachen (Germany) [7883C-185]

4:20 pm: **pH-dependent mechanisms of electromechanical reshaping**, Edward C. Wu, Univ. of California, Irvine (USA) [7883C-169]

4:40 pm: **Evolution of electric field during electro-mechanical reshaping of septal cartilage**, Dimityr E. Protsenko, Beckman Laser Institute and Medical Clinic (USA) [7883C-170]

SESSION 8

Room: 200 (Mezzanine) Sun. 5:00 to 6:00 pm

Photodynamic Therapy for Head and Neck Cancer

Session Chair: Waseem K. Jerjes, Univ. College London Hospitals NHS Foundation Trust (United Kingdom)

5:00 pm: **Photodynamic therapy outcome for T1/T2 N0 oral squamous cell carcinoma**, Waseem K. Jerjes, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); Zaid Hamdoon, Tahwinder Upile, Univ. College Hospital (United Kingdom); Charles A. Mosse, Univ. College London (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7883C-154]

5:20 pm: **Fluorescence-guided surgical resection of oral cancer reduces recurrence**, Pierre M. Lane, Catherine F. Poh, The BC Cancer Agency Research Ctr. (Canada); Lewei Zhang, The Univ. of British Columbia (Canada); Miriam Rosin, Calum E. MacAulay, The BC Cancer Agency Research Ctr. (Canada) [7883C-66]

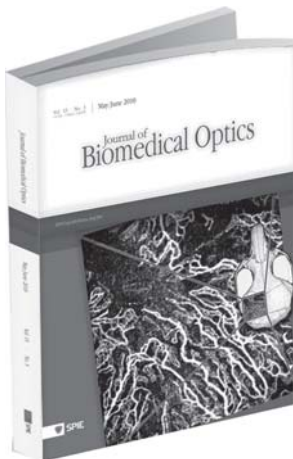
5:40 pm: **Photodynamic therapy outcome for oral dysplasia**, Waseem K. Jerjes, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); Zaid Hamdoon, Tahwinder Upile, Univ. College Hospital (United Kingdom); Charles A. Mosse, Univ. College London (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7883C-155]

BIOS

Journal of Biomedical Optics

PUBLISHES MONTHLY
IN 2011

| Published by SPIE



Learn more about the *Journal of Biomedical Optics*:
SPIDigitalLibrary.org

Contribute to and read your best source for articles in biomedical optics research.

The *Journal of Biomedical Optics* (JBO) publishes significant articles that report on the use of modern optical technology for improved health care and biomedical research. New applications are made possible by emerging technologies in lasers, optoelectronic devices, fiber optics, physical and chemical sensors, and imaging, all of which are being applied to medical research, diagnostics, and therapy.

- Covered in Medline and other scientific indexes
- Ranked in the top tier of journals in optics, biochemical research methods and radiology
- e-First online publication for timely research access and article dissemination
- Multimedia, reference linking and color images
- Worldwide access through the SPIE Digital Library



Diagnostic and Therapeutic Applications of Light in Cardiology

Conference Chairs: **Kenton W. Gregory**, Oregon Medical Laser Ctr.; **Guillermo J. Tearney**, Wellman Ctr. for Photomedicine; **Laura Marcu**, Univ. of California, Davis

Saturday 22 January

SESSION 1

Room: 309 (Esplanade) Sat. 8:30 to 9:50 am

Microscopy

Session Chair: **Andrew M. Rollins**, Case Western Reserve Univ.

8:30 am: **Selective sinoatrial node optical mapping to investigate the mechanism of sinus rate acceleration**, Shien-Fong Lin, Tetsuji Shinohara, Boyoung Joung M.D., Peng-Sheng Chen, Krannert Institute of Cardiology (USA) [7883D-70]

8:50 am: **Diagnostic imaging for interrogating atherosclerotic plaque burden using multimodal CARS**, Alex C. T. Ko, Leila B. Mostaço-Guidolin, Andrew Ridsdale, Michael S. D. Smith, Mark Hewko, Adrian F. Pegoraro, Elicia M. Kohlenberg, Bernhard J. Schattka, National Research Council Canada (Canada); Masashi Shiomi, Kobe Univ. School of Medicine (Japan); Albert Stelow, Michael G. Sowa, National Research Council Canada (Canada) [7883D-71]

9:10 am: **Fluorescence imaging of macrophages in atherosclerotic plaques using plasmonic gold nanorose**, Tianyi Wang, The Univ. of Texas at Austin (USA); Veronika V. Sapozhnikova, J. Jacob Mancuso, Xiankai Li, The Univ. of Texas Health Science Ctr. at San Antonio (USA); Brian Willsey, Keith P. Johnston, The Univ. of Texas at Austin (USA); Marc D. Feldman, The Univ. of Texas Health Science Ctr. at San Antonio (USA); Thomas E. Milner, The Univ. of Texas at Austin (USA) [7883D-72]

9:30 am: **Visualizing the subcellular structure of human coronary atherosclerosis using μ OCT**, Linbo Liu, Joseph A. Gardecki, Seemantini K. Nadkarni, Jimmy D. Toussaint, Yukako Yagi, Brett E. Bouma, Guillermo J. Tearney, Massachusetts General Hospital (USA) [7883D-73]

Coffee Break 9:50 to 10:20 am

SESSION 2

Room: 309 (Esplanade) Sat. 10:20 am to 12:00 pm

Multimodality

Session Chair: **Guillermo J. Tearney**, Wellman Ctr. for Photomedicine

10:20 am: **Simultaneous co-registered morphological and biochemical imaging of coronary atherosclerotic plaques using a dual-modal optical system combining OCT and FLIM**, Jesung Park, Paritosh Pande, Sebina Shrestha, Brian E. Applegate, Javier A. Jo, Texas A&M Univ. (USA) . [7883D-74]

10:40 am: **Combination of Raman spectroscopy and optical frequency domain imaging for coronary atherosclerosis**, Hao Wang, Massachusetts General Hospital (USA); Joseph A. Gardecki, Massachusetts General Hospital (USA); Christine P. Fleming, Brett E. Bouma, Guillermo J. Tearney, Massachusetts General Hospital (USA) [7883D-75]

11:00 am: **Near-infrared spectroscopy and optical frequency domain imaging for intravascular tissue characterization**, Christine P. Fleming, Joseph A. Gardecki, Hao Wang, Brett E. Bouma, Guillermo J. Tearney, Harvard Medical School (USA) [7883D-76]

11:20 am: **Dual-modality catheter for optical frequency domain imaging and near-infrared fluorescence imaging**, HongKi Yoo, Jin Won Kim, Milen S. Shishkov, Eman namati, Massachusetts General Hospital (USA); Theodore F. Morse, The Boston Univ. Photonics Ctr. (USA); Roman L. Shubochkin, Boston Univ. (USA); Jason R. McCarthy, Brett E. Bouma, Farouc A. Jaffer M.D., Guillermo J. Tearney, Massachusetts General Hospital (USA) [7883D-77]

11:40 am: **Design, construction, and validation of a multimodal intravascular diagnostic catheter combining IVUS and fluorescence lifetime spectroscopy detection channels**, Julien Bec, Hongtao Xie, Diego R. Yankelevich, Feifei Zhou, Yang Sun, Narugopal Ghata, Ralph C. Aldredge, Laura Marcu, Univ. of California, Davis (USA) [7883D-78]

Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 3

Room: 309 (Esplanade) Sat. 1:30 to 2:50 pm

OCT I

Session Chair: **Gijs van Soest**, Erasmus MC (Netherlands)

1:30 pm: **Optical coherence tomography image artifacts in native coronary arteries: effect on plaque characterization ex vivo and prevalence in vivo**, Gijs van Soest, Thadé P. M. Goderie, Evelyn Regar M.D., Gonzalo Nieves, Senada Koljenovic M.D., Arno Geert J. L. H. van Leenders M.D., Patrick W. Serruys M.D., Erasmus MC (Netherlands); Antonius F. W. van der Steen, Erasmus MC (Netherlands) and Interuniversity Cardiology Institute of the Netherlands (Netherlands) [7883D-79]

1:50 pm: **Tools for experimental characterization of the non-uniform rotational distortion in intravascular OCT probes**, Marc L. Dufour D.D.S., Charles-Etienne Bisailon, Guy Lamouche, Sébastien Vergnole, Mark Hewko, Frédéric D'Amours, Michael G. Sowa, National Research Council Canada (Canada) [7883D-80]

2:10 pm: **Improved phantoms of coronary arteries for optical coherence tomography**, Charles-Etienne Bisailon, Marc L. Dufour D.D.S., Guy Lamouche, National Research Council Canada (Canada) [7883D-81]

2:30 pm: **Accurate reconstruction of longitudinal views by single Doppler beam tracking in intracoronary optical frequency domain imaging**, Jinyong Ha, Massachusetts General Hospital (USA); Milen S. Shishkov, Wellman Ctr. for Photomedicine (USA); Hongki Yoo, Massachusetts General Hospital (USA); Guillermo J. Tearney, Brett E. Bouma, Wellman Ctr. for Photomedicine (USA) [7883D-82]

Coffee Break 2:50 to 3:20 pm

SESSION 4

Room: 309 (Esplanade) Sat. 3:20 to 4:40 pm

Spectroscopy

Session Chair: **Laura Marcu**, Univ. of California, Davis

3:20 pm: **Characterization of atherosclerotic plaques using combined time-resolved fluorescence spectroscopy and ultrasonic backscatter microscopy**, Yang Sun, Jennifer E. Phipps, Matthew Lam, Hongtao Xie, Univ. of California, Davis (USA); Michael C. Fishbein M.D., Univ. of California, Los Angeles (USA); Jonathan M. Cannata, K. Kirk Shung, The Univ. of Southern California (USA); Laura Marcu, Univ. of California, Davis (USA) [7883D-83]

3:40 pm: **In-vivo swine myocardial tissue characterization and monitoring during open chest surgery by time-resolved diffuse near-infrared spectroscopy**, Lorenzo Spinelli, Consiglio Nazionale delle Ricerche (Italy); Davide Contini, Andrea Farina, Alessandro Torricelli, Antonio Pifferi, Rinaldo Cubeddu, Politecnico di Milano (Italy); Luca Ascari, Scuola Superiore Sant'Anna (Italy); Luca Potí, Consorzio Nazionale Interuniversitario per le Telecomunicazioni (Italy); Maria Giovanna Trivella, Consiglio Nazionale delle Ricerche (Italy); Antonio L'Abbate, Stefano Puzzuoli, Scuola Superiore Sant'Anna (Italy) and Consiglio Nazionale delle Ricerche (Italy) [7883D-84]

4:00 pm: **Toward development of an intravascular diagnostic catheter based on fluorescence lifetime spectroscopy: study of an optimized blood flushing system**, Narugopal Ghata, Univ. of California, Davis (USA) and ANSYS, Inc. (USA); Ralph C. Aldredge, Julien Bec, Laura Marcu, Univ. of California, Davis (USA) [7883D-85]

4:20 pm: **Correlations between matrix metalloproteinase expression and fluorescence lifetime spectroscopy measurements in human atherosclerotic plaque**, Jennifer E. Phipps, Nisa Hatami, Univ. of California, Davis (USA); Michael C. Fishbein M.D., Univ. of California, Los Angeles (USA); Laura Marcu, Univ. of California, Davis (USA) [7883D-86]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

SESSION 5

Room: 309 (Esplanade) Sun. 8:30 to 9:50 am

OCT II

Session Chair: **Atsushi Tanaka**, Wellman Ctr. for Photomedicine

8:30 am: **Intravascular OCT catheterization: from in-vitro coronary testing to percutaneous coronary intervention**, Mark Hewko, Marc L. Dufour D.D.S., Sébastien Vergnole, Michael S. D. Smith, Frédéric D'Amours, National Research Council Canada (Canada); Farrukh Hussain M.D., St. Boniface General Hospital (Canada); Guy Lamouche, Michael G. Sowa, National Research Council Canada (Canada) [7883D-87]

8:50 am: **Feasibility of optical frequency domain imaging assessment for micro thrombus on stent struts: a comparison study with scanning electron microscopy**, Atsushi Tanaka M.D., Wellman Ctr. for Photomedicine (USA); Dawn Winsor-Hines, Boston Scientific Corp. (USA); Melissa J. Suter, Kevin A. Gallagher, Massachusetts General Hospital (USA); Dominic Allocco, Boston Scientific Corp. (USA); Guillermo J. Tearney, Brett E. Bouma, Massachusetts General Hospital (USA) [7883D-88]

9:10 am: **Measuring hemodynamic forces within the developing embryonic heart using optical coherence tomography**, Lindsay M. Peterson, Michael W. Jenkins, Madhusudhana Gargasha, Shi Gu, Michiko Watanabe, David L. Wilson, Andrew M. Rollins, Case Western Reserve Univ. (USA) [7883D-89]

9:30 am: **IVOCT monitoring of balloon inflation in a deployment tester**, Hamed Azarnoush, McGill Univ. (Canada) and National Research Council Canada (Canada); Sébastien Vergnole, Charles-Etienne Bisailon, National Research Council Canada (Canada); Benoit Boulet, McGill Univ. (Canada); Guy Lamouche, National Research Council Canada (Canada) [7883D-90]

Coffee Break 9:50 to 10:20 am

SESSION 6

Room: 309 (Esplanade) Sun. 10:20 to 11:40 am

Therapy

Session Chair: **Kenton W. Gregory**, Oregon Medical Laser Ctr.

10:20 am: **Non-thermal myocardial electrical conduction block by photosensitization reaction with catheterization in right atrium isthmus of porcine heart in vivo**, Arisa Ito, Takuro Kajihara, Tsukasa Suenari, Mei Takahashi, Keio Univ. (Japan); Takehiro Kimura, Kotaro Fukumoto, Seiji Takatsuki, Shunichiro Miyoshi, Keio Univ. School of Medicine (Japan); Tsunenori Arai, Keio Univ. (Japan) [7883D-91]

10:40 am: **Basic study of effects on the smooth muscle cells' proliferation with novel short-term thermal angioplasty in vitro and in vivo**, Mie Kuno, Natsumi Shimazaki, Arisa Ito, Tomoyuki Hayashi, Tsunenori Arai, Keio Univ. (Japan); Masami Sakurada, Tokorozawa Heart Ctr. (Japan) [7883D-92]

11:00 am: **In-vivo experimental study on laser welded ICG-loaded chitosan patches for vessel repair**, Francesca Rossi, Paolo Matteini, Istituto di Fisica Applicata Nello Carrara (Italy); Giuseppe Esposito, Alessio Albanese M.D., Alfredo Puca M.D., Giulio Maira, Univ. Cattolica del Sacro Cuore (Italy); Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy); Giacomo Rossi, Univ. degli Studi di Camerino (Italy) [7883D-93]

11:20 am: **Optical pacing**, Michael W. Jenkins, Case Western Reserve Univ. (USA); Austin R. Duke, Vanderbilt Univ. (USA); Shi Gu, Yong-Qiu Doughman, Hillel J. Chiel, Hisashi Fujioka, Michiko Watanabe, Case Western Reserve Univ. (USA); E. Duco Jansen, Vanderbilt Univ. (USA); Andrew M. Rollins, Case Western Reserve Univ. (USA) [7883D-94]

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BiOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

The usefulness of optical analyses for detecting vulnerable plaques using rabbit models, Kanji Nakai M.D., Miya Ishihara M.D., Satoko Kawauchi, National Defense Medical College (Japan); Masashi Shiomi, Kobe Univ. School of Medicine (Japan); Makoto Kikuchi M.D., Tatsumi Kajii M.D., National Defense Medical College (Japan) [7883D-95]

The screenshot shows the SPIE Photonics West website interface. At the top, there are navigation links: HOME, CONFERENCES + EXHIBITIONS, PUBLICATIONS, EDUCATION, MEMBERSHIP, INDUSTRY RESOURCES, CAREER CENTER, and NEWSROOM. The main content area displays the event title 'SPIE Photonics West' for the dates 22-27 January 2011 at The Moscone Center in San Francisco, California, USA. A search bar is located in the top right corner. Below the event information, there is a 'Search Program' section with a search box and a 'SEARCH' button. A 'PLAN YOUR WEEK' section is highlighted with a callout box that says 'Use the SPIE My Schedule tool on the Photonics West site'. The callout box lists 'Add Papers | Exhibitors | Courses | Special Events'. Below this, there is another section titled 'Use the Entire Program webpage to view the program your way:' which lists three options: 'By Symposium and Conference—papers, courses, special events', 'By Day and Time—see what's happening now', and 'In a Matrix Grid by Program Track—handy at-a-glance reference'.

Optical Techniques in Neurosurgery, Brain Imaging, and Neurobiology

Conference Chairs: **Henry Hirschberg**, Beckman Laser Institute and Medical Clinic; **Steen J. Madsen**, Univ. of Nevada, Las Vegas

Program Committee: **Frederic Leblond**, Dartmouth College; **Marlon Stephen Mathews**, Univ. of California, Irvine; **Herbert Stepp**, Ludwig-Maximilians-Univ. München (Germany); **Victor X. D. Yang**, Ryerson Univ. (Canada)

Saturday 22 January

Introduction and Opening Remarks

Room: 256 (Mezzanine) Sat. 8:40 to 8:50 am

Session Chair: **Henry Hirschberg**,
Beckman Laser Institute and Medical Clinic

SESSION 1

Room: 256 (Mezzanine) Sat. 8:50 to 10:10 am

Brain Tumor Therapy: Surgical Resection Guidance I

Session Chair: **Henry Hirschberg**,
Beckman Laser Institute and Medical Clinic

8:50 am: **ALA-induced PpIX spectroscopy for brain tumor image-guided surgery**, Pablo A. Valdes, Frederic Leblond, Dartmouth College (USA); Anthony Kim, Ontario Cancer Institute (Canada); Brent T. Harris, Dartmouth Hitchcock Medical Ctr. (USA); Brian C. Wilson, Ontario Cancer Institute (Canada); Keith D. Paulsen, Dartmouth College (USA); David W. Roberts, Dartmouth Hitchcock Medical Ctr. (USA) [7883E-96]

9:10 am: **Ex-vivo fluorometry of intracranial tumor biopsies excised during fluorescence-guided resection and implications for intra-operative instrument sensitivity**, Anthony Kim, Ontario Cancer Institute (Canada); Marco Brantsch, Carolyn Niu, Univ. of Toronto (Canada); Evan Lebovitz, Kolbein Kolste, Frederic Leblond, Pablo A. Valdes, Keith D. Paulsen, Dartmouth College (USA); David W. Roberts, Dartmouth Hitchcock Medical Ctr. (USA); Brian C. Wilson, Ontario Cancer Institute (Canada) [7883E-97]

9:30 am: **Blood interference in fiber-optical based fluorescence guided resection of glioma using 5-aminolevulinic acid**, Neda Haj-Hosseini, Linköping Univ. (Sweden); Shannely Lowndes, Fachhochschule beider Basel (Switzerland); Johan Richter, Karin Wårdell, Linköping Univ. (Sweden) [7883E-98]

9:50 am: **ALA-induced PpIX fluorescence in epileptogenic tissue**, Jonathan K. Kleen, Dartmouth Hitchcock Medical Ctr. (USA); Pablo A. Valdes, Dartmouth College (USA) and Thayer School of Engineering (USA); Brent T. Harris, Dartmouth Hitchcock Medical Ctr. (USA) and Dartmouth-Hitchcock Medical Ctr. (USA); Keith Paulsen, Dartmouth College (USA) and Norris Cotton Cancer Ctr., Dartmouth-Hitchcock Medical Ctr. (USA) and Section of Neurosurgery, Dartmouth-Hitchcock Medical Ctr. (USA); David W. Roberts, Dartmouth Hitchcock Medical Ctr. (USA) and Dartmouth-Hitchcock Medical Ctr. (USA) [7883E-99]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 256 (Mezzanine) Sat. 10:40 to 11:40 am

Brain Tumor Therapy: Intra/Post Op

Session Chair: **Steen J. Madsen**, Univ. of Nevada, Las Vegas

10:40 am: **Evaluation of the use of antibody conjugated plasmonic nanoparticles for brain tumor delineation**, Kevin C. Seekell, Christy Wilson, Gerald Grant, Adam P. Wax, Duke Univ. (USA) [7883E-100]

11:00 am: **Photothermal ablation of malignant brain tumors by nanoparticle loaded macrophages and NIR light**, Henry Hirschberg M.D., Seung-Kuk Baek, Beckman Laser Institute and Medical Clinic (USA); Young Jik Kwon, Univ. of California, Irvine (USA); Chung-Ho Sun, Beckman Laser Institute and Medical Clinic (USA); Steen J. Madsen, Univ. of Nevada, Las Vegas (USA) [7883E-101]

11:20 am: **Enhanced transfection of a brain tumor suppressor gene by photochemical internalization**, Chih H. Chou, Beckman Laser Institute and Medical Clinic (USA); Yi-Hong Zhou, Univ. of California, Irvine (USA); Chung-Ho Sun, Beckman Laser Institute and Medical Clinic (USA); Steen J. Madsen, Univ. of Nevada, Las Vegas (USA); Henry Hirschberg M.D., Beckman Laser Institute and Medical Clinic (USA) [7883E-102]

Lunch Break 12:00 to 1:30 pm

SESSION 3

Room: 256 (Mezzanine) Sat. 1:30 to 3:10 pm

Brain Tumor Therapy: Surgical Resection Guidance II

Session Chair: **Frederic Leblond**, Dartmouth College

1:30 pm: **Nonlinear optical imaging: toward chemical imaging during neurosurgery**, Benjamin Dietzek, Friedrich-Schiller-Univ. Jena (Germany); Tobias Meyer, Institut für Photonische Technologien e.V. (Germany); Bernd F. M. Romeike, Rupert Reichart, Rolf Kalff, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) [7883E-103]

1:50 pm: **Developing in-vivo micropathology for molecular image-guided brain tumor resection**, Jonathan T. C. Liu, Stony Brook Univ. (USA); Michael J. Mandella, Stanford Univ. School of Medicine (USA); Nathan O. Loewke, Stanford Univ. (USA); Danni Wang, Stony Brook Univ. (USA); Frank V. Cochran, Gordon S. Kino, Stanford Univ. School of Medicine (USA); Olav Solgaard, Stanford Univ. (USA); Christopher H. Contag, Stanford Univ. School of Medicine (USA) [7883E-104]

2:10 pm: **Real-time intra-operative full-range complex FD-OCT guided cerebral blood vessel identification and brain tumor resection in neurosurgery**, Kang Zhang, Yong Huang, The Johns Hopkins Univ. (USA); Gustavo Pradilla, Betty Tyler, The Johns Hopkins Hospital (USA); Jin Ung Kang, The Johns Hopkins Univ. (USA) [7883E-105]

2:30 pm: **Multimodal confocal imaging for delineating brain cancer: the feasibility study**, Dennis J. Wirth, Univ. of Massachusetts Lowell (USA); Matija Snuderl, Sameer Sheth, William Curry, Massachusetts General Hospital (USA); Anna N. Yaroslavsky, Univ. of Massachusetts Lowell (USA) and Massachusetts General Hospital (USA) [7883E-106]

2:50 pm: **Fluorescence and reflectance spectroscopy for protoporphyrin IX quantification in tissue-like media**, Gesa Palte, Herbert Stepp, Georg Hennig, Ann Johansson, Ludwig-Maximilians-Univ. München (Germany) [7883E-107]

Coffee Break 3:10 to 3:40 pm

SESSION 4

Room: 256 (Mezzanine)..... Sat. 3:40 to 5:00 pm

Cerebrovascular Imaging

Session Chair: Marlon Stephen Mathews, Univ of California, Irvine

3:40 pm: **Neuro-endovascular optical coherence tomography imaging: clinical feasibility and applications**, Marlon S. Mathews M.D., Univ. of California, Irvine (USA); Jianping Su, Esmail Heidari, Beckman Laser Institute and Medical Clinic (USA); Mark E. Linskey M.D., Univ. of California, Irvine (USA); Zhongping Chen, Beckman Laser Institute and Medical Clinic (USA) [7883E-108]

4:00 pm: **Cortical blood flow imaging of mouse stroke model by high-speed spectral OCT**, Ireneusz Grulkowski, Nicolaus Copernicus Univ. (Poland); Grzegorz Wilczynski, Nencki Institute of Experimental Biology (Poland); Danuta Bukowska, Maciej Szkulmowski, Nicolaus Copernicus Univ. (Poland); Jakub Wlodarczyk, Nencki Institute of Experimental Biology (Poland); Karol Karnowski, Daniel Ruminski, Andrzej A. Kowalczyk, Maciej Wojtkowski, Nicolaus Copernicus Univ. (Poland)..... [7883E-109]

4:20 pm: **Multifunctional optical coherence tomography for brain imaging**, Hui Wang, Tyler Stigen, Theoden Netoff, Taner Akkin, Univ. of Minnesota, Twin Cities (USA) [7883E-110]

4:40 pm: **Scanning endoscopic optical coherence tomography in brain imaging**, Yijing Xie, Tim Bonin, Gereon Hüttmann, Ulrich G. Hofmann, Univ. zu Lübeck (Germany) [7883E-111]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

SESSION 5

Room: 256 (Mezzanine)..... Sun. 8:20 to 10:00 am

CNS Imaging and Stimulation I

Session Chair: Steen J. Madsen, Univ. of Nevada, Las Vegas

8:20 am: **A pilot study of the clinical application infrared neural stimulation in humans**, Jonathan M. Cayce, Vanderbilt Univ. (USA); Jonathon D. Wells, Lockheed Martin Aculight (USA); Jonathan D. Malphrus, Vanderbilt Univ. (USA); Chris Kao, Vanderbilt Univ. Medical Ctr. (USA); Peter Konrad, E. Duco Jansen, Anita Mahadevan-Jansen, Vanderbilt Univ. (USA) [7883E-112]

8:40 am: **Seeing the focus of epilepsy through a hyperspectral camera during neurosurgery**, Rowland de Roode, John H. Klaessens, Cyrille Ferrier, Frans Leijten, Peter C. van Rijen, Peter Gosselaar, Rudolf M. Verdaasdonk, Herke J. Noordmans, Univ. Medical Ctr. Utrecht (Netherlands) . . . [7883E-113]

9:00 am: **Study on the early diagnosis of Alzheimer's disease with near-infrared spectroscopy based on three-dimensional Monte Carlo modeling**, Ching-Cheng Chuang, National Taiwan Univ. (Taiwan); Chia-Wei Sun, National Yang-Ming Univ. (Taiwan); Chung-Ming Chen, National Taiwan Univ. (Taiwan); Chun-Yang Wang, Yao-Sheng Hsieh, National Chiao Tung Univ. (Taiwan) [7883E-114]

9:20 am: **Joint attention studies in normal and autistic children using NIRS**, Ujwal Chaudhary, Michael Hall, Florida International Univ. (USA); Anibal Gutierrez, Daniel Messinger, Univ. of Miami (USA); Gustavo Rey, Miami Children's Hospital (USA); Anuradha Godavarty, Florida International Univ. (USA) [7883E-115]

9:40 am: **Resting-state functional connectivity in newborn infants using DOT**, Silvina L. Ferradal, Brian R. White, Steve M. Liao, Joseph P. Culver, Washington Univ. in St. Louis (USA) [7883E-116]

Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 256 (Mezzanine)..... Sun. 10:30 to 11:50 am

CNS Imaging and Stimulation II

Session Chair: Henry Hirschberg, Beckman Laser Institute and Medical Clinic

10:30 am: **Synthetic reconstruction of dynamic blood flow using optical coherence tomography of cortical microvasculature**, Edward Baraghis, Ecole Polytechnique de Montréal (Canada); Marc-Antoine Gillis, Montréal Heart Institute (Canada); Vivek J. Srinivasan, Massachusetts General Hospital (USA); Éric Thorin, Montréal Heart Institute (Canada); Caroline Boudoux, Frédéric Lesage, Ecole Polytechnique de Montréal (Canada) [7883E-117]

10:50 am: **Identification of prefrontal cortex activation while performing Stroop test using diffuse optical tomography**, Sabin Khadka, Srujan R. Chityala, Fenghua Tian, Hanli Liu, The Univ. of Texas at Arlington (USA) [7883E-118]

11:10 am: **Optimizing statistical analysis with a general linear model for diffuse optical tomography to image rapid brain function events**, Mahlega Hassanpour, Brian R. White, Adam T. Eggebrecht, Joseph P. Culver, Washington Univ. in St. Louis (USA) [7883E-119]

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BiOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Temporal mapping and connectivity using NIRS for language-related tasks, Michael Hall, Ujwal Chaudhary, Florida International Univ. (USA); Gustavo Rey, Miami Children's Hospital (USA); Anuradha Godavarty, Florida International Univ. (USA) [7883E-121]

Odor-induced hemodynamic response changes observed using near-infrared spectroscopy (NIRS) on the rat olfactory bulb, Seungduk Lee, Dalkwon Koh, Youngwook Seo, Korea Univ. (Korea, Republic of); Hyun Joo Lee, Changkyun Im, Jinsu Koh, Hyung-Cheul Shin, Hallym Univ. (Korea, Republic of); Beop-Min Kim, Korea Univ. (Korea, Republic of) [7883E-120]

Don't miss the free BiOS Exhibition

See the latest components, devices, and instrumentation for diagnostics and therapeutics

22-23 January 2011

Saturday · 12:00 pm to 5:00 pm

Sunday · 10:00 am to 5:00 pm

Optics in Bone Biology and Diagnostics

Conference Chair: **Andreas Mandelis**, Univ. of Toronto (Canada)

Saturday 22 January

SESSION 1

Room: 252/254 (Mezzanine) Sat. 8:30 to 10:00 am

Bone Spectroscopy and Optical Processes I

Session Chair: **Andreas Mandelis**, Univ. of Toronto (Canada)

8:30 am: **Optical coherence tomography as a guiding tool for minimally invasive surgery of the spine** (*Invited Paper*), Kathy Beaudette, Mathias Strupler, Mark Driscoll, Ecole Polytechnique de Montréal (Canada); Stefan Parent M.D., CHU Sainte-Justine (Canada); Roman Maciejko, Carl-Eric Aubin, Caroline Boudoux, Ecole Polytechnique de Montréal (Canada) [7883F-122]

9:00 am: **Efficacy of near-infrared spectroscopy in monitoring and detection of skeletal muscle ischemia**, R. Luke Harris, Univ. of Northern British Columbia Prince George Campus (Canada); Babak Shadgan M.D., UBC Muscle Biophysics Lab. (Canada); W. Darlene Reid, UBC Muscle Biophysics Lab. (Canada) and The Univ. of British Columbia (Canada); Peter J. O'Brien, The Univ. of British Columbia (Canada) [7883F-123]

9:20 am: **Steroid-induced osteoporosis monitored by Raman spectroscopy**, Jason R. Maher, Masahiko Takahata, Hani A. Awad, Andrew J. Berger, Univ. of Rochester (USA) [7883F-124]

9:40 am: **Transcutaneous Raman spectroscopy for assessing progress of bone-graft incorporation in bone reconstruction and repair**, Paul I. Okagbare, Francis W. Esmonde-White, Univ. of Michigan (USA); Steven A. Goldstein, Univ. of Michigan Medical School (USA); Michael D. Morris, Univ. of Michigan (USA) [7883F-125]

Coffee Break 10:00 to 11:00 am

SESSION 2

Room: 252/254 (Mezzanine) Sat. 11:00 am to 12:20 pm

Thermal, Photothermal, and Photoacoustic Processes

Session Chair: **Michael D. Morris**, Univ. of Michigan

11:00 am: **Experimental evaluation of bone drilling using short-pulsed laser ablation**, Brent Emigh, Eugene Hsu, Erik Sorensen, Ran An, Harold K. Haugen, Joseph E. Hayward, Gregory Wohl, Brett Dunlop, Dafydd R. Williams, Mehran Anvari, Qiyin Fang, McMaster Univ. (Canada) [7883F-127]

11:20 am: **Space simulation of thermal fields generated in bone tissue for application to nanophotothermal hyperthermia and nanophotothermal ablation**, Renat R. Letfullin, Colin Rice, Rose-Hulman Institute of Technology (USA); Thomas F. George, Univ. of Missouri-St. Louis (USA) [7883F-128]

11:40 am: **Quantitative evaluation of simulated human enamel caries kinetics using photothermal radiometry and modulated luminescence**, Andreas Mandelis, Adam Hellen, Yoav Finer, Univ. of Toronto (Canada); Bennett T. Amaechi, The Univ. of Texas Health Science Ctr. at San Antonio (USA) [7883F-129]

12:00 pm: **Image-guided photoacoustic spectroscopy in diagnosis of osteoarthritis in hands: an initial study**, Zhen Yuan, Yao Sun, Jiaying Xiao, Eric S. Sobel, Huabei Jiang, Univ. of Florida (USA) [7883F-130]

Lunch/Exhibition Break 12:20 to 1:50 pm

SESSION 3

Room: 252/254 (Mezzanine) Sat. 1:50 to 3:20 pm

Bone Spectroscopy and Optical Processes II

Session Chair: **Andreas Mandelis**, Univ. of Toronto (Canada)

1:50 pm: **Three-dimensional imaging of dental hard tissues with Fourier domain optical coherence tomography** (*Invited Paper*), Yueli Chen, Agiltron, Inc. (USA); Yi Yang, Univ. of Connecticut (USA); Jing J. Ma, Jun J. Yan, Yuanxin Shou, Agiltron, Inc. (USA); Tianheng Wang, Univ. of Connecticut (USA); Jing Zhao, Agiltron, Inc. (USA); Quing Zhu, Univ. of Connecticut (USA) . [7883F-131]

2:20 pm: **Detection of chemical changes in bone after irradiation with Er,Cr:YSGG laser**, Carolina Benetti, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Patricia A. Ana, Univ. Federal do ABC (Brazil); Moises O. Santos, Jose S. Rabelo, Denise M. Zezell, Instituto de Pesquisas Energéticas e Nucleares (Brazil) [7883F-132]

2:40 pm: **Diffuse reflectance study of the effects of bleaching agents in damaged dental pieces**, Jose Bante-Guerra, Rudy A. Trejo-Tzab, Juan D. Macias, Patricia Quintana-Owen, Juan J. Alvarado-Gil, Ctr. de Investigación y de Estudios Avanzados (Mexico) [7883F-133]

3:00 pm: **Photoacoustic Radar: Optimal Bandwidth and Chirp Duration for Frequency-domain Imaging**, Andreas Mandelis, Bahman Lashkari, Univ. of Toronto (Canada) [7883F-134]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Photons and Neurons III

Conference Chairs: Anita Mahadevan-Jansen, Vanderbilt Univ.; E. Duco Jansen, Vanderbilt Univ.

Monday 24 January

SESSION 1

Room: 274 (Mezzanine) Mon. 8:30 to 10:10 am

Treatment and Imaging of Neural Activity

Session Chair: E. Duco Jansen, Vanderbilt Univ.

8:30 am: **Efficient delivery of small interfering RNA into injured spinal cords in rats by photomechanical waves**, Takahiro Ando, Keio Univ. (Japan); Shunichi Sato, Terushige Toyooka, Hiroaki Kobayashi, Hiroshi Nawashiro, Hiroshi Ashida, National Defense Medical College (Japan); Minoru Obara, Keio Univ. (Japan) [7883G-135]

8:50 am: **In-vivo optical measurement of activity-dependent fluorescence change in striatum using synaptophluorin mice**, Sang Beom Jun, Guohong Cui, Xin Jin, Michael D. Pham, Christopher Thaler, Steven S. Vogel, National Institutes of Health (USA); Rui Costa, Instituto Gulbenkian de Ciéncia (Portugal); David M. Lovinger, National Institutes of Health (USA) [7883G-140]

9:10 am: **Simultaneous imaging of light-evoked activities in retinal photoreceptors and inner neurons**, Xin-Cheng Yao, Yi-Chao Li, Christianne E. Strang, Franklin Amthor, Lei Liu, Kent T. Keyser, The Univ. of Alabama at Birmingham (USA) [7883G-139]

9:30 am: **Functional near infrared brain imaging with a brush-fiber optode array to improve study success rates on pediatric subjects with cerebral palsy**, Bilal Khan, The Univ. of Texas at Arlington (USA); Chester Wildey, The Univ. of Texas at Dallas (USA); Fenghua Tian, Mario I. Romero, The Univ. of Texas at Arlington (USA); Mauricio R. Delgado, Nancy J. Clegg, Linsley Smith, Texas Scottish Rite Hospital for Children (USA); Hanli Liu, The Univ. of Texas at Arlington (USA); Duncan L. MacFarlane, The Univ. of Texas at Dallas (USA); George Alexandrakis, The Univ. of Texas at Arlington (USA) [7883G-136]

9:50 am: **Optical imaging of signals evoked by infrared neural stimulation of the rat brain**, Jonathan M. Cayce, Vanderbilt Univ. (USA); Matthew Bouchard, Brenda Chen, Columbia Univ. (USA); E. Duco Jansen, Vanderbilt Univ. (USA); Elizabeth M. C. Hillman, Columbia Univ. (USA); Anita Mahadevan-Jansen, Vanderbilt Univ. (USA) [7883G-146]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 274 (Mezzanine) Mon. 10:40 am to 12:20 pm

Infrared Neural Stimulation

Session Chair: Matthew D. Keller, Lockheed Martin Aculight

10:40 am: **Characterization of infrared neural stimulation in Aplysia californica**, Melanie A. Gault, Austin R. Duke, Vanderbilt Univ. (USA); Hillel J. Chiel, Case Western Reserve Univ. (USA); E. Duco Jansen, Vanderbilt Univ. (USA) [7883G-147]

11:00 am: **Infrared laser stimulation of retinal and vestibular neurons**, Fabrice Bardin, Univ des Nimes (France) and Univ. Montpellier 2 (France); Jean-Michel Bec, Univ. Montpellier 2 (France); Emmanuelle S. Albert, Christian Chabbert, Christian Hamel, Institut des Neurosciences de Montpellier (France); Gerard Dupeyron, Ctr. Hospitalier Univ. de Nimes (France); Isabelle Marc, Ecole des Mines d'Ales (France) and Univ. Montpellier 2 (France); Michel Dumas, Univ. Montpellier 2 (France) [7883G-137]

11:20 am: **Pacing the embryonic heart with a pulsed laser**, Michael W. Jenkins, Case Western Reserve Univ. (USA); Austin R. Duke, Vanderbilt Univ. (USA); Shi Gu, Yong-Qiu Doughman, Hillel J. Chiel, Hisashi Fujioka, Michiko Watanabe, Case Western Reserve Univ. (USA); E. Duco Jansen, Vanderbilt Univ. (USA); Andrew M. Rollins, Case Western Reserve Univ. (USA) [7883G-138]

11:40 am: **Analysis of the Thermal Response to Optical Nerve Stimulation**, Mark A. Mackanos, Jonathan D. Malphrus, Anita Mahadevan-Jansen, E. Duco Jansen, Vanderbilt Univ. (USA) [7883G-141]

12:00 pm: **Development of VCSELs for optical nerve stimulation**, Matthew M. Dummer, Klein Johnson, Mary Hibbs-Brenner, Matthew D. Keller, Tim Gong, Jonathon D. Wells, Mark P. Bendett, Vixar (USA) [7883G-142]

Lunch/Exhibition Break 12:20 to 1:30 pm

SESSION 3

Room: 274 (Mezzanine) Mon. 1:30 to 3:50 pm

Other Stimulation Methods

Session Chair: Anita Mahadevan-Jansen, Vanderbilt Univ.

1:30 pm: **Continuous-wave optical stimulation of the rat prostate nerves using an all-single-mode 1455 nm diode laser and fiber system**, Serhat Tozburun, The Univ. of North Carolina at Charlotte (USA); Gwen A. Lagoda, Arthur L. Burnett M.D., The Johns Hopkins Univ. (USA); Nathaniel M. Fried, The Univ. of North Carolina at Charlotte (USA) [7883G-162]

1:50 pm: **Nerve fiber recruitment in the context of hybrid neural stimulation**, Austin R. Duke, Vanderbilt Univ. (USA); Hui Lu, Michael W. Jenkins, Case Western Reserve Univ. (USA); Melanie A. Gault, Vanderbilt Univ. (USA); Jeff McManus, Hillel J. Chiel, Case Western Reserve Univ. (USA); E. Duco Jansen, Vanderbilt Univ. (USA) [7883G-148]

2:10 pm: **Depolarization of neuroblastoma cells using ultrashort electric pulses**, Bennett L. Ibe, Air Force Research Lab. (USA); Vasyil V. Nesin, Old Dominion Univ. (USA); Gerald J. Wilmink, Air Force Research Lab. (USA); Andrei G. Pakhomov, Old Dominion Univ. (USA) [7883G-144]

2:30 pm: **Two-Photon stimulation of excitable cells with and without optogenetic sensitization**, Shivananjani Shivalingaiah, Ling Gu, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7883G-145]

2:50 pm: **Monitoring millimeter wave-induced changes in neuronal activity using the leech ganglion**, Victor Pikov, Huntington Medical Research Institutes (USA); Peter H. Siegel, California Institute of Technology (USA) [7883G-143]

3:10 pm: **Optical path of infrared neural stimulation in the guinea pig cochlea**, Laura E. Moreno, Suhrud M. Rajguru, Agnella I. Matic, Nitin Yerram, Alan M. Robinson, Claus-Peter Richter, Northwestern Univ. (USA) [7883G-160]

3:30 pm: **Pulse shape effects on cochlear responses during infrared neural stimulation**, Renee Banakis, Agnella I. Matic, Suhrud M. Rajguru, Claus-Peter Richter, Northwestern Univ. (USA) [7883G-161]

3:50 pm: **Multi-physics system performance model for numerical simulations of infrared nerve stimulation**, Matthew Keller, Bryan Norton, Lockheed Martin Aculight (USA); Claus-Peter Richter, Agnella Izzo-Matic, Suhrud M. Rajguru, Northwestern Univ. (USA); Jonathon D. Wells, Lockheed Martin Aculight (USA) [7883G-191]



Lasers in Dentistry XVII

Conference Chairs: **Peter Rechmann**, Univ. of California, San Francisco; **Daniel Fried**, Univ. of California, San Francisco

Program Committee: **Gregory B. Altshuler**, Palomar Medical Technologies, Inc.; **Tatjana Dostálová**, Charles Univ. in Prague (Czech Republic); **John D. Featherstone**, Univ. of California, San Francisco; **David M. Harris**, Bio-Medical Consultants, Inc.; **Harvey A. Wigdor**, Advocate Illinois Masonic Medical Ctr.

Sunday 23 January

SESSION 1

Room: 270/272. Sun. 8:00 to 9:00 am

Lasers in Endodontics and Orthodontics

Session Chair: **Daniel Fried**, Univ. of California, San Francisco

8:00 am: **Diode laser for endodontic treatment: investigations of light distribution and disinfection efficiency**, Karl Stock, Rainer Graser, Martin Udart, Alwin Kienle, Raimund Hibst, Univ. Ulm (Germany). [7884-01]

8:20 am: **Laser scanning dental probe for endodontic root canal treatment**, Molly Blank, Univ. of Washington (USA); Michal Friedrich D.D.S., Consultant (USA); Peggy Lee M.D., Joel Berg D.D.S., Eric J. Seibel, Univ. of Washington (USA). [7884-02]

8:40 am: **Influence of Tm:YAP laser irradiation on tensile strength for bracket debonding**, Tatjana Dostálová M.D., Charles Univ. in Prague (Czech Republic); Helena Jelinková, Jan ?ulc, Petr Koranda, Martin Fibrich, Michal Jelinek, Czech Technical Univ. in Prague (Czech Republic); Pavel Michalik, Charles Univ. in Prague (Czech Republic); Michal Nemeč, Czech Technical Univ. in Prague (Czech Republic); Mitsunobu Miyagi, Sendai National College of Technology (Japan). [7884-03]

SESSION 2

Room: 270/272. Sun. 9:00 to 10:00 am

Lasers in Calculus Detection

Session Chair: **Daniel Fried**, Univ. of California, San Francisco

9:00 am: **Fluorescence-based calculus detection using a 405-nm excitation wavelength**, Olivier Brede, Florian Schelle, Stefanie Krueger, Bernd Oehme, Claudia Dehn, Matthias Frentzen D.D.S., Andreas Braun, Rheinische Friedrich-Wilhelms-Univ. Bonn (Germany). [7884-04]

9:20 am: **Detection of calculus by laser-induced breakdown spectroscopy (LIBS) using an ultra-short pulse laser system (USPL)**, Florian Schelle, Stefanie Krueger, Bernd Oehme, Claudia Dehn, Matthias Frentzen D.D.S., Andreas Braun, Rheinische Friedrich-Wilhelms-Univ. Bonn (Germany) [7884-05]

9:40 am: **Subgingival calculus imaging based on swept-source optical coherence Tomography**, Yao-Sheng Hsieh, National Chiao Tung Univ. (Taiwan); Yi-Ching Ho, Shyh-Yuan Lee, National Yang-Ming Univ. (Taiwan); Chih-Wei Lu, Industrial Technology Research Institute (Taiwan); Ching-Cheng Chuang, National Taiwan Univ. (Taiwan); Chun-Yang Wang, National Chiao Tung Univ. (Taiwan); Chia-Wei Sun, National Yang-Ming Univ. (Taiwan)[7884-06]

Coffee Break 10:00 to 10:30 am

SESSION 3

Room: 270/272. Sun. 10:30 to 10:50 am

Lasers in Periodontology

Session Chair: **Daniel Fried**, Univ. of California, San Francisco

10:30 am: **Effects of the new 940 diode laser treatment combined with scaling and root planing in the reduction of periodontal pockets: an in-vivo study**, Alireza Fallah, RWTH Aachen (Iran, Islamic Republic of). [7884-07]

SESSION 4

Room: 270/272. Sun. 10:50 to 11:50 am

Dental Hard Tissue and Early Caries Imaging I

Session Chair: **Daniel Fried**, Univ. of California, San Francisco

10:50 am: **Development of an OCT probe for in-vivo early caries assessment**, Mark Hewko, Sébastien Vergnole, Frédéric D'Amours, Marc L. Dufour D.D.S., Guy Lamouche, Michael G. Sowa, Lin-P'ing Choo-Smith, National Research Council Canada (Canada). [7884-08]

11:10 am: **Thermophotonic lock-in imaging of early demineralized and carious lesions in human teeth**, Andreas Mandelis, Nima Tabatabaei, Univ. of Toronto (Canada); Bennett T. Amaechi, The Univ. of Texas Health Science Ctr. at San Antonio (USA). [7884-09]

11:30 am: **In-vivo near-IR imaging at 1310 nm**, Daniel Fried, Michal Staninec, Cynthia L. Darling, Chul Sung Lee, Hobin Kang, Kenneth H. Chan, Univ. of California, San Francisco (USA). [7884-10]

Lunch/Exhibition Break 11:50 am to 1:40 pm

SESSION 5

Room: 270/272. Sun. 1:40 to 3:50 pm

Dental Hard Tissue and Early Caries Imaging II

Session Chair: **Peter Rechmann**, Univ. of California, San Francisco

1:40 pm: **Swept source optical coherence tomography for quantitative and qualitative assessment of dental composite restorations**, Alireza Sadr, Yasushi Shimada, Patricia Makishi, Ilnaz Hariri, Turki A. Bakhsh, Tokyo Medical and Dental Univ. (Japan); Yasunori Sumi, National Ctr. for Geriatrics and Gerontology (Japan); Junji Tagami, Tokyo Medical and Dental Univ. (Japan). [7884-11]

2:00 pm: **Development of polarization dental imaging modality and evaluation of its clinical feasibility**, Eunji Kim, Taeyoon Son, Byungjo Jung, Yonsei Univ. (Korea, Republic of). [7884-12]

2:20 pm: **A construction of standardized near-infrared hyperspectral teeth database: a first step in the development of reliable diagnostic tool for quantification and early detection of caries**, Miran Buermen, Ales Fidler, Peter Usenik, Franjo Pernu?, Bo?tjan Likar, Univ. of Ljubljana (Slovenia). [7884-13]

2:40 pm: **Cross-sectional imaging of extracted jaw bone of a pig by optical coherence tomography**, Noriko Tachikawa, Tokyo Medical and Dental Univ. (Japan); Reiko Yoshimura, Kitasato Univ. (Japan); Kohji Ohbayashi, Kitasato Univ. School of Medicine (Japan). [7884-14]

Coffee Break 3:00 to 3:30 pm

3:30 pm: **Comparison of short-pulsed CO₂ 9.6 μm wavelength laser-treated and untreated occlusal surfaces with OCT and polarized Raman spectroscopy**, Daniel Charland, School of Dentistry, Univ. of California, San Francisco (USA); Crystal Fulton, National Research Council Canada (Canada); Beate Rechmann, School of Dentistry, Univ. of California, San Francisco (USA); Mark Hewko, Michael G. Sowa, National Research Council Canada (Canada); John D. Featherstone, School of Dentistry, Univ. of California, San Francisco (USA); Lin-P'ing Choo-Smith, National Research Council Canada (Canada); Peter Rechmann D.D.S., School of Dentistry, Univ. of California, San Francisco (USA). [7884-15]

SESSION 6

Room: 270/272. Sun. 3:50 to 5:30 pm

Laser Effects on Hard Tissues

Session Chair: Peter Rechmann, Univ. of California, San Francisco

- 3:50 pm: **Spectroscopic analysis of both enamel and dentin surfaces following XeCl excimer laser surface treatment**, Mostafa E. Gheith, National Institute of Laser Enhanced Sciences (Egypt) [7884-16]
- 4:10 pm: **High-power, diode-dumped Er:YAG for dentistry**, Clemens Hagen, Pantec Engineering AG (Liechtenstein); Arne Heinrich, Pantec Biosolutions AG (Liechtenstein); Bernhard Nussbaumer, Pantec Engineering AG (Liechtenstein) [7884-17]
- 4:30 pm: **Heat-generation caused by ablation of dental restorative materials with an ultra-short pulse laser (USPL) system**, Andreas Braun, Richard Wehry, Olivier Brede, Matthias Frentzen D.D.S., Florian Schelle, Rheinische Friedrich-Wilhelms-Univ. Bonn (Germany) [7884-18]
- 4:50 pm: **Etching enamel for direct bonding with a 1940-nm thulium fiber laser**, Ayse S. Kabas Sarp, Murat Gülsoy, Bogaziçi Univ. (Turkey) [7884-19]
- 5:10 pm: **Selective treatment of carious dentin using a mid-infrared tunable pulsed laser at 6 µm wavelength range**, Masayuki Saiki, Katsunori Ishii, Osaka Univ. (Japan); Kazushi Yoshikawa, Kenzo Yasuo, Kazuyo Yamamoto, Osaka Dental Univ. Hospital (Japan); Kunio Awazu, Osaka Univ. (Japan) and Univ. of Fukui (Japan) and Kyoto Univ. (Japan) [7884-20]

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

- An optical method for the analysis of the exitance diffused by light-transmitting fiber post**, Stefano Cattini, Luigi L. Rovati, Univ. degli Studi di Modena e Reggio Emilia (Italy) [7884-21]
- Dentin enamel junction characterization by use of Stokes-Mueller formalism**, Yao-Sheng Hsieh, National Chiao Tung Univ. (Taiwan); Yi-Ching Ho, Shyh-Yuan Lee, National Yang-Ming Univ. (Taiwan); Chih-Wei Lu, Industrial Technology Research Institute (Taiwan); Ching-Cheng Chuang, National Taiwan Univ. (Taiwan); Chun-Yang Wang, National Chiao Tung Univ. (Taiwan); Chia-Wei Sun, National Yang-Ming Univ. (Taiwan) [7884-22]
- Polarization resolved near-IR reflectance imaging of sound and carious dental enamel**, Cynthia L. Darling, Kenneth H. Chan, Daniel Fried, Univ. of California, San Francisco (USA) [7884-24]
- Optical coherence tomography monitoring of glucose diffusion and long-term glucose impact on the water permeability of tooth dentin**, Natalia A. Trunina, Vladislav V. Lychagov, Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [7884-25]

- Repair of artificial lesions using an acidic remineralization model**, Hobin Kang, Cynthia L. Darling, Daniel Fried, Univ. of California, San Francisco (USA) [7884-26]
- Selective removal of dental composite using a rapidly scanned carbon dioxide laser**, Kenneth H. Chan, Daniel Fried, Univ. of California, San Francisco (USA) [7884-27]
- Adhesion studies on dental enamel surfaces irradiated by a rapidly scanned carbon dioxide laser**, Kwang Chang, Michal Staninec, Kenneth H. Chan, Daniel Fried, Univ. of California, San Francisco (USA) [7884-28]
- Adjunctive dental therapy with blue light emitting toothbrush**, Elina A. Genina, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Vladimir A. Titorenko, Saratov State Medical Univ. (Russian Federation); Elena S. Tuchina, Georgy V. Simonenko, Alexey N. Bashkatov, Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Ilya V. Yaroslavsky, Gregory B. Altshuler, Palomar Medical Technologies, Inc. (USA) [7884-29]
- Dental photo-acoustic microscopy**, Bin Rao, Xin Cai, Li Li, Washington Univ. in St. Louis (USA); Steven Duong, Lih-Huei L. Liaw, Petra B. B. Wilder-Smith D.D.S., Beckman Laser Institute and Medical Clinic (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7884-30]
- Cross polarization optical coherence tomography for diagnosis of oral soft tissues**, Natalia Gladkova, Maria Karabut, Elena Kiseleva, Nizhny Novgorod State Medical Academy (Russian Federation); Natalia Robakidze, St-Petersburg Medical Academy of Postgraduate Studies (Russian Federation); Alexander Muraev, Yulia V. Fomina, Nizhny Novgorod State Medical Academy (Russian Federation) [7884-31]
- The impact of laser irradiation during antimicrobial photodynamic therapy in an artificial biofilm model**, Martin Schneider, Gregor Kirfel, Michael Berthold, Olivier Brede, Matthias Frentzen D.D.S., Andreas Braun, Rheinische Friedrich-Wilhelms-Univ. Bonn (Germany) [7884-32]
- Near-infrared imaging of teeth at wavelengths between 1200 and 1600 nm**, Soojeong Chung, Daniel Fried, Cynthia L. Darling, Univ. of California, San Francisco (USA) [7884-33]



Ophthalmic Technologies XXI

Conference Chairs: **Fabrice Manns**, Univ. of Miami; **Per G. Söderberg**, Uppsala Univ. (Sweden); **Arthur Ho**, Institute for Eye Research Ltd. (Australia)

Program Committee: **Rafat R. Ansari**, NASA Glenn Research Ctr.; **Michael Belkin**, Tel Aviv Univ. (Israel); **Ralf Brinkmann**, Univ. zu Lübeck (Germany); **Wolfgang Drexler**, Medizinische Univ. Wien (Austria); **Daniel X. Hammer**, Physical Sciences Inc.; **Karen M. Joos**, Vanderbilt Univ.; **Katsuhiko Kobayashi**, Topcon Corp. (Japan); **Kirill V. Larin**, Univ. of Houston; **Ezra I. Maguen**, American Eye Institute; **Donald T. Miller**, Indiana Univ.; **Daniel V. Palanker**, Stanford Univ. School of Medicine; **Jean-Marie A. Parel**, Bascom Palmer Eye Institute; **Roberto Pini**, Istituto di Fisica Applicata Nello Carrara (Italy); **Luigi L. Rovati**, Univ. degli Studi di Modena (Italy); **Georg Schuele**, OptiMedica Corp.; **Jerry Sebag**, The Univ. of Southern California; **Peter Soliz**, VisionQuest Biomedical, LLC; **William B. Telfair**, IRIDEX Corp.; **Valery V. Tuchin**, N.G. Chernyshevsky Saratov State Univ. (Russian Federation)

Saturday 22 January

SESSION 1

Room: 306 (Esplanade) Sat. 8:15 to 9:45 am

Ocular Imaging and Biometry

Session Chairs: **Ezra I. Maguen**, American Eye Institute; **Georg Schuele**, OptiMedica Corp.

8:15 am: **Analysis of tear film thickness by reflectometry technique**, Michael R. Wang, Univ. of Miami (USA); Jianhua Wang, Bascom Palmer Eye Institute (USA); Jame J. Yang, New Span Opto-Technology Inc. (USA). [7885-01]

8:30 am: **Non-contact detection of dry eye using a custom designed IR thermal image system**, Tai Yuan Su, National Yang-Ming Univ. (Taiwan); Ko Hua Chen, Taipei Veterans General Hospital (Taiwan); Po Hsuan Liu, Ming Hong Wu, David O. Chang, United Integrated Services Co., Ltd. (Taiwan); Huihua K. Chiang, National Yang-Ming Univ. (Taiwan) [7885-02]

8:45 am: **Fast distributed scanning keratometric SD-OCT using a conventional galvanometer-based scanner**, Ryan P. McNabb, Francesco LaRocca, Sina Farisu, Anthony N. Kuo, Joseph A. Izatt, Duke Univ. (USA) [7885-03]

9:00 am: **In-vivo 3D imaging of the human corneal limbus with 1060-nm ultra-high resolution optical coherence tomography**, Alireza Akhlagh Moayed, Patrick Lee, Saad Shakeel, Luigina Sorbara, Natalie Hutchings, Trefford L. Simpson, Kostadinka K. Bizheva, Univ. of Waterloo (Canada) [7885-04]

9:15 am: **Diurnal changes of cone photoreceptors observed with SLO/OCT**, Michael Pircher, Julia-Sophie Kroisamer, Franz Felberer, Harald Sattmann, Erich Götzinger, Christoph K. Hitzenberger, Medizinische Univ. Wien (Austria) . . [7885-05]

9:30 am: **Imaging of hyaloid vessels in mouse embryonic eye with swept source optical coherence tomography**, Kirill V. Larin, Univ. of Houston (USA) [7885-06]

Coffee Break 9:45 to 10:15 am

SESSION 2

Room: 306 (Esplanade) Sat. 10:15 to 11:30 am

Adaptive Optics I

Session Chairs: **Katsuhiko Kobayashi**, Topcon Corp. (Japan); **Don Miller**, Indiana Univ.

10:15 am: **Imaging microscopic structures in pathological retinas using a flood-illumination adaptive optics retinal camera**, Clément Viard, Imagine Eyes (France); Kiyoko Nakashima, CHNO des Quinze-Vingts (France); Barbara Lamory, Imagine Eyes (France); Michel Paques, CHNO des Quinze-Vingts (France); Xavier Leveque, Imagine Eyes (France) [7885-07]

10:30 am: **Advanced capabilities of the multimodal adaptive optics imager**, Daniel X. Hammer, Mircea Mujat, Nicusor V. Iftimia, Ankit H. Patel, Emily P. Plumb, David P. Biss, Robert D. Ferguson, Physical Sciences Inc. (USA); Melanie C. W. Campbell, Univ. of Waterloo (Canada); Toco Chui, James D. Akula, Anne B. Fulton, Children's Hospital Boston (USA) and Harvard Medical School (USA) [7885-08]

10:45 am: **AO-OCT with reference arm phase shifting for complex conjugate artifact free imaging of in-vivo retinal structures**, Robert J. Zawadzki, DaeYu Kim, UC Davis Medical Ctr. (USA); Steven M. Jones, Lawrence Livermore National Lab. (USA); Suman Pilli, UC Davis Medical Ctr. (USA); Scot S. Olivier, Lawrence Livermore National Lab. (USA); John S. Werner, UC Davis Medical Ctr. (USA) [7885-09]

11:00 am: **3D imaging of cone photoreceptors over extended time periods using optical coherence tomography with adaptive optics**, Omer P. Kocaoglu, Sangyeol Lee, Qiang Wang, Ashley E. Herde, Jason Besecker, Weihua Gao, Ravi S. Jonnal, Donald T. Miller, Indiana Univ. (USA) . . . [7885-10]

11:15 am: **Correction of eye-motion artifacts in AO-OCT data sets**, Arlie G. Capps, Univ. of California, Davis (USA); Robert J. Zawadzki, UC Davis Medical Ctr. (USA); Qiang Yang, David W. Arathorn, Curtis R. Vogel, Montana State Univ. (USA); Bernd Hamann, Univ. of California, Davis (USA); John S. Werner, UC Davis Medical Ctr. (USA) [7885-11]

Keynote Presentation

Room: 306 (Esplanade) Sat. 11:30 am to 12:15 pm

Session Chair: **Per G. Söderberg**, Uppsala Univ. (Sweden)

11:30 am: **Technology needs for corneal transplant surgery**, Sonia H. Yoo, Bascom Palmer Eye Institute (USA) [7885-12]

Lunch/Exhibition Break 12:15 to 1:45 pm

SESSION 3

Room: 306 (Esplanade) Sat. 1:45 to 3:30 pm

Retinal Vasculature and Flow

Session Chairs: **Rafat R. Ansari**, NASA Glenn Research Ctr.; **Karen M. Joos**, Vanderbilt Univ.

1:45 pm: **Effect of Timolol on sub-foveal choroidal blood flow**, Nithiyanantham Palanisamy, Luigi L. Rovati, Univ. degli Studi di Modena e Reggio Emilia (Italy); Mauro Cellini, Corrado Gizzi, Ernesto Strobbe, Emilio Campos, Charles E. Riva, Univ. degli Studi di Bologna (Italy) [7885-13]

2:00 pm: **Velocity ranging in joint spectral and time domain OCT imaging with resonant scanner**, Iwona M. Gorczynska, Daniel Szigal, Maciej Szkulmowski, Danuta Bukowska, Ireneusz Grulkowski, Andrzej A. Kowalczyk, Maciej Wojtkowski, Nicolaus Copernicus Univ. (Poland) [7885-14]

2:15 pm: **Stable absolute flow estimation with Doppler OCT based on virtual circumpapillary scans**, Amardeep S. G. Singh, Christoph Kolbitsch, Tilman Schmolz, Rainer A. Leitgeb, Medizinische Univ. Wien (Austria) . [7885-15]

2:30 pm: **Retinal blood flow measurement with ultrahigh-speed swept-source/Fourier domain optical coherence tomography**, Bernhard Baumann, Benjamin M. Potsaid, Jonathan J. Liu, Martin F. Kraus, Massachusetts Institute of Technology (USA); David M. Huang M.D., Doheny Eye Institute (USA); Joachim Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Jay S. Duker, Tufts Medical Ctr. (USA); James G. Fujimoto, Massachusetts Institute of Technology (USA) [7885-16]

2:45 pm: **Extended volume retinal vascular imaging with phase contrast optical coherence tomography**, Jeff P. Fingler, California Institute of Technology (USA); Daniel M. Schwartz, Univ. of California, San Francisco (USA); Scott E. Fraser, California Institute of Technology (USA) [7885-17]

3:00 pm: **Comprehensive OCT imaging of retinal microvasculature without adaptive optics**, Rainer A. Leitgeb, Tilman Schmolz, Amardeep S. G. Singh, Eva Diettrich, Georg Langs, Medizinische Univ. Wien (Austria) [7885-18]

3:15 pm: **Microvasculature imaging by using double-beam Doppler optical coherence angiography**, Shuichi Makita, Masahiro Yamanari, Univ. of Tsukuba (Japan); Barry Cense, Utsunomiya Univ. (Japan) and Univ. of Tsukuba (Japan); Masahiro Miura, Tokyo Medical Univ. Kasumigaura Hospital (Japan) and Univ. of Tsukuba (Japan); Yoshiaki Yasuno, Univ. of Tsukuba (Japan) [7885-19]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 306 (Esplanade) Sat. 4:00 to 5:00 pm

Vision Correction and Restoration I: Surgical, Light, Laser

Session Chairs: **Ralf Brinkmann**, Univ. zu Lübeck (Germany); **Roberto Pini**, Istituto di Fisica Applicata Nello Carrara (Italy)

4:00 pm: **VR-simulation cataract surgery in non-experienced trainees: evolution of surgical skill**, Per G. Söderberg, M. Erngrund, Uppsala Univ. (Sweden); E. Skarman, L. Nordh, Melerit AB (Sweden); C. Laurell, St. Erik Eye Hospital (Sweden) [7885-20]

4:15 pm: **Optimization model for UV-Riboflavin corneal cross linking**, Silvia Schumacher, Jeremy Wernli, Simon Scherrer, Michael Bueeler, IROC AG (Switzerland); Mirko Jankov M.D., LaserFocus (Serbia); Theo Seiler, Michael C. Mrochen, IROC AG (Switzerland) [7885-21]

4:30 pm: **An improved method of laser Thermokeratoplasty to correct presbyopia**, Ezra I. Maguen M.D., James J. Salz M.D., Cedars Sinai Medical Ctr. (USA); Michael Berry, NTK Enterprises, Inc. (USA); K. J. Rodgers, Vision Rejuvenation Ctr. (Bahamas); Harry T. Glenn, Advanced Eye Centers, Inc. (USA) [7885-22]

4:45 pm: **OCT-guided femtosecond laser system for cataract surgery**, Daniel V. Palanker, Stanford Univ. School of Medicine (USA); Georg Schuele, OptiMedica Corp. (USA); Neil Friedman, Stanford Univ. School of Medicine (USA); Dan E. Andersen, OptiMedica Corp. (USA); Mark S. Blumenkranz, Stanford Univ. School of Medicine (USA); Juan Batlle, Rafael Feliz, Centro Láser (Dominican Republic); Jonathan H. Talamo, Harvard Medical School (USA); George R. Marcellino, OptiMedica Corp. (USA); Barry Seibel, Seibel Vision Surgery (USA); William Culbertson, Bascom Palmer Eye Institute (USA) [7885-23]

SESSION 5

Room: 306 (Esplanade) Sat. 5:00 to 6:15 pm

Ophthalmic Laser-Tissue Interactions

Session Chairs: **Ezra I. Maguen**, American Eye Institute; **William B. Telfair**, IRIDEX Corp.

5:00 pm: **Sutureless closure of scleral wounds in animal models by the use of laser-welded biocompatible patches**, Francesca Rossi, Paolo Matteini, Istituto di Fisica Applicata Nello Carrara (Italy); Luca Menabuoni M.D., Ivo Lenzetti, Azienda USL 4 (Italy); Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy) [7885-24]

5:15 pm: **Lowering threshold energy for femtosecond laser pulse photodisruption through turbid media using adaptive optics**, Anja Hansen, Tammo Ripken, Laser Zentrum Hannover e.V. (Germany); Ronald R. Krueger, The Cleveland Clinic (USA); Holger Lubatschowski, Laser Zentrum Hannover e.V. (Germany) [7885-25]

5:30 pm: **Realtime temperature determination during retinal photocoagulation on patients**, Ralf Brinkmann, Univ. zu Lübeck (Germany); Stefan Koinzer, Univ. Schleswig-Holstein (Germany); Kerstin Schlott, Lars Ptaszynski, Marco Bever, Alex Baade, Medizinisches Laserzentrum Lübeck GmbH (Germany); Johann Roider M.D., Univ. Eye Hospital (Germany); Reginald Birngruber, Medizinisches Laserzentrum Lübeck GmbH (Germany) . . [7885-26]

5:45 pm: **Dynamics of micro bubble clusters in retina phantoms**, Andreas Fritz, Medizinisches Laserzentrum Lübeck GmbH (Germany); Andrea Zegelin, Univ. zu Lübeck (Germany); Lars Ptaszynski, Medizinisches Laserzentrum Lübeck GmbH (Germany); Hardo Stoehr, Univ. zu Lübeck (Germany); Reginald Birngruber, Medizinisches Laserzentrum Lübeck GmbH (Germany); Ralf Brinkmann, Univ. zu Lübeck (Germany) [7885-27]

6:00 pm: **Optoacoustic temperature determination and automatic coagulation control in rabbits**, Kerstin Schlott, Medizinisches Laserzentrum Lübeck GmbH (Germany); Stefan Koinzer, Univ. Schleswig-Holstein (Germany); Lars Ptaszynski, Susanne Luft, Alex Baade, Marco Bever, Medizinisches Laserzentrum Lübeck GmbH (Germany); Johann Roider M.D., Univ. Eye Hospital (Germany); Reginald Birngruber, Ralf Brinkmann, Medizinisches Laserzentrum Lübeck GmbH (Germany) and Univ. zu Lübeck (Germany) [7885-28]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

SESSION 6

Room: 306 (Esplanade) Sun. 8:00 to 9:15 am

Ophthalmic OCT I: Technology

Session Chairs: **Wolfgang Drexler**, Medizinische Univ. Wien (Austria); **Kirill V. Larin**, Univ. of Houston

8:00 am: **Extended-depth optical coherence tomography for anterior segment imaging**, Marco Ruggeri, Stephen Uhlhorn, Fabrice Manns, Jean-Marie A. Parel, Bascom Palmer Eye Institute (USA) [7885-29]

8:15 am: **Full-range imaging of the whole anterior segment of eye by high-speed optical frequency domain imaging using a reflective Fabry-Perot tunable laser**, Hiroyuki Furukawa, Hideaki Hiro-Oka, Reiko Yoshimura, Dong-Hak Choi, Motoi Nakanishi, Akihito Igarashi, Kitasato Univ. (Japan); Kohji Ohbayashi, Kitasato Univ. School of Medicine (Japan); Kimiya Shimizu, Kitasato Univ. (Japan) [7885-30]

8:30 am: **Ultra-high speed 1050-nm swept source ophthalmic OCT imaging at 100,000-200,000 axial scans per second**, Benjamin M. Potsaid, Bernhard Baumann, Jonathan J. Liu, Martin F. Kraus, Massachusetts Institute of Technology (USA); Scott Barry, Alex E. Cable, Thorlabs Inc. (USA); David M. Huang M.D., Doheny Eye Institute (USA); Jay S. Duker, New England Eye Ctr. (USA); Joachim Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (USA); James G. Fujimoto, Massachusetts Institute of Technology (USA) . . . [7885-31]

8:45 am: **The effect of collimator lenses on the performance of an optical coherence tomography system**, Pauli Fält, Univ. of Eastern Finland (Finland) and Utsunomiya Univ. (Japan); Robert J. Zawadzki, UC Davis Medical Ctr. (USA); Barry Cense, Utsunomiya Univ. (Japan) [7885-32]

9:00 am: **Comparison of in-vitro retinal full-field swept source and Fourier domain OCT**, James R. Fergusson, Cardiff Univ. (United Kingdom); Boris Považay, Bernd Hofer, Wolfgang Drexler, Medizinische Univ. Wien (Austria) [7885-33]

SESSION 7

Room: 306 (Esplanade) Sun. 9:15 to 10:30 am

Vision Correction and Restoration II: Optics and Implants

Session Chairs: **Daniel V. Palanker**, Stanford Univ. School of Medicine; **Jean-Marie A. Parel**, Bascom Palmer Eye Institute

9:15 am: **Effect of accommodation on peripheral refraction when modified by a novel contact lens design to manipulate peripheral defocus**, Arthur Ho, Percy Lazon de la Jara, Brien Holden Vision Institute (Australia) and The Vision Cooperative Research Ctr. (Australia) and The Univ. of New South Wales (Australia); Aldo Martinez, The Univ. of New South Wales (Australia) and CIBA Vision, Asia Ctr. of Excellence (Singapore); Judy Kwan, Brien Holden Vision Institute (Australia); Cathleen Fedtke, Brien Holden Vision Institute (Australia) and The Vision Cooperative Research Ctr. (Australia) and The Univ. of New South Wales (Australia); Stephanie Delgado, CIBA Vision, Asia Ctr. of Excellence (Singapore); Brien Holden, The Brien Holden Vision Institute (Australia) and The Vision Cooperative Research Ctr. (Australia) and The Univ. of New South Wales (Australia); Padmaja Sankaridurg, Brien Holden Vision Institute (Australia) and The Vision Cooperative Research Ctr. (Australia) and The Univ. of New South Wales (Australia) [7885-34]

9:30 am: **Telescopic vision contact lens**, Eric J. Tremblay, Univ. of California, San Diego (USA); R. Dirk Beer, Pacific Science & Engineering Group, Inc. (USA); Ashkan Arianpour, Joseph E. Ford, Univ. of California, San Diego (USA) [7885-35]

9:45 am: **Pupillometer-based objective chromatic primetry**, Michael Belkin, Tel Aviv Univ. (Israel) [7885-74]

BIOS

Conference 7885

10:00 am: **A prosthetic eye which reacts to light**, Jerome Lapointe, Ecole Polytechnique de Montréal (Canada) and Advanced Photonics Concepts Lab. (Canada); Aissa Harhira, Ecole Polytechnique de Montréal (Canada); Jean-Francois Durette, Oculo-Plastik, Inc. (Canada); Sophie Beaulieu, Univ. de Sherbrooke (Canada); Ashraf Shaat, Ain Shams Univ. (Egypt); Patrick R. Boulos, Hôpital Maisonneuve-Rosemont (Canada) and Univ. de Montréal (Canada); Raman Kashyap, Ecole Polytechnique de Montréal (Canada) and Advanced Photonics Concepts Lab. (Canada) [7885-36]

10:15 am: **Photovoltaic retinal prosthesis**, James Loudin, Stanford Univ. (USA); Keith Mathieson, Univ. of Glasgow (USA); Ted I. Kamins, Lele Wang, Ludwig Galambos, Stanford Univ. (USA); Alexander Sher, Univ. of California, Santa Cruz (USA); Daniel V. Palanker, Stanford Univ. School of Medicine (USA) [7885-37]

Coffee Break 10:30 to 10:45 am

SESSION 8

Room: 306 (Esplanade) Sun. 10:45 am to 12:00 pm

Adaptive Optics II

Session Chairs: Daniel X. Hammer, Physical Sciences Inc.; Peter Soliz, VisionQuest Biomedical, LLC

10:45 am: **Understanding the impact of aberrations in three-dimensional vision with the binocular adaptive optics visual simulator**, Enrique J. Fernández, Pedro M. Prieto, Pablo Artal, Univ. de Murcia (Spain) [7885-38]

11:00 am: **Compact adaptive optics scanning laser ophthalmoscope with high efficiency wavefront correction method using dual LCOS-SLM**, Futoshi Hirose, Koji Nozato, Kenichi Saito, Yasuyuki Numajiri, Canon Inc. (Japan) [7885-39]

11:15 am: **Toward real-time wavefront sensor-less adaptive optics using a graphical processing unit (GPU) in a line scanning system**, David P. Biss, Ankit H. Patel, Robert D. Ferguson, Mircea Mujat, Nicusor V. Iftimia, Daniel X. Hammer, Physical Sciences Inc. (USA) [7885-40]

11:30 am: **Retinal imaging system with adaptive optics enhanced with pupil tracking**, Betul Sahin, Imagine Eyes (France) and National Univ. of Ireland, Galway (Ireland); Barbara Lamory, Xavier Levecq, Laurent Vabre, Imagine Eyes (France); Christopher Dainty, National Univ. of Ireland, Galway (Ireland) [7885-41]

11:45 am: **Low-coherence wavefront sensing for AO imaging in rodent eyes**, Robert D. Ferguson, Daniel X. Hammer, Mircea Mujat, Nicusor V. Iftimia, Niyom Lue, David P. Biss, Ankit H. Patel, Physical Sciences Inc. (USA); James D. Akula, Children's Hospital Boston (USA) [7885-42]

Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 9

Room: 306 (Esplanade) Sun. 1:30 to 3:00 pm

Ophthalmic OCT II: Motion and Image Processing

Session Chairs: Don Miller, Indiana Univ.; Wolfgang Drexler, Medizinische Univ. Wien (Austria)

1:30 pm: **Motion correction of optical coherence tomography volumes in three dimensions on a per A-Scan basis using orthogonal scan patterns**, Martin F. Kraus, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) and Massachusetts Institute of Technology (USA); Benjamin M. Potsaid, Bernhard Baumann, Massachusetts Institute of Technology (USA); Varsha Manjunath, New England Eye Ctr. (USA); Markus A. Mayer, Ruediger Bock, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Joel S. Schuman, Univ. of Pittsburgh Medical Ctr. (USA); Jay S. Duker, New England Eye Ctr. (USA); James G. Fujimoto, Massachusetts Institute of Technology (USA); Joachim Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . [7885-43]

1:45 pm: **Stabilized simultaneous retinal optical coherence tomography at 800 and 1060 nm**, Boris Považay, Medizinische Univ. Wien (Austria); Ingrid Böttcher, Heidelberg Engineering GmbH (Germany); Bernd Hofer, Wolfgang Drexler, Medizinische Univ. Wien (Austria) [7885-44]

2:00 pm: **Segmentation of retinal layers in volumetric OCT scans of normal and glaucomatous subjects**, Koenraad A. Vermeer, The Rotterdam Eyehospital (Netherlands) and i-Optics BV (Netherlands); Josine van der Schoot, Hans G. Lemij, The Rotterdam Eyehospital (Netherlands); Johannes F. de Boer, The Rotterdam Eyehospital (Netherlands) and Vrije Univ. Amsterdam (Netherlands) [7885-45]

2:15 pm: **Performance of automated versus manual segmentation of retinal lesions by polarization sensitive OCT**, Christoph K. Hitzenberger, Bernhard Baumann, Christopher Schütze, Ferdinand Schlanitz, Jan Lammer, Erich Götzinger, Michael Pircher, Matthias Bolz, Rene Donner, Joachim Ofner, Ursula Schmidt-Erfurth, Medizinische Univ. Wien (Austria) [7885-46]

2:30 pm: **Automatic segmentation of SDOCT images from multiple ophthalmic applications congruent with expert manual segmentation**, Stephanie J. Chiu, Joshua Y. Choi, Francesco LaRocca, Anthony N. Kuo, Cynthia A. Toth, Joseph A. Izatt, Sina Farsiu, Duke Univ. (USA) [7885-47]

2:45 pm: **In-vivo quantitative assessment of outer retinal degeneration in a rat retinal model with UHROCT and a novel semi-automated segmentation algorithm**, Sepideh Hariri, Alireza Akhlagh Moayed, David Lee, Saad Shakeel, Univ. of Waterloo (Canada); Shelley Boyd, St. Michael's Hospital (Canada); Kostadinka K. Bizheva, Univ. of Waterloo (Canada) [7885-48]

Coffee Break 3:00 to 3:30 pm

SESSION 10

Room: 306 (Esplanade) Sun. 3:30 to 5:00 pm

Ophthalmic Imaging: Polarization

Session Chairs: Luigi L. Rovati, Univ. degli Studi di Modena e Reggio Emilia (Italy); Per G. Söderberg, Uppsala Univ. (Sweden)

3:30 pm: **In-vivo investigation of cornea and anterior segment using office based-polarization sensitive swept-source optical coherence tomography**, Yiheng Lim, Masahiro Yamanari, Shinichi Fukuda, Yuichi Kaji, Takahiro Kiuchi, Univ. of Tsukuba (Japan); Masahiro Miura, Tokyo Medical Univ. Kasumigaura Hospital (Japan); Tetsuro Oshika, Yoshiaki Yasuno, Univ. of Tsukuba (Japan) [7885-49]

3:45 pm: **High-speed high-resolution polarization-sensitive OCT**, Barry Cense, Utsunomiya Univ. (Japan); Shuichi Makita, Masahiro Yamanari, Kazuhiko Kurokawa, Yoshiaki Yasuno, Univ. of Tsukuba (Japan); Toyohiko Yatagai, Utsunomiya Univ. (Japan) [7885-50]

4:00 pm: **Polarization sensitive optical coherence tomography at 840 nm and 1030 nm in ophthalmology**, Teresa Torzicky, Erich Götzinger, Michael Pircher, Stefan Zotter, Marco BONESI, Christoph K. Hitzenberger, Medizinische Univ. Wien (Austria) [7885-51]

4:15 pm: **Inner-layer-based birefringence measurement of RNFL using PS-OCT**, Qiang Wang, Indiana Univ. (USA); Barry Cense, Utsunomiya Univ. (Japan); Omer P. Kocaoglu, Weihua Gao, Ravi S. Jonnal, Sangyeol Lee, Donald T. Miller, Indiana Univ. (USA) [7885-52]

4:30 pm: **Dependence of the retinal reflectance on illumination angle and retina location**, Weihua Gao, Barry Cense, Qiang Wang, Omer P. Kocaoglu, Ravi S. Jonnal, Sangyeol Lee, Donald T. Miller, Indiana Univ. (USA) . . [7885-53]

4:45 pm: **Retardation of Henle's fiber layer measured with polarization-sensitive optical coherence tomography**, Donald T. Miller, Qiang Wang, Jason Besecker, Weihua Gao, Sangyeol Lee, Omer P. Kocaoglu, Ravi S. Jonnal, Indiana Univ. (USA); Barry Cense, Utsunomiya Univ. (Japan) [7885-54]

Pascal Rol Award Presentation

Room: 306 (Esplanade) Sun. 5:00 pm

Session Chairs: Arthur Ho, Brien, Holden Vision Institute (Australia); Fabrice Manns, Univ. of Miami

Outstanding extended abstracts submitted to the Ophthalmic Technologies XXI conference will be nominated for the Pascal Rol Award for Best Paper in Ophthalmic Technologies. The award and prize will be presented after the last scientific session of the conference to recognize the best paper and presentation. The 2010 recipient of the Pascal Rol Award was Dr. Daniel X. Hammer and his colleagues from Physical Sciences Inc. (see www.pascalrolfoundation.org).

FINAL DISCUSSION

Room: 306 (Esplanade) Sun. 5:15 to 5:30 pm

Session Chairs: Arthur Ho, Brien Holden Vision Institute (Australia); Fabrice Manns, Univ. of Miami; Per G. Söderberg, Uppsala Univ. (Sweden)

Monday 24 January

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Critical evaluation of the ultrasonic pachymetry for "in vitro"corneas, Victor A. Cacciaccaro Lincoln, Liliane Ventura Schiabel, Sidney J. Faria e Sousa, Univ. de São Paulo (Brazil) [7885-55]

Portable prototype for ultraviolet analysis of donated corneas, Liliane Ventura Schiabel, Victor A. Cacciaccaro Lincoln, Homero Schiabel, Sidney J. Faria e Sousa, Univ. de São Paulo (Brazil) [7885-56]

Optical clearing of rabbit bulbar conjunctiva by 40%-glucose solution, Alexey N. Bashkatov, Elina A. Genina, Ekaterina A. Zubkina, Anastasya Parkheychuk, Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [7885-57]

Laser welding of chitosan-GNRs films for the closure of a capsulorhexis, Francesca Rossi, Paolo Matteini, Fulvio Ratto, Istituto di Fisica Applicata Nello Carrara (Italy); Luca Menabuoni M.D., Ivo Lenzetti, Azienda USL 4 (Italy); Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy) [7885-58]

New algorithms for the prediction of Q factors for customized LASIK, Jui-Teng Lin, National Taiwan Univ. (Taiwan) [7885-60]

Quantitative analysis of collagen fiber orientation in with two-dimensional fast Fourier transform, Wen Lo, National Taiwan Univ. (Taiwan) and National Cheng Kung Univ. (Taiwan); Chiu-Mei Hsueh, Wei-Liang Chen, National Taiwan Univ. (Taiwan); Shean-Jen Chen, National Cheng Kung Univ. (Taiwan); Hsin-Yuan Tan, Chang Gung Memorial Hospital (Taiwan) and Chang Gung Univ. (Taiwan); Chen-Yuan Dong, National Taiwan Univ. (Taiwan) [7885-62]

Quantitative surface curvature measurement by a traditional camera and a wavefront image sensor (WIS), Jian Ren, Xiquan Cui, Changhui Yang, California Institute of Technology (USA) [7885-63]

Endoscopic device for functional imaging of the retina, Dan T'so, Sweyta Lohani, Bret Martell, SUNY Upstate Medical Univ. (USA); E. Simon Barriga, Peter Soliz, VisionQuest Biomedical, LLC (USA) [7885-64]

Impact of uneven pupil irradiance profiles in a Shack-Hartmann wave front sensor: magnitude assessment and compensation strategy on experimental retinal imagers., Serge C. Meimon, Bruno Emica, Jean-Marc Conan, ONERA (France); Marie Glanc, Observatoire de Paris à Meudon (France); Xavier Levecq, Imagine Eyes (France) [7885-65]

New Gaussian optics formulas for IOL power and accommodations, Jui-Teng Lin, National Taiwan Univ. (Taiwan) [7885-66]

3D assessment of mechanical wave propagation in the crystalline eye lens using PhS-SSOCT, Kirill V. Larin, Univ. of Houston (USA). [7885-67]

Adaptive prediction of human eye pupil position and effects on wavefront errors, Aurea Garcia Rissmann, Caroline Kulcsar, Yamina El Mrabet, Henri-François G. Raynaud, Univ. Paris 13 (France); Betul Sahin, Barbara Lamory, Imagine Eyes (France) [7885-68]

Measuring the retina optical properties using a structured illumination imaging system, Ali Basiri, The Catholic Univ. of America (USA); Quan Dong Nguyen, Mohamed Ibrahim, The Johns Hopkins Univ. (USA); Jessica C. Ramella-Roman, The Catholic Univ. of America (USA) [7885-69]

Correlation of spatial intensity distribution of light reaching the retina and restoration of vision by optogenetic stimulation, Shivaranjani Shivalingaiah, Manas Bhalerao, Ling Gu, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7885-70]

Smart polymers containing substituted coumarin side groups enable photo-induced tuning of focal length of intraocular lenses, Martin Schraub, Norbert A. Hampp, Philipps-Univ. Marburg (Germany). [7885-71]

Wavefront conjugated ray tracing aberrometry, Vasyl V. Molebny, National Taras Shevchenko Univ. of Kyiv (Ukraine) [7885-72]

In-vivo 3D imaging of the human upper eyelid with ultrahigh resolution optical coherence tomography, Kostadinka K. Bizheva, Patrick Lee, David Lee, Saad Shakeel, Luigina Sorbara, Natalie Hutchings, Trefford L. Simpson, Univ. of Waterloo (Canada) [7885-73]

BIOS

Don't miss the free BIOS Exhibition

See the latest components, devices, and instrumentation for diagnostics and therapeutics

22-23 January 2011

Saturday · 12:00 pm to 5:00 pm

Sunday · 10:00 am to 5:00 pm

Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XX

Conference Chair: **David H. Kessel**, Wayne State Univ.

Conference Co-Chair: **Tayyaba Hasan**, Wellman Ctr. for Photomedicine

Saturday 22 January

SESSION 1

Room: 276 Sat. 8:30 to 11:50 am

Preclinical PDT I

Session Chairs: **David H. Kessel**, Wayne State Univ.;
Tayyaba Hasan, Massachusetts General Hospital

8:30 am: **Assessing the biological consequences of PDT: not as easy as it looks** (*Invited Paper*), David H. Kessel, Michael Price, Wayne State Univ. (USA) [7886-01]

9:00 am: **PDT simultaneously with inhibition of EGFR and c-Met pathways enhances treatment outcomes in experimental pancreatic cancer** (*Invited Paper*), Lei Z. Zheng, Bryan Q. Spring, Prakash R. Rai, Zhiming Mai, Massachusetts General Hospital (USA); Stephen P. Pereira, Univ. College London (United Kingdom); Brian W. Pogue, Dartmouth College (USA); Tayyaba Hasan, Massachusetts General Hospital (USA) [7886-02]

9:30 am: **Synthesis, photophysical, tumor imaging, and PDT efficacy of long-wavelength photosensitizers derived from bacteriochlorophyll-a** (*Invited Paper*), Ravindra K. Pandey, Roswell Park Cancer Institute (USA) [7886-03]

Coffee Break 10:00 to 10:30 am

10:30 am: **TBD** (*Invited Paper*), Nancy Oleinik, [7886-04]

11:00 am: **Combined modality approaches: dimethyl celecoxib, a non-cyclooxygenase-2 inhibitor, blocks surviving expression and enhances photodynamic therapy responsiveness** (*Invited Paper*), Charles J. Gomer, Angela Ferrario, Sophia Lim, Frank Xu, Marian Luna, Childrens Hospital Los Angeles (USA) [7886-05]

11:30 am: **Treating therapy resistant cancer cell populations with PDT**, Conor L. Evans, Adnan O. Abu-Yousif, Massachusetts General Hospital (USA); Yong Jin Park, KAIST (Korea, Republic of); Brijesh Bhayana, Alexander J. Nichols, Massachusetts General Hospital (USA); Imran Rizvi, Dartmouth Collage (USA); Jonathan P. Celli, Tayyaba Hasan, Massachusetts General Hospital (USA) [7886-06]

Lunch/Exhibition Break 11:50 am to 1:20 pm

SESSION 2

Room: 276 Sat. 1:20 to 3:00 pm

Preclinical PDT II

Session Chair: **Conor L. Evans**, Massachusetts General Hospital

1:20 pm: **Imaging growth and photodynamic therapy response in a 3D pancreatic co-culture model**, Jonathan P. Celli, Imran Rizvi, Lei Z. Zheng, Bryan Q. Spring, Adnan O. Abu-Yousif, Stefan A. Elrington, Massachusetts General Hospital (USA); Adam Blenden, Massachusetts General Hospital (USA) and Binghamton Univ. (USA); Tayyaba Hasan, Massachusetts General Hospital (USA) [7886-07]

1:40 pm: **Photodynamic therapy mediated synergistic enhancement of chemo and biological therapies in a 3D model for micrometastatic ovarian cancer**, Imran Rizvi, Jonathan P. Celli, Conor L. Evans, Adnan O. Abu-Yousif, Alona Muzikansky, Stefan A. Elrington, Massachusetts General Hospital (USA); Brian W. Pogue, Dartmouth College (USA); Dianne M. Finkelstein, Tayyaba Hasan, Massachusetts General Hospital (USA) [7886-08]

2:00 pm: **Quantitatively determining binding of targeted agents in vivo by imaging dual-probe (targeted and nontargeted) injection can improve efficacy of therapeutic agent delivery**, Kimberley S. Samkoe, Shannon K. Hextrum, Harold H. Yang, Kristian J. Sexton, Subha Srinivasan, Julia A. O'Hara, Dartmouth College (USA); Tayyaba Hasan, Wellman Ctr. for Photomedicine (USA); Brian W. Pogue, Dartmouth College (USA) [7886-09]

2:20 pm: **Combination of PI3K inhibitors with photodynamic therapy in endothelial and prostate cancer cell lines**, Babasola A. Fateye, Bin Chen, Univ. of the Sciences in Philadelphia (USA) [7886-10]

2:40 pm: **Signaling from lysosomes to mitochondria sensitizes head and neck cancer cells to photodynamic treatment: role of Mitoferrin 2**, Hsin-I Hung, Geraldine Quogue, John Lemasters M.D., Anna-Liisa Nieminen, Medical Univ. of South Carolina (USA) [7886-11]

Coffee Break 3:00 to 3:30 pm

SESSION 3

Room: 276 Sat. 3:30 to 4:50 pm

Preclinical PDT III

Session Chair: **Jonathan P. Celli**, Massachusetts General Hospital

3:30 pm: **Folate receptor targeted Type-1 photosensitizer bioconjugates for tumor visualization and phototherapy**, Raghavan Rajagopalan, Amruta R. Poreddy, Nicole Putnam, Amolkumar Karwa, Rick M. Fitch, Karen P. Galen, Maureen Nichols, Lori Chinen, Arti Naik, Carolyn Sympson, Richard B. Dorshow, Covidien (USA) [7886-12]

3:50 pm: **Non-contact monitoring of blood flow dynamics associated with BPD photodynamic therapy in vivo using diffuse correlation spectroscopy**, Yalin Ti, Univ. of Pennsylvania (USA); Amanda L. Maas, Eli Glatstein, The Univ. of Pennsylvania Health System (USA); Arjun G. Yodh, Univ. of Pennsylvania (USA); Theresa M. Busch, The Univ. of Pennsylvania Health System (USA) [7886-13]

4:10 pm: **A dynamic model for ALA-PDT of skin: analysis of the correlation of fluorescence and singlet oxygen luminescence to spatial distribution of singlet oxygen**, Baochang Liu, McMaster Univ. (Canada); Michael S. Patterson, Thomas J. Farrell, Juravinski Cancer Ctr. (Canada) [7886-14]

4:30 pm: **Photosensitizer nanocarriers modeling for photodynamic therapy applied to dermatological diseases**, Irene Salas-García, Félix Fanjul-Vélez, Noé Ortega-Quijano, Univ. de Cantabria (Spain); María López-Escobar, Univ. Hospital Marques de Valdecilla (Spain); José Luis Arce-Diego, Univ. de Cantabria (Spain) [7886-15]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

SESSION 4

Room: 276 Sun. 8:30 to 10:00 am

Clinical PDT I

Session Chairs: **Merrill A. Biel**, Univ. of Minnesota, Twin Cities; **Edward V. Maytin**, The Cleveland Clinic

8:30 am: **Photodynamic therapy and the treatment of head and neck malignancies** (*Invited Paper*), Merrill A. Biel M.D., Univ. of Minnesota, Twin Cities (USA) [7886-16]

9:00 am: **Biomarkers in phototherapy of esophageal neoplasia** (*Invited Paper*), Kenneth K. Wang M.D., Mayo Clinic (USA) [7886-17]

9:30 am: **Photodynamic therapy of pancreatic cancer and elastic scattering spectroscopy of the duodenal mucosa for the detection of pancreaticobiliary malignancy** (*Invited Paper*), Stephen P. Pereira, Matthew T. Huggett, Robin N. B. Baddeley, Neomal S. Sandanayake, Michael H. Chapman, George J. M. Webster, Martin Austwick, Yan Jiao, Stephen G. Bown, Laurence B. Lovat, Univ. College London (United Kingdom); Brian W. Pogue, Dartmouth College (USA); Tayyaba Hasan, Wellman Ctr. for Photomedicine (USA) [7886-18]

Coffee Break 10:00 to 10:30 am

SESSION 5

Room: 276 Sun. 10:30 to 11:50 am

Clinical PDT II

Session Chairs: **Kenneth K. Wang**, Mayo Clinic; **Stephen P. Pereira**, Univ. College London (United Kingdom)

10:30 am: **5-Fluorouracil as an enhancer of aminolevulinic acid-based photodynamic therapy in skin cancer models in vivo: new use for a venerable agent** (*Invited Paper*), Edward V. Maytin, Sanjay Anand, Clara Wilson, The Cleveland Clinic (USA) [7886-19]

11:00 am: **An IR navigation system for real-time treatment guidance of Pleural PDT** (*Invited Paper*), Timothy C. Zhu, Chang Chang, Julia Sandell, Jarod C. Finlay, Andreea Dimofte, Keith A. Cengel, Joseph S. Friedberg, Stephen M. Hahn, The Univ. of Pennsylvania Health System (USA) . . [7886-20]

11:30 am: **Investigating the mechanism of action of targeted gallium corrole for breast cancer photodynamic therapy using multimode optical imaging**, Jae-Youn Hwang, Jay Lubow, David Chu, Cedars-Sinai Medical Ctr. (USA); Zeev Gross, Technion-Israel Institute of Technology (Israel); Harry B. Gray, California Institute of Technology (USA); Daniel L. Farkas, Spectral Molecular Imaging, Inc. (USA); Lali K. Medina-Kauwe, Cedars-Sinai Medical Ctr. (USA) [7886-21]

Lunch/Exhibition Break 11:50 am to 1:20 pm

SESSION 6

Room: 276 Sun. 1:20 to 3:00 pm

PDT Models

Session Chair: **Timothy C. Zhu**, The Univ. of Pennsylvania Health System

1:20 pm: **Determining how uncertainties of optical properties affect light dose calculations for PDT**, Julia Sandell, Jarod C. Finlay, Timothy C. Zhu, The Univ. of Pennsylvania Health System (USA) [7886-22]

1:40 pm: **Modeling of PDT kinetics in cell killing**, Ioannis Gkigkitzis, East Carolina Univ. (USA); Chunmei Yang, Yuanming Feng, Tianjin Univ. (China); Jun Q. Lu, Xin-Hua Hu, East Carolina Univ. (USA) [7886-23]

2:00 pm: **A method for fluorescence-guided surgery providing an estimate of depth in multispectral near-infrared subsurface imaging**, Frederic Leblond, Pablo A. Valdes, Dartmouth College (USA); Anthony Kim, Ontario Cancer Institute (Canada); Scott C. Davis, Zaven Ovanesyan, Venkataramanan Krishnaswamy, Dartmouth College (USA); Brian C. Wilson, Ontario Cancer Institute (Canada); Alexander Hartov, Brian W. Pogue, Keith D. Paulsen, Dartmouth College (USA); David W. Roberts, Dartmouth Hitchcock Medical Ctr. (USA) [7886-24]

2:20 pm: **Study of the relationship between light fluence and photodynamic therapy within homogeneous tissue phantom**, Yuan Yao, Jing Bai, Tsinghua Univ. (China) [7886-25]

2:40 pm: **Continuous intra-operative monitoring of changes in blood flow and hemoglobin concentrations of lung cavity during HPPH mediated pleural PDT**, So Hyun Chung, Univ. of Pennsylvania (USA); Keith A. Cengel, Joseph S. Friedberg, The Univ. of Pennsylvania Health System (USA); Xiaoman Xing, Dalton Hance, Ellen Foster, Regine Choe, Hsing-Wen Wang, Univ. of Pennsylvania (USA); Jarod C. Finlay, Timothy C. Zhu, Theresa M. Busch, Eli Glatstein, The Univ. of Pennsylvania Health System (USA); Arjun G. Yodh, Univ. of Pennsylvania (USA) [7886-26]

Coffee Break 3:00 to 3:30 pm

SESSION 7

Room: 276 Sun. 3:30 to 4:30 pm

Animal Studies

Session Chair: **Martin Isabelle**, Gloucestershire Royal Hospital (United Kingdom)

3:30 pm: **Assessment of biophysical tumor response to PDT in pancreatic cancer using localized reflectance spectroscopy**, Martin E. Isabelle, William S. Klubben, Venkataramanan Krishnaswamy, Dartmouth College (USA); Julia A. O'Hara, P. Jack Hoopes, Dartmouth Hitchcock Medical Ctr. (USA); Stephen P. Pereira, Univ. College London (United Kingdom); Tayyaba Hasan, Massachusetts General Hospital (USA); Brian W. Pogue, Dartmouth College (USA) [7886-27]

3:50 pm: **In-vitro photodynamic therapy of MG-63 osteosarcoma cells mediated by aminolevulinic acid**, Vincent M. Rossi, Pacific Univ. (USA) and Oregon State Univ. (USA); Bradley M. White, Mariko J. Newton, Pacific Univ. (USA); Steven L. Jacques, Oregon Health & Science Univ. (USA); Paige J. Baugher, Pacific Univ. (USA) [7886-29]

4:10 pm: **Study of photosensitizers pharmacokinetics in mouse tumor model by transillumination fluorescence imaging in vivo**, Marina V. Shirmanova, Irina V. Balalaeva, Marina A. Sirotkina, N.I. Lobachevsky State Univ. of Nizhni Novgorod (Russian Federation); Anna G. Orlova, Ilya V. Turchin, Institute of Applied Physics (Russian Federation); Elena V. Zagaynova, Nizhny Novgorod State Medical Academy (Russian Federation) [7886-30]

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BioS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

NADH fluorescence lifetime increase corresponded to photodynamic therapy induced cell death, Guan-Chin Su, Yau-Huei Wei, Hsing-Wen Wang, National Yang-Ming Univ. (Taiwan) [7886-31]

Differences in uptake pattern and PDT efficacy of EtNBS derivatives and liposomal delivery vehicles in an in-vitro 3D ovarian cancer model, Yong Jin Park, Korea Advanced Institute of Science and Technology (Korea, Republic of); Conor L. Evans, Wellman Ctr. for Photomedicine (USA) [7886-32]

Effect of fatty acids on the complexation of proteins with porphyrins, Grigor V. Gyulkhandanyan, Institute of Biochemistry (Armenia) [7886-34]

Preparation, characterization, and cellular studies of photosensitizer-loaded lipid nanoparticles for photodynamic therapy, Fabrice P. Navarro, Commissariat à l'Énergie Atomique (France); Denise Bechet, Univ. Henri Poincaré Nancy (France); Thomas Delmas, Commissariat à l'Énergie Atomique (France); Céline Frochot, Pierre Couleaud, Régis Vanderesse, Univ. Henri Poincaré Nancy (France); Isabelle F. Texier-Nogues, Anne Claude Couffin, Françoise Vinet, Commissariat à l'Énergie Atomique (France); Muriel Barberi-Heyob, Univ. Henri Poincaré Nancy (France) [7886-35]

Development of an optical fluorescence imaging system for photodynamic therapy, Mardoqueu M. Costa, Cristina Kurachi, Vanderlei S. Bagnato, Liliane Ventura, Univ. de São Paulo (Brazil) [7886-36]

In-vivo validation of high-frequency ultrasound-guided fluorescence tomography system to improve delivery of photodynamic therapy, Akshat Paliwal, The Cleveland Clinic (USA); Sason Torosean, Josiah D. Gruber, Julia A. O'Hara, Brian W. Pogue, Dartmouth College (USA); Tayyaba Hasan, Massachusetts General Hospital (USA); Edward V. Maytin, The Cleveland Clinic (USA) [7886-37]

BIO S

Conference 7886

Quantitative time domain fluorescence optical tomography for monitoring cancer therapy in vivo, Weirong Mo, Daniel J. Rohrbach, Ulas Sunar, Roswell Park Cancer Institute (USA). [7886-38]

Photodynamic therapy outcome model using fluorescence spectroscopy, José D. Vollet Filho, Lillian T. Moriyama, Clovis Grecco, Univ. de São Paulo (Brazil); Juliana Ferreira, Univ. do Vale do Paraíba (Brazil); Cristina Kurachi, Vanderlei S. Bagnato, Univ. de São Paulo (Brazil) [7886-39]

Binding of cationic porphyrins to serum proteins, Grigor V. Gyulkhandanyan, Aram G. Gyulkhandanyan, Lusine Z. Gyulkhandanyan, Institute of Biochemistry (Armenia); Artak G. Tovmasyan, Robert K. Ghazaryan, Yerevan State Medical Univ. (Armenia) [7886-40]

MS2 bacteriophage as a delivery vessel of porphyrins for photodynamic therapy, Brian A. Cohen, Alain E. Kaloyeros, Magnus Bergkvist, Univ. at Albany (USA) [7886-41]

Light distribution in turbid media: an approach based on matrices, Lillian T. Moriyama, Univ. de São Paulo (Brazil); Emery C. Cabral Correia Lins, Univ. Federal do ABC (Brazil); Cristina Kurachi, Vanderlei S. Bagnato, Univ. de São Paulo (Brazil) [7886-42]

Pheophorbide mediated photodynamic therapy against human epidermoid carcinoma cells (A431), Wen-Tyng Li, Chung Yuan Christian Univ. (Taiwan) [7886-43]

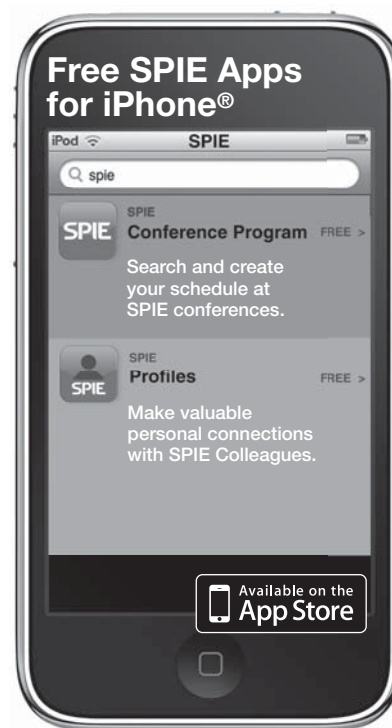
Mechanisms of tumor necrosis in photodynamic therapy with a chlorine photosensitizer: experimental studies, Valeriy A. Privalov, Alexander V. Lappa, Elmir N. Bigbov, Chelyabinsk State Univ. (Russian Federation) [7886-44]

Combination of optical imaging with NIR fluorophore and sonogram in breast cancer diagnosis, Kuo-Chih Liao, Tsung-Hsien Yen, Gi-Da Lee, Yu-Hsiang Chou, National Chung Hsing Univ. (Taiwan) [7886-45]

A study of light fluence rate distribution for PDT using MC simulation, Julia Sandell, Timothy C. Zhu, Jarod C. Finlay, The Univ. of Pennsylvania Health System (USA) [7886-47]

Model for effects of a broad threshold dose distribution for multi-session of photodynamic therapy, [7886-48]

Monitoring HPPH-mediated photodynamic therapy of head and neck cancer with optical spectroscopies, Daniel J. Rohrbach, Weirong Mo, Nestor Rigual, Erin Tracy, Kenneth Keymel, Michele T. Cooper, Heinz Baumann, Barbara W. Henderson, Ulas Sunar, Roswell Park Cancer Institute (USA) [7886-49]



Mechanisms for Low-Light Therapy VI

Conference Chairs: **Michael R. Hamblin**, Massachusetts General Hospital; **Ronald W. Waynant**, U.S. Food and Drug Administration; **Juanita Anders**, Uniformed Services Univ. of the Health Sciences

Saturday 22 January

SESSION 1

Room: 206 (Mezzanine) Sat. 8:30 to 10:10 am

Reviews and Dosimetry

Session Chair: **Michael R. Hamblin**, Massachusetts General Hospital

8:30 am: **How to teach low-level light therapy (LLLT) in one day**, James D. Carroll, THOR Photomedicine Ltd. (United Kingdom) [7887-01]

8:50 am: **To what extent is coherence lost in tissue?**, Tomas L. M. Hode, Immunophotonics, Inc. (USA); Peter A. Jenkins, Irradia USA (USA); Stefan Jordison, Irradia AB (Sweden); Lars Hode, Swedish Laser-Medical Society (Sweden) [7887-02]

9:10 am: **The PASER concept: an explanation of patient amplification of the spontaneous effects of radiation and its relevance to the clinical effectiveness of LLLT**, Mary Dyson, King's College London (United Kingdom) [7887-03]

9:30 am: **Beam measurement problems in LLLT for single sources and cluster arrays**, James D. Carroll, THOR Photomedicine Ltd. (United Kingdom) [7887-04]

9:50 am: **Signal pathway analysis of the effectiveness of low-level laser irradiation in rheumatoid arthritis**, Yoshimitsu Abiko D.D.S., Nihon Univ. (Japan) [7887-05]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 206 (Mezzanine) Sat. 10:40 am to 12:20 pm

In Vitro Studies

Session Chair: **Juanita Anders**, Uniformed Services Univ. of the Health Sciences

10:40 am: **Cellular studies with cultured brain cells and slices relevant to low-level laser therapy of traumatic brain injury**, Sulbha K. Sharma, Gitika B. Kharkwal, Mari Sajo, Yingying Huang M.D., Weijun Xuan, QiuHe Wu, Michael R. Hamblin, Massachusetts General Hospital (USA) [7887-06]

11:00 am: **Glycogen synthase kinase-3 β facilitates high-fluence low-power laser irradiation-induced cell apoptosis through acceleration of Bax translocation**, Lei Huang, Shengnan Wu, Da Xing, South China Normal Univ. (China) [7887-07]

11:20 am: **Cryptococcus neoformans capsule protects cell from oxygen reactive species generated by photodynamic antimicrobial chemotherapy**, Renato A. Prates, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Michael R. Hamblin, Massachusetts General Hospital (USA); Ilka T. Kato, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Beth Burgwyn Fuchs, Eleftherios Mylonakis M.D., Massachusetts General Hospital (USA); Martha Simões Ribeiro, Instituto de Pesquisas Energéticas e Nucleares (Brazil); George P. Tegos, The Univ. of New Mexico (USA) [7887-08]

11:40 am: **Photodynamic action of LED-light on standart and clinical strains of Staphylococci, processed by brilliant green and titanium dioxide nanoparticles**, Elena S. Tuchina, Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [7887-09]

12:00 pm: **Oxidative stress of photodynamic antimicrobial chemotherapy inhibits Candida albicans virulence**, Ilka T. Kato, Renato A. Prates, Instituto de Pesquisas Energéticas e Nucleares (Brazil); George P. Tegos, The Univ. of New Mexico (USA) and Massachusetts General Hospital (USA) and Harvard Medical School (USA); Michael R. Hamblin, Massachusetts General Hospital (USA) and Harvard Medical School (USA) and Massachusetts Institute of Technology (USA); Martha Simões Ribeiro, Instituto de Pesquisas Energéticas e Nucleares (Brazil) [7887-10]

Lunch/Exhibition Break 12:20 to 1:50 pm

SESSION 3

Room: 206 (Mezzanine) Sat. 1:50 to 3:30 pm

Animal Studies

Session Chair: **Ronald W. Waynant**, U.S. Food and Drug Administration

1:50 pm: **Mitochondrial Signaling Pathway Involved in Cell Apoptosis Induced by High Fluence Low-Power Laser Irradiation**, Shengnan Wu, Da Xing, South China Normal Univ. (China) [7887-11]

2:10 pm: **The effects of low level laser therapy on testes and testosterone level in rat model**, Chung-Ku Rhee M.D., Jin-chul Ahn M.D., So-Young Chang, Dankook Univ. Hospital (Korea, Republic of) [7887-12]

2:30 pm: **Comparative study of the effects of low-intensity pulsed ultrasound and low-level laser therapy on bone defects in tibias of rats**, Ana Renno, Univ. Federal de São Paulo (Brazil) [7887-13]

2:50 pm: **Effects of LED phototherapy on bone defects grafted with MTA, bone morphogenetic proteins, and guided bone regeneration in a rodent model: a description of the bone repair by light microscopy**, Antonio L. Barbosa Pinheiro, Gilberth T. dos Santos Aciole, Luiz G. Pinheiro Soares, Neandder Andrade Correia, Jean Nunes dos Santos, Univ. Federal da Bahia (Brazil) [7887-14]

3:10 pm: **The effects of photobiomodulation on healing of bone defects in Streptozotocin induced-diabetic rats**, Maira D. M. Costa Lino, Fabiola B. Carvalho, Michel Ferreira Morais, José A. Cardoso, Antônio L. Barbosa Pinheiro, Luciana M. Pedreira Ramalho D.D.S., Univ. Federal da Bahia (Brazil) [7887-15]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 206 (Mezzanine) Sat. 4:00 to 6:00 pm

Clinical Studies

Session Chair: **James D. Carroll**, THOR Photomedicine Ltd. (United Kingdom)

4:00 pm: **Photobiomodulatory effects of He-Ne laser on excision wounds**, Vijendra Prabhu, Satish B. S. Rao, Krishna K. Mahato, Manipal Univ. (India) [7887-16]

4:20 pm: **Optimization of treatment parameters for repair of severely injured rabbit peripheral nerves using 980-nm irradiation**, Juanita Anders, Xingjia Wu, Helina Moges, Uniformed Services Univ. of the Health Sciences (USA); Brian Pryor, LiteCure, LLC (USA) [7887-17]

4:40 pm: **Photoprophylactic treatment using low-levels of visible light**, Daniel Barolet M.D., Opusmed Inc. (Canada) [7887-18]

5:00 pm: **Efficacy of continuous wave and pulsed wave transcranial laser therapy (TLT) in the treatment of Alzheimer's disease (AD) in an amyloid precursor protein transgenic mouse (APP Tg) model**, Luis H. De Taboada, PhotoThera, Inc. (USA); Jin Yu, Salim El-Amouri, Medical Univ. of South Carolina (USA); Sebastiano Gattoni-Celli, Charleston VA Medical Ctr. (USA); Steven Richieri, Thomas McCarthy, PhotoThera, Inc. (USA); Jackson Streeter, Banyan Biomarkers, Inc. (USA); Mark S. Kindy, Medical Univ. of South Carolina (USA) [7887-19]

5:20 pm: **Laser treatment in modulation of TMJ inflammation**, Gerry Ross, Private Practice (Canada) [7887-20]

5:40 pm: **Preconditioning and low-level laser therapy in dental practice**, Arun A. Darbar, Rita Darbar, Smile Creations (United Kingdom) [7887-21]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BiOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Evaluation of the viability of the chemiluminescence as a PDT light source for microbial control, Ruy C. Mattosinho Ferraz, Carla R. Fontana D.D.S., Univ. de São Paulo (Brazil); Emery C. Cabral Correia Lins, Univ. Federal do ABC (Brazil); Vanderlei S. Bagnato, Cristina Kurachi, Univ. de São Paulo (Brazil) [7887-22]

Comparative study of the effects of low-intensity pulsed ultrasound and low-level laser therapy on muscle repair, Renata Toma, Univ. Federal de São Paulo (Brazil) [7887-23]

Efficacy of low-power laser irradiation in the prevention of D-galactose-induced senescence in human dermal fibroblasts, Chengbo Meng, Da Xing, Shengnan Wu, South China Normal Univ. (China) [7887-25]

Low-power laser irradiation inhibits amyloid beta-induced cell apoptosis, Heng Zhang, Shengnan Wu, Da Xing, South China Normal Univ. (China) [7887-26]

Evaluation of the effect of laser radiation on fibroblast proliferation in repair of skin wounds of rats with iron deficiency anemia, Isabele C. V. DeCastro, Juliana Santos de Carvalho Monteiro, Susana C. P. Oliveira-Sampaio, Maria de Fátima L. Ferreira, Maria Cristina Teixeira Cangussu, Jean Nunes dos Santos, Antonio L. Barbosa Pinheiro, Univ. Federal da Bahia (Brazil) . [7887-27]

Influence of laser and LED irradiation on mast cells of cutaneous wounds of rats with iron deficiency anemia, Cristiane Becher-Rosa, Susana C. P. Oliveira-Sampaio, Juliana Santos de Carvalho Monteiro, Maria de Fátima L. Ferreira, Fátima A. A. Zanin, Jean Nunes dos Santos, Maria Cristina Teixeira Cangussu, Antonio L. Barbosa Pinheiro, Univ. Federal da Bahia (Brazil) [7887-28]

Assessment of bone healing on tibial fractures treated with wire osteosynthesis associated or not with infrared laser light and Biphasic ceramic bone graft (HATCP) and guided bone regeneration (GBR): Raman spectroscopy study, Fabiola B. Carvalho, Gilberth T. dos Santos Aciole, Joubert M. Aciole, Univ. Federal da Bahia (Brazil); Landulfo Silveira, Jr., Camilo Castelo Branco Univ. (Brazil); Jean Nunes dos Santos, Antônio L. Barbosa Pinheiro, Univ. Federal da Bahia (Brazil) [7887-29]

Clinical efficiency of use of TDC with feedback for treatment of brucellosis patients, Igor A. Chesnokov, Federal State Unitary Enterprise (Russian Federation); Elena P. Lyapina, Saratov State Medical Univ. (Russian Federation); Nikolay A. Bushuev, Federal State Unitary Enterprise (Russian Federation); Yury Eliseev, Andrey A. Shuldyakov, Vladimir F. Spirin, Albina V. Anashchenko, Saratov State Medical Univ. (Russian Federation) [7887-30]

Evaluation of the survival of cutaneous flaps on diabetics rats with or without photostimulation, Priscila C. Oliveira, Nicole Ribeiro Santos, Jean Nunes dos Santos, Antônio L. Barbosa Pinheiro, Univ. Federal da Bahia (Brazil) [7887-31]

Evaluation of laser photobiomodulation in repair of cutaneous wounds in rats infected of staphylococcus aureus, Nicole Ribeiro Santos, Priscila C. Oliveira, Jean Nunes dos Santos, Antônio L. Barbosa Pinheiro, Univ. Federal da Bahia (Brazil) [7887-32]

The morphology of apoptosis and necrosis of fat cells after photodynamic treatment at a constant temperature in vitro, Irina Y. Yanina, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [7887-33]

Frontiers in Biological Detection: From Nanosensors to Systems

Conference Chairs: **Benjamin L. Miller**, Univ. of Rochester; **Philippe M. Fauchet**, Univ. of Rochester

Program Committee: **Holger Becker**, microfluidic ChipShop GmbH (Germany); **Xudong Fan**, Univ. of Michigan; **Jiri Homola**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Hongrui Jiang**, Univ. of Wisconsin-Madison; **Laura M. Lechuga**, Ctr. d'Investigacions en Nanociència i Nanotecnologia (Spain); **Frances S. Ligler**, U.S. Naval Research Lab.; **Daniel V. Lim**, Univ. of South Florida; **Christopher Myatt**, Precision Photonics Corp.; **Eric W. Saaski**, Research International, Inc.; **Michael J. Sailor**, Univ. of California, San Diego; **Christopher C. Striemer**, Adarza Biosystems Inc.; **Sharon M. Weiss**, Vanderbilt Univ.

Saturday 22 January

SESSION 1

Room: 300 (Esplanade) Sat. 1:30 to 5:00 pm

Session Chair: **Benjamin L. Miller**, Univ. of Rochester Medical Ctr.

- 1:30 pm: **Silicon photonic microring resonator arrays for scalable and multiplexable bioanalysis** (*Invited Paper*), Adam L. Washburn, Matthew S. Luchansky, Abraham J. Qavi, Jared T. Kindt, Ryan C. Bailey, Univ. of Illinois at Urbana-Champaign (USA) [7888-01]
- 2:00 pm: **Bioconjugation of ultra-high-Q optical microcavities for label-free sensing**, Heather K. Hunt, Andrea M. Armani, The Univ. of Southern California (USA) [7888-02]
- 2:15 pm: **Fluorescence-enhancement in a polymer-based photonic crystal biosensor**, Bashar Hamza, Yuxin Liu, Jeremy M. Dawson, West Virginia Univ. (USA) [7888-03]
- 2:30 pm: **Silicon photonic wire evanescent field sensors: sensor arrays and instrumentation** (*Invited Paper*), Siegfried Janz, Adam Densmore, Dan-Xia Xu, Pavel Cheben, Ruben Ma, Jens H. Schmid, André Delâge, Martin Vachon, Jean Lapointe, Nicolaus Sabourin, William Sinclair, Yunhui Li, Gregory Lopinski, Roger MacKenzie, Qing Y. Liu, Edith Post, Boris Lamontagne, National Research Council Canada (Canada); Robert Halir, Inigo Molina-Fernandez, Univ. de Malaga (Spain) [7888-04]
- Coffee Break 3:00 to 3:30 pm
- 3:30 pm: **A novel evanescent field biosensor with an integrated photodetector array** (*Invited Paper*), Kevin L. Lear, Rongjin Yan, David S. Dandy, N. Scott Lynn, Richard A. Slayden, Luke C. Kingry, Colorado State Univ. (USA) [7888-05]
- 4:00 pm: **Molecular detection via hybrid peptide-semiconductor photonic devices**, Csilla Gergely, Elias Estephan, Marie-Belle Saab, Marta Martin, Thierry Cloitre, Univ. Montpellier 2 (France); Christian Larroque, Institut de Recherche en Cancérologie de Montpellier (France); Frédéric J. G. Cuisinier, Univ. Montpellier 1 (France) [7888-06]
- 4:15 pm: **Application of ring-down measurement approach to microcavities for biosensing applications**, Muhammad I. Cheema, Andrew G. Kirk, McGill Univ. (Canada) [7888-07]
- 4:30 pm: **Silicon-based photonic crystal nanocavities for label-free virus detection**, Sudeshna Pal, Amrita R. Yadav, Univ. of Rochester (USA); Benjamin L. Miller, Univ. of Rochester Medical Ctr. (USA); Philippe M. Fauchet, Univ. of Rochester (USA) [7888-08]
- 4:45 pm: **PMMA-microcone resonators for biosensing applications**, Torsten Beck, Mario Hauser, Tobias Grossmann, Simone Schleele, Julian Fischer, Heinz Kalt, Christoph Vannahme, Timo Mappes, Karlsruhe Institut für Technologie (Germany) [7888-09]

Sunday 23 January

SESSION 2

Session Chair: **Philippe M. Fauchet**, Univ. of Rochester

Room: 300 (Esplanade) Sun. 8:30 am to 12:00 pm

- 8:30 am: **Toward multiplexed nanobiosensor platforms for pathogen detection at point-of-care settings** (*Invited Paper*), Laura M. Lechuga, Ctr. d'Investigacions en Nanociència i Nanotecnologia (Spain) [7888-10]
- 9:00 am: **Elastic and inelastic scattering analysis of unlabelled single cells** (*Invited Paper*), Andrew J. Berger, Dustin W. Shipp, Univ. of Rochester (USA) [7888-11]
- 9:30 am: **Confocal Raman microscopy for identification of bacterial species in biofilms**, Brooke D. Beier, Univ. of Rochester (USA); Robert G. Quivey, Jr., Univ. of Rochester Medical Ctr. (USA); Andrew J. Berger, Univ. of Rochester (USA) [7888-12]
- 9:45 am: **Field-portable lensfree on-chip microscopy for detection of waterborne parasites**, Onur Mudanyali, Cetin Oztoprak, Derek K. Tseng, Anthony F. Erlinger, Aydogan Ozcan, Univ. of California, Los Angeles (USA) [7888-13]
- 10:00 am: **SAF immunodiagnostic system: subpicomolar sensitivity in minutes at low costs**, Thomas Ruckstuhl, Christian M. Winterflood, Stefan Seeger, Univ. of Zürich (Switzerland) [7888-14]
- Coffee Break 10:15 to 10:45 am
- 10:45 am: **Portable surface plasmon resonance biosensors for on-site biodetection** (*Invited Paper*), Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [7888-15]
- 11:15 am: **LED-interferometric reflectance imaging sensor for label-free detection of nanoparticles**, George Daaboul, Boston Univ. (USA); Priscilla F. Renda, Russell Graef, MITRE Corp. (USA); Abdulkadir Yurt, Xirui Zhang, Carlos Lopez, John H. Connor, Boston Univ. (USA); Grace M. Hwang, MITRE Corp. (USA); M. Selim Unlu, Boston Univ. (USA) [7888-16]
- 11:30 am: **Aqueous arrayed imaging reflectometry as a sensitive platform for real-time biomolecular interaction analysis**, Amrita R. Yadav, Univ. of Rochester (USA); Charles R. Mace, Harvard Univ. (USA); Benjamin L. Miller, Univ. of Rochester Medical Ctr. (USA) [7888-17]
- 11:45 am: **Chemical and biological detection using surface plasmon resonance in metalized ultrathin porous silicon membrane**, Krishanu Shome, Maryna N. Kavalenka, David Z. Fang, Philippe M. Fauchet, Univ. of Rochester (USA) [7888-18]
- Lunch Break 12:00 to 1:30 pm

BIOS

BIOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

SESSION 3

Room: 300 (Esplanade) Sun. 1:30 to 5:00 pm

Microfluidic Devices and Systems for Pathogen Detection

Joint Session with Conference 7929

Session Chair: **Benjamin L. Miller**, Univ. of Rochester Medical Ctr.

1:30 pm: **Nanofluidic Raman spectroscopy: how combining nanofluidics with SERS can provide new insights into protein aggregation** (*Invited Paper*), David Erickson, Cornell Univ. (USA) [7888-19]

2:00 pm: **Optical and fluidic design for guaranteed trapping and detection of particles in a silicon microfluidic and photonic crystal system**, Adam Heiniger, Philippe M. Fauchet, Univ. of Rochester (USA) [7888-20]

2:15 pm: **On-chip optofluidic concentrator**, James E. Baker, Rashmi Sriram, Univ. of Rochester Medical Ctr. (USA); Philippe M. Fauchet, Univ. of Rochester (USA); Benjamin L. Miller, Univ. of Rochester Medical Ctr. (USA) [7888-21]

2:30 pm: **Integrated lab-on-a-chip: a combined sample preparation and PCR system as an ultrafast analytical tool for pathogen detection** (*Invited Paper*), Holger Becker, Nadine Hlawatsch, Richard Klemm, Claudia Gärtner, microfluidic ChipShop GmbH (Germany) [7929-01]

Coffee Break 3:00 to 3:30 pm

3:30 pm: **Merging nanophotonics and nanofluidics for active analyte delivery and biosensing** (*Invited Paper*), Hatice Altug, Boston Univ. (USA) [7888-22]

4:00 pm: **All-fiber optofluidic biosensor**, Yunbo Guo, Hao Li, Jing Liu, Karthik Chinna Balareddy, Xudong Fan, Univ. of Michigan (USA) [7888-23]

4:15 pm: **Application of field-modulated birefringence and light scattering to biosensing**, Louis H. Strong, Daniel B. Hall, Clark Edson, Gyula Varadi, Radiation Monitoring Devices, Inc. (USA) [7888-24]

4:30 pm: **Optofluidic biosensing with colorimetric signatures of deterministic aperiodic metal nanoparticle arrays**, Sylvanus Y. Lee, Svetlana V. Boriskina, Boston Univ. (USA); Fiorenzo G. Omenetto, Tufts Univ. (USA); Bjoern M. Reinhard, Luca Dal Negro, Boston Univ. (USA) [7888-25]

4:45 pm: **An integrated microfluidic biosensor for the rapid screening of foodborne pathogens by surface plasmon resonance imaging**, Michael D. Zordan, Meggie G. Grafton, James F. Leary, Purdue Univ. (USA) [7888-26]

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BiOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

The radix 4 base number system for use in theoretical genetics, Bradley S. Tice, Advanced Human Design (USA) [7888-27]

Optical Coherence Tomography and Coherence Domain Optical Methods in Biomedicine XIV

Conference Chairs: **James G. Fujimoto**, Massachusetts Institute of Technology; **Joseph A. Izatt**, Duke Univ.; **Valery V. Tuchin**, N.G. Chernyshevsky Saratov State Univ. (Russian Federation)

Program Committee: **Peter E. Andersen**, Technical Univ. of Denmark (Denmark); **Stephen A. Boppart**, Univ. of Illinois at Urbana-Champaign; **Zhongping Chen**, Beckman Laser Institute and Medical Clinic; **Johannes F. de Boer**, Vrije Univ. Amsterdam (Netherlands); **Wolfgang Drexler**, Medizinische Univ. Wien (Austria); **Christoph K. Hitzenberger**, Medizinische Univ. Wien (Austria); **Rainer A. Leitgeb**, Medizinische Univ. Wien (Austria); **Xingde Li**, The Johns Hopkins Univ.; **Adrian G. Podoleanu**, Univ. of Kent (United Kingdom); **Andrew M. Rollins**, Case Western Reserve Univ.; **Natalia M. Shakhova**, Institute of Applied Physics (Russian Federation); **Guillermo J. Tearney**, Wellman Ctr. for Photomedicine; **Ruikang K. Wang**, Oregon Health & Science Univ.; **Maciej Wojtkowski**, Nicolaus Copernicus Univ. (Poland); **Yoshiaki Yasuno**, Univ. of Tsukuba (Japan)

Monday 24 January

SESSION 1

Room: 303 (Esplanade) Mon. 8:30 to 10:00 am

Ophthalmic OCT I

Session Chair: **James G. Fujimoto**, Massachusetts Institute of Technology

8:30 am: **Megahertz retinal OCT imaging at 1050 nm and up to 1,400,000 A-scans per second using an FDML laser**, Thomas Klein, Wolfgang Wieser, Benjamin R. Biedermann, Christoph M. Eigenwillig, Robert A. Huber, Ludwig-Maximilians-Univ. München (Germany). [7889-01]

8:45 am: **Volumetric ultra-high-speed swept source OCT imaging at 100,000-400,000 axial scans per second**, Benjamin M. Potsaid, Bernhard Baumann, Martin F. Kraus, Jonathan J. Liu, Massachusetts Institute of Technology (USA); James Y. Jiang, Alex E. Cable, Thorlabs Inc. (USA); Joachim Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); David Huang, The Univ. of Southern California (USA); Jay S. Duker, New England Eye Ctr. (USA); James G. Fujimoto, Massachusetts Institute of Technology (USA) [7889-02]

9:00 am: **High-speed retinal imaging and high-penetration Doppler imaging using one-micrometer adaptive optics spectral-domain optical coherence tomography**, Kazuhiro Kurokawa, Kazuhiro Sasaki, Shuichi Makita, Univ. of Tsukuba (Japan); Barry Cense, Utsunomiya Univ. (Japan); Yoshiaki Yasuno, Univ. of Tsukuba (Japan). [7889-03]

9:15 am: **OCT-guided multimodal photoacoustic ophthalmoscopy for in-vivo retinal imaging**, Xiangyang Zhang, Minshan Jiang, The Univ. of Southern California (USA); Hao F. Zhang, Univ. of Wisconsin-Milwaukee (USA); Shuliang Jiao, The Univ. of Southern California (USA). [7889-04]

9:30 am: **Ultra-high-speed in-vivo Fourier-domain full-field OCT of the human retina**, Tim Bonin, Martin Hagen-Eggert, Gesa Franke, Medizinisches Laserzentrum Lübeck GmbH (Germany); Peter Koch, Thorlabs GmbH (Germany); Gereon Hüttmann, Medizinisches Laserzentrum Lübeck GmbH (Germany) [7889-05]

9:45 am: **Fast dispersion-encoded full-range OCT for retinal imaging at 800 nm and 1060 nm**, Bernd Hofer, Boris Pova?ay, Angelika Unterhuber, Boris Hermann, Medizinische Univ. Wien (Austria); Ling Wang, Sara M. Rey, Cardiff Univ. (United Kingdom); Gerald Matz, Technische Univ. Wien (Austria); Wolfgang Drexler, Medizinische Univ. Wien (Austria) and Cardiff Univ. (United Kingdom). [7889-06]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 303 (Esplanade) Mon. 10:30 am to 12:00 pm

Small Animal Imaging

Session Chair: **Joseph A. Izatt**, Duke Univ.

10:30 am: **Depth-resolved retinal intrinsic optical signal in the living tree shrew with optical coherence tomography at 1050 nm**, Alexandre R. Tumlinson, Vasily Vorobyov, Frank Sengpiel, Cardiff Univ. (United Kingdom); Boris Hermann, Medizinische Univ. Wien (Austria) and Cardiff Univ. (United Kingdom); Wolfgang Drexler, Medizinische Univ. Wien (Austria); James E. Morgan, Cardiff Univ. (United Kingdom) [7889-07]

10:45 am: **Non-invasive imaging and monitoring of rodent retina using simultaneous dual-band optical coherence tomography**, Peter Cimalla, Anke Burkhardt, Julia Walther, Aline Hoefer, Dierk Wittig, Richard Funk, Edmund Koch, Universitätsklinikum Carl Gustav Carus Dresden (Germany) [7889-08]

11:00 am: **In-utero imaging of mouse embryonic development with optical coherence tomography**, Saba H. Syed, Univ. of Houston (USA); Irina V. Larina, Mary E. Dickinson, Baylor College of Medicine (USA); Kirill V. Larin, Univ. of Houston (USA). [7889-09]

11:15 am: **Semi-automatic segmentation of 4D OCT images of the avian embryonic heart using a level sets approach**, Austin P. Bishop, Madhusudhana Gargasha, Michael W. Jenkins, David L. Wilson, Andrew M. Rollins, Case Western Reserve Univ. (USA) [7889-10]

11:30 am: **Three-dimensional functional imaging of lung parenchyma using Fourier-domain optical coherence tomography combined with fluorescence microscopy**, Maria Gärtner, Peter Cimalla, Lilla Knels M.D., Sven Meissner, Edmund Koch, Dresden Univ. of Technology (Germany) [7889-11]

11:45 am: **Imaging necrosis in mouse models of muscular dystrophy with three-dimensional optical coherence tomography**, Blake R. Klyen, Thea Shavlakadze, Miranda D. Grounds, David D. Sampson, The Univ. of Western Australia (Australia) [7889-12]

Lunch Break 12:00 to 1:30 pm

SESSION 3

Room: 303 (Esplanade) Mon. 1:30 to 3:30 pm

Ophthalmic OCT II

Session Chair: **Wolfgang Drexler**, Medizinische Univ. Wien (Austria)

1:30 pm: **Imaging of retinal tissue changes during photocoagulation by high-speed OCT**, Heike H. Müller, Lars Ptaszynski, Kerstin Schlott, Tim Bonin, Marco Bever, Gereon Hüttmann, Ralf Brinkmann, Reginald Birngruber, Medizinisches Laserzentrum Lübeck GmbH (Germany). [7889-13]

1:45 pm: **Visualization of vitreoretinal surgical manipulations using intra-operative spectral domain optical coherence tomography**, Yuankai K. Tao, Justis P. Ehlers, Cynthia A. Toth, Joseph A. Izatt, Duke Univ. (USA) [7889-14]

2:00 pm: **Investigation of retinal blood flow in glaucoma patients by Doppler Fourier-domain optical coherence tomography**, Yimin Wang, Xinbo Zhang, Ou Tan, David M. Huang M.D., Doheny Eye Institute (USA) [7889-15]

2:15 pm: **Visualization of human retinal microcapillaries with phase contrast high-speed optical coherence tomography**, DaeYu Kim, UC Davis Medical Ctr. (USA); Jeff P. Fingler, California Institute of Technology (USA); John S. Werner, UC Davis Medical Ctr. (USA); Daniel M. Schwartz, Univ. of California, San Francisco (USA); Scott E. Fraser, California Institute of Technology (USA); Robert J. Zawadzki, UC Davis Medical Ctr. (USA) [7889-16]

BIOS

2:30 pm: **Wide-field human retina and choroid visualization using swept-source optical coherence tomography at 1060 nm**, Reza Motaghiannizam, Scott E. Fraser, California Institute of Technology (USA) [7889-17]

2:45 pm: **Optimized Doppler optical coherence tomography for choroidal capillary vasculature imaging**, Gangjun Liu, Wenjuan Qi, Lingfeng Yu, Zhongping Chen, Beckman Laser Institute and Medical Clinic (USA) . [7889-18]

3:00 pm: **In-vivo human retina imaging with 5- μ m axial resolution, at 92 A-scans/s with 1- μ m spectral-domain OCT system**, Sepideh Hariri, Patrick Lee, Alireza Akhlagh Moayed, Kostadinka K. Bizheva, Univ. of Waterloo (Canada) [7889-19]

3:15 pm: **Multibeam optical coherence tomography system with a single-line sensor for human eye**, Nobuhito Suehira, Hirofumi Yoshida, Takashi Yuasa, Makoto Sato, Kazuro Yamada, Canon Inc. (Japan) [7889-20]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 303 (Esplanade) Mon. 4:00 to 6:00 pm

Clinical Applications

Session Chair: Stephen A. Boppart,
Univ. of Illinois at Urbana-Champaign

4:00 pm: **Intracoronary assessment of plaque birefringence with polarization-sensitive optical frequency domain imaging**, Mingtao Zhao, Harvard Medical School (USA) and Wellman Ctr. for Photomedicine (USA) and Massachusetts General Hospital (USA); Atsushi Tanaka M.D., Wellman Ctr. for Photomedicine (USA) and Harvard Medical School (USA); William Oh, Harvard Medical School (USA) and Wellman Ctr. for Photomedicine (USA); Benjamin Vakoc, Eman Namati, Harvard Medical School (USA); Gijs van Soest, Evelyn Regar M.D., Erasmus MC (Netherlands); Guillermo J. Tearney, Brett E. Bouma, Harvard Medical School (USA) [7889-21]

4:15 pm: **Automatic segmentation of intravascular optical coherence tomography images for facilitating quantitative diagnosis of atherosclerosis**, Zhao M. Wang, Case Western Reserve Univ. (USA); Hiroyuki Kyono, Hiram G. Bezerra M.D., Univ. Hospitals Case Medical Ctr. (USA); David L. Wilson, Case Western Reserve Univ. (USA); Marco A. Costa M.D., Univ. Hospitals Case Medical Ctr. (USA); Andrew M. Rollins, Case Western Reserve Univ. (USA) [7889-22]

4:30 pm: **Automated stent strut coverage and apposition analysis of in-vivo intra-coronary optical coherence tomography images**, Giovanni J. Ughi, Tom Adriaenssens, Kevin Onsea, Peter Kayaert, Christophe Dubois, Mark Coosemans, Peter Sinnaeve, Walter Desmet, Jan D'hooge, Katholieke Univ. Leuven (Belgium) [7889-23]

4:45 pm: **An interactive volumetric microscopy and guided biopsy platform for the management of Barrett's patients**, Melissa J. Suter, HongKi Yoo, Massachusetts General Hospital (USA) and Harvard Medical School (USA); Kevin A. Gallagher, Massachusetts General Hospital (USA); Jacqueline R. Thiesse-Namati, Gregory Y. Lauwers, Massachusetts General Hospital (USA) and Harvard Medical School (USA); Brett E. Bouma, Massachusetts General Hospital (USA) and Massachusetts Institute of Technology (USA); Norman S. Nishioka, Massachusetts General Hospital (USA) and Harvard Medical School (USA); Guillermo J. Tearney, Massachusetts General Hospital (USA) and Massachusetts Institute of Technology (USA) [7889-24]

5:00 pm: **The influence of balloon on endoscopic OCT imaging: preliminary observations in swine and human esophagus**, Wei Kang, Hui Wang, Gerard Isenbergh, Amitabh Chak, Zhilin Hu, Andrew M. Rollins, Case Western Reserve Univ. (USA) [7889-25]

5:15 pm: **Three-dimensional optical coherence tomography for transcapsule optical biopsy of lymph nodes**, Renu John, Adeel Ahmad, Eric J. Chaney, Marina Marjanovic, Krishna V. Tangella, Stephen A. Boppart M.D., Univ. of Illinois at Urbana-Champaign (USA) [7889-26]

5:30 pm: **Exploring the mechanism of radiation-enhanced hepatocellular carcinoma cell invasion by swept-source optical coherence tomography**, Wen-Chuan Kuo, Wei Yu Cheng, National Taiwan Normal Univ. (Taiwan); C. H. Chou, J.C.-H. Cheng, National Taiwan Univ. Hospital (Taiwan) [7889-27]

5:45 pm: **Analysis of clinical optical coherence tomography image for real-time diagnosis of oral precancer**, Cheng-Kuang Lee, National Taiwan Univ. (Taiwan); Meng-Tsan Tsai, Chang Gung Univ. (Taiwan); Ting-Ta Chi, Kai-Min Yang, Chun-Pin Chiang D.D.S., Chih-Chung Yang, National Taiwan Univ. (Taiwan) [7889-28]

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

High-speed (92 kHz) Fourier-domain optical coherence tomography system in the 1- μ m band with real-time data resampling, Adrian Bradu, Sam Van der Jeught, Univ. of Kent (United Kingdom); Doug Machow, Sensors Unlimited, Inc., part of Goodrich Corp. (USA); Adrian G. Podoleanu, Univ. of Kent (United Kingdom) [7889-85]

Performance comparison between 8 and 14 bit-depth imaging in polarization-sensitive swept-source optical coherence tomography, Zenghai H. Lu, Deepa K. Kasaragoda, Stephen J. Matcher, The Univ. of Sheffield (United Kingdom) [7889-86]

Real-time display Fourier-domain OCT using multithread parallel computing with data vectorization, Tae-Joong Eom, Hoon Sup Kim, Chulmin Kim, Yeung-Lak Lee, Gwangju Institute of Science and Technology (Korea, Republic of); Eun-Seo Choi, Chosun Univ. (Korea, Republic of) [7889-87]

Adaptive optics assisted Fourier-domain optical coherence tomography with balanced detection, Alexander Meadway, Adrian Bradu, Univ. of Kent (United Kingdom); Mark W. Hathaway, OPKO Health, Inc. (USA); Sam Van der Jeught, Univ. of Kent (United Kingdom); Richard B. Rosen M.D., The New York Eye and Ear Infirmary (USA); Adrian G. Podoleanu, Univ. of Kent (United Kingdom) [7889-88]

Design and realization of a spectroscopic optical coherence tomography system for medical applications, Patrick Steiner, Christoph Meier, Volker M. Koch, Berner Fachhochschule (Switzerland); Marco Stampanoni, ETH Zurich (Switzerland) [7889-89]

Low-power real-time signal processing engine for optical coherence tomography systems using multicore digital signal processor, Murtaza Ali, Renuka Parlapalli, Texas Instruments Inc. (USA); Renu John, Stephen A. Boppart M.D., Univ. of Illinois at Urbana-Champaign (USA) [7889-90]

Common path FDOCT based on multiple reflections within the same arm, Nikola Krstajic, Stephen J. Matcher, Richard A. Hogg, The Univ. of Sheffield (United Kingdom) [7889-91]

Experimental investigation of wavelength dependence of penetration depth and imaging contrast for ultra-high-resolution optical coherence tomography, Shutaro Ishida, Norihiko Nishizawa, Nagoya Univ. (Japan); Kazuyoshi Itoh, Osaka Univ. (Japan) [7889-92]

Geometric phase-shifted full-field optical coherence tomography for rapid 3D imaging of biological samples, Wei Zheng, National Univ. of Singapore (Singapore) [7889-93]

Phantoms for intravascular or endoscopic optical coherence tomography, Charles-Etienne Bisailon, Sébastien Vergnole, Marc L. Dufour D.D.S., Guy Lamouche, National Research Council Canada (Canada) [7889-94]

Ultra-high-resolution optical coherence tomography imaging of lung structure using Gaussian-shaped supercontinuum sources, Norihiko Nishizawa, Shutaro Ishida, Nagoya Univ. (Japan); Takefumi Ohta, Kazuyoshi Itoh, Osaka Univ. (Japan); Masashi Kitatsuji, Hiroyoshi Ohshima, HOYA Corp. (Japan); Yoshinori Hasegawa, Miyoko Matsushima, Tsutomu Kawabe, Nagoya Univ. (Japan) [7889-95]

Long imaging range optical coherence tomography based on a narrow line-width broadband Fourier-domain mode-locked swept source, Jun Zhang, Beckman Laser Institute and Medical Clinic (USA); Pinghe Wang, Univ. of California, Irvine (USA); Zhongping Chen, Beckman Laser Institute and Medical Clinic (USA) [7889-96]

High-speed swept source based on polygon-scanner filter and Fox-Smith cavity, Pinghe Wang, Beckman Laser Institute and Medical Clinic (USA) [7889-97]

Instantaneous coherence length measurement of a swept laser source using a Mach-Zehnder interferometer, Tim von Niederhäusern, Christoph Meier, Berner Fachhochschule (Switzerland); Marcus Duell, Philipp Vorreau, Exalos AG (Switzerland) [7889-98]

Miniature 110-kHz swept source at 1050 nm for high-resolution OCT, Adrian H. Bachmann, Philipp Vorreau, Luca Plattner, Marcus Duell, Christian Velez, Exalos AG (Switzerland) [7889-99]

Characterization of a swept source at 1 μm for optical coherence tomography, Irina Trifanov, Liviu P. Neagu, Univ. of Kent (United Kingdom) and Multiwave Photonics (Portugal); Adrian Bradu, Adrian G. Podoleanu, Univ. of Kent (United Kingdom); Antonio B. Lobo Ribeiro, Univ. Fernando Pessoa (Portugal) [7889-100]

Ultra-fast one-micron spectral domain ultra-high-sensitive optical micro-angiography for in-vivo visualization of ocular circulation of human retina and choroid, Lin An, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7889-101]

Volumetric in-vivo imaging of intracochlear microstructures and microvascular perfusion in mice using high-speed spectral domain optical coherence tomography and ultra-high-sensitive optical micro-angiography, Hreesh M. Subhash, Viviana Davila, Hai Sun, Anh T. Nguyen-Huynh, Alfred L. Nuttall, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7889-102]

One-micron double-beam Doppler optical coherence angiography, Franck Jaillon, Shuichi Makita, Univ. of Tsukuba (Japan); Masahiro Miura, Tokyo Medical Univ. Kasumigaura Hospital (Japan); Yoshiaki Yasuno, Univ. of Tsukuba (Japan) [7889-103]

Effect of blood vessel diameter on relative blood flow estimate in Doppler optical coherence tomography algorithms, Jason M. Tokayer, The Univ. of Southern California (USA); David M. Huang M.D., Casey Eye Institute (USA) [7889-104]

In-vivo ultra-high-resolution human retinal imaging by dual-channel full-field optical coherence tomography, Masahiro Akiba, Topcon Corp. (USA); Charles Reisman, Zhenguo Wang, Yasufumi Fukuma, Kinpui Chan, Topcon Medical Systems, Inc. (USA) [7889-105]

Dynamic analysis of a small artery of a human finger by optical coherence tomography, Mitsuo Kuwabara, Natsuki Takahashi, Daisuke Takada, Masato Ohmi, Masamitsu Haruna, Osaka Univ. (Japan) [7889-106]

Imaging vibration of the cochlear partition of an excised guinea pig cochlea using phase-sensitive Fourier-domain optical coherence tomography, Niloy Choudhury, Yaguang Zeng, Oregon Health & Science Univ. (USA); Anders Fridberger, Karolinska Institutet (Sweden); Fangyi Chen, Dingjun Zha, Alfred L. Nuttall, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7889-107]

Imaging of the intact mouse cochlea by spectral-domain optical coherence tomography, Simon S. Gao, Rice Univ. (USA); Anping Xia, Stanford Univ. (USA); Tao Yuan, Patrick Raphael, Baylor College of Medicine (USA); Ryan L. Shelton, Brian E. Applegate, Texas A&M Univ. (USA); John S. Oghalai, Baylor College of Medicine (USA) [7889-108]

Morphometry of the myopic optic-nerve head using Fourier-domain optical coherence tomography, Sieun Lee, Mei Young, Simon Fraser Univ. (Canada); Evgeniy Lebed, Paul J. Mackenzie, The Univ. of British Columbia (Canada); Mirza F. Beg, Marinko V. Sarunic, Simon Fraser Univ. (Canada) [7889-110]

Fast retinal layer identification algorithm for optical coherence tomography imaging, Tapio Fabritius, Univ. of Oulu (Finland); Shuichi Makita, Yoshiaki Yasuno, Univ. of Tsukuba (Japan); Masahiro Miura, Tokyo Medical Univ. Kasumigaura Hospital (Japan); Risto A. Myllylä, Univ. of Oulu (Finland) [7889-111]

Magnetic carbon nanotubes as contrast agents for pulsed magneto-motive optical coherence tomography, Jasung Koo, Youngjin Song, Yunok Oh, Jinwoo Oh, Pukyong National Univ. (Korea, Republic of); Jeehyun Kim, Kyungpook National Univ. (Korea, Republic of); Junghwan Oh, Pukyong National Univ. (Korea, Republic of) [7889-112]

Au nanoring as contrast agent of optical coherence tomography and its photothermal effect, Cheng-Kuang Lee, Hung-Yu Tseng, Shou-Yen Wu, Ting-Ta Chi, Kai-Min Yang, Jyh-Yang Wang, Yean-Woei Kiang, Chih-Chung Yang, National Taiwan Univ. (Taiwan); Meng-Tsan Tsai, Chang Gung Univ. (Taiwan) [7889-113]

Tracking Au nanoring delivery into biotissue with optical coherence tomography, Cheng-Kuang Lee, Hung-Yu Tseng, Chia-Yun Lee, Han-Yi Chou, Shou-Yen Wu, Ting-Ta Chi, Kai-Min Yang, Jyh-Yang Wang, Yean-Woei Kiang, Chih-Chung Yang, National Taiwan Univ. (Taiwan); Meng-Tsan Tsai, Chang Gung Univ. (Taiwan) [7889-114]

Polarization-sensitive optical coherence tomography at 1050 nm using an all-fiber interferometer and a Fourier-domain mode-locked swept source, Sebastian Marschall, Technical Univ. of Denmark (Denmark); Teresa Torzicky, Cedric Blatter, Marco Bonesi, Medizinische Univ. Wien (Austria); Peter E. Andersen, Technical Univ. of Denmark (Denmark); Michael Pircher, Rainer A. Leitgeb, Christoph K. Hitzenberger, Medizinische Univ. Wien (Austria)[7889-115]

Digital phase stabilization for improving sensitivity and degree of polarization accuracy in polarization sensitive optical coherence tomography, James W. Jacobs, Stephen J. Matcher, The Univ. of Sheffield (United Kingdom). [7889-116]

Polarization sensitive and Mueller matrix OCT measurements and data analysis, Marcus P. Rael, Marcello M. Amaral, Nilson Dias Vieira, Jr., Anderson Zanardi de Freitas, Instituto de Pesquisas Energéticas e Nucleares (Brazil) [7889-117]

Modulated deconvolution for resolution improvement in Fourier-domain optical coherence tomography, Evgenia Bousi, Ismini Charalambous, Constantinos Pitriss, Univ. of Cyprus (Cyprus) [7889-118]

Use of creep compounding to reduce speckle in optical coherence tomography images, Brendan F. Kennedy, Andrea Curatolo, The Univ. of Western Australia (Australia); Timothy R. Hillman, Massachusetts Institute of Technology (USA); Florian Blume, David D. Sampson, The Univ. of Western Australia (Australia) [7889-119]

Quantitative comparison of despeckling and frame-averaging approaches to processing retinal OCT tomograms, Justin A. Eichel, David Lee, Alexander Wang, Paul W. Fieguth, David A. Clausi, Kostadinka K. Bizheva, Univ. of Waterloo (Canada) [7889-120]

Using phase gradient autofocus (PGA) algorithm for restoration OCT images with diffraction limited resolution, Alexander A. Moiseev, Grigory V. Gelikonov, Pavel A. Shilyagin, Valentin M. Gelikonov, Institute of Applied Physics (Russian Federation) [7889-121]

Study on effective probe depth of optical coherence system by Monte Carlo simulation, Ye Qing, Wen-Yuan Zhou, Chunping Zhang, Jianguo Tian, Nankai Univ. (China) [7889-122]

Tuesday 25 January

SESSION 5

Room: 303 (Esplanade) Tues. 8:30 to 10:00 am

Polarization-Sensitive OCT

Session Chair: Johannes F. de Boer, Vrije Univ. Amsterdam (Netherlands)

8:30 am: **Ultra-high-speed functional optical coherence tomography by spatial frequency multiplexing**, Tilman Schmolli, Erich Götzinger, Christoph K. Hitzenberger, Rainer A. Leitgeb, Medizinische Univ. Wien (Austria) [7889-29]

8:45 am: **Ultra-high-speed fiber-based polarization sensitive optical coherence tomography**, Erich Götzinger, Michael Pircher, Tilman Schmolli, Harald Sattmann, Stefan Zotter, Teresa Torzicky, Marco Bonesi, Rainer A. Leitgeb, Christoph K. Hitzenberger, Medizinische Univ. Wien (Austria) [7889-30]

9:00 am: **Optic axis determination by fiber-based polarization-sensitive swept-source optical coherence tomography**, Zenghai H. Lu, Deepa K. Kasaragoda, Stephen J. Matcher, The Univ. of Sheffield (United Kingdom) [7889-31]

9:15 am: **Polarization-sensitive optical coherence tomography imaging at 1300 nm using a Fourier-domain mode locked laser**, Marco Bonesi, Michael Pircher, Erich Götzinger, Stefan Zotter, Teresa Torzicky, Medizinische Univ. Wien (Austria); Christoph M. Eigenwillig, Benjamin R. Biedermann, Wolfgang Wieser, Robert A. Huber, Ludwig-Maximilians-Univ. München (Germany); Christoph K. Hitzenberger, Medizinische Univ. Wien (Austria) [7889-32]

9:30 am: **Optical rheology of porcine sclera by polarization-sensitive optical coherence tomography**, Masahiro Yamanari, Kotaro Ishii, Tsukuba Univ. (Japan); Masahiro Miura, Tokyo Medical Univ. Kasumigaura Hospital (Japan); Tetsuro Oshika, Yoshiaki Yasuno, Tsukuba Univ. (Japan) [7889-33]

9:45 am: **Spectral domain polarization sensitive optical coherence tomography at 1.55 μm: novel developments and applications for dynamic studies in materials science**, David Stifter, Johannes Kepler Univ. Linz (Austria); Elisabeth Leiss-Holzinger, RECENDT GmbH (Austria); Bettina Heise, Zoltan Major, Peter Hierzenberger, Gerhard Eder, Johannes Kepler Univ. Linz (Austria); Michael Pircher, Erich Götzinger, Bernhard Baumann, Christoph K. Hitzenberger, Medizinische Univ. Wien (Austria) [7889-34]

Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 303 (Esplanade) Tues. 10:30 am to 12:00 pm

Doppler Techniques

Session Chair: Andrew M. Rollins, Case Western Reserve Univ.

10:30 am: **Label-free 3D optical imaging of microcirculation within sentinel lymph node in vivo**, Yeongri Jung, Zhongwei Zhi, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7889-35]

10:45 am: **Doppler velocity detection limitations in spectrometer and swept-source Fourier-domain optical coherence tomography**, Hansford C. Hendargo, Ryan P. McNabb, Al-Hafeez Z. Dhalla, Joseph A. Izatt, Duke Univ. (USA) [7889-36]

11:00 am: **Label-free in-vivo optical micro-angiography imaging of cerebral capillary blood flow within meninges and cortex in mice with the skull left intact**, Yali Jia, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7889-37]

11:15 am: **Volumetric Doppler imaging of murine brain using spectral and swept-domain optical coherence tomography**, Danuta Bukowska, Ireneusz Grulkowski, Nicolaus Copernicus Univ. (Poland); Grzegorz Wilczynski, Nencki Institute of Experimental Biology (Poland); Maciej Szkulmowski, Szymon Tamborski, Nicolaus Copernicus Univ. (Poland); Jakub Włodarczyk, Nencki Institute of Experimental Biology (Poland); Andrzej A. Kowalczyk, Maciej Wojtkowski, Nicolaus Copernicus Univ. (Poland) [7889-38]

11:30 am: **Lateral resonant Doppler imaging for quantitative flow extraction in spectral-domain optical coherence tomography**, Julia Walther, Peter Cimalla, Edmund Koch, Technische Univ. Dresden (Germany) [7889-39]

11:45 am: **Ultra-high-resolution and ultra-high-sensitive optical micro-angiography based on supercontinuum light source**, Zhongwei Zhi, Lin An, Jia Qin, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7889-40]

Lunch Break 12:00 to 1:30 pm

SESSION 7

Room: 303 (Esplanade) Tues. 1:30 to 3:30 pm

New OCT Technology I

Session Chair: Xingde Li, The Johns Hopkins Univ.

1:30 pm: **Multimodal optical coherence/photo-acoustic tomography of skin**, Aneesh P. Alex, Cardiff Univ. (United Kingdom); Edward Z. Zhang, Univ. College London (United Kingdom); Boris Považay, Medizinische Univ. Wien (Austria); Jan G. Laufer, Univ. College London (United Kingdom); Bernd Hofer, Medizinische Univ. Wien (Austria); Carl Glittenberg M.D., Ludwig Boltzmann Institut (Austria); Boris Herrmann, Medizinische Univ. Wien (Austria); Paul C. Beard, Univ. College London (United Kingdom); Wolfgang Drexler, Medizinische Univ. Wien (Austria) [7889-41]

1:45 pm: **Integrated en-face optical coherence endomicroscopy and two-photon fluorescence endomicroscopy for simultaneous multimodal imaging**, Jiefeng Xi, Yuying Zhang, Li Huo, Yong-Ping Chen, Xingde Li, The Johns Hopkins Univ. (USA) [7889-42]

2:00 pm: **Integrated optical coherence tomography: ultrasound system and miniaturized probes for intravascular imaging**, Jiechen Yin, Univ. of California, Irvine (USA); Xiang Li, The Univ. of Southern California (USA); Joe Jing, Beckman Laser Institute and Medical Clinic (USA); Changhong Hu, Qifa Zhou, K. Kirk Shung, The Univ. of Southern California (USA); Zhongping Chen, Beckman Laser Institute and Medical Clinic (USA) [7889-43]

2:15 pm: **Piezo-electric transducer-based miniature catheter for ultra-high-speed endoscopic optical coherence tomography**, Tsung-Han Tsai, Massachusetts Institute of Technology (USA); Benjamin M. Potsaid, Massachusetts Institute of Technology (USA) and Thorlabs Inc. (USA); Martin F. Kraus, Massachusetts Institute of Technology (USA) and Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Jonathan J. Liu, Chao Zhou, Massachusetts Institute of Technology (USA); Joachim Hornegger, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); James G. Fujimoto, Massachusetts Institute of Technology (USA) [7889-44]

2:30 pm: **Semiresonant Lissajous scan of a fiber-cantilever scanning endoscope catheter for stable OCT imaging**, Sucbei Moon, Sang-Won Lee, Marc Rubinstein, Brian J. Wong M.D., Zhongping Chen, Beckman Laser Institute and Medical Clinic (USA) [7889-45]

2:45 pm: **3D FD-OCT imaging with resonant fiber optic scanning endoscope in a rectangular field of view**, Jiefeng Xi, Li Huo, Yuying Zhang, Xingde Li, The Johns Hopkins Univ. (USA) [7889-46]

3:00 pm: **Adaptive-optics optical coherence tomography tailored for clinical use**, Kenta Sudo, Utsunomiya Univ. (Japan); Shuichi Makita, Kazuhiro Kurokawa, Masahiro Yamanari, Yoshiaki Yasuno, Univ. of Tsukuba (Japan); Toyohiko Yatagai, Barry Cense, Utsunomiya Univ. (Japan) [7889-47]

3:15 pm: **Structural and functional imaging with extended focus dark-field OCT at 1300 nm**, Cedric Blatter, Medizinische Univ. Wien (Austria); Robert A. Huber, Ludwig-Maximilians-Univ. München (Germany); Rainer A. Leitgeb, Medizinische Univ. Wien (Austria) [7889-48]

Coffee Break 3:30 to 4:00 pm

SESSION 8

Room: 303 (Esplanade) Tues. 4:00 to 6:00 pm

Novel Light Sources and OCT Systems

Session Chair: Yoshiaki Yasuno, Univ. of Tsukuba (Japan)

4:00 pm: **Megahertz, high-performance 1050-nm Fourier-domain mode locked laser for OCT: low-cost cavity design using oligo-mode fiber**, Thomas Klein, Wolfgang Wieser, Christoph M. Eigenwillig, Benjamin R. Biedermann, Robert A. Huber, Ludwig-Maximilians-Univ. München (Germany) [7889-49]

4:15 pm: **Self-regenerative FDML for OCT imaging**, Li Huo, Kartikeya Murari, Jiefeng Xi, Xingde Li, The Johns Hopkins Univ. (USA) [7889-50]

4:30 pm: **OCT imaging with wavelength-swept active mode locking fiber laser**, Hwidon Lee, Chang-Seok Kim, Myung-Yong Jeong, Pusan National Univ. (Korea, Republic of); Ju-Han Lee, Jae-Hyun Shin, The Univ. of Seoul (Korea, Republic of) [7889-51]

4:45 pm: **1060-nm swept-source laser and system for high-speed direct and Doppler OCT imaging**, Bart Johnson, Walid Atia, Mark Kuznetsov, Bill Wells, Noble Larson, Randal A. Murdza, Dale Flanders, AXSUN Technologies Inc. (USA) [7889-52]

5:00 pm: **Filterless swept-source based on dispersion tuning for high-speed optical coherence tomography**, Changho Chong, Kouki Totsuka, Takuya Suzuki, Keiji Isamoto, Santec Corp. (Japan); Yuya Takubo, Shinji Yamashita, The Univ. of Tokyo (Japan) [7889-53]

5:15 pm: **A mechanical-free 150-kHz repetition swept light source incorporated a KTN electro-optic deflector**, Shogo Yagi, NTT Photonics Labs. (Japan); Kazunori Naganuma, NTT Advanced Technology Corp. (Japan); Tadayuki Imai, Yasuo Shibata, Shigeo Ishibashi, NTT Photonics Labs. (Japan); Yuzo Sasaki, NTT Advanced Technology Corporation (Japan); Masahiro Sasaura, NTT Photonics Labs. (Japan); Kazuo Fujiura, NTT Advanced Technology Corporation (Japan); Kazutoshi Kato, NTT Photonics Labs. (Japan) [7889-54]

5:30 pm: **200kHz a-line rate swept-source optical coherence tomography with a novel laser configuration**, Brian D. Goldberg, Bart Johnson, Dale Flanders, AXSUN Technologies Inc. (USA) [7889-55]

5:45 pm: **Tailoring wavelength sweep for SS-OCT with a programmable picosecond laser**, Guy Lamouche, Sébastien Vergnole, National Research Council Canada (Canada); Youngjae Kim, Bryan Burgoyne, Alain Villeneuve, Genia Photonics Inc. (Canada) [7889-56]

Wednesday 26 January

SESSION 9

Room: 303 (Esplanade) Wed. 8:30 to 10:00 am

OCM, Full Field OCT, and Microscopy

Session Chair: Adrian Gh. Podoleanu, Univ. of Kent (United Kingdom)

8:30 am: **In-vitro imaging of calcium dynamics in cells with dark-field optical coherence microscopy**, Christophe Pache, Nadia Halidi, Arno Bouwens, Martin L. Villiger, Jean-Jacques Meister, Theo Lasser, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7889-57]

8:45 am: **In-vivo, real-time full-field optical coherence tomography of the rat brain**, Jonas R. H. Binding, Ecole Supérieure de Physique et de Chimie Industrielles (France) and Ecole Normale Supérieure (France) and Max-Planck-Institut für medizinische Forschung (Germany); Juliette Ben Arous, Ecole Normale Supérieure (France); Sylvain Gigan, Claude A. Boccara, Ecole Supérieure de Physique et de Chimie Industrielles (France); Jean-François Leger, Laurent Bourdieu, Ecole Normale Supérieure (France) [7889-58]

9:00 am: **Interferometric synthetic aperture microscopy with aberration correction for enabling virtual adaptive optics**, Steven G. Adie, Benedikt W. Graf, Budiman Darbarsyah, Stephen A. Boppart M.D., Scott Carney, Univ. of Illinois at Urbana-Champaign (USA) [7889-59]

9:15 am: **Numerical movement correction for swept-source full-field optical coherence tomography**, Dierck Hillmann, Thorlabs GmbH (Germany); Tim Bonin, Gesa Franke, Martin Hagen-Eggert, Univ. zu Lübeck (Germany); Peter Koch, Thorlabs GmbH (Germany); Gereon Hüttmann, Univ. zu Lübeck (Germany) [7889-60]

9:30 am: **Spatial-domain low-coherence quantitative phase microscopy for cancer diagnosis**, Pin Wang, Rajan K. Bista, Univ. of Pittsburgh (USA); Rohit Bhargava, Univ. of Pittsburgh Medical Ctr. (USA); Randall E. Brand M.D., Yang Liu, Univ. of Pittsburgh (USA) [7889-61]

9:45 am: **Hybrid MT-OCM imaging platform for in-vivo tissue imaging**, Antti Isomäki, Lars Thrane, Henning E. Larsen, Technical Univ. of Denmark (Denmark); Karsten Koenig, Univ. des Saarlandes (Germany); Peter E. Andersen, Technical Univ. of Denmark (Denmark) [7889-62]

Coffee Break 10:00 to 10:30 am

SESSION 10

Room: 303 (Esplanade) Wed. 10:30 am to 12:00 pm

OCT Technology and Signal Processing

Session Chair: Peter E. Andersen, Risø National Lab. (Denmark)

10:30 am: **Heterodyne SSOCT complex conjugate artifact removal at 100kHz line rate using a novel phase modulator**, Al-Hafeez Z. Dhalla, Joseph A. Izatt, Duke Univ. (USA) [7889-63]

10:45 am: **Dual-beam full-range complex spectral domain optical coherence tomography**, Stefan Zotter, Michael Pircher, Erich Götzinger, Teresa Torzicky, Marco Bonesi, Christoph K. Hitzenberger, Medizinische Univ. Wien (Austria) [7889-64]

11:00 am: **Monte Carlo-based nonlinear phase retardation estimator for polarization sensitive optical coherence tomography**, Lian Duan, Shuichi Makita, Masahiro Yamanari, Yiheng Lim, Yoshiaki Yasuno, Tsukuba Univ. (Japan) [7889-65]

11:15 am: **Digital dispersion compensation for ultrabroad-bandwidth single-camera spectral-domain polarization-sensitive OCT**, Amy L. Oldenburg, Raghav K. Chhetri, The Univ. of North Carolina at Chapel Hill (USA) . . [7889-66]

11:30 am: **Segmented scanning protocols for speckle contrast reduction in spectral OCT images**, Maciej Szkulmowski, Iwona M. Gorczynska, Daniel Szlag, Ireneusz Grulkowski, Andrzej A. Kowalczyk, Maciej Wojtkowski, Nicolaus Copernicus Univ. (Poland) [7889-67]

11:45 am: **Optimal processing of nonlinearity in swept-source and spectral-domain optical coherence tomography**, Sébastien Vergnole, Daniel Levesque, National Research Council Canada (Canada); Kostadinka K. Bizheva, Univ. of Waterloo (Canada); Guy Lamouche, National Research Council Canada (Canada) [7889-68]

Lunch Break 12:00 to 1:30 pm

SESSION 11

Room: 303 (Esplanade) Wed. 1:30 to 3:30 pm

New OCT Technology II

Session Chair: Christoph K. Hitzenberger, Medizinische Univ. Wien (Austria)

1:30 pm: **Generating multiple-depths en-face images in optical coherence tomography**, Adrian Bradu, Liviu P. Neagu, John A. Rogers, Adrian G. Podoleanu, Univ. of Kent (United Kingdom) [7889-69]

1:45 pm: **Ultra-high-speed real-time 4D display system installed in ultra-high-speed parallel OCT system at a volume rate of 12 volumes/sec**, Kohji Ohbayashi, Kitasato Univ. School of Medicine (Japan); Dong-Hak Choi, Hideaki Hiro-Oka, Kitasato Univ. (Japan); Atusi Kubota, Tutomu Ohno, Renzo Ikeda, System House Co., Ltd. (Japan); Kimiya Shimizu, Kitasato Univ. (Japan) [7889-70]

2:00 pm: **An approach for Megahertz OCT: streak mode Fourier-domain optical coherence tomography**, Rui Wang, Clemson Univ. (USA); Xiaocong Yuan, Nankai Univ. (China); Richard L. Goodwin, Univ. of South Carolina (USA); Roger R. Markwald, Medical Univ. of South Carolina (USA); Bruce Z. Gao, Clemson Univ. (USA) [7889-71]

2:15 pm: **Triggered optical coherence tomography for dynamic imaging of rapid periodic motion**, Ernest W. Chang, Boston Univ. (USA); James B. Kobler, Seok-Hyun Yun, Massachusetts General Hospital (USA) [7889-72]

2:30 pm: **Dual-band refractive low-coherence interferometry in the spectral domain for dispersion measurements**, Jens Liebermann, Claudia Brückner, Technische Univ. Ilmenau (Germany); Branislav Grajciar, Medizinische Univ. Wien (Austria); Jens Hauelsen, Technische Univ. Ilmenau (Germany); Adolf F. Fercher, Medizinische Univ. Wien (Austria) [7889-73]

2:45 pm: **1.7-micron optical coherence tomography for enhanced image contrast**, Ernest W. Chang, Boston Univ. (USA); Seok-Hyun Yun, Massachusetts General Hospital (USA) [7889-74]

3:00 pm: **Phase unwrapping with PMF Sagnac loop filter in swept-source OCT**, Jae Seok Park, Chang-Seok Kim, Myung-Yong Jeong, Pusan National Univ. (Korea, Republic of) [7889-75]

3:15 pm: **Single-shot full-complex spectrum spectrometer-based OCT**, Pavel A. Shilyagin, Valentin M. Gelikonov, Grigory V. Gelikonov, Institute of Applied Physics (Russian Federation) [7889-76]

Coffee Break 3:30 to 4:00 pm

SESSION 12

Room: 303 (Esplanade) Wed. 4:00 to 6:00 pm

Functional Imaging and Assessment

Session Chair: Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation)

4:00 pm: **Magnetomotive optical coherence microscopy for cell dynamics and biomechanics**, Xing Liang, Benedikt W. Graf, Renu John, Huafeng Ding, Univ. of Illinois at Urbana-Champaign (USA); Hyon-min Song, Purdue Univ. (USA); Gabriel Popescu, Univ. of Illinois at Urbana-Champaign (USA); Alexander Wei, Purdue Univ. (USA); Stephen A. Boppart M.D., Univ. of Illinois at Urbana-Champaign (USA) [7889-77]

4:15 pm: **Visco-elastic time-dependent strain as a contrast mechanism in optical coherence tomography**, Brendan F. Kennedy, Florian Blume, Robert A. McLaughlin, The Univ. of Western Australia (Australia); Robert E. Day, Royal Perth Hospital (Australia); David D. Sampson, The Univ. of Western Australia (Australia) [7889-78]

4:30 pm: **Gold nanoparticles as cellular contrast agents in spectroscopic optical coherence tomography**, Ji Yi, Kvar C. L. Black, Phillips B. Messersmith, Xu Li, Northwestern Univ. (USA) [7889-79]

4:45 pm: **Assessing hemoglobin concentration using spectroscopic optical coherence tomography for feasibility of tissue diagnostics**, Francisco E. Robles, Adam P. Wax, Duke Univ. (USA) [7889-80]

5:00 pm: **Assessment of tissue optical clearing as a function of glucose concentration using optical coherence tomography**, Narendran Sudheendran, Univ. of Houston (USA); Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Kirill V. Larin, Univ. of Houston (USA) [7889-81]

5:15 pm: **Diffusion-sensitive Fourier-domain optical coherence tomography**, Martin Hagen-Eggert, Medizinisches Laserzentrum Lübeck GmbH (Germany); Dierck Hillmann, Peter Koch, Thorlabs GmbH (Germany); Gereon Hüttmann, Univ. zu Lübeck (Germany) [7889-82]

5:30 pm: **Measurements of wavelength dependent scattering and backscattering coefficients by low-coherence spectroscopy**, Nienke Bosschaart, Dirk J. Faber, Ton G. van Leeuwen, Maurice C. Aalders, Jr., Univ. van Amsterdam (Netherlands) [7889-83]

5:45 pm: **Concentration dependent scattering coefficients of intralipid from 600 to 1600 nm**, Dirk J. Faber, Nienke Bosschaart, Univ. van Amsterdam (Netherlands); Vitali M. Kodach, Jeroen Kalkman, Ton G. van Leeuwen, Academisch Medisch Ctr. (Netherlands) [7889-84]

BIOS

Advanced Biomedical and Clinical Diagnostic Systems IX

Conference Chairs: **Anita Mahadevan-Jansen**, Vanderbilt Univ.; **Tuan Vo-Dinh**, Duke Univ.; **Warren S. Grundfest**, Univ. of California, Los Angeles

Program Committee: **Maurice C. Aalders, Jr.**, Univ. van Amsterdam (Netherlands); **Jennifer K. Barton**, The Univ. of Arizona; **Stephen A. Boppart**, Univ. of Illinois at Urbana-Champaign; **Laura Marcu**, Univ. of California, Davis; **Mary-Ann Mycek**, Univ. of Michigan; **Jianan Y. Qu**, Hong Kong Univ. of Science and Technology (Hong Kong, China); **Urs Utzinger**, The Univ. of Arizona; **Georges A. Wagnieres**, Ecole Polytechnique Fédérale de Lausanne (Switzerland)

Sunday 23 January

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Tactile sensation imaging system for inclusion mechanical property characterization, Jong-Ha Lee, Nathalia Garcia-Acosta, Kenny Te, Chang-Hee Won, Temple Univ. (USA) [7890-49]

Near-infrared fluorescent imaging to assess lymphatic function improvement after advanced pneumatic compression device treatment of lymphedema, Kristen E. Adams, Blake Niccum, Gabriel Dickinson, Merrick Bautista, John C. Rasmussen, I-Chih Tan, Chinmay D. Darme, Melissa B. Aldrich, Milton V. Marshall, Latisha A. Smith, Erik A. Maus, Caroline E. Fife, Renie Guilloid, The Univ. of Texas Health Science Ctr. at Houston (USA); Sunday Hoy, Tactile Systems Technology, Inc. (USA); Eva M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (USA) [7890-50]

Effect of background trends removal on noise power spectrum measurements in digital x-ray imaging, Zhongxing Zhou, Feng Gao, Huijuan Zhao, Shaorun Gong, Kai Jiang, Tianjin Univ. (China) [7890-51]

Critical evaluation of the ultrasonic pachymetry for corneas in vitro, Victor A. Cacciocarro Lincoln, Liliane Ventura, Sidney J. Faria e Sousa, Univ. de São Paulo (Brazil) [7890-52]

Basic principles of design and functioning of multifunctional laser diagnostic system for non-invasive medical spectrophotometry, Dmitrii A. Rogatkin, MONOKI (Russian Federation); Sergei G. Sokolovski, Ksenia A. Fedorova, Univ. of Dundee (United Kingdom); Victor V. Sidorov, SPE LAZMA Ltd. (Russian Federation); Neil Z. Stewart, Edik U. Rafailov, Univ. of Dundee (United Kingdom) [7890-53]

New non-invasive transcutaneous bilirubin meters for neonatal jaundice using blue-green laser diodes and LEDs, Mostafa Hamza, Mansoura Univ. (Egypt); Mohammad H. Sayed El-Ahl, Tabarak Children's Hospital (Egypt) and Military Medical Academy (Egypt); Ahmed M. Hamza, National Research Ctr. (Egypt); Aya M. Hamza, Yahya M. Hamza, Tabarak Children's Hospital (Egypt) [7890-54]

A novel optical probe for pH sensing in gastro-esophageal apparatus, Francesco Baldini, Giacomo Ghini, Ambra Giannetti, Folco Senesi, Cosimo Trono, Istituto di Fisica Applicata Nello Carrara (Italy) [7890-55]

Automatic alignment of a high-performance interferometric medical imaging device, Andrew T. Cenko, Bradford B. Behr, Univ. of Waterloo (Canada); Peter B. Christensen, Tornado Medical Systems (Canada); Arsen R. Hajian, Univ. of Waterloo (Canada); Jan Hendrikse, Tornado Medical Systems (Canada); Jeff T. Meade, Univ. of Waterloo (Canada); Frederic D. Sweeney, Paul van der Vecht, Tornado Medical Systems (Canada) [7890-56]

Reflectance spectroscopy analysis of oral cavity for mucosal lesions detection, Yung-Tsan Chen, Chun-Ming Yeh, National Chung Cheng Univ. (Taiwan); Chun-Pin Chiang D.D.S., National Taiwan Univ. (Taiwan); Meng-Tsan Tsai, Chang Gung Univ. (Taiwan); Hsiang-Chen Wang, National Chung Cheng Univ. (Taiwan) [7890-57]

A novel magnetically tracked OCT needle probe for improved imaging of deep tissue, Boon Y. Yeo, Robert A. McLaughlin, Rodney W. Kirk, David D. Sampson, The Univ. of Western Australia (Australia) [7890-58]

Monday 24 January

SESSION 1

Room: 256 (Mezzanine) Mon. 8:00 to 10:00 am

Of Microscopes and Chips

Session Chair: **Jianan Y. Qu**, Hong Kong Univ. of Science and Technology (Hong Kong, China)

8:00 am: **A potential individual cell malignancy indicator: focal length**, Weina Wang, Kevin L. Lear, Colorado State Univ. (USA) [7890-01]

8:20 am: **Monitoring SERS-based contrast agents in atherosclerosis experimental models**, Lina Machtoub, Innsbruck Medical Univ. (Austria) [7890-02]

8:40 am: **Stand-alone device for point-of-care applications**, Francesco Baldini, Istituto di Fisica Applicata Nello Carrara (Italy); Luca Bolzoni, Datamed S.r.L. (Italy); Giacomo Ghini, Ambra Giannetti, Istituto di Fisica Applicata Nello Carrara (Italy); Giampiero Porro, Datamed S.r.L. (Italy); Cosimo Trono, Istituto di Fisica Applicata Nello Carrara (Italy) [7890-03]

9:00 am: **Bioluminescent microbead assay for serum protease: 'ome' activity**, Frank Chuang, NSF Ctr. for Biophotonics Science and Technology (USA) [7890-04]

9:20 am: **A compact and light-weight differential interference contrast (DIC) microscope for telemedicine applications**, Serhan O. Isikman, Chulwoo Oh, Derek K. Tseng, Onur Mudanyali, Aydogan Ozcan, Univ. of California, Los Angeles (USA) [7890-05]

9:40 am: **Comprehensive blood testing using quantitative phase imaging**, Mustafa A. H. Mir, Huafeng Ding, Krishna V. Tangella, Gabriel Popescu, Univ. of Illinois at Urbana-Champaign (USA) [7890-06]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 256 (Mezzanine) Mon. 10:30 am to 12:30 pm

Reflectance

Session Chair: **Urs Utzinger**, The Univ. of Arizona

10:30 am: **Measuring joint-cartilage thickness using reflectance spectroscopy noninvasively and in real time**, Murat Canpolat, Akdeniz Univ. (Turkey); Tuba Denkceken, Cosar Karagol, Ahmet T. Aydin, Akdeniz Univ. (Turkey) [7890-07]

10:50 am: **In vivo monitoring of vessel density pattern in skin phantoms for the application of early sign of shock detection by using diffuse reflectance spectroscopy**, Rajesh V. Kanawade, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Gennadi Sayko, Friedrich-Alexander Univ. Erlangen-Nürnberg (Germany); Michael Schmidt, Alexandre Douplik, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [7890-08]

11:10 am: **Investigation of source detector separation optimization for an implantable perfusion and oxygenation sensor for liver blood vessels**, Justin S. Baba, Oak Ridge National Lab. (USA) [7890-09]

11:30 am: **A compact, cost-effective diffuse reflectance spectroscopic imaging system for quantitative tissue absorption and scattering**, Justin Y. Lo, Bing Yu, Henry Fu, Duke Univ. (USA); Thomas F. Kuech, Univ. of Wisconsin-Madison (USA); Nirmala Ramanujam, Duke Univ. (USA) [7890-10]

11:50 am: **Using high-resolution imaging to deconstruct optical sources of contrast**, Stephanie A. Kennedy, J. Quincy Brown, Torre M. Bydlon, Duke Univ. (USA); Lee Wilke, Joseph Geradts, Duke Univ. Medical Ctr. (USA); Nirmala Ramanujam, Duke Univ. (USA) [7890-11]

12:10 pm: **Optical wire lumpectomy: frequency modulation measurements in breast tissue**, Amanda L. Dayton, Scott A. Prael, Oregon Health & Science Univ. (USA) [7890-12]

Lunch Break 12:30 to 1:30 pm

SESSION 3

Room: 256 (Mezzanine) Mon. 1:30 to 3:10 pm

Fluorescence and Reflectance

Session Chair: Mary-Ann Mycek, Univ. of Michigan

- 1:30 pm: **Confocal mosaicing microscopy of Basal-cell carcinomas ex vivo: progress in digital staining to simulate histology like appearance.** Jason M. Bini, Memorial Sloan-Kettering Cancer Ctr. (USA); Vikki Hazelwood, Stevens Institute of Technology (USA); James Spain, Kishwer S. Nehal, Memorial Sloan-Kettering Cancer Ctr. (USA); Charles A. DiMarzio, Northeastern Univ. (USA); Milind Rajadhyaksha, Memorial Sloan-Kettering Cancer Ctr. (USA) . . . [7890-13]
- 1:50 pm: **An integrated time-resolved fluorescence and diffuse reflectance spectroscopy instrument for optical biopsy.** Zhaojun Nie, Derek Cappon, Joseph E. Hayward, Thomas J. Farrell, Michael S. Patterson, John Provias, Naresh Murty, William McMillan, Qiying Fang, McMaster Univ. (Canada)[7890-14]
- 2:10 pm: **Development of an intravascular diagnostic system integrating an IVUS-guided rotational fiber optic catheter for time-resolved fluorescence spectroscopy.** Hongtao Xie, Julien Bec, Yang Sun, Laura Marcu, Univ. of California, Davis (USA) [7890-15]
- 2:30 pm: **Fiber optic endomicroscopy for two-photon fluorescence imaging of human gastro-intestinal mucosa.** Yuying Zhang, Yicong Wu, Jiefeng Xi, Eun Ji Shin, Marcia I. Canto, Xingde Li, The Johns Hopkins Univ. (USA) [7890-16]
- 2:50 pm: **In-vivo multiphoton fluorescence microscopy of epithelial precancer.** Wei Zheng, Dong Li, Yan Zeng, Jianan Y. Qu, Hong Kong Univ. of Science and Technology (Hong Kong, China) [7890-17]
- Coffee Break 3:10 to 3:40 pm

SESSION 4

Room: 256 (Mezzanine) Mon. 3:40 to 5:20 pm

NIR Imaging

Session Chair: Georges A. Wagnieres, Ecole Polytechnique Fédérale de Lausanne (Switzerland)

- 3:40 pm: **Analysis of near-infrared auto-fluorescence peak found in parathyroid and thyroid tissues.** Constantine Paras, Lisa White, James Broome, Vanderbilt Univ. (USA); Edward M. Brown, Brigham and Women's Hospital (USA); Anita Mahadevan-Jansen, Vanderbilt Univ. (USA) . . . [7890-18]
- 4:00 pm: **Near-infrared fluorescence imaging of lymphatics in head and neck lymphedema.** I-Chih Tan, Erik A. Maus, John C. Rasmussen, Milton V. Marshall, Caroline E. Fife, Latisha A. Smith, Eva M. Seveck-Muraca, The Univ. of Texas Health Science Ctr. at Houston (USA) [7890-19]
- 4:20 pm: **Computer-aided diagnosis and classification of rheumatoid finger joints.** Ludguier D. Montejo, Hyun-Keol Kim, Julio D. Montejo, Christian D. Klose, Columbia Univ. (USA); Uwe J. Netz, Laser- und Medizin-Technologie GmbH, Berlin (Germany); Sabine Blaschke, Gerhard A. Mueller, Georg-August- Univ. Göttingen (Germany); Jurgen Beuthan, Laser- und Medizin-Technologie GmbH, Berlin (Germany); P. A. Zwaka, Georg-August- Univ. Göttingen (Germany); Andreas H. Hielscher, Columbia Univ. (USA) [7890-20]
- 4:40 pm: **Attenuation of motion artifact in near infrared spectroscopy signals using a wavelet based method .** Behnam Molavi, Babak Shadgan M.D., Guy D. Dumont, The Univ. of British Columbia (Canada) [7890-21]
- 5:00 pm: **Skeletal muscle oxygenation assessment by near-infrared spectroscopy in intensive care medicine.** Chun-Yang Wang, National Chiao Tung Univ. (Taiwan); Shinn-Jye Liang, Ming-Lung Chuang, China Medical Univ. Hospital (Taiwan); Ching-Cheng Chuang, National Taiwan Univ. (Taiwan); Yao-Sheng Hsieh, Chia-Wei Sun, National Chiao Tung Univ. (Taiwan) [7890-22]

Tuesday 25 January

SESSION 5

Room: 256 (Mezzanine) Tues. 8:20 to 10:00 am

Imaging

Session Chair: Laura Marcu, Univ. of California, Davis

- 8:20 am: **Performance of line-scanning confocal microscopy in human skin: investigation of potential for clinical translation.** Bjorg A. Larson, Gary Peterson, Sanjeeva Abeytunge, Milind Rajadhyaksha, Memorial Sloan-Kettering Cancer Ctr. (USA) [7890-23]
- 8:40 am: **Deep-tissue optical imaging of decubitus ulcers.** Rohin Moza, J. M. DiMaio, The Univ. of Texas Southwestern Medical Ctr. at Dallas (USA); Jose Melendez, Spectral MD Inc. (USA) [7890-24]
- 9:00 am: **Characterization of burn injuries using terahertz time-domain spectroscopy.** M. Hassan Arbab, Trevor C. Dickey, Dale P. Winebrenner, Antao Chen, Pierre D. Mourad, Univ. of Washington (USA) [7890-25]
- 9:20 am: **Multispectral imaging system for imaging O2Hb and Hb concentration changes in tissue for various clinical applications.** John H. Klaessens, Rowland de Roode, Univ. Medical Ctr. Utrecht (Netherlands); Rudolf Verdaasdonk, Vrije Univ. Medical Ctr. (Netherlands); Herke J. Noordmans, Univ. Medical Ctr. Utrecht (Netherlands) [7890-26]
- 9:40 am: **Early increase in blood supply associated with premalignant colonic lesions detected by fiber optic polarization-gated spectroscopy.** Andrew J. Gomes, Sarah Ruderman, Jeremy D. Rogers, Vadim Backman, Northwestern Univ. (USA) [7890-28]
- Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 256 (Mezzanine) Tues. 10:30 am to 12:30 pm

OCT Applications

Session Chair: Jennifer K. Barton, The Univ. of Arizona

- 10:30 am: **In-vitro tumor study using multispectral optical coherence tomography.** Aneesh P. Alex, Cardiff Univ. (United Kingdom); Catherine Kendall, Gloucestershire Royal Hospital (United Kingdom); Boris Považay, Medical Univ. Vienna (Austria); Nicholas Stone, Gloucestershire Royal Hospital (United Kingdom); Wolfgang Drexler, Medical Univ. Vienna (Austria) . . [7890-29]
- 10:50 am: **Differentiating retroperitoneal liposarcoma tumors with optical coherence tomography.** Kirill V. Larin, Stepan A. Baranov, Esteban F. Carbajal, Univ. of Houston (USA); Eric Young, Dina C. Lev, Raphael Pollock, The Univ. of Texas M.D. Anderson Cancer Ctr. (USA) [7890-30]
- 11:10 am: **Imaging tumor specific peptide-targeting using spectral-domain optical coherence tomography.** Ping Yu, Lixin Ma, Univ. of Missouri-Columbia (USA) [7890-31]
- 11:30 am: **Multimodality optical imaging of ovarian cancer in a post-menopausal mouse model.** Jennifer M. Watson, Photini F. Rice, David L. Bently, Samuel L. Marion, The Univ. of Arizona (USA); Molly A. Brewer, Univ. of Connecticut Health Ctr. (USA); Patricia B. Hoyer, Jennifer K. Barton, The Univ. of Arizona (USA) [7890-32]
- 11:50 am: **Automatic online spectral calibration of Fourier-domain OCT for robot-assisted vitreoretinal surgery.** Xuan Liu, Marcin A. Balicki, Jin Ung Kang, The Johns Hopkins Univ. (USA) [7890-33]
- 12:10 pm: **Optical coherence tomography in agriculture applications.** Changho Lee, Seung-Yeol Lee, Sangyeob Han, Hee-Young Jung, Jeehyun Kim, Kyungpook National Univ. (Korea, Republic of); Changsu Na, Daehwan Youn, Chanhun Choi, Dongshin Univ. (Korea, Republic of) [7890-34]
- Lunch Break 12:30 to 1:30 pm

BIOS

SESSION 7

Room: 256 (Mezzanine) Tues. 1:30 to 3:00 pm

OCT Instrumentation

Session Chair: Stephen A. Boppart,
Univ. of Illinois at Urbana-Champaign

1:30 pm: **Versatile display mounted handheld OCT probe for primary care diagnostics**, Woonggyu Jung, Univ. of Illinois at Urbana-Champaign (USA); Jeehyun Kim, Mansik Jeon, Kyungpook National Univ. (Korea, Republic of); Eric J. Chaney, Univ. of Illinois at Urbana-Champaign (USA); Kareem Sayegh, Samir I. Sayegh, EYE Ctr. (USA); Charles N. Stewart, Blue Highway, LLC (USA); Stephen A. Boppart M.D., Univ. of Illinois at Urbana-Champaign (USA) [7890-35]

1:45 pm: **Simultaneous confocal fluorescence microscopy and optical coherence tomography for in-vivo drug distribution and tissue integrity assessment**, Matthew T. Rinehart, Jeffrey T. LaCroix, Marcus H. Henderson, David F. Katz, Adam P. Wax, Duke Univ. (USA) [7890-36]

2:00 pm: **Minimally invasive full-field optical coherence tomography device for in-situ diagnostic**, Anne Latrive, Claude A. Boccara, Ecole Supérieure de Physique et de Chimie Industrielles (France) [7890-37]

2:15 pm: **Ultrasound guided 3D-OCT imaging in deep tissue with a rotating needle probe**, Andrea Curatolo, Bryden C. Quirk, Robert A. McLaughlin, David D. Sampson, The Univ. of Western Australia (Australia) [7890-38]

2:30 pm: **Fundamental performance improvement in Raman and SD-OCT systems by use of a virtual slit**, Jeff T. Meade, Bradford B. Behr, Univ. of Waterloo (Canada); Peter B. Christensen, Tornado Medical Systems (Canada); Andrew T. Cenko, Arsen R. Hajian, Univ. of Waterloo (Canada); Jan Hendrikse, Frederic D. Sweeney, Tornado Medical Systems (Canada) [7890-39]

2:45 pm: **Spectroscopic swept-source optical coherence tomography for hemoglobin saturation level detection**, Jae Du Cho, Hyung Seok Lee, Myung-Yong Jeong, Chang-Seok Kim, Pusan National Univ. (Korea, Republic of); Hyun-Woo Song, Bong Kyu Kim, Electronics and Telecommunications Research Institute (Korea, Republic of) [7890-40]

Coffee Break 3:00 to 3:30 pm

SESSION 8

Room: 256 (Mezzanine) Tues. 3:30 to 6:10 pm

Raman Applications

Session Chair: Maurice C. Aalders, Jr.,
Univ. van Amsterdam (Netherlands)

3:30 pm: **Diagnosing lung cancer using coherent anti-Stokes Raman scattering microscopy**, Liang Gao, Rice Univ. (USA) and Methodist Hospital Research Institute (USA); Fuhai Li, Jiong Xing, Methodist Hospital Research Institute (USA); Michael J. Thrall, The Methodist Hospital (USA); Yaliang Yang, Zhiyong Wang, Pengfei Luo, Methodist Hospital Research Institute (USA); Kelvin K. Wong, Methodist Hospital Research Institute (USA) and The Methodist Hospital (USA); Hong Zhao, Methodist Hospital Research Institute (USA); Stephen T. C. Wong, Methodist Hospital Research Institute (USA) and The Methodist Hospital (USA) and Rice Univ. (USA) [7890-41]

3:50 pm: **Combined Raman spectroscopy: in-vivo confocal microscopy for the detection of skin cancers**, Mark A. Mackanos, Vanderbilt Univ. (USA); Chris L. Arrasmith, Montana State Univ. (USA); Chetan A. Patil, Constantine Paras, Isaac J. Pance, Vanderbilt Univ. (USA); David L. Dickensheets, Montana State Univ. (USA); Anita Mahadevan-Jansen, Vanderbilt Univ. (USA) . [7890-42]

4:10 pm: **In-vivo diagnosis and detection of precancer and cancer in the stomach using multimodal image-guided Raman endoscopy**, Zhiwei Huang, National Univ. of Singapore (Singapore) [7890-43]

4:30 pm: **Optical biopsy of pre-malignant or degenerative lesions: the role of the inflammatory process**, Herculano da Silva Martinho, Univ. Federal do ABC (Brazil) [7890-44]

4:50 pm: **Using Raman spectroscopy to study the onset of labor**, Elizabeth Vargis, Nathan Webb, B. C. Paria, Jeff Reese, Kelly Bennett, Vanderbilt Univ. (USA); Ayman Al-Hendy, Meharry Medical College (USA); Anita Mahadevan-Jansen, Vanderbilt Univ. (USA) [7890-45]

5:10 pm: **Clinical Raman-spectroscopy system for accurate non-invasive glucose monitoring**, Chae-Ryon Kong, Ishan Barman, Narahara Chari Dingari, Jeon Woong Kang, Ramachandra R. Dasari, Michael S. Feld, Massachusetts Institute of Technology (USA) [7890-46]

5:30 pm: **The correlation kernel and support vector machines for the classification of Raman spectra**, Alexandros Kyriakides, Univ. of Cyprus (Cyprus); Evdokia Kastanos, Univ. of Nicosia (Cyprus); Katerina Hadjigeorgiou, Constantinos Pitris, Univ. of Cyprus (Cyprus) [7890-47]

5:50 pm: **Design of handheld clinical Raman spectroscopic systems based on feature selection and nonlinear calibration**, Narahara Chari Dingari, Ishan Barman, Chae-Ryon Kong, Jeon Woong Kang, Ramachandra R. Dasari, Michael S. Feld, Massachusetts Institute of Technology (USA) [7890-48]

Design and Quality for Biomedical Technologies IV

Conference Chairs: **Ramesh Raghavachari**, U.S. Food and Drug Administration; **Rongguang Liang**, Carestream Health, Inc.

Conference Co-Chair: **Joshua Pifer**, U.S. Food and Drug Administration

Program Committee: **Anthony J. Durkin**, Beckman Laser Institute and Medical Clinic; **Kazuhiro Gono**, Olympus Medical Systems Corp. (Japan); **Jeeseong Hwang**, National Institute of Standards and Technology; **Stephen P. Morgan**, The Univ. of Nottingham (United Kingdom); **Jannick P. Rolland-Thompson**, Univ. of Rochester; **Eric J. Seibel**, Univ. of Washington; **Tomasz S. Tkaczyk**, Rice Univ.; **Rudolf M. Verdaasdonk**, Vrije Univ. Medical Ctr. (Netherlands)

Sunday 23 January

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Calibration methods of frequency domain measurement system with near-infrared diffused light, Huijuan Zhao, Ying Fan, Xiaoqing Zhou, Julian Liang, Tingting Wang, Feng Gao, Tianjin Univ. (China) [7891-32]

Real-time polarization microscopy for probing local distribution of biomolecules, Ji Youn Lee, John Lesoine, Matthew L. Clarke, HyeongGon Kang, Robert C. Chang, Jeeseong Hwang, National Institute of Standards and Technology (USA) [7891-33]

Monday 24 January

SESSION 1

Room: 309 (Esplanade) Mon. 8:30 to 10:00 am

Quality of Biomedical Technologies I

Session Chairs: **Joshua Pifer**, U.S. Food and Drug Administration; **Rudolf M. Verdaasdonk**, Vrije Univ. Medical Ctr. (Netherlands)

8:30 am: **Quality control for diffuse optical measurements in a multicenter setting** (*Invited Paper*), Albert E. Cerussi, Timothy Quang, Brian Hill, Amanda F. Durkin, Vaya W. Tanamai, Keun-Sik No, Beckman Laser Institute and Medical Clinic (USA); Anais Leproux, Philips Research Nederland B.V. (Netherlands); Hosain Haghany, William W. Mantulin, Bruce J. Tromberg, Beckman Laser Institute and Medical Clinic (USA) [7891-02]

9:00 am: **Improving patient and user safety during endoscopic investigation of pancreatic and biliary ducts**, John E. Chandler, C. David Melville, Cameron M. Lee, Michael D. Saunders, Eric J. Seibel, Univ. of Washington (USA) [7891-03]

9:20 am: **Reduction of noise floor for molecular, fluorescence-enhanced optical imaging**, Banghe Zhu, John C. Rasmussen, Yujie Lu, Eva M. Seivick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (USA) [7891-04]

9:40 am: **Analysis of reliability of multiple Raman spectroscopy systems in vivo for clinical implementation**, Isaac J. Pence, Chetan A. Patil, Elizabeth Vargis, Alexandra Walsh, Harish Krishnamoorthi, Jonathan M. Cayce, Constantine Paras, Alex Makowski, Vanderbilt Univ. (USA); Matthew D. Keller, Vanderbilt Univ. (USA) and Lockheed Martin Aculight (USA); Xiaohong Bi, Mark A. Mackanos, E. Duco Jansen, Vanderbilt Univ. (USA); Darrel L. Ellis M.D., Vanderbilt Univ. Medical Ctr. (USA); Anita Mahadevan-Jansen, Vanderbilt Univ. (USA) [7891-05]

Coffee Break 10:00 to 10:30 am

Keynote Presentation

Room: 309 (Esplanade) Mon. 10:30 to 11:10 am

Session Chair: **Ramesh Raghavachari**, U.S. Food and Drug Administration

10:30 am: **Innovation from a regulatory perspective: challenges and opportunities** (*Keynote Presentation*), Jonathan Sackner-Bernstein, U.S. Food and Drug Administration (USA) [7891-01]

SESSION 2

Room: 309 (Esplanade) Mon. 11:10 to 11:40 am

Quality of Biomedical Technologies II

11:10 am: **Industry perspective: Regulatory issues** (*Invited Paper*), [7891-06]

Lunch Break 11:40 pm to 1:30 am

SESSION 3

Room: 309 (Esplanade) Mon. 1:30 to 3:00 pm

Calibration of Imaging Technologies

Session Chairs: **Anthony J. Durkin**, Beckman Laser Institute and Medical Clinic; **Eric J. Seibel**, Univ. of Washington

1:30 pm: **Design and validation of a robust, user-friendly modulated imaging device for clinical research** (*Invited Paper*), David J. Cuccia, Modulated Imaging, Inc. (USA) [7891-07]

2:00 pm: **The device for registration of biological cellular object by light Fraunhofer diffraction**, Oleksandr I. Bilyy, Vasyl B. Getman, Roman Y. Yaremyk, Yaroslav P. Ferensovich, Oresta M. Vasylyv, Ivan Franko National Univ. of L'viv (Ukraine); Ihor Y. Kotsyumbas, Halyna I. Kotsyumbas, SSRC Institute of Veterinary Preparations (Ukraine) [7891-08]

2:20 pm: **Calibration schemes of a field-compatible optical spectroscopic system to quantify neovascular changes in the dysplastic cervix**, Vivide T. Chang, Duke Univ. (USA); Delson Merisier, Family Health Ministries (Haiti); Bing Yu, David K. Walmer, Nirmala Ramanujam, Duke Univ. (USA) [7891-09]

2:40 pm: **The use of Monte Carlo simulations to determine the spatial distribution of sensitivity of Raman fiber probes**, Ingo Gersonde, Laser- und Medizin-Technologie GmbH, Berlin (Germany); Carina Reble, Technische Univ. Berlin (Germany) and Laser- und Medizin-Technologie GmbH, Berlin (Germany); Gerd Illing, Laser- und Medizin-Technologie GmbH, Berlin (Germany) [7891-10]

Coffee Break 3:00 to 3:30 pm

BIOS

SESSION 4

Room: 309 (Esplanade) Mon. 3:30 to 5:20 pm

Novel Imaging Technologies

Session Chair: Ramesh Raghavachari,
U.S. Food and Drug Administration

3:30 pm: **Spectrum-resolved fluorescence imaging in multifocal volume holographic microscopy** (*Invited Paper*), Yuan Luo, Ioannis Zervantonakis, Se Baek Oh, George Barbastathis, Massachusetts Institute of Technology (USA) [7891-11]

4:00 pm: **Laser Doppler blood flow imaging with a 64x64 pixel full custom CMOS sensor**, Stephen P. Morgan, Diwei He, Hoang C. Nguyen, Barrie R. Hayes-Gill, Yiqun Zhu, John A. Crowe, The Univ. of Nottingham (United Kingdom); Cally A. Gill, Geraldine F. Clough, Univ. of Southampton (United Kingdom) [7891-12]

4:20 pm: **A blood perfusion mapping by utilizing a remote opto-physiological imaging system**, Yu Sun, Jia Zheng, Jonathon A. Chambers, Sijung Hu, Loughborough Univ. (United Kingdom) [7891-13]

4:40 pm: **Broadband UV-Vis optical property measurement in layered turbid media**, Quanzeng Wang, U.S. Food and Drug Administration (USA); Du Le, Jessica C. Ramella-Roman, The Catholic Univ. of America (USA); Joshua Pfefer, U.S. Food and Drug Administration (USA) [7891-14]

5:00 pm: **Pseudo-random single-photon counting system: a high-speed implementation and its applications**, Qiang Zhang, Nanguang Chen, National Univ. of Singapore (Singapore) [7891-15]

Tuesday 25 January

SESSION 5

Room: 309 (Esplanade) Tues. 8:30 to 10:20 am

Design of Biomedical Imaging Devices and Technologies

Session Chairs: Rongguang Liang, Carestream Health, Inc.;
Kazuhiro Gono, Olympus Medical Systems Corp. (Japan)

8:30 am: **Multiphoton imaging for deep-tissue penetration and clinical endoscopy** (*Invited Paper*), Chris Xu, Cornell Univ. (USA) [7891-16]

9:00 am: **Ultra-thin 350-micrometer diameter high-resolution fiber optic confocal probe**, Dirk Lorensen, Rajesh S. Pillai, Robert A. McLaughlin, David D. Sampson, The Univ. of Western Australia (Australia) [7891-17]

9:20 am: **Lensfree telemedicine microscopy for global health challenges**, Onur Mudanyali, Derek K. Tseng, Serhan O. Isikman, Cetin Oztoprak, Ikbal Sencan, Waheb Bishara, Oguzhan Yaglidere, Aydogan Ozcan, Univ. of California, Los Angeles (USA) [7891-18]

9:40 am: **Design and implementation of an optical contact sensor to automate in-vivo data acquisition upon mucosa contact with a fiber optic light scattering probe**, Sarah Ruderman, Northwestern Univ. (USA); Scott Mueller, American BioOptics (USA); Jeremy D. Rogers, Vadim Backman, Northwestern Univ. (USA) [7891-19]

10:00 am: **Optimal illumination for the direct visualization of oral cavity**, Yung-Tsan Chen, Chun-Ming Yeh, National Chung Cheng Univ. (Taiwan); Chun-Pin Chiang D.D.S., National Taiwan Univ. (Taiwan); Fang-Hsuan Cheng, Chung Hua Univ. (Taiwan); Hsiang-Chen Wang, National Chung Cheng Univ. (Taiwan) [7891-20]

Coffee Break 10:20 to 10:40 am

SESSION 6

Room: 309 (Esplanade) Tues. 10:40 am to 12:30 pm

OCT and Polarization Imaging Techniques

Session Chairs: Jannick P. Rolland-Thompson, Univ. of Rochester;
Stephen P. Morgan, The Univ. of Nottingham (United Kingdom)

10:40 am: **Characterisation of OCT: resolution and sensitivity** (*Invited Paper*), Pete Tomlins, Queen Mary, Univ. of London (United Kingdom); Peter Woolliams, National Physical Lab. (United Kingdom) [7891-21]

11:10 am: **Ultra-high axial resolution high-speed FD-OCT using broadband astigmatism-corrected spectrometer**, Kye-Sung Lee, Saroj K. Mahalik, Jannick P. Rolland-Thompson, Univ. of Rochester (USA) [7891-22]

11:30 am: **Doppler imaging with dual-detection full-range frequency domain optical coherence tomography**, Panomsak Meemon, Kye-Sung Lee, Jannick P. Rolland-Thompson, Univ. of Rochester (USA) [7891-23]

11:50 am: **Compact polarization diverse receiver for biomedical imaging applications**, Daniel Neill, Luke Stewart, Finisar Australia (Australia); Huiping Li, Finisar Shanghai, Inc. (China); Tom Killin, Finisar Australia (Australia); Fan Chen, Finisar Shanghai, Inc. (China); Steve Frisken, Glenn Baxter, Simon Poole, Finisar Australia (Australia) [7891-24]

12:10 pm: **Polarimetric scattering signature imaging of highly photon: scattering bio-medium**, Stewart H. Wu, Po-Hsiung Chen, National Yang-Ming Univ. (Taiwan); De-Ming Yang, Taipei Veterans General Hospital (Taiwan); Hsing-Wen Wang, Arthur E. T. Chiou, Soe-Mie F. Nee, Tsu-Wei Nee, National Yang-Ming Univ. (Taiwan) [7891-25]

Lunch Break 12:30 to 1:30 pm

SESSION 7

Room: 309 (Esplanade) Tues. 1:30 to 3:30 pm

Hyperspectral Imaging Systems

Session Chairs: Jeeseong Hwang, National Institute of Standards and Technology; **Tomasz S. Tkaczyk,** Rice Univ.

1:30 pm: **Correction of axial optical aberrations in hyperspectral imaging systems**, Ziga Spiclin, Franjo Pernuš, Boštjan Likar, Univ. of Ljubljana (Slovenia) [7891-26]

1:50 pm: **Illumination system design for hyperspectral imaging**, Jaka Katrašnik, Franjo Pernuš, Boštjan Likar, Univ. of Ljubljana (Slovenia) . [7891-27]

2:10 pm: **Hyperspectral imaging characterization for a perfused oximetry phantom**, Robert C. Chang, Matthew L. Clarke, Daniel Samarov, Jeeseong Hwang, Maritoni Litorja, David W. Allen, National Institute of Standards and Technology (USA) [7891-28]

2:30 pm: **A hyperspectral imaging system for characterization of biological samples in low-light environments**, Julio E. Hernandez-Palacios, Norsk Elektro Optikk AS (Norway); Lise Lyngsnes Randeberg, Norwegian Univ. of Science and Technology (Norway); Ivar Baarstad, Trond Løke, Norsk Elektro Optikk AS (Norway); Torbjørn Skauli, Norwegian Defense Research Establishment (Norway) [7891-29]

2:50 pm: **Characterization of hyperspectral imaging and analysis via microarray printing of dyes**, Matthew L. Clarke, Maritoni Litorja, David W. Allen, Jeeseong Hwang, National Institute of Standards and Technology (USA) [7891-30]

3:10 pm: **Implementation of a real-time processing framework for hyperspectral image analysis in medical applications**, Martin Denstedt, Norwegian Univ. of Science and Technology (Norway); Trym V. Haavardsholm, Torbjørn Skauli, Norwegian Defense Research Establishment (Norway); Lise Lyngsnes Randeberg, Norwegian Univ. of Science and Technology | (Norway) [7891-31]

Multimodal Biomedical Imaging VI

Conference Chairs: **Fred S. Azar**, Becton, Dickinson and Co.; **Xavier Intes**, Rensselaer Polytechnic Institute

Program Committee: **Nicholas Ayache**, INRIA Sophia Antipolis - Méditerranée (France); **David A. Boas**, Massachusetts General Hospital; **Britton Chance**, Univ. of Pennsylvania; **Yu Chen**, Univ. of Maryland, College Park; **Sergio Fantini**, Tufts Univ.; **Keyvan Farahani**, National Cancer Institute; **Gultekin Gulsen**, Univ. of California, Irvine; **Dimitris N. Metaxas**, Rutgers, The State Univ. of New Jersey; **Nassir Navab**, Technische Univ. München (Germany); **Tim Nielsen**, Philips Research (Germany); **Vasilis Ntziachristos**, Helmholtz Zentrum München GmbH (Germany); **Brian W. Pogue**, Dartmouth Hitchcock Medical Ctr.; **Siavash Yazdanfar**, GE Global Research; **Arjun G. Yodh**, Univ. of Pennsylvania

Saturday 22 January

SESSION 1

Room: 301 (Esplanade) Sat. 8:00 to 10:10 am

Functional Diffuse Optical Imaging

Session Chairs: **Fred S. Azar**, Becton, Dickinson and Co.; **Qianqian Fang**, Massachusetts General Hospital

8:00 am: **Quantitative, wide-field characterization of tissue optical properties and chromophores with spatial frequency domain imaging (SFDI) (Invited Paper)**, David J. Cuccia, Beckman Laser Institute and Medical Clinic (USA) [7892-01]

8:30 am: **Evaluation of the accuracy of brain optical properties estimation at different ages using the frequency domain multidistance method**, Mathieu Dehaes, Patricia E. Grant, Danielle Sliva, Children's Hospital Boston (USA); Nadège Roche-Labarbe, Massachusetts General Hospital (USA); Rudolph Pienaar, Children's Hospital Boston (USA); David A. Boas, Maria Angela Franceschini, Juliette J. Selb, Massachusetts General Hospital (USA) [7892-02]

8:50 am: **Breast coil for multiplanar MRI/optical spectroscopy in vivo**, Michael A. Mastanduno, Shudong Jiang, Brian W. Pogue, Keith D. Paulsen, Dartmouth College (USA) [7892-03]

9:10 am: **Structurally guided diffuse optical tomography with spatially co-registered tomosynthesis**, Qianqian Fang, Stefan A. Carp, Richard H. Moore, Daniel B. Kopans, David A. Boas, Massachusetts General Hospital (USA) [7892-04]

9:30 am: **Snapshot spectrally and spatially resolved measurement of turbid media**, Nathan A. Hagen, Rice Univ. (USA); Amaan Mazhar, Univ. of California, Irvine (USA); Noah Bedard, Tomasz S. Tkaczyk, Rice Univ. (USA); Bruce J. Tromberg, Univ. of California, Irvine (USA) [7892-05]

9:50 am: **Hyperspectral imaging and modeling of bruises**, Barbara Stam, Martin J. van Gemert, Ton G. van Leeuwen, Maurice C. Aalders, Jr., Academisch Medisch Ctr. (Netherlands) [7892-06]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 301 (Esplanade) Sat. 10:40 am to 12:30 pm

Microscopic Imaging

Session Chairs: **Xavier Intes**, Rensselaer Polytechnic Institute; **Yu Chen**, Univ. of Maryland, College Park

10:40 am: **Applications of multimodal microscopy in pathology and thick tissue imaging (Invited Paper)**, Siavash Yazdanfar, GE Global Research (USA) [7892-07]

11:10 am: **Integrated scanning laser ophthalmoscopy and optical coherence tomography for quantitative multimodal imaging of retinal degeneration and autofluorescence**, Ali Issaei, Lukasz Szczygiel, Nima Hossein-Javaheri, Mei Young, Simon Fraser Univ. (Canada); Laurie L. Molday, Robert S. Molday, The Univ. of British Columbia (Canada); Marinko V. Sarunic, Simon Fraser Univ. (Canada) [7892-08]

11:30 am: **Fiber-based combined optical coherence and multiphoton microscopy**, Gangjun Liu, Zhongping Chen, Beckman Laser Institute and Medical Clinic (USA) [7892-09]

11:50 am: **Combined OCT and CARS using a single ultra-short-pulse Ti:sapphire laser**, Claudia Hoffmann, Leibniz Univ. Hannover (Germany); Bernd Hofer, Angelika Unterhuber, Boris Považay, Medizinische Univ. Wien (Austria) and Cardiff Univ. (United Kingdom); Uwe Morgner, Leibniz Univ. Hannover (Germany) and Laser Zentrum Hannover e.V. (Germany); Wolfgang Drexler, Medizinische Univ. Wien (Austria) and Cardiff Univ. (United Kingdom) [7892-10]

12:10 pm: **The origin of refractive index variation in a living cell: integration of quantitative phase and confocal Raman microscopy**, Jeon Woong Kang, Niyom Lue, Ishan Barman, Narahara Chari Dingari, Chae-Ryon Kong, Ramachandra R. Dasari, Michael S. Feld, Massachusetts Institute of Technology (USA) [7892-11]

Lunch/Exhibition Break 12:30 to 2:00 pm

SESSION 3

Room: 301 (Esplanade) Sat. 2:00 to 3:20 pm

Imaging Algorithms

Session Chairs: **Fred S. Azar**, Becton, Dickinson and Co.; **Frederic Leblond**, Dartmouth College

2:00 pm: **'Spectral a priori' to 'spatial a posteriori' in continuous-wave image reconstruction in near-infrared optical tomography**, Guan Xu, Daqing Piao, Oklahoma State Univ. (USA); Hamid Dehghani, The Univ. of Birmingham (United Kingdom) [7892-12]

2:20 pm: **An efficient time-resolved adjoint Monte Carlo method for fluorescence molecular tomography**, Jin Chen, Vivek Venugopal, Xavier Intes, Rensselaer Polytechnic Institute (USA) [7892-13]

2:40 pm: **Fully parallel adaptive finite element simulation using the simplified spherical harmonics approximations for frequency domain fluorescence molecular imaging**, Yujie Lu, Banghe Zhu, The Univ. of Texas Health Science Ctr. at Houston (USA); Haiou Shen, Virginia Polytechnic Institute and State Univ. (USA); John C. Rasmussen, The Univ. of Texas Health Science Ctr. at Houston (USA); Ge Wang, Virginia Polytechnic Institute and State Univ. (USA); Eva M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (USA) [7892-14]

3:00 pm: **Three-dimensional time-reversal optical tomography**, Binlin Wu, Wei Cai, Mohammad Alrubaiee, The City College of New York (USA); Min Xu, Fairfield Univ. (USA); Swapan K. Gayen, The City College of New York (USA) [7892-15]

Coffee Break 3:20 to 3:50 pm

SESSION 4

Room: 301 (Esplanade) Sat. 3:50 to 6:40 pm

Preclinical Imaging

Session Chairs: **Xavier Intes**, Rensselaer Polytechnic Institute; **Gultekin Gulsen**, Univ. of California, Irvine

3:50 pm: **Preclinical multimodal optical and radionuclide imaging (Invited Paper)**, Simon R. Cherry, Univ. of California, Davis (USA) [7892-16]

4:20 pm: **In vivo reconstruction of NIR FRET using wide-field time resolved optical tomography**, Vivek Venugopal, Jin Chen, Rensselaer Polytechnic Institute (USA); Margarida Barroso, Albany Medical College (USA); Xavier Intes, Rensselaer Polytechnic Institute (USA) [7892-17]

4:40 pm: **Potentialities of a new bimodal x-ray/fluorescence tomograph within a cylindrical geometry for preclinical studies**, Anne Koenig, Anne Planat-Chrétién, Jean-Guillaume Coutard, Lionel Hervé, Marco Brambilla, Commissariat à l'Énergie Atomique (France); Véronique Josserand, Jean-Luc Coll, Institut Albert Bonniot (France); Jean-Marc Dinten, Commissariat à l'Énergie Atomique (France) [7892-18]

5:00 pm: **Concurrent magnetic resonance and diffuse luminescence imaging for hypoxic tumor characterization**, Madhavi Seetamraju, Xuefeng Zhang, Radiation Monitoring Devices, Inc. (USA); Scott C. Davis, Dartmouth College (USA); Rajan S. Gurjar, Richard Myers, Radiation Monitoring Devices, Inc. (USA); Brian W. Pogue, Dartmouth College (USA); Gerald Entine, Radiation Monitoring Devices, Inc. (USA) [7892-19]

BIOS

5:20 pm: **Tumor characterization in a rat tumor model using a hybrid MRI-DOT system**, Mitchell Hsing, Yuting Lin, Mehmet B. Unlu, Orhan Nalcioglu, Gultekin Gulsen, Univ. of California, Irvine (USA) [7892-20]

5:40 pm: **Dual-drug MRI-FMT for quantification of binding affinity in vivo**, Scott C. Davis, Kimberley S. Samkoe, Julia A. O'hara, Kristian J. Sexton, Keith D. Paulsen, Brian W. Pogue, Dartmouth College (USA) [7892-21]

6:00 pm: **What is the most efficient way to get a chemically specific optical image of a bone?**, Vladislav V. Yakovlev, Univ. of Wisconsin-Milwaukee (USA) [7892-22]

6:20 pm: **PpIX fluorescence contrast detects the presence of diffuse gliomas more accurately than magnetic resonance imaging**, Kimberley S. Samkoe, Harold H. Yang, Dartmouth College (USA); Summer L. Gibbs-Strauss, Beth Israel Deaconess Medical Ctr. (USA); Julia A. O'Hara, P. Jack Hoopes, Risto A. Kauppinen, Dartmouth Medical School (USA); Brian W. Pogue, Dartmouth College (USA) [7892-23]

Sunday 23 January

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Different optical spectral characteristics in a necrotic transmissible venereal tumor and a cystic lesion in the same canine prostate observed by triple-band transrectal optical tomography under transrectal ultrasound guidance, Jiang Zhen, G. Reed Holyoak, Jerry W. Ritchey, Kenneth E. Bartels, Kendra Rock, Charlotte L. Ownby, Oklahoma State Univ. (USA); Gennady Slobodov, The Univ. of Oklahoma Health Sciences Ctr. (USA); Charles F. Bunting, Daqing Piao, Oklahoma State Univ. (USA) [7892-24]

An investigation on fluorescent-optical dual-mode tomography using time-resolved data, Limin Zhang, Wei Zhang, Feng Gao, Jiao Li, Huijuan Zhao, Tianjin Univ. (China) [7892-25]

Macroscopic optical imaging to measure fluid flow in microfluidic phantoms, Ricky J. Hennessy, California Polytechnic State Univ., San Luis Obispo (USA); Chiwan Koo, Phuc Ton, Arum Han, Raffaella Righetti, Kristen C. D. Maitland, Texas A&M Univ. (USA) [7892-26]

The finite element method for three-order (P3) approximation of radiative transfer equation, Wenjuan Ma, Feng Gao, Linhui Wu, Huijuan Zhao, Tianjin Univ. (China) [7892-27]

Integrating optical system designed for multimodal analysis of pearls and its mother oyster to distinguish and appraise cultured pearls, Myeong Jin Ju, Sang Jin Lee, Eun Jung Min, Yuri Kim, Do Hyung Kim, Gwangju Institute of Science and Technology (Korea, Republic of); Hae Yeon Kim, Korea Pearl Lab. (Korea, Republic of); Dong Seon Lee, Byeong-Ha Lee, Gwangju Institute of Science and Technology (Korea, Republic of) [7892-28]

Use of graphic processing unit in spectral domain optical coherence tomography to increase real-time display speed, Unsang Jung, Hyosang Jeong, Changho Lee, Namhyun Cho, Sangyeob Han, Jeehyun Kim, Kyungpook National Univ. (Korea, Republic of) [7892-29]

Studying skin penetration by NMR imaging, Jan Michael Burg, Fachhochschule Giessen-Friedberg (Germany); Maximilian Voelker, Philipps Univ. Marburg (Germany); Peggy Schlupp, Ulf Maeder, Thorsten Bergmann, Frank Runkel, Fachhochschule Giessen-Friedberg (Germany); Johannes T. Heverhagen, Philipps Univ. Marburg (Germany); Martin Fiebich, Fachhochschule Giessen-Friedberg (Germany) [7892-30]

An algorithm for the correction of 2D near-infrared fluorescent signal using 3D intravascular ultrasound pullback information, Georgios Mallas, Massachusetts General Hospital (USA) and Northeastern Univ. (USA); Dana H. Brooks, Northeastern Univ. (USA); Amir Rosenthal, Massachusetts General Hospital (USA) and Helmholtz Zentrum München GmbH (Germany); Claudio Vinegoni, Marcella A. Calfon, Massachusetts General Hospital (USA); R. Nika Razansky, Technische Univ. München (Germany); Farouc A. Jaffer M.D., Massachusetts General Hospital (USA); Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) [7892-31]

Comparison of fluorescence tomography of protease-activatable probes in mouse lung tumors with x-ray micro-CT, Xiaofeng Zhang, Cristian Badea, A. Paiman Ghafoori, David Kirsch, Yi Qi, G. Allan Johnson, Duke Univ. (USA) [7892-32]

A hybrid positron and OCT intraoperative probe for ovarian cancer detection and characterization, Yi Yang, Nrusingh C. Biswal, Tianheng Wang, Patrick D. Kumavor, Univ. of Connecticut (USA); Mary M. Sanders, Mozafareddin Karimeddini, Molly A. Brewer, Univ. of Connecticut Health Ctr. (USA); Quing Zhu, Univ. of Connecticut (USA) [7892-36]

In-vivo tumor characterization using dual MRI and optical contrast agents with a hybrid MRI-DOT system, Yuting Lin, Mehmet B. Unlu, Orhan Nalcioglu, Gultekin Gulsen, Univ. of California, Irvine (USA) [7892-37]

In-vivo small animal optical imaging enhanced with indocyanine green and saline, Ning Liu, Yuting Lin, Mitchell Hsing, Orhan Nalcioglu, Gultekin Gulsen, Univ. of California, Irvine (USA) [7892-38]

Comparison of monte carlo and diffusion in rat leg imaging for raman and fluorescence signals, Jennifer-Lynn H. Demers, Brian W. Pogue, Frederic Leblond, Dartmouth College (USA); Michael D. Morris, Univ. of Michigan (USA) [7892-39]

Development of a hybrid MRI and fluorescence tomography system for small animal imaging, Michael T. Ghijzen, Yuting Lin, Orhan Nalcioglu, Gultekin Gulsen, Univ. of California, Irvine (USA) [7892-40]

A hybrid approach combining microCT and fluorescence tomography: imaging workflow and system of coordinate registration, Robert Holt, Fadi El-Ghoussein, Dartmouth College (USA); Kenneth M. Tichauer, Lawson Health Research Institute (Canada); Frederic Leblond, Brian W. Pogue, Dartmouth College (USA) [7892-41]

Don't miss the free BIOS Exhibition

See the latest components, devices, and instrumentation for diagnostics and therapeutics

22-23 January 2011

Saturday · 12:00 pm to 5:00 pm

Sunday · 10:00 am to 5:00 pm

Endoscopic Microscopy VI

Conference Chairs: **Guillermo J. Tearney**, Wellman Ctr. for Photomedicine; **Thomas D. Wang**, Univ. of Michigan

Program Committee: **David L. Dickensheets**, Montana State Univ.; **Arthur F. Gmitro**, The Univ. of Arizona; **Ralf Kiesslich**, Johannes Gutenberg Univ. Mainz (Germany); **Francois Lacombe**, Mauna Kea Technologies (France); **Stephen Lam**, The BC Cancer Agency Research Ctr. (Canada); **Hiroshi Mashimo**, VA Boston Healthcare System; **Kenzi Murakami**, Olympus Corp. (Japan); **Norman S. Nishioka**, Massachusetts General Hospital; **Wibool Piyawattanametha**, Stanford Univ. (Thailand); **Mark J. Schnitzer**, Stanford Univ. School of Medicine; **Peter T. C. So**, Massachusetts Institute of Technology; **Melissa J. Suter**, Massachusetts General Hospital

Sunday 23 January

SESSION 1

Room: 304 (Esplanade) Sun. 8:00 to 9:50 am

Gastrointestinal Endomicroscopy

Session Chair: **Guillermo J. Tearney**, Wellman Ctr. for Photomedicine

8:00 am: **Standards in endoscopic microscopy (Invited Paper)**, Guillermo J. Tearney, Wellman Ctr. for Photomedicine (USA) [7893-01]

8:30 am: **Endoscopic detection of murine colonic dysplasia using a novel fluorescently labeled peptide**, Sharon J. Miller, Bishnu Joshi, Adam Gaustad, Eric R. Fearon, Thomas D. Wang M.D., Univ. of Michigan (USA) [7893-02]

8:50 am: **Monitoring the esophageal response to radio frequency ablation with optical frequency domain imaging**, Melissa J. Suter, Kevin A. Gallagher, Milen S. Shishkov, Gregory Y. Lauwers, Jacqueline R. Thiesse-Namati, Brett E. Bouma, Norman S. Nishioka, Guillermo J. Tearney, Massachusetts General Hospital (USA) [7893-03]

9:10 am: **Endoscopic 3D-OCT for in-vivo assessment of endoscopic treatments of Barrett's esophagus and esophageal cancer**, Chao Zhou, Tsung-Han Tsai, Hsiang-Chieh Lee, Massachusetts Institute of Technology (USA); Desmond C. Adler, Joseph M. Schmitt, LightLab Imaging Inc. (USA); Qin Huang, VA Boston Healthcare System (USA); James G. Fujimoto, Massachusetts Institute of Technology (USA); Hiroshi Mashimo, VA Boston Healthcare System (USA) [7893-04]

9:30 am: **High-resolution in-vivo targeted imaging of colorectal dysplasia with a LED-based confocal microendoscope**, Sakib F. Elahi, Sharon J. Miller, Thomas D. Wang M.D., Univ. of Michigan (USA) [7893-05]

Coffee Break 9:50 to 10:20 am

SESSION 2

Room: 304 (Esplanade) Sun. 10:20 to 11:40 am

Nonlinear Endomicroscopy

Session Chair: **Thomas D. Wang**, Univ. of Michigan

10:20 am: **Miniature 3D confocal microendoscope used to in-vivo identification of Eosinophils trigger symptoms**, Zhongyao Liu, Johannes Domke, Zhen Qiu, Nastaran Safdarian, Kenn Oldham, Emily Wang, Thomas D. Wang M.D., Univ. of Michigan (USA) [7893-06]

10:40 am: **Fluorescence lifetime imaging endoscopy**, Gordon T. Kennedy, Sergio Coda, Alex J. Thompson, Daniel S. Elson, Mark A. Neil, Gordon W. Stamp, Andrew Thillainayagam, Imperial College London (United Kingdom); Bertrand Viellerobe, Francois Lacombe, Mauna Kea Technologies (France); Christopher W. Dunsby, Paul M. W. French, Imperial College London (United Kingdom) [7893-07]

11:00 am: **Toward nonlinear endomicroscopy for exploration of the pulmonary airways: preliminary spectroscopic study of human lung tissue using a monomode fiber**, Darine Abi Haidar, Univ. Pierre et Marie Curie (France); Claire Lefort, XLIM Institut de Recherche (France); Donald A. Peyrot, Ecole Nationale Supérieure de Techniques Avancées (France); Nicolas Sandeau, Univ. Pierre et Marie Curie (France); Tigran Mansuryan, Frédéric Louradour, XLIM Institut de Recherche (France); Sergei Kruglik, Genevieve Bourg-Heckly, Univ. Pierre et Marie Curie (France) [7893-09]

11:20 am: **Epifluorescence light collection for multiphoton microscopic endoscopy**, Christopher M. Brown, David R. Rivera, Chris Xu, Watt W. Webb, Cornell Univ. (USA) [7893-10]

Lunch/Exhibition Break 11:40 am to 1:30 pm

SESSION 3

Room: 304 (Esplanade) Sun. 1:30 to 3:10 pm

Novel Endomicroscopy Methods

Session Chair: **Arthur F. Gmitro**, The Univ. of Arizona

1:30 pm: **Autoclaveable miniaturized video endoscopes with simplified flip-chip assembly**, Erik Beckert, Frank Wippermann, Sarah Walther, Thomas Burkhardt, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Bernhard Messerschmidt, Grintech GmbH (Germany); Thomas Barntitzek, VIA electronic GmbH (Germany); Torsten Vahrenkamp, ficonTEC Service GmbH (Germany); Ramona Eberhardt, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [7893-11]

1:50 pm: **Vertical cross-sectional imaging by handheld dual-axes confocal microscope**, Zhen Qiu, Zhongyao Liu, Choong-Ho Rhee, Kenn Oldham, Katsuo Kurabayashi, Thomas D. Wang M.D., Univ. of Michigan (USA) [7893-12]

2:10 pm: **3D tumor imaging by self interference fluorescence endoscopy**, Mattijs de Groot, Johannes F. de Boer, Vrije Univ. Amsterdam (Netherlands) [7893-13]

2:30 pm: **Design of illumination system in ring-field capsule endoscope**, Wei-De Jeng, Ou-Yang Mang, National Chiao Tung Univ. (Taiwan); Yu-Ta Chen, National Central Univ. (Taiwan); Ying-Yi Wu, National Chiao Tung Univ. (Taiwan) [7893-14]

2:50 pm: **Fused oblique incidence reflectometry and confocal fluorescence spectroscopy**, Matthew D. Risi, College of Optical Sciences, The Univ. of Arizona (USA); Andrew R. Rouse, Arthur F. Gmitro, The Univ. of Arizona (USA) [7893-15]

Coffee Break 3:10 to 3:40 pm

SESSION 4

Room: 304 (Esplanade) Sun. 3:40 to 6:00 pm

Spectrally Encoded Endomicroscopy

Session Chair: **Andrew R. Rouse**, The Univ. of Arizona

3:40 pm: **Imaging of flowing red blood cells using spectrally encoded confocal microscopy**, Lior Golan, Limor Minai, Dvir Yelin, Technion-Israel Institute of Technology (Israel) [7893-16]

4:00 pm: **Spectrally encoded confocal microscopy for identifying eosinophilic esophagitis**, HongKi Yoo, Dongkyun Kang, Aubrey J. Katz, Gregory Y. Lauwers, Norman S. Nishioka, Pornthep Tanpowpong, Yukako Yagi, Mari Mino-Kenudson, Jacqueline R. Thiesse-Namati, Brett E. Bouma, Guillermo J. Tearney, Massachusetts General Hospital (USA) [7893-17]

4:20 pm: **Spectrally encoded confocal microscopy for intra-operative margin assessment**, DongKyun Kang, Elena F. Brachtel, Barbara L. Smith, Brett E. Bouma, Guillermo J. Tearney, Massachusetts General Hospital (USA) [7893-18]

4:40 pm: **Non-confocal detection in spectrally encoded endoscopy**, DongKyun Kang, Milen S. Shishkov, Brett E. Bouma, Guillermo J. Tearney, Massachusetts General Hospital (USA) [7893-19]

5:00 pm: **Double-clad fiber coupler for confocal endomicroscopy**, Simon Lemire-Renaud, Mathias Strupler, Fouzi Benboujja, Nicolas Godbout, Caroline Boudoux, Ecole Polytechnique de Montréal (Canada) [7893-20]

5:20 pm: **Wavelength-swept laser-based spectrally encoded fluorescence imaging**, Mathias Strupler, Nadir Goulamoussen, Etienne De Montigny, Caroline Boudoux, Ecole Polytechnique de Montréal (Canada) [7893-21]

5:40 pm: **Reduced speckle, large-area comprehensive imaging by spectrally encoded confocal microscopy**, Parama Pal, DongKyun Kang, Brett E. Bouma, Guillermo J. Tearney, Massachusetts General Hospital (USA) [7893-22]

BIOS

Monday 24 January

SESSION 5

Room: 304 (Esplanade) Mon. 8:00 to 10:00 am

Special Session on Pulmonary Imaging I

Session Chair: **Melissa J. Suter**, Massachusetts General Hospital

- 8:00 am: **In-vivo imaging of human lung microvasculature using Doppler optical coherence tomography**, Anthony Lee, Pierre M. Lane, The BC Cancer Agency Research Ctr. (Canada); Beau Standish, Ryerson Univ. (Canada); Calum E. MacAulay, Annette McWilliams, The BC Cancer Agency Research Ctr. (Canada); Victor X. D. Yang, Ryerson Univ. (Canada); Stephen Lam, The BC Cancer Agency Research Ctr. (Canada) [7893-23]
- 8:20 am: **Dynamic three-dimensional imaging of lung parenchyma by OCT in mice**, Sven Meissner, Technische Univ. Dresden (Germany); Arata Tabuchi, St. Michael's Hospital (Canada); Michael Mertens, Charité Universitätsmedizin Berlin (Germany); Wolfgang M. Kübler, St. Michael's Hospital (Canada); Edmund Koch, Technische Univ. Dresden (Germany) [7893-24]
- 8:40 am: **Optimization of the focal parameters for three-dimensional optical frequency domain imaging of air-filled alveoli**, Carolin I. Unglert, Eman Namati, Brett E. Bouma, Guillermo J. Tearney, Massachusetts General Hospital (USA) [7893-25]
- 9:00 am: **Improved imaging of alveolar structures by index matching**, Sven Meissner, Lilla Knels M.D., Edmund Koch, Technische Univ. Dresden (Germany) [7893-26]
- 9:20 am: **Smoke inhalation induced airway changes quantified using 3D endoscopic optical coherence tomography**, David Yoon, Beckman Laser Institute and Medical Clinic (USA); Andrew E. Heidari, OCT Medical Imaging, Inc. (USA); Sang-Won Lee, Beckman Laser Institute and Medical Clinic (USA); Tirunelveli S. Ramalingam, OCT Medical Imaging, Inc. (USA); Jangwoon Lee, Sari B. Mahon, David S. Mukai, Zhongping Chen, Matthew Brenner, Beckman Laser Institute and Medical Clinic (USA) [7893-27]
- 9:40 am: **Quantitative measurement of airway wall thickness by OCT**, Pierre M. Lane, Anthony Lee, Annette McWilliams, The BC Cancer Agency Research Ctr. (Canada); Harvey O. Coxson, Vancouver General Hospital (Canada); Calum E. MacAulay, Stephen Lam, The BC Cancer Agency Research Ctr. (Canada) [7893-28]
- Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 304 (Esplanade) Mon. 10:30 am to 12:30 pm

Special Session on Pulmonary Imaging II

Session Chair: **Melissa J. Suter**, Massachusetts General Hospital

- 10:30 am: **In-situ 3D imaging of alveoli using an OCT needle probe**, Bryden C. Quirk, Robert A. McLaughlin, Andrea Curatolo, Rodney W. Kirk, Peter B. Noble, David D. Sampson, The Univ. of Western Australia (Australia) [7893-29]
- 10:50 am: **Using optical coherence tomography to investigate the compliance of the airways in vivo**, Claire Robertson, Sang-Won Lee, Yeh-Chan Ahn, Sari B. Mahon, Zhongping Chen, Matthew Brenner, Steven C. George M.D., Univ. of California, Irvine (USA) [7893-30]
- 11:10 am: **Four-dimensional peripheral lung dynamics assessed through catheter-based optical frequency domain imaging**, Eman Namati, Carolin I. Unglert, Wellman Ctr. for Photomedicine (USA); Brett E. Bouma, Guillermo J. Tearney, Massachusetts General Hospital (USA) [7893-31]
- 11:30 am: **Multigeneration optical frequency domain imaging of the pulmonary airways in patients**, Melissa J. Suter, Massachusetts General Hospital (USA); David R. Riker, Lahey Clinic (USA); Mari Mino-Kenudson, Kevin A. Gallagher, Milen S. Shishkov, Jacqueline R. Thiesse-Namati, Brett E. Bouma, Massachusetts General Hospital (USA); John F. Beamis, Lahey Clinic (USA); Guillermo J. Tearney, Massachusetts General Hospital (USA) [7893-32]
- 11:50 am: **Visualizing respiratory ciliary motion and mechanosensitivity of ciliated cells using spectral-domain optical coherence tomography**, Linbo Liu, Massachusetts General Hospital (USA); Marina Mazur, Suzanne Parker, The Univ. of Alabama at Birmingham (USA); Brett E. Bouma, Massachusetts General Hospital (USA); Steven M. Rowe, The Univ. of Alabama at Birmingham (USA); Guillermo J. Tearney, Massachusetts General Hospital (USA) [7893-33]
- 12:10 pm: **Ex-vivo ultra-high-resolution optical coherence tomography imaging of fine lung structure by use of a high-power Gaussian-like supercontinuum at 0.8-um wavelength**, Norihiko Nishizawa, Shutaro Ishida, Nagoya Univ. (Japan); Takafumi Ohta, Kazuyoshi Itoh, Osaka Univ. (Japan); Masashi Kitatsujii, Hiroyoshi Ohshima, HOYA Corp. (Japan); Miyoko Matsushima, Tsutomu Kawabe, Nagoya Univ. (Japan) [7893-34]
- Lunch Break 12:30 to 2:00 pm

SESSION 7

Room: 304 (Esplanade) Mon. 2:00 to 3:40 pm

MEMS-Based Endomicroscopy

Joint Session with Conference 7930

Session Chair: **Wibool Piyawattanametha**, NECTEC (Thailand) and Stanford Univ.

- 2:00 pm: **MEMS-based laser scanning microscope for endoscopic use**, Uwe Schelinski, Jens Knobbe, Hans-Georg Dallmann, Mario Foerster, Michael Scholles, Markus Schwarzenberg, Fraunhofer Institute for Photonic Microsystems (Germany) [7930-01]
- 2:20 pm: **An improved focus control mirror using SU-8 wafer bonding process**, Mohammad J. Moghimi, Jeffrey B. Lutzenberger, Kyle W. Oliver, Steven C. Gates, Montana State Univ. (USA); Brant Kaylor, Bridger Photonics, Inc. (USA); David L. Dickensheets, Montana State Univ. (USA) [7930-02]
- 2:40 pm: **SU-8 focus control mirrors released by XeF₂ dry etch**, Sarah J. Lukes, David L. Dickensheets, Montana State Univ. (USA) [7930-03]
- 3:00 pm: **In vivo skin microscopy**, Wibool Piyawattanametha, National Electronics and Computer Technology Ctr. (Thailand); Hyejun Ra, Emilio Gonzalez-Gonzalez, Stanford Univ. School of Medicine (USA); Michael J. Mandella, National Electronics and Computer Technology Ctr. (Thailand); Gordon S. Kino, Stanford Univ. School of Medicine (USA); Olav D. Solgaard, National Electronics and Computer Technology Ctr. (Thailand); Devin Leake, Dharmacon, Inc. (USA); Thomas D. Wang M.D., Univ. of Michigan (USA); Roger L. Kaspar, TransDerm, Inc. (USA); Anthony Oro, Christopher H. Contag, Stanford Univ. School of Medicine (USA) [7930-04]
- 3:20 pm: **MEMS motor-based common-path endoscopic Fourier-domain OCT**, Rui Wang, Clemson Univ. (USA); Xiaocong Yuan, Nankai Univ. (China); Bo Li, Clemson Univ. (USA); Richard L. Goodwin, Univ. of South Carolina (USA); Roger R. Markwald, Medical Univ. of South Carolina (USA); Bruce Z. Gao, Clemson Univ. (USA) [7893-35]
- Coffee Break 3:40 to 4:00 pm

SESSION 8

Room: 304 (Esplanade) Mon. 4:00 to 6:00 pm

Multi-Functional Endomicroscopy

Session Chair: **Stephen Lam**, The BC Cancer Agency Research Ctr. (Canada)

- 4:00 pm: **Endoscopic full-field optical coherence tomography system for cellular imaging**, Anne Latrive, Claude A. Boccara, Ecole Supérieure de Physique et de Chimie Industrielles (France) [7893-36]
- 4:20 pm: **Multimodal imaging for laser-guided treatment of post intubation tracheal stenosis**, Septimiu D. Murgu M.D., Henri G. Colt, Univ. of California, Irvine (USA); Sang-Won Lee, David Yoon, Matthew Brenner, Beckman Laser Institute and Medical Clinic (USA) [7893-37]
- 4:40 pm: **Optical coherence tomography and confocal fluorescence microscopy as a combined method for studying morphological changes in lung dynamics**, Maria Gärtner, Peter Cimalla, Lilla Knels M.D., Sven Meissner, Christian Schnabel, Edmund Koch, Technische Univ. Dresden (Germany) [7893-38]
- 5:00 pm: **Endoscopic autofluorescence microspectroimaging of alveoli: comparative spectral analysis of amidarone-induced pneumonitis patients and healthy smokers**, Genevieve Bourg-Heckly, Christine Vever-Bizet, Univ. Pierre et Marie Curie (France); Walter C. P. M. Blondel, CRAN INPL (France); Mathieu Salaun, Luc Thiberville, Rouen Univ. Hospital (France) [7893-39]
- 5:20 pm: **An integrated fluorescence confocal and spectral-domain optical coherence tomography micro-endoscope**, Houssine Makhlouf, College of Optical Sciences, The Univ. of Arizona (USA); Andrew R. Rouse, Arthur F. Gmitro, The Univ. of Arizona (USA) [7893-40]
- 5:40 pm: **Multiple-functional endoscopic OCT for bladder and ureter**, Hui Wang, Wei Kang, Christine P. Fleming, Gregory MacLennan, Hui Zhu, Andrew M. Rollins, Case Western Reserve Univ. (USA) [7893-41]

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BiOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

In-vivo confocal imaging of human epitheliums: which contrast agent to use?, Soufiane El Hallani, Calum E. MacAulay, Pierre M. Lane, The BC Cancer Agency Research Ctr. (Canada) [7893-42]

Development of a combined ultrasound and photo-acoustic endoscopic probe, Wei Wei, Univ. of California, Irvine (USA); Xiang Li, Qifa Zhou, K. Kirk Shung, The Univ. of Southern California (USA); Zhongping Chen, Univ. of California, Irvine (USA). [7893-43]



PLAN YOUR WEEK

Use the SPIE My Schedule tool on the Photonics West site

- Add Papers | Exhibitors | Courses | Special Events

Use the Entire Program webpage to view the program your way:

- By Symposium and Conference—papers, courses, special events
- By Day and Time—see what's happening now
- In a Matrix Grid by Program Track—handy at-a-glance reference

Optical Fibers, Sensors, and Devices for Biomedical Diagnostics and Treatment XI

Conference Chair: **Israel Gannot**, Tel Aviv Univ. (Israel)

Program Committee: **James P. Clarkin**, Polymicro Technologies, A Subsidiary of Molex Inc.; **Ilko K. Ilev**, U.S. Food and Drug Administration; **Jin Ung Kang**, The Johns Hopkins Univ.; **Karl-Friedrich Klein**, Fachhochschule Giessen-Friedberg (Germany); **Pierre Lucas**, The Univ. of Arizona; **Yuji Matsuura**, Tohoku Univ. (Japan)

Saturday 22 January

SESSION 1

Room: 250/262 (Mezzanine) Sat. 8:20 to 10:00 am

Session Chair: **Jim Harrington**, Rutgers, The State Univ. of New Jersey

8:20 am: **Smart pillow for heart-rate monitoring using a fiber optic sensor**, Zhihao Chen, Ju Teng Teo, Soon Huat Ng, Huiqing Yim, A*STAR Institute for Infocomm Research (Singapore) [7894-01]

8:40 am: **Research on the FBG's high-temperature sustainability influenced by the doping process**, Weijun Huang, Feng Tu, Yangtze Optical Fibre and Cable Co., Ltd. (China) [7894-03]

9:00 am: **Using modalmetric fiber optic sensors to monitor the activity of the heart**, Marek Zyczkowski, Military Univ. of Technology (Poland) . . [7894-04]

9:20 am: **Fe:ZnSe laser radiation transmission by hollow waveguide**, Michal Nemeč, Helena Jelinková, Jan Šulc, Czech Technical Univ. in Prague (Czech Republic); Mitsunobu Miyagi, Katsumasa Iwai, Hiroyuki Takaku, Sendai National College of Technology (Japan); Maxim Doroshenko, Tasoltan Basiev, General Physics Institute (Russian Federation); Vitaly Komar, Andriy Gerasimenko, Institute for Single Crystals (Ukraine) [7894-05]

9:40 am: **Real-time optical fiber dosimeter probe**, Andre Croteau, Serge Caron, François Roy-Moisan, INO (Canada); Alexandra Rink, David A. Jaffray, Princess Margaret Hospital (Canada); Ozzy Mermut, INO (Canada) . . [7894-06]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 250/262 (Mezzanine) Sat. 10:30 am to 12:10 pm

Session Chair: **Pierre Lucas**, The Univ. of Arizona

10:30 am: **Sensor performance improvements for high-quality low-cost imaging systems in ophthalmic applications**, Andrei Plaiian, Paola Griggio, Marco D'Aguanno, CENTERVUE SpA (Italy) [7894-07]

10:50 am: **A motion compensated fiber optic confocal microscope based on common-path optical coherent tomography distance sensor**, Yong Huang, Kang Zhang, Ching Lin, Jin Ung Kang, The Johns Hopkins Univ. (USA) [7894-08]

11:10 am: **Measurement of complex-mode amplitudes in multimode fibers**, Bilal A. Alvi, Amber Israr, Saeed Azhar, M. Asif, Sir Syed Univ. of Engineering & Technology (Pakistan) [7894-09]

11:30 am: **Spatially resolved probing of biological phantoms by point-radiance spectroscopy**, Serge Grabtchak, Tyler Palmer, William M. Whelan, Univ. of Prince Edward Island (Canada) [7894-13]

11:50 am: **Fabrication of silver-coated hollow fiber with an inner diameter of 100 μm or less**, Katsumasa Iwai, Sendai National College of Technology (Japan); Mitsunobu Miyagi, Tohoku Univ. (Japan); Yi-Wei Shi, Fudan Univ. (China); Yuji Matsuura, Tohoku Univ. (Japan) [7894-14]

Lunch/Exhibition Break 12:10 to 1:20 pm

SESSION 3

Room: 250/262 (Mezzanine) Sat. 1:20 to 3:00 pm

Session Chair: **Jin Ung Kang**, The Johns Hopkins Univ.

1:20 pm: **New broad spectrum fiber for medical and industrial fiber sensor applications**, John H. Shannon, Richard J. Timmerman, Valery K. Khalilov, Polymicro Technologies, A Subsidiary of Molex Incorporated (USA); Karl-Friedrich Klein, Univ. of Applied Sciences, Giessen Friedberg (USA) . . [7894-48]

1:40 pm: **Modeling of fiber-based surface plasmon resonance in gold nanorods**, Jui-Teng Lin, Ding-Wei Huang, Yu-Hsi Cheng, National Taiwan Univ. (Taiwan) [7894-15]

2:00 pm: **Gas sensing in the human body by diode-laser absorption spectroscopy**, Märta Lewander, Tomas Svensson, Anders Bruzelius, Lund Univ. (Sweden); Sven Lindberg, Roger Siemund, Katarina Svanberg, Lund Univ. Hospital (Sweden); Sune Svanberg, Lund Univ. (Sweden) [7894-16]

2:20 pm: **PPG motion artifact handling using a self-mixing interferometric sensor**, Ralph Wijshoff, Technische Univ. Eindhoven (Netherlands); Jeroen Veen, Alexander M. Van der Lee, Philips Research Nederland B.V. (Netherlands); Marco Stijnen, Sjoerd Van Tuijl, HemoLab (Netherlands); Ronald M. Aarts, Technische Univ. Eindhoven (Netherlands) [7894-17]

2:40 pm: **A common-path optical coherence tomography distance sensor-based surface tracking and motion compensation handheld microsurgical tool**, Kang Zhang, The Johns Hopkins Univ. (USA); Peter Gehlbach, The Johns Hopkins School of Medicine (USA); Jin Ung Kang, The Johns Hopkins Univ. (USA) [7894-18]

Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 250/262 (Mezzanine) Sat. 3:30 to 5:40 pm

Session Chair: **Karl-Friedrich Klein**, Fachhochschule Giessen-Friedberg (Germany)

3:30 pm: **Evaluation of phototoxicity from scanning biophotonic devices (Invited Paper)**, Do-Hyun Kim, U.S. Food and Drug Administration (USA) [7894-46]

4:00 pm: **In-vivo diffuse reflectance spectroscopy detected absolute oxygen saturation and total hemoglobin concentration in malignant and benign oral tumors to compare with molecular markers**, Po-Hsiung Chen, Hsing-Wen Wang, National Yang-Ming Univ. (Taiwan); Li-Tzu Lee, John Wang, Chiou-Tuz Chang, Yong-Kie Wong, Taichung Veterans General Hospital (Taiwan) [7894-19]

4:20 pm: **Modification of a long-period grating based fiber optic for DNA biosensing**, Michele Sozzi, Annamaria Cucinotta, Roberto Corradini, Rosangela Marchelli, Univ. degli Studi di Parma (Italy); Maria Konstantaki, Stavros Pissadakis, Foundation for Research and Technology-Hellas (Greece); Stefano Selleri, Univ. degli Studi di Parma (Italy) [7894-20]

4:40 pm: **Double-cladding fiber-based detection system for intravascular mapping of fluorescent molecular probes**, R. Nika Razansky, Mathias S. Mueller, Nikolaos C. Deliolanis, Technische Univ. München (Germany); Farouc A. Jaffer M.D., Massachusetts General Hospital (USA); Alexander W. Koch, Vasilis Ntziachristos, Technische Univ. München (Germany) [7894-22]

5:00 pm: **Determination of absorber concentration in turbid media free from scattering complications**, Can Fang, Yang Liu, David Brokl, Univ. of Pittsburgh Medical Ctr. (USA) [7894-23]

5:20 pm: **Optimization of radial angular filter arrays for detecting the angular distribution of light**, Yan Zhang, Fartash Vasefi, Mohamadreza Najiminaini, Bozena Kaminska, Simon Fraser Univ. (Canada); Jeffery Carson, Lawson Health Research Institute (Canada) [7894-24]

Sunday 23 January

SESSION 5

Room: 250/262 (Mezzanine) Sun. 8:00 to 10:00 am

Session Chair: Yuji Matsuura, Tohoku Univ. (Japan)

- 8:00 am: **Small-volume cavity cell using hollow optical fiber for Raman scattering-based gas detection**, Yoshinari Okita, Takashi Katagiri, Yuji Matsuura, Tohoku Univ. (Japan) [7894-25]
- 8:20 am: **Beyond current limits in photon capture efficiency for Raman spectrometers**, Jan Hendrikse, Brandon J. DesRoches, Tornado Medical Systems (Canada); Dora Chen, Xiaofan Jin, Romuald Pawluczyk, Olga Pawluczyk, P&P Optica Inc. (Canada); Arsen R. Hajjan, Univ. of Waterloo (Canada) [7894-26]
- 8:40 am: **Extended-range multiwavelength all-fiber interferometer**, Anil Prabhakar, Abhijeet A. Kulkarni, Shanti Bhattacharya, Indian Institute of Technology Madras (India) [7894-27]
- 9:00 am: **On-chip integrated lensless fluorescence microscopy/ spectrometry module for cell-based sensors**, Wei Li, Adam Sossalla, Thorsten Knoll, Heiko Büth, Hagen Thielecke, Fraunhofer-Institut für Biomedizinische Technik (Germany) [7894-28]
- 9:20 am: **High-power diode lasers as all rounders in medical applications for soft tissue treatment**, Andre Grütz, Jens Meinschien, LIMO Lissotschenko Mikroskopik GmbH (Germany) [7894-29]
- 9:40 am: **Single-fiber optical imaging device using solid etalon**, Hae Jun Ma, Seung Suk Lee, Yong Jin Shin, Eun-Seo Choi, Chosun Univ. (Korea, Republic of) [7894-30]
- Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 250/262 (Mezzanine) Sun. 10:30 am to 12:10 pm

Session Chair: James P. Clarkin, Polymicro Technologies, A Subsidiary of Molex Incorporated

- 10:30 am: **Fiber-based surface plasmon resonance sensor for neural recording from rat brain cortex**, Shinae Kim, Hyo Won Moon, Seoul National Univ. (Korea, Republic of); Jonghwan Lee, Harvard Medical School (USA); Kyung Min Byun, Kyung Hee Univ. (Korea, Republic of); Sung June Kim, Seoul National Univ. (Korea, Republic of) [7894-31]
- 10:50 am: **Hollow fiber-based Raman tweezers**, Takashi Katagiri, Yoshitake Morisaki, Yuji Matsuura, Tohoku Univ. (Japan) [7894-32]
- 11:10 am: **In-vivo stability and accuracy of oxygenation, total hemoglobin concentration, and reduced scattering coefficient measurements of forearm muscle during artery occlusion using broadband steady state diffuse reflectance spectroscopy**, Chia-Chi Huang, Hsing-Wen Wang, National Yang-Ming Univ. (Taiwan) [7894-33]
- 11:30 am: **Development of hollow-core fibre beam delivery systems for surgical applications**, Artur Ulrich, Tiina Delmonte, Robert R. J. Maier, Duncan P. Hand, Jonathan D. Shephard, Heriot-Watt Univ. (United Kingdom); Jonathan C. Knight, Univ. of Bath (United Kingdom) [7894-34]
- 11:50 am: **Photothermal imaging through coherent infrared bundles**, Yonat Milstein, Michal Tepper, Moshe Ben-David, Tel Aviv Univ. (Israel); Jim Harrington, Rutgers, The State Univ. of New Jersey (USA); Israel Gannot, Tel Aviv Univ. (Israel) and Johns Hopkins Univ. (USA) [7894-47]
- Lunch Break 12:10 to 1:40 pm

SESSION 7

Room: 250/262 (Mezzanine) Sun. 1:40 to 3:00 pm

Session Chair: Ronald W. Waynant, U.S. Food and Drug Administration

- 1:40 pm: **Laser beam uniformity and stability using homogenizer based fiber optic launch method: square core fiber delivery**, Todd E. Lizotte, Hitachi Via Mechanics (USA), Inc. (USA) [7894-39]
- 2:00 pm: **Performance of low-mode and single-mode optical fibers for high-peak-power 355-nm laser radiation**, Georg Hillrichs, Rene Wandschneider, Hochschule Merseburg (Germany); Karl-Friedrich Klein, Cornell P. Gonschior, Fachhochschule Giessen-Friedberg (Germany) [7894-36]
- 2:20 pm: **Novel evanescent-field-sensor using selectively excited modes in step-index fibers**, Karl-Friedrich Klein, Cornell P. Gonschior, Pasma Dahal, Fachhochschule Giessen-Friedberg (Germany); Georg Hillrichs, Hochschule Merseburg (Germany) [7894-37]
- 2:40 pm: **Opto-electrophoretic detection of bio-molecules using conducting chalcogenide glass sensors**, Pierre Lucas, Zhiyong Yang, Kelly A. Reynolds, The Univ. of Arizona (USA); Marie-Laure Anne, Bruno Bureau, Univ. de Rennes 1 (France) [7894-38]
- Coffee Break 3:00 to 3:30 pm

SESSION 8

Room: 250/262 (Mezzanine) Sun. 3:30 to 5:30 pm

Session Chair: Abraham Katzir, Tel Aviv Univ. (Israel)

- 3:30 pm: **Development of optical fiber head probes for infrared endoscopic medical diagnosis**, Marie-Laure Anne, Univ. de Rennes 1 (France); P. Houizot, Univ. de Rennes I (France); Bruno Bureau, Univ. de Rennes 1 (France); O. Loréal, INSERM (France); V. Monbet, Univ. de Bretagne Sud (France); C. Boussard-Plédel, J. Lucas, Univ. de Rennes 1 (France) [7894-40]
- 3:50 pm: **Delivery of single-mode and multi-mode therapeutic laser light using a single and dual cladding optical fiber for a scanning fiber endoscope**, Mark R. Kirshenbaum, Eric J. Seibel, Univ. of Washington (USA) [7894-41]
- 4:10 pm: **Hollow waveguides for the transmission of quantum cascade laser (QCL) energy for spectroscopic applications**, J. A. Harrington, C. M. Bledt, Rutgers Univ. (USA); J. M. Kriesel, Opto Knowledge Systems, Inc. (USA) [7894-42]
- 4:30 pm: **Single-crystal YAG fiber optics for the transmission of high energy laser energy**, J. A. Harrington, X. Zhu, B. T. Laustsen, Rutgers Univ. (USA); L. G. DeShazer, Lightwave Energenics LLC (USA) [7894-43]
- 4:50 pm: **A thickness measurement method for biological samples using lensed-fiber sensors**, Do-Hyun Kim, Ilko K. Ilev, U.S. Food and Drug Administration (USA); Young-Geun Han, Hanyang Univ. (Korea, Republic of) [7894-44]
- 5:10 pm: **Flexible hollow-fiber bundle for body temperature imaging**, Yuji Matsuura, Keisuke Naito, Tohoku Univ. (Japan) [7894-45]

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BiOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

K-domain linearization of wavelength swept laser for optical coherence tomography, Byoung Chang Lee, Chungnam National Univ. (Korea, Republic of); Tae-Joong Eom, Gwangju Institute of Science and Technology (Korea, Republic of); Min Yong Jeon, Chungnam National Univ. (Korea, Republic of) [7894-35]

Courses of Related Interest

- SC981 Biomedical Fiber Optic Sensors and Applications (Mendez, McLaughlin) Sunday, 1:30 to 5:30 pm
- SC532 Micro- and Nanofluidics - Technology and Applications (Gärtner) Wednesday, 8:30 am to 12:30 pm

See course materials desk located in the SPIE Registration Area.

Optical Biopsy IX

Conference Chair: **Robert R. Alfano**, Institute for Ultrafast Spectroscopy and Lasers Conference Co-Chair: **Stavros G. Demos**, Lawrence Livermore National Lab.

Program Committee: **Stefan Andersson-Engels**, Lund Univ. (Sweden); **Christopher H. Contag**, Stanford Univ. School of Medicine; **Jason M. Eichenholz**, Ocean Optics, Inc.; **Amir H. Gandjbakhche**, National Institutes of Health; **Israel Gannot**, Tel Aviv Univ. (Israel); **Urs Utzinger**, The Univ. of Arizona; **Wubao Wang**, The City College of New York; **Siavash Yazdanfar**, GE Global Research

Monday 24 January

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BiOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Miniaturized fiber raster scanner for endoscopy, David R. Rivera, Demirhan Kobat, Chris Xu, Cornell Univ. (USA) [7895-32]

Dynamics of hybrid amoebae proteus ingesting Zoochlorellae studied using fluorescence spectroscopy, Cheng-Hui Liu, Batty A. Fong, Scott A. Alfano, Jr., Inna Rakhlin, Wubao Wang, Xiaohui Ni, Feng Zhou, Robert C. Zuzolo, Robert R. Alfano, The City College of New York (USA) [7895-33]

Trimodal spectra for high discrimination of benign and malignant prostate tissue, Mohamad Al Salhi, King Saud Univ. (Saudi Arabia); Vijmasi Trinka, Thendrel Inc (USA); Vadivel Masilamani, Danny Rabah, Mohammed R. Turki, King Saud Univ. (Saudi Arabia) [7895-35]

Depth-resolved measurement of blood supply using low-coherence enhanced backscattering spectroscopy (LEBS), Andrew J. Radosevich, Vladimir M. Turzhitsky, Nikhil N. Mutyal, Jeremy D. Rogers, Vadim Backman, Northwestern Univ. (USA) [7895-36]

Tuesday 25 January

SESSION 1

Room: 307 (Esplanade) Tues. 8:30 to 10:00 am

Diagnostic Micro-/Nanoscopy Imaging and Endoscopy I

Session Chair: **Stavros G. Demos**, Lawrence Livermore National Lab.

8:30 am: **Translating ultraviolet autofluorescence microscopy toward clinical endomicroscopy** (*Invited Paper*), Stavros G. Demos, Lawrence Livermore National Lab. (USA); Bevin Lin, Shiro Urayama, Ramez M. G. Saroufeem, Dennis L. Matthews, UC Davis Medical Ctr. (USA) [7895-02]

9:00 am: **OCT-based system for breast biopsy guidance**, Nicusor V. Iftimia, Mircea Mujat, Adam J. Hicks, Robert D. Ferguson, Daniel X. Hammer, Physical Sciences Inc. (USA) [7895-04]

9:20 am: **Quantification of the optical properties and hemoglobin of tissue phantom using a hyperspectral imaging based system**, Chun-Yu Chen, Te-Yu Tseng, Kung-Bin Sung, National Taiwan Univ. (Taiwan) [7895-05]

9:40 am: **Feasibility of minimally invasive fiber-based evaluation of chondrocyte canine intervertebral discs by light absorption and scattering spectroscopy**, Yuanyuan Jiang, Kelci L. McKeirman, Kenneth E. Bartels, Daqing Piao, Oklahoma State Univ. (USA) [7895-06]

Coffee Break 10:00 to 10:30 am

Keynote Presentation

Room: 307 (Esplanade) Tues. 10:30 to 11:10 am

10:30 am: **Nanoscopy with focused light** (*Keynote Presentation*), Stefan W. Hell, Max-Planck-Institut für biophysikalische Chemie (Germany) . [7895-01]

SESSION 2

Room: 307 (Esplanade) Tues. 11:10 am to 12:20 pm

Diagnostic Micro-/Nanoscopy Imaging and Endoscopy II

Session Chair: **Stavros G. Demos**, Lawrence Livermore National Lab.

11:10 am: **Reflectance confocal microscopy of shave biopsy wounds in human skin: feasibility of intra-operative mapping of tumor margins** (*Invited Paper*), Alon Scope, Daniel S. Gareau, Kishwer S. Nehal, Milind Rajadhyaksha, Memorial Sloan-Kettering Cancer Ctr. (USA) [7895-07]

11:40 am: **Intra-operative ex-situ and in-situ cellular optical tomography**, Anne Latrive, Adriano Burcheri, Ecole Supérieure de Physique et de Chimie Industrielles (France); Bertrand de Poly, Fabrice Harms, LLTECH SAS (France); Claude A. Boccarda, Ecole Supérieure de Physique et de Chimie Industrielles (France) [7895-08]

12:00 pm: **Multiphoton imaging and quantification of tissue glycation**, Ara Ghazaryan, Jennifer Tseng, Wen Lo, Yang-Fang Chen, Vladimir A. Hovhannisyan, National Taiwan Univ. (Taiwan); Shean-Jen Chen, National Cheng Kung Univ. (Taiwan); Hsin-Yuan Tan, Chang Gung Memorial Hospital (Taiwan); Chen-Yuan Dong, National Taiwan Univ. (Taiwan) [7895-09]

Lunch Break 12:20 to 1:30 pm

SESSION 3

Room: 307 (Esplanade) Tues. 1:30 to 5:30 pm

Stokes Shift and Time-resolved Spectroscopy and Imaging for Cancer Detection

Session Chair: **Wubao Wang**, The City College of New York

1:30 pm: **Detection of cervical cancer by fluorescence and Stokes' shift spectra of blood and urine** (*Invited Paper*), Vadivel Masilamani, King Saud Univ. (Saudi Arabia); Vijmasi Trinka, Thendrel Inc. (USA); Mohamad Al Salhi, King Saud Univ. (Saudi Arabia); Kanagaraj Govindaraj, GVN Cancer Hospital (India); Ayanam Parthasarathy Vijaya Raghavan, King Saud Univ. (Saudi Arabia); Ramrathan Rai, Rai Memorial Cancer Hospital (India) [7895-10]

2:00 pm: **Time-resolved polarization spectroscopy and near-infrared imaging enhanced by receptor-targeted contrast agents for prostate cancer detection** (*Invited Paper*), Yang Pu, Wubao Wang, Robert R. Alfano, The City College of New York (USA); Samuel Achilefu, Washington Univ. in St. Louis (USA) [7895-11]

2:30 pm: **Time-domain diffuse optical spectroscopy up to 1700 nm using an InGaAs/InP single-photon avalanche diode**, Ilaria Bargigia, Alberto Tosi, Andrea Farina, Andrea Bassi, Paola Taroni, Andrea Bahgat Shehata, Politecnico di Milano (Italy); Adriano Della Frera, Micro Photon Devices S.r.l. (Italy); Alberto Dalla Mora, Franco Zappa, Rinaldo Cubeddu, Antonio Pifferi, Politecnico di Milano (Italy) [7895-12]

Coffee Break 2:50 to 3:30 pm

3:30 pm: **Autofluorescence image analysis of lesions in the oral cavity** (*Invited Paper*), Calum E. MacAulay, Catherine F. Poh, Pierre M. Lane, Miriam Rosin, The BC Cancer Agency Research Ctr. (Canada) [7895-13]

4:00 pm: **Use of Mueller polarimetric imaging for the staging of human colon cancer** (*Invited Paper*), Angelo Pierangelo, Ecole Polytechnique (France); Abdelali Benali, Institut Mutualiste Montsouris (France); Maria Rosaria Antonelli, Tatiana Novikova, Ecole Polytechnique (France); Pierre Validire, Brice Gayet, Institut Mutualiste Montsouris (France); Antonello De Martino, Ecole Polytechnique (France) [7895-14]

4:30 pm: **Synchronous luminescence spectroscopic characterization of blood elements of normal and patients with cervical cancer**, K. Muthuvelu, Stanley Medical College & Hospital (India); Sivabalan Shanmugam, Anna Univ. Chennai (India); Dornadula Koteeswaran, Meenakshi Ammal Dental College & Hospital (India); S. Srinivasan, P. Venkatesan, Tuberculosis Research Ctr. (India); Prakasarao Aruna, Singaravelu Ganesan, Anna Univ. Chennai (India) [7895-15]

4:50 pm: **A hyperspectral fluorescence lifetime fibre probe spectrometer for use in the study and diagnosis of skin cancer and osteoarthritis**, Alex J. Thompson, Hugh B. Manning, Imperial College London (United Kingdom); Mikkel Brydegaard, Lund Univ. (Sweden); Sergio Coda, Gordon T. Kennedy, Rakesh Patalay, Imperial College London (United Kingdom); Ulrika Waitong-Braemming, Lund Univ. Hospital (Sweden); Pieter A. De Beule, Mark A. Neil, Imperial College London (United Kingdom); Stefan Andersson-Engels, Sune Svanberg, Lund Univ. (Sweden); Yoshifumi Itoh, Imperial College London (United Kingdom); Niels Bendsoe, Lund Univ. Hospital (Sweden); Christopher W. Dunsby, Imperial College London (United Kingdom); Katarina Svanberg, Lund Univ. Hospital (Sweden); Paul M. W. French, Imperial College London (United Kingdom) [7895-16]

5:10 pm: **Prostate precancer detection by Stokes shift spectroscopy**, Ebenezar Jayasingh, Jamal Mohamed College (India); Yang Pu, Wubao Wang, Guichen Tang, Cheng-Hui Liu, Robert R. Alfano, The City College of New York (USA) [7895-17]

Wednesday 26 January

SESSION 4

Room: 307 (Esplanade) Wed. 8:00 to 10:10 am

Diffuse Reflectance Spectroscopy and Scattering Imaging

Session Chair: Nicole J. Crane, Naval Medical Research Ctr.

8:00 am: **Optical biopsy of the prostate: can we TRUST (trans-rectal ultrasound-coupled spectral tomography)?** (*Invited Paper*), Daqing Piao, Jiang Zhen, Kenneth E. Bartels, G. Reed Holyoak, Jerry W. Ritchey, Charlotte L. Ownby, Kendra Rock, Charles F. Bunting, Oklahoma State Univ. (USA); Gennady Slobodov, The Univ. of Oklahoma Health Sciences Ctr. (USA) [7895-18]

8:30 am: **Pancreatic tumor margin detection by oblique incidence diffuse reflectance spectroscopy**, Alejandro Garcia-Urbe, Washington Univ. in St. Louis (USA) and Texas A&M Univ. (USA); Cheng-Chung Chang, Jun Zou, Texas A&M Univ. (USA); Bhaskar Banerjee, John Kuczynski, The Univ. of Arizona (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7895-19]

8:50 am: **Three-dimensional localization of objects in tissue using independent component analysis in backscattering scanning optical polarization imaging**, Yang Pu, Wubao Wang, Guichen Tang, Yury Budansky, Robert R. Alfano, The City College of New York (USA); Min Xu, Fairfield Univ. (USA) [7895-20]

9:10 am: **Optical properties of neonatal skin measured in vivo as a function of age and skin pigmentation**, Nienke Bosschaart, Rosaline Mentink, Joke H. Kok, Ton G. van Leeuwen, Maurice C. Aalders, Jr., Univ. van Amsterdam (Netherlands) [7895-21]

9:30 am: **Site-dependant redox ratio in healthy oral cavity**, Sivabalan Shanmugam, Anna Univ. Chennai (India); Dornadula Koteeswaran, Meenakshi Ammal Dental College & Hospital (India); Prakasarao Aruna, Singaravelu Ganesan, Anna Univ. Chennai (India) [7895-22]

9:50 am: **Near-infrared pulsed light to guide prostate biopsy**, Jérôme Boutet, Aurelie Laidevant, Lionel Hervé, Mathieu Debourdeau, Commissariat à l'Énergie Atomique (France); Didier Vray, CREATIS-LRMN INSA (France); Jean-Marc Dinten, Commissariat à l'Énergie Atomique (France) [7895-23]

Coffee Break 10:10 to 10:40 am

SESSION 5

Room: 307 (Esplanade) Wed. 10:40 am to 12:30 pm

Non-invasive Monitoring

Session Chair: Vadivel Masilamani, King Saud Univ. (Saudi Arabia)

10:40 am: **Developing a new toolbox for analysis of warrior wound biopsies: vibrational spectroscopy** (*Invited Paper*), Nicole J. Crane, Eric A. Elster, Naval Medical Research Ctr. (USA) [7895-24]

11:10 am: **Monitoring the morphochemistry of skin by multimodal imaging**, Nadine Vogler, Ines Latka, Christoph Krafft, Institut für Photonische Technologien e.V. (Germany); Katarina Svanberg, Niels Bendsoe, Lund Univ. Hospital (Sweden); Benjamin Dietzek, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) [7895-25]

11:30 am: **Objective methods for achieve an early prediction of the effectiveness of regional block anesthesia using thermography and hyperspectral imaging**, John H. Klaessens, Mattijs Landman, Rowland de Roode, Herke J. Noordmans, Univ. Medical Ctr. Utrecht (Netherlands); Rudolf Verdaasdonk, Vrije Univ. Medical Ctr. (Netherlands) [7895-26]

11:50 am: **Raman scattering by light with orbital angular momentum**, Giovanni Milione, The City College of New York (USA) [7895-27]

12:10 pm: **Inactivation of encephalomyocarditis virus and herpes simplex virus by using a visible femtosecond laser**, Shaw-Wei D. Tsen, Washington Univ. in St. Louis (USA); Kong-Thon Tsen, Arizona State Univ. (USA) [7895-28]

Lunch Break 12:30 to 2:00 pm

SESSION 6

Room: 307 (Esplanade) Wed. 2:00 to 4:45 pm

Insight to Feld's Diagnostic Spectroscopy and Biomedical Imaging

Session Chair: Yang Pu, The City College of New York

2:00 pm: **Field-based optical sensing and imaging, and Michael Feld's relentless scientific curiosity** (*Invited Paper, Presentation Only*), Joseph A. Izatt, Duke Univ. (USA) [7895-29]

2:30 pm: **Invited presentation** (*Invited Paper*), Vadim Backman, Northwestern Univ. (USA) [7895-30]

Coffee Break 3:00 to 4:00 pm

4:00 pm: **Michael Feld: a life to light** (*Invited Paper*), Gabriel Popescu, Univ. of Illinois at Urbana-Champaign (USA) [7895-31]

Memorial for Michael Feld

Room: 307 (Esplanade) Wed. 5:00 to 6:45 pm

Panel Moderator: Ramachandra R. Dasari, Massachusetts Institute of Technology

Presentations by:

5:00 to 5:15 pm: Introduction by **Andrew Berger** and **Ramachandra R. Dasari**

5:15 to 5:30 pm: **Steven Jacques**, Oregon Health Sciences Institute
Scuba diving with Michael Feld, and other adventures in his fractal world

5:30 to 5:45 pm: **Lihong Wang**, Washington Univ.
Ultrasonically breaking through the optical diffusion limit

5:45 to 6:00 pm: **Brian Wilson**, Univ. of Toronto
Making Surgery a Quantitative Science: Advances in Fluorescence Guidance

6:00 to 6:15 pm: **Bruce Tromberg**, Univ. of California, Irvine
Searching for Coherence in a Turbid World



Optical Tomography and Spectroscopy of Tissue IX

Conference Chairs: **Bruce Jason Tromberg**, Beckman Laser Institute and Medical Clinic; **Arjun G. Yodh**, Univ. of Pennsylvania; **Mamoru Tamura**, Hokkaido Univ. (Japan); **Eva M. Sevick-Muraca**, The Univ. of Texas Health Science Ctr. at Houston; **Robert R. Alfano**, Institute for Ultrafast Spectroscopy and Lasers

Program Committee: **Samuel Achilefu**, Washington Univ. in St. Louis; **David A. Boas**, Massachusetts General Hospital; **Sergio Fantini**, Tufts Univ.; **Marco Ferrari**, Univ. degli Studi dell'Aquila (Italy); **Amir H. Gandjbakhche**, National Institutes of Health; **Jeremy C. Hebden**, Univ. College London (United Kingdom); **Andreas H. Hielscher**, Columbia Univ.; **Brian W. Pogue**, Dartmouth Hitchcock Medical Ctr.; **Quing Zhu**, Univ. of Connecticut

Sunday 23 January

SESSION 1

Room: 301 (Esplanade) Sun. 8:00 to 10:10 am

Session Chair: **Bruce Jason Tromberg**, Beckman Laser Institute and Medical Clinic

Brain, Neuro, and Functional Imaging I: Clinical

8:00 am: **Assessment of basic instrumental performance of time-domain optical brain imagers** (*Invited Paper*), Heidrun Wabnitz, Physikalisches Technische Bundesanstalt (Germany); Antonio Pifferi, Alessandro Torricelli, Politecnico di Milano (Italy); Dieter R. Taubert, Mikhail Mazurenka, Oliver Steinkellner, Alexander Jelzow, Physikalisches-Technische Bundesanstalt (Germany); Andrea Farina, Ilaria Bargigia, Davide Contini, Matteo Caffini, Lucia Zucchelli, Lorenzo Spinelli, Politecnico di Milano (Italy); Piotr L. Sawosz, Adam Liebert, Institute of Biocybernetics and Biomedical Engineering (Poland); Rainer Macdonald, Physikalisches-Technische Bundesanstalt (Germany); Rinaldo Cubeddu, Politecnico di Milano (Italy) [7896-01]

8:30 am: **Correlations between time-domain NIRS and systemic physiological signals studied for a cognitive task**, Alexander Jelzow, Physikalisches-Technische Bundesanstalt (Germany); Ilias Tachtsidis, Univ. College London (United Kingdom); Evgeniya Kirilina, Michael Niessing, Freie Univ. of Berlin (Germany); Ruediger Bruehl, Heidrun Wabnitz, Physikalisches-Technische Bundesanstalt (Germany); Angela Heine, Freie Univ. of Berlin (Germany); Bernd Ittermann, Rainer Macdonald, Physikalisches-Technische Bundesanstalt (Germany) [7896-02]

8:50 am: **Cerebral hemodynamics in acute ischemic stroke patients probed with optical methods**, Rickson C. Mesquita, Meeri N. Kim, Univ. of Pennsylvania (USA); Christopher G. Favilla, The Univ. of Pennsylvania Health System (USA); Erin M. Buckley, Univ. of Pennsylvania (USA); Joel H. Greenberg, John A. Detre, Scott E. Kasner, The Univ. of Pennsylvania Health System (USA); Arjun G. Yodh, Univ. of Pennsylvania (USA) [7896-03]

9:10 am: **Improved cerebrovascular reactivity (CVR) mapping using concurrent fMRI and near-infrared spectroscopy**, Yunjie Tong, Blaise B. Frederick, McLean Hospital (USA) [7896-04]

9:30 am: **Quantitative voxel-wise comparison of high-density diffuse optical tomography and fMRI mapping of visual cortex**, Adam T. Eggebrecht, Brian R. White, Silvina L. Ferradal, Abraham S. Snyder, Joseph P. Culver, Washington Univ. in St. Louis (USA) [7896-05]

9:50 am: **Adaptive cancellation of spontaneous fluctuations in combination with depth compensation algorithm enhances real-time brain imaging in diffuse optical tomography**, Fenghua Tian, Haijing Niu, Bilal Khan, George Alexandrakis, Khosrow Behbehani, Hanli Liu, The Univ. of Texas at Arlington (USA) [7896-06]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 301 (Esplanade) Sun. 10:40 am to 12:00 pm

Brain, Neuro, and Functional Imaging II: Pre-Clinical/Small Animal

Session Chair: **Arjun G. Yodh**, Univ. of Pennsylvania

10:40 am: **Diet-induced alterations in brain microvasculature: a non-invasive, near-infrared spectroscopy study in rats**, Bertan Hallacoglu, Angelo Sassaroli, Irwin H. Rosenberg, Sergio Fantini, Aron Troen, Tufts Univ. (USA) [7896-07]

11:00 am: **Diffuse optical signals in response to peripheral nerve stimulation reflect skeletal muscle kinematics**, M. Kelley Erb, Boston Univ. (USA); Debbie K. Chen, Angelo Sassaroli, Sergio Fantini, Tufts Univ. (USA); Peter R. Bergethon, Boston Univ. (USA) [7896-08]

11:20 am: **Time-domain near-infrared spectroscopy monitoring of brain pathophysiology after injury, stroke, and subarachnoid hemorrhage**, Nicusor V. Iftimia, Physical Sciences Inc. (USA); Juliette J. Selb, Eric Rosenthal, Massachusetts General Hospital (USA); Mircea Mujat, Robert D. Ferguson, Daniel X. Hammer, Physical Sciences Inc. (USA) [7896-09]

11:40 am: **Cerebral effects of blood transfusions in neonates with congenital heart defects**, Erin M. Buckley, Univ. of Pennsylvania (USA); Donna Goff, The Children's Hospital of Philadelphia (USA); Grady Hedstrom, Children's Hospital of Philadelphia (USA); Dalton Hance, Turgut Durduran, Meeri N. Kim, Rickson Mesquita, Univ. of Pennsylvania (USA); Mary Putt, The Univ. of Pennsylvania Health System (USA); Arjun G. Yodh, Univ. of Pennsylvania (USA); Daniel J. Licht, Children's Hospital of Philadelphia (USA) [7896-10]

Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 3

Room: 301 (Esplanade) Sun. 1:30 to 3:10 pm

Brain, Neuro, and Functional Imaging III: Instrumentation and Methods

Session Chair: **Mamoru Tamura**, Hokkaido Univ. (Japan)

1:30 pm: **A non-contact time-domain scanning brain imaging system: results of proof of principle tests**, Mikhail Mazurenka, Alexander Jelzow, Heidrun Wabnitz, Physikalisches-Technische Bundesanstalt (Germany); Davide Contini, Lorenzo Spinelli, Antonio Pifferi, Rinaldo Cubeddu, Alberto Dalla Mora, Alberto Tosi, Politecnico di Milano (Italy); Franco Zappa, Micro Photon Devices S.r.l. (Italy) and Politecnico di Milano (Italy); Rainer Macdonald, Physikalisches-Technische Bundesanstalt (Germany) [7896-11]

1:50 pm: **Repeatability of end-expiratory breath hold responses measured with near-infrared spectroscopy**, Jaakko Virtanen, Aalto Univ. School of Science and Technology (Finland); Tommi Nononen, Univ. of Turku (Finland); Risto Ilmonemi, Aalto Univ. School of Science and Technology (Finland) [7896-12]

2:10 pm: **Monte Carlo based modeling of indocyanine green bolus tracking in the adult human head**, Jonathan T. Elliott, Mamadou Diop, Kenneth M. Tichauer, Lawson Health Research Institute (Canada); Ting-Yim Lee, Robarts Research Institute (Canada); Keith St. Lawrence, Lawson Health Research Institute (Canada) [7896-13]

2:30 pm: **Continuous monitoring of absolute cerebral blood flow by combining diffuse correlation spectroscopy with time-resolved near-infrared technology**, Mamadou Diop, Lawson Health Research Institute (Canada); Ting-Yim Lee, Robarts Research Institute (Canada); Keith St. Lawrence, Lawson Health Research Institute (Canada) [7896-14]

2:50 pm: **Phasor representation of oxy- and deoxy-hemoglobin concentrations at rest and during brain activation**, Feng Zheng, Michele Pierro, Angelo Sassaroli, Sergio Fantini, Tufts Univ. (USA) [7896-15]

Coffee Break 3:10 to 3:40 pm

SESSION 4

Room: 301 (Esplanade) Sun. 3:40 to 5:20 pm

**Theory, Algorithms, and Modeling I:
NIRfast Special Session**

*Session Chair: Eva M. Sevick-Muraca,
The Univ. of Texas Health Science Ctr. at Houston*

3:40 pm: **A framework for mapping prior information into NIR spectral tomography** (*Invited Paper*), Brian W. Pogue, Dartmouth College (USA) [7896-16]

4:20 pm: **Application of spectral derivative data in near-infrared spectroscopic tomography**, Hamid Dehghani, The Univ. of Birmingham (United Kingdom); Frederic Leblond, Brian W. Pogue, Dartmouth College (USA); Fabien Chauchard, Indatech (France) [7896-17]

4:40 pm: **Implementation of the unstructured finite volume approximation to the simplified spherical harmonics equations for modeling light propagation in tissue**, Ludguier D. Montejo, Hyun-Keol Kim, Andreas H. Hielscher, Columbia Univ. (USA) [7896-18]

5:00 pm: **Fluorescence-enhanced optical tomography using phase information**, Yujie Lu, Eva M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (USA) [7896-19]

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Brain

Time-gated near-infrared spectroscopic imaging of brain activation: a simulation proof of concept, Gilberto Diaz-Ayil, Farouk Nouzi, Univ. de Strasbourg (France); Wilfried Uhring, Benoit Dubois, Institut d'Électronique du Solide et des Systèmes (France); Patrick Poulet, Univ. de Strasbourg (France) [7896-80]

Multi-wavelength time-resolved diffuse reflectance measurement carried out on the head of an adult during injection of indocyanine green, Anna Gerega, Daniel Milej, Michal Kacprzak, Institute of Biocybernetics and Biomedical Engineering (Poland); Wojciech Weigl, Medical Univ. of Warsaw (Poland); Adam Liebert, Institute of Biocybernetics and Biomedical Engineering (Poland) [7896-81]

Algorithmic depth compensation improves transverse resolution and quantification in functional diffuse optical tomography, Fenghua Tian, Haijing Niu, Sabin Khadka, Zi-Jing Lin, Hanli Liu, The Univ. of Texas at Arlington (USA) [7896-82]

Quantitative evaluation of systematic imaging error due to uncertainty in tissue background optical properties in high-density diffuse optical tomography of the human brain, Yuxuan Zhan, The Univ. of Birmingham (United Kingdom); Adam T. Eggebrecht, Washington Univ. in St. Louis (USA); Hamid Dehghani, The Univ. of Birmingham (United Kingdom); Joseph P. Culver, Washington Univ. in St. Louis (USA) [7896-83]

Influence of non-cortical contributions and probe pressure on measurements of cerebral blood flow using diffuse correlation spectroscopy, Meeri N. Kim, Rickson Mesquita, Christopher G. Favilla, Joel H. Greenberg, John A. Detre, Arjun G. Yodh, Univ. of Pennsylvania (USA) [7896-84]

Cerebral blood flow monitoring with diffuse correlation spectroscopy to assess autoregulation after fluid percussion brain injury in a piglet model, Jiaming Liang, Univ. of Pennsylvania (USA) and Xi'an Jiaotong Univ. (China); Willis Kiessling, The Univ. of Pennsylvania Health System (USA); Meeri N. Kim, Rickson C. Mesquita, Arjun G. Yodh, Univ. of Pennsylvania (USA); William M. Armstead, The Univ. of Pennsylvania Health System (USA) [7896-85]

CCD-camera-based diffuse optical tomography to study ischemic stroke in preclinical rat models, Zi-Jing Lin, Haijing Niu, Lin Li, Hanli Liu, Yueming Liu, Jianzhong Su, The Univ. of Texas at Arlington (USA); Ming Ren, Shaosua Yang, Univ. of North Texas Health Science Ctr. at Fort Worth (USA) [7896-86]

Theory, Algorithms, and Modeling

A study of solving diffusion equation using wavelet finite element method, Fang Yang, Feng Gao, Tianjin Univ. (China) [7896-87]

Development and evaluation of a diffusion model for time-domain near-infrared fluorescence imaging using a finite element method, Qun Zhu, The Univ. of Birmingham (United Kingdom); Frederic Leblond, Fadi El-Ghoussein, Brian W. Pogue, Dartmouth College (USA); Hamid Dehghani, The Univ. of Birmingham (United Kingdom) and Dartmouth College (USA) [7896-88]

Estimation of optical properties of turbid medium by fitting the results of Monte Carlo simulations to distributions of times of flight of photons, Norbert S. Zolek, Adam Liebert, Institute of Biocybernetics and Biomedical Engineering (Poland) [7896-89]

'Spiral-planar equivalence' of steady state photon diffusion associated with a cylindrical applicator, Anqi Zhang, Daqing Piao, Charles F. Bunting, Oklahoma State Univ. (USA) [7896-90]

Transport-theory based multispectral imaging with PDE-constrained optimization, Hyun-Keol Kim, Molly L. Flexman, Michael Khalil, Andreas H. Hielscher, Columbia Univ. (USA) [7896-91]

Comparison of independent forward solvers for photon migration through layered media, Fabrizio Martelli, Giovanni Zaccanti, Univ. degli Studi di Firenze (Italy); Andre Liemert, Alwin Kienle, Univ. Ulm (Germany); Martin Schweiger, Simon R. Arridge, Surya Prerapa, Univ. College London (United Kingdom); Alexander Jelzow, Heidrun Wabnitz, Physikalisch-Technische Bundesanstalt (Germany); Norbert S. Zolek, Adam Liebert, Institute of Biocybernetics and Biomedical Engineering (Poland) [7896-92]

Tomographic optical imaging in Gaussians, Hao Gao, Univ. of California, Los Angeles (USA); Hongkai Zhao, Univ. of California, Irvine (USA); Wenxiang Cong, Ge Wang, Virginia Polytechnic Institute and State Univ. (USA) [7896-120]

Identifying constituent spectra sources in multispectral images to quantify and locate cervical neoplasia, Kevin Baker, Shabbir B. Bambot, Guided Therapeutics, Inc. (USA) [7896-121]

Instrumentation

Experimental estimation of the sensitivity profile of time-resolved reflectance measurement: a phantom study, Piotr L. Sawosz, Michal Kacprzak, Institute of Biocybernetics and Biomedical Engineering (Poland); Wojciech Weigl, Medical Univ. of Warsaw (Poland); Norbert S. Zolek, Stanislaw Wojtkiewicz, Roman Maniewski, Adam Liebert, Institute of Biocybernetics and Biomedical Engineering (Poland) [7896-93]

Fast Monte Carlo fitting of two-layered tissue structures for short source-detector distances, Jonathan T. Elliott, Kenneth M. Tichauer, Mamadou Diop, Keith St. Lawrence, Lawson Health Research Institute (Canada) [7896-94]

Multichannel photon counting DOT system based on digital lock-in detection technique, Huijuan Zhao, Zhichao Wang, Shaohua Hou, Feng Gao, Tianjin Univ. (China) [7896-95]

A low-cost multi-wavelength tomography system based on LED sources, Aaron Chen, Andres Aguirre, Umar S. Alqasemi, Quing Zhu, Univ. of Connecticut (USA) [7896-96]

Target detection and characterization using a hybrid handheld diffuse optical tomography and photo-acoustic tomography system, Patrick D. Kumavor, Andres Aguirre, Chen Xu, John Gamelin, Yasaman Ardeshipour, Behnoosh Tavakoli, Saeid Zanganeh, Umar S. Alqasemi, Quing Zhu, Univ. of Connecticut (USA) [7896-97]

Optical properties in highly scattering medium using an approach by interference and heterodyne technology, Chien Chou, Yu-Pin Lan, Chang Gung Univ. (Taiwan) [7896-99]

Breast

Simultaneous bilateral breast imaging using a novel handheld optical device, Jean Gonzalez, Joseph DeCerce, Sergio Martinez, Sarah Erickson, Anuradha Godavarty, Florida International Univ. (USA) [7896-98]

Clustered targets imaged by multizone optical tomography reconstruction method, Yan Xu, Chen Xu, Quing Zhu, Univ. of Connecticut (USA) [7896-99]

Improving light quantification of large breast lesions imaged by diffuse optical tomography, Behnoosh Tavakoli, Quing Zhu, Univ. of Connecticut (USA) [7896-100]

A time-domain fluorescence diffusion optical tomography system for breast tumor diagnosis, Wei Zhang, Feng Gao, Xin Wang, Jiao Li, Fang Yang, Zhongxing Zhou, Limin Zhang, Huijuan Zhao, Tianjin Univ. (China) [7896-101]

BIOS

Study on diffuser-aided diffuse optical tomography for breast imaging based on three-dimensional Monte Carlo modeling, Ching-Cheng Chuang, National Taiwan Univ. (Taiwan); Chia-Wei Sun, National Yang-Ming Univ. (Taiwan); Chia-Yen Lee, Chung-Ming Chen, National Taiwan Univ. (Taiwan); Chun-Yang Wang, Yao-Sheng Hsieh, National Chia Tung Univ. (Taiwan) [7896-102]

Resolution in diffuse optical tomography of the human breast near the chest wall, Han Y. Ban, David R. Busch, Univ. of Pennsylvania (USA); Soren D. Konecky, Univ. of California, Irvine (USA); Manabu Machida, John C. Schotland, Arjun G. Yodh, Univ. of Pennsylvania (USA) [7896-103]

Fluorescence

Trimodal spectra for high discrimination of benign and malignant prostate tissue, Vadivel Masilamani, Mohamad Al Salhi, King Saud Univ. (Saudi Arabia); Vijmasi Trinka, Thendrel Inc. (USA); Danny Rabah, King Saud Univ. (Saudi Arabia); Mohammed R. Turki, King Saud Medical Complex (Saudi Arabia) [7896-104]

Improving the spatial resolution of fluorescence diffuse optical tomography using nonlinear fluorophores, Can T. Xu, Pontus Svenmarker, Haichun Liu, Stefan Andersson-Engels, Lund Univ. (Sweden) [7896-105]

Toward robust high-resolution fluorescence tomography: a hybrid row-action edge preserving regularization, Ali Behrooz, Hao-Min Zhou, Ali A. Eftekhar, Ali Adibi, Georgia Institute of Technology (USA) [7896-106]

Early detection of breast cancer: 3D modeling, simulation and in-vitro studies to characterize the in-vivo performance of synthesized novel NIR-f estrogen conjugate dye, Shubhadeep Bhattacharjee, Iven Jose, Birla Institute of Technology and Science (India) [7896-107]

Reconstruction and quantification of fluorescent parameters imaging using fluorescence diffuse optical tomography, Jiao Li, Feng Gao, Xi Yi, Linhui Wu, Limin Zhang, Huijuan Zhao, Tianjin Univ. (China) [7896-108]

The effect of time-gating on instrument photon density sensitivity functions for small animal fluorescence tomography, Niksa Valim, James L. Brock, Mark J. Niedre, Northeastern Univ. (USA) [7896-109]

Sparse reconstruction for fluorescence diffuse optical tomography, An Jin, Birsena Yazici, Rensselaer Polytechnic Institute (USA) [7896-110]

Preclinical/Clinical

Near-infrared spectroscopic system and fast inverse Monte Carlo algorithm for endoscopic measurement of tubular tissue, Xiaoping Zhou, Huijuan Zhao, Zhichao Wang, Feng Gao, Tianjin Univ. (China) [7896-111]

Diffuse optical spectroscopy monitoring of cytochrome c oxidase redox state during respiratory challenges in a sublethal rabbit cyanide model, Jangwoon Lee, Jae Gwan Kim, Sari B. Mahon, David S. Mukai, Bruce J. Tromberg, Matthew Brenner, Beckman Laser Institute and Medical Clinic (USA) [7896-112]

Monday 24 January

SESSION 5

Room: 301 (Esplanade) Mon. 8:00 to 10:10 am

Theory, Algorithms, and Modeling II

Session Chair: Robert R. Alfano,
Institute for Ultrafast Spectroscopy and Lasers

8:00 am: **Reconstruction algorithm for diffuse optical tomography using x-ray CT anatomical information** (*Invited Paper*), Mohamed A. Naser, Michael S. Patterson, Juravinski Cancer Ctr. (Canada) [7896-20]

8:30 am: **Inverse problem for biomedical applications: use of prior information on target and forward model parameters**, Fabrizio Martelli, Univ. degli Studi di Firenze (Italy); Samuele Del Bianco, Istituto di Fisica Applicata Nello Carrara (Italy); Giovanni Zaccanti, Univ. degli Studi di Firenze (Italy) [7896-21]

8:50 am: **A general perturbative approach to the diffusion equation in the presence of absorbing defects: frequency domain and time-domain results**, Angelo Sassaroli, Tufts Univ. (USA); Fabrizio Martelli, Univ. degli Studi di Firenze (Italy); Sergio Fantini, Tufts Univ. (USA) [7896-22]

9:10 am: **Characterizing scattering property of random media from phase map of a thin slice: the scattering phase theorem and the intensity propagation equation approach**, Bianca DeAngelo, Grant Arzumanov, Charles Matovu, Patrick Shanley, Fairfield Univ. (USA); Zhang Xu, Wenzhou Medical College (China); Min Xu, Fairfield Univ. (USA) [7896-23]

9:30 am: **Reduction of artifacts in diffuse optical tomography breast image reconstruction**, Saurav Pathak, Regine Choe, Han Y. Ban, So Hyun Chung, David R. Busch, Arjun G. Yodh, Univ. of Pennsylvania (USA) [7896-24]

9:50 am: **A multiscale sparse approach to reconstruct fluorescent objects of different sizes from FDOT measurements**, Ludovic Lecordier, Lionel Hervé, Jean-Marc Dinten, Commissariat à l'Énergie Atomique (France); Françoise Peyrin, CREATIS-LRMN INSA (France) [7896-25]

Coffee Break 10:10 to 10:40 am

SESSION 6

Room: 301 (Esplanade) Mon. 10:40 am to 12:00 pm

Advances in Instrumentation and Technology I

Session Chair: Bruce Jason Tromberg,
Beckman Laser Institute and Medical Clinic

10:40 am: **Preclinical and clinical validation of a novel oxygenation imaging system**, Sylvain Gioux, Commissariat à l'Énergie Atomique (France); Amaal Mazhar, Univ. of California, Irvine (USA); David J. Cuccia, Modulated Imaging, Inc. (USA); Alan Stockdale, Rafiou Oketokoun, Bernard T. Lee, Yoshitomo Ashitate, Beth Israel Deaconess Medical Ctr. (USA); Anthony J. Durkin, Bruce J. Tromberg, Univ. of California, Irvine (USA); John V. Frangioni, Beth Israel Deaconess Medical Ctr. (USA) [7896-26]

11:00 am: **Imaging optical anisotropy in biological tissue using spatial frequency domain imaging**, Soren D. Konecky, Bruce J. Tromberg, Beckman Laser Institute and Medical Clinic (USA) [7896-27]

11:20 am: **Novel approaches based on structured light for fast diffuse optical tomography**, Andrea Bassi, Nicolas Ducros, Cosimo D'Andrea, Gianluca Valentini, Politecnico di Milano (Italy); Simon R. Arridge, Univ. College London (United Kingdom) [7896-28]

11:40 am: **Method for depth-resolved quantitation of optical properties in layered media using spatially modulated quantitative spectroscopy (SMoQS)**, Rolf B. Saager, Beckman Laser Institute and Medical Clinic (USA); David J. Cuccia, Modulated Imaging, Inc. (USA); Anthony J. Durkin, Beckman Laser Institute and Medical Clinic (USA) [7896-29]

Lunch Break 12:00 to 1:30 pm

SESSION 7

Room: 301 (Esplanade) Mon. 1:50 to 3:10 pm

Advances in Instrumentation and Technology II

Session Chair: Arjun G. Yodh, Univ. of Pennsylvania

1:50 pm: **Frequency domain diffuse optical tomography in parallel plate geometry**, Kijoon Lee, Jun-Hui Ho, Jing Dong, Nanyang Technological Univ. (Singapore) [7896-30]

2:10 pm: **Feasibility of rapid near-infrared diffuse optical tomography by swept-spectral-encoded sequential light delivery**, Guan Xu, Daqing Piao, Oklahoma State Univ. (USA) [7896-31]

2:30 pm: **Coherent detection of diffusely scattered light for extended depth optical coherence tomography**, Michael G. Giacomelli, Adam P. Wax, Duke Univ. (USA) [7896-33]

2:50 pm: **Toward single-fiber diffuse optical time-of-flight spectroscopy**, Erik Alerstam, Tomas Svensson, Stefan Andersson-Engels, Lund Univ. (Sweden); Antonio Pifferi, Lorenzo Spinelli, Davide Contini, Alberto Tosi, Alberto Dalla Mora, Franco Zappa, Politecnico di Milano (Italy) [7896-34]

Coffee Break 3:10 to 3:40 pm

SESSION 8

Room: 301 (Esplanade) Mon. 3:40 to 5:20 pm

Advances in Instrumentation and Technology III

Session Chair: Mamoru Tamura, Hokkaido Univ. (Japan)

3:40 pm: **3D modeling of noncontact fiber-based approach for time-resolved diffuse optical tomography**, Farouk Nouzi, Murielle Torregrossa, Olivier Genevaux, Renee Chabrier, Patrick Poulet, Univ. de Strasbourg (France) [7896-35]

4:00 pm: **Wavelength and code-division multiplexing in diffuse optical imaging**, Luca Ascari, Gianluca Berrettini, Sandro Iannaccone, Scuola Superiore Sant'Anna (Italy); Matteo Giacalone, Consorzio Nazionale Interuniversitario per le Telecomunicazioni (Italy); Davide Contini, Lorenzo Spinelli, Politecnico di Milano (Italy); Maria Giovanna Trivella, Consiglio Nazionale delle Ricerche (Italy); Antonio L'Abbate, Scuola Superiore Sant'Anna (Italy); Luca Poti, Consorzio Nazionale Interuniversitario per le Telecomunicazioni (Italy) [7896-36]

4:20 pm: **Radio-frequency circuit design and performance evaluation for small animal, frequency domain, NIR fluorescence optical tomography**, Chinmay D. Darne, Banghe Zhu, Yujie Lu, I-Chih Tan, John C. Rasmussen, Eva M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (USA) [7896-37]

4:40 pm: **Time-resolved optical system for an early detection of prostate tumor**, Lionel Hervé, Aurelie Laidevant, Mathieu Deboudeau, Jérôme Boutet, Jean-Marc Dinten, Commissariat à l'Énergie Atomique (France) [7896-38]
 5:00 pm: **Optical measurement of sound using laser speckles**, Terence S. Leung, Shihong Jiang, Jeremy C. Hebden, Univ. College London (United Kingdom). [7896-32]

Tuesday 25 January

SESSION 9

Room: 301 (Esplanade) Tues. 8:00 to 10:10 am

Breast I: Therapy Monitoring

Session Chair: Eva M. Sevick-Muraca,
 The Univ. of Texas Health Science Ctr. at Houston

8:00 am: **Monitoring neo-adjuvant chemotherapy response using optical tomography guided by ultrasound** (*Invited Paper*), Quing Zhu, Univ. of Connecticut (USA); Patricia DeFusco, Hartford Hospital (USA); Susan Tannenbaum, Univ. of Connecticut Health Ctr. (USA); Yan Xu, Behnoosh Tavakoli, Univ. of Connecticut (USA); Edward Cronin, Hartford Hospital (USA) [7896-40]

8:30 am: **In-vivo cancer therapy monitoring with diffuse optical techniques**, Regine Choe, Saurav Pathak, So Hyun Chung, Univ. of Pennsylvania (USA); Turgut Durduran, ICFO - Instituto de Ciencias Fotónicas (Spain); Han Y. Ban, David R. Busch, Tiffany Avena, Erin M. Buckley, Meeri N. Kim, Univ. of Pennsylvania (USA); Angela DeMichele, Carolyn Mies, Mark A. Rosen, Mitchell D. Schnall, The Univ. of Pennsylvania Health System (USA); Arjun G. Yodh, Univ. of Pennsylvania (USA) [7896-41]

8:50 am: **Diffuse optical spectroscopic imaging biomarkers as therapeutic endpoints in breast cancer patients treated with neo-adjuvant therapy**, Albert E. Cerussi, Vaya W. Tanamai, Amanda F. Durkin, Beckman Laser Institute and Medical Clinic (USA); David J. Hsiang, John A. Butler, Rita S. Mehta, Univ. of California, Irvine (USA); Bruce J. Tromberg, Beckman Laser Institute and Medical Clinic (USA) [7896-42]

9:10 am: **Monitoring early tumor response to drug therapy using optical tomography**, Molly L. Flexman, Hyun-Keol Kim, Columbia Univ. (USA); Sonia L. Hernandez, Jianzhong Huang, Tessa Johung, Columbia Univ. Medical Ctr. (USA); Jong Hwan Lee, Fotios Vlachos, Columbia Univ. (USA); Darrell J. Yamashiro, Jessica J. Kandel, Columbia Univ. Medical Ctr. (USA); Andreas H. Hielscher, Columbia Univ. (USA) [7896-43]

9:30 am: **Diffuse optical spectroscopic imaging (DOSI) for very early prediction of response to neo-adjuvant chemotherapy in breast cancer patients**, Darren M. Roblyer, Shigeto Ueda, Albert E. Cerussi, Vaya W. Tanamai, Amanda F. Durkin, Beckman Laser Institute and Medical Clinic (USA); Rita S. Mehta, David J. Hsiang, John A. Butler, Univ. of California, Irvine (USA); Bruce J. Tromberg, Beckman Laser Institute and Medical Clinic (USA) [7896-44]

9:50 am: **Correlation of functional measurements taken using diffuse optical spectroscopic imaging (DOSI) to proliferation and glucose metabolism markers in breast cancer patients receiving neo-adjuvant chemotherapy**, Shigeto Ueda, Albert E. Cerussi, Beckman Laser Institute and Medical Clinic (USA); Philip M. Carpenter, Univ. of California, Irvine (USA); Darren M. Roblyer, Shanshan Xu, Amanda F. Durkin, Beckman Laser Institute and Medical Clinic (USA); David J. Hsiang, Rita S. Mehta, John A. Butler, Univ. of California, Irvine (USA); Bruce J. Tromberg, Beckman Laser Institute and Medical Clinic (USA) [7896-45]

Coffee Break 10:10 to 10:40 am

SESSION 10

Room: 301 (Esplanade) Tues. 10:40 am to 12:00 pm

Breast II: Clinical/Pre-Clinical

Session Chair: Robert R. Alfano,
 Institute for Ultrafast Spectroscopy and Lasers

10:40 am: **Assessing dynamic vascular changes in breast tissue in response to subject-specific hyperoxic and hypercarbic gas inhalation based upon end-tidal expiration**, Shudong Jiang, Brian W. Pogue, Michael A. Mastanduno, Kelly E. Michaelsen, Dartmouth College (USA); Tracy E. Frazee, Dartmouth Hitchcock Medical Ctr. (USA); Keith D. Paulsen, Dartmouth College (USA); Steven P. Poplack, Wendy A. Wells, Roberta M. diFlorio-Alexander, Peter A. Kaufman, Dartmouth Hitchcock Medical Ctr. (USA) [7896-46]

11:00 am: **Quantitative assessment of indocyanine green enrichment in breast tumors**, Axel J. Hagen, Dirk Grosenick, Physikalisch-Technische Bundesanstalt (Germany); Alexander Pöllinger, Susen Burock, Peter M. Schlag, Charité Universitätsmedizin Berlin (Germany); Herbert H. Rinneberg, Rainer Macdonald, Physikalisch-Technische Bundesanstalt (Germany) [7896-47]

11:20 am: **A correlation study between DOT-measured hemoglobin concentrations and histopathological proliferation parameter Ki67 and CD34 stained microvessel density in breast cancer**, So Hyun Chung, Univ. of Pennsylvania (USA); Michael D. Feldman, Hospital of the Univ. of Pennsylvania (USA); Regine Choe, Saurav Pathak, Univ. of Pennsylvania (USA); Frederico Valdivieso, Hospital of the Univ. of Pennsylvania (USA); Daniel Martinez, The Children's Hospital of Philadelphia (USA); Arjun G. Yodh, Univ. of Pennsylvania (USA) [7896-48]

11:40 am: **Changes in endogenous tissue chromophores during tumor growth and post cyclophosphamide treatment on rat breast tumors**, Jae Gwan Kim, Tyler B. Rice, Shigeto Ueda, Beckman Laser Institute and Medical Clinic (USA); Edward L. Nelson, Univ. of California, Irvine (USA); Albert E. Cerussi, Bruce J. Tromberg, Beckman Laser Institute and Medical Clinic (USA) [7896-49]

Lunch Break 12:00 to 1:30 pm

SESSION 11

Room: 301 (Esplanade) Tues. 1:30 to 3:10 pm

Breast III: Instrumentation

Session Chair: Bruce Jason Tromberg,
 Beckman Laser Institute and Medical Clinic

1:30 pm: **Instrumentation of a 3rd generation frequency domain multispectral DOT breast imager**, Han Y. Ban, Univ. of Pennsylvania (USA); Soren D. Konecky, Univ. of California, Irvine (USA); So Hyun Chung, Univ. of Pennsylvania (USA); Frank Moscatelli, Swarthmore College (USA); David R. Busch, Saurav Pathak, Regine Choe, Arjun G. Yodh, Univ. of Pennsylvania (USA) [7896-50]

1:50 pm: **Handheld video-rate fluorescence diffuse optical tomography for mapping sentinel lymph nodes**, Metasebya Solomon, Brian R. White, Ralph E. Nothdurft, Walter J. Akers, Adam T. Eggebrecht, Samuel Achilefu, Joseph P. Culver, Washington Univ. in St. Louis (USA) [7896-51]

2:10 pm: **Near-infrared optical mammography with broadband spectral imaging and depth discrimination**, Yang Yu, Angelo Sassaroli, Tufts Univ. (USA); Marc J. Homer, Roger A. Graham, Tufts Medical Ctr. (USA); Sergio Fantini, Tufts Univ. (USA) [7896-52]

2:30 pm: **3D tomographic breast imaging using a handheld optical imager**, Sarah Erickson, Sergio Martinez, Jean Gonzalez, Manuela Roman, Annie Nunez, Anuradha Godavarty, Florida International Univ. (USA) [7896-53]

2:50 pm: **Multimodal compressed breast imaging**, Stefan A. Carp, Qianqian Fang, Christy Wanyo, Steven J. Isakoff, David A. Boas, Massachusetts General Hospital (USA) [7896-54]

Coffee Break 3:10 to 3:40 pm

SESSION 12

Room: 301 (Esplanade) Tues. 3:40 to 5:20 pm

Breast IV: Instrumentation/Clinical

Advances in Instrumentation and Technology III

Session Chair: Mamoru Tamura, Hokkaido Univ. (Japan)

3:40 pm: **Dynamic breast imaging with a digital optical tomography system**, Molly L. Flexman, Columbia Univ. (USA); Rabah M. Al Abdi, SUNY Downstate Medical Ctr. (USA); Beatrice Reig, Columbia Univ. Medical Ctr. (USA); Christopher J. Fong, James M. Masciotti, Columbia Univ. (USA); Dawn Hershman, Elise Desperito, Columbia Univ. Medical Ctr. (USA); Randall L. Barbour, SUNY Downstate Medical Ctr. (USA); Andreas H. Hielscher, Columbia Univ. (USA) [7896-55]

4:00 pm: **Continuous-wave and frequency domain optimization in breast tomosynthesis-guided diffuse spectroscopy**, Kelly E. Michaelsen, Venkataramanan Krishnaswamy, Brian W. Pogue, Keith D. Paulsen, Dartmouth College (USA) [7896-56]

4:20 pm: **First in-vivo spectral characterization of breast up to 1300 nm**, Paola Taroni, Ilaria Bargigia, Andrea Farina, Rinaldo Cubeddu, Antonio Pifferi, Politecnico di Milano (Italy) [7896-57]

4:40 pm: **MRI-guided imaging pulse-oximetry for visualization of breast hemodynamics**, Zhiqiu Li, Shudong Jiang, Venkataramanan Krishnaswamy, Scott C. Davis, Keith D. Paulsen, Brian W. Pogue, Dartmouth College (USA) [7896-58]

5:00 pm: **Breast tumor hypoxia mapping using ultrasound guided diffuse optical tomography**, Nrusingh C. Biswal, Yan Xu, Quing Zhu, Univ. of Connecticut (USA) [7896-59]

BIOS

Wednesday 26 January

SESSION 13

Room: 301 (Esplanade) Wed. 8:00 to 10:10 am

Fluorescence I

Session Chair: Mamoru Tamura, Hokkaido Univ. (Japan)

8:00 am: **Optimization of time-gated small animal fluorescence tomography (Invited Paper)**, Mark J. Niedre, Niksa Valim, Zhi Li, James L. Brock, Northeastern Univ. (USA) [7896-60]

8:30 am: **Hyperspectral fluorescence tomography of quantum dots**, Alexander D. Klose, Columbia Univ. (USA) [7896-61]

8:50 am: **Time-domain fluorescence diffuse optical tomography for live animals by total-light algorithm**, Goro Nishimura, Kamlesh Awasthi, Kitsakorn Locharoenrat, Hokkaido Univ. (Japan); Shinpei Okawa, Yukio Yamada, The Univ. of Electro-Communications (Japan) [7896-62]

9:10 am: **Tumor hypoxia fluorescence imaging using 2-nitroimidazole bis-carboxylic acid indocyanine dye conjugate**, Nrusingh C. Biswal, Christopher Pavlik, Michael B. Smith, Univ. of Connecticut (USA); Liisa T. Kuhn, Kevin P. Claffey, Univ. of Connecticut Health Ctr. (USA); Quing Zhu, Univ. of Connecticut (USA) [7896-63]

9:30 am: **Multisite and multipdepth tumors localization enhancement after autofluorescence removal**, Anne-Sophie Montcuquet, Fabrice P. Navarro, Lionel Hervé, Commissariat à l'Énergie Atomique (France); Jérôme I. Mars, Institut National Polytechnique de Grenoble (France); Jean-Marc Dinten, Commissariat à l'Énergie Atomique (France) [7896-64]

9:50 am: **Fluorescence lifetime molecular tomography of a genetically expressed FRET construct in a mouse**, James A. McGinty, Imperial College London (United Kingdom); Vadim Y. Soloviev, Univ. College London (United Kingdom); Daniel W. Stuckey, Khadija B. Tahir, Romain Laine, Imperial College London (United Kingdom); Dominic J. Wells, The Royal Veterinary College (United Kingdom); Jo V. Hajnal, Alessandro Sardini, Imperial College London (United Kingdom); Simon R. Arridge, Univ. College London (United Kingdom); Paul M. W. French, Imperial College London (United Kingdom) [7896-65]

Coffee Break 10:10 to 10:40 am

SESSION 14

Room: 301 (Esplanade) Wed. 10:40 am to 12:00 pm

Fluorescence II

Session Chair: Eva M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston

10:40 am: **Imaging sub-nanomolar concentrations through more than five centimeters of tissue with time-domain diffuse fluorescence tomography**, Frederic Leblond, Fadi El-Ghoussein, Brian W. Pogue, Dartmouth College (USA); Kenneth M. Tichauer, Dartmouth College (Canada) [7896-66]

11:00 am: **Autofluorescence insensitive fluorescence diffuse optical tomography with multispectral priori regularization**, Pontus Svenmarker, Can T. Xu, Haichun Liu, Stefan Andersson-Engels, Lund Univ. (Sweden) [7896-67]

11:20 am: **Autofluorescence suppression in fluorescence tomography of quantum dots using time-gated detection and ultrafast pulsed laser**, Xiaofeng Zhang, Cristian Badea, G. Allan Johnson, Duke Univ. (USA) . [7896-68]

11:40 am: **Unmixing heterogeneous fluorophore lifetimes with frequency domain diffuse optical tomography**, Ralph E. Nothdurft, Samuel Achilefu, Joseph P. Culver, Washington Univ. in St. Louis (USA) [7896-69]

Lunch Break 12:00 to 1:30 pm

SESSION 15

Room: 301 (Esplanade) Wed. 1:30 to 3:10 pm

Pre-Clinical/Clinical Applications I

Session Chair: Robert R. Alfano, Institute for Ultrafast Spectroscopy and Lasers

1:30 pm: **Can a one-layer optical skin model including melanin and inhomogeneously distributed blood explain spatially resolved diffuse reflectance spectra?**, Hanna Karlsson, Linköping Univ. (Sweden); Anders Pettersson, Perimed AB (Sweden); Marcus Larsson, Tomas Strömberg, Linköping Univ. (Sweden) [7896-70]

1:50 pm: **Detecting peripheral artery disease in the lower extremities using DOT**, Michael Khalil, Hyun-Keol Kim, Columbia Univ. (USA); In-Kyong Kim, Rajeev Dayal, New York Presbyterian Hospital (USA); Andreas H. Hielscher, Columbia Univ. (USA) [7896-71]

2:10 pm: **Real-time assessment of blood volume and blood oxygenation in the skin using multispectral imaging and spatial priors**, Jana M. Kainerstorfer, Jason D. Riley, Martin Ehler, Laleh Najafizadeh, Franck Amyot, Moinuddin Hassan, Randall H. Pursley, National Institutes of Health (USA); Stavros G. Demos, Lawrence Livermore National Lab. (USA); Victor V. Chernomordik, National Institutes of Health (USA); Christoph K. Hitzengerber, Medizinische Univ. Wien (Austria); Amir H. Gandjbakhche, National Institutes of Health (USA) [7896-72]

2:30 pm: **Respiratory challenges to detect cyanide toxicity extent in a sublethal rabbit model**, Jae Gwan Kim, Jangwoen Lee, Sari B. Mahon, David S. Mukai, Beckman Laser Institute and Medical Clinic (USA); William C. Blackledge, Univ. of California, San Diego (USA); Steven Patterson, Univ. of Minnesota, Twin Cities (USA); Gerry R. Boss, Univ. of California, San Diego (USA); Bruce J. Tromberg, Beckman Laser Institute and Medical Clinic (USA); Matthew Brenner, Univ. of California, Irvine (USA) [7896-73]

2:50 pm: **Implanted near-infrared spectroscopy for cardiac monitoring**, Sourav K. Bhunia, Can Cinbis, Medtronic, Inc. (USA) [7896-74]

Coffee Break 3:10 to 3:40 pm

SESSION 16

Room: 301 (Esplanade) Wed. 3:40 to 5:20 pm

Pre-Clinical/Clinical Applications II

Session Chair: Bruce Jason Tromberg, Beckman Laser Institute and Medical Clinic

3:40 pm: **Hyperspectral imaging for monitoring temporal development and healing of diabetic foot ulcer**, Dmitry Yudovsky, Laurent Pilon, Univ. of California, Los Angeles (USA); Aksone Nouvong, Western Univ. of Health Sciences (USA) [7896-75]

4:00 pm: **Deep illumination angular domain spectroscopic imaging: tissue-mimicking phantom study**, Yan Zhang, Fartash Vasefi, Simon Fraser Univ. (Canada); Eldon Ng, Astrid Chamson-Reig, Lawson Health Research Institute (Canada); Bozena Kaminska, Simon Fraser Univ. (Canada); Jeffery Carson, Lawson Health Research Institute (Canada) [7896-76]

4:20 pm: **Hierarchical segmentation for improved image reconstruction in diffuse optical tomography of human prostate cancer**, Venkaiah C. Kavuri, Zi-Jing Lin, Hanli Liu, The Univ. of Texas at Arlington (USA) [7896-77]

4:40 pm: **Characterization of 2D surface imaging of tissue optical properties using a submillimeter fiber optic probe**, Vikrant Sharma, Hanli Liu, The Univ. of Texas at Arlington (USA) [7896-78]

5:00 pm: **A quantitative analysis on image quality in an analytical diffuse optical tomography system**, Jun-Hui Ho, Jing Dong, Kijoon Lee, Nanyang Technological Univ. (Singapore) [7896-79]

Optical Interactions with Tissue and Cells XXII

Conference Chairs: **E. Duco Jansen**, Vanderbilt Univ.; **Robert J. Thomas**, Air Force Research Lab.

Program Committee: **Stephen A. Boppart**, Univ. of Illinois at Urbana-Champaign; **Irene Georgakoudi**, Tufts Univ.; **Randolph D. Glickman**, The Univ. of Texas Health Science Ctr. at San Antonio; **Miya Ishihara**, National Defense Medical College (Japan); **Sean J. Kirkpatrick**, Michigan Technological Univ.; **Duncan J. Maitland**, The Texas A&M Univ. System; **Stephen P. Morgan**, The Univ. of Nottingham (United Kingdom); **Jessica C. Ramella-Roman**, The Catholic Univ. of America; **Marissa N. Rylander**, Virginia Polytechnic Institute and State Univ.; **Alfred Vogel**, Univ. zu Lübeck (Germany); **Lihong V. Wang**, Washington Univ. in St. Louis; **Gerald J. Wilmink**, Air Force Research Lab.; **Ying Yang**, Keele Univ. (United Kingdom)

Monday 24 January

SESSION 1

Room: 200 (Mezzanine) Mon. 8:00 to 10:10 am

Photo-Mechanical Interactions I

Session Chair: **E. Duco Jansen**, Vanderbilt Univ.

- 8:00 am: **Photo-Mechanical Interactions (Invited Paper)**, [7897-01]
- 8:30 am: **Comparison of thermal and mechanical effects in tissue depending on laser parameters of Er:Cr:YSGG and Er:YAG lasers using high-speed thermal optical thermography**, Rudolf M. Verdaasdonk, Vrije Univ. Medical Ctr. (Netherlands); Vladimir G. Lemberg, Optomix (USA) [7897-02]
- 8:50 am: **Influence of laser parameters and staining on femtosecond laser-based intracellular nanosurgery**, Kai Kuetemeyer, Rachid Rezgui, Holger Lubatschowski, Alexander Heisterkamp, Laser Zentrum Hannover e.V. (Germany) [7897-03]
- 9:10 am: **Determining properties of spindle microtubules with femtosecond nanosurgery**, Valeria Nuzzo, Jan Brugués, Daniel J. Needleman, Eric Mazur, Harvard Univ. (USA) [7897-04]
- 9:30 am: **Ultrafast laser assisted micro-injection enables distinct spatial localization pattern in cells and retina**, Ling Gu, Shivaranjani Shivalingalah, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7897-05]
- 9:50 am: **Endovenous laser ablation with TM-fiber laser**, Meral F. Somunyudan, Nermin Topaloglu, Bogaziçi Üniv. (Turkey); Mehmet Ü. Ergenoglu, Yeditepe Üniv. (Turkey); Murat Gülsoy, Bogaziçi Üniv. (Turkey) [7897-06]
- Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 200 (Mezzanine) Mon. 10:40 am to 12:00 pm

Photo-Mechanical Interactions II

Session Chair: **Duncan J. Maitland**, The Texas A&M Univ. System

- 10:40 am: **Assessing mechanical properties with intravascular or endoscopic optical coherence tomography**, Guy Lamouche, National Research Council Canada (Canada); Hamed Azarnoush, National Research Council Canada (Canada) and McGill Univ. (Canada); Sébastien Vergnole, Valérie Pazos, Charles-Etienne Bisaillon, Patricia Debergue, National Research Council Canada (Canada); Benoit Boulet, McGill Univ. (Canada); Robert Diraddo, National Research Council Canada (Canada) [7897-07]
- 11:00 am: **The mechanical effect of small airway epithelial cell laser ablation**, Jian Zhou, Martha B. Alvarez-Elizondo, Elliot L. Botvinick, Steven C. George M.D., Univ. of California, Irvine (USA) [7897-08]
- 11:20 am: **Non-invasive optical modulation of local vascular permeability**, Myunghwan Choi, Chulhee Choi M.D., KAIST (Korea, Republic of) [7897-09]
- 11:40 am: **Laser-induced detachment and re-orientation of cells**, Ling Gu, Ninad D. Ingle, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7897-10]
- Lunch Break 12:00 to 1:30 pm

SESSION 3

Room: 200 (Mezzanine) Mon. 1:30 to 3:20 pm

Terahertz Frequency Interactions

Session Chair: **Gerald J. Wilmink**, Air Force Research Lab.

- 1:30 pm: **Terahertz pulsed imaging in vivo (Invited Paper)**, Emma Pickwell-MacPherson, Hong Kong Univ. of Science and Technology (Hong Kong, China) [7897-11]
- 2:00 pm: **THz techniques for human skin measurement**, Yu Guan, Takayuki Shibuya, Koji Suizu, Nagoya Univ. (Japan); Shin'ichiro Hayashi, RIKEN (Japan); Kodo Kawase, Nagoya Univ. (Japan) and RIKEN (Japan) [7897-12]
- 2:20 pm: **Using the gene expression profile of jurkat cells to determine whether terahertz (THz) radiation couples to DNA and impacts transcription processes**, Jessica E. Grundt, Benjamin D. Rivest, Caleb C. Roth, Bennett L. Ibey, Michael L. Doroski, Jason A. Payne, William P. Roach, Gerald J. Wilmink, Air Force Research Lab. (USA) [7897-13]
- 2:40 pm: **Accelerated 3D FDTD modeling of terahertz propagation in tissue using graphics processing units (GPUs)**, Michael L. Doroski, Michael Knight, Jason A. Payne, Jessica E. Grundt, Bennett L. Ibey, Robert J. Thomas, William P. Roach, Gerald J. Wilmink, Air Force Research Lab. (USA) [7897-14]
- 3:00 pm: **Using nanoscale molecular dynamics modeling and Raman spectroscopy to investigate the direct effect of Terahertz radiation on double-stranded DNA**, Gerald J. Wilmink, Jessica E. Grundt, Air Force Research Lab. (USA); Brett R. Boyce, U.S. Air Force Academy (USA); James E. Parker III, Air Force Research Lab. (USA) and The Univ. of Texas at San Antonio (USA); Brady McMicken, The Univ. of Texas at San Antonio (USA); Caleb C. Roth, Bennett L. Ibey, Michael L. Doroski, Benjamin A. Rockwell, Robert J. Thomas, William P. Roach, Air Force Research Lab. (USA) [7897-15]
- Coffee Break 3:20 to 3:50 pm

SESSION 4

Room: 200 (Mezzanine) Mon. 3:50 to 5:50 pm

Photo-Thermal Interactions I

Session Chair: **Robert J. Thomas**, Air Force Research Lab.

- 3:50 pm: **Bioheat model evaluations of laser effects on tissues: role of water evaporation and diffusion**, Ravi P. Joshi, Deepthi Nagulapally, Old Dominion Univ. (USA); Robert J. Thomas, Air Force Research Lab. (USA) [7897-16]
- 4:10 pm: **Effects of He-Ne laser irradiation on red blood cells in vitro**, Vijay H. Ghadage, Gauri R. Kulkarni, Univ. of Pune (India) [7897-17]
- 4:30 pm: **Temperature increase of ex-vivo corneas from multiple 2.01-micron incident laser pulses**, Edward Kelly, Thomas E. Johnson, Colorado State Univ. (USA) [7897-18]
- 4:50 pm: **Characterizing temperature-dependent photo-oxidation to explain the abrupt transition from thermal to non-thermal laser damage mechanisms at 413 nm**, Michael L. Denton, C. D. Clark III, Gary D. Noojin, Kurt J. Schuster, TASC, Inc. (USA); Curtis W. Burney, Benjamin A. Rockwell, Robert J. Thomas, Air Force Research Lab. (USA) [7897-19]
- 5:10 pm: **Effect of 1125-nm laser radiation on porcine skin**, Kathleen Mcmillan, gRadiant Research, LLC (USA) [7897-20]
- 5:30 pm: **Laser damage thresholds for in-vitro retinal pigment epithelial cell by micro-thermal sensing**, Tae-Youl Choi, Andrew D. Atemie, Univ. of North Texas (USA); Michael L. Denton, Gary D. Noojin, TASC, Inc. (USA); Larry E. Estlack, Conceptual MindWorks, Inc. (USA); Benjamin A. Rockwell, Robert J. Thomas, Air Force Research Lab. (USA) [7897-21]

BIOS

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Laser ultrasound characterization of normal and decayed teeth by measuring elastic properties of surface layers, Yasser H. El-Sharkawy, Cairo Univ. (Egypt) [7897-55]

VEGFC as a survival factor for retinal pigment epithelial cells under thermal stress, Brent J. Lavey, U.S. Air Force (USA); Katharine E. Sheldon, Air Force Research Lab. (USA); Larry E. Estlack, Conceptual MindWorks, Inc. (USA); Kurt J. Schuster, TASC, Inc. (USA); Michael D. Barnhart, U.S. Air Force Academy (USA) [7897-56]

Analysis on unevenness of skin color using the melanin and hemoglobin components separated by independent component analysis of skin color image, Nobutoshi Ojima, KAO Corp. (Japan); Izumi Fujiwara, Chiba Univ. (Japan); Yayoi Inoue, KAO Corp. (Japan); Norimichi Tsumura, Toshiya Nakaguchi, Chiba Univ. (Japan); Kayoko Iwata, KAO Corp. (Japan) [7897-57]

Monte Carlo simulation for light propagation in 3D tooth model, Yongji Fu, Sharp Labs. of America, Inc. (USA); Steven L. Jacques, Oregon Health & Science Univ. (USA) [7897-58]

Biophotonics and laser-optics technologies for controlling gas-exchange processes in biological tissue, Mustafa M. Asimov, B.I. Stepanov Institute of Physics (Belarus); Rustam Asimau, Sensotronica Ltd. (Belarus); Anatoli N. Rubinov, B.I. Stepanov Institute of Physics (Belarus) [7897-59]

A study of light fluence rate distribution for intracavitary PDT using MC simulation, Julia Sandell, The Univ. of Pennsylvania Health System (USA) [7897-60]

Angular-domain spectroscopic imaging of turbid media: derivative analysis, Fartash Vasefi, Mohamadreza Najiminaini, Simon Fraser Univ. (Canada); Eldon Ng, The Univ. of Western Ontario (Canada); Bozena Kaminska, Simon Fraser Univ. (Canada); Jeffrey J. Carson, The Univ. of Western Ontario (Canada) [7897-61]

Effect of low-level GaAs laser irradiation on the proliferation rate of human periodontal ligament fibroblast: an in vitro study, Shelly Ahuja, Pankaj Madhukar, Maharana Pratap College of Dentistry & Research Ctr. (India) [7897-62]

FTD multi-GPU implementation of Maxwell's equations in dispersive media, Mohammad R. Zunoubi, State Univ. of New York at New Paltz (USA); Jason A. Payne, Michael Knight, Air Force Research Lab. (USA) [7897-63]

Human skin auto-fluorescence decay as a function of irradiance and skin type, Martin P. Debreczeny, MPD Consulting (USA); Rebecca Bates, Rick M. Fitch, Karen P. Galen, Jiajia Ge, Richard B. Dorshow, Covidien Pharmaceuticals (USA) [7897-64]

What happens in the rat brain locally exposed to a shock wave? Real-time optical diagnosis, Shunichi Sato, Satoko Kawauchi, Yoichi Uozumi, Hiroshi Nawashiro, Makoto Kikuchi M.D., Hiroshi Ashida, National Defense Medical College (Japan) [7897-65]

Traumatic brain injury caused by laser-induced shock wave in rats: a novel laboratory model for studying blast-induced traumatic brain injury, Ben Hatano, Yoshihisa Matsumoto, Japan Self-Defense Force (Japan); Naoki Otani, Daizoh Saitoh, Shinichi Tokuno, Yasushi Satoh, Hiroshi Nawashiro, National Defense Medical College (Japan); Yoshitaro Matsushita, Japan Self-Defense Force (Japan); Shunichi Sato, National Defense Medical College (Japan) [7897-66]

Error analysis of tissue optical properties determined by double-integrating sphere system and inverse Monte Carlo method, Takaya Terada, Osaka Univ. (Japan) and Japan Science and Technology Agency (Japan); Takuya Nanjo, Norihiro Honda, Katsunori Ishii, Osaka Univ. (Japan); Kunio Awazu, Osaka Univ. (Japan) and Japan Science and Technology Agency (Japan) and Univ. of Fukui (Japan) [7897-67]

Optical imaging through non-transparent small aquatic creatures with angular-domain imaging, Rongen Cheng, Polly B. Tsui, Gary Chiang, Glenn H. Chapman, Simon Fraser Univ. (Canada) [7897-68]

Effect of porphyrins bound to tubulin dimers, Brady McMicken, OJames E. Parker III, Lorenzo Brancaleone, The Univ. of Texas at San Antonio (USA) [7897-69]

Evaluating changes in optical properties of biological cells due to histological staining, Lusik Cherkezyan, Hariharan Subramanian, Northwestern Univ. (USA); Vani Konda, The Univ. of Chicago Medical Ctr. (USA); Curie Chang, Dhwanil Damania, Northwestern Univ. (USA); Irving Waxman, The Univ. of Chicago Medical Ctr. (USA); Vadim Backman, Northwestern Univ. (USA) [7897-70]

Tuesday 25 January

SESSION 5

Room: 200 (Mezzanine) Tues. 8:00 to 10:10 am

Spectroscopy and Transport Theory I

Session Chair: **Jessica C. Ramella-Roman**,
The Catholic Univ. of America

8:00 am: **Is tissue Raman spectrum really a linear combination of its constituent spectra?** (*Invited Paper*), Ishan Barman, Narahara Chari Dingari, Chae-Ryon Kong, Jeon Woong Kang, Ramachandra R. Dasari, Michael S. Feld, Massachusetts Institute of Technology (USA) [7897-22]

8:30 am: **Playing catch-up between the two-glucose compartments with spectroscopy**, Chae-Ryon Kong, Ishan Barman, Narahara Chari Dingari, Jeon Woong Kang, Ramachandra R. Dasari, Michael S. Feld, Massachusetts Institute of Technology (USA) [7897-23]

8:50 am: **Detection of familial adenomatous polyposis with polarized spectroscopic imaging and oral vascular density**, Ali Basiri, The Catholic Univ. of America (USA); Daniel Edelstein, Francis Giardiello, The Johns Hopkins Univ. (USA); Jessica C. Ramella-Roman, The Catholic Univ. of America (USA) [7897-24]

9:10 am: **Determining the optical properties in a fibrous turbid medium**, Ali S. Shuaib, Gang Yao, Univ. of Missouri-Columbia (USA) [7897-25]

9:30 am: **Detection of cancer cells in prostate tissue with time-resolved fluorescence spectroscopy**, Carola Gerich, Joerg L. Opitz, Fraunhofer-Institut für Zerstörungsfreie Prüfverfahren (Germany); Susanne Füssel, Marieta Toma, Mildred Sergon, Universitätsklinikum Carl Gustav Carus Dresden (Germany); Ralf Nanke, Jens Fehre, Siemens AG (Germany); Gustavo Baretton, Manfred Wirth, Universitätsklinikum Carl Gustav Carus Dresden (Germany); Jürgen Schreiber, Fraunhofer-Institut für Zerstörungsfreie Prüfverfahren (Germany) [7897-26]

9:50 am: **Behavior of optical properties of coagulated blood sample at 633-nm wavelength**, Beatriz Morales, Sergio Vazquez-Montiel, José Alberto Delgado Atencio, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) [7897-27]

Coffee Break 10:10 to 10:40 am

SESSION 6

Room: 200 (Mezzanine) Tues. 10:40 am to 12:20 pm

Spectroscopy and Transport Theory II

Session Chair: **Robert J. Thomas**, Air Force Research Lab.

10:40 am: **Vibrational spectroscopy characterization of low-level laser therapy on mammary culture cells: a micro-FTIR study**, Taciana D. Magrini, Nathalia V. dos Santos, Marcella P. Milazzotto, Giselle Cerchiaro, Herculano da Silva Martinho, Univ. Federal do ABC (Brazil) [7897-28]

11:00 am: **Detection of pre-charring optical behavior at a laser catheter-tip in blood: ex vivo and in vivo study**, Mei Takahashi, Arisa Ito, Takuro Kajihara, Tsunenori Arai, Keio Univ. (Japan) [7897-29]

11:20 am: **Three-dimensional angular-domain optical projection tomography**, Eldon Ng, Fartash Vasefi, The Univ. of Western Ontario (Canada); Bozena Kaminska, Simon Fraser Univ. (Canada); Jeffrey J. Carson, The Univ. of Western Ontario (Canada) [7897-30]

11:40 am: **Angular-domain imaging of fluorescence sources within tissue phantoms**, Rongen Cheng, Polly B. Tsui, Glenn H. Chapman, Nick Pfeiffer, Bozena Kaminska, Simon Fraser Univ. (Canada) [7897-31]

12:00 pm: **Experimental optical technique for the investigation of light transport within irradiated tissues**, Rinat Ankrí, Dror Fixler, Haim Taitelbaum, Bar-Ilan Univ. (Israel) [7897-71]

Lunch Break 12:20 to 1:30 pm

SESSION 7

Room: 200 (Mezzanine)..... Tues. 1:30 to 2:50 pm

Photo-Thermal Interactions II

Session Chair: Marissa N. Rylander,
Virginia Polytechnic Institute and State Univ.1:30 pm: **Subsurface temperature imaging techniques during infrared laser-tissue interactions**, Rudolf M. Verdaasdonk, Vrije Univ. Medical Ctr. (Netherlands); Stefan Been, John H. Klaessens, Univ. Medical Ctr. Utrecht (Netherlands) [7897-32]1:50 pm: **Photothermal therapy of cancer cells using magnetic carbon nanoparticles**, Vijayalakshmi Varadarajan, Ling Gu, Samarendra K. Mohanty, Ali R. Koymen, The Univ. of Texas at Arlington (USA) [7897-33]2:10 pm: **Pulsed-laser assisted nanothermolysis of acute leukemia cells targeted with gold nanorods conjugated with CD-33 antibody**, Anton Liopo, André Conjusteau, TomoWave Labs., Inc. (USA); Marina Konopleva, The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Richard Su, TomoWave Labs., Inc. (USA); Michael Andreeff, The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Alexander A. Oraevsky, TomoWave Labs., Inc. (USA) [7897-34]2:30 pm: **Skin damage thresholds with continuous-wave laser exposures at the infrared wavelength of 1.3 μ m**, Jeffrey W. Oliver, Semih S. Kumru, Robert J. Thomas, Benjamin A. Rockwell, Air Force Research Lab. (USA); Corey A. Harbert, Gary D. Noojin, Isaac Noojin, Kurt J. Schuster, Aurora D. Shingledecker, TASC, Inc. (USA) [7897-35]

Coffee Break 2:50 to 3:40 pm

SESSION 8

Room: 200 (Mezzanine)..... Tues. 3:40 to 5:40 pm

Photo-Chemical Interactions

Session Chair: Randolph D. Glickman,
The Univ. of Texas Health Science Ctr. at San Antonio3:40 pm: **Amplified photodynamic effect on skin cells in-vitro exploiting the surface plasmon resonance effect of metal nanoparticles**, Brigitte Bauer, Göteborg Univ. (Sweden); Si Chen, Mikael Käll, Linda Gunnarsson, Chalmers Univ. of Technology (Sweden); Marica B. Ericson, Göteborg Univ. (Sweden) [7897-37]4:00 pm: **Laser injury and in-vivo multimodal imaging using a mouse model**, Ginger M. Pocock, Air Force Research Lab. (USA); Adam Boretsky, Praveena Gupta, The Univ. of Texas Medical Branch (USA); Jeffrey W. Oliver, Air Force Research Lab. (USA); Massoud Motamedi, The Univ. of Texas Medical Branch (USA) [7897-38]4:20 pm: **Optical control of urination in neurogenic bladder using femtosecond-pulsed laser**, Jonghee Yoon, Myunghwan Choi, Chulhee Choi M.D., KAIST (Korea, Republic of) [7897-39]4:40 pm: **Low-energy laser irradiation promotes synovial fibroblast proliferation**, Daigo Taniguchi, Ayabe City Hospital (Japan); Ping Dai, Yoshinori Harada, Yoshihisa Yamaoka, Kyoto Prefectural Univ. of Medicine (Japan); Tatsuya Hojo, Doshisha Univ. (Japan); Tetsuro Takamatsu, Kyoto Prefectural Univ. of Medicine (Japan) [7897-40]5:00 pm: **No effect of femtosecond laser pulses on DNA, protein, M13, or E. coli**, Jeffrey C. Wagle, Eric A. Holwitt, Katharine E. Sheldon, U.S. Air Force (USA); Larry E. Estlack, Conceptual MindWorks, Inc. (USA); Gary D. Noojin, TASC, Inc. (USA); Benjamin A. Rockwell, U.S. Air Force (USA) [7897-41]5:20 pm: **Correlating computational docking predictions with Raman spectroscopy for beta-lactoglobulin-porphyrin complexes**, James E. Parker III, Lorenzo Brancaleon, The Univ. of Texas at San Antonio (USA) [7897-42]

Wednesday 26 January

SESSION 9

Room: 200 (Mezzanine)..... Wed. 8:30 to 9:50 am

Imaging I

Session Chair: Sean J. Kirkpatrick, Michigan Technological Univ.8:30 am: **Rotating wall vessel designed for fluorescent imaging**, Tristan J. Tayag, Texas Christian Univ. (USA); Dan Dimitrijevisch, Univ. of North Texas Health Science Ctr. at Fort Worth (USA); Lauren C. Del Gallego, Pankaj Kumar, Texas Christian Univ. (USA) [7897-43]8:50 am: **Characterizing tissue scaffolds using optics and ultrasound**, Stephen P. Morgan, Nam Trung Huynh, Barrie R. Hayes-Gill, John A. Crowe, Melissa L. Mather, Felicity R. Rose, The Univ. of Nottingham (United Kingdom); Nicholas G. Parker, Malcolm J. W. Povey, Univ. of Leeds (United Kingdom) [7897-44]9:10 am: **In-vitro Raman spectroscopic process monitoring of tissue engineered oral mucosa constructs**, Arindam Ganguly, Jacqueline H. Cole, Shuihyang Kuo, Cynthia L. Marcelo, Univ. of Michigan (USA); Kenji Izumi, Niigata Univ. (Japan); Stephen E. Feinberg, Michael D. Morris, Univ. of Michigan (USA) [7897-45]9:30 am: **Validation of artificial skin equivalents as in-vitro testing systems**, Robert Schmitt, RWTH Aachen (Germany) and Fraunhofer-Institut für Produktionstechnologie (Germany); Ulrich Marx, Fraunhofer-Institut für Produktionstechnologie (Germany); Heike Walles, Andrea Heymer, Michaela Kaufmann, Fraunhofer-Institut für Grenzflächen- und Bioverfahrenstechnik (Germany) [7897-46]

Coffee Break 9:50 to 10:20 am

SESSION 10

Room: 200 (Mezzanine)..... Wed. 10:20 to 11:40 am

Imaging II

Session Chair: Stephen P. Morgan,
The Univ. of Nottingham (United Kingdom)10:20 am: **Discrimination of type I and type II collagen by nonlinear microscopy**, Ping-Jung Su, Wei-Liang Chen, Tsung-Hsien Li, Chen-Kuan Chou, Te-Hsuen Chen, Yi-Yun Ho, Chi-Hsiu Huang, National Taiwan Univ. (Taiwan); Shwu-Jen Chang, I-Shou Univ. (Taiwan); Yi-You Huang, National Taiwan Univ. (Taiwan); Hsuan-Shu Lee, National Taiwan Univ. Hospital (Taiwan); Chen-Yuan Dong, National Taiwan Univ. (Taiwan) [7897-47]10:40 am: **Advanced methods of quantifying electrospun fiber alignment**, Nicholas J. Schaub, Sean J. Kirkpatrick, Michigan Technological Univ. (USA); Ryan Gilbert, Rensselaer Polytechnic Institute (USA) [7897-48]11:00 am: **Chemotaxis and migration of mutant and wild-type cells in 3D and 4D using ultra-high-resolution optical coherence tomography**, Sara M. Rey, Cardiff Univ. (United Kingdom); Boris Pova?ay, Bernd Hofer, Medizinische Univ. Wien (Austria); Adrian Harwood, Cardiff Univ. (United Kingdom); Wolfgang Drexler, Medizinische Univ. Wien (Austria) [7897-49]11:20 am: **Dynamic in-vivo visualization of anastomosis between a prevascularized implantable tissue construct and host circulation**, Sean White, Christopher Hughes, Bernard Choi, Steven C. George M.D., Univ. of California, Irvine (USA) [7897-50]

Lunch Break 11:40 am to 1:10 pm

SESSION 11

Room: 200 (Mezzanine) Wed. 1:10 to 2:40 pm

Effects of Light on Cells and Tissues

Session Chair: **Miya Ishihara**, National Defense Medical College (Japan)

1:10 pm: **Optical methods for diagnostics and feed-back control in laser-induced regeneration of spine disc and joint cartilages** (*Invited Paper*), Emil Sobol, Alexander P. Sviridov, Alexander V. Omelchenko, Olga I. Baum, Institute on Laser and Information Technologies (Russian Federation); Andrey V. Baskov, Igor Borchshenko, Vladimir S. Golubev, Vladimir A. Baskov, Medical Ctr. for Vertebrology and Orthopedics (Russian Federation) [7897-51]

1:40 pm: **Observation of light-oxygen effect under irradiation of mammals red blood cells with fiber RAMAN-laser**, Andrey S. Kurkov, A. M. Prokhorov General Physics Institute (Russian Federation); Tatyana Genning, Dinara Arslanova, Liubov Belozeroval, Olga Voronova, Vyacheslav Svetukhin, Ulyanovsk State Univ. (Russian Federation); Eugene Sholokhov, A. M. Prokhorov General Physics Institute (Russian Federation); Vladimir Ostatochnikov, Igor Zolotovskiy, Ulyanovsk State Univ. (Russian Federation) [7897-52]

2:00 pm: **Red light emitting diode irradiation inhibits high glucose-enhanced osteoclastogenesis of rat bone marrow cells**, Wen-Tyng Li, Chung Yuan Christian Univ. (Taiwan) [7897-53]

2:20 pm: **Stretching of red blood cells by optical tweezers quantified by digital holographic microscopy**, Nelson Cardenas, Willard Hanson, The Univ. of Texas at Arlington (USA); Lingfeng Yu, Nanoscope Technologies LLC (USA); Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7897-54]

Courses of Related Interest

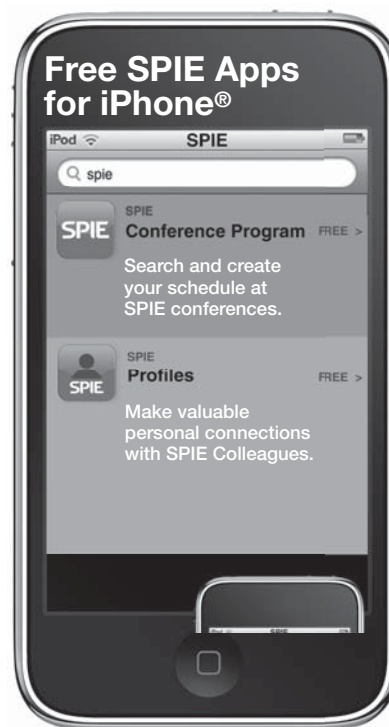
SC029 Tissue Optics (Jacques) Sunday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Photonics West maps:

Moscone Center Maps pp. 2-4

Walking Map p. 14



Dynamics and Fluctuations in Biomedical Photonics VI

Conference Chairs: **Valery V. Tuchin**, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); **Donald D. Duncan**, Portland State Univ.; **Kirill V. Larin**, Univ. of Houston; **Martin J. Leahy**, Univ. of Limerick (Ireland); **Ruikang K. Wang**, Oregon Health & Science Univ.

Program Committee: **Vadim S. Anischenko**, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); **Pierre-Olivier Bagnaninchi**, The Univ. of Edinburgh (United Kingdom); **Wei R. Chen**, Univ. of Central Oklahoma; **Joseph P. Culver**, Washington Univ. in St. Louis; **Miya Ishihara**, National Defense Medical College (Japan); **Jingying Jiang**, Tianjin Univ. (China); **Sean J. Kirkpatrick**, Michigan Technological Univ.; **Jürgen M. Lademann**, Charité Universitätsmedizin Berlin (Germany); **Hong Liu**, The Univ. of Oklahoma; **Qingming Luo**, Britton Chance Ctr. for Biomedical Photonics (China); **Igor Meglinski**, Univ. of Otago (New Zealand); **Vladislav Y. Toronov**, Ryerson Univ. (Canada); **Lihong V. Wang**, Washington Univ. in St. Louis; **Ying Yang**, Keele Univ. (United Kingdom); **Vladimir P. Zharov**, Univ. of Arkansas for Medical Sciences; **Dmitry A. Zimnyakov**, N.G. Chernyshevsky Saratov State Univ. (Russian Federation)

Saturday 22 January

SESSION 1

Room: 307 (Esplanade) Sat. 1:30 to 4:30 pm

Cell/Tissue Complex Structure and Dynamics

Session Chair: **Valery V. Tuchin**, N.G. Chernyshevsky Saratov State Univ. (Russian Federation)

1:30 pm: **Ultra-high-sensitive optical micro-angiography reveals dynamic changes of depth-resolved microcirculations within skeletal muscles** (*Invited Paper*), Yali Jia, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7898-02]

2:00 pm: **Tissue structural characterization appropriate for Monte Carlo studies**, Donald D. Duncan, Portland State Univ. (USA); David G. Fischer, NASA Glenn Research Ctr. (USA); Amanda L. Dayton, Scott A. Prael, Providence St. Vincent Medical Ctr. (USA) [7898-03]

2:20 pm: **Fluctuation imaging to screen for subcellular dynamics in living tissue**, David D. Nolte, Ran An, John J. Turek, Purdue Univ. (USA); Kwan Jeong, Korean Military Academy (Korea, Republic of) [7898-04]

2:40 pm: **Effect of hypothermic preservation on biological tissues in physiological solution**, Mohamad G. Ghosn, Baylor College of Medicine (USA); Mohamad Mohamed, Aydan Mehrizad, Maleeha Mashiatulla, Saba H. Syed, Univ. of Houston (USA); Fernando Castro-Chavez, Joel Morrisett, Baylor College of Medicine (USA); Kirill V. Larin, Univ. of Houston (USA) [7898-05]

Coffee Break 3:00 to 3:30 pm

3:30 pm: **Diffusion versus deterministic mass transport in live cells**, Ru Wang, Zhuo Wang, Rajiv Iyer, Larry Millet, Univ. of Illinois at Urbana-Champaign (USA); Alex Levine, Univ. of California, Los Angeles (USA); Martha Gillette, Gabriel Popescu, Univ. of Illinois at Urbana-Champaign (USA) [7898-06]

3:50 pm: **The study of proteoglycan concentration on tendons' optical properties by PS-OCT**, Ying Yang, Mohammed Ismail, Alan P. Weightman, Ian Wimpenny, Keele Univ. (United Kingdom); Pierre-Olivier Bagnaninchi, The Univ. of Edinburgh (United Kingdom); Mark Ahearne, Keele Univ. (United Kingdom) [7898-07]

4:10 pm: **Design of nanoparticles for medical applications: key physical mechanisms of efficient optical contrast** (*Invited Paper*), Leonid D. Shvartsman, Boris Laikhtman, The Hebrew Univ. of Jerusalem (Israel) [7898-08]

Keynote Session

Room: 307 (Esplanade) Sat. 4:30 to 5:00 pm

Session Chair: **Valery V. Tuchin**, N.G. Chernyshevsky Saratov State Univ. (Russian Federation)

4:30 pm: **In-vivo multiplex photoacoustic Raman flow cytometry with magnetic sorting**, Vladimir P. Zharov, Univ. of Arkansas for Medical Sciences (USA) [7898-01]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

SESSION 2

Room: 307 (Esplanade) Sun. 9:00 am to 12:20 pm

Speckle Measuring and Imaging Technologies

Session Chair: **Donald D. Duncan**, Portland State Univ.

9:00 am: **Speckle-based measurement of the light scattering by red blood cells in vivo** (*Invited Paper*), Ilya Fine, Alexander Kaminsky, Elfi-Tech Ltd (Israel) [7898-09]

9:30 am: **Effects of multiple decorrelation time constants in laser speckle contrast imaging**, Sean J. Kirkpatrick, Michigan Technological Univ. (USA); Donald D. Duncan, Portland State Univ. (USA) [7898-10]

9:50 am: **High-speed dynamic laser speckle imaging of changes of microcirculation in vivo**, Jia Qin, Lin An, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7898-11]

Coffee Break 10:10 to 10:40 am

10:40 am: **Measurement of ordered blood flow by laser speckle**, Evan R. Hirst, Industrial Research Ltd. (New Zealand); Oliver B. Thompson, Industrial Research Ltd. (New Zealand) and Univ. of Auckland (New Zealand); Michael K. Andrews, Industrial Research Ltd. (New Zealand) [7898-12]

11:00 am: **Is there a difference between laser speckle and laser Doppler in depth sensitivity?**, Oliver B. Thompson, Industrial Research Ltd. (New Zealand) and Univ. of Auckland (New Zealand); Evan R. Hirst, Michael K. Andrews, Industrial Research Ltd. (New Zealand) [7898-13]

11:20 am: **Application of laser speckle contrast analysis for the study of dental resin composite polymerization kinetics**, Elaine M. Wells-Gray, Oregon Health & Science Univ. (USA); Sean J. Kirkpatrick, Michigan Technological Univ. (USA); Donald D. Duncan, Portland State Univ. (USA) [7898-14]

11:40 am: **Study on blood-flow pulsation using laser speckle contrast imaging**, Shuai Yuan, The Univ. of Memphis (USA); Yu Chen, Univ. of Maryland, College Park (USA); Chrysanthe Preza, The Univ. of Memphis (USA); Cha-Min Tang M.D., Univ. of Maryland School of Medicine (USA) [7898-15]

12:00 pm: **A pilot study on hemodynamics response monitoring during photodynamic therapy based on real-time diffuse optical measurements**, Jing Dong, Jun-Hui Ho, Siang Luong Ting, Melda Tan, Kijoon Lee, Nanyang Technological Univ. (Singapore) [7898-40]

Lunch/Exhibition Break 12:20 to 1:30 pm

SESSION 3

Room: 307 (Esplanade) Sun. 1:30 to 4:30 pm

Imaging of Microvasculature, Blood Flow, and Microcirculation

Session Chair: **Martin J. Leahy**, Univ. of Limerick (Ireland)

1:30 pm: **Role of microcomputed tomography in microvascular imaging** (*Invited Paper*), Erik L. Ritman, Mayo Clinic (USA) [7898-16]

2:00 pm: **Quantitative, imaging-based estimation of blood flow velocity in the eye**, Donald D. Duncan, Portland State Univ. (USA); Paul Lemailet, The Catholic Univ. of America (USA); Mohamed Ibrahim, Quan Dong Nguyen, The Johns Hopkins Univ. (USA); Jessica C. Ramella-Roman, The Catholic Univ. of America (USA) [7898-17]

2:20 pm: **Smart velocity ranging quantifiable optical micro-angiography**, Zhongwei Zhi, Yali Jia, Lin An, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7898-18]

2:40 pm: **Multimodal approach for functional diagnostics and imaging of vascular network and blood microcirculation**, Igor Meglinski, Univ. of Otago (New Zealand); Vyacheslav Kalchenko, Alon Harmelin, Weizmann Institute of Science (Israel) [7898-19]

Coffee Break 3:00 to 3:30 pm

3:30 pm: **Correlation mapping: rapid method for retrieving microcirculation morphology from optical coherence tomography intensity images**, Enock Jonathan, Joey G. Enfield, Martin J. Leahy, Univ. of Limerick (Ireland) [7898-20]

3:50 pm: **Development of an absorption-based tomographic system for mapping the human microvasculature**, Paul M. McNamara, Enock Jonathan, Marie-Louise O'Connell, Martin J. Leahy, Univ. of Limerick (Ireland) . . [7898-21]

4:10 pm: **In-vivo three-dimensional Doppler variance imaging for tumor angiogenesis on chorioallantoic membrane**, Wenjuan Qi, Gangjun Liu, Zhongping Chen, Beckman Laser Institute and Medical Clinic (USA) . [7898-22]

SESSION 5

Room: 307 (Esplanade) Mon. 10:30 am to 1:00 pm

Skin Optics and Dynamics

Session Chair: **Kirill V. Larin**, Univ. of Houston

10:30 am: **Interaction of nanoparticles with the skin barrier: safety aspects and pharmaceutical potential** (*Invited Paper*), Jürgen M. Lademann, Heike Richter, Wolfram Sterry M.D., Alexa Patzelt M.D., Charité Universitätsmedizin Berlin (Germany) [7898-27]

11:00 am: **Ultra-high-sensitive optical micro-angiography provides 3D visualization of microcirculations within human skin under psoriatic conditions**, Jia Qin, Lin An, Daniel S. Gareau, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7898-28]

11:20 am: **Optical coherence tomography: imaging architect for dermal microdialysis in psoriasis**, Marie-Louise O'Connell, W. O'Connor, Univ. of Limerick (Ireland); B. Ramsay, Mid-Western Regional Hospital (Ireland); E. Guihen, Univ. of Limerick (Ireland); W. Lyn Ho, Mid-Western Regional Hospital (Ireland); Martin J. Leahy, Univ. of Limerick (Ireland) [7898-29]

11:40 am: **Characterisation of skin layer properties using laser-generated surface acoustic waves validated by FEM method**, Chunhui Li, Oregon Health & Science Univ. (USA) and Univ. of Dundee (United Kingdom); Zhihong Huang, Univ. of Dundee (United Kingdom); Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7898-30]

12:00 pm: **In-vivo assessment of cleavage line orientation in human skin using optical coherence tomography**, Joey G. Enfield, Enock Jonathan, Martin J. Leahy, Univ. of Limerick (Ireland) [7898-31]

12:20 pm: **Measurements of adipose derived stem cell vitality with optical coherence phase microscopy**, Pierre-Olivier Bagnaninchi, The Univ. of Edinburgh (United Kingdom); Christina Holmes, McGill Univ. (Canada); Nicola Drummond, The Univ. of Edinburgh (United Kingdom); J. Daoud, Maryam Tabrizian, McGill Univ. (Canada) [7898-32]

12:40 pm: **Finger tissue model and blood perfused skin tissue phantom**, Valery V. Tuchin, Alexey N. Bashkatov, Elina A. Genina, Vyacheslav I. Kochubey, Vladislav V. Lychagov, Sergey A. Portnov, Natalia A. Trunina, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Seongmoon Cho, Hyunho Oh, BongChu Shim, Moosub Kim, Jeankun Oh, Hyejin Eum, Yunhee Ku, Dami Kim, Yongju Yang, David R. Miller, LG Electronics Inc. (Korea, Republic of) [7898-33]

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Monte Carlo simulation on how optical clearing technique influences predicting precision of non-invasive optical blood glucose sensing, Jingying Jiang, Wei Chen, Lingling Zhang, Tianjin Univ. (China); Ruikang K. Wang, Oregon Health & Science Univ. (USA); Kexin Xu, Tianjin Univ. (China). [7898-34]

Quantifying low-frequency fluctuations in the laser Doppler flow signal from human skin, Gesse E. Calvo Nogueira, Melissa Santos Folgosi-Correa, Instituto de Pesquisas Energéticas e Nucleares (Brazil) [7898-35]

Depth-resolved optical imaging of hemodynamic response within macro- and micro-circulatory beds in mouse brain, Yali Jia, Oregon Health & Science Univ. (USA); Jingyong Jiang, Oregon Health & Science Univ. (USA) and Tianjin Univ. (China); Zhongwei Zhi, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7898-36]

Structural changes in glycated protein revealed by phosphorescent probe, Andrey G. Melnikov, Ekaterina V. Naumova, Saratov State Technical Univ. (Russian Federation); Alexander B. Pravdin, Vyacheslav I. Kochubey, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Gennady V. Melnikov, Saratov State Technical Univ. (Russian Federation) [7898-37]

Influence of blood components on non-invasive blood glucose sensing studied with NIR spectroscopy, Jingying Jiang, Lingling Zhang, Qiliang Gong, Kexin Xu, Tianjin Univ. (China) [7898-38]

Classification of spiking events with wavelet neural networks, Alexey N. Pavlov, Alexey Nazimov, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [7898-39]

PANEL DISCUSSION

Room: 307 (Esplanade) Sun. 4:30 to 5:10 pm

Harnessing Biophotonics for Better Healthcare and the Creation of an International Microcirculation Imaging Lab

Panel Moderator: **Martin J. Leahy**, Univ. of Limerick (Ireland)

Panelists: **Ruikang Wang**, Oregon Health and Science Univ. (USA), **Stuart Foster**, Sunnybrook Health Sciences Ctr. (Canada), **Erik Ritman**, Mayo Clinic (USA), **Lihong Wang**, Washington Univ. in St. Louis (USA), **Wiendelt Steenbergen**, Univ. Twente (Netherlands), **Bruce Tromberg**, Beckman Laser Institute and Medical Clinic (USA), **Kirill Larin**, Univ. of Houston (USA), **Donald Duncan**, Portland State Univ. (USA), **Valery Tuchin**, Saratov State Univ. (Russia), **Adam Liebert**, Polish Academy of Sciences (Poland)

Monday 24 January

SESSION 4

Room: 307 (Esplanade) Mon. 8:40 to 10:00 am

Blood Perfusion Imaging and Hemodynamics

Session Chair: **Ruikang K. Wang**, Oregon Health & Science Univ.

8:40 am: **Quantitative assessment of perfusion velocities with holographic laser Doppler**, Caroline V. Magnain, Benjamin Samson, Michael Atlan, Ecole Supérieure de Physique et de Chimie Industrielles (France) [7898-23]

9:00 am: **Influence of changes in hemoglobin concentration on the laser Doppler perfusion signal measured during postocclusive reactive hyperemia**, Stanislaw Wojtkiewicz, Adam Liebert, Roman Maniewski, Institute of Biocybernetics and Biomedical Engineering (Poland) [7898-24]

9:20 am: **Dynamic changes in brain hemodynamics and cerebral metabolic rate of oxygen during repeated squat-stand**, Haijing Niu, Lin Li, Gauri Suresh Bhavne, The Univ. of Texas at Arlington (USA); Rong Zhang, The Univ. of Texas at Dallas (USA); Khosrow Behbehani, Hanli Liu, The Univ. of Texas at Arlington (USA) [7898-25]

9:40 am: **The lag time between changes in blood and interstitial glucose levels in vivo by ATR-FTIR spectroscopy**, Natalja Skrebova Eikje M.D., MC Professional OÜ (Estonia) [7898-26]

Coffee Break 10:00 to 10:30 am

- High-sensitive volumetric imaging of renal microcirculation in vivo using ultra-high-sensitive optical micro-angiography**, Zhongwei Zhi, Yeongri Jung, Yali Jia, lin An, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7898-41]
- Estimation of flow dynamics on nanopillar-structured microchannels using ODT**, Hyun-Woo Jeong, Jung-Suk Kim, Kyu-Back Lee, Beop-Min Kim, Korea Univ. (Korea, Republic of) [7898-42]
- 3D optical imaging of skin blood perfusion at true capillary level in vivo**, Guangying Guan, Oregon Health & Science Univ. (USA) and Univ. of Dundee (United Kingdom); Zhihong Huang, Univ. of Dundee (United Kingdom); Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7898-43]
- Propagation of circular polarized light in a scattering medium influenced by optical clearing**, Igor Meglinski, Callum Macdonald, Univ. of Otago (New Zealand) [7898-45]
- Determination of blood types using a chirped-photonic fiber**, Anton Malinin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) and SPE LLC NGT (Russian Federation); Anastasija Zanishevskaja, Julia S. Skibina, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Igor Silohin, SPE LLC NGT (Russian Federation); Valeriy A. Dubrovskiy, Saratov State Medical Univ. (Russian Federation); Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Aleksey Dolmashkin, Saratov State Medical Univ. (Russian Federation) [7898-46]
- Study of optical clearing of blood by immersion method**, Olga S. Zhernovaya, Univ. of Limerick (Ireland) and N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Enoch Jonathan, Univ. of Limerick (Ireland); Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Martin J. Leahy, Univ. of Limerick (Ireland) [7898-47]
- Speckle-correlation monitoring of the internal microvascular flow**, Pavel Novikov, Dmitry A. Zimnyakov, Roman A. Zdrajevsky, Valery V. Tuchin, Maxim Vilensky, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [7898-48]
- Saturation thresholds of evoked neural and hemodynamic responses in awake and asleep rats**, Jennifer L. Schei, Amy S. Van Nortwick, Peter C. Meighan, David M. Rector, Washington State Univ. (USA) [7898-49]



**Don't miss the free
BiOS Exhibition**

See the latest components, devices, and instrumentation for diagnostics and therapeutics

22–23 January 2011
 Saturday · 12:00 pm to 5:00 pm
 Sunday · 10:00 am to 5:00 pm

Photons Plus Ultrasound: Imaging and Sensing 2011

Conference Chairs: **Alexander A. Oraevsky**, TomoWave Laboratories Inc.; **Lihong V. Wang**, Washington Univ. in St. Louis

Program Committee: **Mark A. Anastasio**, Illinois Institute of Technology; **Paul C. Beard**, Univ. College London (United Kingdom); **Claude A. Boccara**, Ecole Supérieure de Physique et de Chimie Industrielles (France); **Gerald J. Diebold**, Brown Univ.; **Charles A. DiMarzio**, Northeastern Univ.; **Stanislav Y. Emelianov**, The Univ. of Texas at Austin; **Rinat O. Esenaliev**, The Univ. of Texas Medical Branch; **Martin Frenz**, Univ. Bern (Switzerland); **Steven L. Jacques**, Oregon Health & Science Univ.; **Robert A. Kruger**, OptoSonics, Inc.; **Pai-Chi Li**, National Taiwan Univ. (Taiwan); **Andreas Mandelis**, Univ. of Toronto (Canada); **Vasilis Ntziachristos**, Helmholtz Zentrum München GmbH (Germany); **Matthew O'Donnell**, Univ. of Washington; **Günther Paltauf**, Karl-Franzens-Univ. Graz (Austria); **Wiendelt Steenbergen**, Univ. Twente (Netherlands); **William M. Whelan**, Univ. of Prince Edward Island (Canada); **Vladimir P. Zharov**, Univ. of Arkansas for Medical Sciences; **Quing Zhu**, Univ. of Connecticut

Sunday 23 January

Room: Sun. 8:00 to 8:15 am

Introduction to Photons Plus Ultrasound 2011

Session Chairs: **Alexander A. Oraevsky**, TomoWave Labs., Inc.;
Lihong V. Wang, Washington Univ. in St. Louis

SESSION 1

Room: 305 (Esplanade) Sun. 8:15 to 10:00 am

Translation to Clinical Applications I

Session Chair: **Stanislav Y. Emelianov**, The Univ. of Texas at Austin

8:15 am: **Photoacoustic imaging of intravascular plaques using integrin-targeted gold nanoparticles**, Douglas E. Yeager, Pratixa P. Joshi, Bo Wang, The Univ. of Texas at Austin (USA); James H. Amirian, Nadine Matthias D.V.M., The Univ. of Texas Health Science Ctr. at Houston (USA); Konstantin V. Sokolov, The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Richard W. Smalling M.D., The Univ. of Texas Health Science Ctr. at Houston (USA) and Memorial Hermann Heart and Vascular Institute (USA); Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA) [7899-01]

8:30 am: **Spectroscopic intravascular photoacoustic imaging to detect tissue composition and macrophage infiltration in atherosclerotic plaques**, Bo Wang, The Univ. of Texas at Austin (USA); Pratixa P. Joshi, Nadine Matthias D.V.M., James H. Amirian, The Univ. of Texas Health Science Ctr. at Houston (USA); Silvio H. Litovsky, The Univ. of Alabama at Birmingham (USA); Konstantin V. Sokolov, The Univ. of Texas at Austin (USA) and The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Richard W. Smalling M.D., The Univ. of Texas Health Science Ctr. at Houston (USA); Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA) and The Univ. of Texas M.D. Anderson Cancer Ctr. (USA) [7899-02]

8:45 am: **A 1.2 mm diameter integrated photoacoustic and ultrasonic catheter for intravascular imaging**, Krista Jansen, Geert Springeling, Robert Beurskens, Erasmus MC (Netherlands); Antonius F. W. van der Steen, Erasmus MC (Netherlands) and Interuniversity Cardiology Institute (Netherlands); Gijs van Soest, Erasmus MC (Netherlands) [7899-03]

9:00 am: **Multispectral optoacoustic tomography resolves smart probe activation in vulnerable plaques**, Daniel Razansky, Niels J. Harlaar, Helmholtz Zentrum München GmbH (Germany); Jan-Luuk Hillebrands, Univ. Medical Ctr. Groningen (Netherlands); Adrian Taruttis, Eva Herzog, Helmholtz Zentrum München GmbH (Germany); Clark Zeebregts, Goitzen van Dam, Univ. Medical Ctr. Groningen (Netherlands); Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) [7899-04]

9:15 am: **Optical-resolution photoacoustic microscopy of ischemic stroke**, Song Hu, Konstantin Maslov, Washington Univ. in St. Louis (USA); Ernie Gonzales, Jin-Moo Lee, Washington Univ. School of Medicine (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-05]

9:30 am: **Photoacoustic imaging for deep targets in the breast using a multichannel 2D array transducer**, Zhixing Xie, Paul L. Carson, Univ. of Michigan Medical School (USA); Richard F. Morris, Iph LLC (USA); Frederic R. Padilla, Gerald L. Lecarpentier, Xueding Wang, Univ. of Michigan Medical School (USA) [7899-06]

9:45 am: **Toward in-vivo photoacoustic imaging of human ovarian tissue for cancer detection**, Andres Aguirre, Yasaman Ardeshirpour, Univ. of Connecticut (USA); Mary M. Sanders, Molly A. Brewer, Univ. of Connecticut Health Ctr. (USA); Quing Zhu, Univ. of Connecticut (USA) [7899-07]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 305 (Esplanade) Sun. 10:30 am to 12:00 pm

Translation to Clinical Applications II

Session Chair: **Rinat O. Esenaliev**, The Univ. of Texas Medical Branch

10:30 am: **Image processing and analysis in a dual-modality optoacoustic/ultrasonic system for breast cancer diagnosis**, Vyacheslav V. Nadvoretzkiy, Sergey A. Ermilov, Hans-Peter F. Brecht, Richard Su, Alexander A. Oraevsky, TomoWave Labs., Inc. (USA) [7899-08]

10:45 am: **Three-dimensional photoacoustic imaging with a clinical two-dimensional matrix ultrasound transducer**, Todd N. Erpelding, Philips Research North America (USA); Yu Wang, Washington Univ. in St. Louis (USA); Ladislav Jankovic, Philips Research North America (USA); Zijian Guo, Washington Univ. in St. Louis (USA); Jean-Luc Robert, Guillaume David, Philips Research North America (USA); Chulhong Kim, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-09]

11:00 am: **High-resolution ultrasound imaging and optoacoustic monitoring of blood variables in small blood vessels**, Irina Y. Petrova, Yuriy Y. Petrov, Donald S. Prough, Rinat O. Esenaliev, The Univ. of Texas Medical Branch (USA) [7899-10]

11:15 am: **Combination of optoacoustics and ultrasound imaging for non-invasive, rapid assessment and management of circulatory shock**, Yuriy Y. Petrov, Irina Y. Petrova, Rinat O. Esenaliev, Michael Kinsky, Donald S. Prough, The Univ. of Texas Medical Branch (USA) [7899-11]

11:30 am: **Volumetric dual-wavelength photoacoustic and ultrasonic endoscopy of upper gastrointestinal tract in vivo**, Joon-Mo Yang, Christopher P. Favazza, Washington Univ. in St. Louis (USA); Ruimin Chen, Univ. of Southern California (USA); Konstantin Maslov, Xin Cai, Washington Univ. in St. Louis (USA); Qifa Zhou, K. Kirk Shung, Univ. of Southern California (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-12]

11:45 am: **Recent progress on in-vivo multimodal imaging of the retina**, Hao F. Zhang, Univ. of Wisconsin-Milwaukee (USA); Shuliang Jiao, The Univ. of Southern California (USA) [7899-13]

Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 3

Room: 305 (Esplanade) Sun. 1:30 to 3:00 pm

Translation to Therapy Monitoring

Session Chair: **William M. Whelan**, Univ. of Prince Edward Island (Canada)

1:30 pm: **Application of the optoacoustic method for temperature monitoring during HIFU impact on biological tissues: preliminary study**, Ivan M. Pelivanov, Sergey M. Nikitin, M.V. Lomonosov Moscow State Univ. (Russian Federation) [7899-14]

1:45 pm: **Optoacoustic technique for non-invasive monitoring of endotracheal tube placement and positioning**, Donald S. Prough M.D., Yuriy Y. Petrov, Irina Y. Petrova, Michael Kinsky, Rinat O. Esenaliev, The Univ. of Texas Medical Branch (USA) [7899-15]

2:00 pm: **Photoacoustic imaging of brachytherapy seeds using a channel-domain ultrasound array system**, Tyler Harrison, Janaka C. Ranasinghesagara, Roger J. Zemp, Univ. of Alberta (Canada) [7899-16]

2:15 pm: **Beyond thermal confinement: heat-transfer modulation for enhanced photoacoustic imaging contrast**, Wolfgang Frey, Salavat R. Aglyamov, Yun-Sheng Chen, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA) [7899-17]

2:30 pm: **Improved photoacoustic imaging and image-guided photothermal therapy using gold nanoparticles with plasmon resonances tuned to 1064 nm**, Geoffrey P. Luke, Kimberly A. Homan, Yun-Sheng Chen, Wolfgang Frey, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA) [7899-18]

2:45 pm: **Photoacoustic image-guided needle biopsy of sentinel lymph nodes**, Chulhong Kim, Washington Univ. in St. Louis (USA); Todd N. Erpelding, Philips Research North America (USA); Konstantin Maslov, Washington Univ. in St. Louis (USA); Ladislav Jankovic, Philips Research North America (USA); Walter J. Akers, Liang Song, Samuel Achilefu, Julie A. Margenthaler, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-19]

Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 305 (Esplanade) Sun. 3:30 to 5:45 pm

Microscopy

Session Chair: Paul C. Beard, Univ. College London (United Kingdom)

3:30 pm: **Subwavelength-resolution photoacoustic microscopy for label-free detection of optical absorption in vivo**, Chi Zhang, Konstantin Maslov, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-20]

3:45 pm: **Integrated photoacoustic and fluorescence confocal microscopy**, Yu Wang, Konstantin Maslov, Chulhong Kim, Song Hu, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-21]

4:00 pm: **Non-invasive quantification of the metabolic rate of oxygen (MRO2) by photoacoustic microscopy: a hyperthermia study of the mouse ear**, Junjie Yao, Konstantin Maslov, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-22]

4:15 pm: **Optimal light illumination for photoacoustic microscopy beyond the soft penetration limit**, Christopher P. Favazza, Zijian Guo, Konstantin Maslov, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-23]

4:30 pm: **On the feasibility of photoacoustic microendoscopy using image guide fibers and fiber-laser technology**, Shaun M. Kerr, Wei Shi, Roger J. Zemp, Univ. of Alberta (Canada) [7899-24]

4:45 pm: **Naturally integrated confocal and photoacoustic microscopy**, Qing Wei, Univ. of Wisconsin-Milwaukee (USA); Shuliang Jiao, Univ. of Southern California (USA); Hao Feng Zhang, Univ. of Wisconsin-Milwaukee (USA) [7899-25]

5:00 pm: **Development of a real-time photoacoustic microscope**, Lidai Wang, Junjie Yao, Li Li, Konstantin Maslov, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-26]

5:15 pm: **Ultrahigh resolution photoacoustic microscopy via transient absorption**, Ryan L. Shelton, Brian E. Applegate, Texas A&M Univ. (USA) [7899-27]

5:30 pm: **High-speed, inverted optical-resolution photoacoustic microscopy**, Bin Rao, Konstantin Maslov, Li Li, Washington Univ. in St. Louis (USA); Ruimin Chen, Univ. of Southern California (USA); Qifa Zhou, K. Kirk Shung, The Univ. of Southern California (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-28]

Monday 24 January

SESSION 5

Room: 305 (Esplanade) Mon. 8:15 to 10:00 am

Sensing, Spectroscopy, and Quantification

Session Chair: Günther Paltauf, Karl-Franzens-Univ. Graz (Austria)

8:15 am: **Investigation of DOT-assisted photoacoustic tomography in reflection geometry**, Chen Xu, Patrick D. Kumavor, Andres Aguirre, Quing Zhu, Univ. of Connecticut (USA) [7899-29]

8:30 am: **Absolute measurement of absorption coefficient by combining photoacoustics and acousto-optics**, Khalid Daoudi, Robert Molenaar, Ton G. van Leeuwen, Wiendelt Steenbergen, Univ. Twente (Netherlands) [7899-30]

8:45 am: **Quantification of optical absorption coefficients from acoustic spectra via photoacoustic tomography**, Zijian Guo, Song Hu, Christopher P. Favazza, Washington Univ. in St. Louis (USA); Todd N. Erpelding, Ladislav Jankovic, Philips Research North America (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-31]

9:00 am: **Biosensing of single cells at GHz frequencies by laser-ultrasonics**, Bertrand Audoin, Mathieu Ducouso, Thomas Dehoux, Univ. Bordeaux 1 (France); Céline Chollet, Omar Zouani, Christel Chanseau, Marie-Christine Durrieu, Univ. Victor Segalen Bordeaux 2 (France) [7899-32]

9:15 am: **Biophotoacoustic Sonar: Principles of operation, imaging and signal-to-noise analysis in time and frequency domains**, Sergey A. Telenkov, Andreas Mandelis, Univ. of Toronto (Canada) [7899-33]

9:30 am: **Dynamics of laser induced thermoelastic expansion of native and coagulated ex-vivo bovine liver samples and their mechanical properties**, Behrouz Soroushian, Ryerson Univ. (Canada); William M. Whelan, Univ. of Prince Edward Island (Canada); Michael C. Kolios, Ryerson Univ. (Canada) [7899-34]

9:45 am: **Optoacoustic Sensor for Nanoparticle Linked Immunosorbent Assay**, André Conjusteau, Anton Liopo, Dmitri Tsyboulski, Sergey A. Ermilov, TomoWave Labs., Inc. (USA); William R. Elliott III, Norman Barsalou, Naval Health Research Ctr. Detachment Brooks City-Base (USA); Saher M. Maswadi, Randolph D. Glickman, The Univ. of Texas Health Science Ctr. at San Antonio (USA); Alexander A. Oraevsky, TomoWave Labs., Inc. (USA) [7899-35]

Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 305 (Esplanade) Mon. 10:30 am to 12:00 pm

Small Animal Imaging and Preclinical Imaging

Session Chair: Lihong V. Wang, Washington Univ. in St. Louis

10:30 am: **Towards small-animal whole-body imaging using a photoacoustic full-ring array system**, Jun Xia, Zijian Guo, Washington Univ. in St. Louis (USA); Andres Aguirre, Quing Zhu, Univ. of Connecticut (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-36]

10:45 am: **Photoacoustic tomography of water in biological tissue**, Zhun Xu, Changhui Li, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-37]

11:00 am: **Imaging the small animal cardiovascular system in real-time with multispectral optoacoustic tomography**, Adrian Taruttis, Eva Herzog, Daniel Razansky, Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) [7899-38]

11:15 am: **Visualization of mouse kidney perfusion with multispectral optoacoustic tomography (MSOT) at video rate**, Andreas Buehler, Eva Herzog, Daniel Razansky, Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) [7899-39]

11:30 am: **In vivo longitudinal photoacoustic imaging of subcutaneous tumours in mice**, Jan G. Laufer, Peter Johnson, Edward Z. Zhang, Barbara Pedley, Paul C. Beard, Univ. College London (United Kingdom) [7899-40]

11:45 am: **In vivo optoacoustic imaging of a transgenic murine model of prostate cancer**, Michelle Patterson, Univ. of Prince Edward Island (Canada); Christopher B. Riley, The Univ. of Adelaide (Australia); Michael C. Kolios, Ryerson Univ. (Canada); William M. Whelan, Univ. of Prince Edward Island (Canada) [7899-41]

Lunch Break 12:00 to 1:30 pm

SESSION 7

Room: 305 (Esplanade) Mon. 1:30 to 3:00 pm

Ultrasonic Modulation of Light

Session Chair: Claude A. Boccara,
Ecole Supérieure de Physique et de Chimie Industrielles (France)

1:30 pm: **Ultrasound-modulated optical tomography of thick biological samples using spectral hole burning.** Xiao Xu, Honglin Liu, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-42]

1:45 pm: **Photorefractive acousto-optic imaging in the therapeutic window.** Salma Farahi, Ecole Supérieure de Physique et de Chimie Industrielles (France); Germano Monterezzani, Univ. of Metz (France) and Supélec Campus de Metz (France); Alexander A. Grabar, Uzhgorod National Univ. (Ukraine); Jean-Pierre Huijgnard, Thales Research & Technology (France); François Ramaz, Ecole Supérieure de Physique et de Chimie Industrielles (France) [7899-86]

2:00 pm: **Ultrasound-modulated optical sensing of oxygenation enhanced by microbubbles.** Jack E. P. Honeysett, Eleanor Stride, Terence S. Leung, Univ. College London (United Kingdom) [7899-44]

2:15 pm: **Focusing light into turbid media: time reversal ultrasound encoded (TRUE) light.** Honglin Liu, Lihong V. Wang, Xiao Xu, Washington Univ. in St. Louis (USA) [7899-45]

2:30 pm: **Acoustic assisted optical phase conjugation for deep tissue imaging.** Ying Min Wang, Meng Cui, Changhui Yang, California Institute of Technology (USA) [7899-46]

2:45 pm: **Signal processing in the application of Ultrasound modulated optical tomography to tissue engineering.** Nam Trung Huynh, Fan Zhang, Haowen Ruan, Diwei He, Barrie R. Hayes-Gill, John A. Crowe, Melissa L. Mather, Felicity R. Rose, The Univ. of Nottingham (United Kingdom); Nicholas G. Parker, Malcolm J. W. Povey, Univ. of Leeds (United Kingdom); Stephen P. Morgan, The Univ. of Nottingham (United Kingdom) [7899-47]

Coffee Break 3:00 to 3:30 pm

SESSION 8

Room: 305 (Esplanade) Mon. 3:30 to 5:45 pm

Novel Designs, Systems, and Techniques

Session Chair: Matthew O'Donnell, Univ. of Washington Medical Ctr.

3:30 pm: **Optoacoustic imaging system with improved collection efficiency.** Dmitri Tsyboulski, André Conjusteau, Sergey A. Ermilov, Hans-Peter F. Brecht, Alexander A. Oraevsky, TomoWave Labs., Inc. (USA) [7899-48]

3:45 pm: **Bragg Waveguide Ultrasound Detectors.** Vishnupriya Govindan, Shai Ashkenazi, Univ. of Minnesota, Twin Cities (USA) [7899-49]

4:00 pm: **A miniature all-optical photoacoustic imaging probe for endoscopic applications.** Edward Z. Zhang, Paul C. Beard, Univ. College London (United Kingdom) [7899-50]

4:15 pm: **The use of tyrosinase-catalyzed melanin as a molecular imaging contrast agent for photoacoustic tomography.** Arie Krumholz, Sarah Chavez, Timothy Fleming, William E. Gillanders, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-51]

4:30 pm: **Photoacoustic imaging of gene expression using tyrosinase as a reporter gene.** Robert J. Paproski, Alex Forbrich, Janaka C. Ranasinghesagara, Yan Jiang, Mary Hitt, Roger J. Zemp, Univ. of Alberta (Canada) [7899-52]

4:45 pm: **High-speed section-illumination photoacoustic microscopy with a 30-MHz linear ultrasound array.** Liang Song, Konstantin Maslov, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-53]

5:00 pm: **Ultrafast photoacoustic imaging with improved elevational focusing.** Yu-Hsin Wang, Pai-Chi Li, National Taiwan Univ. (Taiwan) [7899-54]

5:15 pm: **Pulsed photoacoustic Doppler flow measurements in blood-mimicking phantoms.** Joanna Bruncker, Paul C. Beard, Univ. College London (United Kingdom) [7899-55]

5:30 pm: **Integration of high repetition rate laser with real-time ultrasound for fast photoacoustic signal acquisition.** Jinjun Xia, Congxian Jia, Univ. of Washington Medical Ctr. (USA); Lingyun Huang, Univ. of Washington (USA); Chi Hyung Seo, Matthew O'Donnell, Univ. of Washington Medical Ctr. (USA) [7899-56]

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Optoacoustic quantitative evaluation of temperature distribution within biological tissues induced by HIFU impact: numerical study. Sergey M. Nikitin, Ivan M. Pelivanov, Lomonosov Moscow State Univ. (Russian Federation) [7899-85]

Acousto-optic imaging using a powerful long pulse laser in the therapeutic window. Salma Farahi, Emmanuel Bossy, François Ramaz, Ecole Supérieure de Physique et de Chimie Industrielles (France) [7899-43]

Adaptive and quantitative reconstruction algorithm for photoacoustic tomography. Shuhui Bu, Kengo Kondo, Makoto Yamakawa, Tsuyoshi Shiina, Kyoto Univ. (Japan); Kazuhiko Fukutani, Yasuhiro Sameda, Yasufumi Asao, Canon Inc. (Japan) [7899-87]

In-vivo characterization of acute myocardial ischemia using photoacoustic imaging with a focused transducer. Zhifang Li, Hui Li, Fujian Normal Univ. (China); Haiyu Chen, Fujian Medical Univ. (China) [7899-88]

Dual-mode photoacoustic microscopy of carbon-nanotube-labeled scaffolds in blood and biological tissues. Xin Cai, Song Hu, Washington Univ. in St. Louis (USA); Bhavna Paratala, Balaji Sitharaman, Stony Brook Univ. (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-89]

Characterization of photoacoustic tomography system with dual illumination modes. Kazuhiko Fukutani, Yasuhiro Sameda, Masakazu Taku, Canon Inc. (Japan); Yasufumi Asao, Canon Inc. (Japan) and Kyoto Univ. (Japan); Shuichi Kobayashi, Takayuki Yagi, Canon Inc. (Japan); Makoto Yamakawa, Tsuyoshi Shiina, Tomoharu Sugie, Masakazu Toi, Kyoto Univ. (Japan) [7899-91]

Advanced model-based reconstruction algorithm for practical three-dimensional photoacoustic imaging. Koichi Tanji, Katsuhiko Watanabe, Kazuhiko Fukutani, Yasufumi Asao, Takayuki Yagi, Canon Inc. (Japan); Makoto Yamakawa, Tsuyoshi Shiina, Kyoto Univ. (Japan) [7899-92]

Calibration of ultrasonic sensors using optoacoustics. Amir Rosenthal, Helmholtz Zentrum München GmbH (Germany) and Massachusetts General Hospital (USA); Daniel Razansky, Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) [7899-93]

Detecting abnormal vasculature from photoacoustic signals using wavelet-packet features. Jason Zalev, Michael C. Kolios, Ryerson Univ. (Canada) [7899-94]

Combined acoustic-photoacoustic and fluorescence imaging catheter for the detection of the atherosclerosis plaque. Maxime Abran, Carl Matteau-Pelletier, Karim Zerouali-Boukhal, Ecole Polytechnique de Montréal (Canada); Jean-Claude Tardif, Montréal Heart Institute (Canada); Frédéric Lesage, Ecole Polytechnique de Montréal (Canada) [7899-95]

Comparison of photoacoustic imaging systems using continuous-wave lasers with a chirped intensity modulation frequency to pulsed lasers. Adam Petschke, Patrick J. La Riviere, The Univ. of Chicago Medical Ctr. (USA) [7899-96]

Investigation of photoacoustic imaging for monitoring of wound healing under a layer of blood with different coagulation. Chul-Gyu Song, Chonbuk National Univ. (Korea, Republic of); Do-Hyun Kim, U.S. Food and Drug Administration (USA); Sang Hun Ryu, Jeong Hwan Seo, Chonbuk National Univ. (Korea, Republic of) [7899-97]

Regional sensitivity comparison between optical and acousto-optic (AO) sensing. Sonny Gunadi, Terence S. Leung, Univ. College London (United Kingdom) [7899-98]

Fast semi-analytical acoustic inversion for quantitative optoacoustic tomography. Amir Rosenthal, Helmholtz Zentrum München GmbH (Germany) and Massachusetts General Hospital (USA); Daniel Razansky, Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) [7899-99]

Simulating the spatially-dependent frequency response of arbitrary-shape acoustic detectors for optoacoustic imaging. Amir Rosenthal, Helmholtz Zentrum München GmbH (Germany) and Massachusetts General Hospital (USA); Vasilis Ntziachristos, Daniel Razansky, Helmholtz Zentrum München GmbH (Germany) [7899-100]

- Photoacoustic endoscopy using polymer microring resonators**, Sung-Liang Chen, Tao Ling, Hyoung Won Baac, L. Jay Guo, Univ. of Michigan (USA) [7899-102]
- Visualization of micro-calcifications using photoacoustic imaging: feasibility study**, Tsai-Chu Hsiao, Industrial Technology Research Institute (Taiwan) and National Tsing Hua Univ. (Taiwan); Po-Hsun Wang, Chih-Tai Fan, Yao-You Cheng, Meng-Lin Li, National Tsing Hua Univ. (Taiwan) ... [7899-103]
- Longitudinal optical-resolution photoacoustic microscopy of tumor neovascularization**, Song Hu, Rebecca Sohn, Andrea C. Santeford, Konstantin Maslov, Jeffrey M. Arbeit, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-104]
- Effect of the illumination method on photo-acoustic image quality with array transducer based system**, Kazuhiro Tsujita, Yoshiaki Satou, FUJIFILM Corp. (Japan); Miya Ishihara M.D., Takeshi Hirasawa, Makoto Kikuchi M.D., National Defense Medical College (Japan) [7899-105]
- Functional transcranial photoacoustic micro-imaging of mouse cerebrovascular cross-section and hemoglobin oxygenation changes during forepaw electrical stimulation**, Lun-De Liao, You-Yin Chen, Chih-Teng Lin, Jyh-Yeong Chang, National Chiao Tung Univ. (Taiwan); Meng-Lin Li, National Tsing Hua Univ. (Taiwan) [7899-106]
- Accounting for acoustic attenuation in photoacoustic tomography**, Bradley E. Treeby, Edward Z. Zhang, Jan G. Laufer, Benjamin T. Cox, Univ. College London (United Kingdom) [7899-107]
- Multifunctional photo-acoustic signals detected by P(VDF/TrFE) film sensor with a wide range of frequency**, Miya Ishihara M.D., Takeshi Hirasawa, National Defense Medical College (Japan); Kazuhiro Tsujita, FUJIFILM Corp. (Japan); Manabu Kitagaki M.D., Isao Bansaku, National Defense Medical College (Japan); Masanori Fujita M.D., National Defense Medical College Research Institute (Japan); Makoto Kikuchi M.D., National Defense Medical College (Japan) [7899-108]
- Statistical weighting of model-based photoacoustic reconstruction for minimizing artifacts caused by strong acoustic mismatch**, Luis D. B. Xosé, Daniel Razansky, Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) [7899-109]
- Ultrasonic attenuation of biomaterials for compensation in photoacoustic imaging**, Johannes Bauer-Marschallinger, Thomas Berer, Hubert Grün, Heinz Roitner, Bernhard Reitingner, Peter Burgholzer, RECENDT GmbH (Austria) [7899-110]
- Analysis and verification of dominant factor to obtain the high resolution photo-acoustic imaging**, Takeshi Hirasawa, Miya Ishihara M.D., Manabu Kitagaki M.D., Isao Bansaku, National Defense Medical College (Japan); Masanori Fujita M.D., National Defense Medical College Research Institute (Japan); Makoto Kikuchi M.D., National Defense Medical College (Japan) [7899-111]
- Generation-2 optical-resolution photoacoustic microscopy with improved sensitivity and scanning speed**, Konstantin Maslov, Song Hu, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-112]
- Does the efficiency of ultrasound-modulated fluorescence depend on the size of fluorophores?**, Yuan Liu, Baohong Yuan, The Catholic Univ. of America (USA) [7899-113]
- Combined ultrasonic and photoacoustic system for deep tissue imaging**, Chulhong Kim, Washington Univ. in St. Louis (USA); Todd N. Erpelding, Ladislav Jankovic, Philips Research North America (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-114]
- Forward model of thermally-induced acoustic signal specific to intraluminal detection geometry**, Sovanlal Mukherjee, Charles F. Bunting, Daqing Piao, Oklahoma State Univ. (USA) [7899-115]
- Multiscale three-dimensional photoacoustic imaging of reporter gene expression in vivo**, Li Li, Arie Krumholz, Zijian Guo, Xin Cai, Washington Univ. in St. Louis (USA); Todd N. Erpelding, Ladislav Jankovic, Philips Research North America (USA); Robert L. Grubb III, Washington Univ. School of Medicine (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-117]
- Real time optical resolution photoacoustic microscopy using fiber-laser technology**, Wei Shi, Shaun M. Kerr, Roger J. Zemp, Univ. of Alberta (Canada) [7899-118]
- Photoacoustic imaging to guide needle injections**, Jimmy L. Su, Andrei B. Karpouk, Yun-Sheng Chen, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA) [7899-119]
- Impulse-driven near-field radiofrequency thermoacoustic (NRT) tomography**, Daniel Razansky, Stephan Kellnberger, Helmholtz Zentrum München GmbH (Germany); Vasilis Ntziachristos, Helmholtz Zentrum München, GmbH (Germany) [7899-121]
- Effects of calibration factors and intensity dependent non-linearity on functional photoacoustic microscopy**, Amos Danielli, Washington Univ. in St. Louis (USA); Junjie Yao, Arie Krumholz, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-122]
- Blind spectral unmixing identifies the molecular signatures of absorbers in multispectral photoacoustic tomography**, Nikolaos C. Deliolanis, Juergen Glatz, Andreas Buehler, Daniel Razansky, Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) [7899-123]
- Total internal reflection photoacoustic detection spectroscopy**, Benjamin S. Goldschmidt, Amanda Sudduth, John A. Viator, Univ. of Missouri-Columbia (USA) [7899-124]
- Isolation of circulating tumor cells using photoacoustic flowmetry and two phase flow**, Christine M. O'Brien, Kyle Rood, Sagar Gupta, Jeff Mosley, Megan Schmidt, Micah Uptegrove, Nikhilesh Sharma, John A. Viator, Univ. of Missouri-Columbia (USA) [7899-125]
- On the role of passive elements in photo acoustic reconstruction**, Cornelis H. Slump, Rene G. Willeminck, Srirang Manohar, Univ. Twente (Netherlands) [7899-126]
- Optical droplet vaporization of micron-sized perfluorocarbon droplets and their photoacoustic detection**, Eric Strohm, Ryerson Univ. (Canada); Ivan Gorelikov, Naomi Matsuura, Sunnybrook Health Sciences Ctr. (Canada); Michael C. Kolios, Ryerson Univ. (Canada) [7899-127]
- Identification of radiolucent foreign bodies in tissue using photoacoustic spectroscopic imaging**, Leland Page, Randolph D. Glickman, Saher M. Maswadi, The Univ. of Texas Health Science Ctr. at San Antonio (USA) [7899-128]
- Label-free detection of melanoma metastasis in resected human lymph nodes using photoacoustic imaging**, Jithin Jose, Univ. Twente (Netherlands); Theo Ruers, The Netherlands Cancer Institute (Netherlands) and Univ. Twente (Netherlands); Ton G. van Leeuwen, Univ. Twente (Netherlands) and Univ. van Amsterdam (Netherlands); Srirang Manohar, Univ. Twente (Netherlands) [7899-129]
- PER-PACT system for simultaneous imaging of acoustic properties with photoacoustic imaging of tumors in small animals**, Jithin Jose, Rene G. Willeminck, Johan C. G. van Hespem, Univ. Twente (Netherlands); Johan W. Van Neck, Timo L. M. Ten Hagen, Univ. Medisch Ctr. Rotterdam, Erasmus MC (Netherlands); Wiendelt Steenbergen, Univ. Twente (Netherlands); Ton G. van Leeuwen, Univ. Twente (Netherlands) and Univ. van Amsterdam (Netherlands); Srirang Manohar, Univ. Twente (Netherlands) [7899-130]
- Monitoring of HIFU thermal damage using integrated photoacoustic imaging and high intensity focused ultrasound technique**, Huizhong Cui, Xinmai Yang, The Univ. of Kansas (USA) [7899-131]
- Interlaced realtime channel-domain photoacoustic and ultrasound imaging**, Tyler Harrison, Janaka C. Ranasinghesagara, Roger J. Zemp, Univ. of Alberta (Canada) [7899-132]
- Photoacoustic-assisted ultrasound therapy with a dual-mode multi-element transducer**, Arik R. Funke, Amaury Prost, Jean-François Aubry, Claude A. Boccara, Emmanuel Bossy, Ecole Supérieure de Physique et de Chimie Industrielles (France) [7899-133]
- Quantitative high resolution photoacoustic spectroscopy by combining photoacoustic imaging with diffuse optical tomography**, Adam Q. Bauer, Ralph E. Nothdurft, Changhui Li, Lihong V. Wang, Joseph P. Culver, Washington Univ. in St. Louis (USA) [7899-134]
- Photoacoustic tomography image reconstruction in dispersive layered media**, Robert W. Schoonover, Mark A. Anastasio, Illinois Institute of Technology (USA) [7899-135]
- Photoacoustic spectral analysis: a pilot study on human prostate cancer xenografts**, Ronald E. Kumon, Cheri X. Deng, Univ. of Michigan (USA); Xueding Wang, Univ. of Michigan Health System (USA) [7899-136]
- Improved depth of field photoacoustic microscopy with a custom high-frequency annular array transducer**, Huihong Lu, Janaka C. Ranasinghesagara, Timothy S. DeWolf, Tyler Harrison, Roger J. Zemp, Univ. of Alberta (Canada) [7899-137]
- Real-time co-registered ultrasound and photoacoustic imaging system based on FPGA and DSP architecture**, Umar S. Alqasemi, Hai Li, Andres Aguirre, Qing Zhu, Univ. of Connecticut (USA) [7899-138]

Optimising the illumination geometry of a clinical reflection mode optoacoustic scanner, David C. Birtill, Michael Jaeger, Andreas G. Gertsch, Jeff C. Bamber, The Institute of Cancer Research (United Kingdom). [7899-139]

Limited data image reconstruction in optoacoustic tomography by constrained, total variation minimization, Kun Wang, Illinois Institute of Technology (USA); Emil Y. Sidky, The Univ. of Chicago (USA); Mark A. Anastasio, Illinois Institute of Technology (USA); Alexander A. Oraevsky, TomoWave Labs., Inc. (USA); Xiaochuan Pan, The Univ. of Chicago (USA) [7899-140]

Thermotherapy with a photoacoustic/ultrasound dual-modality agent, Yu-Hsin Wang, Ai-Ho Liao, National Taiwan Univ. (Taiwan); Jui-Hao Chen, Yi-Hsien Lee, Chung-Ren C. Wang, National Chung Cheng Univ. (Taiwan); Pai-Chi Li, National Taiwan Univ. (Taiwan) [7899-141]

Photoacoustic imaging to detect rat brain activation after cocaine hydrochloride injection, Janggun Jo, Xinmai Yang, The Univ. of Kansas (USA) [7899-142]

Monte Carlo simulation study of light modulated by acoustic radiation force in elasto-viscous medium, Rui Li, Daniel S. Elson, Christopher W. Dunsby, Mengxing Tang, Imperial College London (United Kingdom) [7899-143]

Selective nanoparticle-directed ablation of the canine prostate, Jon A. Schwartz, Nanospectra Biosciences, Inc. (USA); Roger E. Price D.V.M., Baylor College of Medicine (USA); Kelly L. Gill-Sharp, Krystina L. Sang, Jennifer D. Khorchani, J. Donald Payne, Nanospectra Biosciences, Inc. (USA); Bradford S. Goodwin, The Univ. of Texas Health Science Ctr. at Houston (USA) . [7899-144]

Developments in quantitative multiple illumination photoacoustic tomography, Roger J. Zemp, Univ. of Alberta (Canada); Benjamin T. Cox, Univ. College London (United Kingdom) [7899-145]

Evaluation of optoacoustic conversion efficiency of light-absorbing films for optoacoustic transmitter applications, Hyoung Won Baac, Tao Ling, Hui-Joon Park, L. Jay Guo, Univ. of Michigan (USA) [7899-146]

Photoacoustic and vector Doppler ultrasound for oxygen consumption estimation: implementation on a clinical array system, Yan Jiang, Tyler Harrison, Janaka C. Ranasinghesagara, Roger J. Zemp, Univ. of Alberta (Canada) [7899-147]

Oxygen consumption estimation with combined color Doppler ultrasound and photoacoustic bio-microscopy: a phantom study, Yan Jiang, Tyler Harrison, Janaka C. Ranasinghesagara, Roger J. Zemp, Univ. of Alberta (Canada) [7899-148]

Development of a hand-held 3D photoacoustic imaging system for breast cancer detection, Hazem A. Al-Aabed, Michael B. Roumeliotis, Jeffrey J. Carson, Lawson Health Research Institute (Canada) [7899-149]

Wavelength agile photoacoustic microscopy with a photonic crystal fiber supercontinuum source, Takashi Buma, Mengyang Liu, Univ. of Delaware (USA) [7899-150]

Optoacoustic generation of high frequency ultrasound using a carbon nanotube polymer composite film, Hyoung Won Baac, Jong Girl Ok, Sung-Liang Chen, Tao Ling, A. John Hart, L. Jay Guo, Univ. of Michigan (USA). [7899-151]

In vivo multi-scale photoacoustic microscopy of human skin, Christopher P. Favazza, Song Hu, Victor Huang, Omar W. Jassim, Lynn A. Cornelius, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-152]

100-MHz photoacoustic microscopy system for imaging microscale tumor biology, Timothy S. DeWolf, Janaka C. Ranasinghesagara, Tyler Harrison, Roger J. Zemp, Univ. of Alberta (Canada) [7899-153]

Transrectal photoacoustic imaging of prostate phantoms using capacitive micromachined ultrasound transducer array, Sri-Rajasekhar Kothapalli, Te-Jen Ma, Srikanth Vaithilingam, Erdem Guleyupoglu, Ömer Oralkan, Butrus T. Khuri-Yakub, Sanjiv S. Gambhir, Stanford Univ. (USA) [7899-154]

Gold nanorods tailored as tracers for sentinel lymph node biopsy imaged by photothermal optical coherence tomography, Yeongri Jung, Ruikang K. Wang, Oregon Health & Science Univ. (USA) [7899-155]

Laser photoacoustic spectroscopy (LOS) of a gold nanorod solution embedded in a liquid tissue phantom., Vincent B. Cunningham, Horacio Rivera Lamela, Sr., Daniel C. Gallego, Univ. Carlos III de Madrid (Spain) [7899-156]

Kinetics of gold nanorod distribution in mouse tissues after intravenous injection monitored with optoacoustic tomography, Richard Su, Anton Liopo, Hans-Peter F. Brecht, Sergey A. Ermilov, Alexander A. Oraevsky, TomoWave Labs., Inc. (USA) [7899-157]

A combined photoacoustic, pulse echo ultrasound and optical coherence tomography endoscopy, Yi Yang, Tianheng Wang, Patrick D. Kumavor, Univ. of Connecticut (USA); Xiang Li, Qifa Zhou, The Univ. of Southern California (USA); Quing Zhu, Univ. of Connecticut (USA) [7899-158]

Wide-band optoacoustic array for non-invasive blood hemoglobin monitoring, Tatiana D. Khokhlova, Univ. of Washington (USA); Alexander Bykov, Univ. of Oulu (Finland); Valeriy G. Andreev, Lomonosov Moscow State Univ. (Russian Federation); Yuriy Y. Petrov, Irina Y. Petrova, Donald S. Prough M.D., Rinat O. Esenaliev, The Univ. of Texas Medical Branch (USA) . [7899-159]

Focused, wide-band, polymer-based optoacoustic transducers for non-invasive monitoring of total hemoglobin concentration and other blood variables, Emanuel Saerchen, Yuriy Y. Petrov, Irina Y. Petrova, Donald S. Prough M.D., The Univ. of Texas Medical Branch (USA); Walter Neu, Fachhochschule Oldenburg/Ostfriesland/Wilhelmshaven (Germany); Rinat O. Esenaliev, The Univ. of Texas Medical Branch (USA) [7899-160]

Tuesday 25 January

SESSION 9

Room: 305 (Esplanade) Tues. 8:15 to 10:00 am

Molecular Imaging, Probes, and Beacons

Session Chair: Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany)

8:15 am: **Multi-target photoacoustic molecular imaging of cardiovascular inflammatory biomarkers using bioconjugated gold nanorods**, Seunghan Ha, Sakya Tripathy, Linda L. Lavery, Andrew Carson, Univ. of Pittsburgh Medical Ctr. (USA) and Univ. of Pittsburgh (USA); Ashish Agarwal, Nicholas A. Kotov, Univ. of Michigan (USA); Flordeliza S. Villanueva, Kang Kim, Univ. of Pittsburgh Medical Ctr. (USA) and Univ. of Pittsburgh (USA) [7899-57]

8:30 am: **In vivo photoacoustic detection, magnetic enrichment and photothermal purging of circulating cancer stem cells targeted by nanoparticles**, Ekaterina I. Galanzha, Univ. of Arkansas for Medical Sciences (USA); Jin-Woo Kim, Univ. of Arkansas (USA); Lyuba Varticovski M.D., National Cancer Institute (USA) [7899-58]

8:45 am: **Nano-LISA for in vitro diagnostic applications**, Saher M. Maswadi, Randolph D. Glickman, The Univ. of Texas Health Science Ctr. at San Antonio (USA); Norman Barsalou, William R. Elliott III, Naval Health Research Ctr. Detachment (USA) [7899-59]

9:00 am: **Thermal stability of biodegradable nanoclusters for photoacoustic imaging**, Soon Joon Yoon, Yun-Sheng Chen, Avinash Murthy, Keith P. Johnston, Konstantin V. Sokolov, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA) [7899-60]

9:15 am: **In vivo photoacoustic imaging and therapy using silver nanoplates tuned to the mid-band of the near infrared spectrum**, Kimberly A. Homan, Geoffrey P. Luke, Seungsoo Kim, Yun-Sheng Chen, Bo Wang, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA) [7899-61]

9:30 am: **Dynamic manipulation of magnetic contrast agents in photoacoustic imaging**, Congxian Jia, Jinjun Xia, Yongdong Jin, Univ. of Washington Medical Ctr. (USA); Xiaohu Gao, Univ. of Washington (USA); Matthew O'Donnell, Univ. of Washington Medical Ctr. (USA) [7899-62]

9:45 am: **Hypoxia targeted carbon nanotubes as a sensitive contrast agent for photoacoustic imaging of tumors**, Saeid Zanganeh, Nrusingh C. Biswal, Andres Aguirre, Christopher Pavlik, Michael B. Smith, Quing Zhu, Univ. of Connecticut (USA) [7899-63]

Coffee Break 10:00 to 10:30 am

SESSION 10

Room: 305 (Esplanade) Tues. 10:30 am to 12:00 pm

Novel Signal and Image Processing

Session Chair: Mark A. Anastasio, Illinois Institute of Technology

10:30 am: **Quantitative photoacoustic imaging using the radiative transfer equation**, Benjamin T. Cox, Univ. College London (United Kingdom); Tanja Tarvainen, Univ. of Eastern Finland (Finland); Simon R. Arridge, Univ. College London (United Kingdom) [7899-64]

10:45 am: **Estimate of effective singular values of a photoacoustic imaging system based on varying signal-to-noise ratio**, Michael B. Roumeliotis, Lawson Health Research Institute (Canada); Govind Chaudhary, Mark A. Anastasio, Illinois Institute of Technology (Canada); Jeffrey J. L. Carson, Lawson Health Research Institute (Canada) [7899-65]

11:00 am: **The effect of excitation pulse duration on the spatial resolution of photoacoustic images.**, Thomas J. Allen, Paul C. Beard, Univ. College London (United Kingdom). [7899-66]

11:15 am: **Ultrasound-guided Bayesian image reconstruction in limited-view optoacoustic tomography**, Chao Huang, Mark A. Anastasio, Illinois Institute of Technology (USA); Sergey A. Ermilov, Vyacheslav V. Nadvoretzkiy, Alexander A. Oraevsky, TomoWave Labs., Inc. (USA) [7899-67]

11:30 am: **High contrast photoacoustic imaging with dual apodization with cross-correlation: ex-vivo study**, Chi Hyung Seo, Matthew O'Donnell, Univ. of Washington Medical Ctr. (USA). [7899-68]

11:45 am: **Tomographic optoacoustic inversion in dynamic illumination scenarios**, Thomas Jetzfellner, Amir Rosenthal, Alex Dima, Vasilis Ntziachristos, Daniel Razansky, Helmholtz Zentrum München GmbH (Germany) . . . [7899-69]

Lunch Break 12:00 to 1:30 pm

SESSION 11

Room: 305 (Esplanade) Tues. 1:30 to 3:00 pm

Nanoparticulate Contrast Agents

Session Chair: Pai-Chi Li, National Taiwan Univ. (Taiwan)

1:30 pm: **Ultrasound and photoacoustic imaging to monitor mesenchymal stem cells labeled with gold nanoparticles**, Seung Yun Nam, Laura M. Ricles, The Univ. of Texas at Austin (USA); Konstantin V. Sokolov, The Univ. of Texas at Austin (USA) and The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Laura J. Suggs, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA). . [7899-120]

1:45 pm: **Ultrasound-induced enhancement of cellular uptake of plasmonic nanoparticles**, Alexander Hannah, Katheryne E. Wilson, Kimberly A. Homan, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA). [7899-71]

2:00 pm: **A gold nanorod-based dual-modal, photoacoustic and ultrasound, contrast-enhanced imaging technique for monitoring focused-ultrasound induced blood-brain-barrier opening**, Po-Hsun Wang, National Tsing Hua Univ. (Taiwan); Po-Hung Hsu, Hao-Li Liu, Chang Gung Univ. (Taiwan); Churng-Ren C. Wang, National Chung Cheng Univ. (Taiwan); Pin-Yuan Chen, Kuo-Chen Wei, Tzu-Chen Yen, Chang-Gung Memorial Hospital (Taiwan); Meng-Lin Li, National Tsing Hua Univ. (Taiwan). [7899-72]

2:15 pm: **Photoacoustic and ultrasound imaging using remotely triggered vaporization of an exogenous contrast nano-agent**, Katheryne E. Wilson, Kimberly A. Homan, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA). [7899-73]

2:30 pm: **Hybrid nano-contrast agents optimized for photoacoustic imaging and image-guided photothermal therapy**, Yun-Sheng Chen, Wolfgang Frey, Seungsoo Kim, Pieter Kruizinga, Kimberly A. Homan, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA) [7899-74]

2:45 pm: **Photoacoustic and nuclear imaging of 125I-labeled gold nanorod contrast agent**, Xia S. Shao, Univ. of Michigan Medical School (USA); Ashish Agarwal, Univ. of Michigan (USA); Justin Rajjan, Univ. of Michigan Medical School (USA); Nicholas A. Kotov, Univ. of Michigan (USA); Xueding Wang, Univ. of Michigan Health System (USA) [7899-75]

Coffee Break 3:00 to 3:30 pm

SESSION 12

Room: 305 (Esplanade) Tues. 3:30 to 5:45 pm

Novel Methods and Technologies

Session Chair: Alexander A. Oraevsky, TomoWave Labs., Inc.

3:30 pm: **Photoacoustic-guided focusing of light through optically diffusive media**, Fanting Kong, Hunter College (USA); Ronald H. Silverman, Columbia Univ. Eye Institute Research (USA) and Riverside Research Institute (USA); Liping Liu, Hunter College (USA); Parag V. Chitnis, Riverside Research Institute (USA); Ying-Chih Chen, Hunter College (USA) [7899-76]

3:45 pm: **Chronic label-free volumetric photoacoustic microscopy of melanoma cells in scaffolds in vitro**, Xin Cai, Yu Zhang, Chulhong Kim, Sung-Wook Choi, Younan Xia, Lihong V. Wang, Washington Univ. in St. Louis (USA) [7899-77]

4:00 pm: **Photoacoustic generation using coded excitation**, Shin-Yuan Su, Pai-Chi Li, National Taiwan Univ. (Taiwan) [7899-78]

4:15 pm: **Coded photoacoustic Doppler excitation with near-optimal utilization of the time and frequency domains**, Avishay Eyal, Adi Sheinfeld, Sharon Gilead, Tel Aviv Univ. (Israel). [7899-79]

4:30 pm: **Advances in multimodal photoacoustic ophthalmoscopy**, Shuliang Jiao, The Univ. of Southern California (USA); Hao Feng Zhang, Univ. of Wisconsin-Milwaukee (Turkmenistan). [7899-80]

4:45 pm: **Stimulated Raman imaging with photoacoustic detection**, Vladislav V. Yakovlev, Univ. of Wisconsin-Milwaukee (USA) [7899-81]

5:00 pm: **Enhanced photoacoustic detection through multiple picosecond pulse excitation**, Tan Liu, Vladislav V. Yakovlev, Hao Feng Zhang, Univ. of Wisconsin-Milwaukee (USA) [7899-82]

5:15 pm: **Broad-band, high-efficiency optoacoustic generation using a novel photonic crystal-metallic structure**, Yunbo Guo, Hyoung Won Baac, Sung-Liang Chen, Theodore B. Norris, L. Jay Guo, Univ. of Michigan (USA) [7899-83]

5:30 pm: **Development and validation of a combined photoacoustic micro-ultrasound system for in-vivo oxygen saturation estimation**, Andrew Needles, Andrew Heinmiller, Pinhas Ephrat, David Bates, Corina Bilan-Tracey, Catherine Theodoropoulos, Desmond Hirson, Visualsonics Inc. (Canada); F. Stuart Foster, Sunnybrook Health Sciences Ctr. (Canada). [7899-84]

Best Oral and Poster Presentation Award Ceremony

Room: 305 (Esplanade) Tues. 5:45 to 6:00 pm

Session Chairs: Alexander A. Oraevsky, TomoWave Labs., Inc.; Lihong V. Wang, Washington Univ. in St. Louis

Sponsored by: 

BIOS

Biophotonics and Immune Responses VI

Conference Chair: **Wei R. Chen**, Univ. of Central Oklahoma

Program Committee: **Yuncheng Ge**, Beijing Glass Research Institute (China); **Sandra O. Gollnick**, Roswell Park Cancer Institute; **Michael R. Hamblin**, Massachusetts General Hospital; **Tomas L. M. Hode**, ImmunoPhotonics, Inc.; **Zheng Huang**, Univ. of Colorado at Denver and Health Sciences Ctr.; **Mladen Korbelik**, The BC Cancer Agency Research Ctr. (Canada); **Mark F. Naylor**, The Univ. of Oklahoma; **Karl-Goran Tranberg**, Lund Univ. (Sweden); **Xunbin Wei**, Fudan Univ. (China); **Da Xing**, South China Normal Univ. (China); **Vladimir P. Zharov**, Univ. of Arkansas for Medical Sciences

Monday 24 January

SESSION 1

Room: 202/204 (Mezzanine) Mon. 9:00 to 10:20 am

PDT and Immune Responses

Session Chairs: **Mladen Korbelik**, The BC Cancer Agency Research Ctr. (Canada); **Michael R. Hamblin**, Massachusetts General Hospital

9:00 am: **Systemic induction of heat shock protein 70 following tumor treatment by photodynamic therapy** (*Invited Paper*), Mladen Korbelik, Soroush Merchant, The BC Cancer Agency Research Ctr. (Canada) [7900-01]

9:30 am: **Anti-transforming growth factor beta antibody combined with photodynamic therapy for renal cell carcinoma in mice** (*Invited Paper*), Michael R. Hamblin, Pawel A. Mroz M.D., Massachusetts General Hospital (USA) [7900-02]

10:00 am: **Topical HpD-mediated photodynamic therapy for DMBA-induced hamster buccal pouch malignant lesions**, Ivy Y. Hsu, Chung Yuan Christian Univ. (Taiwan); Chun-Pin Chiang D.D.S., National Taiwan Univ. (Taiwan); Junn-Liang Chang M.D., Kuang-Ting Liu, Taoyuan Armed Forces General Hospital (Taiwan); Chung-Ji Liu M.D., National Yang-Ming Univ. (Taiwan) and Mackay Memorial Hospital (Taiwan) and MacKay Medicine, Nursing and Management College (Taiwan); Chih-Ping Chen M.D., Mackay Memorial Hospital (Taiwan); Jeng-Woei Lee, Tzu Chi Univ. (Taiwan) [7900-03]

Coffee Break 10:20 to 10:50 am

SESSION 2

Room: 202/204 (Mezzanine) Mon. 10:50 am to 12:20 pm

Photoimmunotherapy: Mechanism

Session Chairs: **Mary Dyson**, King's College London (United Kingdom); **Wei R. Chen**, Univ. of Central Oklahoma

10:50 am: **The role of the immune and circulatory systems in the ability of the patient to amplify the spontaneous effects of radiation, the PASER concept, and its relevance to the effectiveness of LLLT in cancer therapy and wound healing** (*Invited Paper*), Mary Dyson, King's College London (United Kingdom) [7900-04]

11:20 am: **Mechanism study of tumor-specific immune responses induced by laser immunotherapy: in situ autologous whole-cells cancer vaccine**, Xiaosong Li, Chinese PLA General Hospital (China); Feifan Zhou, South China Normal Univ. (China); Robert E. Nordquist, Wound Healing of Oklahoma, Inc. (USA); Hong Liu, The Univ. of Oklahoma (USA); Tomas L. M. Hode, ImmunoPhotonics, Inc. (USA); Wei R. Chen, Univ. of Central Oklahoma (USA) [7900-05]

11:40 am: **Immunohistochemical analysis of immune response in breast cancer and melanoma patients after laser immunotherapy**, Robert E. Nordquist, Shelly Bishop, Wound Healing of Oklahoma, Inc. (USA); Xiaosong Li, Chinese PLA General Hospital (China); Halie Ferguson, Melville B. Vaughan, Wei R. Chen, Univ. of Central Oklahoma (USA) [7900-06]

12:00 pm: **Molecular mechanism of PDT-induced apoptotic cells stimulation NO production in macrophages**, Sheng Song, Feifan Zhou, Da Xing, South China Normal Univ. (China); Wei R. Chen, Univ. of Central Oklahoma (USA) and South China Normal Univ. (China) [7900-07]

Lunch Break 12:20 to 2:00 pm

SESSION 3

Room: 202/204 (Mezzanine) Mon. 2:00 to 3:10 pm

Photoimmunotherapy: Efficacy

Session Chairs: **Tomas L. M. Hode**, ImmunoPhotonics, Inc.; **Orn Adalsteinsson**, International Strategic Cancer Alliance

2:00 pm: **Laser immunotherapy for the treatment of human breast cancer: 1-year follow-up results** (*Invited Paper*), Tomas L. M. Hode, ImmunoPhotonics, Inc. (USA); Orn Adalsteinsson, International Strategic Cancer Alliance (USA); Gabriela L. Ferrel, Hospital Nacional Edgardo Rebagliati Martins (Peru); John A. Lunn, Consultant (Bahamas); Maria Guerra, ImmunoPhotonics, Inc. (USA); Xiaosong Li, Chinese PLA General Hospital (China); Robert E. Nordquist, Wound Healing of Oklahoma, Inc. (USA); Wei R. Chen, Univ. of Central Oklahoma (USA) [7900-08]

2:30 pm: **Interstitial laser immunotherapy in the treatment of DMBA-4 metastatic tumors in rats** (*Invited Paper*), Wei R. Chen, Daniel Figueroa, Univ. of Central Oklahoma (USA); Tomas L. M. Hode, ImmunoPhotonics, Inc. (USA); Robert E. Nordquist, Wound Healing of Oklahoma, Inc. (USA); Jonny Walla, Univ. of Central Oklahoma (USA); Roman F. Wolf, The Univ. of Oklahoma Health Sciences Ctr. (USA); Hong Liu, The Univ. of Oklahoma (USA); Xiaosong Li, Chinese PLA General Hospital (China) [7900-09]

2:50 pm: **Thermal effect induced by interstitial irradiation of near-infrared laser with cylindrical diffuser**, Wei R. Chen, Daniel Figueroa, Kelvin Le, Univ. of Central Oklahoma (USA); Xiaosong Li, Chinese PLA General Hospital (China); Jonny Walla, Univ. of Central Oklahoma (USA); Roman F. Wolf, The Univ. of Oklahoma Health Sciences Ctr. (USA); Hong Liu, The Univ. of Oklahoma (USA); Robert E. Nordquist, Wound Healing of Oklahoma, Inc. (USA); Tomas L. M. Hode, ImmunoPhotonics, Inc. (USA) [7900-10]

Coffee Break 3:10 to 3:40 pm

SESSION 4

Room: 202/204 (Mezzanine) Mon. 3:40 to 5:10 pm

Cellular and Molecular Activities

Session Chairs: **Xunbin Wei**, Fudan Univ. (China); **Wei R. Chen**, Univ. of Central Oklahoma

3:40 pm: **Studying depletion kinetics of circulating prostate cancer cells by in-vivo flow cytometer** (*Invited Paper*), Xunbin Wei, Jin Guo, Fudan Univ. (China) [7900-11]

4:10 pm: **The impact of the depth-of-field to image quality in high-magnification microscopic scanning**, Yuchen Qiu, Xiaodong Chen, Yuhua Li, Zheng Li, The Univ. of Oklahoma (USA); Bin Zheng, Univ. of Pittsburgh (USA); Shibo Li, Univ. of Oklahoma Health Sciences Ctr. (USA); Wei R. Chen, Univ. of Central Oklahoma (USA); Hong Liu, The Univ. of Oklahoma (USA) . . . [7900-12]

4:30 pm: **Direct imaging the subcellular localization of single-walled carbon nanotubes**, Feifan Zhou, Da Xing, South China Normal Univ. (China); Wei R. Chen, Univ. of Central Oklahoma (USA) [7900-13]

4:50 pm: **Study on the modulation of cellular activity through the integration of gold nanostructured and laser therapy**, Emiliano de Oliveira Barreto, Fabíola de Almeida Brito, Rafael V. Santos, Eduardo J. S. Fonseca, Jandir M. Hickmann M.D., Univ. Federal de Alagoas (Brazil) [7900-14]

POSTERS-Sunday**Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm**

Conference attendees are invited to attend the BiOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Roles of dynamin-related protein 1 in the regulation of mitochondrial fission and apoptosis in response to UV stimuli, Zhenzhen Zhang, Shengnan Wu, Da Xing, South China Normal Univ. (China) [7900-15]

Effect of low-power laser irradiation on macrophage phagocytic capacity, Wei Chen, Feifan Zhou, Da Xing, Sheng Song, South China Normal Univ. (China); Wei R. Chen, Univ. of Central Oklahoma (USA) and South China Normal Univ. (China) [7900-16]

Activation of JNK/Bim/Bax pathway in UV-induced apoptosis, Lei Liu, Hui Li, Zhenzhen Zhang, South China Normal Univ. (China) [7900-17]

Bad is not involved in DHA-induced apoptosis in human lung adenocarcinoma ASTC-a-1 cells, Huaina Yu, Ying-Ying Lu, Tong-Sheng Chen, South China Normal Univ. (China) [7900-18]

Taxol-induced paraptosis-like A549 cell death is not senescence, Chaoyang Wang, Tong-Sheng Chen, South China Normal Univ. (China) [7900-19]

Mathematical modeling of anti-cancer immune response with photodynamic therapy taken into account, Olga G. Isaeva, Vladimir A. Osipov, Joint Institute for Nuclear Research (Russian Federation) [7900-20]

An orange fluorescent protein mKO_K for bimolecular fluorescence complementation, Ting Su, Zhihong Zhang, Shaoqun Zeng, Qingming Luo, Britton Chance Ctr. for Biomedical Photonics (China) [7900-21]

Energy-based Treatment of Tissue and Assessment VI

Conference Chair: **Thomas P. Ryan**, Freefall Consulting

Program Committee: **James E. Coad**, West Virginia Univ.; **Chris J. Diederich**, Univ. of California, San Francisco; **P. Jack Hoopes**, Dartmouth Hitchcock Medical Ctr.; **Paul R. Stauffer**, Duke Univ.; **Sharon L. Thomsen**, Consultant; **John A. Pearce**, Univ. of Texas at Austin

Sunday 23 January

SESSION 1

Room: 302 (Esplanade) Sun. 8:00 to 10:00 am

Low Energy, Non-Ablative Tissue Effects

Session Chair: **Thomas P. Ryan**, Freefall Consulting

8:00 am: **The art and science of low-energy applications: pathology perspectives** (Keynote), Sharon L. Thomsen, Pathology Consultant to Engineers and Physicists (USA); James E. Coad M.D., West Virginia Univ. (USA) [7901-01]

9:20 am: **Non-ablative hyperthermic mesenchymal regeneration: a proposed mechanism of action based on the Viveve model** (Invited Paper), Jeffrey Vos, Nicholas Chill, James E. Coad M.D., West Virginia Univ. (USA) [7901-03]

9:40 am: **The influence of electric charge generated during EMR on mechanical behavior of cartilage**, Dmitry E. Protsenko, Brian J. Wong M.D., Beckman Laser Institute and Medical Clinic (USA) [7901-04]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 302 (Esplanade) Sun. 10:30 to 11:50 am

Thermal Treatment: Planning, Navigation, and Assessment

Session Chair: **Paul R. Stauffer**, Duke Univ.

10:30 am: **Strategies for microwave thermal treatment planning, navigation, and assessment** (Invited Paper), Thomas P. Ryan, FreeFall Consulting (USA) [7901-05]

10:50 am: **Conformal needle-based ultrasound ablation using EM-tracked conebeam CT image guidance** (Invited Paper), Everette C. Burdette, Acoustic Medsystems, Inc. (USA); Filip Banovac M.D., Georgetown Univ. (USA); Chris J. Diederich, Univ. of California, San Francisco (USA); Patrick Cheng, Emmanuel Wilson, Georgetown Univ. (USA); Kevin R. Cleary, Georgetown Univ. Medical Ctr. (USA) [7901-06]

11:10 am: **Preliminary evaluation of robotic needle distal-tip repositioning in ballistics gelatin** (Invited Paper), Conor J. Walsh, Harvard Medical School (USA); Alexander H. Slocum, Massachusetts Institute of Technology (USA); Rajiv Gupta, Massachusetts General Hospital (USA) [7901-07]

11:30 am: **Patient-specific thermal treatment planning for SonoKnife therapy of head and neck tumors**, Xin Chen, Duo Chen, Rongmin Xia, Gal Shafirstein, Peter Corry, Eduardo G. Moros, Univ. of Arkansas for Medical Sciences (USA) [7901-08]

Lunch/Exhibition Break 11:50 am to 1:20 pm

SESSION 3

Room: 302 (Esplanade) Sun. 1:20 to 3:00 pm

Nanoparticles and Nanotherapy I

Session Chair: **Yoed Rabin**, Carnegie Mellon Univ.

1:20 pm: **Nanoparticle-based hyperthermia cancer treatment: can delivered dose and biological effect be reliably modeled and quantified?** (Invited Paper), P. Jack Hoopes, Dartmouth Medical School (USA); John A. Pearce, The Univ. of Texas at Austin (USA); Robert Ivkov, The Johns Hopkins Univ. (USA); Charles R. Sullivan, Dartmouth College (USA); John C. Bischof, Univ. of Minnesota, Twin Cities (USA); Alicia A. Petryk, Dartmouth College (USA); Andrew J. Giustini, Dartmouth Hitchcock Medical Ctr. (USA); Jennifer A. Tate, Shiraz M. Cassim, Dartmouth College (USA); Thomas P. Ryan, Freefall Consulting (USA) [7901-09]

1:40 pm: **FEM numerical model study of heating in ferromagnetic nanoparticles** (Invited Paper), John A. Pearce, Jason R. Cook, The Univ. of Texas at Austin (USA); P. Jack Hoopes, Dartmouth Medical School (USA); Andrew J. Giustini, Dartmouth College (USA) [7901-10]

2:00 pm: **Nanoparticle heating: nanoscale to bulk effects of electromagnetically heated iron oxide and gold for biomedical applications**, Zhenpeng Qin, Michael Etheridge, John C. Bischof, Univ. of Minnesota, Twin Cities (USA) [7901-11]

2:20 pm: **Modelling and characterization of photothermal effects assisted with gold nanorods in ex-vivo samples and in a murine model**, Felix Rodriguez, Sr., Horacio Rivera Lamela, Sr., Vincent B. Cunningham, Univ. Carlos III de Madrid (Spain) [7901-12]

2:40 pm: **Comparison of microwave and iron-oxide nanoparticle hyperthermia radiosensitization in murine breast tumors**, Andrew J. Giustini, Dartmouth Medical School (USA) and Dartmouth College (USA); Alicia A. Petryk, Dartmouth College (USA); P. Jack Hoopes, Dartmouth Medical School (USA) [7901-13]

Coffee Break 3:00 to 3:30 pm

PANEL DISCUSSION

Room: 302 (Esplanade) Sun. 3:30 to 4:00 pm

Nanoparticle and Nanotherapy Controversies

Panel Moderator: **Chris J. Diederich**, Univ. of California, San Francisco

Panelists: **John Pearce**, Univ. of Texas at Austin (USA); **Yoed Rabin**, Carnegie Mellon Univ. (USA); **Zhenpeng Qin**, Univ. of Minnesota, Twin Cities (USA); **Andrew Giustini**, Dartmouth Hitchcock Medical Ctr. (USA); **Felix Rodriguez**, Univ. Carlos III de Madrid (Spain); **Jack Hoopes**, Dartmouth Medical School (USA); **Jon A. Schwartz**, Nanospectra Biosciences, Inc. (USA)

SESSION 4

Room: 302 (Esplanade) Sun. 4:00 to 5:45 pm

Micro-tissue Effects

Session Chair: **James E. Coad**, West Virginia Univ.

4:00 pm: **Computational modeling of high-intensity focused ultrasound mediated drug delivery** (Invited Paper), Dieter Haemmerich, Astrid Gasselhuber, Medical Univ. of South Carolina (USA) [7901-14]

4:15 pm: **Determination of cellular injury and death thresholds following exposure to high-voltage 10-ns electrical pulses**, Caleb C. Roth, Air Force Research Lab. (USA); Olga Pakhomova, Andrei G. Pakhomov, Old Dominion Univ. (USA); Gerald J. Wilmink, Bennett L. Ibey, Air Force Research Lab. (USA) [7901-15]

4:30 pm: **How does temperature affect the function of tissue macrophages?**, Chen-Ting Lee, Roswell Park Cancer Institute (USA) [7901-16]

4:45 pm: **Correction of tissue perfusion by terahertz waves**, Alexey N. Ivanov, Vyacheslav F. Kirichuk, Tatyana S. Kiriyaizi, Saratov State Medical Univ. (Russian Federation) [7901-17]

5:00 pm: **Lysosomal exocytosis in response to subtle membrane damage following nanosecond pulse exposure**, Danielle R. Dalzell, Caleb C. Roth, Air Force Research Lab. (USA); Andrei G. Pakhomov, Old Dominion Univ. (USA); Gerald J. Wilmink, Bennett L. Ibey, Air Force Research Lab. (USA) . . . [7901-18]

5:15 pm: **Effects of femtosecond laser radiation on blood cell suspensions**, Tatyana Genning, Ulyanovsk State Univ. (Russian Federation); Alexej A. Sysoliatin, A. M. Prokhorov General Physics Institute (Russian Federation); Tatyana Abakumova, Dinara Arslanova, Olga Voronova, Igor Zolotovskiy, Vladimir Ostatochnikov, Marina Yavtushenko, Ulyanovsk State Univ. (Russian Federation) [7901-19]

5:30 pm: **Removal of brain tissue by Tm-Fiber laser**, Burcu Tunç, Murat Gülsoy, Bogaziçi Üniv. (Turkey) [7901-20]

Questions and Answers

Room: 302 (Esplanade) Sun. 5:30 to 5:45 pm

Session Chair: **James E. Coad**, West Virginia Univ.

Monday 24 January

SESSION 5

Room: 208 (Mezzanine) Mon. 8:10 to 10:00 am

Ultrasound: Simulations, Imaging, and Treatment

Session Chair: Everette C. Burdette, Acoustic Medsystems, Inc.

- 8:10 am: **Magnetic resonance-guided focused ultrasound surgery for treatment of painful osseous metastases** (*Invited Paper*), Mark D. Hurwitz M.D., Brigham and Women's Hospital (USA) [7901-21]
- 8:30 am: **Microwave thermal imaging with HIFU treatment: in-vivo and ex-vivo animal experiments**, Tian Zhou, Paul M. Meaney, Shireen D. Geimer, Keith D. Paulsen, Dartmouth College (USA) [7901-22]
- 8:50 am: **Catheter-based ultrasound hyperthermia in conjunction with HDR brachytherapy for treatment of locally advanced cancer of the prostate and cervix** (*Invited Paper*), Chris J. Diederich, Jeffery Wootton, Punit Prakash, Vasant A. Salgaonkar, Titania Juang, Xin Chen, Adam M. Cunha, Jean Pouliot, I-Chow Hsu M.D., Univ. of California, San Francisco (USA) [7901-23]
- 9:10 am: **Fast optimization and planning of clinical hyperthermia using superposition and surrogate models of temperature distributions**, Vasant A. Salgaonkar, Punit Prakash, Chris J. Diederich, Univ. of California, San Francisco (USA) [7901-38]
- 9:25 am: **Experimental characterization of the acoustic edge of a SonoKnife applicator**, Rongmin Xia, Duo Chen, Xin Chen, Gal Shafirstein, Peter Corry, Eduardo G. Moros, Univ. of Arkansas for Medical Sciences (USA) [7901-25]
- 9:40 am: **Hepatic ablation with multiple interstitial ultrasound applicators: initial ex vivo and computational studies**, Punit Prakash, Vasant A. Salgaonkar, Univ. of California, San Francisco (USA); Everette C. Burdette, Acoustic Medsystems, Inc. (USA); Chris J. Diederich, Univ. of California, San Francisco (USA) [7901-26]
- Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 208 (Mezzanine) Mon. 10:30 to 11:50 am

Sensors and Radiometry

Session Chair: John A. Pearce, The Univ. of Texas at Austin

- 10:30 am: **Investigation of the electrical conductivity in perfused liver using micro-electrical probe**, Ming Yi, IBM China Co. Ltd. (China); Ronald J. Podhajsky, Covidien (USA); Roop L. Mahajan, Virginia Polytechnic Institute and State Univ. (USA) and Virginia Tech (USA) [7901-27]
- 10:50 am: **Ultra-miniature wireless temperature sensor for thermal medicine applications**, Ahmad B. Khairi, Shih-Chang Hung, Jeyanandh Paramesh, Gary K. Fedder, Yoed Rabin, Carnegie Mellon Univ. (USA) [7901-28]
- 11:10 am: **Electrical property based biopsy for prostate cancer detection and assessment**, Ryan J. Halter, Dartmouth College (USA); John Heaney, Alan Schned, Dartmouth Hitchcock Medical Ctr. (USA) [7901-29]
- 11:30 am: **Hyperthermia and microwave radiometry for non-invasive detection of vesicoureteral reflux (VUR)** (*Invited Paper*), Paul R. Stauffer, Paolo F. Maccarini, Kavitha Arunachalam, Sara Salahi, Valeria De Luca, Duke Univ. (USA); Oystein Klemetsen, Yngve Birkelund, Svein K. Jacobsen, Univ. of Tromsø (Norway); Fernando Bardati, Univ. degli Studi di Roma Tor Vergata (Italy); Piero Tognolotti, Univ. degli Studi dell'Aquila (Italy); Brent Snow, The Univ. of Utah (USA) [7901-30]
- Lunch Break 11:50 am to 1:20 pm

SESSION 7

Room: 208 (Mezzanine) Mon. 1:20 to 3:00 pm

Tissue Treatment Effects I

Session Chair: P. Jack Hoopes, Dartmouth Medical School

- 1:20 pm: **Ultrasound therapy applicators for controlled thermal modification of tissue** (*Invited Paper*), Everette C. Burdette, Acoustic Medsystems, Inc. (USA); Chris J. Diederich, Univ. of California, San Francisco (USA) [7901-31]
- 1:40 pm: **1125-nm quantum dot laser for tonsil thermal therapy** (*Invited Paper*), Kathleen McMillan, gRadiant Research, LLC (USA) [7901-32]
- 2:00 pm: **Hyperthermic tissue sealing devices: a proposed histopathologic protocol for standardizing sealed vessel evaluation** (*Invited Paper*), Ryan Livengood, Morris Jessop, James E. Coad M.D., West Virginia Univ. (USA) [7901-33]

- 2:20 pm: **Dual thermal ablation modality of solid tumors in a mouse model** (*Invited Paper*), Gal Shafirstein, Eduardo G. Moros, K. Barnes, Leah Hennings, Jessica Weber, Beata Przybyla, Robert Griffin, Univ. of Arkansas for Medical Sciences (USA) [7901-34]
- 2:40 pm: **Arrhenius parameters for primary thermal injury in human tonsillar tissue**, Kathleen McMillan, gRadiant Research, LLC (USA); Rebecca A. Radabaugh, James E. Coad M.D., West Virginia Univ. (USA) [7901-35]
- Coffee Break 3:00 to 3:30 pm

SESSION 8

Room: 208 (Mezzanine) Mon. 3:30 to 4:35 pm

Tissue Treatment Effects II

Session Chair: Sharon L. Thomsen, Consultant

- 3:30 pm: **New visualization strategies to study the dynamics of surgical coagulation devices in biological tissue using high-speed and absolute subsurface thermal imaging**, Rudolf M. Verdaasdonk, Vrije Univ. Medical Ctr. (Netherlands); Stefan Been, John H. Klaessens, Univ. Medical Ctr. Utrecht (Netherlands) [7901-36]
- 3:45 pm: **Indocyanine green enhanced near-infrared laser treatment of SCK tumors in a mouse model**, Gal Shafirstein, Univ. of Arkansas for Medical Sciences (USA); Wolfgang Bäuml, Univ. Clinics Regensburg (Germany); Ran Friedman, K. Barnes, Leah Hennings, Jessica Weber, Robert Griffin, Univ. of Arkansas for Medical Sciences (USA) [7901-37]
- 4:00 pm: **Computed effects of sweat gland ducts on the propagation of 94 GHz waves in skin**, Eduardo G. Moros, Gal Shafirstein, Univ. of Arkansas for Medical Sciences (USA) [7901-45]
- 4:20 pm: **Thermal ablation and/or spatially fractionated radiation (GRID) therapy for down-staging locally advanced breast cancer**, Gal Shafirstein, Robert Griffin, K. Barnes, Jessica Weber, Sunil Sharma, Eduardo G. Moros, Univ. of Arkansas for Medical Sciences (USA) [7901-39]

SESSION 9

Room: 208 (Mezzanine) Mon. 4:35 to 5:50 pm

Nanoparticles and Nanotherapy II

Session Chair: Gal Shafirstein, Univ. of Arkansas for Medical Sciences

- 4:35 pm: **Development of novel magnetic nanoparticles for hyperthermia cancer therapy**, Shiraz M. Cassim, Dartmouth Hitchcock Medical Ctr. (USA); P. Jack Hoopes, Dartmouth Medical School (USA); Ian Baker D.D.S., Dartmouth College (USA) [7901-40]
- 4:50 pm: **Selective nanoparticle-directed photothermal ablation of the canine prostate**, Jon A. Schwartz, Nanospectra Biosciences, Inc. (USA); Roger E. Price D.V.M., Baylor College of Medicine (USA); Kelly L. Gill-Sharp, Krystina L. Sang, Jennifer D. Khorchani, J. Donald Payne, Nanospectra Biosciences, Inc. (USA); Bradford S. Goodwin, The Univ. of Texas Health Science Ctr. at Houston (USA) [7901-41]
- 5:05 pm: **Targeted magnetic nanoparticle hyperthermia for cancer therapy**, Jennifer A. Tate, Bing Gong, Tillman U. Gerngross, Karl E. Griswold, Dartmouth College (USA); P. Jack Hoopes, Dartmouth Medical School (USA) [7901-42]
- 5:20 pm: **Kinetics and pathogenesis of intracellular iron-oxide nanoparticle hyperthermia**, Andrew J. Giustini, Dartmouth Hitchcock Medical Ctr. (USA) and Dartmouth College (USA); Rachel E. Gottesman, Dartmouth College (USA); Kristen M. Rauwerdink, Dartmouth Medical School (USA); Adam M. Rauwerdink, Alicia A. Petryk, Dartmouth College (USA); John B. Weaver, Dartmouth Hitchcock Medical Ctr. (USA); P. Jack Hoopes, Dartmouth Medical School (USA) [7901-43]
- 5:35 pm: **Comparison of iron-oxide nanoparticle and microwave hyperthermia alone or combined with cisplatin in murine breast tumors**, Alicia A. Petryk, Andrew J. Giustini, Dartmouth College (USA); P. Jack Hoopes, Dartmouth Medical School (USA) and Dartmouth College (USA) [7901-44]

Questions and Answers

Room: 208 (Mezzanine) Mon. 5:50 to 6:00 pm

Session Chair: Gal Shafirstein, Univ. of Arkansas for Medical Sciences



Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues IX

Conference Chairs: **Daniel L. Farkas**, Cedars-Sinai Medical Ctr.; **Dan V. Nicolau**, Univ. of Liverpool (United Kingdom); **Robert C. Leif**, Newport Instruments

Conference Co-Chairs: **James F. Leary**, Purdue Univ.; **Ramesh Raghavachari**, U.S. Food and Drug Administration; **J. Paul Robinson**, Purdue Univ.; **Attila Tarnok**, Univ. Leipzig (Germany)

Program Committee: **Vincenza Andrisano**, Univ. degli Studi di Bologna (Italy); **Christopher H. Contag**, Stanford Univ. School of Medicine; **Ewa M. Goldys**, Macquarie Univ. (Australia); **Charles P. Lin**, Wellman Ctr. for Photomedicine; **Andreas G. Nowatzky**, Cedars-Sinai Medical Ctr.; **Markus Sauer**, Univ. Bielefeld (Germany); **Takahisa Taguchi**, National Institute of Advanced Industrial Science and Technology (Japan)

Saturday 22 January

SESSION 1

Room: 112 (Exhibit Level) Sat. 8:30 to 10:10 am

Cell Imaging I

Session Chair: **Daniel L. Farkas**, Cedars-Sinai Medical Ctr.

8:30 am: **Manipulating intracellular refractive index for contrast-enhanced digital holographic imaging of subcellular structures**, Christina E. Rommel, Christian Dierker, Lisa Schmidt, Sabine Przbilla, Gert von Bally, Björn Kemper, Jürgen Schneckeburger, Westfälische Wilhelms-Universität Münster (Germany) [7902-01]

8:50 am: **Cell death measured with optical coherence tomography**, Daniel Martijn M. de Bruin, Mans Broekgaarden, Dirk J. Faber, Ton G. van Leeuwen, Univ. van Amsterdam (Netherlands) [7902-02]

9:10 am: **Dynamic Raman imaging of cytochromes in apoptotic cells**, Masaya Okada, Osaka Univ. (Japan); Katsumasa Fujita, Osaka Univ. (Japan) and Japan Science and Technology Agency (Japan); Nicholas I. Smith, Osaka Univ. (Japan); Satoshi Kawata, Osaka Univ. (Japan) and RIKEN (Japan) [7902-03]

9:30 am: **Long-term, time-lapse, multimodal microscopy for tracking cell dynamics in live tissue**, Benedikt W. Graf, Eric J. Chaney, Maria Carmen Valero Quiros, Marina Marjanovic, Mami D. Boppart, Stephen A. Boppart M.D., Univ. of Illinois at Urbana-Champaign (USA) [7902-04]

9:50 am: **Multiscale optical measurements of bacterial growth**, Mustafa A. H. Mir, Zhuo Wang, Michael Bednarz, Univ. of Illinois at Urbana-Champaign (USA); Ido Golding, Baylor College of Medicine (USA); Gabriel Popescu, Univ. of Illinois at Urbana-Champaign (USA) [7902-05]

Coffee Break 10:10 to 10:40 am

Keynote Presentation

Room: 112 (Exhibit Level) Sat. 10:40 am

SESSION 2

Room: 112 (Exhibit Level) Sat. 11:25 am to 12:25 pm

Cell Imaging II

Session Chair: **Daniel L. Farkas**, Cedars-Sinai Medical Ctr.

11:25 am: **Hyperspectral imaging of the olfactory bulb activation: influence of realistic differential path-length correction factors on the derivation of oxygenation and total hemoglobin concentration maps**, Rémi Renaud, Chery Romain, Univ. Paris-Sud 11 (France); Mounir Bendahmane, Ctr. National de la Recherche Scientifique (France) and Univ. Paris 11 et 7 (France) and INRA (France); Claire Martin, Ctr. National de la Recherche Scientifique (France) and Univ. Paris 11 et 7 (France); Hircac Gurden, Ctr. National de la Recherche Scientifique (France) and Univ. Paris Sud 11 (France); Frederic Pain, Univ. Paris-Sud 11 (France) and Ctr. National de la Recherche Scientifique (France) [7902-06]

11:45 am: **Wide-field in-vivo spectral and fluorescence imaging microscopy of microvessel blood supply and oxygenation**, Jennifer Lee, Mamta Wankhede, Brian S. Sorg, Univ. of Florida (USA) [7902-07]

12:05 pm: **Water deficit and salt stress diagnosis through LED induced chlorophyll fluorescence analysis in jatropha curcas L. oil plants for biodiesel**, Elias A. Arcanjo da Silva, Jr., Patrícia Cunha, Ronaldo Oliveira-Filho, Artur S. Gouveia-Neto, Ernande Costa, Terezinha J. Camara, Lilia G. Willadino, Univ. Federal Rural de Pernambuco (Brazil) [7902-08]

Lunch/Exhibition Break 12:25 to 1:55 pm

SESSION 3

Room: 112 (Exhibit Level) Sat. 1:55 to 3:35 pm

Tissue Imaging I

Session Chair: **Daniel L. Farkas**, Cedars-Sinai Medical Ctr.

1:55 pm: **High-throughput in-vivo vertebrate imaging and screening**, Mehmet F. Yanik, Carlos Pardo, Tsung-Yao Chang, Bryan Koo, Cody Gilleland, Steven Wasserman V.D.M., Massachusetts Institute of Technology (USA) [7902-09]

2:15 pm: **Quantifying thermal modifications on laser welded skin tissue**, Hasim O. Tabakoglu, Fatih Univ. (Turkey); Murat Gülsoy, Bogaziçi Univ. (Turkey) [7902-10]

2:35 pm: **Tumour cell differentiation by marker free fluorescence microscopy**, Herbert Schneckeburger, Petra Weber, Michael Wagner, Marco Brantsch, Philipp Biller, Hochschule Aalen (Germany); Petra Kioschis, Hochschule Mannheim (Germany); Waltraud Kessler, Steinbeis-Hochschule (Germany) [7902-11]

2:55 pm: **Autofluorescence ratio imaging of human colonic adenomas**, Katsuchi Imaizumi, Olympus Medical Systems Corp. (Japan) and Kyoto Prefectural Univ. of Medicine (Japan); Yoshinori Harada, Naoki Wakabayashi, Yoshihisa Yamaoka, Ping Dai, Hideo Tanaka, Tetsuro Takamatsu, Kyoto Prefectural Univ. of Medicine (Japan) [7902-12]

3:15 pm: **Multimode optical imaging for translational chemotherapy: tumor detection and delineation by targeted gallium corrole**, Lali K. Medina-Kauwe, Cedars-Sinai Medical Ctr. (USA); Zeev Gross, Technion-Israel Institute of Technology (Israel); Harry B. Gray, California Institute of Technology (USA); Daniel L. Farkas, Cedars-Sinai Medical Ctr. (USA) [7902-13]

Coffee Break 3:45 to 4:15 pm

SESSION 4

Room: 112 (Exhibit Level) Sat. 4:15 to 5:35 pm

Tissue Imaging II

Session Chair: **Daniel L. Farkas**, Cedars-Sinai Medical Ctr.

4:15 pm: **Simultaneous multimodality optical and MR imaging of tumor micro-environment within implanted window chambers**, Mir Farrokh Shayegan Salek, College of Optical Sciences, The Univ. of Arizona (USA); Dominique Jennings, Harvard-Massachusetts Institute of Technology (USA); Tzu-Yu Wu, Arthur F. Gmitro, The Univ. of Arizona (USA) [7902-14]

4:35 pm: **Small animal Cerenkov luminescence imaging**, Ruby K. Gill, Gregory S. Mitchell, Changqing Li, Simon R. Cherry, Univ. of California, Davis (USA) [7902-15]

4:55 pm: **Multispectral line confocal imaging microscope for biomedical fluorescence applications**, Mark M. Meyers, GE Global Research (USA) [7902-06]

5:15 pm: **The new hyperspectral microscopic system for cancer diagnosis**, Yao-Fang Hsieh, Yu-Ta Chen, Ting-Wei Huang, Ou-Yang Mang, National Central Univ. (Taiwan); Jin-Chern Chiou, Yong-Jun Lin, Ming-Hsui Tsai, Da-Tian Bau, Chang-Fang Chiu, Guan-Chin Teseng, Nai-Wen Chang, China Medical Univ. (Taiwan); Wen-Chung Kao, Shun-De Wu, National Taiwan Normal Univ. (Taiwan) [7902-17]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

SESSION 5

Room: 112 (Exhibit Level) Sun. 8:30 to 10:50 am

Micro Imaging, Manipulation, Probing I

Session Chair: Dan V. Nicolau, Univ. of Liverpool (United Kingdom)

8:30 am: **Live atomic force microscopy imaging of laser microbeam-assisted cellular microsurgery**, Ninad D. Ingle, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7902-18]

8:50 am: **Monitoring single-membrane protein dynamics in a liposome manipulated in solution by the ABELtrap**, Torsten Rendler, Marc Renz, Stefan Ernst, Michael Börsch, Univ. Stuttgart (Germany) [7902-19]

9:10 am: **Optical trapping forces on biological cells on a waveguide surface**, Pål Løvhaugen, Balpreet S. Ahluwalia, Univ. of Tromsø (Norway); Thomas R. Huser, UC Davis Medical Ctr. (USA); Peter McCourt, Olav Gaute Hellesø, Univ. of Tromsø (Norway) [7902-20]

9:30 am: **2D freeform plasmonic trapping via spatial light modulator**, Shean-Jen Chen, Hung-Wei Su, National Cheng Kung Univ. (Taiwan) [7902-21]

9:50 am: **High-speed fret screening for optical proteomics in microfluidic format**, Viput Visitkul, King's College London (United Kingdom) [7902-22]

10:10 am: **Parallel analysis of biological cells using multifocal laser tweezers Raman spectroscopy**, Rui Liu, Douglas S. Taylor, Dennis L. Matthews, James W. Chan, Ctr. for Biophotonics Science and Technology (USA) [7902-23]

10:30 am: **Evaluation of the collateral damage during a femtosecond-laser axotomy by using a multimodal microscopy workstation**, Omar E. Olarte, Susana I. C. O. Santos, Manoj Mathew, Sotiris Psilodimitrakopoulos, Pablo Loza-Alvarez, ICFO - Instituto de Ciencias Fotónicas (Spain) [7902-24]

Coffee Break 10:50 to 11:20 am

SESSION 6

Room: 112 (Exhibit Level) Sun. 11:20 am to 1:20 pm

Micro Imaging, Manipulation, Probing II

Session Chair: Dan V. Nicolau, Univ. of Liverpool (United Kingdom)

11:20 am: **Microtubule traffic in filamentous fungi confined in microfluidics devices**, Marie Held, Dan V. Nicolau, Univ. of Liverpool (United Kingdom) [7902-25]

11:40 am: **High-throughput sheathless flow cytometry using inertial microfluidics**, Ali Asgar S. Bhagat, Sathyakumar S. Kuntaegowdanahalli, Ian Papautsky, Univ. of Cincinnati (USA) [7902-26]

12:00 pm: **Digital holographic microscopy combined with optical tweezers**, Nelson Cardenas, The Univ. of Texas at Arlington (USA); Lingfeng Yu, Nanoscope Technologies LLC (USA); Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7902-27]

12:20 pm: **Dynamics of optically trapped red blood cells by phase contrast microscopy**, Mariana C. Potcoava, Erich E. Hoover, Gianna Riccota, Kevin Roth, Jeffrey A. Squier, Colorado School of Mines (USA); Ralph Jimenez, JILA (USA); David W. Marr, Colorado School of Mines (USA) [7902-28]

12:40 pm: **Laser protein patterning**, Jonathan M. Belisle, Leonard A. Levin M.D., Santiago Costantino, Univ. de Montréal (Canada) [7902-29]

1:00 pm: **Depth-targeted transvascular drug delivery by using annular-shaped photomechanical waves**, Takuya Akiyama, Keio Univ. (Japan); Shunichi Sato, Hiroshi Ashida, National Defense Medical College (Japan); Mitsuhiro Terakawa, Keio Univ. (Japan) [7902-30]

Lunch/Exhibition Break 1:20 to 2:50 pm

SESSION 7

Room: 112 (Exhibit Level) Sun. 2:50 to 4:40 pm

Biomolecular Imaging

Session Chair: Dan V. Nicolau, Univ. of Liverpool (United Kingdom)

2:50 pm: **Simultaneous measurements of fluorescence lifetimes, rotational correlation times and FRAP recovery times**, James A. Levitt, Pei-Hua Chung, Dominic R. Alibhai, Klaus Suhling, King's College London (United Kingdom) [7902-31]

3:10 pm: **Time-gated spontaneous and resonance Raman spectroscopy for biomedical applications**, Zachary J. Smith, Florian Knorr, Cynthia V. Pagba, Sebastian Wachsmann-Hogiu, UC Davis Medical Ctr. (USA) [7902-32]

Coffee Break 3:30 to 4:00 pm

4:00 pm: **Validation of method for enhanced production of red-shifted bioluminescent photons in vivo**, Joe Dragavon, Samantha Blazquez, Chelsea Samson, Spencer Shorte, Institut Pasteur (France) [7902-33]

4:20 pm: **Characterization and application of a redox-sensitive GFP-mutant roGFP**, Kirstin Elgass, Sebastian Wierer, Sébastien Peter, Stefan Bieker, Ulrike Zentgraf, Frank Schleifenbaum, Eberhard Karls Univ. Tübingen (Germany) [7902-34]

Monday 24 January

SESSION 8

Room: 112 (Exhibit Level) Mon. 8:30 to 10:30 am

Cytomics

Session Chair: Robert C. Leif, Newport Instruments

8:30 am: **Detection and isolation of rare cells by 2-step enrichment high-speed flow cytometry/cell sorting and single-cell LEAP laser ablation**, Michael D. Zordan, James F. Leary, Purdue Univ. (USA) [7902-36]

8:50 am: **The influence of selected antimicrobial peptides on physiology of immune system**, Karolina Golab, Arkadiusz Pierzchalski, Jozsef Bocsi, Univ. Leipzig (Germany); Wojciech Kamysz, Medical Univ. of Gdansk (Poland); Attila Tarnok, Univ. Leipzig (Germany) [7902-37]

9:10 am: **Study of cell classification with a diffraction imaging flow cytometer method**, Ke Dong, TEO Systems, Inc. (USA); Kenneth Jacobs, East Carolina Univ. (USA); Yu Sa, Yuanming Feng, Tianjin Univ. (China); Jun Q. Lu, Xin-Hua Hu, East Carolina Univ. (USA) [7902-39]

9:30 am: **Extraction of multiple fluorescence lifetimes from cytometric data**, Patrick Jenkins, New Mexico State Univ. (USA); James P. Freyer, National Flow Cytometry Resource (USA); Mark S. Naivar, Darkling Simulations, LLC (USA); Jessica P. Houston, New Mexico State Univ. (USA) [7902-40]

9:50 am: **CytometryML, DICOM, and FCS-ACS**, Robert C. Leif, Stephanie H. Leif, Newport Instruments (USA) [7902-41]

10:10 am: **Quantitation of cellular autophagy using 4D image-based cytometry**, Frank Chuang, NSF Ctr. for Biophotonics Science and Technology (USA) [7902-38]

Coffee Break 10:50 to 11:20 am

SESSION 9

Room: 112 (Exhibit Level) Mon. 11:20 am to 12:40 pm

New Imaging Techniques I

Session Chair: Robert C. Leif, Newport Instruments

11:20 am: **Ultra-wide-field lensfree fluorescent imaging of caenorhabditis elegans on a chip**, Ahmet F. Coskun, Ikbal Sencan, Ting-Wei Su, Aydogan Ozcan, Univ. of California, Los Angeles (USA) [7902-42]

11:40 am: **Adaptive optics in sectioning microscopes: the practical implementation**, Jordi Andilla, Imagine Optic SA (France); Jérôme Ballesta, Imagine Optic Inc. (USA); Xavier Levecq, Imagine Optic SA (France) [7902-43]

12:00 pm: **Analysis of time-gated FLIM data by means of the phasor approach**, Farzad Fereidouni, Dave J. van den Heuvel, Jarno Voortman, Erik Hofman, Hans C. Gerritsen, Utrecht Univ. (Netherlands) [7902-44]

12:20 pm: **Quantum cascade laser-based replacement for FTIR microscopy**, Miles Weida, Brandon Yee, Daylight Solutions, Inc. (USA) [7902-45]

Lunch/Exhibition Break 12:50 to 2:20 pm



SESSION 10

Room: 112 (Exhibit Level) Mon. 2:00 to 3:40 pm

New Imaging Techniques II

Session Chair: Robert C. Leif, Newport Instruments

2:00 pm: **An on chip Fresnel zone plates enabled optofluidic microscope for sectional cell imaging**, Lap Man Lee, Shuo Pang, Jigang Wu, Seung Ah Lee, Guoan Zheng, Changhui Yang, California Institute of Technology (USA) [7902-46]

2:20 pm: **Surface plasmon enhanced high-resolution total internal reflection fluorescence microscopy**, Kyujung Kim, Youngjin Oh, Wonju Lee, Donghyun Kim, Yonsei Univ. (Korea, Republic of) [7902-47]

2:40 pm: **Instantaneous spatial light interference microscopy (iSLIM)**, Huafeng Ding, Gabriel Popescu, Univ. of Illinois at Urbana-Champaign (USA) . . . [7902-48]

3:00 pm: **Cellular Spectroscopy: Applications to Cancer Stem Cells**, Gordon W. Wiegand, Estuary Biophotonics Inc. (USA) [7902-49]

3:20 pm: **Diesel exhaust particle toxicity to human lung adenocarcinoma epithelial cell line: combined instrumental approaches to study morphological, biochemical, and biomechanical alterations at the cellular level**, Anhong Zhou, Yangzhe Wu, Gerald D. McEwen, Utah State Univ. (USA) . [7902-35]

Coffee Break 3:40 to 4:10 pm

SESSION 11

Room: 112 (Exhibit Level) Mon. 4:10 to 5:30 pm

New Imaging Techniques III

Session Chair: Robert C. Leif, Newport Instruments

4:10 pm: **A multiphoton optical image guided spectroscopy method for characterization of collagen-based materials modified by glycation**, Yu Jer Hwang, Joseph Granelli, Julia G. Lyubovitsky, Univ. of California, Riverside (USA) [7902-50]

4:30 pm: **Dynamical study of cell motility by simultaneous light microscopy and surface plasmon resonance imagery**, Julien Moreau, Lab. Charles Fabry (France); Jean-Marc Allain, Ranjit Gulvady, Ecole Polytechnique (France); Michael T. Canva, Lab. Charles Fabry (France) [7902-51]

4:50 pm: **Validation of autoLF: a platform for quantifying near-infrared fluorescent images of lymphatic propulsion in humans**, John C. Rasmussen, Merrick Bautista, Gabriel Dickinson, Blake Niccum, I-Chih Tan, Kristen E. Adams, Melissa B. Aldrich, Milton V. Marshall, The Univ. of Texas Health Science Ctr. at Houston (USA); Caroline E. Fife, Erik A. Maus, Latisha A. Smith, The Univ. of Texas Health Science Ctr. at Houston (USA) and Memorial Hermann Hospital (USA); Jingdan Zhang, Xiaoyan Xiang, Kevin Zhou, Siemens Corporate Research (USA); Eva M. Seveck-Muraca, The Univ. of Texas Health Science Ctr. at Houston (USA) [7902-52]

5:10 pm: **Quantitative analysis of lipid droplets accumulation in living macrophages by coherent anti-Stokes Raman scattering microscopy**, Wei-Wen Chen, Cheng-Hao Chien, National Yang-Ming Univ. (Taiwan) and Academia Sinica (Taiwan); Ta-Chau Chang, Academia Sinica (Taiwan) and National Yang-Ming Univ. (Taiwan) [7902-53]

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

The heavy metals influence on spectroscopic characteristics of sulfur cycle bacteria *Desulfuromonas acetoxidans*, Oresta M. Vasylyv, Oleksandr I. Bilyy, Svitlana O. Hnatush, Ivan Franko National Univ. of L'viv (Ukraine) [7902-60]

Heating device for 96-well microtiter culture plates, Thomas Bruns, Christian Berchtold, Herbert Schneckenburger, Hochschule Aalen (Germany) . . [7902-61]

The study of the correlation properties on RBC flickering using double path interferometric quantitative phase microscopy, Seungrag Lee, Jiyoung Lee, Chang-Soo Park, Dug-Young Kim, Gwangju Institute of Science and Technology (Korea, Republic of) [7902-62]

Real time diagnosis of bladder cancer with probe-based confocal laser endomicroscopy, Jen-Jane Liu, Katherine Wu, Winnifred Adams, Shelly Hsiao, Katherine E. Mach, Kristin Jensen, Joseph C. Liao, Stanford Univ. (USA) [7902-63]

High-speed fluorescence lifetime measurement by dual-channel waveform measurement, Young Jae Won, Dug-Young Kim, Gwangju Institute of Science and Technology (Korea, Republic of) [7902-64]

Transillumination of subcutaneous adipose tissues using near-infrared hyperspectral imaging in the 1100-1800-nm wavelength range, Katsunori Ishii, Akiko Kitayabu, Yohei Kobayashi, Norihiro Honda, Osaka Univ. (Japan); Kunio Awazu, Osaka Univ. (Japan) and Univ. of Fukui (Japan) and Kyoto Univ. (Japan) [7902-65]

Developments of pulse-laser-assist optical tweezers (PLAT) for in-vivo manipulation, Saki Maeda, Tadao Sugiura, Kotaro Minato, Nara Institute of Science and Technology (Japan) [7902-66]

Polarized Raman studies for early detection of cancer in human cervical tissue, Jaidip M. Jagtap, Taranjeet Singh, Meghdoot Mozumder, Prashant Shukla, Asima Pradhan, Indian Institute of Technology Kanpur (India) [7902-67]

Differentiating human cervical cancer and normal tissue through wavelet domain characterization of intrinsic fluorescence, Rajatesh Gudiband, IISER Kolkata (India); Meghdoot Mozumder, Rajbeer Singh, Indian Institute of Technology Kanpur (India); Prasanta K. Panigrahi, IISER Kolkata (India); Asima Pradhan, Indian Institute of Technology Kanpur (India) [7902-68]

Infrared spectroscopic imaging of prostate and kidney tumor tissue, Valdas Sablinskas, Vilnius Univ. (Lithuania); Gerald Steiner, Eric Koch, Technische Univ. Dresden (Germany); Justinas Ceponkus, Milda Pucetaite, Simona Strazdaite, Vidita Urboniene, Feliksas Jankevicius, Vilnius Univ. (Lithuania) [7902-69]

Automated optical cell detection, sorting, and temperature measurements, Joel D. Kindt, Mujahid Naqbi, Torsten Kiljan, Wesley Fuller, Weina Wang, Colorado State Univ. (USA); David W. Kisker, eOpra LLC (USA); Kevin L. Lear, Colorado State Univ. (USA) [7902-71]

Modeling and Tissue Parameter Extraction Challenges for Free Space Broadband fNIR Brain Imaging Systems, Ebraheem Sultan, Drexel Univ. (USA) and School of Biomedical Engineering and Health Systems, Drexel Univ. (USA) and National Institute of Health (USA); Khushali Manseta, Adil Khwaja, Drexel Univ. (USA); Laleh Najafizadeh, Amir H. Gandjbakhche, National Institutes of Health (USA); Kambiz Pourrezaei, Afshin S. Daryoush, Drexel Univ. (USA) [7902-72]

Microfluidic isolation and manipulation of microscopic objects using optical trap with geometric distortion, Shivarjanji Shivalingaiah, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7902-73]

Development of a stigmatic imaging mass spectrometer using laser desorption/ionization, Kunio Awazu, Osaka Univ. (Japan) and Univ. of Fukui (Japan) and Japan Science and Technology Agency (Japan); Hisanao Hazama, Hirofumi Nagao, Hidetoshi Yoshimura, Jun Aoki, Osaka Univ. (Japan) and Japan Science and Technology Agency (Japan); Kenichi Fujii, Osaka Institute of Technology (Japan) and Japan Science and Technology Agency (Japan); Toshio Tashima, Japan Science and Technology Agency (Japan); Katsuyoshi Masuda, Suntory Institute for Bioorganic Research (Japan) and Japan Science and Technology Agency (Japan); Michisato Toyoda, Osaka Univ. (Japan) and Japan Science and Technology Agency (Japan); Yasuhide Naito, Graduate School for the Creation of New Photonics Industries (Japan) and Japan Science and Technology Agency (Japan) [7902-74]

Utility of fallopian tube imaging techniques for tubal intraepithelial carcinoma detection, Soufiane El Hallani, Sylvia Lam, Jessica McAlpine, Blake Gilks, Calum E. MacAulay, The BC Cancer Agency Research Ctr. (Canada); Pierre M. Lane, The BC Cancer Agency Research Ctr. (USA) [7902-75]

Linear spectral unmixing through multispectral fluorescence excitation imaging, Mehrmoush Khojasteh, Calum E. MacAulay, The BC Cancer Agency Research Ctr. (Canada) [7902-77]

Detecting biomarkers of disease using carbon-fluorine spectroscopy, Farid Mena, Bouzid Mena, Olga N. Sharts, Fluorotronics, Inc. (USA) [7902-78]

Sensing and enumerating rare circulating cells with diffuse light, Eric W. Zettergren, Mark J. Niedre, Northeastern Univ. (USA) [7902-79]

Bioluminescence tomography with a combined BLT/DOT/CT system, Han Yan, Univ. of California, Irvine (USA); Orhan Nalcioglu, Univ. of California, Irvine (USA) and Pusan National Univ. (Korea, Republic of); Gultekin Gulsen, Univ. of California, Irvine (USA) [7902-80]

Tuesday 25 January

SESSION 12

Room: 112 (Exhibit Level) Tues. 8:30 to 9:50 am

Image Analysis, Processing, and Quantification I

Session Chair: Dan V. Nicolau, Univ. of Liverpool (United Kingdom)

8:30 am: **Metabolic remodeling of the human red blood cell membrane measured by quantitative phase microscopy**, YongKeun Park, KAIST (Korea, Republic of); Catherine Best, Univ. of Illinois at Urbana-Champaign (USA); Thorsten Auth, Institute for Solid State Research (Germany); Nir S. Gov, Samuel Safran, Weizmann Institute of Science (Israel); Gabriel Popescu, Univ. of Illinois at Urbana-Champaign (USA). [7902-54]

8:50 am: **Raman mapping of biological tissue using clustering analysis based on the Pearson correlation coefficient**, Frederic Festy, King's College London (United Kingdom) [7902-55]

9:10 am: **Clustering and discrimination of pediatric patients undergoing open heart surgery with and without methylprednisolone treatment by cellular and humoral immune parameters**, Jozsef Bocsi, Anja Mittag, Arkadiusz Pierzchalski, Univ. Leipzig (Germany); Pavel Osmancik, Charles Univ. in Prague (Czech Republic); Ingo Dähnert, Attila Tarnok, Univ. Leipzig (Germany) [7902-56]

9:30 am: **Computational efficient segmentation of cell nuclei in 2D and 3D fluorescent micrographs**, Jonas de Vylder, Wilfried R. Philips, Univ. Gent (Belgium) [7902-57]

Coffee Break 9:50 to 10:20 am

SESSION 13

Room: 112 (Exhibit Level) Tues. 10:20 to 11:00 am

Image Analysis, Processing, and Quantification II

Session Chair: Dan V. Nicolau, Univ. of Liverpool (United Kingdom)

10:20 am: **A novel method for multiparameter physiological phenotype characterization at the single-cell level**, Laimonas Kelbauskas, Shashanka P. Ashili, Yanqing Tian, Haixin Zhu, Yasser H. Anis, Jeff Houkal, Dean Smith, Cody Youngbull, Saeed Merza, Xianfeng Zhou, Roger H. Johnson, Mark R. Holl, Deirdre Meldrum, Arizona State Univ. (USA) [7902-58]

10:40 am: **Determination of the PSI/PSII ratio in living plant cells at room temperature by spectrally and temporally resolved fluorescence spectroscopy**, Kirstin Elgass, Eberhard Karls Univ. Tübingen (Germany); Zell Martina, Veronica G. Maurino, Univ. zu Köln (Germany); Frank Schleifenbaum, Eberhard Karls Univ. Tübingen (Germany) [7902-59]

Courses of Related Interest

- SC309 Fluorescent Markers: Usage and Optical System Optimization (Levi)
Sunday, 8:30 am to 12:30 pm
- SC461 Bio-Optical Detection Systems (Levi) Sunday, 1:30 to 5:30 pm
- SC868 Optical Design for Biomedical Imaging (Liang) Tuesday, 1:30 to 5:30 pm
- SC1013 Choosing the Correct Optical Filter for Your Application (Reichel)
Tuesday, 8:30 am to 12:30 pm

See course materials desk located in the SPIE Registration Area.

Don't miss the free BiOS Exhibition

See the latest components,
devices, and instrumentation for
diagnostics and therapeutics

22–23 January 2011

Saturday · 12:00 pm to 5:00 pm

Sunday · 10:00 am to 5:00 pm

Multiphoton Microscopy in the Biomedical Sciences XI

Conference Chairs: **Ammasi Periasamy**, Univ. of Virginia; **Karsten Koenig**, Saarland Univ. (Germany); **Peter T. C. So**, Massachusetts Institute of Technology

Program Committee: **Wolfgang Becker**, Becker & Hickl GmbH (Germany); **Keith M. Berland**, Emory Univ.; **Guy C. Cox**, The Univ. of Sydney (Australia); **Alberto Diaspro**, Univ. degli Studi di Genova (Italy); **Chen-Yuan Dong**, National Taiwan Univ. (Taiwan); **Dennis Donley**, Olympus America, Inc.; **Kevin W. Eliceiri**, Univ. of Wisconsin-Madison; **Scott E. Fraser**, California Institute of Technology; **Paul M. W. French**, Imperial College London (United Kingdom); **Hans C. Gerritsen**, Utrecht Univ. (Netherlands); **Min Gu**, Swinburne Univ. of Technology (Australia); **Stefan W. Hell**, Max-Planck-Institut für biophysikalische Chemie (Germany); **Brian A. Herman**, The Univ. of Texas Health Science Ctr. at San Antonio; **Satoshi Kawata**, Osaka Univ. (Japan); **Arnd K. Krueger**, Newport Spectra-Physics; **Joseph R. Lakowicz**, Univ. of Maryland School of Medicine; **Stephen M. McDonald**, Coherent, Inc.; **Simon C. Watkins**, Univ. of Pittsburgh; **Paul W. Wiseman**, McGill Univ. (Canada); **Sunney X. Xie**, Harvard Univ.; **Bernhard Zimmermann**, Carl Zeiss Jena GmbH (Germany); **Warren R. Zipfel**, Cornell Univ.

Co-Sponsored by:

Chroma Technology, Coherent, Inc., Jen Lab, MultiPhoton Laser Technologies, Newport-Spectra Physics, Omega Optical

Sunday 23 January

Welcome Remarks

Room: 308 (Esplanade) Sun. 8:05 to 8:15 am

Session Chair: **Ammasi Periasamy**, Univ. of Virginia

Room: 308 (Esplanade) Sun. 8:15 to 9:55 am

Keynote Session

Session Chair: **Ammasi Periasamy**, Univ. of Virginia

8:15 am: **Multiphoton microscopy and multiplex, multimodal imaging: impact on 21st century healthcare** (*Invited Paper*), Paras N. Prasad, Univ. at Buffalo (USA) [7903-01]

8:45 am: **Development of medical multiphoton microscopic endoscopy** (*Presentation Only*) (*Keynote Presentation*), Watt W. Webb, Cornell Univ. (USA) [7903-121]

9:05 am: **Multiphoton microscopy with gold nanoparticles as contrast agents** (*Invited Paper*), Colin J. R. Sheppard, Naveen K. Balla, Singapore MIT Alliance (Singapore) and National Univ. of Singapore (Singapore); Peter T. C. So, Singapore MIT Alliance (Singapore) and Massachusetts Institute of Technology (USA) [7903-02]

9:35 am: **New developments in clinical multiphoton tomography** (*Invited Paper*), Karsten Koenig, Univ. des Saarlandes (Germany) [7903-03]
Coffee Break 10:05 to 10:25 am

SESSION 1

Room: 308 (Esplanade) Sun. 10:25 am to 12:05 pm

Second Harmonic Generation I

Session Chair: **Paul J. Campagnola**, Univ. of Wisconsin-Madison

10:25 am: **Connecting the atomic scale dynamics to the macro-world by second-harmonic generation microscopy** (*Invited Paper*), Francesco S. Pavone, Univ. degli Studi di Firenze (Italy) [7903-04]

10:45 am: **Determination of collagen nanostructure from nonlinear microscopy** (*Invited Paper*), Wei-Liang Chen, Ping-Jung Su, Yang-Fang Chen, Chen-Yuan Dong, National Taiwan Univ. (Taiwan) [7903-05]

11:05 am: **Holographic microscopy of second-harmonic generation in biological specimens**, Philip Schlup, Omid Masihzadeh, Randy A. Bartels, Colorado State Univ. (USA) [7903-06]

11:20 am: **Characterization of stem cell-derived cardiomyocytes using second-harmonic generation (SHG) microscopy**, Samir Awasthi, NSF Ctr. for Biophotonics Science and Technology (USA); Deborah K. Lieu, Nipavan Chiamvimonvat M.D., UC Davis Medical Ctr. (USA); Dennis L. Matthews, James W. Chan, NSF Ctr. for Biophotonics Science and Technology (USA) [7903-07]

11:35 am: **Molecular third-harmonic generation imaging of melanin with real-level resonance enhancement**, Szu-Yu Chen, Ming-Rung Tsai, Cheng-Hua Tsai, National Taiwan Univ. (Taiwan); Yi-Hua Liao M.D., National Taiwan Univ. Hospital (Taiwan); Chi-Kuang Sun, National Taiwan Univ. (Taiwan) [7903-08]

11:50 am: **Second-harmonic generation and multiphoton microscopy for automatic texture analysis of human of elastic fibers and collagen distribution in human thoracic aorta**, Gislaiane Vieira, Vitor B. Pelegati, André A. Thomaz, Daniela Peixoto Ferro, Randall L. Adam, Carlos Lenz Cesar, Konradin Metzke, Univ. Estadual de Campinas (Brazil) [7903-09]
Lunch/Exhibition Break 12:05 to 1:05 pm

SESSION 2

Room: 308 (Esplanade) Sun. 1:05 to 3:10 pm

Second Harmonic Generation II

Session Chair: **Chen-Yuan Dong**, National Taiwan Univ. (Taiwan)

1:05 pm: **SHG as a robust means to quantify changes in collagen deposition that accompany cancer progression** (*Invited Paper*), Paul J. Campagnola, Visar Ajeti, Suzanne M. Ponik, Carolyn Pehlke, Kevin W. Eliceiri, Patricia J. Keely, Univ. of Wisconsin-Madison (USA); Molly A. Brewer, Michael Tadros, Kooroosh Moezardalan, John Birk, Univ. of Connecticut Health Ctr. (USA) [7903-10]

1:25 pm: **Visualization of the first hyperpolarizability tensor elements with second-harmonic generation microscopy in biological spherocrystals**, Virginijus Barzda, Richard Cisek, Adam E. Tuer, Univ. of Toronto Mississauga (Canada) [7903-11]

1:40 pm: **Second-harmonic generation imaging of collagen matrix remodeling in a stimulated 3D cellular environment: forward versus backward scattering**, Thomas Abraham, Alex Scott, Jon Carthy, Bruce McManus M.D., The Univ. of British Columbia (Canada) [7903-12]

1:55 pm: **3D myofibril imaging in live cardiomyocytes via hybrid SHG-TPEF microscopy**, Bruce Z. Gao, Clemson Univ. (USA); Yonghong Shao, Shenzhen Univ. (China); Honghai Liu, Clemson Univ. (USA); Junlie Qu D.D.S., Xiang Peng, Hanben Niu, Shenzhen Univ. (China) [7903-13]

2:10 pm: **Second-harmonic phase microscopy**, Etienne Shaffer, Corinne Moratal, Pierre Marquet, Christian D. Depeursinge, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7903-14]

2:25 pm: **Three-dimensional polarization second-harmonic generation (3D-PSHG) imaging of tissues: the effect of the tilted-off the plane SHG active structures**, Sotiris Psilodimitrakopoulos, Ivan Amat-Roldan, ICFO - Instituto de Ciencias Fotónicas (Spain); David Artigas-García, ICFO - Instituto de Ciencias Fotónicas (Spain) and Univ. Politècnica de Catalunya (Spain); Pablo Loza-Alvarez, ICFO - Instituto de Ciencias Fotónicas (Spain) [7903-15]

2:40 pm: **Dependence of third-harmonic generation on melanin concentration in skin**, Tung-Yu Su, Chien-Sheng Liao, Chih-Yuan Yang, Zong-Yan Zhuo, Szu-Yu Chen, Shi-Wei Chu, National Taiwan Univ. (Taiwan) [7903-16]

2:55 pm: **Quantitative analysis of diseased horse tendons using Fourier-transform-second-harmonic generation imaging**, Sivaguru Mayandi, Sushmitha Durgam, Raghu Ambekar Ramachandra Rao, David Luedtke, Glenn A. Fried, Allison Stewart, Kimani C. Toussaint, Jr., Univ. of Illinois at Urbana-Champaign (USA) [7903-17]

Coffee Break 3:10 to 3:30 pm

SESSION 3

Room: 308 (Esplanade) Sun. 3:30 to 5:20 pm

Technology Development and Applications I

Session Chair: Francesco S. Pavone, Univ. degli Studi di Firenze (Italy)

3:30 pm: **Examining the feasibility of using multiphoton excited tissue autofluorescence for in vivo human clinical imaging** (*Invited Paper*), Johanna M. Dela Cruz, Jesse D. McMullen, Rebecca M. Williams, Warren R. Zipfel, Cornell Univ. (USA) [7903-18]

3:50 pm: **Latest advances in ultra-fast laser sources for multiphoton microscopy**, Philip G. Smith, Spectra-Physics®, a Newport Corp. Brand (USA) [7903-19]

4:05 pm: **Advances in lasers for multiphoton biological imaging**, David P. Armstrong, Coherent, Inc. (USA) [7903-20]

4:20 pm: **Magnetron sputtered filters and mirrors for lasers and multiphoton applications**, Michael C. Stanley, Chroma Technology Corp. (USA) [7903-118]

4:35 pm: **Two-photon light sheet microscopy**, Thai V. Truong, Willy Supatto, David Koos, John M. Choi, Scott E. Fraser, California Institute of Technology (USA) [7903-21]

4:50 pm: **Intensity normalization of two-photon microscopy images for liver fibrosis analysis**, Vijay Raj Singh, Singapore-MIT Alliance for Research and Technology (Singapore); Jagath C. Rajapakse, Nanyang Technological Univ. (Singapore); Peter T. C. So, Massachusetts Institute of Technology (USA) [7903-22]

5:05 pm: **Combined high-speed two-photon microscopy and optical coherence microscopy for in-vivo tissue imaging**, Byunghak Lee, Ki Hean Kim, Bosu Jeong, HyoSeok Nam, Sang June Yoon, Min Sung Jang, Junsang Doh, Bo Gi Yang, Myoung Ho Jang, Pohang Univ. of Science and Technology (Korea, Republic of) [7903-116]

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Label-free ex vivo imaging of human breast tissue using coherent anti-Stokes Raman scattering microscopy, Yaliang Yang, Methodist Hospital Research Institute (USA) [7903-85]

Photo-induced cell damage analysis for multifocus CARS microscopy, Takeo Minamikawa, Yoshinori Murakami, Naokazu Matsumura, Hirohiko Niioka, Shuichiro Fukushima, Tsutomu Araki, Mamoru Hashimoto, Osaka Univ. (Japan) [7903-86]

Raman spectroscopy: a powerful tool for the non-contact discrimination of bone-marrow mesenchymal stem cells and fibroblasts, Marieke Pudlas, Steffen Koch, Fraunhofer-Institut für Grenzflächen- und Bioverfahrenstechnik (Germany); Carsten Bolwien, Fraunhofer-Institut für Photonische Mikrosysteme (Germany); Thomas Hirth, Heike Walles, Katja Schenke-Layland, Fraunhofer-Institut für Grenzflächen- und Bioverfahrenstechnik (Germany) [7903-87]

Broadband coherent Raman imaging for colocalisation studies, Bradley Littleton, Frederic Festy, Simon M. Ameer-Beg, David R. Richards, King's College London (United Kingdom) [7903-88]

SRS microscopy in the fingerprint region, Xu Zhang, Maarten B. Roeffaers, Srinjan Basu, Christian W. Freudiger, Brian G. Saar, Wei Min, Sunney X. Xie, Harvard Univ. (USA) [7903-89]

In-vivo coherent Raman scattering imaging with a periodically poled crystal OPO, Delong Zhang, Mikhail N. Slipchenko, Yunzhou Shi, Ji-Xin Cheng, Purdue Univ. (USA) [7903-90]

Implementing label-free microscopy and spectroscopy to study a new mouse model of non-alcoholic steatohepatitis, Iwan W. Schie, UC Davis Medical Ctr. (USA) [7903-91]

Monitoring the lipid metabolism in living Drosophila larvae by coherent anti-Stokes Raman scattering (CARS) and two-photon excitation (TPE) microscopy, Cheng-Hao Chien, Wei-Wen Chen, National Yang-Ming Univ. (Taiwan) and Academia Sinica (Taiwan); June-Tai Wu, National Taiwan Univ. (Taiwan) and National Taiwan Univ. Hospital (Taiwan); Ta-Chau Chang, Academia Sinica (Taiwan) and National Yang-Ming Univ. (Taiwan) . . . [7903-92]

Two-photon selective plane illumination microscopy (2p-SPIM) in living biological samples, Jonathan A. Palero, Susana I. C. O. Santos, ICFO - Instituto de Ciencias Fotónicas (Spain); David Artigas-García, Univ. Politècnica de Catalunya (Spain); Pablo Loza-Alvarez, ICFO - Instituto de Ciencias Fotónicas (Spain) [7903-93]

Multiphoton endoscopy based on a mode-filtered single-mode fiber, Sucbei Jeong, Gangjun Liu, Zhongping Chen, Beckman Laser Institute and Medical Clinic (USA) [7903-95]

A cationic 1,4-Bis(styryl)benzene derivative and its cyclodextrin inclusion complexes for two-photon biological imaging, Okhill K. Nag, Pyeongsu Jeong, Han Young Woo, Pusan National Univ. (Korea, Republic of) . . [7903-96]

Quantifying the surface chemistry of porous biomaterials by two-photon microscopy, Dimitrios S. Tzeranis, Ioannis V. Yannas, Peter T. C. So, Massachusetts Institute of Technology (USA) [7903-97]

Novel nanocarriers for topical drug delivery: investigating delivery efficiency and distribution in skin using two-photon microscopy, Vladimir Kirejev, Stina Guldbrand, Brigitte Bauer, Maria H. Smedh, Marica B. Ericson, Göteborg Univ. (Sweden) [7903-98]

Compact ultrafast semiconductor disk laser for nonlinear imaging in living organisms, Rodrigo A. Aviles-Espinosa, ICFO - Instituto de Ciencias Fotónicas (Spain); Giorgos Filippidis, Foundation for Research and Technology-Hellas (Greece); Craig Hamilton, Solus Technologies Ltd. (United Kingdom); Graeme Malcolm, M Squared Lasers Ltd. (United Kingdom); Thomas Südmeyer, Yohan Barbarin, Ursula Keller, ETH Zurich (Switzerland); David Artigas-García, Univ. Politècnica de Catalunya (Spain); Pablo Loza-Alvarez, ICFO - Instituto de Ciencias Fotónicas (Spain) [7903-99]

Single-particle imaging by two-photon microscopy in vivo, Lisa Krapf, Univ. zu Lübeck (Germany); Jelena Dimitrijevic, Univ. Hamburg (Germany); Anna Schüth, Univ. zu Lübeck (Germany); Tobias Vossmeier, Univ. Hamburg (Germany); Andreas Gebert, Univ. zu Lübeck (Germany); Horst Weller, Univ. Hamburg (Germany); Gereon Hüttmann, Univ. zu Lübeck (Germany) [7903-100]

Two-photon excitation STED-CW microscopy, Paolo Bianchini, Silvia Galiani, Alberto Diaspro, Istituto Italiano di Tecnologia (Italy) [7903-101]

Two-photon fluorescence excitation within a light-sheet-based microscopy architecture, Francesca Cella Zanacchi, Zeno Lavagnino, Emiliano Ronzitti, Alberto Diaspro, Istituto Italiano di Tecnologia (Italy) [7903-102]

Spectral decomposition of multicolor imaging in multifocal multiphoton microscopy, Jae-Won Cha, Jerry L. Chen, Ely Nedivi, Peter T. C. So, Massachusetts Institute of Technology (USA) [7903-103]

Characterization of third-degree burned skin by nonlinear microscopy technique, Moisés O. dos Santos, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Carlos Lenz Cesar, Vitor B. Pelegati, Univ. Estadual de Campinas (Brazil); Telma Maria T. Zorn, Univ. de São Paulo (Brazil); Denise M. Zezell, Instituto de Pesquisas Energéticas e Nucleares (Brazil) [7903-104]

Diagnosing hepatocellular carcinoma with the intensity and the lifetime of two-photon red autofluorescences, Tzu-Ming Liu, Chien-Tai Hsieh, Yu-Shing Chen, Fu-Lien Huang, National Taiwan Univ. (Taiwan); Hsin-Yi Huang, Wen-Jeng Lee M.D., National Taiwan Univ. Hospital (Taiwan); Chun-Ta Kung, Chi-Kuang Sun, National Taiwan Univ. (Taiwan) [7903-105]

New methods for high-sensitivity and high-throughput spectral FLIM, Felix Koberling, Benedikt Krämer, Michael Wahl, PicoQuant GmbH (Germany); Samantha Fore, PicoQuant Photonics North America, Inc. (USA); Rainer Erdmann, PicoQuant GmbH (Germany) [7903-106]

Proposal of a new method to measure FRET quantitatively in living or fixed biomedical specimens on a laser microscope, P. Johannes Helm, Ole P. Ottersen, Univ. of Oslo (Norway) [7903-107]

Assessing changes in collagen levels of castrated rat prostates using second-harmonic generation and two-photon fluorescence, Bruna Favetta, Vitor B. Pelegati, André A. Thomaz, Taize M. Augusto, Hernandes F. Carvalho, Carlos Lenz Cesar, Univ. Estadual de Campinas (Brazil) [7903-108]

A study on the sources of backward SHG from collagen fibrils, Mengzhe Shen, The Univ. of British Columbia (Canada); Yingqiu Yu, Haishan Zeng, The BC Cancer Agency Research Ctr. (Canada); Shuo Tang, The Univ. of British Columbia (Canada) [7903-109]

The increase of NADH fluorescence lifetime is associated with the metabolic change during osteogenic differentiation of human mesenchymal stem cells (hMSCs), Han-Wen Guo, Jia-Sin Yu, Shu-Han Hsu, Yau-Huei Wei, Oscar K. Lee, Hsing-Wen Wang, National Yang-Ming Univ. (Taiwan) [7903-110]

Spectrally resolved CARS microscopy of condensed carbohydrate systems, Aaron D. Slepko, Andrew Ridsdale, Adrian F. Pegoraro, Douglas J. Moffatt, Albert Stolow, National Research Council Canada (Canada) [7903-112]

Electroporation-induced nanopores in primary neurons studied by means of SHG microscopy, Dobryna Zalvidea, Enric Claverol-Tinture, Institute for Bioengineering of Catalonia (Spain) [7903-113]

Nonlinear miniaturized microscope with spectral detection for in-vivo tissue imaging, Johan van Voskuilen, Jerfey van Weelden, Oleg Nadiarnykh, Utrecht Univ. (Netherlands); Giju Thomas, Henricus J. C. M. Sterenborg, Erasmus MC (Netherlands); Hans C. Gerritsen, Utrecht Univ. (Netherlands) [7903-114]

Visualization of heat propagation in biological tissue with two-photon fluorescence microscopy, Cih-Yuan Yang, Chien-Sheng Liao, Shi-Wei Chu, National Taiwan Univ. (Taiwan) [7903-115]

Two-photon excitation in life sciences: neurotransmitter and fluorescence uncaging, Frederic Bolze, Jean-François Nicoud, Sylvestre Gug, Sebastien Charon, Alexandre Specht, Maurice Goeldner, David Warther, William Sun, Univ. of Strasbourg (France); Pascal Kesler, Yves Lutz, Jean-Luc Vonesch, Institut de Genetique et Biologie Moleculaire et Cellulaire (France); Attila Losonczy, Columbia Univ. (USA) [7903-117]

Structural analysis of articular cartilage using multiphoton microscopy: input for biomechanical modelling, Magnus B. Lilledahl, Norwegian Univ. of Science and Technology (Norway); David M. Pierce, Gerhard Holzapfel, Technische Univ. Graz (Austria); Catharina de Lange Davies, Univ. of Duisburg-Essen (Germany) [7903-119]

Delivery and characterization of sub-8fs laser pulses at the imaging plane of a two-photon microscope, Marcos M. Dantus, Dmitry Pestov, Michigan State Univ. (USA); Bingwei Xu, Haowen Li, Biophotonic Solutions, Inc. (USA) [7903-120]

Monday 24 January

SESSION 4

Room: 308 (Esplanade) Mon. 8:45 to 10:01 am

Raman/CARS Microscopy I

Session Chair: Sunney X. Xie, Harvard Univ.

8:45 am: **Stimulated Raman scattering (SRS) microscopy** (*Invited Paper*), Christian W. Freudiger, Brian G. Saar, Wei Min, Sunney X. Xie, Harvard Univ. (USA) [7903-23]

9:05 am: **Chemical release from single-PMMA microparticles monitored by CARS microscopy**, Annika M. Enejder, Fredrik Svedberg, Lars Nordstierna, Magnus Nydén, Chalmers Univ. of Technology (Sweden) [7903-24]

9:17 am: **Phase-cycling coherent anti-Stokes Raman scattering using shaped femtosecond laser pulses**, Baolei Li, Warren S. Warren, Sr., Martin C. Fischer, Duke Univ. (USA) [7903-25]

9:29 am: **Mechanism for epi-detected stimulated Raman scattering**, Pu Wang, Mikhail N. Slipchenko, Ji-Xin Cheng, Purdue Univ. (USA) [7903-26]

9:41 am: **Ordered water in biopolymers studied by coherent Raman microscopy** (*Invited Paper*), Eric O. Potma, Rebecca Younger, Univ. of California, Irvine (USA) [7903-27]

Coffee Break 10:01 to 10:21 am

SESSION 5

Room: 308 (Esplanade) Mon. 10:21 am to 12:05 pm

Raman/CARS Microscopy II

Session Chair: Eric O. Potma, Univ. of California, Irvine

10:21 am: **High-energy picosecond fiber lasers for coherent Raman microscopy** (*Invited Paper*), Frank W. Wise, Lingjie Kong, Simon Lefrancois, Dimitre Ouzounov, Cornell Univ. (USA); Changxi Yang, Tsinghua Univ. (China) [7903-28]

10:41 am: **All fiber, 1064-nm time-lens source for coherent anti-Stokes Raman scattering and stimulated Raman scattering microscopy** (*Invited Paper*), Ke Wang, Cornell Univ. (USA); Christian W. Freudiger, Brian G. Saar, Harvard Univ. (USA); Jennifer Lee, Cornell Univ. (USA); Sunney X. Xie, Harvard Univ. (USA); Chris Xu, Cornell Univ. (USA) [7903-29]

11:01 am: **Coherent anti-Stokes Raman scattering microspectroscopy based on a compact Er: fiber laser**, Romedi Selm, Martin Winterhalder, Andrea M. Nagy, Andreas Zumbusch, Günther Krauss, Tobias Hanke, Alexander Sell, Alfred Leitenstorfer, Univ. Konstanz (Germany) [7903-30]

11:13 am: **CARS module for multimodal microscopy**, Ruben Zadoyan, Tommaso Baldacchini, Chun-Hung Kuo, John L. Carter, David Ocepek, Newport Corp. (USA) [7903-31]

11:25 am: **Synchronized picosecond pulses at two different wavelengths from a compact fiber laser source for Raman microscopy** (*Invited Paper*), Khanh Q. Kieu, Nasser Peyghambarian, College of Optical Sciences, The Univ. of Arizona (USA) [7903-32]

11:45 am: **Label-free biomedical imaging by listening to molecular vibration** (*Invited Paper*), Ji-Xin Cheng, Purdue Univ. (USA) [7903-33]

Lunch/Exhibition Break 12:05 to 1:05 pm

SESSION 6

Room: 308 (Esplanade) Mon. 1:05 to 3:09 pm

Raman/CARS Microscopy III

Session Chair: Ji-Xin Cheng, Purdue Univ.

1:05 pm: **Broadband coherent Raman microscopy: noninvasive chemical imaging for biology** (*Invited Paper*), Marcus T. Cicerone, Young Lee, Sapun H. Parekh, Khaled Aamer, National Institute of Standards and Technology (USA) [7903-34]

1:25 pm: **Hyperspectral CARS imaging of polyolefine deformation**, Gregor Hehl, Univ. Stuttgart (Germany); Gulnara Yu. Nikolaeva, A. M. Prokhorov General Physics Institute (Russian Federation); Andreas Volkmer, Univ. Stuttgart (Germany) [7903-35]

1:37 pm: **Wavelength-swept CARS spectroscopy**, Steve Begin, Ctr. de Recherche de l'Univ. Laval Robert-Giffard (Canada); Bryan Burgoyne, Genia Photonics Inc. (Canada); Daniel Cote, Ctr. de Recherche de l'Univ. Laval Robert-Giffard (Canada) [7903-36]

1:49 pm: **Integrated multiplex CARS and two-photon fluorescence microscopy for imaging biological systems**, Dong Li, Wei Zheng, Jianan Y. Qu, Hong Kong Univ. of Science and Technology (Hong Kong, China) [7903-37]

2:01 pm: **Label-free histopathology images with SRS/TPA lipid-protein-blood contrast provide comparable diagnostic content to permanent H&E stained sections** (*Invited Paper*), Geoffrey S. Young, Brigham and Women's Hospital (USA); Christian W. Freudiger, Brian G. Saar, Harvard Univ. (USA); Rolf Pfannl, Brigham and Women's Hospital (USA); Sunney X. Xie, Harvard Univ. (USA) [7903-38]

2:21 pm: **Fiber optic endomicroscope for CARS imaging**, Yuying Zhang, The Johns Hopkins Univ. (USA); Ruben Zadoyan, Newport Corp. (USA); Xingde Li, The Johns Hopkins Univ. (USA) [7903-39]

2:33 pm: **Imaging luminal atherosclerosis by femtosecond CARS to determine plaque burden**, Leila B. Mostaço-Guidolin, Andrew Ridsdale, Michael S. D. Smith, Mark Hewko, Adrian F. Pegoraro, Elicia M. Kohlenberg, Bernhard J. Schattka, National Research Council Canada (Canada); Masashi Shiomi, Kobe Univ. School of Medicine (Japan); Albert Stolow, Michael G. Sowa, Alex C. T. Ko, National Research Council Canada (Canada) ... [7903-40]

2:45 pm: **Nonlinear microscopy, IR, and Raman microspectroscopy for brain tumour analysis**, Benjamin Dietzek, Friedrich-Schiller-Univ. Jena (Germany); Tobias Meyer, Norbert Bergner, Christiane Bielecki, Christoph Krafft, Institut für Photonische Technologien e.V. (Germany); Bernd F. M. Romeike, Rupert Reichart, Rolf Kalf, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) [7903-41]

2:57 pm: **Combining multiphoton and CARS microscopy for skin imaging**, Hans G. Breunig, JenLab GmbH (Germany); Karsten Koenig, Univ. des Saarlandes (Germany) [7903-42]

Coffee Break 3:09 to 3:29 pm

SESSION 7

Room: 308 (Esplanade) Mon. 3:29 to 5:41 pm

Raman/CARS Microscopy IV

Session Chair: Annika M. Enejder,
Chalmers Univ. of Technology (Sweden)3:29 pm: **Nonlinear Raman imaging through turbid medium**, Vladislav V. Yakovlev, Univ. of Wisconsin-Milwaukee (USA) [7903-43]3:41 pm: **A CARS solution with high temporal resolution**, Stefanie Landwehr, Sangeeta Murugkar, Brett Smith, Majid Naji, Univ. of Ottawa (Canada); Craig Brideau, Peter Stys, Univ. of Calgary (Canada); Hanan Anis, Univ. of Ottawa (Canada) [7903-44]3:53 pm: **Development of a micromirror-scanned multimodal CARS miniaturized microscope for the in-vivo study of spinal cord disorders**, Sangeeta Murugkar, Brett Smith, Majid Naji, Takeo Minamikawa, Hirohiko Niioka, Tsutomu Araki, Osaka Univ. (Japan) [7903-45]4:05 pm: **Development of polarization-mode controllable CARS microscope**, Mamoru Hashimoto, Tatsuro Takagi, Takeo Minamikawa, Hirohiko Niioka, Tsutomu Araki, Osaka Univ. (Japan) [7903-46]4:17 pm: **High-contrast coherent anti-Stokes Raman scattering microscopy using tightly focused cylindrical vector beams**, Jian Lin, Fake Lu, Wei Zheng, Zhiwei Huang, National Univ. of Singapore (Singapore) [7903-47]4:29 pm: **Multiparameter label-free flow cytometry using multiplex coherent anti-Stokes Raman scattering (MCARS) with biological applications**, Charles H. Camp, Jr., Siva Yegnanarayanan, Ali A. Eftekhar, Ali Adibi, Georgia Institute of Technology (USA) [7903-48]4:41 pm: **Inverse problem for broadband interferometric coherent anti-Stokes Raman scattering**, Wladimir A. Benalcazar, Scott Carney, Stephen A. Boppart M.D., Univ. of Illinois at Urbana-Champaign (USA) [7903-49]4:53 pm: **Differential-CARS microscopy with linearly chirped femtosecond laser pulses**, Wolfgang Langbein, Israel Rocha-Mendoza, Peter Watson, Paola Borri, Cardiff Univ. (United Kingdom) [7903-50]5:05 pm: **Stimulated Raman scattering for chemical-specific analysis of cellular response to thermal insult**, Hope T. Beier, Air Force Research Lab. (USA); Gary D. Noojin, TASC, Inc. (USA); Benjamin A. Rockwell, Air Force Research Lab. (USA) [7903-51]5:17 pm: **Novel implementation of a widefield CARS microscope**, Alexander Jesacher, Gregor Thalhammer, Stefan Bernet, Monika A. Ritsch-Marte, Innsbruck Medical Univ. (Austria) [7903-52]5:29 pm: **Coherent anti-Stokes Raman scattering (CARS) holography**, Kebin Shi, Perry S. Edwards, Haifeng Li, Qian Xu, The Pennsylvania State Univ. (USA); Demetri Psaltis, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Zhiwen Liu, The Pennsylvania State Univ. (USA) [7903-53]

Tuesday 25 January

SESSION 8

Room: 308 (Esplanade) Tues. 8:00 to 10:10 am

Technology Development and Applications II

Session Chair: Peter T. C. So, Massachusetts Institute of Technology

8:00 am: **Sub-100-nm material processing with sub-15-femtosecond picosecond near-infrared laser pulses** (*Invited Paper*), Karsten Koenig, Aisada A. Uchugonova, Martin H. Straub, Huijing Zhang, Maziar Afshar, Dara Feili, Helmut Seidel, Univ. des Saarlandes (Germany) [7903-54]8:20 am: **Nanosurgery with near-infrared femtosecond and picosecond laser pulses** (*Invited Paper*), Aisada A. Uchugonova, Huijing Zhang, Karsten Koenig, Univ. des Saarlandes (Germany) [7903-55]8:40 am: **Wide-field two-photon microscopy with spatio-temporal focusing and HiLo background rejection**, Elijah Y. Yew, Singapore-MIT Alliance for Research and Technology (Singapore); Heejin Choi, Daekeun Kim, Peter T. C. So, Massachusetts Institute of Technology (USA) [7903-56]8:55 am: **Sequential photon absorption induced luminescence from gold nanoparticles**, Adela Ben-Yakar, Nicholas J. Durr, The Univ. of Texas at Austin (USA) [7903-57]9:10 am: **Two-photon autofluorescence spectroscopy of oral mucosa tissue**, Kert Edward, Tuya Shilagard, Suimin Qiu, Vincente Resto, Susan McCammon, Gracie Vargas, The Univ. of Texas Medical Branch (USA) [7903-58]9:25 am: **Single-wavelength STED microscope with multiphoton excitation**, Stephen C. Baer, Massachusetts Institute of Technology (USA) [7903-59]9:40 am: **Thresholds for laser-induced DNA damage in nonlinear microscopy**, Oleg Nadiarykh, Utrecht Univ. (Netherlands); Giju Thomas, Erasmus MC (Netherlands); Johan van Voskuilen, Utrecht Univ. (Netherlands); Henricus J. C. M. Sterenborg, Erasmus MC (Netherlands); Hans C. Gerritsen, Utrecht Univ. (Netherlands) [7903-60]9:55 am: **Femtosecond pump-probe imaging reveals chemical and architectural changes in human melanoma**, Thomas E. Matthews, Ivan Piletic, Maria Angelica Selim, Mary Jane Simpson, Warren S. Warren, Sr., Duke Univ. (USA) [7903-61]

Coffee Break 10:10 to 10:35 pm

SESSION 9

Room: 308 (Esplanade) Tues. 10:35 am to 12:15 pm

Technology Development and Applications III

Session Chair: Alberto Diaspro, Istituto Italiano di Tecnologia (Italy)

10:35 am: **In-vivo cellular metabolism of mouse liver revealed by multiphoton microscopy**, Chun-Chin Wang, Wei-Liang Chen, Zhi-Ru Lin, Feng-Chieh Li, Ara Ghazaryan, Hsuan-Shu Lee, Sung-Jan Lin, Chen-Yuan Dong, National Taiwan Univ. (Taiwan) [7903-62]10:50 am: **Multimodal nonlinear optical imaging of carbon tetrachloride-induced liver steatosis and fibrosis in a rat model**, Fake Lu, National Univ. of Singapore (Singapore); Dean Tai, Institute of Bioengineering and Nanotechnology (Singapore); Jian Lin, Wei Zheng, Henry Yu, Zhiwei Huang, National Univ. of Singapore (Singapore) [7903-63]11:05 am: **Time-resolved fluorescence microscopy to study protein interactions in cellar and model media**, Lin L. Chandler, HORIBA Scientific, Inc. (USA); Graham Hungerford, Marion Toury, David McLoskey, HORIBA Jobin Yvon IBH Ltd. (United Kingdom); Agnes S. Smith, Glasgow Caledonian Univ. (United Kingdom) [7903-64]11:20 am: **Enhanced-eumelanin fluorescence by stepwise three-photon excitation**, Josef Kerimo, Northeastern Univ. (USA); Milind Rajadhyaksha, Memorial Sloan-Kettering Cancer Ctr. (USA); Charles A. DiMarzio, Northeastern Univ. (USA) [7903-65]11:35 am: **Subcellular recording of action potentials in cardiac myocytes with random access two-photon microscopy**, Leonardo Sacconi, Raffaele Coppini, Cecilia Ferrantini, Jacopo Lotti, Chiara Tesi, Elisabetta Cerbai, Corrado Poggessi, Francesco S. Pavone, Univ. degli Studi di Firenze (Italy) [7903-66]11:50 am: **Functional wide-field multiphoton imaging of cellular dynamics by temporal focusing and patterned illumination**, Olivier Dupont-Therrien, Benoit Aube, Stéphane Pagès, Paul De Koninck, Daniel Cote, Univ. Laval (Canada) [7903-67]

Lunch/Exhibition Break 12:05 to 1:05 pm

SESSION 10

Room: 308 (Esplanade) Tues. 1:25 to 3:05 pm

FLIM, FRET, FCS Microscopy I

Session Chair: **Alzbeta Chorvatova**, International Laser Ctr. (Slovakia)

1:25 pm: **Simultaneous fluorescence and phosphorescence lifetime imaging** (*Invited Paper*), Wolfgang Becker, Bertram Su, Becker & Hickl GmbH (Germany) [7903-68]

1:45 pm: **Multiwavelength FLIM: new applications and algorithms** (*Invited Paper*), Angelika C. Rueck, Univ. Ulm (Germany) [7903-69]

2:05 pm: **Determination of Calcium Concentrations in cells and tissue with Fluorescence Lifetime Imaging - from Neurons to Smooth Muscle Cells.**, Thomas Gensch, Forschungszentrum Jülich GmbH (Germany) [7903-71]

2:20 pm: **Fluorescence lifetime imaging (FLIM) and time-resolved fluorescence anisotropy imaging (TR-FAIM) of molecular rotors in living cells**, Pei-Hua Chung, James A. Levitt, King's College London (United Kingdom); Marina K. Kuimova, Imperial College London (United Kingdom); Gokhan Yahioğlu, PhotoBiotics Ltd. (USA); Klaus Suhling, King's College London (United Kingdom) [7903-72]

2:35 pm: **Determination of the stoichiometry, structure, and distribution in living cells of protein complexes from analysis of single-molecular-complexes FRET**, Deo R. Singh, Michael R. Stoneman, Valerica Raicu, Univ. of Wisconsin-Milwaukee (USA) [7903-73]

2:50 pm: **Bayesian analysis of fluorescence lifetime imaging data**, Mark I. Rowley, King's College London (United Kingdom); Paul R. Barber, Univ. of Oxford (United Kingdom); Anthony Coolen, King's College London (United Kingdom); Borivoj Vojnovic, Univ. of Oxford (United Kingdom) [7903-74]

Coffee Break 3:00 to 3:25 pm

SESSION 11

Room: 308 (Esplanade) Tues. 3:25 to 6:05 pm

FLIM, FRET, FCS Microscopy II

Session Chair: **Karsten Koenig**, JenLab GmbH (Germany)

3:25 pm: **Laser-induced photobleaching of NAD(P)H fluorescence components in cardiac cells resolved by spectral unmixing of TCSPC signals** (*Invited Paper*), Alzbeta Chorvatova, Anton Mateasik, Dusan Chorvat, Jr., International Laser Ctr. (Slovakia) [7903-75]

3:45 pm: **New methods for FLIM and FCS for confocal laser scanning microscopy** (*Invited Paper*), Samantha Fore, PicoQuant Photonics North America, Inc. (USA); Felix Koberling, Benedikt Krämer, Marcelle König, Volker Buschmann, Michael Wahl, Sandra Orthaus, Uwe Ortmann, Rainer Erdmann, PicoQuant GmbH (Germany) [7903-76]

4:05 pm: **Drug transport mechanism of P-glycoprotein monitored by single-molecule fluorescence resonance energy transfer**, Stefan Ernst, Univ. Stuttgart (Germany); Brandy Verhalen, SUNY Upstate Medical Univ. (USA); Nawid Zarrabi, Univ. Stuttgart (Germany); Stephan Wilkens, SUNY Upstate Medical Univ. (USA); Michael Börsch, Univ. Stuttgart (Germany) [7903-77]

4:20 pm: **Measuring the diffusion of fluorophores in human skin by two-photon fluorescence correlation spectroscopy combined with measurements of point spread function**, Stina Guldbrand, Carl Simonsson, Mattias Goksör, Maria H. Smedh, Marica B. Ericson, Göteborg Univ. (Sweden) [7903-78]

4:35 pm: **Two-photon phosphorescence lifetime microscopy (2PLM) for high-resolution imaging of oxygen**, Sergei A. Vinogradov, Louise E. Sinks, Emmanuel Roussakis, Univ. of Pennsylvania (USA) [7903-79]

4:50 pm: **A multispectral FLIM microscope for in-vivo imaging of skin cancer**, Clifford B. Talbot, Rakesh Patalay, Ian H. Munro, Imperial College London (United Kingdom); Georg Breunig, Karsten Koenig, JenLab GmbH (Germany); Yuriy Alexandrov, Sean Warren, Anthony Chu, Gordon W. Stamp, Mark A. Neil, Paul M. W. French, Christopher W. Dunsby, Imperial College London (United Kingdom) [7903-80]

5:05 pm: **Using adaptive optics for deep in-vivo multiphoton FLIM**, Simon P. Poland, Gilbert O. Fruhwirth, Tony C. Ng, Simon M. Ameer-Beg, King's College London (United Kingdom) [7903-81]

5:20 pm: **A STED-FLIM microscope applied to imaging the natural killer cell immune synapse**, Martin O. Lenz, Alice Brown, Egidijus Aukсорius, Daniel M. Davis, Christopher W. Dunsby, Mark A. Neil, Paul M. W. French, Imperial College London (United Kingdom) [7903-82]

5:35 pm: **Intracellular oligomerization of HIV-1 Vpr and interaction with Gag polyprotein: a two-photon FRET-FLIM investigation**, Yves Mely, Joelle Fritz, Pascal Didier, Univ. de Strasbourg (France); Jean-Luc Darlix, Ecole Normale Supérieure de Lyon (France); Hugues de Rocquigny, Univ. de Strasbourg (France) [7903-83]

5:50 pm: **Multiphoton fluorescence lifetime imaging of cleared tissue**, Michael J. Levene, Sam Vesuna, Sonia Parra, Thomas H. Chia, Yale Univ. (USA) [7903-84]

Courses of Related Interest

SC309 Fluorescent Markers: Usage and Optical System Optimization (Levi)
Sunday, 8:30 am to 12:30 pm

SC461 Bio-Optical Detection Systems (Levi) Sunday, 1:30 to 5:30 pm

SC1013 Choosing the Correct Optical Filter for Your Application (Reichel)
Tuesday, 8:30 am to 12:30 pm

SC865 Microscope Design (Seward) Wednesday, 8:30 am to 12:30 pm

SC868 Optical Design for Biomedical Imaging (Liang) Tuesday, 1:30 to 5:30 pm

SC978 Light Microscopy (Tkaczyk) Sunday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Three-Dimensional and Multidimensional Microscopy: Image Acquisition and Processing XVIII

Conference Chairs: **Jose-Angel Conchello**, Harvard Univ.; **Carol J. Cogswell**, Univ. of Colorado at Boulder; **Tony Wilson**, Univ. of Oxford (United Kingdom); **Thomas G. Brown**, Univ. of Rochester Medical Ctr.

Program Committee: **G. J. Brakenhoff**, Univ. van Amsterdam (Netherlands); **Charles A. DiMarzio**, Northeastern Univ.; **Mats G. L. Gustafsson**, Howard Hughes Medical Institute; **Raimund J. Ober**, The Univ. of Texas at Dallas; **Chrysanthe Preza**, The Univ. of Memphis

Monday 24 January

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

High-speed high-resolution cross-structured illumination confocal microscopy, MyoungKi Ahn, Tae-Joong Kim, YoungDuk Kim, Dae-Gab Gweon, KAIST (Korea, Republic of) [7904-54]

Design and analysis of confocal-spectral microscopy using wavelength scanning scheme, Dukho Do, Wanhee Chun, Dae-Gab Gweon, KAIST (Korea, Republic of) [7904-55]

Correction of defocused images in full-field optical coherence tomography using digital holography, Gihyeon Min, Ju Wan Kim, Woo June Choi, Byeong-Ha Lee, Gwangju Institute of Science and Technology (Korea, Republic of) [7904-56]

Two-dimensional scanning probe using off-axis magnetic force of single solenoid for 3D OCT imaging, Eun Jung Min, Jun Geun Shin, Yuri Kim, Byeong-Ha Lee, Gwangju Institute of Science and Technology (Korea, Republic of) [7904-57]

Comparison of resolution in tomographic diffractive microscopy using combinations of sample rotation and illumination rotation, Stanislas Vertu, Jens Flügge, Physikalisch-Technische Bundesanstalt (Germany); Jean-Jacques Delaunay, The Univ. of Tokyo (Japan); Olivier Haeberlé, Univ. de Haute Alsace (France) [7904-58]

Digital micromirror device (DMD) based confocal fluorescence detection of 3D cell cultures, Jong-Ryul Choi, Donghyun Kim, Yonsei Univ. (Korea, Republic of) [7904-60]

An automated wide-field, time-gated, optically sectioning, fluorescence lifetime imaging multiwell plate reader for high-content analysis of protein-protein interactions, Sunil Kumar, Imperial College London (United Kingdom); Dominic R. Alibhai, Imperial College London (United Kingdom) and Pfizer Group Ltd. (United Kingdom); Clifford B. Talbot, James A. McGinty, Ian H. Munro, Yuri Alexandrov, Anca Margineanu, Imperial College London (United Kingdom); Ted Murray, Frank Stuhmeier, Pfizer Group Ltd. (United Kingdom); Christopher W. Dunsby, Mark A. Neil, Paul M. W. French, Imperial College London (United Kingdom) [7904-61]

Spectral characterization of a volume holographic imaging system, Erich E. de Leon, John Brownlee, College of Optical Sciences, The Univ. of Arizona (USA); Jose M. Castro, Raymond K. Kostuk, The Univ. of Arizona (USA) [7904-62]

Tuesday 25 January

SESSION 1

Room: 220/222 (Mezzanine) Tues. 8:20 to 10:00 am

New Developments in Holographic Microscopy I

Session Chair: **Carol J. Cogswell**, Univ. of Colorado at Boulder

8:20 am: **Lensless holographic microscope with high-resolving power and no distortion**, Kunihiro Sato, Univ. of Hyogo (Japan) [7904-01]

8:40 am: **In-line digital holographic microscopy based on intensity measurements at two planes**, Bhargab Das, Chandra S. Yelleswarapu, Devulapalli V. Rao, Univ. of Massachusetts Boston (USA) [7904-02]

9:00 am: **Simplified setup for imaging with digital holographic microscopy and enhanced quantitative phase contrast by osmotic stimulation of living cells**, Björn Kemper, Sabine Przibilla, Christina E. Rommel, Angelika Vollmer, Steffi Ketelhut, Jürgen Schnekenburger, Gert von Bally, Westfälische Wilhelms- Univ. Münster (Germany) [7904-03]

9:20 am: **Whole-cell-imaging based on wide-field interferometric phase microscopy and its application to cardiomyocytes**, Natan T. Shaked, Lisa L. Satterwhite, Nenad Bursac, Adam Wax, Duke Univ. (USA) [7904-04]

9:40 am: **Full 3D tomography of biological cells by DHM**, Christian D. Depeursinge, Isabelle Bergoënd, Cristian Arfire, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7904-05]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 220/222 (Mezzanine) Tues. 10:30 to 11:50 am

New Developments in Holographic Microscopy II

Session Chair: **Anthony J. Wilson**, Univ. of Washington

10:30 am: **Enhancement of holographic elements in PQ-PMMA for spatial-spectral volume holographic tissue imaging systems**, John Brownlee, College of Optical Sciences, The Univ. of Arizona (USA); Jose M. Castro, The Univ. of Arizona (USA); Erich E. de Leon, College of Optical Sciences, The Univ. of Arizona (USA); Alexandru Dospinoiu, Raymond K. Kostuk, The Univ. of Arizona (USA) [7904-06]

10:50 am: **Spatial-spectral 3D imaging system using broadband sources**, Jose M. Castro, Jennifer K. Barton, The Univ. of Arizona (USA); Erich E. de Leon, John Brownlee, College of Optical Sciences, The Univ. of Arizona (USA); Raymond K. Kostuk, The Univ. of Arizona (USA) [7904-07]

11:10 am: **Development of a digital holographic microscopy system integrated with atomic force microscope**, Nelson Cardenas, Ninad D. Ingle, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7904-08]

11:30 am: **3D optical trapping calibration and optical micromanipulation using 915-nm diode-laser bar**, Mariana C. Potcoava, Univ. of Colorado (USA) and Colorado School of Mines (USA) and JILA (USA) and National Institute of Standards and Technology (USA); Leo G. Krzewina, Univ. of South Florida (USA); Erich E. Hoover, Colorado School of Mines (USA); Myung K. Kim, Univ. of South Florida (USA); Jeffrey A. Squier, David W. Marr, Colorado School of Mines (USA); Ralph Jimenez, JILA (USA) and National Institute of Standards and Technology (USA) and Univ. of Colorado (USA) [7904-09]

Lunch/Exhibition Break 11:50 am to 1:20 pm

BIOS

SESSION 3

Room: 220/222 (Mezzanine) Tues. 1:20 to 3:00 pm

Illumination Methods for Better Resolution

Session Chair: Chrysanthe Preza, The Univ. of Memphis

- 1:20 pm: **Adaptive selective plane illumination microscope with image synchronization**, Jonathan M. Taylor, Christopher D. Saunter, Durham Univ. (United Kingdom); Bill Chaudhry, Deborah J. Henderson, Newcastle Univ. (United Kingdom); John M. Girkin, Gordon D. Love, Durham Univ. (United Kingdom) [7904-10]
- 1:40 pm: **High-speed focal modulation microscopy using acousto-optical modulators**, Shau Poh Chong, Nanguang Chen, Chee-Howe Wong, Colin J. R. Sheppard, Kit Fei Wong, National Univ. of Singapore (Singapore) [7904-11]
- 2:00 pm: **Simulating structured-illumination microscopy imaging in the presence of spherical aberrations**, Amaradri Mukherjee, Chrysanthe Preza, The Univ. of Memphis (USA) [7904-12]
- 2:20 pm: **Frequency-domain spatially modulated single detector imaging**, Randy A. Bartels, Gregory Futia, Colorado State Univ. (USA) [7904-13]
- 2:40 pm: **Single-plane illumination Raman imaging of biological samples**, Ishan Barman, Massachusetts Institute of Technology (USA); Khay-Ming E. Tan, Univ. of St. Andrews (United Kingdom); Narahara Chari Dingari, Massachusetts Institute of Technology (USA); Gajendra P. Singh, Univ. of St. Andrews (United Kingdom) [7904-14]
- Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 220/222 (Mezzanine) Tues. 3:30 to 5:50 pm

Tomographic Microscopy

Session Chair: Raimund J. Ober, The Univ. of Texas at Dallas

- 3:30 pm: **Positioning systems for high-resolution tissue imaging**, Thomas M. Haylock, Andrew T. Cenko, Univ. of Waterloo (Canada); Peter B. Christensen, Tornado Medical Systems (Canada); Jeff T. Meade, Farnoud Kazemzadeh, Lev M. Chifman, Arsen R. Hajian, Univ. of Waterloo (Canada); Jan Hendrikse, Tornado Medical Systems (Canada) [7904-15]
- 3:50 pm: **Computational model of optical scattering by elastin in lung**, Tristan B. Swedish, Joseph P. Robinson, David R. Kaeli, Charles A. DiMarzio, Northeastern Univ. (USA) [7904-16]
- 4:10 pm: **Mirror-assisted dark-field optical coherence microscopy**, Martin L. Villiger, Arno Bouwens, Christophe Pache, Theo Lasser, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7904-17]
- 4:30 pm: **Real-time dual-mode standard/complex Fourier-domain OCT system using graphics processing unit accelerated 4D signal processing and visualization**, Kang Zhang, Jin Ung Kang, The Johns Hopkins Univ. (USA) [7904-18]
- 4:50 pm: **Fluorescence lifetime optical projection tomography**, James A. McGinty, Imperial College London (United Kingdom); Daniel W. Stuckey, Imperial College Healthcare NHS Trust (United Kingdom); Gao Sun, Harriet B. Taylor, Guy A. Rutter, Imperial College London (United Kingdom); Alessandro Sardini, Imperial College Healthcare NHS Trust (United Kingdom); Jonathan R. Lamb, Imperial College London (United Kingdom); Gordon W. Stamp, The Royal Marsden NHS Foundation Trust (United Kingdom); Margaret J. Dallman, Paul M. W. French, Imperial College London (United Kingdom) [7904-19]
- 5:10 pm: **High-resolution optical projection tomographic microscopy for 3D tissue imaging**, Qin Miao, Univ. of Washington (USA); Jon W. Hayenga, Michael G. Meyer, Thomas Neumann M.D., Florence W. Patten, Alan C. Nelson, VisionGate, Inc. (USA); Eric J. Seibel, Univ. of Washington (USA) [7904-20]
- 5:30 pm: **3D fluorescence microscopy image estimation accounting for depth-varying point-spread functions predicted by a strata interpolation method and a principal component analysis method**, Shuai Yuan, Chrysanthe Preza, The Univ. of Memphis (USA) [7904-94]

Wednesday 26 January

SESSION 5

Room: 220/222 (Mezzanine) Wed. 8:20 to 10:00 am

A Clear View at Transparent Specimens

Session Chair: Charles A. DiMarzio, Northeastern Univ.

- 8:20 am: **Mueller matrix microscopy**, Mircea Mujat, Nicusor V. Iftimia, Robert D. Ferguson, Daniel X. Hammer, Physical Sciences Inc. (USA) [7904-21]
- 8:40 am: **Dynamic phase imaging utilizing a 4-dimensional microscope system**, Katherine Creath, 4D Technology Corp. (USA) and Optineering (USA) and The Univ. of Arizona (USA) [7904-22]
- 9:00 am: **Quadriwave lateral shearing interferometry for quantitative phase microscopy: correlation with fluorescence measurements**, Pierre Bon, PHASICS S.A. (France); Julien Savatier, Institut Fresnel (France); Benoit F. Wattellier, PHASICS S.A. (France); Didier D. Marguet, Ctr. National de la Recherche Scientifique (France); Serge Monneret, Institut Fresnel (France) [7904-23]
- 9:20 am: **Quantitative measurement of phase using an unmodified differential interference contrast microscope**, Donald D. Duncan, Portland State Univ. (USA); David G. Fischer, NASA Glenn Research Ctr. (USA); Amanda L. Dayton, Scott A. Prah, Providence St. Vincent Medical Ctr. (USA) . . . [7904-24]
- 9:40 am: **Refractive index reconstruction of biological samples from multimodal phase microscopy**, Heidi Sierra, Dana H. Brooks, Charles A. DiMarzio, Northeastern Univ. (USA) [7904-25]
- Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 220/222 (Mezzanine) Wed. 10:30 am to 12:10 pm

Viewing transparent Specimens and New Visualization Methods

Session Chair: Charles A. DiMarzio, Northeastern Univ.

- 10:30 am: **Beyond the lateral resolution limit by phase imaging**, Yann Cotte, Christian D. Depeursinge, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7904-26]
- 10:50 am: **Wide-field reflection phase microscope**, Zahid Yaqoob, Massachusetts Institute of Technology (USA); Toyohiko Yamauchi, Hamamatsu Photonics K.K. (Japan); Dan Fu, Massachusetts Institute of Technology (USA); Wonshik Choi, Korea Univ. (Korea, Republic of); Ramachandra R. Dasari, Michael S. Feld, Massachusetts Institute of Technology (USA) [7904-27]
- 11:10 am: **Three-dimensional refractive index measurement and its biological applications**, Yongjin Sung, Massachusetts Institute of Technology (USA); Wonshik Choi, Korea Univ. (Korea, Republic of); Ramachandra R. Dasari, Michael S. Feld, Massachusetts Institute of Technology (USA) [7904-28]
- 11:30 am: **Optical slicing of wide-field microscopy images by integral imaging**, Manuel Martinez-Corral, Hector Navarro, Univ. de València (Spain); Raul Martinez-Cuenca, Univ. Jaume I (Spain); Bahram Javidi, Univ. of Connecticut (USA); Genaro Saavedra, Univ. de València (Spain) [7904-29]
- 11:50 am: **Autostereoscopic visualization of 3D time-varying complex objects in volumetric image sequences**, Aassif Benassarou, Gilles Valette, Univ. de Reims Champagne-Ardenne (France); Didier G. Debons, 3DTV Solutions (France); Yannick Remion, Laurent Lucas, Univ. de Reims Champagne-Ardenne (France) and 3DTV Solutions (France) [7904-30]
- Lunch/Exhibition Break 12:10 to 1:40 pm

Courses of Related Interest

- SC309 Fluorescent Markers: Usage and Optical System Optimization (Levi) Sunday, 8:30 am to 12:30 pm
- SC461 Bio-Optical Detection Systems (Levi) Sunday, 1:30 to 5:30 pm
- SC1013 Choosing the Correct Optical Filter for Your Application (Reichel) Tuesday, 8:30 am to 12:30 pm
- SC865 Microscope Design (Seward) Wednesday, 8:30 am to 12:30 pm
- SC868 Optical Design for Biomedical Imaging (Liang) Tuesday, 1:30 to 5:30 pm
- SC978 Light Microscopy (Tkaczyk) Sunday, 1:30 to 5:30 pm
- SC979 Fundamentals of Three-Dimensional Optical Microscopy (Martinez-Corral, Javidi) Monday, 8:30 am to 5:30 pm

See course materials desk located in the SPIE Registration Area.

SESSION 7

Room: 220/222 (Mezzanine) Wed. 1:40 to 3:20 pm

Exciting Developments in Fluorescence Microscopy

Session Chair: **Mats G. L. Gustafsson**,
Howard Hughes Medical Institute

- 1:40 pm: **Optically sectioned imaging by oblique plane microscopy**, Sunil Kumar, Ziduo Lin, Alex R. Lyon, Ken T. MacLeod, Christopher W. Dunsby, Imperial College London (United Kingdom) [7904-31]
- 2:00 pm: **Fourier-excitation hyperspectral fluorescence lifetime imaging**, Leilei L. Peng, Ming Zhao, The Univ. of Arizona (USA) [7904-32]
- 2:20 pm: **Fluorescence optofluidic microscope (OFM) based on zone plate array**, Shuo Pang, Lap Man Lee, Changhui Yang, California Institute of Technology (USA) [7904-33]
- 2:40 pm: **Time-resolved cuvette system study of calcium sensors: toward obtaining biophysical properties of the construct**, Romain Laine, Hugh B. Manning, Imperial College London (United Kingdom); Daniel W. Stuckey, Imperial College Healthcare NHS Trust (United Kingdom); Gordon T. Kennedy, Mark A. Neil, David Carling, Christopher W. Dunsby, Paul M. W. French, Imperial College London (United Kingdom); Alessandro Sardini, Imperial College Healthcare NHS Trust (United Kingdom) [7904-34]
- 3:00 pm: **High-speed multiple-process imaging using FLIM-FRET for complex and dynamic live-cell studies**, Romain Laine, Anca Margineanu, Sunil Kumar, Gordon T. Kennedy, David M. Grant, James A. McGinty, Clifford B. Talbot, David Carling, Christopher W. Dunsby, Mark A. Neil, Imperial College London (United Kingdom); Matilda Katan-Muller, The Institute of Cancer Research (United Kingdom); Alessandro Sardini, Imperial College Healthcare NHS Trust (United Kingdom); Paul M. W. French, Imperial College London (United Kingdom) [7904-35]
- Coffee Break 3:20 to 3:50 pm

SESSION 8

Room: 220/222 (Mezzanine) Wed. 3:30 to 5:30 pm

Shaping Waves for Better Imaging

Session Chair: **G. J. Brakenhoff**, Univ. van Amsterdam (Netherlands)

- 3:30 pm: **Myopic deconvolution of adaptive optics retina images**, Leonardo Bianco, Observatoire de Paris à Meudon (France); Laurent Mugnier, ONERA (France); Marie Glanc, Observatoire de Paris à Meudon (France) [7904-36]
- 3:50 pm: **Three-dimensional data acquisition with aberrations correction capability for video-rate microscopy**, Masood Samim, Univ. of Toronto (Canada); Richard Cisek, Daaf Sandkuijl, Sergey Musikhin, Virginijus Barzda, Univ. of Toronto Mississauga (Canada) [7904-37]
- 4:10 pm: **Wide-field adaptive optics for microscopy**, Cyril Bourgenot, Christopher D. Saunter, John M. Girkin, Gordon D. Love, Durham Univ. (United Kingdom) [7904-38]
- 4:30 pm: **Comparative assessment of three algorithms to control a deformable mirror for an adaptive optics system with no wavefront sensor**, Mohammad Reza Nasiri Avnaki, Seyed A. Hojjatoleslami, Univ. of Kent (United Kingdom); H. Sarmadi, Univ. of Tehran (USA); Alexander Meadway, Adrian G. Podoleanu, Univ. of Kent (United Kingdom) [7904-39]
- 4:50 pm: **Pupil engineering for a confocal reflectance line-scanning microscope for imaging human skin**, Yogesh G. Patel, Northeastern Univ. (USA); Milind Rajadhyaksha, Memorial Sloan-Kettering Cancer Ctr. (USA); Charles A. DiMarzio, Northeastern Univ. (USA) [7904-40]
- 5:10 pm: **Sagnac-interferometry based digital phase conjugation system for turbidity suppression**, Timothy R. Hillman, YongKeun Park, Dan Fu, Zahid Yaqoob, Massachusetts Institute of Technology (USA); Wonshik Choi, Korea Univ. (Korea, Republic of); Toyohiko Yamauchi, Ramachandra R. Dasari, Michael S. Feld, Massachusetts Institute of Technology (USA) [7904-41]

Thursday 27 January

SESSION 9

Room: 220/222 (Mezzanine) Thurs. 8:00 to 10:20 am

Computational Microscopy

Session Chair: **Thomas G. Brown**, Univ. of Rochester Medical Ctr.

- 8:00 am: **High-resolution lensfree on-chip imaging over a wide field-of-view using source-shifted pixel superresolution**, Waheb Bishara, Ting-Wei Su, Ahmet F. Coskun, Aydogan Ozcan, Univ. of California, Los Angeles (USA) [7904-42]
- 8:20 am: **Measuring spatial distribution of mitochondria to assess embryo viability**, Joseph L. Hollmann, Pathfinder Energy Service (USA); Charles A. DiMarzio, Northeastern Univ. (USA) [7904-43]
- 8:40 am: **Semi-automated algorithm for localization of dermal/epidermal junction in reflectance confocal microscopy images of human skin**, Sila Kurugol, Jennifer G. Dy, Northeastern Univ. (USA); Milind Rajadhyaksha, Memorial Sloan-Kettering Cancer Ctr. (USA); Dana H. Brooks, Northeastern Univ. (USA) [7904-44]
- 9:00 am: **Compressive decoding for incoherent lensfree on-chip imaging**, Ikbal Sencan, Ahmet F. Coskun, Bahar Khademhosseini, Ting-Wei Su, Gabriel Biener, Univ. of California, Los Angeles (USA); Aydogan Ozcan, Univ. of California, Los Angeles (USA) and California NanoSystems Institute (USA) [7904-45]
- 9:20 am: **Sparse OCT: the application of compressed sensing in spectral-domain optical coherence tomography**, Xuan Liu, Jin Ung Kang, The Johns Hopkins Univ. (USA) [7904-46]
- 9:40 am: **Effect of double-helix point-spread functions on 3D imaging in the presence of spherical aberrations**, Sreya Ghosh, The Univ. of Memphis (USA); Ginni Grover, Rafael Piestun, Univ. of Colorado at Boulder (USA); Chrysanthe Preza, The Univ. of Memphis (USA) [7904-47]
- 10:00 am: **Reducing noise in microscope images by optical manipulation of point spread functions**, Ramzi N. Zahreddine, Robert H. Cormack, Carol J. Cogswell, Univ. of Colorado at Boulder (USA) [7904-48]
- Coffee Break 10:20 to 10:50 am

SESSION 10

Room: 220/222 (Mezzanine) Thurs. 10:50 am to 12:30 pm

Confocal and Non-linear Microscopy

Session Chair: **Jose-Angel Conchello**, Harvard Univ.

- 10:50 am: **Time-resolved confocal microscopy of cryogenic processes in biological tissues**, Markus Schellenberg, Michael Kloster, Eltimir Peev, James Napier, Walter Neu, Fachhochschule Oldenburg/Ostfriesland/Wilhelmshaven (Germany) [7904-49]
- 11:10 am: **In-vivo third-harmonic generation microscopy at 1550 nm: three-dimensional long-term time-lapse studies in living C. elegans embryos**, Rodrigo A. Aviles-Espinosa, Susana I. C. O. Santos, ICFO - Instituto de Ciencias Fotónicas (Spain); Andreas Brodschelm, Wilhelm G. Kaenders, TOPTICA Photonics AG (Germany); Cesar Alonso-Ortega, ICFO - Instituto de Ciencias Fotónicas (Spain); David Artigas-García, ICFO - Instituto de Ciencias Fotónicas (Spain) and Univ. Politècnica de Catalunya (Spain); Pablo Loza-Alvarez, ICFO - Instituto de Ciencias Fotónicas (Spain) [7904-50]
- 11:30 am: **High-depth discrimination property of saturated excitation (SAX) microscopy**, Masahito Yamanaka, Shogo Kawano, Nicholas I. Smith, Osaka Univ. (Japan); Satoshi Kawata, Osaka Univ. (Japan) and RIKEN (Japan); Katsumasa Fujita, Osaka Univ. (Japan) and Japan Science and Technology Agency (Japan) [7904-51]
- 11:50 am: **Diffraction-unlimited three-dimensional optical microscopy with opposing lenses**, Alexander Egnér, Roman Schmidt, Daniel Aquino, Claudia Geisler, Andreas Schönle, Stefan W. Hell, Max-Planck-Institut für biophysikalische Chemie (Germany) [7904-52]
- 12:10 pm: **Parallel confocal imaging with aAdaptive iLens**, Guoqiang Li, Univ. of Missouri-St. Louis (USA) [7904-53]

Single Molecule Spectroscopy and Imaging IV

Conference Chairs: **Jörg Enderlein**, Eberhard Karls Univ. Tübingen (Germany); **Zygmunt K. Gryczynski**, Univ. of North Texas Health Science Ctr. at Fort Worth; **Rainer Erdmann**, PicoQuant GmbH (Germany)

Saturday 22 January

Welcome and Introduction

Room: 310 (Esplanade) Sat. 8:30 to 8:35 am

Session Chairs: **Rainer Erdmann**, PicoQuant GmbH (Germany);
Zygmunt K. Gryczynski, Univ. of North Texas Health
Science Ctr. at Fort Worth

SESSION 1

Room: 310 (Esplanade) Sat. 8:35 to 10:25 am

New Developments in Methods and Systems I

Session Chair: **Rainer Erdmann**, PicoQuant GmbH (Germany)

8:35 am: **Ultra-high-throughput single-molecule spectroscopy with a 1024-pixel SPAD** (*Invited Paper*), Ryan A. Colyer, Giuseppe Scalia, Univ. of California, Los Angeles (USA); Federica A. Villa, Fabrizio Guerrieri, Simone Tisa, Franco Zappa, Sergio D. Cova, Politecnico di Milano (Italy); Shimon Weiss, Xavier Michalet, Univ. of California, Los Angeles (USA) [7905-01]

9:00 am: **Parallel fluorescence photon timing module with monolithic SPAD array detector**, Ivan Rech, Angelo Gulinatti, Corrado Cammi, Francesco Panzeri, Massimo Ghioni, Politecnico di Milano (Italy) [7905-02]

9:20 am: **Confocal microscopy: well established and no more cool?** (*Invited Paper*), Felix Koberling, PicoQuant GmbH (Germany); Marcelle König, PicoQuant GmbH (USA); Samantha Fore, PicoQuant Photonics North America, Inc. (USA); Steffen Rüttinger, Michael Wahl, PicoQuant GmbH (USA); Olaf Schulz, Robert Ros, Arizona State Univ. (USA); Ta Haisen, Dirk-Peter Herten, Ruprecht-Karls- Univ. Heidelberg (Germany); Rainer Erdmann, PicoQuant GmbH (USA) [7905-03]

9:45 am: **Polarized fluorescence nanospheres**, Zygmunt K. Gryczynski, Rafal Luchowski, Pabak Sarkar, Univ. of North Texas Health Science Ctr. at Fort Worth (USA); Zeno Földes-Papp, ISS, Inc. (USA); Aaron Chang, Sangram Raut, Julian Borejdo, Ignacy Gryczynski, Univ. of North Texas Health Science Ctr. at Fort Worth (USA) [7905-04]

10:05 am: **Second-harmonic generation of single gold metallic nanoparticles**, Jeremy Butet, Julien Duboisset, Guillaume Bachelier, Emmanuel Benichou, Christian Jonin, Isabelle Russier-Antoine, Pierre-François Brevet, Univ. Claude Bernard Lyon 1 (France) [7905-05]

Coffee Break 10:25 to 10:55 am

SESSION 2

Room: 310 (Esplanade) Sat. 10:55 am to 1:05 pm

New Developments in Methods and Systems II

Session Chair: **Zygmunt K. Gryczynski**,
Univ. of North Texas Health Science Ctr. at Fort Worth

10:55 am: **Imaging properties of supercritical angle fluorescence optics** (*Invited Paper*), Jörg Enderlein, Georg-August-Univ. Göttingen (Germany); Thomas Ruckstuhl, Univ. of Zürich (Switzerland) [7905-06]

11:20 am: **New microscope objective for parallel near- and far-field microscopy**, Thomas Ruckstuhl, Christian M. Winterflood, Dorinel Verdes, Stefan Seeger, Univ. of Zürich (Switzerland) [7905-07]

11:40 am: **Corral trap confinement and manipulation of single molecules** (*Invited Paper*), Jorg C. Woehl, Christine A. Carlson, Univ. of Wisconsin-Milwaukee (USA) [7905-08]

12:05 pm: **Single-molecule photoluminescence excitation spectroscopy at room temperature**, Frank Schleifenbaum, Eberhard Karls Univ. Tübingen (Germany); Christian Blum, Marijn Stopel, Univ. Twente (Netherlands); Sébastien Peter, Eberhard Karls Univ. Tübingen (Germany); Marcus Sackrow, Picoquant GmbH (Germany); Vinod Subramaniam, Univ. Twente (Netherlands); Alfred J. Meixner, Eberhard Karls Univ. Tübingen (Germany) [7905-09]

12:25 pm: **Determination of position and 3D orientation of single quantum emitters in a tunable microcavity**, Raphael Gutbrod, Alexey I. Chizhik, Frank Schleifenbaum, Anna M. Chizhik, Sebastian Bär, Alfred J. Meixner, Eberhard Karls Univ. Tübingen (Germany) [7905-10]

12:45 pm: **Time-resolved 3D orientation spectroscopy: experimental realization and simulation**, Richard Börner, Univ. zu Lübeck (Germany); Danny Kowerko, Stefan Krause, Christian von Borczyskowski, Technische Univ. Chemnitz (Germany); Christian G. Hübner, Univ. zu Lübeck (Germany) [7905-11]

Lunch/Exhibition Break 1:05 to 2:25 pm

SESSION 3

Room: 310 (Esplanade) Sat. 2:25 to 3:35 pm

FLIM/FRET/FCS I

Session Chair: **Felix Koberling**, PicoQuant GmbH (Germany)

2:25 pm: **Multiparameter fluorescence image spectroscopy to characterize autofluorescence in biological samples** (*Invited Paper*), Stefanie Weidtkamp-Peters, Suren Felekyan, Heike Hornen, Ralf Kühnemuth, Claus A. Seidel, Heinrich-Heine-Univ. Düsseldorf (Germany) [7905-12]

2:55 pm: **Fluorescence excitation-emission lifetime matrix measurements by Fourier transform spectroscopy**, Ming Zhao, Leilei L. Peng, College of Optical Sciences, The Univ. of Arizona (USA) [7905-13]

3:15 pm: **Single-molecule study of ClpP intrinsic conformational dynamics**, Amir Mazouchi, Abdullah Bahram, Claudiu C. Gradinaru, Univ. of Toronto Mississauga (Canada) [7905-14]

Coffee Break 3:35 to 4:05 pm

SESSION 4

Room: 310 (Esplanade) Sat. 4:05 to 5:25 pm

FLIM/FRET/FCS II

Session Chair: **Jörg Enderlein**,
Georg-August-Univ. Göttingen (Germany)

4:05 pm: **Fluorescence correlation spectroscopy as tool for high-content-screening in yeast (HCS-FCS)**, Christopher J. Wood, Stowers Institute for Medical Research (USA); Joseph Huff, Carl Zeiss MicroImaging, Inc. (USA); Will A. Marshall, Jay R. Unruh, Winfried Wiegraebe, Stowers Institute for Medical Research (USA) [7905-15]

4:25 pm: **Plasma membrane micro-organization of LR73 multidrug-resistant cells revealed by FCS**, Pascale Winckler, Rodolphe Jaffiol, Lab. de Nanotechnologie et d'Instrumentation Optique (France); Aurélie Cailler, Hamid Morjani, Pierre Jeannesson, UMR CNRS 6237 Matrice Extracellulaire et Dynamique Cellulaire (France) [7905-16]

4:45 pm: **Analyzing activity of Neurokinin 1 receptor inserted in nanolipoproteins by fluorescence correlation spectroscopy**, Tingjuan Gao, UC Davis Medical Ctr. (USA); Jitka Petrlova, Univ. of California, Davis (USA); Wei He, UC Davis Medical Ctr. (USA); Federico Katzen, Wieslaw A. Kudlick, Life Technologies Corp. (USA); Thomas R. Huser, UC Davis Medical Ctr. (USA); John Voss, Univ. of California, Davis (USA); Matthew A. Coleman, Lawrence Livermore National Lab. (USA) [7905-17]

5:05 pm: **Subunit rotation in a single FoF1-ATP synthase in a living bacterium monitored by FRET**, Karin Seyfert, Univ. Stuttgart (Germany); Hideyuki Yagimuna, Takuya Oosaka, Osaka Univ. (Japan); Stefan Ernst, Univ. Stuttgart (Germany); Ryota Iino, Hiroyuki Noji, Osaka Univ. (Japan); Michael Börsch, Univ. Stuttgart (Germany) [7905-18]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

SESSION 5

Room: 310 (Esplanade) Sun. 8:15 to 10:00 am

Single Molecule Spectroscopy in Biology

Session Chair: **Jörg Enderlein**,
Georg-August-Univ. Göttingen (Germany)

8:15 am: **Probing the hydrodynamic properties of GFP-tagged membrane proteins by rotational fluorescence correlation spectroscopy** (*Invited Paper*), Sandeep Pallikuth, Andreas Volkmer, Univ. Stuttgart (Germany) [7905-19]

8:40 am: **Detection of pathogenic DNA at the single-molecule level**, Idir Yahiatène, Tobias Klamp, Markus Sauer, Univ. Bielefeld (Germany) . . [7905-20]

9:00 am: **Ultra-sensitive bead-based pathogen detection**, Tobias Klamp, Idir Yahiatène, André Lampe, Univ. Bielefeld (Germany); Markus Sauer, Julius-Maximilians-Univ. Würzburg (Germany) [7905-21]

9:20 am: **A photophysical study of two fluorogen-activating proteins bound to their cognate fluorogens**, Tiziano Gaiotto, Hau B. Nguyen, Los Alamos National Lab. (USA); Jaemyeong Jung, Stanford Univ. (USA); Andrew M. Bradbury, Gnana S. Gnanakaran, Jurgen G. Schmidt, Geoffrey S. Waldo, Peter M. Goodwin, Los Alamos National Lab. (USA) [7905-22]

9:40 am: **DOPI and PALM imaging of single carbohydrate binding modules bound to cellulose substrates**, Daryl Dagel, South Dakota School of Mines and Technology (USA); Yu-San Liu, National Renewable Energy Lab. (USA); Lanlan Zhong, South Dakota School of Mines and Technology (USA); Yonghua Luo, Yining Zeng, Michael E. Himmel, Shi-You Ding, National Renewable Energy Lab. (USA); Steve J. Smith, South Dakota School of Mines and Technology (USA) [7905-26]

Coffee Break 10:00 to 10:25 am

Keynote Presentation

Room: 310 (Esplanade) Sun. 10:30 to 10:50 am

Session Chair: **Rainer Erdmann**, PicoQuant GmbH (Germany)

10:30 am: **Nanoscopy with focused light**, Stefan W. Hell, Max-Planck-Institut für biophysikalische Chemie (Germany) [7905-100]

SESSION 6

Room: 310 (Esplanade) Sun. 11:15 am to 12:20 pm

Nanoscopy and Superresolution Microscopy I

Session Chair: **Felix Koberling**, PicoQuant GmbH (Germany)

11:15 am: **Live-cell single-molecule and superresolution imaging of proteins in bacteria** (*Invited Paper*), Julie S. Biteen, Ben Coupland, Beth Haas, Nicole Koropatkin, Eric Martens, Jyl Matson, Victor DiRita, Univ. of Michigan (USA); Michael A. Thompson, Lucy Shapiro, William E. Moerner, Stanford Univ. (USA) [7905-23]

11:40 am: **Optical switching and time-sequential coherent detection of markers through opposing lenses enables multicolor 3D-nanoscopy with 10-nm resolution of large intracellular volumes**, Daniel Aquino, Andreas Schönlé, Claudia Geisler, Christian A. Wurm, Stefan W. Hell, Alexander Egner, Max-Planck-Institut für biophysikalische Chemie (Germany) [7905-24]

12:00 pm: **Superresolution autofluorescence imaging of Nostoc punctiforme**, Deanna L. Thompson, Tingjuan Gao, NSF Ctr. for Biophotonics Science and Technology (USA) and Univ. of California, Davis (USA); Daniela Ferreira, Univ. of California, Davis (USA); Gregory P. McNerney, NSF Ctr. for Biophotonics Science and Technology (USA) and Univ. of California, Davis (USA); John C. Meeks, Univ. of California, Davis (USA); Thomas R. Huser, NSF Ctr. for Biophotonics Science and Technology (USA) and Univ. of California, Davis (USA) [7905-25]

Lunch/Exhibition Break 12:20 to 1:35 pm

SESSION 7

Room: 310 (Esplanade) Sun. 1:30 to 3:00 pm

Nanoscopy and Superresolution Microscopy II

Session Chair: **Zygmunt K. Gryczynski**,
Univ. of North Texas Health Science Ctr. at Fort Worth

1:30 pm: **Liver sinusoidal endothelial cell fenestrations revealed using structured illumination microscopy** (*Invited Paper*), Gregory P. McNerney, NSF Ctr. for Biophotonics Science and Technology (USA); Victoria Coggar, The Univ. of Sydney (Australia); Maung T. Nyunt, NSF Ctr. for Biophotonics Science and Technology (USA); Laurie DeLeve, The Univ. of Southern California (USA); Peter McCourt, Bård Smedsrød, Univ. of Tromsø (Norway); David Le Couteur, The Univ. of Sydney (Australia); Thomas R. Huser, NSF Ctr. for Biophotonics Science and Technology (USA) and Univ. of California, Davis (USA) . . [7905-27]

1:55 pm: **Exploring single-cell dynamics with fast localization microscopy** (*Invited Paper*), Zhen-li Huang, Britton Chance Ctr. for Biomedical Photonics (China); Shaoqun Zeng, Qingming Luo, Huazhong Univ. of Science and Technology (China) [7905-28]

2:20 pm: **Time-gating for improved resolution in single molecule-based superresolution imaging**, Jason J. Han, Peter M. Goodwin, Andrew P. Shreve, James H. Werner, Los Alamos National Lab. (USA) [7905-29]

2:40 pm: **Multicolor laser source for STED microscopy**, Gregory Keaton, Manuel J. Leonardo, Kiyomi Monro, Mark W. Byer, Manuel Martinez, Mobius Photonics, Inc. (USA) [7905-31]

Coffee Break 3:00 to 3:55 pm

SESSION 8

Room: 310 (Esplanade) Sun. 3:30 to 5:30 pm

Nanoscopy and Superresolution Microscopy III

Session Chair: **Rainer Erdmann**, PicoQuant GmbH (Germany)

3:30 pm: **STED Microscopy - New Developments in Confocal Superresolution**, Hilmar F. Gugel, Arnold Giske, Leica Microsystems CMS GmbH (Germany) [7905-32]

3:50 pm: **Superresolution microscopy techniques and applications: the use of STORM technology to study cellular details at the molecular level**, Stanley A. Schwartz, Nikon Instruments Inc. (USA) [7905-33]

4:10 pm: **SIM and PALM: two high-resolution microscopy methods and their impact on cell biology**, Klaus Weisshart, Michael Hilbert, Ingo Kleppe, Thomas Kalkbrenner, Yauheni Novikau, Wolfgang Bathe, Sebastian Borck, Carl Zeiss MicroImaging GmbH (Germany); Gerhard M. Krampert, Carl Zeiss AG (Germany); Stephan Kuppig, Carl Zeiss MicroImaging GmbH (Germany); Bernhard Goetze, Carl Zeiss MicroImaging, Inc. (USA) [7905-34]

4:30 pm: **Buffer-controlled photoswitching microscopy using standard organic fluorophores**, Felix Koberling, Volker Buschmann, PicoQuant GmbH (Germany); Samantha Fore, PicoQuant Photonics North America, Inc. (USA); Sebastian van de Line, Markus Sauer, Steve Wolter, Julius-Maximilians-Univ. Würzburg (Germany); Mike Heilemann, Univ. Bielefeld (Germany); Rainer Erdmann, PicoQuant GmbH (Germany) [7905-35]

4:50 pm: **Live cell STED microscopy with optimized fiber lasers**, Sebastian Berning, Brian R. Rankin, Johanna Bückers, Gael Moneron, Stefan W. Hell, Max-Planck-Institut für biophysikalische Chemie (Germany) [7905-36]

5:10 pm: **3D structured-illumination microscopy**, William M. Dougherty, Paul C. Goodwin, Applied Precision, Inc. (USA) [7905-37]

PicoQuant Young Investigator Award

Room: 310 (Esplanade) Sun. 5:30 to 5:40 pm

We are pleased to announce that a prize in the amount of \$750.00 US will be awarded to the best oral presentation by a presenter under the age of 35 within conference 7905: Single Molecule Spectroscopy and Imaging IV, at SPIE's Photonics West BIOS Symposium taking place in January in San Francisco, California. The prize money has been donated by PicoQuant GmbH Berlin, Germany.

SPONSORED BY



POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Superresolution saturated structured illumination microscopy system: theoretical aspects and real life, Dror Fixler, Aviram Gur, Zeev Zalevsky, Bar-Ilan Univ. (Israel) [7905-30]

STAT3 oncogenic functionality inhibition: observation at single-molecule level, Baoxu Liu, Abdullah Bahram, Miriam Avadisian, Patrick T. Gunning, Claudiu C. Gradinaru, Univ. of Toronto Mississauga (Canada) [7905-39]

Single-molecule fluorescence of fast-flowing molecules in microfluidic devices, Haitao Li, Univ. of Cambridge (United Kingdom) [7905-40]

New insights into the molecular structure of mRFP and EYFP by single-molecule SERS spectroscopy, Kirstin Elgass, Sébastien Peter, Alfred J. Meixner, Frank Schleifenbaum, Eberhard Karls Univ. Tübingen (Germany) [7905-41]

Raster image correlation spectroscopy to quantify DNA repair protein kinetics, Salim Abdisalaam, The Univ. of Texas at Arlington (USA); David J. Chen, The Univ. of Texas Southwestern Medical Ctr. at Dallas (USA); George Alexandrakos, The Univ. of Texas at Arlington (USA) [7905-42]

Fluorescent cyclic voltammetry of immobilized amicyanin: toward single-molecule fluorescent detection, Shadab Gharaati Jahromi, Namik Akkiliç, Jante M. Salverda, Gerard W. Canters, Thijs J. Aartsma, Leiden Univ. (Netherlands) [7905-43]

Nanoplasmonic enhancement of field localization for superresolution imaging: a computational approach, Wonju Lee, Kyujung Kim, Donghyun Kim, Yonsei Univ. (Korea, Republic of) [7905-44]

Using fast flow to study protein unfolding kinetics under non-equilibrium conditions, Shehu M. Ibrahim, Georg Blaser, Jung-uk Shim, Chris Abell, Sophie Jackson, David Klenerman, Univ. of Cambridge (United Kingdom) [7905-45]

Monitoring kinetics and dynamics of DNA double strand break repair proteins, Salim Abdisalaam, The Univ. of Texas at Arlington (USA) [7905-46]

Superresolution imaging of HIV-1 cell-to-cell transmission, Gregory P. McNeerney, NSF Ctr. for Biophotonics Science and Technology (USA); Benjamin Dale, Mount Sinai School of Medicine (USA); Deanna L. Thompson, NSF Ctr. for Biophotonics Science and Technology (USA); Benjamin K. Chen M.D., Mount Sinai School of Medicine (USA); Thomas R. Huser, NSF Ctr. for Biophotonics Science and Technology (USA) and UC Davis Medical Ctr. (USA) [7905-47]

Fractal-like structures for single-molecule brightness and stability improvement, Elisa Apicella, Consiglio Nazionale delle Ricerche (Italy); Zygmunt K. Gryczynski, Rafal Luchowski, Univ. of North Texas Health Science Ctr. at Fort Worth (USA); Tanya Shtoyko, The Univ. of Texas at Tyler (USA); Sabato D'Auria, Consiglio Nazionale delle Ricerche (Italy); Pabak Sarkar, Sangram Raut, Julian Borejdo, Ignacy Gryczynski, Univ. of North Texas Health Science Ctr. at Fort Worth (USA) [7905-48]

Fluorescence correlation based studies with solvatochromic dye LDS 798 to characterize size and composition of lipid-based drug delivery vehicles, Pabak Sarkar, Rafal Luchowski, Sangram Raut, Andras G. Lacko, Ignacy Gryczynski, Zygmunt K. Gryczynski, Univ. of North Texas Health Science Ctr. at Fort Worth (USA) [7905-49]

Lifetime-based Discrimination Between Spectrally Matching vis and NIR Emitting Particle Labels and Probes, Katrin Hoffmann, Bundesanstalt für Materialforschung und -prüfung (Germany); Thomas Behnke, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany); Ute Resch-Genger, Bundesanstalt für Materialforschung und -prüfung (Germany) [7905-50]

Direct volume-measurement of unlabeled proteins in solution using inverse-FCS, Tor Sandén, Romain Wyss, Christian Santschi, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Stefan Wennmalm, Royal Institute of Technology (Sweden); Horst Vogel, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7905-51]

Courses of Related Interest

SC309 Fluorescent Markers: Usage and Optical System Optimization (Levi) Sunday, 8:30 am to 12:30 pm

SC461 Bio-Optical Detection Systems (Levi) Sunday, 1:30 to 5:30 pm

SC868 Optical Design for Biomedical Imaging (Liang) Tuesday, 1:30 to 5:30 pm

SC1013 Choosing the Correct Optical Filter for Your Application (Reichel) Tuesday, 8:30 am to 12:30 pm

See course materials desk located in the SPIE Registration Area.

Optical Diagnostics and Sensing XI: Toward Point-of-Care Diagnostics

Conference Chair: **Gerard L. Coté**, Texas A&M Univ.

Program Committee: **Rafat R. Ansari**, NASA Glenn Research Ctr.; **Werner Gellermann**, The Univ. of Utah; **Yuri I. Gurfinkel**, Central Clinical Hospital (Russian Federation); **Jürgen M. Lademann**, Charité Universitätsmedizin Berlin (Germany); **Michael J. McShane**, Texas A&M Univ.; **Kenith E. Meissner**, Texas A&M Univ.; **Risto A. Myllylä**, Univ. of Oulu (Finland); **Gert E. Nilsson**, Univ. Hospital Linköping (Sweden); **Jeffery S. Reynolds**, Bayer Healthcare LLC; **Kexin Xu**, Tianjin Univ. (China); **Shaoqun Zeng**, Britton Chance Ctr. for Biomedical Photonics, Huazhong Univ. of Science and Technology (China); **Dmitry A. Zimnyakov**, N.G. Chernyshevsky Saratov State Univ. (Russian Federation)

Monday 24 January

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Theoretical studies of floating-reference method for NIR blood glucose sensing, Zhenzhi Shi, Yue Yang, Huijuan Zhao, Wenliang Chen, Rong Liu, Kexin Xu, Tianjin Univ. (China) [7906A-16]

An effective method based on reference zone for glucose sensing at 1100-1600 nm, Jiayang Zheng, Yue Yang, Kexin Xu, Tianjin Univ. (China) [7906A-17]

Discriminant analysis of milk adulteration based on infrared spectroscopy and pattern recognition, Rong Liu, Guorong Lv, Bin He, Kexin Xu, Tianjin Univ. (China) [7906A-18]

An investigation of the effect of in-vivo interferences on Raman glucose measurements, Bongchu Shim, Hyunho Oh, Jeankun Oh, Yunhee Ku, Moosub Kim, Yongju Yang, Dami Kim, Hyejin Eum, Seongmoon Cho, David R. Miller, LG Electronics Inc. (Korea, Republic of) [7906A-19]

Mapping skin using Raman spectroscopy, Adrian E. Villanueva-Luna, Jorge Castro-Ramos, Sergio Vazquez-Montiel, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Aaron Flores-Gil, Univ. Autónoma del Carmen (Mexico); José Alberto Delgado Atencio, Carlos M. Ortiz-Lima, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) [7906A-20]

Prospects of glycemic marker detection using drop coating deposition Raman spectroscopy, Narahara Chari Dingari, Ishan Barman, Jeon Woong Kang, Chae-Ryon Kong, Ramachandra R. Dasari, Michael S. Feld, Massachusetts Institute of Technology (USA) [7906A-21]

Comparative study of optical activity in chiral biological media by polar decomposition and differential Mueller matrices analysis, Noé Ortega-Quijano, Félix Fanjul-Vélez, Irene Salas-García, José Luis Arce-Diego, Univ. de Cantabria (Spain) [7906A-22]

Probing Orientation and rotation of red blood cells in optical tweezers by Digital Holographic microscopy, Nelson Cardenas, The Univ. of Texas at Arlington (USA); Lingfeng Yu, Nanoscope Technologies LLC (USA); Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7906A-23]

In-vivo particle image velocimetry of the blood flow using the confocal laser scanning microscope, Ho Lee, Wi-Han Kim, SungMin Choi, Cheol-Woo Park, Kyungpook National Univ. (Korea, Republic of) [7906A-24]

Real-time monitoring of optical rotation with wavelength dependence by spectroscopic polarized modulation, Yukitoshi Otani, Utsunomiya Univ. (Japan); Toshitaka Wakayama, Saitama Medical Univ. (Japan); Masanosuke Tanaka, Atago Co., Ltd. (Japan); Makoto Chujo, Tokyo Univ. of Agriculture and Technology (Japan) [7906A-25]

Wednesday 26 January

SESSION 1

Room: 112 (Exhibit Level) Wed. 10:40 am to 12:00 pm

Optical Blood Perfusion and Oxygenation Monitoring

Session Chairs: **Patrick D. O'Neal**, Louisiana Tech Univ.; **Justin S. Baba**, Oak Ridge National Lab.

10:40 am: **Improved calibration procedure for laser Doppler perfusion monitors**, Ingemar Fredriksson, Linköping Univ. (Sweden) and Perimed (Sweden); Fredrik Salomonsson, Perimed AB (Sweden); Marcus Larsson, Tomas Strömberg, Linköping Univ. (Sweden) [7906A-01]

11:00 am: **Flow cytometry of blood using spectrally encoded confocal microscopy**, Lior Golan, Limor Minai, Dvir Yelin, Technion-Israel Institute of Technology (Israel) [7906A-02]

11:20 am: **An optical device employing multiwavelength photoplethysmography for non-invasive in-vivo monitoring of optically active nanoparticles**, Gregory J. Michalak, Pratik Adhikari, Louisiana Tech Univ. (USA); Jon A. Schwartz, Glenn P. Goodrich, Nanospectra Biosciences, Inc. (USA); D. Patrick O'Neal, Louisiana Tech Univ. (USA) [7906A-03]

11:40 am: **Optimizing source detector separation for an implantable perfusion and oxygenation sensor**, Tony J. Akl, Travis J. King, Ruiqi Long, Texas A&M Univ. (USA); Justin S. Baba, Oak Ridge National Lab. (USA); Michael J. McShane, Texas A&M Univ. (USA); Milton N. Ericson, Oak Ridge National Lab. (USA); Mark A. Wilson M.D., Univ. of Pittsburgh (USA) and VA Pittsburgh Healthcare System (USA); Gerard L. Coté, Texas A&M Univ. (USA) . [7906A-04]

Lunch/Exhibition break 12:00 to 1:30 pm

SESSION 2

Room: 112 (Exhibit Level) Wed. 1:30 to 3:10 pm

Optical Point of Care Sensing and Imaging Systems

Session Chair: **Changhui Yang**, California Institute of Technology

1:30 pm: **Automated on-chip semen analysis using a handheld lensfree holographic microscope**, Ting-Wei Su, Anthony F. Erlinger, Derek K. Tseng, Aydogan Ozcan, Univ. of California, Los Angeles (USA) [7906A-05]

1:50 pm: **Multiframe processing-based subpixel resolving optofluidic microscope for on-chip cell imaging**, Seung Ah Lee, Guoan Zheng, Samuel Yang, Changhui Yang, California Institute of Technology (USA) . . . [7906A-06]

2:10 pm: **Detection of bacteria with thin wetting film lensless imaging**, Cédric P. Allier, Geoffroy Hienard, Vincent Poher, Jean-Marc Dinten, Lab. d'Electronique de Technologie de l'Information (France) [7906A-07]

2:30 pm: **Novel instrumentation of multispectral imaging technology for detecting tissue abnormality in point-of-care health care**, Dingrong Yi, Sunnybrook and Women's Health Sciences Ctr. (Canada); Fengtao Wang, Georgia Institute of Technology (USA); Linghua Kong, The Ctr. for Assistive Technology and Environmental Access (USA) [7906A-08]

2:50 pm: **Needle-probe techniques for trachea identification**, William C. Warger II, Joseph A. Gardecki, Eman Namati, Melissa J. Suter, Brett E. Bouma, George C. Velmahos, Guillermo J. Tearney, Massachusetts General Hospital (USA) [7906A-09]

Coffee Break 3:10 to 3:40 pm

BIOS

SESSION 3

Room: 112 (Exhibit Level) Wed. 3:40 to 5:40 pm

Optical Glucose Monitoring Approaches

Session Chairs: **Brent D. Cameron**, The Univ. of Toledo;
Gerard L. Coté, Texas A&M Univ.

3:40 pm: **Understanding the mechanism and optimizing a competitive binding fluorescent glucose sensor**, Brian M. Cummins, Michael V. Pishko, Eric E. Simanek, Gerard L. Coté, Texas A&M Univ. (USA) [7906A-10]

4:00 pm: **Non-invasive in-vivo glucose sensing using an iris-based technique**, Anthony J. Webb, Brent D. Cameron, The Univ. of Toledo (USA) [7906A-11]

4:20 pm: **Advancement in polarimetric glucose sensing: simulation and measurement of birefringence properties of cornea**, Bilal H. Malik, Gerard L. Coté, Texas A&M Univ. (USA) [7906A-12]

4:40 pm: **The use of optical polarimetry as a non-invasive in-vivo physiological glucose monitor**, Anthony J. Webb, Brent D. Cameron, The Univ. of Toledo (USA) [7906A-13]

5:00 pm: **In-vivo interstitial glucose characterization and monitoring in the skin by ATR-FTIR spectroscopy**, Natalja Skrebova Eikje M.D., MC Professional OÜ (Estonia) [7906A-14]

5:20 pm: **The high-quality spectral fingerprint of glucose captured by Raman spectroscopy in non-invasive glucose measurement**, Jeankun Oh, Seongmoon Cho, Hyunho Oh, Yunhee Ku, BongChu Shim, Moosub Kim, Yongju Yang, Dami Kim, Hyejin Eum, David R. Miller, LG Electronics Inc. (Korea, Republic of) [7906A-15]

Courses of Related Interest

- SC1013 Choosing the Correct Optical Filter for Your Application (Reichel)
Tuesday, 8:30 am to 12:30 pm
- SC981 Biomedical Fiber Optic Sensors and Applications (Mendez, McLaughlin)
Sunday, 1:30 to 5:30 pm
- SC532 Micro- and Nanofluidics - Technology and Applications (Gärtner)
Wednesday, 8:30 am to 12:30 pm

See course materials desk located in the SPIE Registration Area.

The screenshot shows the SPIE Photonics West 2011 website. At the top, there is a navigation bar with links for 'CREATE AN ACCOUNT', 'SIGN IN', 'ABOUT US', 'CONTACT US', 'HELP', and 'SHOPPING CART'. The SPIE logo is prominently displayed, along with the tagline 'Connecting minds. Advancing light.' and the text 'SPIE is the international society for optics and photonics'. A search bar is located in the top right corner. Below the navigation bar, there are several tabs: 'HOME', 'CONFERENCES + EXHIBITIONS', 'PUBLICATIONS', 'EDUCATION', 'MEMBERSHIP', 'INDUSTRY RESOURCES', 'CAREER CENTER', and 'NEWSROOM'. The main content area features the 'SPIE Photonics West' logo and the dates '22 - 27 January 2011' at 'The Moscone Center, San Francisco, California, USA'. A 'Search Program' section allows users to refine their search by checking boxes for 'Oral & Poster Presentations', 'Special Forums & Events', 'Courses', and 'Exhibitions & Products'. A 'Daily Schedule by Technology' section is also visible. A callout box titled 'PLAN YOUR WEEK' points to the 'Entire Program' link and provides instructions on how to use the SPIE My Schedule tool and the Entire Program webpage to view the program in various ways: by Symposium and Conference, by Day and Time, and in a Matrix Grid by Program Track.

PLAN YOUR WEEK

Use the SPIE My Schedule tool on the Photonics West site

- Add Papers | Exhibitors | Courses | Special Events

Use the Entire Program webpage to view the program your way:

- By Symposium and Conference—papers, courses, special events
- By Day and Time—see what's happening now
- In a Matrix Grid by Program Track—handy at-a-glance reference

Design and Performance Validation of Phantoms Used in Conjunction with Optical Measurement of Tissue III

Conference Chair: **Robert J. Nordstrom**, National Institutes of Health

Program Committee: **Anant Agrawal**, U.S. Food and Drug Administration; **Gerald T. Fraser**, National Institute of Standards and Technology; **William W. Mantulin**, Beckman Laser Institute and Medical Clinic; **Brian W. Pogue**, Dartmouth Hitchcock Medical Ctr.; **Scott A. Prahl**, Providence St. Vincent Medical Ctr.; **Lihong V. Wang**, Washington Univ. in St. Louis

Saturday 22 January

SESSION 1

Room: 202/204 (Mezzanine) Sat. 9:00 to 10:10 am

Raman and Other Spectroscopies

Session Chair: **Robert J. Nordstrom**, National Institutes of Health

9:00 am: **Phantoms as standards in optical measurements** (*Invited Paper*), Robert J. Nordstrom, National Institutes of Health (USA) [7906B-26]

9:30 am: **Fabrication and characterization of phantoms made of polydimethylsiloxane (PDMS)**, Adrian E. Villanueva-Luna, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Agustín Santiago-Alvarado, Univ. Tecnológica de la Mixteca (Mexico); Jorge Castro-Ramos, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Brenda I. G. Licóna-Moran, Univ. Tecnológica de la Mixteca (Mexico); Sergio Vázquez-Montiel, José Alberto Delgado Atencio, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) [7906B-27]

9:50 am: **Poly(vinyl alcohol) cryogel, multi-layer artery phantoms for optical coherence tomography**, Charles-Etienne Bisailon, Gordon Campbell, Valérie Pazos, Christian de Grandpré, Guy Lamouche, National Research Council Canada (Canada) [7906B-28]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 202/204 (Mezzanine) Sat. 10:40 am to 12:10 pm

Phantom Design

Session Chair: **Robert J. Nordstrom**, National Institutes of Health

10:40 am: **Accurately characterized optical tissue phantoms : how, why and when?** (*Invited Paper*), Jean-Pierre Bouchard, Israel Veilleux, Isabelle Noiseux, Ozzy Mermut, INO (Canada) [7906B-29]

11:10 am: **Optical phantoms of varying geometry based on thin building blocks with controlled optical properties**, Daniel Martijn M. de Bruin, Ton G. van Leeuwen, Dirk J. Faber, Univ. van Amsterdam (Netherlands) [7906B-30]

11:50 am: **Toward a reference standard for tissue phantoms**, Paola Di Ninni, Fabrizio Martelli, Giovanni Zaccanti, Univ. degli Studi di Firenze (Italy)[7906B-32]

Lunch/Exhibition Break 12:10 to 1:20 pm

SESSION 3

Room: 202/204 (Mezzanine) Sat. 1:20 to 3:00 pm

OCT, Photo-Acoustic, and Other Methods

Session Chair: **Robert J. Nordstrom**, National Institutes of Health

1:20 pm: **Novel phantom materials for use in optical coherence elastography**, Brendan F. Kennedy, Florian Blume, The Univ. of Western Australia (Australia); Chao Li, Curtin Univ. of Technology (Australia); Robert A. McLaughlin, The Univ. of Western Australia (Australia); Xia Lou, Curtin Univ. of Technology (Australia); David D. Sampson, The Univ. of Western Australia (Australia) [7906B-33]

1:40 pm: **Spatial distributions of optical and acoustic properties and correlations with temperature in cyclically frozen-thawed poly(vinyl alcohol) gel breast phantoms**, Daniele Piras, Wenfeng Xia, Michelle Heijblom, Wiendelt Steenbergen, Univ. Twente (Netherlands); Ton G. van Leeuwen, Academisch Medisch Ctr. (Netherlands); Srirang Manohar, Univ. Twente (Netherlands) [7906B-34]

2:00 pm: **Photothermal OCT imaging of 1210nm laser irradiated agarose tissue phantoms with nanoparticles**, Oscar D. Ayala, Amit S. Paranjape, Leo L. Ma, Keith P. Johnston, The Univ. of Texas at Austin (USA); Roman V. Kuranov, The Univ. of Texas Health Science Ctr. at San Antonio (USA); Thomas E. Milner, The Univ. of Texas at Austin (USA) [7906B-35]

2:20 pm: **3D solid tissue phantoms for combined diffuse reflectance, intrinsic fluorescence and Raman spectroscopies**, Jessie R. Weber, Zoya I. Volynskaya, Zahid Yaqoob, Massachusetts Institute of Technology (USA); Sasha McGee, Anushree Saha, Case Western Reserve Univ. (USA); Ramachandra R. Dasari, Massachusetts Institute of Technology (USA); Maryann Fitzmaurice, Case Western Reserve Univ. (USA) [7906B-36]

2:40 pm: **System-independent assessment of OCT axial resolution with a 'bar chart' phantom**, Robert C. Chang, National Institute of Standards and Technology (USA); Anant Agrawal, U.S. Food and Drug Administration (USA); Christopher Stafford, National Institute of Standards and Technology (USA); Megan Connors, U.S. Food and Drug Administration (USA) and Univ. of Maryland (USA); Joshua Pfefer, U.S. Food and Drug Administration (USA); Jeeseong Hwang, National Institute of Standards and Technology (USA) [7906B-41]

Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 202/204 (Mezzanine) Sat. 3:30 to 5:00 pm

Skin and Other Tissue

Session Chair: **Robert J. Nordstrom**, National Institutes of Health

3:30 pm: **Optical tissue phantoms: realistic absorption across the spectrum** (*Invited Paper*), Isabelle Noiseux, Israel Veilleux, Sébastien Leclair, Jean-Pierre Bouchard, Jocelyne Osouf, Ozzy Mermut, INO (Canada) [7906B-37]

4:00 pm: **Development of a skin phantom of the epidermis and evaluation by using fluorescence techniques**, Thorsten Bergmann, Ulf Maeder, Jan Michael Burg, Peggy Schlupp, Thomas Schmidts, Frank Runkel, Martin Fiebich, Sebastian Beer, Fachhochschule Giessen-Friedberg (Germany) [7906B-38]

4:20 pm: **Phantoms of fingers with various tones of skin for LLLT dosimetry**, Marcelo V. Pires de Sousa, Elisabeth M. Yoshimura, André L. O. Ramos, Ana C. Magalhães, Marcia T. Saito, Maria C. Chavantes M.D., Liliam R. dos Santos, Univ. de São Paulo (Brazil) [7906B-39]

4:40 pm: **Hyperspectral image projection of a pig kidney for the evaluation of imagers used for oximetry**, David W. Allen, Maritoni Litorja, Jeeseong Hwang, National Institute of Standards and Technology (USA); Karel J. Zuzak, The Univ. of Texas at Arlington (USA) [7906B-40]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.



Biomedical Applications of Light Scattering V

Conference Chairs: **Adam P. Wax**, Duke Univ.; **Vadim Backman**, Northwestern Univ.

Program Committee: **Irving J. Bigio**, Boston Univ.; **Stephen A. Boppart**, Univ. of Illinois at Urbana-Champaign; **Bernard Choi**, Beckman Laser Institute and Medical Clinic; **Steven L. Jacques**, Oregon Health & Science Univ.; **Lev T. Perelman**, Harvard Univ.; **Brian W. Pogue**, Dartmouth Hitchcock Medical Ctr.; **Bruce Jason Tromberg**, Beckman Laser Institute and Medical Clinic

Saturday 22 January

SESSION 1

Room: 220/222 (Mezzanine) Sat. 8:30 am to 12:00 pm

Characterization of Turbid Media

Session Chair: **Vadim Backman**, Northwestern Univ.

8:30 am: **Theoretical and experimental comparison of tissue phantoms using white-light spectroscopy**, Kaloyan A. Popov, Timothy P. Kurzweg, Drexel Univ. (USA) [7907-01]

8:50 am: **Measuring the transport mean free path, anisotropy coefficient, and shape of the phase function with low-coherence enhanced backscattering spectroscopy**, Vladimir M. Turzhitsky, Andrew J. Radosevich, Jeremy D. Rogers, Nikhil N. Mutyal, Vadim Backman, Northwestern Univ. (USA) [7907-02]

9:10 am: **Nanoscale nuclear architecture for cancer diagnosis by spatial-domain low-coherence quantitative phase microscopy**, Pin Wang, Rajan K. Bista, David Y. Lo, Walid E. Khalbuss, Wei Qiu, Kevin D. Staton, Lin Zhang, Univ. of Pittsburgh (USA); Teresa A. Brentnall M.D., Univ. of Washington (USA); Randall E. Brand M.D., Yang Liu, Univ. of Pittsburgh (USA) [7907-03]

9:30 am: **Quantitative spectroscopic imaging using dark field microscopy**, Annemarie Nadort, Dirk J. Faber, Ton G. van Leeuwen, Academisch Medisch Ctr. (Netherlands) [7907-04]

9:50 am: **Effect of clearing agents on scattering coefficient and anisotropy of scattering of dermis studied by reflectance confocal microscopy**, Steven L. Jacques, Ravikant Samatham, Kevin G. Phillips, Oregon Health & Science Univ. (USA) [7907-05]

Coffee Break 10:10 to 10:40 am

10:40 am: **A comparative study of 3x3 and 4x4 Mueller matrix decomposition methods for polarimetric characterization of complex tissue-like turbid medium**, Nirmalya Ghosh, Ayan Banerjee, Indian Institute of Science Education and Research (India); Michael F. G. Wood, Marika A. Wallenberg, I. Alex Vitkin, Univ. of Toronto (Canada) [7907-06]

11:00 am: **Phase function of biological soft tissues for the complete solid angle**, René Michels, Univ. Ulm (Germany) [7907-07]

11:20 am: **Monte Carlo simulation of photon migration in turbid random media based on the object-oriented programming paradigm**, Igor Meglinski, Alex Doronin, Univ. of Otago (New Zealand) [7907-08]

11:40 am: **Simulation of propagating light through macroscopic scattering medium via digital optical phase conjugation phenomenon**, Snow H. Tseng, National Taiwan Univ. (Taiwan) [7907-09]

Lunch/Exhibition Break 12:00 to 1:20 pm

SESSION 2

Room: 220/222 (Mezzanine) Sat. 1:20 to 3:10 pm

Speckle and Dynamic Light Scattering

Session Chair: **Bernard Choi**, Beckman Laser Institute and Medical Clinic

1:20 pm: **Optical sectioning with HiLo microscopy (Invited Paper)**, Jerome Mertz, Daryl Lim, Timothy Ford, Kengyeh Chu, Boston Univ. (USA) [7907-10]

1:50 pm: **Laser speckle imaging in the spatial frequency domain using Monte Carlo**, Tyler B. Rice, Amaan Mazhar, Soren D. Konecky, David J. Cuccia, Anthony J. Durkin, Bruce J. Tromberg, Beckman Laser Institute and Medical Clinic (USA) [7907-11]

2:10 pm: **Effects of combined ordered and unordered motion in laser speckle contrast imaging**, Sean J. Kirkpatrick, Michigan Technological Univ. (USA); Donald D. Duncan, Portland State Univ. (USA) [7907-12]

2:30 pm: **Cellular dimensionality in dynamic light scattering**, Ran An, Kwan Jeong, John J. Turek, David D. Nolte, Purdue Univ. (USA) [7907-13]

2:50 pm: **Endoscopic laser speckle contrast imaging system using a fibre image guide**, Lipei Song, Daniel S. Elson, Imperial College London (United Kingdom) [7907-14]

Coffee Break 3:10 to 3:40 pm

SESSION 3

Room: 220/222 (Mezzanine) Sat. 3:40 to 5:10 pm

Novel Instruments and Methods

Session Chair: **Lev T. Perelman**, Harvard Univ.

3:40 pm: **Fourier-transform light scattering of cells and tissues (Invited Paper)**, Gabriel Popescu, Univ. of Illinois at Urbana-Champaign (USA) [7907-16]

4:10 pm: **Laser interference fringe tomography - A novel 3D imaging technique for pathology**, Farnoud Kazemzadeh, Thomas M. Haylock, Lev M. Chifman, Arsen R. Hajian, Bradford B. Behr, Andrew T. Cenko, Jeff T. Meade, Univ. of Waterloo (Canada); Jan Hendrikse, Tornado Medical Systems (Canada) [7907-17]

4:30 pm: **Model-based design of full-spectral diagnostic instrumentation**, Chih-Wen Kan, Kort Travis, James Salazar, Konstantin V. Sokolov, Mia K. Markey, The Univ. of Texas at Austin (USA) [7907-18]

4:50 pm: **A broadband scanning spectroscopy platform for imaging morphological and molecular signatures of breast cancer pathologies in situ**, Venkataramanan Krishnaswamy, Ashley M. Laughney, Dartmouth College (USA); Kimberley S. Samkoe, Dartmouth Medical School (USA); Keith D. Paulsen, Brian W. Pogue, Dartmouth College (USA) [7907-19]

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

Sunday 23 January

SESSION 4

Room: 220/222 (Mezzanine) Sun. 8:30 am to 12:10 pm

Clinical and Pre-Clinical Studies

Session Chair: **Irving J. Bigio**, Boston Univ.

8:30 am: **High-speed simulation of skin spectral reflectance based on an optical path-length matrix method and its application**, Izumi Fujiwara, Satoshi Yamamoto, Midori Yamauchi, Chiba Univ. (Japan); Keiko Ogawa-Ochiai, Chiba Univ. Hospital (Japan); Toshiya Nakaguchi, Norimichi Tsumura, Chiba Univ. (Japan) [7907-20]

8:50 am: **Retention of indocyanine green as a potential marker for optical detection of blood brain barrier disruption**, Aysegul Ergin, Boston Univ. (USA); Shailendra Joshi, Mei Wang, Columbia Univ. (USA); Irving J. Bigio, Boston Univ. (USA) [7907-21]

9:10 am: **Near-infrared scattering imaging of depolarization waves in a rat hypoxic brain model and its application to assessment of brain tissue reversibility**, Satoko Kawauchi, Shunichi Sato, Yoichi Uozumi, Hiroshi Nawashiro, Miya Ishihara M.D., Makoto Kikuchi M.D., National Defense Medical College (Japan) [7907-22]

Monday 24 January

SESSION 6

Room: 220/222 (Mezzanine) Mon. 8:40 to 11:30 am

Low-coherence Light Scattering

Session Chair: Adam P. Wax, Duke Univ.

8:40 am: **Optical property measurement with 3D-OCT to differentiate soft tissues**, Loretta Scolaro, Blake R. Klyen, Robert A. McLaughlin, The Univ. of Western Australia (Australia); Steven L. Jacques, Oregon Health & Science Univ. (USA); David D. Sampson, The Univ. of Western Australia (Australia) . [7907-36]

9:00 am: **Optical coherence tomography speckle decorrelation for detecting cell death**, Golnaz Farhat, Univ. of Toronto (Canada) and Sunnybrook Health Sciences Ctr. (Canada) and Ontario Cancer Institute (Canada); Adrian Mariampillai, Univ. of Toronto (Canada) and Ontario Cancer Institute (Canada); Victor X. D. Yang, Ryerson Univ. (Canada) and Sunnybrook Health Sciences Ctr. (Canada); Gregory J. Czarnota, Sunnybrook Health Sciences Ctr. (Canada); Michael C. Kolios, Ryerson Univ. (Canada) and Univ. of Toronto (Canada) . [7907-37]

9:20 am: **Determining size, shape, and orientation of non-spherical scatterers using the fiber optic interferometric two-dimensional scattering (FITS) system**, Michael G. Giacomelli, Yizheng Zhu, John Lee, Adam Wax, Duke Univ. (USA) . [7907-38]

9:40 am: **Fourier-domain low-coherence interferometry for detection of early colorectal cancer development in the AOM rat model** (Invited Paper), Francisco E. Robles, Yizheng Zhu, Duke Univ. (USA); Jin Lee, Sheela Sharma, The Hamner Institutes for Health Sciences (USA); Adam Wax, Duke Univ. (USA) . [7907-39]

Coffee Break 10:00 to 10:30 am

10:30 am: **Cell death monitoring using quantitative optical coherence tomography methods**, Golnaz Farhat, Univ. of Toronto (Canada) and Sunnybrook Health Sciences Ctr. (Canada) and Ontario Cancer Institute (Canada); Victor X. D. Yang, Ryerson Univ. (Canada) and Sunnybrook Health Sciences Ctr. (Canada); Michael C. Kolios, Ryerson Univ. (Canada) and Univ. of Toronto (Canada); Gregory J. Czarnota, Sunnybrook Health Sciences Ctr. (Canada) . [7907-40]

10:50 am: **Lidar-like equation model for optical coherence tomography signal solution**, Marcello M. Amaral, Marcus P. Raelle, Eduardo Landulfo, Niklaus U. Wetter, Anderson Zanardi de Freitas, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . [7907-41]

11:10 am: **Spatially resolved measurements of dynamic light scattering by Fourier domain OCT**, Martin Hagen-Eggert, Medizinisches Laserzentrum Lübeck GmbH (Germany); Dierck Hillmann, Peter Koch, Thorlabs GmbH (Germany); Gereon Hüttmann, Univ. zu Lübeck (Germany) . [7907-42]

PPOSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Images of depolarization power and retardance to study stages of dysplasia in human cervical tissues, Jaidip M. Jagtap, Meghdoot Mozumder, Prashant Shukla, Asima Pradhan, Indian Institute of Technology Kanpur (India) . [7907-43]

Estimation of chromophore concentrations with diffuse optical spectroscopy in the near-infrared wavelength range up to 1600 nm, Rami Nachabe, Benno H. W. Hendriks, Martin B. van der Mark, Marjolein van der Voort, Adrien E. Desjardins, Philips Research Nederland B.V. (Netherlands); Henricus J. C. M. Sterenborg, Erasmus MC (Netherlands) . [7907-44]

Image reconstruction using measurements in volume speckle fields formed by different wavelengths, Nikolai V. Petrov, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Michael V. Volkov, Saint-Petersburg State Univ. (Russian Federation); Andrei A. Gorodetsky, Victor G. Bespalov, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation) . [7907-45]

9:30 am: **Quantification of field carcinogenesis in isolated colonocytes via partial wave spectroscopic microscopy: novel means of colorectal cancer (CRC) screening**, Dhwanil Damania, Northwestern Univ. (USA); Hemant Roy, Evanston Hospital (USA); Hariharan Subramanian, Northwestern Univ. (USA); Mart Dela Cruz, Evanston Hospital (USA); Yuanjia Zhu, Vadim Backman, Northwestern Univ. (USA) . [7907-23]

9:50 am: **Optical screening for lung cancer using epithelial cells obtained from buccal mucosa (cheek cells)** (Invited Paper), Hariharan Subramanian, Northwestern Univ. (USA); Hemant Roy, Northshore Univ. Health System (USA); Dhwanil Damania, Maitri Shah, Lusik Cherkezyan, Prabhakar Pradhan, Vadim Backman, Northwestern Univ. (USA) . [7907-24]

Coffee Break 10:20 to 10:50 am

10:50 am: **Imaging fluorescence and broadband reflectance of breast pathologies in situ**, Ashley M. Laughney, Venkataramanan Krishnaswamy, Dartmouth College (USA); Wendy A. Wells, Dartmouth Hitchcock Medical Ctr. (USA); Olga M. Conde, Univ. de Cantabria (Spain); Keith Paulsen, Brian W. Pogue, Dartmouth College (USA) . [7907-25]

11:10 am: **Guiding biopsy of dysplasia in Barrett's esophagus during endoscopy with polarized light-scattering spectroscopy**, Le Qiu, Douglas Pleskow, Ram Chuttani, Edward Vitkin, Lianyu Guo, Alana Sacks, Jeffrey Goldsmith, Mark Modell, Harvard Medical School (USA); Eugene Hanlon, Dept. of Veterans Affairs (USA); Irving Itzkan, Lev T. Perelman, Harvard Medical School (USA) . [7907-26]

11:30 am: **Wavelet-based multifractal detrended fluctuation analysis of light scattering spectra from normal and cancerous human cervical tissues**, Jalpa Soni, Indian Institute of Science Education and Research (India); Jaidip M. Jagtap, Indian Institute of Technology Kanpur (India); Sayantan Ghosh, Harsh Purwar, Indian Institute of Science Education and Research (India); Asima Pradhan, Indian Institute of Technology Kanpur (India); Prasanta K. Panigrahi, Nirmalya Ghosh, Indian Institute of Science Education and Research (India) . [7907-27]

11:50 am: **Variations in the optical scattering properties of skin in murine animal models**, Katherine Calabro, Boston Univ. (USA); Allison Curtis, Jean-Rene Galarnau, Thomas Krucker, Novartis Institutes for Biomedical Research, Inc. (USA); Irving J. Bigio, Boston Univ. (USA) . [7907-28]

Lunch/Exhibition Break 12:10 to 1:40 pm

SESSION 5

Room: 220/222 (Mezzanine) Sun. 1:40 to 4:10 pm

In Vitro Cell Studies

Session Chair: Adam P. Wax, Duke Univ.

1:40 pm: **Influence of cellular precancerous structural changes on macroscopic light scattering optical properties**, Nikhil N. Mutyal, Andrew J. Radosevich, Northwestern Univ. (USA); Ashish Tiwari, Evanston Hospital (USA); Yolanda Stypula, Vladimir M. Turzhitsky, Jeremy D. Rogers, Ramesh Wali, Northwestern Univ. (USA); Hemant Roy, Evanston Hospital (USA); Vadim Backman, Northwestern Univ. (USA) . [7907-29]

2:00 pm: **Documenting cellular morphology of circulating tumor cells using differential interference contrast-based quantitative phase imaging**, Kevin G. Phillips, James C. Gladish, Joseph E. Aslan, Steven L. Jacques, Oregon Health & Science Univ. (USA); Peter Kuhn, The Scripps Research Institute (USA); Owen J. T. McCarty, Oregon Health & Science Univ. (USA) . [7907-30]

2:20 pm: **Tissue scattering properties from organelle to organ scales**, Huafeng Ding, Xing Liang, Zhuo Wang, Stephen A. Boppart M.D., Gabriel Popescu, Univ. of Illinois at Urbana-Champaign (USA) . [7907-32]

2:40 pm: **Rapid analysis of white blood cells with diffraction imaging flow cytometry** (Invited Paper), Xin-Hua Hu, Jun Q. Lu, East Carolina Univ. (USA); Yuanming Feng, Tianjin Univ. (China) . [7907-33]

Coffee Break 3:00 to 3:30 pm

3:30 pm: **Time-lapsed integrated Raman- and angular-scattering microscopy of immune cells**, Dustin W. Shipp, Andrew J. Berger, Univ. of Rochester (USA) . [7907-34]

3:50 pm: **Intrinsic optical signal imaging of glucose-stimulated physiological responses in the insulin secreting INS-1 β -cell line**, Yi-Chao Li, Wanxing Cui, Xujing Wang, Franklin Amthor, Xin-Cheng Yao, The Univ. of Alabama at Birmingham (USA) . [7907-35]

Courses of Related Interest

SC1013 Choosing the Correct Optical Filter for Your Application (Reichel)
Tuesday, 8:30 am to 12:30 pm

See course materials desk located in the SPIE Registration Area.

Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications VII

Conference Chairs: **Alexander N. Cartwright**, Univ. at Buffalo; **Dan V. Nicolau**, Univ. of Liverpool (United Kingdom)

Program Committee: **Igal Brener**, Sandia National Labs.; **Vamsy P. Chodavarapu**, McGill Univ. (Canada); **Philippe M. Fauchet**, Univ. of Rochester; **Piotr Grodzinski**, National Cancer Institute; **Brian D. MacCraith**, Dublin City Univ. (Ireland); **Igor L. Medintz**, U.S. Naval Research Lab.; **Ammasi Periasamy**, Univ. of Virginia; **Paras N. Prasad**, Univ. at Buffalo; **Weihong Tan**, Univ. of Florida

Monday 24 January

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Development of optical immunosensors and their application to the analysis of human bone morphogenetic protein-7 (BMP-7), Chun-Kwang Kim, Jong Il Rhee, Chonnam National Univ. (Korea, Republic of); Ok-Jae Sohn, B&P Tech Co., Ltd. (Korea, Republic of) [7908-30]

A novel high-sensitive miniaturized optical system for fluorescence detection, Mingjin Yao, Ji Fang, Louisiana Tech Univ. (USA) [7908-31]

Nanometric ion sensing using near-field ratiometric fluorescence sensing, Ella Wajnryt, Aaron Lewis, Patricia Hamra, The Hebrew Univ. of Jerusalem (Israel); Chaya Lewis, Nanonics Imaging Ltd. (Israel) [7908-32]

Development of biosensor for CRP detection using nanoporous structure, Okgeun Kim, Sehyuk Yeom, Heng Yuan, Byoungso Kang, Kyujin Kim, Shinwon Kang, Kyungpook National Univ. (Korea, Republic of) [7908-34]

Tuesday 25 January

Nano/Biophotonics Program Track Plenary Session

Room: 306 (Esplanade) Tues. 1:30 to 3:00 pm

Optical biosensors and a perspective on the future
Dr. Frances S. Ligler, Center for Bio/Molecular Science & Engineering, Naval Research Lab.

Nanostructures for biological investigations
Prof. Harold G. Craighead, School of Applied & Engineering Physics, Cornell Univ.

See page 17 for details.

Wednesday 26 January

SESSION 1

Room: 309 (Esplanade) Wed. 8:00 am to 12:00 pm

Imaging of Nano-Objects I

Session Chair: **Alexander N. Cartwright**, Univ. at Buffalo

8:00 am: **Non-radiative excitation fluorescence: driving biology beyond the diffraction limit (Invited Paper)**, Pascale Winckler, Rodolphe Jaffiol, Jérôme Plain, Univ. de Technologie Troyes (France) [7908-01]

8:30 am: **Nanoparticle light scattering in bead-based diffraction biosensors**, Karen Hayrapetyan, Khalid Arif, Cagri A. Savran, David D. Nolte, Purdue Univ. (USA) [7908-02]

8:50 am: **Trapping single DNA molecules in solution**, Jorg C. Woehl, Christine A. Carlson, Univ. of Wisconsin-Milwaukee (USA) [7908-03]

9:10 am: **Dual-modality in-vivo imaging for MRI detection of tumors and NIRF-guided surgery using multicomponent nanoparticles**, Jaehong Key, Purdue Univ. (USA); Kwangmeyung Kim, Ick Chan Kwon, Kuiwon Choi, Korea Institute of Science and Technology (Korea, Republic of); Deborah Knapp, James F. Leary, Purdue Univ. (USA) [7908-04]

9:30 am: **High-precision three-dimensional Position measurement of particles by digital Gabor holography**, Myung K. Kim, Mariana C. Potcoava, Leo G. Krzewina, Univ. of South Florida (USA) [7908-05]

9:50 am: **Nanoscale actuation of gold nanorods using kilovoltage radiation enhances the efficacy of radiation therapy in vivo**, Parmeswaran Diagaradjane, Amit Deorukhkar, Sunil Krishnan M.D., The Univ. of Texas M.D. Anderson Cancer Ctr. (USA) [7908-06]

Coffee Break 10:10 to 10:40 am

10:40 am: **Spectroscopic characterization of bionanoparticles originating from newly developed self-forming synthetic PEGylated lipids (QuSomes)**, Rajan K. Bista, Reinhard F. Bruch, Aaron M. Covington, Univ. of Nevada, Reno (USA) [7908-07]

11:00 am: **DMSO effects on FRET to dye-labeled DNA in conjugated polymer-based DNA detection**, Mijeong Kang, Okhill K. Nag, Taewoo Kwon, Jihyun Yoo, Han Young Woo, Pusan National Univ. (Korea, Republic of) [7908-08]

11:20 am: **Development of carbon-fluorine spectroscopy: an emerging analytical tool for pharmaceutical and biomedical applications**, Farid Mena, Bouzid Mena, Olga N. Sharts, Fluorotronics, Inc. (USA) [7908-09]

11:40 am: **Fluorescence single particle tracking for sizing of nanoparticles in undiluted biological fluids**, Kevin Braeckmans, Kevin Buyens, Wim Bouquet-Geerardyn, Chris Vervaet, Philippe Joye, Filip De Vos, Univ. Gent (Belgium); Laurent Plawinski, Loïc Dœuvre, INSERM (France); Niek N. Sanders, Univ. Gent; Jo Demeester, Stefaan C. De Smedt, Univ. Gent (Belgium) [7908-42]

Lunch/Exhibition Break 12:00 to 2:10 pm

SESSION 2

Room: 309 (Esplanade) Wed. 2:10 to 3:10 pm

Imaging of Nano-Objects II

Session Chair: Alexander N. Cartwright, Univ. at Buffalo

2:10 pm: **Blue fluorescent carbon nanoparticles**, Vijayalakshmi Varadarajan, Rakesh Chaudhary, Samarendra K. Mohanty, Ali R. Koymen, The Univ. of Texas at Arlington (USA) [7908-12]2:30 pm: **Studying the uptake of QD-transferrin in HeLa cells with structured-illumination microscopy**, Danni Chen, Gaixia Xu, Shenzhen Univ. (China) [7908-13]2:50 pm: **Nanostructured sensors to monitor the microenvironment in wounds**, Alexander N. Cartwright, Univ. at Buffalo (USA) [7908-14]

Coffee Break 3:10 to 3:30 pm

SESSION 3

Room: 309 (Esplanade) Wed. 3:30 to 6:00 pm

Nano-Imaging on Surfaces I

Session Chair: Dan V. Nicolau, Univ. of Liverpool (United Kingdom)

3:30 pm: **Spinning biochips: the development of the BioCD and noninertial microfluidic disks** (*Invited Paper*), David D. Nolte, Purdue Univ. (USA) [7908-40]4:00 pm: **Phase conjugating nanomirrors: utilizing optical phase conjugation for imaging**, Brian G. Yust, Dhiraj Sardar, Andrew Tsin, The Univ. of Texas at San Antonio (USA) [7908-15]4:20 pm: **Combined Raman confocal and atomic force microscopy studies of cancerous cells treated with Paclitaxel**, Loic Derely, Pierre-Yves Collart Dutilleul, Univ. Montpellier 1 (France); Vivian Szabo, Csilla Gergely, Univ. Montpellier 2 (France); Frédéric J. G. Cuisinier, Univ. Montpellier 1 (France) [7908-16]4:40 pm: **In-situ formation of microstructures near live cells using spatially structured near-infrared laser microbeam**, Ninad D. Ingle, Ling Gu, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7908-17]5:00 pm: **Experimental analysis of cross-talk effects between a series of nanohole structures on the same metal film**, Fartash Vasefi, Mohamadreza Najiminaini, Bozena Kaminska, Jeffrey J. L. Carson, Simon Fraser Univ. (Canada) [7908-18]5:20 pm: **Modeling of sensitive biosensor using gap plasmons in gold nanoslits**, Jui-Teng Lin, Ding-Wei Huang, Yu-Hsi Cheng, National Taiwan Univ. (Taiwan) [7908-19]5:40 pm: **Functional nanoscale imaging of protein surfaces**, Paul Dan A. Cristea, Rodica Tuducea, O. Arsenea, Polytechnical Univ. of Bucharest (Romania); Dan V. Nicolau, Univ. of Liverpool (United Kingdom) [7908-41]

Thursday 27 January

SESSION 4

Room: 309 (Esplanade) Thurs. 8:00 am to 12:00 pm

Nano-Imaging on Surfaces II

Session Chair: Dan V. Nicolau, Univ. of Liverpool (United Kingdom)

8:00 am: **Three-dimensional polymer nanostructures for applications in cell biology generated by high-repetition-rate sub-15-fs near-infrared laser pulses** (*Invited Paper*), Martin H. Straub, Martin Licht, Karsten Koenig, Maziar Afshar, Dara Feili, Helmut Seidel, Univ. des Saarlandes (Germany) [7908-20]8:30 am: **Incoherent lensfree imaging on a chip using compressive decoding of nanostructured surfaces**, Bahar Khademhosseini, Ikbah Sencan, Gabriel Biener, Ting-Wei Su, Ahmet F. Coskun, Derek K. Tseng, Aydogan Ozcan, Univ. of California, Los Angeles (USA) [7908-21]8:50 am: **Silicon-on-insulator nanopillar-array optical sensor**, Tao Xu, Michelle Xu, Univ. of Toronto (Canada); Ning Zhu, Royal Institute of Technology (Sweden); Priyadarshini Kumari, Univ. of Toronto (Canada); Lech Wosinski, Royal Institute of Technology (Sweden); Stewart Aitchison, Harry Ruda, Univ. of Toronto (Canada) [7908-22]9:10 am: **Demonstration of a reusable plasmonic polymer microarray sensing platform**, Philip Roche, Maurice Cheung, Shazard Taslimi, Vamsy P. Chodavarapu, Andrew G. Kirk, McGill Univ. (Canada) [7908-23]9:30 am: **Improved signal-to-noise detection of single virion using microcavities**, Tao Lu, Univ. of Victoria (Canada) and California Institute of Technology (USA); Hansuek Lee, Tong Chen, Ji Hun Kim, California Institute of Technology (USA); Steven Herchak, Univ. of Victoria (Canada); Kerry Vahala, California Institute of Technology (USA) [7908-24]9:50 am: **Modulation of signal/noise and readout intensity of microfabricated microarray surfaces**, Serban Dobroiu, Jenny Aveyard, Dan V. Nicolau, Univ. of Liverpool (United Kingdom) [7908-25]

Coffee Break 10:10 to 10:40 am

10:40 am: **Single-molecule detection of brominated diphenyl ether 47 (BDE 47) using a non-competitive phage anti-immunocomplex assay in nanowells**, Jin-Hee Han, Hee-Joo Kim, Sudheendra Lakshmana, Shirley Gee, Bruce Hammock, Ian M. Kennedy, Univ. of California, Davis (USA) [7908-26]11:00 am: **Nanometric measurement of optical pressure deformation of fluid interface by digital holography**, David Clark, Myung K. Kim, Univ. of South Florida (USA) [7908-27]11:20 am: **Local plasma membrane permeabilization of living cells by nanosecond electric pulses using atomic force microscopy**, Gary L. Thompson, Clemson Univ. (USA) and Ball Aerospace Inc. (USA); Caleb C. Roth, Air Force Research Lab. (USA); Andrei G. Pakhomov, Old Dominion Univ. (USA); Gerald J. Wilmink, Bennett L. Ibey, Air Force Research Lab. (USA) [7908-28]11:40 am: **Versatile, high-efficiency tip-enhanced Raman spectroscopy (TERS) instrumentation for end-user applications**, Noah J. Kolodziejski, David E. Wolf, Radiation Monitoring Devices, Inc. (USA); Yongfeng Lu, Univ. of Nebraska-Lincoln (USA); Rajan S. Gurjar, Radiation Monitoring Devices, Inc. (USA) [7908-29]

Courses of Related Interest

SC463 Biophotonics (Prasad) Sunday, 9:00 am to 6:00 pm

SC1013 Choosing the Correct Optical Filter for Your Application (Reichel)
Tuesday, 8:30 am to 12:30 pm

See course materials desk located in the SPIE Registration Area.

Colloidal Quantum Dots/Nanocrystals for Biomedical Applications VI

Conference Chairs: **Wolfgang J. Parak**, Philipps-Univ. Marburg (Germany); **Kenji Yamamoto**, International Medical Ctr. of Japan (Japan); **Marek Osirski**, The Univ. of New Mexico

Program Committee: **Antigoni Alexandrou**, Ecole Polytechnique (France); **Moungi G. Bawendi**, Massachusetts Institute of Technology; **Maxime Dahan**, Lab. Kastler Brossel (France); **Jesus Martinez de la Fuente**, Univ. de Zaragoza (Spain); **Niko Hildebrandt**, Fraunhofer-Institut für Angewandte Polymerforschung (Germany); **Jennifer A. Hollingsworth**, Los Alamos National Lab.; **Thomas M. Jovin**, Max-Planck-Institut für biophysikalische Chemie (Germany); **Hedi Mattoussi**, The Florida State Univ.; **Paul Mulvaney**, The Univ. of Melbourne (Australia); Jay L. Nadeau, McGill Univ. (Canada); **Shuming Nie**, Emory Univ.; **Tania Q. Vu**, Oregon Health & Science Univ.; **Horst Weller**, Univ. Hamburg (Germany); **Michael S. Wong**, Rice Univ.

Saturday 22 January

Introduction

Room: 232 (Mezzanine) Sat. 8:25 to 8:30 am

Session Chair: **Wolfgang J. Parak**, Philipps-Univ. Marburg (Germany)

SESSION 1

Room: 232 (Mezzanine) Sat. 8:30 to 10:00 am

Properties of Quantum Dots

Session Chair: **Marek Osirski**, The Univ. of New Mexico

8:30 am: **Dithiocarbamates as capping ligands for water-soluble quantum dots** (Invited Paper), Aaron R. Clapp, Yanjie Zhang, Iowa State Univ. (USA) [7909-01]

9:00 am: **Synthesis, properties, and applications of complex nanocrystal heterostructures**, Liberato Manna, Univ. del Salento (Italy) [7909-02]

9:20 am: **Size determination of quantum dots with fluorescence correlation spectroscopy**, Diana Hill, Hans-Gerd Löhmannsröben, Univ. Potsdam (Germany); Ali Zulqurnain, Wolfgang J. Parak, Philipps-Univ. Marburg (Germany); Niko Hildebrandt, Cindy Ast, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) [7909-03]

9:40 am: **Engineered nanocrystals for imaging, sensing and therapeutics**, Ming-Yong Han, A*STAR Institute of Materials Research and Engineering (Singapore) [7909-04]

DISCUSSION Sat. 10:00 to 10:15 am

Coffee Break 10:15 to 11:00 am

SESSION 2

Room: Room 232 (Mezzanine) Sat. 11:00 to 11:40 am

NPs for Diagnosis and Treatment I

Session Chair: **María Valeria Grazú Bonavía**, Univ. de Zaragoza (Spain)

11:00 am: **Facile synthesis of FePt nanoparticles for CT/MRI dual-modal molecular targeting imaging contrast agents**, Chia-Chun Chen, National Taiwan Normal Univ. (Taiwan) [7909-07]

11:20 am: **Size and surface chemistry of Au nanoparticles determine doxorubicin cytotoxicity**, Jay L. Nadeau, Hicham Chibli, Xuan Zhang, McGill Univ. (Canada) [7909-51]

DISCUSSION Sat. 11:40 to 11:55 am

Lunch/Exhibition Break 11:55 am to 1:25 pm

SESSION 3

Room: 232 (Mezzanine) Sat. 1:25 to 2:35 pm

Toxicity of NPs

Session Chair: **Pilar Rivera Gil**, Philipps-Univ. Marburg (Germany)

1:25 pm: **State-of-the-art toxicological and microscopic assessment of biomedical nanocrystals on the lung in vitro** (Invited Paper), Martin J. D. Clift, Peter Gehr, Barbara Rothen-Rutishauser, Univ. Bern (Switzerland) . . . [7909-08]

1:55 pm: **Size- and structure-dependent toxicity of silica particulates**, Sanshiro Hanada, Kenichi Miyaoi, Akiyoshi Hoshino, Kenji Yamamoto M.D., International Medical Ctr. of Japan (Japan) [7909-09]

2:05 pm: **Bridging the fields of nanoscience and toxicology: nanoparticle impact on biological models** (Invited Paper), Alfredo Ambrosone, Valentina Marchesano, Lucia Mattera, Angela Tino, Claudia Tortiglione, Istituto di Cibernetica Eduardo Caianiello (Italy) [7909-10]

DISCUSSION Sat. 2:35 to 2:40 pm

SESSION 4

Room: 232 (Mezzanine) Sat. 2:40 to 4:20 pm

Fluorescence, FRET, and Applications I

Session Chair: **Peter Reiss**,

Commissariat à l'Énergie Atomique (France)

2:40 pm: **Multiplexed solid-phase nucleic acid hybridization assays using semiconductor quantum dots as donors in fluorescence resonance energy transfer (FRET)** (Invited Paper), W. Russ Algar, Ulrich J. Krull, Univ. of Toronto Mississauga (Canada) [7909-11]

3:10 pm: **Time-resolved and steady-state FRET spectroscopy on commercial biocompatible quantum dots**, David Wegner, Daniel Geissler, Hans-Gerd Löhmannsröben, Univ. Potsdam (Germany); Niko Hildebrandt, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) . . . [7909-12]

Coffee Break 3:30 to 4:00 pm

4:00 pm: **Time-correlated hyperspectral studies of biexciton characteristics in dimeric colloidal quantum dots under photo-oxidation**, Jeeseong Hwang, HyeonGon Kang, Matthew L. Clarke, National Institute of Standards and Technology (USA); Silvia H. DePaoli Lacaerda, U.S. Food and Drug Administration (USA); Leonard F. Pease III, The Univ. of Utah (USA) . . [7909-13]

DISCUSSION Sat. 4:20 to 4:35 pm

SESSION 5

Room: Room 232 (Mezzanine) Sat. 4:35 to 5:55 pm

Plasmonics I

Session Chair: Stefan A. Maier,
Imperial College London (United Kingdom)

4:35 pm: **An optical nanoparticle gun** (*Invited Paper*), Jochen Feldmann, Ludwig-Maximilians-Univ. München (Germany) [7909-14]

5:05 pm: **Localized surface plasmon properties of Au nanorings and their diffusion in biotissue**, Cheng-Kuang Lee, Shou-Yen Wu, Hung-Yu Tseng, Ting-Ta Chi, Kai-Min Yang, Jyh-Yang Wang, National Taiwan Univ. (Taiwan); Meng-Tsan Tsai, Chang Gung Univ. (Taiwan); Yean-Woei Kiang, Chih-Chung Yang, National Taiwan Univ. (Taiwan) [7909-15]

5:25 pm: **Nanoscale plasmonic resonators with high Purcell factor: spontaneous and stimulated emission** (*Invited Paper*), Ewa M. Goldys, Macquarie Univ. (Australia) [7909-16]

DISCUSSION Sat. 5:55 to 6:10 pm

BiOS Hot Topics

Room: 134 (Exhibit Level) Sat. 7:00 to 9:00 pm

Come hear 10-minute presentations by some of the brightest leaders in biophotonics.

See page 16 for details.

European Science Foundation Reception

Sat. 9:00 to 11:00 pm

Conference Reception Sponsored by



Open to attendees of Conference 7909.
Location to be announced by chair.

The ESF network “New approaches to biochemical sensing with plasmonic nanobiophotonics” (PLASMON-BIONANOSENSE) is an open grouping of major European research groups in the areas of photonic and biomolecular nanoscience. The network is open for outside participation and funds both staff exchanges and conferences/workshops. More details can be found on <http://www.esf.org/plasmon>.

Sunday 23 January

SESSION 6

Room: 232 (Mezzanine) Sun. 8:10 to 9:50 am

NPs for Diagnosis and Treatment II

Session Chair: Kenji Yamamoto,
Inetrnational Medical Ctr. of Japan (Japan)

8:10 am: **Magnetic supracolloidal assemblies for biophysical applications** (*Invited Paper*), J.-F. Berret, Univ. Paris 7-Denis Diderot (France) [7909-17]

8:40 am: **Gold nanoparticles in biomedical applications** (*Invited Paper*), Antonios G. Kanaras, Dorota Bartczak, Otto L. Muskens, Timothy M. Millar, Tilman Sanchez-Elsner, Univ. of Southampton (United Kingdom) [7909-18]

9:10 am: **Alloy metal nanoparticles for multicolor cancer diagnostics**, Pedro V. Baptista, Gonçalo Doria, João Conde, Univ. Nova de Lisboa (Portugal) [7909-19]

9:30 am: **Locally increased mortality of gamma-irradiated cells in presence of lanthanide-halide nanoparticles**, Nathan J. Withers, John B. Plumley, Amber McBride, Brian A. Akins, Antonio C. Rivera, Nathaniel C. Cook, Gennady A. Smolyakov, Graham S. Timmins, Marek Osinski, The Univ. of New Mexico (USA) [7909-20]

Coffee Break 9:50 to 10:20 am

SESSION 7

Room: 232 (Mezzanine) Sun. 10:20 to 11:40 am

Imaging with NPs

Session Chair: Walter H. Chang, Chung Yuan Christian Univ. (Taiwan)

10:20 am: **Multifunctional fluorescent nanoparticles for biomedical applications** (*Invited Paper, Presentation Only*), Subramanian T. Selvan, A*STAR Institute of Materials Research and Engineering (Singapore) [7909-21]

10:50 am: **Imaging heterostructured quantum dots in cultured cells with epifluorescence and transmission electron microscopy**, Erin M. Rivera, Casilda Trujillo Provencio, New Mexico State Univ. (USA); Andrea Steinbrueck, Pawan Rastogi, Allison M. Dennis, Jennifer A. Hollingsworth, Los Alamos National Lab. (USA) and Center for Integrated Nanotechnologies (USA); Elba Serrano, New Mexico State Univ. (USA) and Center for Integrated Nanotechnologies (USA) [7909-22]

11:00 am: **In-vivo multiplexed optical imaging system with near-infrared emitting quantum dots and lanthanide-doped nanoparticles**, Sanghwa Jeong, Nayoun Won, Kangwook Kim, Joonhyuck Park, Sungjee Kim, Pohang Univ. of Science and Technology (Korea, Republic of) [7909-23]

11:10 am: **Synthesis of ‘non-toxic’ quantum dots and the in-vivo imaging applications thereof**, Youngrong Park, Jiwon Bang, Nayoun Won, Sanghwa Jeong, Kangwook Kim, Sungjee Kim, Pohang Univ. of Science and Technology (Korea, Republic of) [7909-24]

11:20 am: **Near-infrared quantum dots for in-vivo real-time multiplexed imaging applications**, Nayoun Won, Sanghwa Jeong, Kangwook Kim, Joonhyuck Park, Sungjee Kim, Pohang Univ. of Science and Technology (Korea, Republic of) [7909-25]

DISCUSSION Sun. 11:40 to 11:55 am

Lunch/Exhibition Break 11:55 am to 1:20 pm

SESSION 8

Room: 232 (Mezzanine) Sun. 1:20 to 2:40 pm

Fluorescence, FRET, and Applications II

Session Chair: Ulrich J. Krull, Univ. of Toronto Mississauga (Canada)

1:20 pm: **Characterizing FRET in quantum dot-sensitized multivalent DNA photonic wires**, Kelly Boeneman, Duane E. Prasuhn, U.S. Naval Research Lab. (USA); Juan B. Blanco-Canosa, Philip E. Dawson, The Scripps Research Institute (USA); Joseph S. Melinger, Michael H. Stewart, Kimihiro Susumu, Alan L. Huston, Igor L. Medintz, U.S. Naval Research Lab. (USA) [7909-26]

1:40 pm: **Quantum dots as FRET acceptors: multiplexing biosensors for in-vitro diagnostics and molecular ruler applications** (*Invited Paper*), Daniel Geißler, Univ. Potsdam (Germany); Frank Morgner, Fraunhofer-Institut für Angewandte Polymerforschung (Germany); Nathaniel G. Butlin, Lumiphore Inc. (USA); Hans-Gerd Löhmannsröben, Univ. Potsdam (Germany); Niko Hildebrandt, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) [7909-27]

2:10 pm: **Nanoprobes of fluorescent gold nanoclusters for cells labeling**, Walter H. Chang, Wan-Chun Yu, Cheng-An Lin, Wen-Hsiung Chan, Ji-Lin Shen, Chung Yuan Christian Univ. (Taiwan); Hung-I Yeh, Hsueh-Hsiao Wang, Mackay Memorial Hospital (Taiwan) [7909-28]

2:20 pm: **Quantum dot-based time-resolved adhesion assay for cell co-cultures**, Pilar Rivera Gil, Wolfgang J. Parak, Fang Yang, Philipps-Univ. Marburg (Germany); Heidi Thomas, Andreas Terfort, Johann Wolfgang Goethe-Univ. Frankfurt am Main (Germany) [7909-29]

DISCUSSION Sun. 2:40 to 2:55 pm

BIOS

SESSION 9

Room: 232 (Mezzanine) Sun. 2:55 to 4:15 pm

Functionalization of NPs and Applications

Session Chair: **Subramanian Tamil Selvan**, A*STAR Institute of Materials Research and Engineering (Singapore)

2:55 pm: **Getting control in the antibody-nanoparticle stoichiometry**, María Valeria Grazú Bonavía, Ester Polo, Pilar Pina, Jesús Santamaría, Jesus M. de la Fuente, Univ. de Zaragoza (Spain) [7909-31]

Coffee Break 3:15 to 3:45 pm

3:45 pm: **Immobilized quantum dot bioprobes: microfluidics for the development of nucleic acid assays and bioconjugate assemblies** (*Invited Paper*), Ulrich J. Krull, Anthony J. Tavares, Lu Chen, W. Russ Algar, Univ. of Toronto Mississauga (Canada) [7909-32]

DISCUSSION Sun. 4:15 to 4:20 pm

SESSION 10

Room: 232 (Mezzanine) Sun. 4:20 to 5:40 pm

Plasmonics II

Session Chair: **Jochen Feldmann**, Ludwig-Maximilians-Univ. München (Germany)

4:20 pm: **Plasmonic nanostructures: new design methodologies and high-resolution mode imaging for applications in nanobiophotonics** (*Invited Paper*), Stefan A. Maier, Imperial College London (United Kingdom) [7909-33]

4:50 pm: **Plasmonic Ag/SiO₂ composite nanoparticles doped with a europium chelate and their metal enhanced fluorescence**, Wei Deng, Krystyna Drozdowicz-Tomsia, Dayong Jin, Ewa M. Goldys, Macquarie Univ. (Australia); Jingli Yuan, Dalian Univ. of Technology (China) [7909-34]

5:00 pm: **Ion sensing with colloidal nanoparticles**, Wolfgang J. Parak, Philipps-Univ. Marburg (Germany) [7909-35]

5:10 pm: **Diagnosis and imaging with SERS encoded particles** (*Invited Paper*), Ramon A. Alvarez-Puebla, Univ. de Vigo (Spain) [7909-36]

DISCUSSION Sun. 5:40 to 5:55 pm

Monday 24 January

SESSION 11

Room: 232 (Mezzanine) Mon. 8:00 to 9:30 am

Delivery and Uptake of NPs

Session Chair: **Ming-Yong Han**, A*STAR Institute of Materials Research and Engineering (Singapore)

8:00 am: **Quantum dots and metal nanoparticle agents for manipulating cellular trafficking** (*Invited Paper*), Geoffrey F. Strouse, The Florida State Univ. (USA) [7909-37]

8:30 am: **Distribution of quantum dots after intraperitoneal administration, with reference to area-specific distribution in the brain** (*Invited Paper*), Shinji Fushiki M.D., Kyoko Itoh M.D., Shingo Kato, Takeshi Yaoi, Masafumi Umekage, Takenori Tozawa, Kyoto Prefectural Univ. of Medicine (Japan); Yutaka Yoshikawa, Hiroyuki Yasui, Kyoto Pharmaceutical Univ. (Japan); Akiyoshi Hoshino, Noriyoshi Manabe, Kenji Yamamoto M.D., International Medical Ctr. of Japan (Japan) [7909-38]

9:00 am: **Peptide-mediated cellular delivery and endosomal escape of quantum dots** (*Invited Paper*), Kelly Boeneman, James B. Delehanty III, Michael H. Stewart, Kimihiro Susumu, U.S. Naval Research Lab. (USA); Juan B. Blanco-Canosa, Philip E. Dawson, The Scripps Research Institute (USA); Igor L. Medintz, U.S. Naval Research Lab. (USA) [7909-39]

SESSION 12

Room: 232 (Mezzanine) Mon. 9:30 to 11:50 am

Synthesis of NPs

Session Chair: **Horst Weller**, Univ. Hamburg (Germany)

9:30 am: **Carbon nanotubes/inorganic hybrid materials: synthetic approach and applications** (*Invited Paper*), Miguel A. Correa-Duarte, Univ. de Vigo (Spain) [7909-40]

10:00 am: **Novel synthesis of gold asymmetric nanocrystals: molecular heaters** (*Invited Paper*), Pablo del Pino, Beatriz Pelaz, Jesus M. de la Fuente, Univ. de Zaragoza (Spain) [7909-42]

Coffee Break 10:30 to 11:00 am

11:00 am: **Synthesis of NaYF₄:Yb³⁺/Er³⁺ upconverting nanoparticles in a capillary based continuous-flow microfluidic reaction system**, Haichun Liu, Ola Jakobsson, Can T. Xu, Lund Univ. (Sweden); Haiyan Xie, Lund Univ. Hospital (Sweden); Thomas Laurell, Stefan Andersson-Engels, Lund Univ. (Sweden) [7909-53]

11:20 am: **From inorganic nanocrystals towards their assembly in polymeric mesoscale structures designed for biological applications** (*Invited Paper*), Teresa Pellegrino, National Nanotechnology Lab. (Italy) [7909-54]

DISCUSSION Mon. 11:50 am to 12:05 pm

Lunch Break 12:05 to 1:10 pm

Ocean Optics Young Investigator Award

Mon. 1:10 to 1:20 pm

Ocean Optics Young Investigator Award will be given for the best paper presented by a leading author who is either a graduate student or has graduated within less than five years of the paper submission date. The award consists of a \$1,000 cash prize to the Young Investigator and \$1,000 Ocean Optics equipment credit to the laboratory where the work was performed.



SESSION 13

Room: 232 (Mezzanine) Mon. 1:20 to 3:10 pm

Synthesis of Quantum Dots

Session Chair: **Liberato Manna**, Univ. del Salento (Italy)

1:20 pm: **Biocompatible nanoparticles for molecular imaging** (*Invited Paper*), Horst Weller, Univ. Hamburg (Germany) [7909-52]

1:50 pm: **Indium phosphide-based core-shell quantum dots optimized for biological applications**, Allison M. Dennis, Andrea Steinbrueck, Jennifer A. Hollingsworth, Los Alamos National Lab. (USA) [7909-44]

2:10 pm: **Compact and highly stable quantum dots through optimized aqueous phase transfer** (*Invited Paper*), Peter Reiss, Sudarsan Tamang, Gregory Beaune, Isabelle F. Texier-Nogues, Commissariat à l'Énergie Atomique (France) [7909-41]

2:40 pm: **Microwaves and nanoparticles: from synthesis to imaging** (*Invited Paper*), Kenith E. Meissner, Texas A&M Univ. (USA); R. Majithiaa, Texas A&M Univ.; R. A. Brown, Swansea Univ.; Lihong V. Wang, Washington Univ. in St. Louis (USA); T. G. Maffei, Swansea Univ. [7909-55]

DISCUSSION Mon. 3:10 to 3:25 pm

POSTERS-Monday

Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm

Conference attendees are invited to attend the BIOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Differential distribution of dopamine functionalized quantum rods in mouse, A. Guardascione, Istituto di Cibernetica CNR (Italy); A. Ragusa, National Nanotechnology Lab. CNR (Italy); M. Rimoli, R. Russo, Univ. Federico II (Italy); Claudia Tortiglione, Angela Tino, Istituto di Cibernetica CNR (Italy) [7909-43]

Interactions between iron oxide nanoparticles and human lymphoblastoid cells studied by flow cytometry, M. Safi, Univ. Paris 7-Denis Diderot (France); V. Garnier-Thibaud, Univ. Pierre et Marie Curie (France); A. Galimard, M. Seigneuret, H. Conjeaud, J.-F. Berret, Univ. Paris 7-Denis Diderot (France) [7909-50]

Tuesday 25 January

**Nano/Biophotonics
Program Track Plenary Session**

Room: 306 (Esplande) Tues. 1:30 to 3:00 pm

Optical biosensors and a perspective on the future
Dr. Frances S. Ligler, Center for Bio/Molecular Science & Engineering, Naval Research Lab.

Nanostructures for biological investigations
Prof. Harold G. Craighead, School of Applied & Engineering Physics, Cornell Univ.

See page 17 for details.



Reporters, Markers, Dyes, Nanoparticles, and Molecular Probes for Biomedical Applications

Conference Chairs: **Samuel Achilefu**, Washington Univ. in St. Louis; **Ramesh Raghavachari**, U.S. Food and Drug Administration

Program Committee: **Bohumil Bednar**, Merck & Co., Inc.; **Mikhail Berezin**, Washington Univ. in St. Louis; **Richard B. Dorshow**, Covidien; **Yueqing Gu**, China Pharmaceutical Univ. (China); **Hisataka Kobayashi**, National Institutes of Health; **D. Michael Olive**, LI-COR Biosciences; **Gabor Patonay**, Georgia State Univ.; **Attila Tarnok**, Univ. Leipzig (Germany); **Yasuteru Urano**, The Univ. of Tokyo (Japan)

Monday 24 January

SESSION 1

Room: 306 (Esplanade) Mon. 8:00 to 10:10 am

The Power of Imaging

Session Chair: **Samuel Achilefu**, Washington Univ. in St. Louis

8:00 am: **Keynote Presentation: Imaging enabled platforms for development of therapeutics** (*Invited Paper*), Tayyaba Hasan, Bryan Q. Spring, Prakash R. Rai, Adnan O. Abu-Yousif, Zhiming Mai, Srivalleesha Mallidi, Massachusetts General Hospital (USA); Kimberley S. Samkoe, Brian W. Pogue, Dartmouth College (USA) [7910-01]

8:30 am: **Molecular imaging of cancer with activatable fluorescence probes: rational design, synthesis, and in-vivo applications** (*Invited Paper, Presentation Only*), Hisataka Kobayashi, National Institutes of Health (USA) [7910-02]

8:50 am: **Magnetomotive molecular probes for targeted contrast enhancement and therapy** (*Invited Paper*), Stephen A. Boppart M.D., Univ. of Illinois at Urbana-Champaign (USA) [7910-03]

9:10 am: **Targeted multifunctional multimodal protein-shell microspheres for cancer imaging and drug delivery**, Renu John, Adeel Ahmad, Freddy T. Nguyen, Eric J. Chaney, Kenneth S. Suslick, Stephen A. Boppart M.D., Univ. of Illinois at Urbana-Champaign (USA) [7910-04]

9:30 am: **New materials for imaging bacteria**, Niren Murthy, Georgia Tech Research Institute (USA) [7910-05]

9:50 am: **Optimizing tumor imaging by bioconjugated QDs via Kupffer cell inactivation**, Sunil Krishnan M.D., Parmeswaran Diagaradjane, The Univ. of Texas M.D. Anderson Cancer Ctr. (USA) [7910-06]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 306 (Esplanade) Mon. 10:40 am to 12:00 pm

Imaging - Photodynamic and Photothermal Therapy

Session Chair: **Yueqing Gu**, China Pharmaceutical Univ. (China)

10:40 am: **Target cell specific antibody based photosensitizers for photodynamic therapy**, Lauren T. Rosenblum, Makoto Mitsunaga, Peter L. Choyke, Hisataka Kobayashi, National Institutes of Health (USA) [7910-07]

11:00 am: **Gold nanorods in photodynamic therapy as hyperthermia agents, and in near-infrared optical imaging**, Wen-Shuo Kuo, Chieh-Neng Chang, Yi-Ting Chang, National Cheng Kung Univ. (Taiwan); Meng-Heng Yang, National Chung Hsing Univ. (Taiwan); Yi-Hsin Chien, Shean-Jen Chen, Chen-Sheng Yeh, National Cheng Kung Univ. (Taiwan) [7910-08]

11:20 am: **Halogenated porphyrins as PDT sensitizers, something more than the heavy atom effect?**, Antonio A. Rocha Gonsalves, Arménio C. Serra, Marta Pineiro, Mafalda Laranjo, Ana M. Abrantes, Cristina Gonçalves, Bárbara Oliveiros, Ana Bela Sarmento, Maria Filomena Botelho, Univ. de Coimbra (Portugal) [7910-09]

11:40 am: **A minimally invasive multifunctional nanoscale system for selective targeting, imaging, and NIR photothermal therapy of malignant tumors**, Hadiyeh-Nicole Green, Dmitri V. Martyshev, Eben L. Rosenthal, Sergey B. Mirov, The Univ. of Alabama at Birmingham (USA) [7910-10]

Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 3

Room: 306 (Esplanade) Mon. 1:30 to 2:50 pm

Fluorescent Probes for Imaging

Session Chair: **Hisataka Kobayashi**, National Institutes of Health

1:30 pm: **Modeling structure and spectra of the kindling fluorescent protein asFP595**, Jack Collins, Igor Topol, SAIC-Frederick, Inc. (USA); Alexander P. Savitsky, A.N. Bach Institute of Biochemistry (Russian Federation); Alexander V. Nemukhin, Lomonosov Moscow State Univ. (Russian Federation) . . . [7910-11]

1:50 pm: **Compact intraoperative fluorescence imaging device for imaging tumor margins and mapping sentinel lymph nodes**, Yang Liu, Adam Q. Bauer, Walter J. Akers, Gail Sudlow, Kexian Liang, Duanwen Shen, Mikhail Berezin, Joseph P. Culver, Samuel Achilefu, Washington Univ. in St. Louis (USA) [7910-66]

2:10 pm: **Developing targeted fluorescent contrast agents for in-vivo micropathology guided resection of medulloblastoma**, Danni Wang, Stony Brook Univ. (USA); Frank V. Cochran, Henry Haeberle, Christopher H. Contag, Stanford Univ. School of Medicine (USA); Jonathan T. C. Liu, Stanford Univ. (USA) [7910-12]

2:30 pm: **Quadratic Stark effect tunes spectrum of fluorescent proteins**, Mikhail Drobizhev, Nikolay S. Makarov, Bret H. Davis, Aleksander K. Rebane, Thomas E. Hughes, Patrik R. Callis, Shane E. Tillo, Montana State Univ. (USA) [7910-13]

SESSION 4

Room: 306 (Esplanade) Mon. 2:30 to 5:40 pm

Nano Probes/Nano Shells/Nano Capsules

Session Chair: **Yasuteru Urano**, The Univ. of Tokyo (Japan)

2:30 pm: **Development of ultrasensitive Ca²⁺ indicators, yellowameleon nano**, Takeharu Nagai, Kazuki Horikawa, Hokkaido Univ. (Japan) . . . [7910-14]

2:50 pm: **Scaling law and sensitivity analysis of surface plasmon resonance in nanoshells and nanorods**, Jui-Teng Lin, National Taiwan Ocean Univ. (Taiwan) [7910-15]

Coffee Break 3:10 to 3:40 pm

3:40 pm: **Synthesis of gold nanoparticle-based beacon for measurement of STAT5b protein expression**, Jianpeng Xue, China Pharmaceutical Univ. (China); Zhiyu Qian, Nanjing Univ. of Aeronautics and Astronautics (China); Yueqing Gu, China Pharmaceutical Univ. (China) [7910-16]

4:00 pm: **Optical heating and sensing with plasmonic gold shell and phosphorescent core nanoparticle**, Sudheendra Lakshmana, Ian M. Kennedy, Univ. of California, Davis (USA) [7910-17]

4:20 pm: **Molecular specific silica-coated gold nanorods for enhanced photoacoustic imaging and image-guided photothermal therapy**, Yun-Sheng Chen, Carolyn L. Bayer, Kimberly A. Homan, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA) [7910-18]

4:40 pm: **Micro- to nanosized spherical aggregates through self-assembly approach for biosensing applications**, Mohammadreza Khorasaninejad, Simarjeet Saini, Univ. of Waterloo (Canada) [7910-19]

5:00 pm: **Silver nanoplates for enhanced photo-acoustic imaging and therapy of pancreatic cancer**, Kimberly A. Homan, Michael Souza, Ryan Truby, Yun-Sheng Chen, Geoffrey P. Luke, Stanislav Y. Emelianov, The Univ. of Texas at Austin (USA) [7910-20]

5:20 pm: **Multiphoton luminescence of gold nanorods upon excitation with wavelengths away from their absorption maxima**, Naveen K. Balla, Colin J. R. Sheppard, National Univ. of Singapore (Singapore); Peter T. C. So, Massachusetts Institute of Technology (USA) [7910-21]

POSTERS-Monday**Room: 103/104 (Exhibit Level) Mon. 5:30 to 7:00 pm**

Conference attendees are invited to attend the BiOS poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

A compression program for chemical, biological, and nanotechnologies, Bradley S. Tice, Advanced Human Design (USA) [7910-58]

Development and application of fluorescent, green-light activatable caged compounds, Nobuhiro Umeda, Yasuteru Urano, Tetsuo Nagano, The Univ. of Tokyo (Japan) [7910-59]

Gold nanocages as contrast agents for two-photon luminescence endomicroscopy, Yong-Ping Chen, Yuying Zhang, The Johns Hopkins Univ. (USA); Kyle L. Davis, North Carolina State Univ. (USA); Xingde Li, The Johns Hopkins Univ. (USA) [7910-60]

Tuesday 25 January**SESSION 5****Room: 306 (Esplanade) Tues. 8:00 to 10:30 am****Nano Probes/Nano Shells/Nano Capsules II***Session Chair: Mikhail Berezin, Washington Univ. in St. Louis*

8:00 am: **Single-cell imaging detection of nanobarcode nanoparticle biodistributions in tissues for nanomedicine** (*Invited Paper*), Trisha Eustaquio, James F. Leary, Purdue Univ. (USA) [7910-22]

8:30 am: **Gold nanoparticles for theranostic,** Marina A. Sirotkina, Vadim V. Elagin, Marina V. Shirmanova, Nizhny Novgorod State Medical Academy (Russian Federation); Pavel D. Agrba, Institute of Applied Physics (Russian Federation); Victor A. Nadochenko, N.N. Semenov Institute of Chemical Physics (Russian Federation); Elena V. Zagaynova, Nizhny Novgorod State Medical Academy (Russian Federation) [7910-23]

8:50 am: **Dual-modality Chitosan-coated magnetic nanoparticles as carrier of cisplatin and MRI contrast agent: an in-vitro study,** Yosefine Arum, Pukyong National Univ. (Korea, Republic of); Jeehyun Kim, Kyungpook National Univ. (Korea, Republic of); Youngjin Song, Junghwan Oh, Pukyong National Univ. (Korea, Republic of) [7910-24]

9:10 am: **Bioconjugated ICG-micellar nanocapsules as translational fluorescent agents for in-vivo optical molecular imaging,** Yong-Ping Chen, The Johns Hopkins Univ. (USA); Kyle L. Davis, North Carolina State Univ. (USA); Michelle Garner, Tulane Univ. (USA); Xingde Li, The Johns Hopkins Univ. (USA) [7910-25]

9:30 am: **Synthesis and characterization of CdHgTe/SiO₂ nanoparticles for in-vivo study of their dynamic distribution in mouse model,** Haiyan Chen, Sisi Cui, Yueqing Gu, China Pharmaceutical Univ. (China) [7910-26]

9:50 am: **Near-IR triggered release from polymeric nanoparticles,** Adah Almutairi, Univ. of California, San Diego (USA) [7910-48]

10:10 am: **Effect of nano-encapsulation on photophysical properties of ICG,** Sharad Gupta, Kumar Thenkondar, Hardik Mehta, Baharak Bahmani, Valentine Vullev, Bahman Anvari, Univ. of California, Riverside (USA) [7910-27]

Coffee Break 10:30 to 10:50 am

SESSION 6**Room: 306 (Esplanade) Tues. 10:50 am to 12:30 pm****Fluorescence and FRET***Session Chair: Ramesh Raghavachari, U.S. Food and Drug Administration*

10:50 am: **Keynote Presentation: Fluorescent molecular probes based on excited state prototropism** (*Invited Paper*), Ashok K. Mishra, Monalisa Mohapatra, Indian Institute of Technology Madras (India) [7910-28]

11:30 am: **FRET as a tool for the investigation of the fate of Lipidots® contrast agents in vivo,** Julien J. Gravier, Commissariat à l'Énergie Atomique (France); Lucie Sancey, Jean-Luc Coll, Institut Albert Bonniot (France); Françoise Vinet, Isabelle F. Texier-Nogues, Commissariat à l'Énergie Atomique (France) [7910-29]

11:50 am: **Quantum dot-fluorescent protein FRET pair for intracellular imaging of pH,** Allison M. Dennis, David Sotto, Gang Bao, Georgia Institute of Technology (USA) [7910-30]

12:10 pm: **Spatiotemporal transport of fluorescent markers in live cells,** Ru Wang, Shamira Sridharan, Lei Lei, Yingxiao Wang, Univ. of Illinois at Urbana-Champaign (USA); Alex Levine, Univ. of California, Los Angeles (USA); Gabriel Popescu, Univ. of Illinois at Urbana-Champaign (USA) [7910-31]

Lunch/Exhibition Break 12:30 to 1:30 pm

**Nano/Biophotonics
Program Track Plenary Session****Room: 306 (Esplanade) Tues. 1:30 to 3:00 pm**

Optical biosensors and a perspective on the future
Dr. Frances S. Ligler, Center for Bio/Molecular Science & Engineering, Naval Research Lab.

Nanostructures for biological investigations
Prof. Harold G. Craighead, School of Applied & Engineering Physics, Cornell Univ.

See page 17 for details.

Coffee Break 3:00 to 3:30 pm

SESSION 7**Room: 306 (Esplanade) Tues. 3:30 to 4:30 pm****NIR-Novel Probes***Session Chair: Richard B. Dorshow, Covidien*

3:30 pm: **Near-infrared dipyrin-based fluorogenic chelators for metal ions,** Sergei A. Vinogradov, Sujatha Thyagarajan, Univ. of Pennsylvania (USA); Brahma Ghosh, Anna V. Moore, Harvard Medical School (USA); Andrei V. Cheprakov, Lomonosov Moscow State Univ. (Russian Federation) . . . [7910-32]

3:50 pm: **Development of fluorescent tracers for the real-time monitoring of renal function,** Amruta R. Poreddy, Bethel Asmelash, Covidien (USA); Martin P. Debreczeny, MPD Consulting (USA); Rick M. Fitch, John N. Freskos, Karen P. Galen, Kimberly R. Gaston, James G. Kostelc, Rana Kumar, Timothy A. Marzan, Covidien (USA); William L. Neumann, Southern Illinois Univ. Edwardsville (USA); Raghavan Rajagopalan, Tasha M. Schoenstein, Jeng-Jong Shieh, James M. Wilcox, Jolette K. Wojdyla, Richard B. Dorshow, Covidien (USA) [7910-33]

4:10 pm: **Synthesis and characterization of indocyanine green embedded biodegradable-biocompatible polymeric (PLGA) nanoparticles for prostate cancer imaging,** Nimit L. Patel, Aniket Wadajkar, Ronak Patel, Kytai T. Nguyen, Hanli Liu, The Univ. of Texas at Arlington (USA) [7910-34]

SESSION 8

Room: 306 (Esplanade) Tues. 5:00 to 6:40 pm

Imaging with NIR Probes

Session Chair: **D. Michael Olive**, LI-COR Biosciences

5:00 pm: **Application of near-infrared fluorescence imaging to monitor changes in HER2 expression after therapeutic intervention**, Victor V. Chernomordik, Moinuddin Hassan, Rafal Zielinski, Amir H. Gandjbakhche, Jacek Capala, National Institutes of Health (USA) [7910-35]

5:20 pm: **Storable near-infrared chemiluminescent probes for in-vivo optical imaging**, Bradley D. Smith, Univ. of Notre Dame (USA) [7910-36]

5:40 pm: **Dye-biomolecule conjugates and NIR-fluorescent particles for targeting of disease-related biomarkers**, Jutta Pauli, Thomas Behnke, Robert Brehm, Markus Grabolle, Katrin Hoffmann, Christian Würth, Bundesanstalt für Materialforschung und -prüfung (Germany); Julia Mathejczyk, Frauke Alves, Max-Planck-Institut für experimentelle Medizin (Germany); Franziska Hamann, Ingrid Hilger, Univ. Hospital Jena (Germany); Ute Resch-Genger, Bundesanstalt für Materialforschung und -prüfung (Germany) [7910-37]

6:00 pm: **Novel design of multimodal NIR optical/MRI agents for in vivo imaging**, Kevin Guo, Mikhail Berezin, Jie Zheng, Walter J. Akers, Franck Lin, Samuel Achilefu, Washington Univ. in St. Louis (USA); Bao Teng, Amir H. Gandjbakhche, Gary L. Griffiths, National Institutes of Health (USA) . . [7910-38]

6:20 pm: **Functional imaging of tumor-associated lymphatics**, Sunkuk Kwon, Eva M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (USA) [7910-39]

Wednesday 26 January

Coffee Break 9:50 to 10:20 am

SESSION 9

Room: 306 (Esplanade) Wed. 8:00 to 9:40 am

Fluorescence and Bioassay

Session Chair: **Gabor Patony**, Georgia State Univ.

8:00 am: **A novel fluorescence lifetime bioassay for screening receptor internalization** (*Invited Paper*), Nic Cade, Gilbert O. Fruhwirth, King's College London (United Kingdom); Steven J. Archibald, The Univ. of Hull (United Kingdom); Tony C. Ng, David R. Richards, King's College London (United Kingdom) [7910-40]

8:20 am: **Two-photon fluorescence vascular imaging with a new fluorene-RGD peptide conjugate**, Kevin D. Belfield, Alma R. Morales, Univ. of Central Florida (USA); Takeo Urakami, Junko Sawada, Sanford-Burnham Medical Research Institute (USA); Ciceron O. Yanez, Univ. of Central Florida (USA); Masanobu Komatsu, Sanford-Burnham Medical Research Institute (USA) [7910-41]

8:40 am: **Fluorescence lifetime imaging to quantify subcellular oxygen measurements in live macrophage during bacterial invasion**, Joe Dragavon, Megdouda Amiri, Spencer Shorte, Philippe Sansonetti, Institut Pasteur (France) [7910-42]

9:00 am: **Nanoparticle labeling of mesenchymal stem cells for in-vivo imaging and tracking**, Laura M. Ricles, Seung Yun Nam, The Univ. of Texas at Austin (USA); Konstantin V. Sokolov, The Univ. of Texas at Austin (USA) and The Univ. of Texas M.D. Anderson Cancer Ctr. (USA); Stanislav Emelianov, Laura J. Suggs, The Univ. of Texas at Austin (USA) [7910-43]

9:20 am: **Quantifying enzyme activity with MOMIA in combined DOT-PET imaging**, Ralph E. Nothdurft, Metasebya Solomon, Hyeran Lee, Yuan-Chuan Tai, Samuel Achilefu, Joseph P. Culver, Washington Univ. in St. Louis (USA) [7910-44]

Courses of Related Interest

SC309 Fluorescent Markers: Usage and Optical System Optimization (Levi) Sunday, 8:30 am to 12:30 pm

SC461 Bio-Optical Detection Systems (Levi) Sunday, 1:30 to 5:30 pm

SC463 Biophotonics (Prasad) Sunday, 9:00 am to 6:00 pm

SC1013 Choosing the Correct Optical Filter for Your Application (Reichel) Tuesday, 8:30 am to 12:30 pm

See course materials desk located in the SPIE Registration Area.

SESSION 10

Room: 306 (Esplanade) Wed. 10:20 to 11:40 am

Nano Going NIR

Session Chair: **Mikhail Berezin**, Washington Univ. in St. Louis

10:20 am: **Uptake of PEGylated indocyanine green loaded nanocapsules by cells of reticuloendothelial system**, Baharak Bahmani, Sharad Gupta, Valentine Vullev, Bahman Anvari, Univ. of California, Riverside (USA) . [7910-45]

10:40 am: **Biodegradable NIR gold nanoclusters: photo-acoustic imaging and in-vivo clearance**, Justina O. Tam, Avinash Murthy, Soon Joon Yoon, Stanislav Emelianov, Keith P. Johnston, The Univ. of Texas at Austin (USA); Konstantin V. Sokolov, The Univ. of Texas M.D. Anderson Cancer Ctr. (USA) [7910-46]

11:00 am: **Fabrication, bioconjugation and optical stability of silanized gold nanorods as multifunctional transducers of near-infrared light**, Fulvio Ratto, Paolo Matteini, Istituto di Fisica Applicata Nello Carrara (Italy); Sonia Centi, Univ. degli Studi di Firenze (Italy); Francesca Rossi, Istituto di Fisica Applicata Nello Carrara (Italy); Franco Fusi, Univ. degli Studi di Firenze (Italy); Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy) [7910-47]

11:20 am: **Fluorescence imaging reveals expedited tumor accumulation, intracellular delivery, and enhanced potency of bevacizumab encapsulated in a multifunctional nanoconstruct for combined cytotoxic and anti-VEGF therapy of pancreatic cancer**, Bryan Q. Spring, Prakash R. Rai, Zhiming Mai, Sung K. Chang, Tayyaba Hasan, Massachusetts General Hospital (USA) [7910-49]

Lunch/Exhibition Break 11:40 pm to 1:30 am

SESSION 11

Room: 306 (Esplanade) Wed. 1:30 to 2:30 pm

Nano Probes/Nano Plates/Nano Shells/Nano Rods

Session Chair: **Ramesh Raghavachari**, U.S. Food and Drug Administration

1:30 pm: **Protein nanospheres: synergistic nanoplateform-based probes for multimodality imaging**, Michael A. McDonald, National Institute of Standards and Technology (USA) [7910-50]

1:50 pm: **Gold nanorods for applications in biological imaging**, Yu Chen, Yinan Zhang, David J. S. Birch, Univ. of Strathclyde (United Kingdom) [7910-51]

2:10 pm: **Design of graphene nanoparticle undergoing axial compression: quantum study**, Olga E. Glukhova, Anna S. Kolesnikova, Michel M. Slepchenkov, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [7910-52]

SESSION 12

Room: 306 (Esplanade) Wed. 1:30 to 3:40 pm

Fluorescence Imaging and Microscopy

Session Chair: **Attila Tarnok**, Univ. Leipzig (Germany)

1:30 pm: **Targeting split-enzyme reporter fragments to achieve chemical resolution for molecular imaging**, Ann-Marie Broome, Gopal Ramamurthy, Kari Lavik, Luther A. Liggett, James P. Basiilion, Case Western Reserve Univ. (USA) [7910-53]

1:50 pm: **Quantitative in-vivo lifetime imaging using a time-domain platform with a supercontinuum tunable laser for extended spectral coverage**, Nicolae Mincu, Dao Chao Huang, Marilyse Piche, Guobin Ma, Advanced Research Technologies Inc. (Canada) [7910-54]

2:10 pm: **Herzberg-Teller vibronic contribution to mesomeric dipole moment determines two-photon absorptivity of fluorescent proteins**, Mikhail Drobizhev, Nikolay S. Makarov, Montana State Univ. (USA); Shane E. Tillo, Oregon Health & Science Univ. (USA); Thomas E. Hughes, Aleksander K. Rebane, Montana State Univ. (USA) [7910-55]

Coffee Break 2:30 to 3:00 pm

3:00 pm: **Novel harmonophores for third-harmonic generation microscopy**, Danielle B. Tokarz, Adam E. Tuer, Richard Cisek, Virginijus Barzda, Univ. of Toronto Mississauga (Canada) [7910-56]

3:20 pm: **STED Superresolution Microscopy in Drosophila Tissue**, Lana Lau, Maja Matis, Jeff Axelrod, William E. Moerner, Stanford Univ. (USA) . . [7910-57]

Plasmonics in Biology and Medicine VIII

Conference Chairs: Tuan Vo-Dinh, Duke Univ.; Joseph R. Lakowicz, Univ. of Maryland School of Medicine

Sunday 23 January

SESSION 1

Room: 206 (Mezzanine)..... Sun. 8:00 to 10:20 am

Surface Enhanced Raman Scattering

Session Chair: Tuan Vo-Dinh, Duke Univ.

8:00 am: **Manipulation of Silver Nanoparticles in a droplet for label-free detection of biological molecules using surface-enhanced Raman scattering**, Mustafa Culha, Yeditepe Univ. (Turkey); Mine Altunbek, Yeditepe University (Turkey); Sercan Keskin, Asli D. Saatci, Yeditepe Univ. (Turkey) [7911-01]

8:20 am: **Numerical optimization of periodic nanofocusing arrays for the plasmonic Raman sensor**, Kenzo Yamaguchi, Toyohashi Univ. of Technology (Japan); Masamitsu Fujii, Toba National College of Maritime Technology (Japan); Dmitri K. Gramotnev, Nanophotonics Pty Ltd. (Australia); Mitsuo Fukuda, Toyohashi Univ. of Technology (Japan) [7911-02]

8:40 am: **Tip-enhanced Raman spectroscopy: nanoscale resolution combined with single-molecule sensitivity**, Volker Deckert, Institut für Photonische Technologien e.V. (Germany) [7911-06]

9:00 am: **Paper-based optofluidic SERS using ink-jet-printed substrates**, Wei W. Yu, Ian M. White, Univ. of Maryland, College Park (USA)..... [7911-04]

9:20 am: **Selective analyte adsorption on mixed-metal SERS substrates**, Philip A. Munoz, Paul Peng, Roberto Olivares-Amaya, Alán Aspuru-Guzik, Harvard Univ. (USA) [7911-07]

9:40 am: **Antibiotic sensitivity testing of bacteria using gold nanoparticles and SERS**, Evdokia Kastanos, Univ. of Nicosia (Cyprus); Katerina Hadji Georgiou, Alexandros Kyriakides, Constantinos Pitriss, Univ. of Cyprus (Cyprus) . [7911-03]

10:00 am: **Portable surface-enhanced Raman spectroscopy for insecticide detection using silver nanorod film fabricated by magnetron sputtering**, Krongkamol Wong-ek, Pitak Eiamchai, Mati Horprathum, Puenisara Limonthakul, Viyapol Patthanasettakul, Pongpan Chindaudom, Noppadon Nuntawong, National Electronics and Computer Technology Ctr. (Thailand)..... [7911-05]

Coffee Break 10:20 to 10:50 am

SESSION 2

Room: 206 (Mezzanine)..... Sun. 10:50 am to 12:10 pm

Surface Plasmon Resonance and Sensing I

Session Chair: Laura M. Lechuga, Ctr. d'Investigacions en Nanociència i Nanotecnologia (Spain)

10:50 am: **Analysis of chip-based biosensor using surface plasmon resonance in nanoslit arrays**, Jui-Teng Lin, National Taiwan Univ. (Taiwan) [7911-08]

11:10 am: **Strategies to maximize the performance of refractometric nanoplasmonic biosensors**, Borja Sepúlveda, Marinus A. Otte, Mari Carmen Estévez, Laura García Carrascosa, Laura M. Lechuga, Ctr. d'Investigacions en Nanociència i Nanotecnologia (Spain) [7911-09]

11:30 am: **Enhanced SPR sensing based on micropatterned thin films**, Ludovic S. Live, Jean-François Masson, Julien Breault-Turcot, Kim-Ly Nguyen, Univ. de Montréal (Canada)..... [7911-10]

11:50 am: **Surface plasmon resonance biosensing via differential spectral phase interferometry**, Siu Pang Ng, Lawrence Wu, City Univ. of Hong Kong (Hong Kong, China); Shu-Yuen Wu, Ho-Pui A. Ho, Siu-Kai Kong, The Chinese Univ. of Hong Kong (Hong Kong, China)..... [7911-11]

Lunch/Exhibition Break 12:10 to 1:40 pm

SESSION 3

Room: 206 (Mezzanine)..... Sun. 1:40 to 3:00 pm

Surface Plasmon Resonance and Sensing II

Session Chair: Michael T. Canva, Lab. Charles Fabry (France)

1:40 pm: **Design, manufacture, and testing of Bragg grating embedded trapezoidal SPP waveguide sensor**, Michelle Xu, Stewart Aitchison, Univ. of Toronto (Canada)..... [7911-12]

2:00 pm: **Aptamer-based localized surface plasmon resonance sensor for monitoring glycosylated proteins**, Rui Zheng, Brent D. Cameron, The Univ. of Toledo (USA) [7911-13]

2:20 pm: **Development of a molecularly imprinted polymer-based surface plasmon resonance sensor for theophylline monitoring**, Rui Zheng, Brent D. Cameron, The Univ. of Toledo (USA) [7911-14]

2:40 pm: **Optical-fiber based localized surface plasmon resonance biochemical sensor**, Yongbin Lin, Yang Zou, Yuanyao Mo, Jun Namkung, Junpeng Guo, Robert G. Lindquist, The Univ. of Alabama in Huntsville (USA) [7911-15]

Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 206 (Mezzanine)..... Sun. 3:30 to 5:30 pm

Applications of Plasmonics I

Session Chair: Volker Deckert, Institut für Photonische Technologien e.V. (Germany)

3:30 pm: **Surface plasmon-induced photothermal effect and image contrast enhancement of Au nanorings**, Hung-Yu Tseng, Cheng-Kuang Lee, Shou-Yen Wu, Ting-Ta Chi, Kai-Min Yang, Jyh-Yang Wang, National Taiwan Univ. (Taiwan); Meng-Tsan Tsai, Chang Gung Univ. (Taiwan); Yean-Woei Kiang, Chih-Chung Yang, National Taiwan Univ. (Taiwan)..... [7911-16]

3:50 pm: **Plasmon-enhanced ultrafast laser cell transfection**, Eric D. Diebold, Harvard Univ. (USA); Andrew Koh, Stanford Univ. School of Medicine (USA); Paul Peng, Valeria Nuzzo, Harvard Univ. (USA); Alexander Heisterkamp, Laser Zentrum Hannover e.V. (Germany); Eric Mazur, Harvard Univ. (USA) . [7911-17]

4:10 pm: **Study of 3D rotational diffusion of plasmon-resonant gold nanorods using optical coherence tomography**, Raghav K. Chhetri, The Univ. of North Carolina at Chapel Hill (USA); Krystian A. Kozek, Joseph B. Tracy, North Carolina State Univ. (USA); Amy L. Oldenburg, The Univ. of North Carolina at Chapel Hill (USA)..... [7911-18]

4:30 pm: **Plasmonic manipulations of biomolecular targets using single-femtosecond pulses**, Gili Bisker, Limor Minai, Dvir Yelin, Technion-Israel Institute of Technology (Israel) [7911-19]

4:50 pm: **Damaging cancer cells using gold nanoparticles and femtosecond pulses**, Limor Minai, Lior Golan, Gili Bisker, Dvir Yelin, Technion-Israel Institute of Technology (Israel) [7911-20]

5:10 pm: **Coupled gold nanorod structures: polarization dependent behavior and their use as contrast agents**, Kalpesh B. Mehta, Nanguang Chen, National Univ. of Singapore (Singapore)..... [7911-21]

BIOS

POSTERS-Sunday

Room: 103/104 (Exhibit Level) Sun. 5:30 to 7:00 pm

Conference attendees are invited to attend the BiOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Angle-resolved surface-enhanced Raman scattering (SERS) for rationally designing two-dimensional hole arrays as high-performing SERS substrates, Chung-Yu Chan, Jian-Bin Xu, Miu-Yee Waye, Hock-Chun Ong, The Chinese Univ. of Hong Kong (Hong Kong, China) [7911-42]

Fabrication of photonic force device for biomolecule dynamics, Seong Soo Choi, Sun Moon Univ. (Korea, Republic of); Myoung Jin Park, Korea Military Academy (Korea, Republic of); Nam Kyoo Park, Dai Sik Kim, Seoul National Univ. (Korea, Republic of); Seung Min Park, Luke P. Lee, Soon Gweon Hong, Univ. of California, Berkeley (USA) [7911-43]

High-resolution fluorescence excitation profile generated by surface plasmon standing waves induced via focused optical vortices, Piau Siang Tan, Nanyang Technological Univ. (Singapore); Xiaocong Yuan, Nankai Univ. (China) [7911-44]

Combined near-infrared photothermolysis and photodynamic therapy by association of gold nanoparticles and an organic dye, Fulvio Ratto, Istituto di Fisica Applicata Nello Carrara (Italy); Elena S. Tuchina, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Sonia Centi, Univ. degli Studi di Firenze (Italy); Boris N. Khlebtsov, Institute of Biochemistry and Physiology of Plants and Microorganisms (Russian Federation); Paolo Matteini, Francesca Rossi, Istituto di Fisica Applicata Nello Carrara (Italy); Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Franco Fusi, Univ. degli Studi di Firenze (Italy); Nikolai G. Khlebtsov, Institute of Biochemistry and Physiology of Plants and Microorganisms (Russian Federation); Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy) [7911-46]

Functional nanoscale instrumentation for imaging and monitoring of biological systems, Kyungmin Lee, Arup Neogi, Tae-Youl Choi, Univ. of North Texas (USA); Bong-Soo Kim, KAIST (Korea, Republic of); Rafal Luchowski, Zygmunt K. Gryczynski, Univ. of North Texas Health Science Ctr. at Fort Worth (USA); Nils Calander, Macquarie Univ. (Australia) [7911-48]

The shape- and polarization-dependent optical enhancement effect in periodic metal nanostructure arrays for surface-enhanced Raman scattering, Hsing-Ying Lin, Chen-Han Huang, National Cheng Kung Univ. (Taiwan) [7911-49]

Active surface-enhanced Raman scattering substrates based on the photoreduction mechanism of silver nanoparticles fabricated by femtosecond laser direct writing, Hsing-Ying Lin, Chen-Han Huang, National Cheng Kung Univ. (Taiwan) [7911-50]

Surface-enhanced Raman scattering from uniform large-area gold and silver nanoparticle cluster array substrates, Chen-Han Huang, Hsing-Ying Lin, National Cheng Kung Univ. (Taiwan) [7911-51]

Biological sensing with surface-enhanced Raman spectroscopy (SERS) using a facile and rapid silver colloid synthesis technique, Ciarán Smyth, Jing Jing Wang, Yury P. Rakovich, Eithne M. McCabe, Trinity College Dublin (Ireland) [7911-52]

EBL designed silver nanocylinders used as label free nanobiosensors based on LSPR, Neval A. Cinel, Ekmel Ozbay, Serkan Butun, Bilkent Univ. (Turkey) [7911-53]

Monday 24 January

SESSION 5

Room: 206 (Mezzanine) Mon. 8:00 to 9:40 am

Applications of Plasmonics II

Session Chair: Joseph R. Lakowicz, Univ. of Maryland School of Medicine

8:00 am: **Hybrid gold nanorods/polysaccharides composites as new materials for photothermal applications**, Paolo Matteini, Fulvio Ratto, Istituto di Fisica Applicata Nello Carrara (Italy); Giuliano Giambastiani, Lapo Luconi, Consiglio Nazionale delle Ricerche (Italy); Luigi Dei, Univ. degli Studi di Firenze (Italy); Francesca Rossi, Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy) [7911-22]

8:20 am: **Tracking of gold nanoparticles exhibiting enhanced Raman scattering in a living cell**, Jun Ando, Katsumasa Fujita, Nicholas I. Smith, Satoshi Kawata, Osaka Univ. (Japan) [7911-23]

8:40 am: **Photothermally activated drug release from temperature-sensitive liposomes coupled to hollow gold nanoshells**, Natalie Forbes, Joseph A. Zasadzinski, Univ. of California, Santa Barbara (USA) [7911-24]

9:00 am: **Smart gold nanoparticle conjugates for combined photothermal and chemotherapy of cancer cells**, Juttaek Nam, Sungwook Jung, Sungjee Kim, Pohang Univ. of Science and Technology (Korea, Republic of) [7911-25]

9:20 am: **Single-fullerene manipulation inside carbon nanotube**, Olga E. Glukhova, Anna S. Kolesnikova, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [7911-26]

SESSION 6

Room: 206 (Mezzanine) Mon. 9:40 to 11:50 am

Fluorescence, Plasmonics, and Imaging

Session Chair: Joseph R. Lakowicz, Univ. of Maryland School of Medicine

9:40 am: **Hyperspectral molecular imaging of multiple receptors using immunolabeled plasmonic nanoparticles**, Matthew J. Crow, Kevin C. Seekell, Adam P. Wax, Duke Univ. (USA) [7911-07]

10:00 am: **Ultra-sensitive plasmonic nanosensors for biochemical detection**, Jérôme Martin, Julien Proust, Jean-Louis Bijeon, Jérôme Plain, Pascal Royer, Univ. de Technologie Troyes (France) [7911-28]

Coffee Break 10:20 to 10:50 am

10:50 am: **Bioconjugated polymer-coated gold nanorods/ICG for simultaneous active targeting, NIR molecular imaging, and phototherapy**, Yong-Ping Chen, The Johns Hopkins Univ. (USA); Kyle L. Davis, North Carolina State Univ. (USA); Jiasong Li, Xingde Li, The Johns Hopkins Univ. (USA) [7911-29]

11:10 am: **Hybrid nanohole biosensors: subwavelength nanofluidics through plasmonic nanoholes for enhanced label free sensing**, Ahmet A. Yanik, Min Huang, Alp Artar, Boston Univ. (USA); Tsung-Yao Chang, Massachusetts Institute of Technology (USA); Hatice Altug, Boston Univ. (USA) [7911-30]

11:30 am: **Plasmonic and two-photon luminescence of star-like gold nanoparticles used in cervical cancer detection**, Saul Ruiz, Tzarara Lopez-Luke, Ctr. de Investigaciones en Óptica, A.C. (Mexico); Ana Lilia Gonzalez, Univ. de Guanajuato (Mexico); Roxana Cerbantez, Ctr. de Investigaciones en Óptica, A.C. (Mexico); Pedro Salas, Univ. Nacional Autónoma de México (Mexico); Elder De La Rosa, Ctr. de Investigaciones en Óptica, A.C. (Mexico) [7911-31]

Lunch/Exhibition Break 11:50 pm to 1:10 am

Courses of Related Interest

- SC727 Nanoplasmonics (Stockman) Wednesday, 8:30 am to 5:30 pm
- SC1013 Choosing the Correct Optical Filter for Your Application (Reichel) Tuesday, 8:30 am to 12:30 pm

See course materials desk located in the SPIE Registration Area.

SESSION 7

Room: 206 (Mezzanine) Mon. 1:10 to 3:10 pm

Imaging and Plasmonics

Session Chair: **Jean-François Masson**, Univ. de Montréal (Canada)

1:10 pm: **Surface-wave-enabled dark field aperture: a method for suppressing background during weak signal detection**, Guoan Zheng, Xiquan Cui, Changhui Yang, California Institute of Technology (USA) [7911-32]

1:30 pm: **Triply surface-plasmon resonant four-wave mixing imaging of gold nanoparticles**, Francesco Masia, Wolfgang Langbein, Peter Watson, Paola Borri, Cardiff Univ. (United Kingdom) [7911-33]

1:50 pm: **Advances in surface plasmon resonance imaging for parallelized detection of biomarkers**, Marek Piliarik, Marketa Bockova, Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [7911-34]

2:10 pm: **Silver plasmon rulers as probes in polarization-resolved plasmon coupling microscopy**, Bjoern M. Reinhard, Boston Univ. (USA). [7911-35]

2:30 pm: **Hyperspectral imaging of surface plasmon resonance effects induced by uncollimated semiconductor radiation**, Dominic Lepage, Jan J. Dubowski, Univ. de Sherbrooke (Canada) [7911-36]

2:50 pm: **Development and modeling of surface plasmon resonance imaging (SPRI) biosensor chips based on gold nano- and microstructures**, Anuj Dhawan, Duke Univ. (USA); Aurélien Duval, Mohamed Nakkach, Institut d'Optique Graduate School (France); Grégory Barbillon, Univ. de Technologie Troyes (France); Julien Moreau, Lab. Charles Fabry (France); Hsin-Neng Wang, Duke Univ. (USA); Michael T. Canva, Lab. Charles Fabry (France); Tuan Vo-Dinh, Duke Univ. (USA) [7911-55]

Coffee Break 3:30 to 4:00 pm

SESSION 8

Room: 206 (Mezzanine) Mon. 4:00 to 6:00 pm

Plasmonics, Structures, and Photophysics

Session Chair: **Jiri Homola**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)

4:00 pm: **Wafer-scale plasmonic substrates for SERS sensing of chemical and biological molecules**, Anuj Dhawan, Hsin-Neng Wang, Tuan Vo-Dinh, Duke Univ. (USA) [7911-56]

4:20 pm: **Novel monolayer and bilayer shell aggregate gold nanostructures**, Myria Angelidou, Constantinos Pitris, Univ. of Cyprus (Cyprus). [7911-37]

4:40 pm: **A combined T-matrix and polar decomposition study on polarization characteristics of metal nanoparticles in the surface plasmon band**, Nirmalya Ghosh, Ayan Banerjee, Nitin Kaushal, Indian Institute of Science Education and Research (India) [7911-38]

5:00 pm: **Optical properties of silver bowtie nanoantenna arrays fabricated using plasma-assisted nanosphere lithography**, Shih-Ming Wang, Yun-Chong Chang, Shih-Hui Chang, National Cheng Kung Univ. (Taiwan) [7911-39]

5:20 pm: **Experimental analysis of optical resonance transmission properties of subwavelength hole arrays in optically thick metal films**, Mohamadreza Najiminaini, Fartash Vasefi, Bozena Kaminska, Simon Fraser Univ. (Canada); Jeffrey J. L. Carson, Lawson Health Research Institute (Canada) [7911-40]

5:40 pm: **Effect of adhesion layer on optical resonance transmission properties of nanohole arrays in an optically thick gold film**, Mohamadreza Najiminaini, Fartash Vasefi, Bozena Kaminska, Simon Fraser Univ. (Canada); Jeffrey J. L. Carson, Lawson Health Research Institute (Canada) [7911-41]

Tuesday 25 January

Nano/Biophotonics Program Track Plenary Session

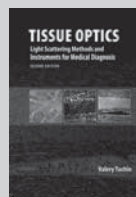
Room: 306 (Esplande) Tues. 1:30 to 3:00 pm

Optical biosensors and a perspective on the future
Dr. Frances S. Ligler, Center for Bio/Molecular Science & Engineering, Naval Research Lab.

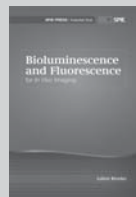
Nanostructures for biological investigations
Prof. Harold G. Craighead, School of Applied & Engineering Physics, Cornell Univ.



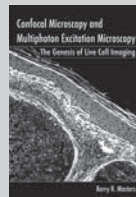
Optical Design for Biomedical Imaging
by Rongguang Liang
Vol. PM203



Tissue Optics: Light Scattering Methods and Instruments for Medical Diagnosis, Second Edition
by Valery Tuchin
Vol. PM166



Bioluminescence and Fluorescence for In Vivo Imaging
by Lubov Brovko
Vol. TT91



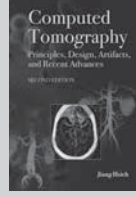
Confocal Microscopy and Multiphoton Excitation Microscopy: The Genesis of Live Cell Imaging
by Barry R. Masters
Vol. PM161



Field Guide to Microscopy
by Tomasz S. Tkaczyk
Vol. FG13



Light Propagation through Biological Tissue and Other Diffusive Media: Theory, Solutions, and Software
by Fabrizio Martelli, Samuele Del Bianco, Andrea Ismaelli, and Giovanni Zaccanti • Vol. PM193



Computed Tomography: Principles, Design, Artifacts, and Recent Advances, Second Edition
by Jiang Hsieh
Vol. PM188

spie.org/publications

Journals

spie.org/journals

SPIE 
Digital Library
SPIDigitalLibrary.org

Shared Knowledge. Shared Research.

SPIE Journals publish papers in all areas of applied light-based research. Their cutting-edge content provides researchers with timely coverage of emerging topics and new technologies in optics and photonics applications.

Optical Engineering

Ronald G. Driggers, Editor

Journal of Electronic Imaging

Jan P. Allebach, Editor

Journal of Biomedical Optics

Lihong V. Wang, Editor

Journal of Micro/Nanolithography, MEMS, and MOEMS

Burn J. Lin, Editor

Journal of Applied Remote Sensing

Wei Gao, Editor

Journal of Nanophotonics

Akhlesh Lakhtakia, Editor

SPIE *Open Access* Reviews

an open access review journal
William T. Rhodes, Editor

SPIE *Open Access* Letters

Journal of Photonics for Energy

Zakya H. Kafafi, Editor

**NEW—Free
access in 2011**

Photonics for Energy is an online journal of papers focusing on research and development of sustainable energy sources, energy-efficient technologies, and applications for the environment using optics and photonics.

journals@spie.org | Tel: +1 360 676 3290



Journals

Symposium Chairs



Friedhelm Dorsch
 TRUMPF GmbH &
 Co. KG (Germany)



Alberto Piqué
 U.S. Naval Research
 Lab. (USA)

Symposium Cochairs



Donald J. Harter
 IMRA America, Inc.
 (USA)



Peter R. Herman
 Univ. of Toronto
 (Canada)

Laser Source Engineering

Program Chair: **Gregory J. Quarles**,
 BE Meyers & Co. Inc. (USA)

7912	Room 120/ 131/133	Solid State Lasers XX: Technology and Devices (Clarkson/Hodgson/Shori)	168
7913	Room 114	Laser Resonators and Beam Control XIII (Kudryashov/Paxton/Ilichenko)	173
7914	Room 131	Fiber Lasers VIII: Technology, Systems, and Applications (Dawson)	176
7915	Room 111	High Energy/Average Power Lasers and Intense Beam Applications VI (Davis/Heaven/Schriempf)	182
7916	Room 114	High Power Lasers for Fusion Research (Awwal/Dunne/Azechi/Kruschwitz)	183

Nonlinear Optics

7917	Room 113/ 133	Nonlinear Frequency Generation and Conversion: Materials, Devices, and Applications X (Vodopyanov)	185
7935	Room 234	Organic Photonic Materials and Devices XIII (Nelson/Kajzar/Kaino/Koike)	239
7937	Room 236	Ultrafast Phenomena in Semiconductors and Nanostructure Materials XV (Tsen/Song)	243

Semiconductor Lasers and LEDs

Program Chair: **Klaus P. Streubel**, OSRAM GmbH (Germany)

7918	Room 130	High-Power Diode Laser Technology and Applications IX (Zediker)	189
7919	Room 111	Vertical External Cavity Surface Emitting Lasers (VECSELs) (Keller)	191
7933	Room 302	Physics and Simulation of Optoelectronic Devices XIX (Witzigmann/Henneberger/Arakawa/Freundlich)	232
7939	Room 300	Gallium Nitride Materials and Devices VI (Chyi/Nanishi/Morkoç)	248
7952	Room 308	Vertical-Cavity Surface-Emitting Lasers XV (Guenter/Lei)	289
7953	Room 310	Novel In-Plane Semiconductor Lasers X (Belyanin/Smowton)	291
7954	Room 304	Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XV (Streubel/Jeon/Tu)	295

Laser Micro-/Nanoengineering

Program Chairs: **Henry Helvajian**, The Aerospace Corp. (USA);
James S. Horwitz, U.S. Dept. of Energy (USA)

7920	Room 122/ 111	Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM)XVI (Gu/Hennig/Xu/Niino)	193
7921	Room 111	Laser-based Micro- and Nanopackaging and Assembly V (Pflieger/Lu/Washio)	196
7922	Room 113	Synthesis and Photonics of Nanoscale Materials VIII (Dubowski/Geohegan/Träger)	198
7926	Room 110	Micromachining and Microfabrication Process Technology XVI (Maher/Chiao/Resnick)	210
7927	Room 110	Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV (Schoenfeld/Wang/Loncar/Suleski)	212
7928	Room 252/ 254/125	Reliability, Packaging, Testing, and Characterization of MEMS/MOEMS and Nanodevices X (Garcia-Blanco/Ramesham)	215

Laser Applications

7923	Room 121	Free-Space Laser Communication Technologies XXIII (Hemmati)	200
7924	Room 121	Atmospheric and Oceanic Propagation of Electromagnetic Waves V (Korotkova)	202
7920	Room 122/ 111	Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM)XVI (Gu/Hennig/Xu/Niino)	193
7925	Room 121/ 122	Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XI (Heisterkamp/Neev/Nolte)	204
7950	Room 125	Complex Light and Optical Forces V (Andrews)	286
7951	Room 112	Laser Refrigeration of Solids IV (Epstein/Sheik-Bahae)	288

SPIE would like to express its deepest appreciation to the symposium chairs, conference chairs, program committees, session chairs, and authors who have so generously given their time and advice to make this symposium possible.

The symposium, like our other conferences and activities, would not be possible without the dedicated contribution of our participants and members. This program is based on commitments received up to the time of publication and is subject to change without notice.

LASE Conference Daily Schedule

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Program on					
Laser Source Engineering					
Program Chair: Gregory J. Quarles , BE Meyers & Co. Inc. (USA)					
	7915 High Energy/Average Power Lasers and Intense Beam Applications VI (Davis, Heaven, Schriempf) p. 182	7914 Fiber Lasers VIII: Technology, Systems, and Applications (Dawson) p. 176			
	7913 Laser Resonators and Beam Control XIII (Kudryashov, Paxton, Ilchenko) p. 173				
	7912 Solid State Lasers XX: Technology and Devices (Clarkson, Hodgson, Shori) p. 168				
			7916 High Power Lasers for Fusion Research (Awwal, Dunne, Azechi, Kruschwitz) p. 183		
Program on					
Nonlinear Optics					
		7917 Nonlinear Frequency Generation and Conversion: Materials, Devices, and Applications X (Vodopyanov) p. 185			
	7937 Ultrafast Phenomena in Semiconductors and Nanostructure Materials XV (Tsen, Song) p. 243				
		7935 Organic Photonic Materials and Devices XIII (Nelson, Kajzar, Kaino, Koike) p. 239			
Program on					
Semiconductor Lasers and LEDs					
Program Chair: Klaus P. Streubel , OSRAM GmbH (Germany)					
	7918 High-Power Diode Laser Technology and Applications IX (Zediker) p. 189			7952 Vertical-Cavity Surface-Emitting Lasers XV (Guenter, Lei) p. 289	
		7919 Vertical External Cavity Surface Emitting Lasers (VECSELs) (Keller) p. 191			
		7933 Physics and Simulation of Optoelectronic Devices XIX (Witzigmann, Henneberger, Arakawa, Freundlich) p. 232			
		7939 Gallium Nitride Materials and Devices VI (Chyi, Nanishi, Morkoç) p. 248			
		7953 Novel In-Plane Semiconductor Lasers X (Belyanin, Smowton) p. 291			
			7954 Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XV (Streubel, Tu, Jeon) p. 295		

Executive Organizing Committee

Abdul A. S. Awwal, Lawrence Livermore National Lab. (USA)

Hiroshi Azechi, Osaka Univ. (Japan)

W. Andrew Clarkson, Univ. of Southampton (United Kingdom)

Steven J. Davis, Physical Sciences Inc. (USA)

Jay W. Dawson, Lawrence Livermore National Lab. (USA)

Jan J. Dubowski, Univ. de Sherbrooke (Canada)

A. Mike Dunne, Lawrence Livermore National Lab. (USA)

David B. Geohegan, Oak Ridge National Lab. (USA)

Bo Gu, IPG Photonics Corp. (USA)

Michael C. Heaven, Emory Univ. (USA)

Alexander Heisterkamp, Laser Zentrum Hannover e.V. (Germany)

Henry Helvajian, The Aerospace Corp. (USA)

Hamid Hemmati, Jet Propulsion Lab. (USA)

Guido Hennig, Daetwyler Graphics AG (Switzerland)

Norman Hodgson, Coherent, Inc. (USA)

James S. Horwitz, U.S. Dept. of Energy (USA)

Vladimir S. Ilchenko, OEwaves, Inc. (USA)

Ursula Keller, ETH Zurich (Switzerland)

Olga Korotkova, Univ. of Miami (USA)

Brian E. Kruschwitz, Univ. of Rochester (USA)

Alexis V. Kudryashov, Moscow State Open Univ. (Russian Federation)

Yongfeng Lu, Univ. of Nebraska-Lincoln (USA)

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Program on					
Laser Micro-/Nanoengineering					
Program Chairs: Henry Helvajian , The Aerospace Corp. (USA); James S. Horwitz , U.S. Dept. of Energy (USA)					
		7922 Synthesis and Photonics of Nanoscale Materials VIII (<i>Dubowski, Geohegan, Träger</i>) p. 198			
		7920 Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM) XVI (<i>Gu, Hennig, Xu, Niino</i>) p. 193			
			7921 Laser-based Micro- and Nanopackaging and Assembly V (<i>Pfleging, Lu, Washio</i>) p. 196		
			7926 Micromachining and Microfabrication Process Technology XVI (<i>Maher, Chiao, Resnick</i>) p. 210		
			7927 Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV (<i>Schoenfeld, Wang, Loncar, Suleski</i>) p. 212		
		7928 Reliability, Packaging, Testing, and Characterization of MEMS/MOEMS and Nanodevices X (<i>Garcia-Blanco, Ramesham</i>) p. 215			
Program on					
Laser Applications					
			7925 Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XI (<i>Heisterkamp, Neev, Nolte</i>) p. 204		
			7920 Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM) XVI (<i>Gu, Hennig, Xu, Niino</i>) p. 193		
			7924 Atmospheric and Oceanic Propagation of Electromagnetic Waves V (<i>Korotkova</i>) p. 202	7923 Free-Space Laser Communication Technologies XXIII (<i>Hemmati</i>) p. 200	
				7950 Complex Light and Optical Forces V (<i>Andrews</i>) p. 286	
				7951 Laser Refrigeration of Solids IV (<i>Epstein, Sheik-Bahae</i>) p. 288	

Photonics West maps:

Moscone Center Maps
pp. 2–4
Walking Map p. 14

Joseph Neev, Femto-Sec Tech, Inc. (USA)

Hiroyuki Niino, National Institute of Advanced Industrial Science and Technology (Japan)

Stefan Nolte, Friedrich-Schiller-Univ. Jena (Germany)

Alan H. Paxton, Air Force Research Lab. (USA)

Wilhelm Pfleging, Karlsruhe Institute of Technology (Germany)

Gregory J. Quarles, BE Meyers & Co. Inc. (USA)

J. Thomas Schriempf, Naval Sea Systems Command (USA)

Ramesh Shori, Naval Air Warfare Ctr. Weapons Div. (USA)

Klaus P. Streubel, OSRAM Opto Semiconductors GmbH (Germany)

Frank Träger, Univ. Kassel (Germany)

Konstantin L. Vodopyanov, Stanford Univ. (USA)

Kunihiko Washio, Paradigm Laser Research Ltd. (Japan)

Xianfan Xu, Purdue Univ. (USA)

Mark S. Zediker, Foro Energy, Inc. (USA)

Solid State Lasers XX: Technology and Devices

Conference Chairs: **W. Andrew Clarkson**, Univ. of Southampton (United Kingdom); **Norman Hodgson**, Coherent, Inc.; **Ramesh Shori**, Naval Air Warfare Ctr. Weapons Div.

Program Committee: **Santanu Basu**, Sparkle Optics Corp.; **Marc Eichhorn**, Institut Franco-Allemand de Recherches de Saint-Louis (France); **Adolf Giesen**, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany); **Hans-Dieter Hoffmann**, Fraunhofer-Institut für Lasertechnik (Germany); **Helena Jelinková**, Czech Technical Univ. in Prague (Czech Republic); **Ursula Keller**, ETH Zurich (Switzerland); **Jacob I. Mackenzie**, Univ. of Southampton (United Kingdom); **Michio Oka**, Sony Corp. (Japan); **Narasimha S. Prasad**, NASA Langley Research Ctr.; **Martin C. Richardson**, CREOL, The College of Optics and Photonics, Univ. of Central Florida; **Wolf Seelert**, Coherent Lubeck GmbH (Germany); **David E. Spence**, Spectra-Physics®, a Newport Corp. Brand; **David H. Titterton**, Defence Science and Technology Lab. (United Kingdom)

Sunday 23 January

SESSION 1

Room: 120 (Exhibit Level) Sun. 2:00 to 3:10 pm

Space-qualified Lasers I

Session Chair: **Ramesh K. Shori**, Naval Air Warfare Ctr. Weapons Div.

2:00 pm: **Optical and thermal design of a compact passively Q-switched laser system for the Mars Organic Molecule Analyzer (MOMA)** (*Invited Paper*), Christian Kolleck, Alexander Buettner, Mathias Ernst, Thomas Huelsenbusch, Tino Lang, Rajat Marwah, Marc Priehs, Dietmar Kracht, Jörg Neumann, Laser Zentrum Hannover e.V. (Germany) [7912-01]

2:30 pm: **Wavelength and time-multiplexed multi-channel lidar transmitter for topographic mapping mission**, Youming Chen, Frank Kimpel, Jean-Luc Fouron, Shantanu Gupta, Fibertek, Inc. (USA); Jeffrey R. Chen, NASA Goddard Space Flight Ctr. (USA) [7912-02]

2:50 pm: **Recent progress made in testing of space exposed laser components**, Narasimha S. Prasad, NASA Langley Research Ctr. (USA) [7912-03]

Coffee Break 3:10 to 3:40 pm

SESSION 2

Room: 120 (Exhibit Level) Sun. 3:40 to 4:50 pm

Space-qualified Lasers II

Session Chair: **Ramesh K. Shori**, Naval Air Warfare Ctr. Weapons Div.

3:40 pm: **Non-linear optical frequency conversion crystals for space applications** (*Invited Paper*), Alessandra Ciapponi, Wolfgang Riede, Helmut B. Schröder, Peter Mahnke, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany) [7912-04]

4:10 pm: **Development of a low SWaP laser transmitter for atmospheric lidar applications**, Narasimha S. Prasad, NASA Langley Research Ctr. (USA); Alex Rosiewicz, Steven M. Coleman, EM4, Inc. (USA) [7912-05]

4:30 pm: **High repetition rate pulsed 2-micron laser transmitter for CO₂ measurement**, Upendra N. Singh, Jirong Yu, Yingxin Bai, Mulugeta Petros, NASA Langley Research Ctr. (USA); Songsheng Chen, Science Systems and Applications, Inc. (USA) [7912-06]

Monday 24 January

SESSION 3

Room: 120 (Exhibit Level) Mon. 8:20 to 9:50 am

Thin Disk Lasers I

Session Chair: **Hans-Dieter Hoffmann**, Fraunhofer-Institut für Lasertechnik (Germany)

8:20 am: **Efficient Yb-doped laser materials for high power applications** (*Invited Paper, Presentation Only*), Christian Kränkel, Kolja Beil, K. Petermann, Guenter Huber, Univ. Hamburg (Germany) [7912-07]

8:50 am: **From multi kW continuous wave to multi MW femtosecond pulses: recent developments exploiting disk laser technology**, Sascha Weiler, Marco Holzer, TRUMPF Laser- und Systemtechnik GmbH (Germany) [7912-08]

9:10 am: **50 W thin-disk laser with variable pulse duration**, Mikhail A. Larionov, Friedrich Dausinger, Dausinger + Giesen GmbH (Germany). [7912-09]

9:30 am: **Thermal and stress characterization of various thin disk laser configurations at room temperature**, N. Vretenar, T. Carson, T. Lucas, T. Newell, P. Peterson, W. P. Latham, Air Force Research Lab. (USA) . . [7912-11]

Coffee Break 9:50 to 10:20 am

SESSION 4

Room: 120 (Exhibit Level) Mon. 10:20 am to 12:00 pm

Thin Disk Lasers II

Session Chair: **Santanu Basu**, Sparkle Optics Corp.

10:20 am: **High power thin disk Ho:YAG laser**, Jochen Speiser, Günther Renz, Adolf Giesen, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany) [7912-12]

10:40 am: **Thin disk oscillator-amplifier-system optimised for stochastic trigger with 80mJ at 400ns latency**, Karsten R. F. Schuhmann, Dausinger + Giesen GmbH (Germany) [7912-13]

11:00 am: **Optical extraction model and optimal outcoupling for a CW quasi-three level thin disk laser**, Drew A. Copeland, Aqwest, LLC (USA) [7912-14]

11:20 am: **Fast wavelength switching of a single-frequency disk laser amplifier**, Wolfgang Paa, Volker Wagner, Thomas Zeuner, Marco Franke, IPHT Jena (Germany) [7912-15]

11:40 am: **High power disk lasers: advances and applications**, David L. Havrilla, TRUMPF Inc. (USA); Marco Holzer, TRUMPF Laser- und Systemtechnik GmbH (Germany). [7912-16]

Lunch Break 12:00 to 1:10 pm

SESSION 5

Room: 133 (Exhibit Level) Mon. 1:10 to 3:00 pm

Visible Lasers I

Joint Session with Conference 7917

Session Chairs: **W. Andrew Clarkson**, Univ. of Southampton (United Kingdom); **Andrei V. Shchegrov**, Spectralus Corp.

1:10 pm: **Multi-watt orange light generation by intracavity frequency doubling in a dual-gain quantum dot semiconductor disk laser** (*Invited Paper*), Jussi Rautiainen, Tampere Univ. of Technology (Finland); Igor L. Krestnikov, Innolume GmbH (Germany); Jari Nikkinen, Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland) [7917-01]

1:40 pm: **A compact optically pumped semiconductor laser emitting at 593 nm**, Wolf R. Seelert, Coherent Lubeck GmbH (Germany) [7912-17]

2:00 pm: **1 W at 531 nm generated in a ppMgO:LN planar waveguide by means of frequency doubling of a DBR tapered diode laser**, Daniel Jedrzejczyk, Reiner Güther, Katrin Paschke, Götz Erbert, Ferdinand-Braun-Institut (Germany) [7917-02]

2:20 pm: **High-power (1.1W) green (532nm) laser source based on single-pass second harmonic generation on a compact micro-optical bench**, Peter Q. Liu, Princeton Univ. (USA) and Ferdinand-Braun-Institut (Germany); Christian Fiebig, Mirko Uebernickel, Gunnar Blume, David Feise, Alexander Sahm, Daniel Jedrzejczyk, Katrin Paschke, Goetz Erbert, Ferdinand-Braun-Institut (Germany) [7917-03]

2:40 pm: **Modulation and efficiency characteristics of miniature microchip green laser sources based on PPMgOLN nonlinear material**, John Khaydarov, Andrei V. Shchegrov, Stepan Essaian, Slav Slavov, Spectralus Corp. (USA); Hakob Danielyan, Gevorg Gabrielyan, Suren Soghomonyan, Spectralus CJSC (Armenia) [7917-04]

Coffee Break 3:00 to 3:30 pm

SESSION 6

Room: 133 (Exhibit Level) Mon. 3:30 to 5:20 pm

Visible Lasers II

Joint Session with Conference 7917

Session Chairs: **Wolf R. Seelert**, Coherent Lubeck GmbH (Germany); **Angus J. Henderson**, Lockheed Martin Aculight

3:30 pm: **Fiber-laser-pumped CW OPO for red, green, blue laser generation** (*Invited Paper*), Yen-Yin Lin, Yen-Chieh Huang, National Tsing Hua Univ. (Taiwan) [7917-05]

4:00 pm: **Harmonic generation with fiber MOPAs and solid state lasers: technical challenges, state-of-the-art comparison, and future developments**, Andrei N. Starodoumov, Norman Hodgson, Coherent, Inc. (USA) [7912-18]

4:20 pm: **Raman lasers for yellow-orange spectrum coverage**, Nicolas Landru, Julien Rouvillain, Guy Lebail, Thierry Georges, Oxixus SA (France) [7912-19]

4:40 pm: **575 nm laser oscillation in Dy³⁺-doped waterproof fluoro-aluminate glass fiber pumped by violet GaN laser diodes**, Yasushi Fujimoto, Osaka Univ. (Japan); Osamu Ishii, Masaaki Yamazaki, Sumita Optical Glass, Inc. (Japan) [7912-20]

5:00 pm: **Efficient frequency conversion of pulsed microchip and fiber laser radiation in PPSLT**, Bernd Jungbluth, Sebastian Nyga, Enno Pawlowski, Thomas Fink, Fraunhofer-Institut für Lasertechnik (Germany) [7912-21]

Tuesday 25 January

SESSION 7

Room: 120 (Exhibit Level) Tues. 8:00 to 9:50 am

Ultrafast Lasers I

Session Chair: **W. Andrew Clarkson**, Univ. of Southampton (United Kingdom)

8:00 am: **Yb-doped ultrafast thin disk lasers** (*Invited Paper*), Thomas Südmeyer, Cyrill Bär, ETH Zurich (Switzerland); Christian Kränkel, ETH Zurich (Switzerland) and Univ. Hamburg (Germany); Clara J. Saraceno, Oliver H. Heckl, Matthias C. Golling, ETH Zurich (Switzerland); Rigo Peters, K. Petermann, Guenter Huber, Univ. Hamburg (Germany); Ursula Keller, ETH Zurich (Switzerland) [7912-22]

8:30 am: **Highly flexible ultrafast laser system with 220W average power**, Torsten G. Mans, Jan Dolkemeyer, AMPHOS GmbH (Germany); Peter Russbuehler, Fraunhofer-Institut für Lasertechnik (Germany); Claus Schnitzler, AMPHOS GmbH (Germany) [7912-23]

8:50 am: **Picosecond laser with 400W average power and 1mJ pulse energy**, Keming Du, Daijun Li, EdgeWave GmbH (Germany) [7912-24]

9:10 am: **250W single stage Nd:YVO₄ picosecond INNOSLAB MOPA**, Marco Höfer, Carsten Prause, Henrik Sipma, Fraunhofer-Institut für Lasertechnik (Germany); Sergey Naumov, Ralf Knappe, LUMERA LASER GmbH (Germany); Hans-Dieter Hoffmann, Fraunhofer-Institut für Lasertechnik (Germany) [7912-25]

9:30 am: **Flexible and modular picosecond lasers for industrial cold-ablation micromachining**, Kurt J. Weingarten, Time-Bandwidth Products AG (Switzerland); Felix Brunner, Time-Bandwidth Products, Inc. (USA); Igor Klimov, Andreas Bardorf, Marco Benetti, Time-Bandwidth Products AG (Switzerland) [7912-26]

Coffee Break 9:50 to 10:20 am

SESSION 8

Room: 120 (Exhibit Level) Tues. 10:20 am to 12:00 pm

Ultrafast Lasers II

Session Chair: **David E. Spence**, Spectra-Physics®, a Newport Corp. Brand

10:20 am: **Yb-doped ultrafast solid state lasers** (*Invited Paper*), Frédéric Druon, Patrick Georges, Institut d'Optique Graduate School (France) . [7912-27]

10:50 am: **1100W Yb:YAG fs INNOSLAB amplifier** (*Invited Paper*), Peter Russbuehler, Fraunhofer-Institut für Lasertechnik (Germany); Torsten G. Mans, RWTH Aachen (Germany); Hans-Dieter Hoffmann, Reinhart Poprawe, Fraunhofer-Institut für Lasertechnik (Germany) [7912-28]

11:20 am: **Short pulse and high repetition rate diode-pumped Yb:CaF₂ regenerative amplifier**, Sandrine Ricaud, Amplitude Systemes (France) and Lab. Charles Fabry (France); Frédéric Druon, Institut d'Optique Graduate School (France); Dimitris N. Papadopoulos, Lab. Charles Fabry (France); Patrice Camy, Jean-Louis Doualan, Richard Moncorgé, ENSICAEN (France); Martin Delaigue, Antoine Courjaud, Yoann Zaouter, Amplitude Systemes (France); Patrick Georges, Institut d'Optique Graduate School (France); Eric Mottay, Amplitude Systemes (France) [7912-29]

11:40 am: **Steady state mode-locking of the Nd:YVO₄ laser operating on the 1.34 μm transition using intracavity SHG in BIBO or PPMgSLT**, Hristo L. Iliev, Ivan Buchvarov, Veselin Alexandrov, Sofia Univ. (Bulgaria); Sunao Kurimura, National Institute for Materials Science (Japan); Valentin P. Petrov, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) [7912-30]

Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 9

Room: 120 (Exhibit Level) Tues. 1:30 to 3:30 pm

Q-switched Lasers

Session Chair: Helena Jelinková,
Czech Technical Univ. in Prague (Czech Republic)

- 1:30 pm: **A Joule-class, TEM₀₀ spatial profile, narrow-linewidth laser system,** Andreas Vaupel, Nathan Bodnar, Michaël Hemmer, Martin C. Richardson, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) [7912-31]
- 1:50 pm: **UV power scaling of INNOSLAB lasers,** Keming Du, Daijun Li, Shaojun Fu, EdgeWave GmbH (Germany) [7912-32]
- 2:10 pm: **All passive synchronization of a quasi-three-level Q-switched laser and a four-level Q-switched laser,** Haynes P. H. Cheng, Peter Tidemand-Lichtenberg, Ole B. Jensen, Peter E. Andersen, Paul M. Petersen, Christian Pedersen, Technical Univ. of Denmark (Denmark) [7912-33]
- 2:30 pm: **Optically triggered Cr:YAG Q-switched Nd:YAG laser,** Brian J. Cole, Alan D. Hays, Jonathan Lei, Bradley W. Schilling, Lew Goldberg, U.S. Army RDECOM CERDEC NVESD (USA) [7912-34]
- 2:50 pm: **Q-switched fiber lasers,** Scott Christensen, Nufern (USA) . [7912-35]
- 3:10 pm: **High power 808 nm VCSEL arrays for pumping of compact pulsed high energy Nd:YAG lasers operating at 946 nm and 1064 nm for blue and UV light generation,** Robert Van Leeuwen, Yihan Xiong, Laurence S. Watkins, Jean-Francois Seurin, Guoyang Xu, Qing Wang, Chuni L. Ghosh, Princeton Optronics, Inc. (USA) [7912-36]
- Coffee Break 3:30 to 4:00 pm

SESSION 10

Room: 131 (Exhibit Level) Tues. 4:00 to 6:00 pm

Pulsed Amplified Sources

Joint Session with Conference 7914

Session Chairs: Norman Hodgson, Coherent, Inc.;
Dahv A. V. Kliner, JDSU

- 4:00 pm: **All-fiber based amplification of 40 ps pulses from a gain-switched laser diode,** Sebastian Kanzelmeyer, Hakan Sayinc, Thomas Theeg, Maik Frede, Jörg Neumann, Dietmar Kracht, Laser Zentrum Hannover e.V. (Germany) [7914-36]
- 4:20 pm: **High-average power Nd:YVO₄ regenerative amplifier seeded by a gain switched diode laser,** Markus Lührmann, Florian Harth, Christian Theobald, Thorsten Ulm, Photonik-Zentrum Kaiserslautern e.V. (Germany); Ralf Knappe, Achim Nebel, LUMERA LASER GmbH (Germany); Andreas Klehr, Götz Erbert, Ferdinand-Braun-Institut (Germany); Johannes A. L'huillier, Photonik-Zentrum Kaiserslautern e.V. (Germany) [7912-37]
- 4:40 pm: **Sub-10 picosecond pulses from a fiber-amplified and optically compressed passively Q-switched microchip laser,** Alexander Steinmetz, Dirk Nodop, Andreas Martin, Jens Limpert, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [7914-37]
- 5:00 pm: **High-power diode pumped crystal fiber amplifier for passively Q-switched Nd:YAG microlaser,** Igor Martial, Lab. Charles Fabry (France) and FiberCryst (France); François Balembois, Lab. Charles Fabry (France); Julien Didierjean, FiberCryst (France); Patrick Georges, Lab. Charles Fabry (France) [7912-38]
- 5:20 pm: **High-pulse energy operation of efficient and compactly packaged, ns-pulse Yb-doped photonic-crystal fiber-based lasers delivering high-spectral and spatial brightness,** Fabio Di Teodoro, Northrop Grumman Aerospace Systems (USA) [7914-30]
- 5:40 pm: **2nd and 3rd harmonic generation from a fiber-amplified 100-ps, high-repetition rate and single-frequency passively Q-switched microchip laser,** Alexander Steinmetz, Dirk Nodop, Friedrich-Schiller-Univ. Jena (Germany); Georg Sommerer, Alexander Wissel, Stefan Spiekermann, Ingo Freitag, InnoLight GmbH (Germany); Jens Limpert, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [7912-39]

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

- Study on the 1123 nm continuous-wave ceramic Nd:YAG laser,** Sasa Zhang, Qingpu Wang, Xingyu Zhang, Zhaojun Liu, Aiqun Long, Shandong Univ. (China) [7912-67]
- Precision Fresnel attenuator of the beam power of laser radiation,** Jan A. Owsik, Military Univ. of Technology (Poland); Anatoly A. Kovalev, Sergey A. Moskalyuk, All-Russian Research Institute for Optical and Physical Measurement (Russian Federation); Anna Z. Rembielinska, LOT Polish Airlines (Poland); Eugeny B. Yankevich, All-Russian Research Institute for Optical and Physical Measurement (Russian Federation) [7912-68]
- 747 nm Pr:YAP microchip-laser output characteristics,** Martin Fibrich, Helena Jelinková, Jan Šulc, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Václav Škoda, Crytur Ltd. (Czech Republic) [7912-69]
- Design of micro-second pulsed laser mode for ophthalmological CW Self-Raman laser,** Alessandro D. Mota, Opto Eletrônica S.A. (Brazil) and Univ. de São Paulo (Brazil); Giuliano Rossi, Tiago Almeida Ortega, Glauco Zerbini Costal, Fatima M. Yasuoka, Mario A. Stefani, Opto Eletrônica S.A. (Brazil); Jarbas C. Caiado de Castro Neto, Opto Eletrônica S.A. (Brazil) and Univ. de São Paulo (Brazil); Maria S. Paiva, Univ. de São Paulo (Brazil) [7912-70]
- The research of the laser facula of laser ranger finder in the far distance,** Rongguo Fu, Nanjing Univ. of Science & Technology (China) [7912-71]
- Compact intracavity frequency doubled diode laser at 465 nm,** Kang Li, Nigel J. Copner, Univ. of Glamorgan (United Kingdom); Corin B. E. Gawith, Covesion Ltd. (United Kingdom); Ian Knight, Oclaro, Inc. (United Kingdom); Hans-Ulrich Pfeiffer, Oclaro, Inc. (Switzerland); Bob Musk, Gooch & Housego, Torquay (United Kingdom) [7912-72]
- Passively Q-switched quasi-continuously pumped 2.4% Nd:YAG laser in a bounce geometry,** Michal Jelinek, Václav Kubecek, Miroslav Cech, Petr Hirsí, Czech Technical Univ. in Prague (Czech Republic) [7912-73]
- Influence of V:YAG saturable absorber orientation on linearly polarized laser Q-switching,** Jan Šulc, Tomáš Koutný, Helena Jelinková, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Václav Škoda, Crytur Ltd. (Czech Republic) [7912-74]
- Noise performances of a high-power picosecond Nd:YVO₄ oscillator,** Marie-Christine Nadeau, Univ. Bordeaux 1 (France) and Thales Optronique SA (France); Stéphane Petit, Ctr. National de la Recherche Scientifique (France); Sébastien Montant, Commissariat à l'Énergie Atomique (France); Philippe Balcou, Ctr. National de la Recherche Scientifique (France); Christophe Simon-Boisson, Thales Optronique S.A. (France) [7912-75]
- Influence of UV illumination on the cold temperature performance of a LiNbO₃ Q-switched Nd:YAG laser,** Brian J. Cole, Vernon King, Jeffrey Leach, Lew Goldberg, U.S. Army RDECOM CERDEC NVESD (USA) [7912-76]
- Comparison of LD-pumped soliton and passively mode-locked operations of Yb:(Gd_{1-x}Y_x)₂SiO₅ (x=0.5) laser,** Jinping He, Xiaoyan Liang, Jinfeng Lee, Lihe Zheng, Jun Xu, Zhizhan Xu, Shanghai Institute of Optics and Fine Mechanics (China) [7912-78]
- High power red laser oscillation in Pr³⁺-doped waterproof fluoro-aluminate glass fiber excited by a GaN laser diode,** Jun Nakanishi, Tsuyoshi Yamada, NIDEK Co., Ltd. (Japan); Yasushi Fujimoto, Osaka Univ. (Japan); Osamu Ishii, Masaaki Yamazaki, Sumita Optical Glass, Inc. (Japan) [7912-79]
- Solid state fs oscillators with direct laser-diode pumping,** Guang-Hoon Kim, Uk-Song Kang, Elena G. Sall, Sergey A. Chizhov, Andrey Koulik, Korea Electrotechnology Research Institute (Korea, Republic of); Vladimir E. Yashin, S.I. Vavilov State Optical Institute (Russian Federation) [7912-80]
- Low threshold, stable soliton mode-locked Yb:SSO laser with pulse duration of 2.3 ps,** Jinfeng Lee, Xiaoyan Liang, Jinping He, Lihe Zheng, Shanghai Institute of Optics and Fine Mechanics (China); Jun Xu, Shanghai Institute of Ceramics (China) [7912-81]
- Advances in solid state dye laser development,** Robin K. Elkins, Elk Industries, LLC (USA) [7912-82]

Effects of gamma-irradiation on optical, electrical, and laser characteristics of pure and transition metal doped II-VI semiconductors, Tetyana Konak, Michael Tekavec, Vladimir V. Fedorov, Sergey B. Mirov, The Univ. of Alabama at Birmingham (USA) [7912-83]

A single frequency Nd:YAG Q-switched laser with timely controllable firing time by a gated Pockels cell, Frank F. Wu, Anatoliy I. Khizhnyak, Vladimir B. Markov, MetroLaser, Inc. (USA) [7912-84]

A hybrid fiber/solid state regenerative amplifier with tunable pulse widths for satellite laser ranging, Demetrios Poullos, American Univ. (USA); D. Barry Coyle, NASA Goddard Space Flight Ctr. (USA) [7912-85]

Edge-pumped Yb:YAG disk oscillator with multi-passed extraction, John Vetrovec, Drew A. Copeland, Aqwest, LLC (USA); Detao Du, General Atomics Aeronautical Systems, Inc. (USA) [7912-86]

Fe:ZnSe laser: comparison of active materials grown by two different methods, Maxim E. Doroshenko, A. M. Prokhorov General Physics Institute (Russian Federation); Helena Jelinková, Czech Technical Univ. in Prague (Czech Republic); Tasoltan T. Basiev, A. M. Prokhorov General Physics Institute (Russian Federation); Michal Jelínek, Petr Koranda, Michal Nemeč, Czech Technical Univ. in Prague (Czech Republic); Vitaliy K. Komar, Andriy S. Gerasimenko, Institute for Single Crystals (Ukraine); Valerii V. Badikov, Dmitri V. Badikov, Kuban State Technological Univ. (Russian Federation); David Vyhlidal, Jan Stoklasa, Czech Technical Univ. in Prague (Czech Republic) [7912-87]

Yb doped lutetium sesquioxide laser ceramics, Rajan S. Gurjar, Gary Baldoni, Yimin Wang, William H. Rhodes, Kanai S. Shah, Radiation Monitoring Devices, Inc. (USA) [7912-88]

Efficient compensation of thermal birefringence of a flash-lamp pumped Nd:YAG laser by a simple but novel method, Prasanta K. Datta, Shyamal Mondal, Satya P. Singh, Somenath Dutta, Sudarsan Bera, Subhra P. Dey, Indian Institute of Technology, Kharagpur (India) [7912-89]

Intense red upconversion fluorescence emission in NIR-excited erbium-ytterbium doped laponite-derived phosphor, Andréa da Silva, Diógenes S. Moura, Artur S. Gouveia-Neto, Elias A. Arcaño da Silva, Jr., Luciano Bueno, Ernande B. da Costa, Eduardo Azevedo, Univ. Federal Rural de Pernambuco (Brazil) [7912-90]

Properties of rare earth doped thin film dielectric layers for laser waveguides, Stuart J. Pearce, Greg J. Parker, Martin D. B. Charlton, James S. Wilkinson, Univ. of Southampton (United Kingdom) [7912-91]

Wednesday 26 January

SESSION 11

Room: 120 (Exhibit Level) Wed. 8:00 to 10:00 am

Optics, Fibers, and Metrology

Session Chair: David H. Titterton,
Defence Science and Technology Lab. (United Kingdom)

8:00 am: **Developing a more useful surface quality metric for laser optics**, Trey Turner, Quentin Turchette, Research Electro-Optics, Inc. (USA) . [7912-40]

8:20 am: **Novel concept for long-haul ultrashort pulse fiber delivery without pre-chirping**, Tuan Le, Gabriel Tempea, Andreas Stingl, FEMTOLASERS Produktions GmbH (Austria); Kim G. Jespersen, OFS Fitel Denmark ApS (Denmark); Karin Wiesauer, RECENDT GmbH (Austria) [7912-41]

8:40 am: **Beam steering mirror for fine adjustment of visible laser single mode fiber coupling based on a birefringent crystal**, Christian Kannengiesser, Ruediger von Elm, Wolf Seelert, Coherent Lubeck GmbH (Germany) [7912-42]

9:00 am: **All-in-quartz optics for low focal shifts**, Mats Blomqvist, Ola I. Blomster, Stuart Campbell, Magnus Pålsson, Optoskand AB (Sweden)[7912-43]

9:20 am: **Novel all-hardware closed-loop adaptive optics system using massively-parallel neural processing**, Marc Eichhorn, Alexander Pichler, Pierre Raymond, Institut Franco-Allemand de Recherches de Saint-Louis (France) [7912-44]

9:40 am: **High-power pulse-pumped solid state laser gain modules**, Jay Doster, Ryan Feeler, Northrop Grumman Cutting Edge Optronics (USA) [7912-45]

Coffee Break 10:00 to 10:20 am

LASE PLENARY SESSION

Room: 134 (Exhibit Level) Wed. 10:20 am to 12:30 pm

10:20 am: **Welcome and Opening Remarks**, Friedhelm Dorsch, TRUMPF GmbH & Co. KG (Germany) and Alberto Piqué, U.S. Naval Research Lab. (USA)

10:25 am: **Announcement of the Best Green Photonics Paper Awards in LASE**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

10:30 am: **Of Light, Electrons, and Metamaterials**, Nader Engheta, Univ. of Pennsylvania (USA)

11:10 am: **Using Lasers in Particle-based Applications**, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

11:50 am: **Advances in Lasers and Their Impact on Industrial Applications**, Paul E. Denney, Connecticut Ctr. for Advanced Technology, Inc. (USA)

See p. 20 for details.

Lunch/Exhibition Break 12:30 to 1:30 pm

SESSION 12

Room: 120 (Exhibit Level) Wed. 1:30 to 3:30 pm

Mid-Infrared Lasers I

Session Chair: Ramesh K. Shori, Naval Air Warfare Ctr. Weapons Div.

1:30 pm: **Space variant optics based on nanophotonic structures for IR Lasers**, Eric G. Johnson, Menelaos K. Poutous, Zachary Roth, Aaron J. Pung, The Univ. of North Carolina at Charlotte (USA); Ramesh K. Shori, Naval Air Warfare Ctr. Weapons Div. (USA) [7912-46]

1:50 pm: **Optical, mechanical, and thermal properties of undoped and Er-doped yttria (Er:Y₂O₃)**, Abhijeet Joshi, Ramesh K. Shori, Oscar Stafstudd, Univ. of California, Los Angeles (USA); Nicholas Haynes, David E. Zelmon, Air Force Research Lab. (USA) [7912-47]

2:10 pm: **LD pumped high efficiency, high power Tm:YLF laser with adhesive-free bond laser composites**, Xiaodong Mu, Helmut E. Meissner, Huai-Chuan Lee, Onyx Optics Inc. (USA) [7912-48]

2:30 pm: **Energy scaling of room temperature Fe²⁺:ZnSe gain-switched 4.3 μm laser**, NoSoung Myoung, Dmitri V. Martyshkin, Vladimir V. Fedorov, Alan Martinez, Sergey B. Mirov, The Univ. of Alabama at Birmingham (USA)[7912-49]

2:50 pm: **Miniaturized high power Er:YAG solid state laser pumped by a single laser diode bar**, Martin Krejci, Oclaro, Inc. (Switzerland); Arne Heinrich, Pantec Biosolutions AG (Liechtenstein); Jürgen Müller, Oclaro, Inc. (Switzerland); Thomas Bragagna, Pantec Biosolutions AG (Liechtenstein); Norbert Lichtenstein, Oclaro, Inc. (Switzerland) [7912-50]

3:10 pm: **Energy scaling of nanosecond gain-switched Cr²⁺:ZnSe lasers**, Vladimir V. Fedorov, The Univ. of Alabama at Birmingham (USA) and IPG Photonics - Mid-Infrared Lasers (USA); Igor S. Moskalev, Mike B. Mirov, IPG Photonics - Mid-Infrared Lasers (USA); Sergey B. Mirov, The Univ. of Alabama at Birmingham (USA) and IPG Photonics - Mid-Infrared Lasers (USA); Torrey J. Wagner, Matthew J. Bohn, Air Force Institute of Technology (USA); Patrick A. Berry, Kenneth L. Schepler, Air Force Research Lab. (USA) [7912-51]

Coffee Break 3:30 to 4:00 pm

LASE

SESSION 13

Room: 120 (Exhibit Level) Wed. 4:00 to 5:40 pm

Mid-Infrared Lasers II

Session Chair: Helena Jelinková,
Czech Technical Univ. in Prague (Czech Republic)

4:00 pm: **Towards rare-earth-doped chalcogenide glass fibre lasers for the mid-infrared (IR)**, Angela B. Seddon, Zhuoqi Tang, David Furniss, Slawomir Sujecki, Trevor M. Benson, The Univ. of Nottingham (United Kingdom) [7912-52]

4:20 pm: **High-power diode-pumped Q-switched Er³⁺:YAG single-crystal fiber laser**, Igor Martial, Lab. Charles Fabry (France) and FiberCryst (France); Julien Didierjean, Nicolas Aubry, FiberCryst (France); François Balembois, Patrick Georges, Lab. Charles Fabry (France) [7912-53]

4:40 pm: **Cr:ZnSe planar waveguide mid-IR laser**, Jonathan E. Willimas, Dmitri V. Martyshev, Vladimir V. Fedorov, The Univ. of Alabama at Birmingham (USA); Igor S. Moskalev, IPG Photonics - Mid-Infrared Lasers (USA); Renato P. Camata, Sergey B. Mirov, The Univ. of Alabama at Birmingham (USA) [7912-54]

5:00 pm: **Mid-IR lasing of Cr:ZnSe/As₂S₃:As₂Se₃ composite materials**, Dmitri V. Martyshev, Vladimir V. Fedorov, The Univ. of Alabama at Birmingham (USA) and IPG Photonics Corp. (USA); Jonathan T. Goldstein, Air Force Research Lab. (USA); Sergey B. Mirov, The Univ. of Alabama at Birmingham (USA) and IPG Photonics - Mid-Infrared Lasers (USA) [7912-55]

5:20 pm: **Mode-locking of a Cr:ZnSe laser by use of a PPLN nonlinear mirror**, Jean-Baptiste Dherbecourt, Antoine Godard, Adrien Denoeud, Jean-Michel Melkonian, Myriam Raybaut, Michel Lefebvre, Emmanuel Rosencher, ONERA (France) [7912-56]

Thursday 27 January

SESSION 14

Room: 120 (Exhibit Level) Thurs. 8:00 to 10:00 am

Laser Materials I

Session Chair: Marc Eichhorn,
Institut Franco-Allemand de Recherches de Saint-Louis (France)

8:00 am: **Improved characterization of laser damage threshold and transmitted wavefront error on CADB epoxy-free bonded solid state laser materials**, Nick Traggis, Neil Claussen, Precision Photonics Corp. (USA); Andy J. Bayramian, Kathleen I. Schaffers, Lawrence Livermore National Lab. (USA) [7912-57]

8:20 am: **Lasing properties of new Yb-doped borate compounds with varying gadolinium and yttrium concentration**, Inka B. Manek-Hönniger, Marie Chavoutier, Véronique Juber, Dominique Descamps, Philippe Veber, Matias Velazquez, Alain Garcia, Lionel Canioni, Univ. Bordeaux 1 (France) [7912-58]

8:40 am: **Tuning solid state organic lasers**, Sönke Klinkhammer, Thomas Woggon, Nico Heussner, Marc Stroisch, Christoph Vannahme, Timo Mappes, Uli Lemmer, Karlsruher Institut für Technologie (Germany) [7912-59]

9:00 am: **Compositionally tuned Nd:Y_xLu_{3-x}Ga₅O₁₂-laser at 935 nm for H₂O-dial systems**, Jens Löhning, Michael Schlösser, Hans-Dieter Hoffmann, Fraunhofer-Institut für Lasertechnik (Germany) [7912-60]

9:20 am: **Diode-pumped, cryogenically cooled Yb:CaF₂ for high efficient and high power laser**, Sandrine Ricaud, Amplitude Systemes (France) and Lab. Charles Fabry (France); Frédéric Druon, Institut d'Optique Graduate School (France); Dimitris N. Papadopoulos, Alain Pellegrina, Ecole Nationale Supérieure de Techniques Avancées (France); Patrick Georges, Institut d'Optique Graduate School (France); Antoine Courjaud, Amplitude Systemes (France); Patrice Camy, Jean-Louis Doualan, Richard Moncorge, ENSICAEN (France) [7912-61]

9:40 am: **High power Raman diamond laser**, Jean-Philippe Fève, Matthew J. Bohn, Jason K. Bresseur, Kevin E. Shortoff, Directed Energy Solutions (USA) [7912-62]

Coffee Break 10:00 to 10:30 am

SESSION 15

Room: 120 (Exhibit Level) Thurs. 10:30 am to 12:30 pm

Laser Materials II

Session Chair: Jacob I. Mackenzie,
Univ. of Southampton (United Kingdom)

10:30 am: **Overview of ceramic laser technology** (*Invited Paper*), Jasbinder S. Sanghera, U.S. Naval Research Lab. (USA) [7912-63]

11:00 am: **Last advances in Yb³⁺ doped CaF₂ ceramics synthesis** (*Invited Paper*), Michel S. Mortier, Andreas Lyberis, Akiko Sukanuma, Adam Stevenson, Patrick Gredin, Daniel Vivien, Ecole Nationale Supérieure de Chimie de Paris (France); Gilles Patriarche, Ctr. National de la Recherche Scientifique (France) [7912-64]

11:30 am: **Field assisted sintering of infrared sensor windows**, Aaron Rape, Joginder Singh, Applied Research Lab. (USA); Sudhir B. Trivedi, Brimrose Corp. of America (USA); Vijay Shukla, Rajendra Sadangi, Plasmadynamics, LLC (USA); Narasimha S. Prasad, NASA Langley Research Ctr. (USA) [7912-65]

11:50 am: **Processing and transparency of polycrystalline yttrium aluminum garnet (YAG) fiber for optical applications**, Hyun Jun Kim, UES, Inc. (USA); Geoff E. Fair, Air Force Research Lab. (USA); Heedong Lee, Kristin A. Keller, Triplicane A. Parthasarathy, UES, Inc. (USA); Randall S. Hay, Air Force Research Lab. (USA) [7912-66]

12:10 pm: **Chemical mechanical polishing for YAG single crystals and ceramics**, Mark S. Goorsky, Steven Brightup, Saurabh Sharma, Univ. of California, Los Angeles (USA) [7912-92]

Courses of Related Interest

- SC746 Introduction to Ultrafast Technology (Trebino) Tuesday, 1:30 to 5:30 pm
- SC752 Solid State Laser Technology (Hodgson) Saturday, 8:30 am to 5:30 pm
- SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm
- SC860 Resonator Design for Solid State Lasers (Paschotta) Wednesday, 8:30 am to 5:30 pm
- SC931 Applied Nonlinear Frequency Conversion (Paschotta) Monday, 8:30 am to 5:30 pm
- SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm
- SC1012 Coherent Mid-Infrared Sources and Applications (Vodopyanov) Monday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Laser Resonators and Beam Control XIII

Conference Chairs: **Alexis V. Kudryashov**, Moscow State Open Univ. (Russian Federation); **Alan H. Paxton**, Air Force Research Lab.; **Vladimir S. Ilchenko**, OEwaves, Inc. *Conference Co-Chair:* **Lutz Aschke**, LIMO Lissotschenko Mikrooptik GmbH (Germany)

Program Committee: **Jean-Claude Marcel Diels**, The Univ. of New Mexico; **Hans-Joachim Eichler**, Technische Univ. Berlin (Germany); **Andrew Forbes**, Council for Scientific and Industrial Research (South Africa); **Pierre Galarneau**, INO (Canada); **Thomas Graf**, Univ. Stuttgart (Germany); **James R. Leger**, Univ. of Minnesota, Twin Cities; **Andrey B. Matsko**, OEwaves, Inc.; **Shayan Mookherjea**, Univ. of California, San Diego; **Steve A. Pappert**, Defense Advanced Research Projects Agency; **Andrew W. Poon**, Hong Kong Univ. of Science and Technology (Hong Kong, China); **Michelle L. Povinelli**, The Univ. of Southern California; **Michael J. Scaggs**, Haas Laser Technologies, Inc.

Sunday 23 January

SESSION 1

Room: 114 (Exhibit Level) Sun. 8:50 to 10:10 am

Laser Resonator and Gain Medium Simulation

Session Chair: **Michael J. Scaggs**, Haas Laser Technologies, Inc.

8:50 am: **Unstable ring resonator with bidirectional propagation through the gain medium: analysis**, Alan H. Paxton, Air Force Research Lab. (USA) [7913-01]

9:10 am: **Analysis of frequency dependent pump light absorption**, Matthias Wohlmuth, Johannes M. Werner, Christoph Pflaum, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [7913-02]

9:30 am: **Constructing petal modes from a coherent superposition of Laguerre-Gaussian modes**, Darryl Naidoo, Andrew Forbes, Council for Scientific and Industrial Research (South Africa); Kamel Ait-Ameur, Ecole Nationale Supérieure d'Ingenieurs de Caen et Ctr. de Recherche (France); Marc Brunel, Univ. de Rouen (France) [7913-03]

9:50 am: **Laser sustained plasma ball lensing effect controlled by means of coaxial gas flow**, Vladimir P. Zimakov, A. Yu. Kedrov, V. A. Kuznetsov, A. N. Shemyakin, N. G. Solovyov, Mikhail Yu. Yakimov, Institute for Problems in Mechanics (Russian Federation) [7913-04]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 114 (Exhibit Level) Sun. 10:40 am to 12:10 pm

Laser Diagnostics and Components

Session Chair: **Alexis V. Kudryashov**, Moscow State Open Univ. (Russian Federation)

10:40 am: **Real time laser beam analysis system for high power lasers**, Michael Scaggs, Neoteric Concepts, LLC (USA); Gilbert J. Haas, Haas Laser Technologies, Inc. (USA) [7913-05]

11:00 am: **Enhanced high-speed coherent diffraction imaging**, Jonathan Potier, Sébastien Fricker, PhaseView (France); Mourad Idir, Synchrotron SOLEIL (France) [7913-06]

11:20 am: **Broadband operation of a single broad area diode laser by spectral beam combining**, Axel M. Heuer, Danilo Skoczowsky, Antonio Saghati, Univ. Potsdam (Germany); Andreas Jechow, Griffith Univ. (Australia); Ralf Menzel, Univ. Potsdam (Germany) [7913-07]

11:40 am: **Shack-Hartmann wavefront sensor and its problems** (*Invited Paper*), Alexis V. Kudryashov, Julia Sheldakova, Alexander G. Alexandrov, Moscow State Open Univ. (Russian Federation) [7913-08]

Lunch/BiOs Exhibition Break 12:10 to 1:30 pm

SESSION 3

Room: 114 (Exhibit Level) Sun. 1:30 to 3:30 pm

Laser Beam Shaping

Session Chair: **Lutz Aschke**, LIMO Lissotschenko Mikrooptik GmbH (Germany)

1:30 pm: **Beam shaping of fiber coupled lasers for plastics processing: concepts for m-shaped beam profiles for optimized scanning processes**, Jens Meinschien, Peter Bruns, Alexei S. Mikhailov, Yuri V. Miklyaev, Thomas Mitra, LIMO Lissotschenko Mikrooptik GmbH (Germany) [7913-09]

1:50 pm: **Efficient diffractive optical elements from glass with continuous surface profiles**, Yuri V. Miklyaev, Mikhail M. Ivanenko, Alexei S. Mikhailov, Valeri Imgrunt, Lutz Aschke, Vitaly N. Lissotschenko, LIMO Lissotschenko Mikrooptik GmbH (Germany) [7913-10]

2:10 pm: **Thermal lensing compensation optics for high power lasers**, Michael Scaggs, Neoteric Concepts, LLC (USA); Gilbert J. Haas, Haas Laser Technologies, Inc. (USA) [7913-11]

2:30 pm: **Adaptive extracavity beam shaping for application in nanosecond laser micromachining**, Rainer J. Beck, Jonathan P. Parry, Jonathan D. Shephard, Duncan P. Hand, Heriot-Watt Univ. (United Kingdom) [7913-12]

2:50 pm: **Multistage phased electro-optical planar arrays for the manipulation of high power laser beams**, Mikhail M. Ivanenko, Alexei Krasnaberski, Alexei S. Mikhailov, Yuri V. Miklyaev, Lutz Aschke, Vitaly N. Lissotschenko, LIMO Lissotschenko Mikrooptik GmbH (Germany) [7913-13]

3:10 pm: **Laser beam alignment and diagnostics using diagnostic fluorescent safety mirrors**, Todd E. Lizotte, Hitachi Via Mechanics (USA), Inc. (USA) [7913-14]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 114 (Exhibit Level) Sun. 4:00 to 5:50 pm

Resonators and Adaptive Optics

Session Chair: **Andrew Forbes**, Council for Scientific and Industrial Research (South Africa)

4:00 pm: **Negative-branch unstable resonator in off-axis configuration for rectangular cross-sections**, Carsten Pargmann, Thomas Hall, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany) [7913-15]

4:20 pm: **Adaptive optics on petawatt lasers: current performance of the Texas Petawatt Laser** (*Invited Paper*), Mikael D. Martinez, The Univ. of Texas at Austin (USA) [7913-17]

4:50 pm: **Laser beam formation by adaptive optics**, Julia Sheldakova, Vadim V. Samarkin, Alexis V. Kudryashov, Alexey L. Rukosuev, Active Optics NightN Ltd. (Russian Federation) [7913-18]

5:10 pm: **Applying of refractive beam shapers of circular symmetry to generate non-circular shapes of homogenized laser beams**, Alexander V. Laskin, Vadim Laskin, Molecular Technology GmbH (Germany) [7913-20]

5:30 pm: **Experimental investigation of intracavity fiber array beam combining**, Sergey A. Dimakov, S. I. Klimentiev, Vladimir V. Lyubimov, A. Yu. Rodionov, Dmitrii I. Zhuk, S.I. Vavilov State Optical Institute (Russian Federation) [7913-19]



Monday 24 January

SESSION 5

Room: 114 (Exhibit Level) Mon. 8:00 to 10:00 am

Microresonators: Novel Morphologies and Device Applications I

Session Chair: **Vladimir S. Ilchenko**, OEwaves, Inc.

8:00 am: **Filters and electro-optic modulators on fiber end-faces**, Stefan Meister, Dawid Schweda, Marcus Dziedzina, Ronny Juhre, Aws Al-Saadi, Bülent A. Franke, Technische Univ. Berlin (Germany); Bernd Grimm, Sigurd K. Schrader, Technische Fachhochschule Wildau (Germany); Stephanie J. Benight, Denise H. Bale, Ilya Kosilkin, Larry R. Dalton, Univ. of Washington (USA); Hans-Joachim Eichler, Technische Univ. Berlin (Germany) [7913-42]

8:20 am: **Mode localization, Q-factor, and nonuniformities of a cylinder microresonator: theory and experiment**, Mikhail Sumetsky, OFS (USA) [7913-21]

8:40 am: **Ultra-high Q whispering-gallery-mode bottle microresonators: properties and applications** (*Invited Paper*), Danny O'Shea, Michael Pöllinger, Christian Junge, Sebastian Nickel, Alexander Rettenmaier, Johannes Gutenberg Univ. Mainz (Germany); Arno Rauschenbeutel, Johannes Gutenberg Univ. Mainz (Germany) and Technische Univ. Wien (Austria) [7913-22]

9:10 am: **A hybrid quantum photonic interface for solid state qubits** (*Invited Paper*), Dirk R. Englund, Luozhou Li, Jonathan S. Hodges, Columbia Univ. (USA); Brendan Shields, Harvard Univ. (USA); Kelley Rivoire, Fariba Hatami, Jelena Vuckovic, Stanford Univ. (USA); Hongkun Park, Mikhail D. Lukin, Harvard Univ. (USA) [7913-23]

9:40 am: **Thermal noise in optimized dielectric mirror coatings**, Michael L. Gorodetsky, Nikita M. Kondratiev, Lomonosov Moscow State Univ. (Russian Federation) [7913-24]

Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 114 (Exhibit Level) Mon. 10:30 am to 12:20 pm

Microresonators: Frequency Combs

Session Chair: **Andrew W. Poon**, Hong Kong Univ. of Science and Technology (Hong Kong, China)

10:30 am: **Spectrum engineering in whispering gallery mode resonators**, Andrey B. Matsko, Anatoliy A. Savchenkov, Vladimir S. Ilchenko, David J. Seidel, Lute Maleki, OEwaves, Inc. (USA) [7913-25]

10:50 am: **Octave spanning frequency combs from microresonators** (*Invited Paper*), Tobias Kippenberg, Max-Planck-Institut für Quantenoptik (Germany) [7913-26]

11:20 am: **Phonon lasers in cavity optomechanics** (*Invited Paper*), Kerry J. Vahala, California Institute of Technology (USA) [7913-27]

11:50 am: **Challenges in octave-spanning and short free-spectral-range optical frequency comb generation using monolithic whispering gallery mode resonators** (*Invited Paper*), Yanne K. Chemo, Institut FEMTO-ST (France) and Jet Propulsion Lab. (USA); Nan Yu, Jet Propulsion Lab. (USA) [7913-28]

Lunch Break 12:20 to 1:40 pm

SESSION 7

Room: 114 (Exhibit Level) Mon. 1:40 to 5:10 pm

Microresonators: Lasers and Photonics Devices

Session Chair: **Andrey B. Matsko**, OEwaves, Inc.

1:40 pm: **Ultra-high-Q microcavity-based visible microlasers** (*Invited Paper*), Andrea M. Armani, Hong-Seok Choi, Xiaomin Zhang, Ce Shi, The Univ. of Southern California (USA) [7913-29]

2:10 pm: **Multiple-port directional emission whispering-gallery mode microlasers** (*Invited Paper*), Yong-Zhen Huang, Institute of Semiconductors (China) [7913-30]

2:40 pm: **Coupled microcavity resonators and lasers** (*Invited Paper*), Lei Xu, Fudan Univ. (China) [7913-31]

Coffee Break 3:10 to 3:40 pm

3:40 pm: **On-chip programmable RF waveform generation with microring resonator arrays** (*Invited Paper*), Minghao Qi, Purdue Univ. (USA) [7913-32]

4:10 pm: **Lasing in high-Q conical polymeric microcavities**, Tobias Grossmann, Simone Schleede, Mario Hauser, Karlsruher Institut für Technologie (Germany); Mads B. Christiansen, Technical Univ. of Denmark (Denmark); Christoph Vannahme, Carsten Eschenbaum, Sönke Klinkhammer, Torsten Beck, Jochen Fuchs, Gerd U. Nienhaus, Uli Lemmer, Karlsruher Institut für Technologie (Germany); Anders Kristensen, Technical Univ. of Denmark (Denmark); Timo Mappes, Heinz Kalt, Karlsruher Institut für Technologie (Germany) [7913-33]

4:30 pm: **Experimental demonstration of light transmission property through a tapered fiber embedded in scattering nanoparticles**, Hideki Fujiwara, Takumi Ikeda, Keiji Sasaki, Hokkaido Univ. (Japan) [7913-34]

4:50 pm: **Unstable resonators based on gain guiding in photonic bandgap waveguides**, Tsinghua Her, Lei Zhao, Yue Zhou, Xianyu Ao, Lee W. Casperson, The Univ. of North Carolina at Charlotte (USA) [7913-35]

Tuesday 25 January

SESSION 8

Room: 114 (Exhibit Level) Tues. 9:00 to 11:50 am

Microresonators: Sensors

Session Chair: **Michelle L. Povinelli**, The Univ. of Southern California

9:00 am: **Optical resonators for nanomanipulation: from single molecule analysis to directed assembly** (*Invited Paper*), David Erickson, Cornell Univ. (USA) [7913-36]

9:30 am: **On-chip single nanoparticle detection and measurement using ultrahigh-Q whispering gallery microresonators** (*Invited Paper*), Lan Yang, Jiangang Zhu, Sahin K. Ozdemir, Lina He, Woosung Kim, Yunfeng Xiao, Lin Li, Da-ren Chen, Washington Univ. in St. Louis (USA) [7913-37]

Coffee Break 10:00 to 10:30 am

10:30 am: **Microring and microdisk resonator-based devices for on-chip optical interconnects, particle manipulation, and biosensing** (*Invited Paper*), Andrew W. Poon, Shaoqi Feng, Hong Cai, Ting Lei, Hui Chen, Xianshu Luo, Hong Kong Univ. of Science and Technology (Hong Kong, China) [7913-38]

11:00 am: **Characterization of high index microsphere resonators in fiber-integrated microfluidic platforms**, Oleksiy Svitelskiy, Dongning Sun, Arash Darafsheh, Vasily N. Astratov, The Univ. of North Carolina at Charlotte (USA) [7913-39]

11:20 am: **Rotation sensing using ring resonators** (*Invited Paper*), Michel J. F. Digonnet, Stanford Univ. (USA) [7913-40]

Lunch/Exhibition Break 11:50 am to 1:50 pm

SESSION 9**Room: 114 (Exhibit Level) Tues. 1:50 to 4:40 pm****Microresonators: Novel Morphologies and Device Applications II***Session Chair: Shayan Mookherjea, Univ. of California, San Diego*

1:50 pm: **Fabrication of horizontal-slot disk resonators and their applications** (*Invited Paper*), Shinyoung Lee, Jung H. Shin, KAIST (Korea, Republic of) [7913-41]

2:20 pm: **Polarization-purity spectra of a tapered-fiber-coupled microsphere cavity system at cryogenic temperatures**, Masazumi Fujiwara, Akira Tanaka, Kiyota Toubaru, Hong-Quan Zhao, Hideaki Takashima, Shigeki Takeuchi, Osaka Univ. (Japan) and Hokkaido Univ. (Japan) [7913-43]

2:40 pm: **FBG-nano-cavity on an optical nanofiber**, Kali P. Nayak, The Univ. of Electro-Communications (Japan); Kiyomi Nakajima, National Institute for Materials Science (Japan); Fam L. Kien, The Univ. of Electro-Communications (Japan); Hideki T. Miyazaki, Yoshimasa Sugimoto, National Institute for Materials Science (Japan); Kohzo Hakuta, The Univ. of Electro-Communications (Japan) [7913-44]

Coffee Break 3:00 to 3:30 pm

3:30 pm: **Heterogeneously integrated microdisk lasers for optical interconnects and optical logic** (*Invited Paper*), Pauline Mechet, Liu Liu, Rajesh Kumar, Koen Huybrechts, Thijs Spuesens, Günther Roelkens, Univ. Gent (Belgium); Erik-Jan Geluk, Tjibbe de Vries, Technische Univ. Eindhoven (Netherlands); Philippe Regreny, Ecole Centrale de Lyon (France); Dries Van Thourhout, Roel G. Baets, Geert Morthier, Univ. Gent (Belgium) [7913-51]

4:00 pm: **Periodical focusing of light in chains of microspheres in the limit of geometrical optics**, Arash Darafsheh, Vasily N. Astratov, The Univ. of North Carolina at Charlotte (USA) [7913-45]

4:20 pm: **Perturbation of whispering modes of magnetorheological polydimethylsiloxane spheres by external magnetic field**, Tindaro Ioppolo, M. Volkan Otugen, Southern Methodist Univ. (USA) [7913-46]

POSTERS-Tuesday**Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm**

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Hyper coherent linewidth control for a 30mW 405nm visible laser diode by delayed self-heterodyne beat, Masahiro Matsumura, Toshiki Kuromori, Wakao Sasaki, Doshisha Univ. (Japan) [7913-47]

Laser beam delivery for industrial machines, Claudiu I. Isarie, Constantin Oprean, Valentin D. Petrescu, Florian T. Popescu, Corina Bokor, Sorin Itu, Alina Gligor, Ilie V. Isarie, Univ. Lucian Blaga din Sibiu (Romania) [7913-48]

About the phenomenon produced by the successive jumps of the peripheral electrons, at the absorption of the intense photon beam by the metal, Claudiu I. Isarie, Constantin Oprean, Ion Marginean, Toderita Nemes, Ilie V. Isarie, Corina Bokor, Sorin Itu, Univ. Lucian Blaga din Sibiu (Romania) [7913-49]

Intra-cavity decomposition of a dual-directional laser beam, Darryl Naidoo, Andrew Forbes, Council for Scientific and Industrial Research (South Africa); Kamel Ait-Ameur, Mickaël Fromager, Ecole Nationale Supérieure d'Ingenieurs de Caen et Ctr. de Recherche (France) [7913-50]

Courses of Related Interest

SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm
 SC860 Resonator Design for Solid State Lasers (Paschotta) Wednesday, 8:30 am to 5:30 pm
 SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Don't miss the free Photonics West Exhibition

See new products and top companies at the most important event for the photonics and laser industry

25-27 January 2011

Tuesday · 10:00 am to 5:00 pm

Wednesday · 10:00 am to 5:00 pm

Thursday · 10:00 am to 4:00 pm

Fiber Lasers VIII: Technology, Systems, and Applications

Conference Chair: **Jay W. Dawson**, Lawrence Livermore National Lab.

Conference Co-Chair: **Eric C. Honea**, Lockheed Martin Aculight

Program Committee: **John M. Ballato**, Clemson Univ.; **Jes Broeng**, NKT Photonics A/S (Denmark); **Fabio Di Teodoro**, Northrop Grumman Aerospace Systems; **Mark Dubinskii**, U.S. Army Research Lab.; **Jean-Philippe Fève**, Directed Energy Solutions; **Almantas Galvanauskas**, Univ. of Michigan; **Denis V. Gapontsev**, Consultant (Russian Federation); **Steffen Hädrich**, Friedrich-Schiller-Univ. Jena (Germany); **Clifford Headley III**, OFS Labs.; **Yoonchan Jeong**, Seoul National Univ. (Korea, Republic of); **Dahv A. V. Kliner**, JDSU; **Peter F. Moulton**, Q-Peak, Inc.; **Siddharth Ramachandran**, Boston Univ.; **L. Brandon Shaw**, U.S. Naval Research Lab.; **Daniel B. Soh**, Sandia National Labs., California; **Kanishka Tankala**, Nuferrn; **James Roy Taylor**, Imperial College London (United Kingdom); **William E. Torruellas**, The Johns Hopkins Univ.; **Andreas Tünnermann**, Friedrich-Schiller-Univ. Jena (Germany) and Fraunhofer Institute for Applied Optics and Precision Engineering (Germany); **Robert G. Waarts**, Consultant; **Ji Wang**, Corning Incorporated; **David E. Zelmon**, Air Force Research Lab.

Conference Cosponsors:



Monday 24 January

Welcome and Conference Opening

Room: 131 (Exhibit Level) Mon. 8:00 to 8:10 am

Jay W. Dawson, Lawrence Livermore National Lab. (USA);
Eric C. Honea, Lockheed Martin Aculight (USA)

SESSION 1

Room: 131 (Exhibit Level) Mon. 8:10 to 9:50 am

Applications

Session Chair: **L. Brandon Shaw**, U.S. Naval Research Lab.

8:10 am: **Thulium fiber laser lithotripsy** (*Invited Paper*), Nathaniel M. Fried, The Univ. of North Carolina at Charlotte (USA) [7914-01]

8:40 am: **Application of supercontinuum sources in spectro-radiometric characterization, calibration, validation, and performance testing** (*Invited Paper*), Joseph P. Rice, Steven W. Brown, John T. Woodward, Heather J. Patrick, Clarence J. Zarobila, Keith R. Lykke, National Institute of Standards and Technology (USA) [7914-02]

9:10 am: **Material micromachining using bursts of high-repetition rate picosecond pulses from a fiber laser source**, Alain Courmoyer, Mathieu Drolet, Louis Desbiens, Dany Lemieux, Martin Briand, Yves Taillon, INO (Canada) [7914-03]

9:30 am: **Dynamic pulsing of a MOPA fiber laser for processing of thermally sensitive materials**, Sami T. Hendow, José R. Salcedo, Paulo T. Guerreiro, João M. Sousa, Multiwave Photonics (Portugal). [7914-95]

Coffee Break 9:50 to 10:20 am

SESSION 2

Room: 131 (Exhibit Level) Mon. 10:20 to 11:50 am

Mitigating Nonlinear Effects I

Session Chair: **Mark Dubinskii**, U.S. Army Research Lab.

10:20 am: **High-power 2-micron single-frequency fibre laser sources** (*Invited Paper*), Morten Ibsen, Univ. of Southampton (United Kingdom); Zhaowei Zhang, Heriot-Watt Univ. (United Kingdom); Lee Pearson, Ji Won Kim, Jayanta Sahu, W. Andrew Clarkson, Univ. of Southampton (United Kingdom). [7914-05]

10:50 am: **1kW cw Yb-fiber-amplifier with <0.5GHz linewidth and near-diffraction limited beam-quality, for coherent combining application**, Doruk Engin, Wei Lu, Mehmetcan Akbulut, Bruce McIntosh, Horacio R. Verdun, Shantanu Gupta, Fibertek, Inc. (USA) [7914-06]

11:10 am: **On the Raman threshold for passive large mode area fibers**, Cesar Jauregui-Misas, Jens Limpert, Friedrich-Schiller-Univ. Jena (Germany); Andreas Tünnermann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany). [7914-07]

11:30 am: **Suppression of stimulated Brillouin scattering in gain optical fibers through phase-modulation: a time dependent model**, Clint Zeringue, Iyad A. Dajani, Gerald T. Moore, Air Force Research Lab. (USA) [7914-08]

Lunch Break 11:50 am to 12:50 pm

SESSION 3

Room: 131 (Exhibit Level) Mon. 12:50 to 2:10 pm

Mitigating Nonlinear Effects II

Session Chair: **Clifford Headley III**, OFS Labs.

12:50 pm: **A novel method for increasing the efficiency of 1064nm two tone lasers through heating of the gain fiber**, Leanne J. Henry, Thomas M. Shay, Air Force Research Lab. (USA); Dane Hunt, TREX Enterprises Corp. (USA); Ken Rowland, Boeing LTS Inc. (USA). [7914-09]

1:10 pm: **Experimental studies of segmented acoustically tailored photonic crystal fiber**, Craig A. Robin, Iyad A. Dajani, Furqan L. Chiragh, Air Force Research Lab. (USA) [7914-10]

1:30 pm: **Experimental investigation of suppressing stimulated Raman scattering in double clad fiber amplifiers employing long period gratings**, Dirk Nodop, Cesar Jauregui-Misas, Florian Jansen, Jens Limpert, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [7914-11]

1:50 pm: **Improved phase modulation for SBS mitigation**, David M. Brown, Michael L. Dennis, William E. Torruellas, The Johns Hopkins Univ. (USA) [7914-12]

SESSION 4

Room: 131 (Exhibit Level) Mon. 2:10 to 4:30 pm

Components

Session Chair: **Jean-Philippe Fève**, Directed Energy Solutions

2:10 pm: **A novel multiple port side pump couplers for high-power fiber lasers** (*Invited Paper*), Yoav Sintov, Avraham Meir, Yaakov Glick, Shaul Pearl, Soreq Nuclear Research Ctr. (Israel). [7914-13]

2:40 pm: **High-power, fused assemblies enabled by advances in fiber-processing technologies**, Robert Wiley, 3SAE Technologies, Inc. (USA) [7914-14]

Coffee Break 3:00 to 3:30 pm

3:30 pm: **Single-polarization all-solid photonic bandgap fiber incorporating point-by-point Bragg gratings**, Ryuichiro Goto, Stuart D. Jackson, The Univ. of Sydney (Australia); Robert J. Williams, Nemanja Jovanovic, Graham Marshall, Michael J. Withford, Macquarie Univ. (Australia) [7914-15]

3:50 pm: **Ultra rapid dispersion measurement of optical fibers and optical assemblies at 1310 nm and 1550 nm**, Wolfgang Wieser, Benjamin R. Biedermann, Thomas Klein, Christoph M. Eigenwillig, Robert A. Huber, Ludwig-Maximilians-Univ. München (Germany). [7914-16]

4:10 pm: **All-fiber single-mode PM thulium fiber lasers using femtosecond laser written fiber Bragg gratings**, Christina Willis, Robert A. Sims, Lawrence Shah, Martin C. Richardson, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Jens Thomas, Rita Becker, Christian Voigtländer, Friedrich-Schiller-Univ. Jena (Germany); Andreas Tünnermann, Stefan Nolte, Friedrich-Schiller-Univ. Jena (Germany) and Fraunhofer Institute for Applied Optics and Precision Engineering (Germany) [7914-17]

SESSION 5

Room: 131 (Exhibit Level) Mon. 4:30 to 5:50 pm

Material Properties and Photo-Darkening

Session Chair: Yoonchan Jeong,
Seoul National Univ. (Korea, Republic of)

4:30 pm: **Reliability and photodarkening in Tm-doped fibers and lasers** (*Invited Paper*), Bryce N. Samson, Adrian L. G. Carter, Kanishka Tankala, Nufern (USA) [7914-18]

5:00 pm: **Gamma-radiation-induced photodarkening in ytterbium-doped silica glasses** (*Invited Paper*), Tomofumi Arai, Kentaro Ichii, Shoji Tanigawa, Munehisa Fujimaki, Fujikura Ltd. (Japan) [7914-19]

5:30 pm: **Distribution of photodarkening-induced loss in Yb-doped fiber amplifiers**, Michalis N. Zervas, Univ. of Southampton (United Kingdom) [7914-20]

Tuesday 25 January

SESSION 6

Room: 131 (Exhibit Level) Tues. 8:00 to 10:40 am

Extended Wavelength Sources

Session Chair: Dahv A. V. Kliner, JDSU

8:00 am: **Tm-doped silicate glass fibre lasers: the foundation technology for high-power mid-infrared light generation** (*Invited Paper*), Stuart D. Jackson, The Univ. of Sydney (Australia) [7914-21]

8:30 am: **Efficient deep-UV generation from sub- μ J 30 fs-pulses in Ar-filled hollow-core photonic crystal fibre** (*Invited Paper*), Nicolas Y. Joly, Max-Planck-Institut für die Physik des Lichts (Germany) and Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Philipp Hoelzer, Max-Planck-Institut für die Physik des Lichts (Germany); Johannes Nold, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Wonkeun Chang, Gordon Wong, Alexander Nazarkin, Philipp J. Russell, Max-Planck-Institut für die Physik des Lichts (Germany) [7914-22]

9:00 am: **Simultaneous excitation of selective multiple Raman Stokes wavelengths (green-yellow-red) using shaped multi-step pulses from an all-fiber MOPA system**, Dejiao Lin, Peh Siong Teh, Shaif-ul Alam, Kangkang Chen, David J. Richardson, Univ. of Southampton (United Kingdom) . [7914-23]

9:20 am: **All-fiber mid-IR supercontinuum source from 1.5 to 5 μ m**, L. Brandon Shaw, Rafael Gattass, Jasbinder S. Sanghera, Ishwar Aggarwal, U.S. Naval Research Lab. (USA) [7914-24]

9:40 am: **High-power all fiber picosecond sources from IR to UV**, Simonette Pierrot, Julien Saby, François Salin, Benjamin Cocquelin, EOLITE Systems (France) [7914-25]

10:00 am: **Resonantly cladding-pumped Yb-free Er-doped LMA fiber lasers: power scaling and efficiency improvement**, Jun Zhang, Viktor Fromzel, Tigran Sanamyan, Mark Dubinskii, U.S. Army Research Lab. (USA) [7914-26]

10:20 am: **High-average power second harmonic generation of femtosecond fiber lasers**, Steffen Hädrich, Jan Rothhardt, Tino Eidam, Thomas Gottschall, Jens Limpert, Friedrich-Schiller-Univ. Jena (Germany); Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) and Fraunhofer Insitute for Applied Optics and Precision Engineering (Germany) [7914-27]

Coffee Break 10:40 to 11:10 am

SESSION 7

Room: 131 (Exhibit Level) Tues. 11:10 am to 12:40 pm

Pulsed Sources I

Session Chair: Robert G. Waarts, Consultant

11:10 am: **Coherent phase locking of high-pulse energy fiber amplifiers** (*Invited Paper*), Stephen Palese, Eric Cheung, Fabio Di Teodoro, Mark E. Weber, Northrop Grumman Aerospace Systems (USA) [7914-28]

11:40 am: **100 kW peak power, single polarization, high-brightness nanosecond lasers based on 3C optical fiber**, Michelle L. Stock, Chi-Hung Liu, Andrey Kuznetsov, Gaston E. Tudury, Arbor Photonics, Inc. (USA); Almantas Galvanauskas, Univ. of Michigan (USA); Thomas S. Sosnowski, Arbor Photonics, Inc. (USA) [7914-29]

12:00 pm: **Complete measurement of nanosecond laser pulses in time made simple**, Rick P. Trebino, Georgia Institute of Technology (USA); Pamela R. Bowlan, Swamp Optics, LLC (USA) [7914-38]

12:20 pm: **Coherent combining of low-peak-power pulsed fiber amplifiers with 80-ns pulse duration**, Pierre Bourdon, Kevin Cadoret, Laurent Lombard, Adrian Azarian, Guillaume Canat, Baya Bennaï, Didier Goular, Véronique Jolivet, ONERA (France); Yves Jaouën, Telecom ParisTech (France); Olivier Vasseur, ONERA (France) [7914-31]

Lunch/Exhibition Break 12:40 to 2:10 pm

SESSION 8

Room: 131 (Exhibit Level) Tues. 2:10 to 3:30 pm

Pulsed Sources II

Session Chair: William E. Torruellas, The Johns Hopkins Univ.

2:10 pm: **A monolithic thulium doped single mode fiber laser with 1.5ns pulsewidth and 8kW peak power**, Jianwu Ding, Bryce Sampson, Chiachi Wang, Kanishka Tankala, Adrian L. G. Carter, Nufern (USA) [7914-32]

2:30 pm: **Picosecond programmable laser sweeping over 50 megawavelengths per second**, Youngjae Kim, Bryan Buorgoyne, Genia Photonics Inc. (Canada); Nicolas Godbout, Ecole Polytechnique de Montréal (Canada); Alain Villeneuve, Genia Photonics Inc. (Canada) [7914-33]

2:50 pm: **High-power actively mode-locked ytterbium doped fiber laser delivering 15 ps at 40 MHz**, Pierre Deslandes, Univ. Bordeaux 1 (France) and EOLITE Systems (France); Damien Sangla, Eric Freysz, François Salin, Julien Saby, Univ. Bordeaux 1 (France) [7914-34]

3:10 pm: **High-energy Yb-doped fiber MOPA in the ns-kHz regime for large-scale laser facilities front-end**, Laure Lago, Commissariat à l'Energie Atomique (France); Arnaud Mussot, Marc Douay, Univ. des Sciences et Technologies de Lille (France); Emmanuel Hugonnot, Commissariat à l'Energie Atomique (France) [7914-35]

Coffee Break 3:30 to 4:00 pm

SESSION 9

Room: 131 (Exhibit Level) Tues. 4:00 to 6:00 pm

Pulsed Amplified Sources

Joint Session with Conference 7912

Session Chairs: Norman Hodgson, Coherent, Inc.;
Dahv A. V. Kliner, JDSU

4:00 pm: **All-fiber based amplification of 40 ps pulses from a gain-switched laser diode**, Sebastian Kanzelmeyer, Hakan Sayinc, Thomas Theeg, Maik Frede, Jörg Neumann, Dietmar Kracht, Laser Zentrum Hannover e.V. (Germany) [7914-36]

4:20 pm: **High-average power Nd:YVO₄ regenerative amplifier seeded by a gain switched diode laser**, Markus Lührmann, Florian Harth, Christian Theobald, Thorsten Ulm, Photonik-Zentrum Kaiserslautern e.V. (Germany); Ralf Knappe, Achim Nebel, LUMERA LASER GmbH (Germany); Andreas Klehr, Götz Erbert, Ferdinand-Braun-Institut (Germany); Johannes A. L'huillier, Photonik-Zentrum Kaiserslautern e.V. (Germany) [7912-37]

4:40 pm: **Sub-10 picosecond pulses from a fiber-amplified and optically compressed passively Q-switched microchip laser**, Alexander Steinmetz, Dirk Nodop, Andreas Martin, Jens Limpert, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [7914-37]

LASE

- 5:00 pm: **High-power diode pumped crystal fiber amplifier for passively Q-switched Nd:YAG microlaser**, Igor Martial, Lab. Charles Fabry (France) and FiberCryst (France); François Balembois, Lab. Charles Fabry (France); Julien Didierjean, FiberCryst (France); Patrick Georges, Lab. Charles Fabry (France) [7912-38]
- 5:20 pm: **High-pulse energy operation of efficient and compactly packaged, ns-pulse Yb-doped photonic-crystal fiber-based lasers delivering high-spectral and spatial brightness**, Fabio Di Teodoro, Northrop Grumman Aerospace Systems (USA) [7914-30]
- 5:40 pm: **2nd and 3rd harmonic generation from a fiber-amplified 100-ps, high-repetition rate and single-frequency passively Q-switched microchip laser**, Alexander Steinmetz, Dirk Nodop, Friedrich-Schiller-Univ. Jena (Germany); Georg Sommerer, Alexander Wissel, Stefan Spiekermann, Ingo Freitag, InnoLight GmbH (Germany); Jens Limpert, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [7912-39]

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

- Refractive index changes due to gain/absorption in Yb-doped fibers**, Damian N. Schimpf, Enrico Seise, Cesar Jauregui-Misas, Dirk Nodop, Jens Limpert, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [7914-50]
- Er-fiber laser based reference frequency standard for ultra dense WDM networks**, Michal P. Nikodem, Krzysztof M. Abramski, Wroclaw Univ. of Technology (Poland) [7914-68]
- Actively Q-switched ytterbium-doped tapered fiber laser**, Valery Filippov, Juho Kerttala, Tampere Univ. of Technology (Finland); Yuri K. Chamorovskii, Konstantin Golant, Institute of Radio Engineering and Electronics (Russian Federation); Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland) [7914-69]
- Characterization of modal coupling of Bragg gratings in large-mode-area fibers**, Aarni T. Iho, Ari Tervonen, Aalto Univ. School of Science and Technology (Finland); Kalle Ylä-Jarkko, Corelase Oy (Finland); Simo Tammela, Beneq Oy (Finland); Seppo K. Honkanen, Aalto Univ. School of Science and Technology (Finland) [7914-70]
- Arbitrarily-shaped bursts of picosecond pulses from a fiber laser source for high-throughput applications**, Louis Desbiens, Mathieu Drolet, Vincent Roy, Marco M. Sisto, Yves Taillon, INO (Canada) [7914-71]
- Yb-doped fiber amplifiers at 1014.8 nm and frequency quadrupling**, Tao Hong, Shanghai Institute of Optics and Fine Mechanics (China) and Shanghai Advanced Research Institute (China) [7914-72]
- Group-velocity dispersion in multimode photonic crystal fibers measured using time-domain white-light interferometry**, Pascal Bössetter, Tobias Baselt, Frank Ebert, Fabiola Basan, Peter Hartmann, West Saxon Univ. of Applied Sciences Zwickau (Germany) [7914-73]
- Performance characterization of new erbium-doped fibers using MCVD nanoparticle doping process**, David E. Boivin, Alain Pastouret, Ekaterina Burov, Cédric Gonnet, Olivier Cavani, Simon Lempereur, Pierre Sillard, Draka Comteq France (France) [7914-74]
- High-power double-clad Er-doped fiber laser**, Mikhail Likhachev, Leonid Kotov, Mikhail M. Bubnov, Oleg I. Medvedkov, A. M. Prokhorov General Physics Institute (Russian Federation); Denis Lipatov, Institute of Chemistry of High-Purity Substances of the Russian Academy of Sciences (Russian Federation); Aleksey N. Guryanov, A. M. Prokhorov General Physics Institute (Russian Federation) [7914-75]
- Side-pumped, tapered fiber bundle for all-fiber counter-propagating pumped high-power fiber amplifiers**, Thomas Theeg, Katharina Hausmann, Maik Frede, Hakan Sayinc, Laser Zentrum Hannover e.V. (Germany) and QUEST - Ctr. for Quantum-Engineering and Space-Time Research (Germany); Jörg Neumann, Laser Zentrum Hannover e.V. (Germany); Dietmar Kracht, Laser Zentrum Hannover e.V. (Germany) and QUEST - Ctr. for Quantum-Engineering and Space-Time Research (Germany) [7914-76]

- A switchable and tunable dual-wavelength fiber laser based in a polarization-maintaining fiber Bragg grating and a Hi-Bi Sagnac fiber optical loop mirror**, Ricardo I. Alvarez Tamayo, Benemerita Univ. Autonoma de Puebla (Mexico); Manuel Durán Sánchez, Univ. Tecnológica de Puebla (Mexico); Evgeny A. Kuzin, Baldemar Ibarra-Escamilla, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Olivier Pottiez, Ctr. de Investigaciones en Óptica, A.C. (Mexico) [7914-77]
- Guiding and birefringent properties of a hybrid PDMS/silica photonic crystal fiber**, Christos Markos, National Hellenic Research Foundation (Greece); Kyriakos G. Vlachos, Univ. of Patras (Greece); George Kakarantzas, National Hellenic Research Foundation (Greece) [7914-78]
- Influence of non-linear index on coherent passive beam combining of fiber lasers**, Anatoly P. Napartovich, Troitsk Institute for Innovation and Fusion Research (Russian Federation) and Moscow Institute for Physics and Technology (Russian Federation); Nikolay N. Elkin, Dmitry V. Vysotsky, Troitsk Institute for Innovation and Fusion Research (Russian Federation) ... [7914-79]
- Generation of 30 fs pulses at 670 nm using a frequency-doubled fiber laser system and a photonic-crystal fiber with two zero-dispersion wavelengths**, Robert Herda, Tobias Junggeburth, TOPTICA Photonics AG (Germany); Kim Per Hansen, NKT Photonics A/S (Denmark); Patrick Leisching, TOPTICA Photonics AG (Germany) [7914-80]
- Photodarkening-induced refractive index change in ytterbium doped fibers**, Changgeng Ye, Joan J. Montiel i Ponsoda, Ari Tervonen, Seppo K. Honkanen, Aalto Univ. School of Science and Technology (Finland) [7914-81]
- Exact solutions for the pulse propagation in nonlinear optical medium**, Hyuk-jae Lee, Korea Institute of Science and Technology (Korea, Republic of) [7914-82]
- Second harmonic generation with continuous-wave fiber lasers in periodically-poled non linear crystals**, Mathieu Jacquemet, David Harnois, Alain Mugnier, David Paturel, Quantel Group (France) [7914-83]
- S2 imaging of LMA photonic crystal fiber amplifiers**, Marko Laurila, Technical Univ. of Denmark (Denmark); Thomas T. Alkeskjold, Jes Broeng, NKT Photonics A/S (Denmark); Jesper Laegsgaard, Technical Univ. of Denmark (Denmark) [7914-84]
- Measurement of local polarization for multi-mode photonic crystal fibers**, Oliver A. Schmidt, Christian Schulze, Daniel Flamm, Michael R. Duparré, Friedrich-Schiller-Univ. Jena (Germany) [7914-85]
- 60 fs pulses from an all-fiber dissipative soliton erbium oscillator**, Nikolai B. Chichkov, Katharina Hausmann, Dieter Wandt, Laser Zentrum Hannover e.V. (Germany) and QUEST - Ctr. for Quantum Engineering and Space-Time Research (Germany); Uwe Morgner, Leibniz Univ. Hannover (Germany) and Laser Zentrum Hannover e.V. (Germany) and QUEST - Ctr. for Quantum Engineering and Space-Time Research (Germany); Jörg Neumann, Laser Zentrum Hannover e.V. (Germany) and QUEST - Ctr. for Quantum Engineering and Space-Time Research (Germany); Dietmar Kracht, Laser Zentrum Hannover e.V. (Germany) and QUES - Ctr. for Quantum Engineering and Space-Time Research (Germany) [7914-86]
- Microstructured fiber with high-birefringence and low-noncircularity mode field**, Alexander N. Denisov, Andrey E. Levchenko, Sergei L. Semjonov, Evgeniy M. Dianov, Fiber Optics Research Ctr. (Russian Federation) [7914-87]
- Modal analysis of beams emerging from a multi-core fiber using computer-generated holograms**, Christian Schulze, Oliver A. Schmidt, Daniel Flamm, Michael R. Duparré, Friedrich-Schiller-Univ. Jena (Germany); Siegmund Schröter, Institut für Photonische Technologien e.V. (Germany) [7914-88]
- Impact of modal interference on high-power fiber laser systems**, Cesar Jauregui-Misas, Tino Eidam, Jens Limpert, Friedrich-Schiller-Univ. Jena (Germany); Andreas Tünnermann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (USA) [7914-89]
- Defining coiling adiabaticity**, Sylvain O'Reilly, Bertrand Gauvreau, Benoit Sévigny, ITF Labs./Avensys Tech (Canada) [7914-91]
- Breaking the symmetry: enhanced transversal mode discrimination in large pitch photonic crystal fibers**, Fabian Stutzki, Florian Jansen, Cesar Jauregui, Friedrich-Schiller-Univ. Jena (Germany); Jens Limpert, Friedrich-Schiller-Univ. Jena (Germany) and Helmholtz-Institut Jena (Germany); Andreas Tünnermann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7914-92]
- All-fiber 7x1 signal combiner for incoherent laser beam combining**, Danny Noordgraaf, Martin D. Maack, Peter M. W. Skovgaard, Jeppe Johansen, NKT Photonics A/S (Denmark); Mats Blomqvist, Optoskand AB (Sweden); Jesper Laegsgaard, Technical Univ. of Denmark (Denmark) [7914-93]
- LMA fibers modal decomposition using image factor analysis**, Jean-Joseph Max, Bertrand Gauvreau, Benoit Sévigny, Mathieu Faucher, ITF Labs./Avensys Tech (Canada) [7914-94]

Wednesday 26 January

SESSION 10

Room: 131 (Exhibit Level) Wed. 8:00 to 10:00 am

High-Power Sources

Session Chair: Denis V. Gapontsev, Consultant (Russian Federation)

8:00 am: **Fibers and fiber-optic components for high-power fiber lasers** (*Invited Paper*), Hagen Zimer, JT Optical Engine GmbH + Co. KG (Germany); Marcin M. Kozak, JENOPTIK Optical Systems GmbH (Germany); Andreas Liem, JT Optical Engine GmbH + Co. KG (Germany); Frank Flohrer, JENOPTIK Optical Systems GmbH (Germany); Falk Dörfel, JENOPTIK Laser GmbH (Germany); Peter Riedel, Guided Color Technologies GmbH (Germany); Sebastian Linke, Friedrich-Schiller-Univ. Jena (Germany); Ray J. Horley, Fabio Ghiringhelli, A. Harker, Sebastien Desmoulins, Michalis N. Zervas, SPI Lasers (United Kingdom); Johannes Kirchof, Sonja Unger, Sylvia Jetschke, Institut für Photonische Technologien e.V. (Germany); Thomas Peschel, Thomas Schreiber, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7914-39]

8:30 am: **Advanced specialty fiber designs for fiber lasers** (*Invited Paper*), Liang Dong, Clemson Univ. (USA) [7914-40]

9:00 am: **Pulsed Tm³⁺-doped fiber amplifier with 300-W average output power**, Yulong Tang, Lin Xu, Yi Yang, Shanghai Institute of Optics and Fine Mechanics (China); Jianqiu Xu, Shanghai Jiaotong Univ. (China) [7914-41]

9:20 am: **Robust single-mode ytterbium-doped large pitch fiber emitting 294 W**, Florian Jansen, Fabian Stutzki, Tino Eidam, Cesar Jauregui, Jens Limpert, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [7914-42]

9:40 am: **4-kW fiber laser for metal cutting and welding**, Dahv A. V. Kliner, Kwang Chong, Justin Franke, Thomas E. Gordon, Jeff G. Gregg, Vincent M. Issier, Boris M. Kharlamov, Andrea Kliner, Masanao Kobayashi, Juan Lugo, Johnny Luu, James J. Morehead, Martin H. Muendel, Lawrence E. Myers, Kelvin Nguyen, JDSU (USA); Hiroshi Sako, Amada Co., Ltd. (Japan); Kyle R. Schneider, Jeff Segall, Katherine Shigeoka, JDSU (USA); Daniel B. Soh, Sandia National Labs., California (USA); Raman Srinivasan, Derek Tucker, Dirk Woll, David L. Woods, Hongbo Yu, Chris Zhang, JDSU (USA) [7914-43]

Coffee Break 10:00 to 10:20 am

LASE PLENARY SESSION

Room: 134 (Exhibit Level) Wed. 10:20 am to 12:30 pm

10:20 am: **Welcome and Opening Remarks**, Friedhelm Dorsch, TRUMPF GmbH & Co. KG (Germany) and Alberto Piqué, U.S. Naval Research Lab. (USA)

10:25 am: **Announcement of the Best Green Photonics Paper Awards in LASE**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

10:30 am: **Of Light, Electrons, and Metamaterials**, Nader Engheta, Univ. of Pennsylvania (USA)

11:10 am: **Using Lasers in Particle-based Applications**, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

11:50 am: **Advances in Lasers and Their Impact on Industrial Applications**, Paul E. Denney, Connecticut Ctr. for Advanced Technology, Inc. (USA)

See p. 20 for details.

Lunch/Exhibition Break 12:30 to 2:00 pm

Stimulated Raman scattering mitigation through amplified spontaneous emission simultaneous seeding on high-power double-clad fiber pulse amplifiers, Miguel Melo, João M. Sousa, Martin O. Berendt, Multiwave Photonics (Portugal) [7914-96]

Temporal compression of the wavelength swept output from a Fourier domain mode locked laser, Christoph M. Eigenwillig, Wolfgang Wieser, Benjamin R. Biedermann, Thomas Klein, Robert A. Huber, Ludwig-Maximilians-Univ. München (Germany) [7914-97]

Radiation effects on fiber amplifiers: design of radiation tolerant Yb/Er-based devices, Sylvain Girard, Commissariat à l'Énergie Atomique (France); Arnaud Laurent, iXFiber SAS (France); Marilena Vivona, Lab. Hubert Curien (France); Thierry Robin, Benoit Cadier, iXFiber SAS (France); Youcef Ouerdane, Aziz Boukenter, Lab. Hubert Curien (France) [7914-98]

Synchronized dual wavelength programmable laser with 75nm wavelength difference tuning, Bryan Buorgoyne, Youngjae Kim, Alain Villeneuve, Genia Photonics Inc. (Canada) [7914-99]

Coherent coupling of spectrally broadband fiber laser channels, Anatoliy I. Khizhnyak, Vladimir B. Markov, James M. Kilpatrick, Ivan Tomov, MetroLaser, Inc. (USA) [7914-100]

The high-power femtosecond pulses amplified by an all-fiber system based on the model of self-similar amplification, Tianxin Yang, Tianhe Wang, Delin Yang, Junlong Wang, Mei Sang, Tianjin Univ. (China) [7914-101]

High-gain resonance Er:glass amplifier, Peng Wan, Jian Liu, PolarOnyx, Inc. (USA) [7914-102]

Measurement techniques for the evaluation of photodarkening in fibers for high-power lasers, Guido Perrone, Andrea Braglia, Massimo Olivero, Alessandra Neri, Nadia Boetti, Joris Lousteau, Daniel Milanese, Politecnico di Torino (Italy) [7914-103]

Fabrication of pump combiners for high-power fiber lasers, Guido Perrone, Andrea Braglia, Massimo Olivero, Alessandra Neri, Politecnico di Torino (Italy) [7914-104]

Thermal modeling of active fiber and splice points in high-power fiber laser, Ziyang Huang, Tze Yang Ng, Chu Perng Seah, DSO National Labs. (Singapore); Hui Ting Lim, Nanyang Technological Univ. (Singapore); Ruifen Wu, DSO National Labs. (Singapore) [7914-105]

Phase locking multiple fiber lasers using Talbot self-imaging effect, Renjie Zhou, Joseph W. Haus, Univ. of Dayton (USA); Baldemar Barra-Escamilla, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Qiwen Zhan, Peter E. Powers, Univ. of Dayton (USA) [7914-106]

Near-circular pump guides, James J. Morehead, Martin H. Muendel, JDSU (USA) [7914-107]

Experimental study of phase locking of fiber collimators using internal beam-tail interference, Leonid A. Beresnev, U.S. Army Research Lab. (USA); Mikhail A. Vorontsov, Thomas Weyrauch, Univ. of Dayton (USA); Gary W. Carhart, Jiang Liu, U.S. Army Research Lab. (USA) [7914-108]

High-average power optical demodulation of a fiber amplified phase modulated single-frequency signal, Stephan Rhein, Friedrich-Schiller-Univ. Jena (Germany); Oliver Schmidt, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Hagen Zimer, JT Optical Engine GmbH + Co. KG (Germany); Thomas Schreiber, Ramona Eberhardt, Andreas Tünnermann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7914-109]

Fused fiber pump and signal combiners for a 4-kW ytterbium fiber laser, Dirk Woll, Johnny Luu, Chris Zhang, James J. Morehead, Jeff Segall, Kuochou Tai, Boris M. Kharlamov, Hongbo Yu, Lawrence E. Myers, Martin H. Muendel, JDSU (USA) [7914-110]

Comparative numerical study of efficiency of energy deposition in femtosecond microfabrication with fundamental and second harmonics of Yb-doped fiber laser, Alexandr Dostovalov, Sergey A. Babin, Institute of Automation and Electrometry (Russian Federation); Vladimir K. Mezentssev, Mykhaylo Dubov, Mandana Baregheh, Aston Univ. (United Kingdom) [7914-111]

Power-equalized multiwavelength Raman fiber laser based on random distributed feedback, Sergey A. Babin, Institute of Automation and Electrometry (Russian Federation); Atalla E. El-Taher, Paul Harper, Aston Univ. (United Kingdom); Dmitriy V. Churkin, Evgenii V. Podivilov, Institute of Automation and Electrometry (Russian Federation); Juan D. Ania-Castanon, Consejo Superior de Investigaciones Científicas (Spain); Sergei K. Turitsyn, Aston Univ. (United Kingdom) [7914-112]

On the theory of the modulation instability in optical fiber amplifiers and lasers, Alexander M. Rubenchik, Lawrence Livermore National Lab. (USA); Sergei K. Turitsyn, Aston Univ. (United Kingdom); Michail Fedoruk, Institute of Computational Technologies (Russian Federation) [7914-113]

LASE

SESSION 11

Room: 131 (Exhibit Level) Wed. 2:00 to 3:30 pm

Fiber Laser Markets

Session Chair: **Jes Broeng**, NKT Photonics A/S (Denmark)

2:00 pm: **Challenges for fiber lasers in defense applications** (*Invited Paper*), Mark Niece, High Energy Laser Joint Technology Office (USA) [7914-44]

2:30 pm: **Fiber lasers in the materials processing market** (*Invited Paper, Presentation Only*), David A. Belforte, Photonics Spectra (USA) [7914-45]

3:00 pm: **Fiber lasers in PV manufacturing** (*Invited Paper*), Bernhard P. Piwczyk, IPG Photonics Corp. (USA) [7914-46]

Coffee Break 3:30 to 4:00 pm

SESSION 12

Room: 131 (Exhibit Level) Wed. 4:00 to 4:50 pm

Beam Combining I

Session Chair: **Eric C. Honea**, Lockheed Martin Aculight

4:00 pm: **Laser beam projection with adaptive fiber array systems** (*Invited Paper*), Mikhail A. Vorontsov, Thomas Weyrauch, Univ. of Dayton (USA); Leonid A. Beresnev, Gary W. Carhart, U.S. Army Research Lab. (USA); Svetlana L. Lachinova, Ling Liu, Univ. of Maryland, College Park (USA); Jiang Liu, U.S. Army Research Lab. (USA) [7914-47]

4:30 pm: **Coherent combining of ultrashort fiber-amplified laser pulses**, Enrico Seise, Arno Klenke, Jens Limpert, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [7914-48]

Post-Deadline Session

Room: 131 (Exhibit Level) Wed. 4:50 to 5:50 pm

Session Chair: **Eric C. Honea**, Lockheed Martin Aculight

See room sign for schedule of post-deadline papers

Thursday 27 January

SESSION 13

Room: 131 (Exhibit Level) Thurs. 8:20 to 9:30 am

Beam Combining II

Session Chair: **David E. Zelmon**, Air Force Research Lab.

8:20 am: **Coherent and spectral beam combining of fiber lasers** (*Invited Paper*), Steven J. Augst, MIT Lincoln Lab. (USA) [7914-49]

8:50 am: **High-power spectral beam combining of fiber lasers by thermal tuning of volume Bragg gratings with ultra-high-spectral density**, Derrek R. Drachenberg, Ivan B. Divliansky, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Vadim I. Smirnov, Optigrate Corp. (USA); George B. Venus, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Leonid B. Glebov, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) and OptiGrate Corp. (USA) [7914-51]

9:10 am: **Global sensitivity analyses of coherent beam combining of fiber amplifier arrays by the use of numerical space filling designs**, Adrian Azarian, Olivier Vasseur, Baya Bennaï, Laurent Lombard, Guillaume Canat, ONERA (France); Véronique Jolivet, ONERA, (France); Yves Jaouën, Telecom ParisTech (France); Pierre Bourdon, ONERA (France) [7914-52]

SESSION 14

Room: 131 (Exhibit Level) Thurs. 9:30 am to 12:20 pm

Ultrafast

Session Chair: **Jay W. Dawson**, Lawrence Livermore National Lab.

9:30 am: **Graphene mode locked ultrafast fiber lasers** (*Invited Paper*), Dingyuan Tang, Han Zhang, Nanyang Technological Univ. (Singapore); Qiaoliang Bao, Kian Ping Loh, National Univ. of Singapore (Singapore) [7914-53]

10:00 am: **Power scaling and high-power applications of a femtosecond enhancement cavity** (*Invited Paper*), loachim Pupeza, Max-Planck-Institut für Quantenoptik (Germany) and Ludwig-Maximilians-Univ. München (Germany); Tino Eidam, Friedrich-Schiller-Univ. Jena (Germany); Jan Kaster, Jens Rauschenberger, Max-Planck-Institut für Quantenoptik (Germany) and Ludwig-Maximilians-Univ. München (Germany); Birgitta Bernhardt, Akira Ozawa, Ernst E. Fill, Max-Planck-Institut für Quantenoptik (Germany); Vladimir Pervak, Ludwig-Maximilians-Univ. München (Germany); Alexander A. Apolonski, Max-Planck-Institut für Quantenoptik (Germany) and Ludwig-Maximilians-Univ. München (Germany); Thomas Udem, Max-Planck-Institut für Quantenoptik (Germany); Jens Limpert, Friedrich-Schiller-Univ. Jena (Germany); Zeyad A. Alahmed, Abdallah M. Azzeer, King Saud Univ. (Saudi Arabia); Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany); Theodor W. Hänsch, Ferenc Krausz, Max-Planck-Institut für Quantenoptik (Germany) and Ludwig-Maximilians-Univ. München (Germany) [7914-54]

Coffee Break 10:30 to 11:00 am

11:00 am: **High-energy fibre CPA system based on a single stage rod type fiber amplifier in double pass configuration**, Yoann Zaouter, Franck Morin, Clemens Hönninger, Eric Mottay, Amplitude Systemes (France) [7914-55]

11:20 am: **Passive mode-locking using multi-mode fiber**, Edwin Ding, Jose Nathan Kutz, Univ. of Washington (USA); Simon Lefrancois, Frank W. Wise, Cornell Univ. (USA) [7914-56]

11:40 am: **Generation and amplification of 350 fs, 2 μm pulses in Tm: fiber**, Robert A. Sims, Pankaj Kadwani, Lawrence Shah, Martin C. Richardson, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) [7914-57]

12:00 pm: **Non-adiabatic pulse compression using cascaded higher-order solitons**, Jose Nathan Kutz, Univ. of Washington (USA); Qian Li, Hong Kong Polytechnic Univ. (USA); Alex P. K. A. Wai, Hong Kong Polytechnic Univ. (Hong Kong, China) [7914-58]

Lunch/Exhibition Break 12:20 to 1:50 pm

SESSION 15

Room: 131 (Exhibit Level) Thurs. 1:50 to 3:40 pm

Fiber Designs I

Session Chair: **Ji Wang**, Corning Incorporated

1:50 pm: **Measuring the spatial distribution of rare-earth dopants in high-power optical fibers** (*Invited Paper*), Andrew D. Yablon, Interfiber Analysis (USA) [7914-59]

2:20 pm: **High-power dissipative soliton laser using chirally-coupled core fiber**, Simon Lefrancois, Frank W. Wise, Cornell Univ. (USA); Thomas S. Sosnowski, Arbor Photonics, Inc. (USA); Almantas Galvanauskas, Univ. of Michigan (USA); Chi-Hung Liu, Arbor Photonics, Inc. (USA) [7914-60]

2:40 pm: **Hybrid large mode area photonic crystal fiber for distributed spectral filtering and single-mode operation**, Federica Poli, Enrico Coscelli, Univ. degli Studi di Parma (Italy); Thomas T. Alkeskjold, NKT Photonics A/S (Denmark); Davide Passaro, Annamaria Cucinotta, Stefano Selleri, Univ. degli Studi di Parma (Italy); Lasse Leick, Jes Broeng, NKT Photonics A/S (Denmark) [7914-61]

3:00 pm: **Design, fabrication, and characterization of acoustic anti-guiding large core YDFAs**, William E. Torruellas, Michael C. Gross, Michael L. Dennis, The Johns Hopkins Univ. (USA); Mansoor Alam, Kevin F. Farley, Victor Khitrov, Kanishka Tankala, Nufern (USA) [7914-62]

3:20 pm: **M²-characterization of beams emerging from LMA fibers by means of modal decomposition**, Daniel Flamm, Oliver A. Schmidt, Christian Schulze, Michael R. Duparré, Friedrich-Schiller-Univ. Jena (Germany); Siegmund Schröter, Institut für Photonische Technologien e.V. (Germany) [7914-63]

Coffee Break 3:40 to 4:10 pm

SESSION 16

Room: 131 (Exhibit Level) Thurs. 4:10 to 5:40 pm

Fiber Designs II

Session Chair: John M. Ballato, Clemson Univ.

4:10 pm: **Low-NA single-mode LMA photonic crystal fiber amplifier** (*Invited Paper*), Thomas T. Alkeskjold, NKT Photonics A/S (Denmark) [7914-64]

4:40 pm: **Effective absorption in cladding-pumped fibers**, Michalis N. Zervas, Univ. of Southampton (United Kingdom) [7914-65]

5:00 pm: **New developments in high-power fiber lasers based on alternative materials**, Andreas Langner, Mario Such, Gerhard Schötz, Heraeus Quarzglas GmbH & Co. KG (Germany); Stephan Grimm, Florian Just, Martin Leich, Christian Mühlig, Jens Kobelke, Anka Schwuchow, IPHT Jena (Germany); Oliver Mehl, Olaf Strauch, Björn Wedel, HIGHYAG Lasertechnologie GmbH (Germany); Georg Rehmann, Volker K. Krause, Laserline GmbH (Germany) [7914-66]

5:20 pm: **Single-mode regime of 19-cell Yb-doped double-cladding photonic crystal fibers**, Enrico Coscelli, Federica Poli, Univ. degli Studi di Parma (Italy); Thomas T. Alkeskjold, NKT Photonics A/S (Denmark); Davide Passaro, Annamaria Cucinotta, Stefano Selleri, Univ. degli Studi di Parma (Italy); Lasse Leick, Jes Broeng, NKT Photonics A/S (Denmark). [7914-67]

Courses of Related Interest

- SC744 Ultrafast Fiber Lasers (Fermann) Sunday, 8:30 am to 12:30 pm
- SC746 Introduction to Ultrafast Technology (Trebino) Tuesday, 1:30 to 5:30 pm
- SC748 High-Power Fiber Sources (Nilsson) Sunday, 1:30 to 5:30 pm
- SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm
- SC931 Applied Nonlinear Frequency Conversion (Paschotta) Monday, 8:30 am to 5:30 pm
- SC974 Interconnection and Splicing of High-Power Optical Fibers (Yablon) Monday, 8:30 am to 12:30 pm
- SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm
- SC984 Fiber Amplifiers (Digonnet) Sunday, 8:30 am to 12:30 pm
- SC1012 Coherent Mid-Infrared Sources and Applications (Vodopyanov) Monday, 1:30 to 5:30 pm
- SC1020 Splicing of Specialty Fibers and Glass Processing of Fused Fiber Components (Wang) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Best Student Presentation Awards Ceremony

Room: 131 (Exhibit Level) Thurs. 5:40 to 5:50 pm

We are pleased to announce that a prize in the amount of \$1,000 US will be awarded to the best student oral presentation.

Award Sponsors:



CLOSING COMMENTS Thurs. 5:50 to 6:00 pm

Jay W. Dawson, Lawrence Livermore National Lab. (USA);
Eric C. Honea, Lockheed Martin Aculight (USA)



High Energy/Average Power Lasers and Intense Beam Applications VI

Conference Chairs: **Steven J. Davis**, Physical Sciences Inc.; **Michael C. Heaven**, Emory Univ.; **J. Thomas Schriempf**, Naval Sea Systems Command

Program Committee: **David L. Carroll**, CU Aerospace LLC; **Jarmila Kodymová**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Timothy J. Madden**, Air Force Research Lab.; **William E. McDermott**, Univ. of Denver; **Wilson T. Rawlins**, Physical Sciences Inc.

Sunday 23 January

SESSION 1

Room: 111 (Exhibit Level) Sun. 8:30 to 10:10 am

COIL, EOIL

Session Chair: **J. Thomas Schriempf**, Naval Sea Systems Command

8:30 am: **Recent electric oxygen-iodine laser experiments and modeling** (*Invited Paper*), David L. Carroll, Gabriel F. Benavides, Joseph W. Zimmerman, Andrew D. Palla, CU Aerospace LLC (USA); Michael Day, Univ. of Illinois at Urbana-Champaign (USA); Joseph T. Verdeyen, CU Aerospace LLC (USA); Wayne C. Solomon, Univ. of Illinois at Urbana-Champaign (USA) [7915-01]

9:00 am: **Modeling of power scaling in EOIL** (*Invited Paper*), Wilson T. Rawlins, Seonkyung Lee, Adam J. Hicks, Ian M. Konen, David B. Oakes, Emily P. Plumb, Steven J. Davis, Physical Sciences Inc. (USA) [7915-02]

9:30 am: **Catalytic enhancement of singlet oxygen production**, Wilson T. Rawlins, Seonkyung Lee, Adam J. Hicks, Ian M. Konen, Emily P. Plumb, Steven J. Davis, Physical Sciences Inc. (USA) [7915-03]

9:50 am: **A simplified kinetic model for the COIL active medium**, Michael C. Heaven, Emory Univ. (USA); Valeriy N. Azyazov, Sergey Y. Pichugin, P.N. Lebedev Physical Institute (Russian Federation) [7915-04]

Coffee Break 10:10 to 10:30 am

SESSION 2

Room: 111 (Exhibit Level) Sun. 10:30 am to 12:30 pm

DPAL, XPAL

Session Chair: **Wilson T. Rawlins**, Physical Sciences Inc.

10:30 am: **Demonstration of a diode pumped continuous wave potassium laser**, Boris V. Zhdanov, Michael K. Shaffer, Randall J. Knize, U.S. Air Force Academy (USA) [7915-05]

10:50 am: **Cesium laser operating in the blue by direct optical excitation of the 7 2P3/2 state**, Kirk C. Brown, Glen P. Perram, Air Force Institute of Technology (USA) [7915-06]

11:10 am: **Small signal gain in DPAL systems**, Kristin L. Galbally-Kinney, Daniel L. Maser, William J. Kessler, Wilson T. Rawlins, Steven J. Davis, Physical Sciences Inc. (USA) [7915-07]

11:30 am: **High-energy transversely pumped alkali vapor laser**, Jason Zweiback, Aleksey M. Komashko, General Atomics Aeronautical Systems, Inc. (USA) [7915-08]

11:50 am: **Alkali atoms interacting with rare gas atoms and small hydrocarbons**, Michael C. Heaven, Emory Univ. (USA) [7915-09]

12:10 pm: **XPAL modeling and theory**, Andrew D. Palla, Joseph T. Verdeyen, David L. Carroll, CU Aerospace LLC (USA) [7915-10]

Lunch Break 12:30 to 2:00 pm

SESSION 3

Room: 111 (Exhibit Level) Sun. 2:00 to 5:00 pm

Laser Technology and Applications

Session Chair: **David L. Carroll**, CU Aerospace LLC

2:00 pm: **Navy Laser Weapon System (LaWS) prototype development and testing** (*Invited Paper*), Brian J. Hankla, Naval Surface Warfare Ctr. Dahlgren Div. (USA) [7915-11]

2:30 pm: **High-power femtosecond hybrid Ti:sapphire: KrF laser facility and its applications**, Andrey A. Ionin, Sergej I. Kudryashov, Alexey O. Levchenko, Leonid V. Seleznev, Dmitry V. Sinityn, Nikolay N. Ustinovskii, Vladimir D. Zvorykin, P.N. Lebedev Physical Institute (Russian Federation) [7915-12]

2:50 pm: **Energy transfer kinetics of the np⁵(n+1)p excited states of Ne and Kr**, Michael C. Heaven, Md. H. Kabir, Emory Univ. (USA) [7915-13]

3:10 pm: **Mode-locked CO laser for isotope separation of uranium employing condensation repression**, Igor Y. Baranov, Andrey V. Koptev, Baltic State Technical Univ. (Russian Federation) [7915-14]

Coffee Break 3:30 to 4:00 pm

4:00 pm: **Autocorrelation of femtosecond VUV pulses using multiphoton ionization**, Shoichi Kubodera, Wataru Nagaya, Hironari Zushi, Masanori Kaku, Masahito Katto, Univ. of Miyazaki (Japan) [7915-15]

4:20 pm: **Modeling of high-power spectral beam combining with thermally distorted volume Bragg gratings**, Sergiy Mokhov, Derrek R. Drachenberg, Ivan B. Divliansky, George B. Venus, Boris Y. Zeldovich, Leonid B. Glebov, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) . [7915-17]

4:40 pm: **Thermodynamic equilibrium study of low temperature laser induced plasmas of air, argon, and cadmium by Thomson scattering and emission spectroscopy**, Bruno Bousquet, Univ. Bordeaux 1 (France); Grégoire Travailé, Univ. Bordeaux 1 (France); Agata Mendys, Krzysztof Dzierzega, Jagiellonian Univ. in Krakow (Poland); Stéphane Pellerin, Univ. d'Orléans (France); Bartłomiej Pokrzywka, Cracow Pedagogical Univ. (Poland); Lionel Canioni, Univ. Bordeaux 1 (France) [7915-16]

Tuesday 25 January

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Enhanced pulsed Nd:YAG laser modeling and simulation for the design of low and medium energy laser systems (*Oral Standby*), Samy S. A. Ghoniemy, Adel Mohamed, Military Technical College (Egypt) [7915-18]

Courses of Related Interest

- SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm
- SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

High Power Lasers for Fusion Research

Conference Chairs: **Abdul A. S. Awwal**, Lawrence Livermore National Lab.; **A. Mike Dunne**, Lawrence Livermore National Lab.; **Hiroshi Azechi**, Osaka Univ. (Japan); **Brian E. Kruschwitz**, Univ. of Rochester

Conference Co-Chairs: **Jacques Ebrardt**, Commissariat à l'Énergie Atomique (France); **Ruxin Li**, Shanghai Institute of Optics and Fine Mechanics (China); **Christopher P. J. Barty**, Lawrence Livermore National Lab.

Program Committee: **Stephen G. Azevedo**, Lawrence Livermore National Lab.; **Andy J. Bayramian**, Lawrence Livermore National Lab.; **Regina E. Bonanno**, Lawrence Livermore National Lab.; **Scott Burkhart**, Lawrence Livermore National Lab.; **Genevieve M. Chabassier**, Commissariat à l'Énergie Atomique/LMJ (France); **Jean-Christophe F. Chanteloup**, Lab. pour l'Utilisation des Lasers Intenses, Ecole Polytechnique (France); **Jean-Michel G. Di Nicola**, Lawrence Livermore National Lab. (France); **Christopher Ebberts**, Lawrence Livermore National Lab.; **Christopher A. Haynam**, Lawrence Livermore National Lab.; **John E. Heebner**, Lawrence Livermore National Lab.; **Laurent Hilsz**, Commissariat à l'Énergie Atomique (France); **Jeffery F. Latkowski**, Lawrence Livermore National Lab.; **Zunqi Lin**, Shanghai Institute of Optics and Fine Mechanics (China); **Brian J. MacGowan**, Lawrence Livermore National Lab.; **Thierry Massard**, CEA DAM Ile de France (France); **Kinioki Mima**, Osaka Univ. (Japan); **Noriaki Miyanaga**, Osaka Univ. (Japan); **Mark A. Newton**, Lawrence Livermore National Lab.; **Takayoshi Norimatsu**, Osaka Univ. (Japan); **Ralph W. Patterson, Jr.**, Lawrence Livermore National Lab.; **Valerie Roberts**, Lawrence Livermore National Lab.; **John M. Soures**, Univ. of Rochester; **Erik Storm**, Lawrence Livermore National Lab.; **Kazuo A. Tanaka**, Osaka Univ. (Japan); **Keith A. Thorp**, Univ. of Rochester; **Paul J. Van Arsdaal**, Lawrence Livermore National Lab.; **Bruno M. Van Wonterghem**, Lawrence Livermore National Lab.; **Changhe Zhou**, Shanghai Institute of Optics and Fine Mechanics (China)

Conference Cosponsor:



Tuesday 25 January

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Laser Mégajoule synchronization system, Michel Luttmann, Jean François Pastor, Vincent Drouet, Alain Adolf, Michel Prat, Joel Raimbourg, Commissariat à l'Énergie Atomique (France) [7916-34]

LIL laser performance status, Xavier B. Julien, Hervé Graillot, Thierry Chies, Commissariat à l'Énergie Atomique (France); Jean-Michel G. Di Nicola, Lawrence Livermore National Lab. (USA); Alain Adolf, Gaston Thiell, Olivier Henry, Higoneng Vincent, Patrick Gendreau, Christophe Féral, Roger Courchinoux, Arnaud Martinez, Emmanuel Bar, Edouard Bordenave, Vincent Beau, Alain Roques, Laurent Le Déroff, Commissariat à l'Énergie Atomique (France) [7916-35]

Efficient spherical wavefront correction near the focus of the petawatt-level femtosecond CPA laser system, Zhijun Ren, Xiaoyan Liang, Lianghong Yu, Xiaoming Lu, Ruxin Li, Zhizhan Xu, Shanghai Institute of Optics and Fine Mechanics (China) [7916-36]

Carrier-envelope phase stabilized ~12fs, 0.54mJ, 1.8µm pulses, Chuang Li, Liwei Song, Ding Wang, Canhua Xu, Yuxin Leng, Ruxin Li, Zhizhan Xu, Shanghai Institute of Optics and Fine Mechanics (China) [7916-37]

Spatiotemporal beam control of an OPCPA laser system, Xiaoming Zeng, Chinese Academy of Engineering Physics (China) [7916-38]

The progress of beam smoothing on SG-II facility, Shenlei Zhou, Shanghai Institute of Optics and Fine Mechanics (China) [7916-39]

A key maintenance and commissioning tool for automation of the National Ignition Facility's final optics damage inspection system, Kevin S. Griffin, Lawrence Livermore National Lab. (USA) [7916-40]

Hohlraum target pointing alignment from x-ray detector images using starburst design patterns, Richard R. Leach, Jr., Lawrence Livermore National Lab. (USA) [7916-41]

Defense in depth: laser safety and the National Ignition Facility, Jamie King, Lawrence Livermore National Lab. (USA) [7916-42]

Wednesday 26 January

SESSION 1

Room: 114 (Exhibit Level) Wed. 8:00 to 10:00 am

Science Experiments

Session Chair: **Jean-Michel G. Di Nicola**, Lawrence Livermore National Lab.

8:00 am: **Radiative properties in ICF plasmas** (*Invited Paper*), Djamel Benredjem, Univ. Paris-Sud 11 (France) [7916-01]

8:30 am: **Opportunities for inertial fusion and high-energy-density physics research at the National Laser Users' Facility** (*Invited Paper*), John M. Soures, Univ. of Rochester (USA) [7916-02]

9:00 am: **Experimental study of high-Z gas buffers in gas-filled ICF engines**, Mark A. Rhodes, Jave Kane, Gwendolen Loosmore, James Demuth, Jeffery F. Latkowski, Lawrence Livermore National Lab. (USA) [7916-03]

9:20 am: **Modeling of the LIFE minichamber Xe theta pinch experiment**, Jave Kane, Mark A. Rhodes, Gwendolen Loosmore, Jeffery F. Latkowski, Joseph M. Koning, Mehul Patel, Howard A. Scott, George B. Zimmerman, James Demuth, Lawrence Livermore National Lab. (USA) [7916-05]

9:40 am: **Laser safety at high profile projects**, Ken Barat, Lawrence Berkeley National Lab. (USA) [7916-04]

Coffee Break 10:00 to 10:20 am

LASE PLENARY SESSION

Room: 134 (Exhibit Level) Wed. 10:20 am to 12:30 pm

10:20 am: **Welcome and Opening Remarks**, Friedhelm Dorsch, TRUMPF GmbH & Co. KG (Germany) and Alberto Piqué, U.S. Naval Research Lab. (USA)

10:25 am: **Announcement of the Best Green Photonics Paper Awards in LASE**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

10:30 am: **Of Light, Electrons, and Metamaterials**, Nader Engheta, Univ. of Pennsylvania (USA)

11:10 am: **Using Lasers in Particle-based Applications**, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

11:50 am: **Advances in Lasers and Their Impact on Industrial Applications**, Paul E. Denney, Connecticut Ctr. for Advanced Technology, Inc. (USA)

See p. 20 for details.

Lunch/Exhibition Break 12:30 to 2:00 pm

SESSION 2

Room: 114 (Exhibit Level) Wed. 2:00 to 3:30 pm

Future Laser Systems I

Session Chair: Andy J. Bayramian, Lawrence Livermore National Lab.

- 2:00 pm: **MEGA-rays: the dawn of nuclear photonics with laser-based gamma-rays** (*Invited Paper*), Christopher P. J. Barty, Lawrence Livermore National Lab. (USA) [7916-06]
- 2:30 pm: **Low-cost diode arrays for the LIFE project**, Ryan Feeler, Edward Stephens, Jeremy Junghans, Northrop Grumman Cutting Edge Optronics (USA) [7916-07]
- 2:50 pm: **Beam combination laser using phase controlled stimulated Brillouin scattering phase conjugation mirrors for laser fusion driver**, Hong Jin Kong, Sangwoo Park, Seongwoo Cha, KAIST (Korea, Republic of) [7916-08]
- 3:10 pm: **HiLASE: high average power pulsed lasers for industry and research**, Tomáš Moček, Krzysztof Jakubczak, Martin Divoký, Magdalena Sawicka, Michal Chyla, Pawel Sikocinski, Institute of Physics of the ASCR, v.v.i. (Czech Republic) [7916-09]
- Coffee Break 3:30 to 4:00 pm

SESSION 3

Room: 114 (Exhibit Level) Wed. 4:00 to 6:00 pm

Status of High Power Lasers

Session Chair: A. Mike Dunne, Lawrence Livermore National Lab.

- 4:00 pm: **Compact, efficient, low-cost diode power conditioning for laser inertial fusion energy**, Andy J. Bayramian, Robert J. Deri, Edward S. Fulkerson, Rodney Lanning, Steven Telford, Lawrence Livermore National Lab. (USA) [7916-10]
- 4:20 pm: **Overview of Project Orion**, Nick Hopps, AWE plc (United Kingdom) [7916-11]
- 4:40 pm: **Status of SG-III laser facility**, Wanguo Zheng, Chinese Academy of Engineering Physics (China) [7916-12]
- 5:00 pm: **Activation of LFEX laser and contamination problem of compression chamber**, Takahisa Jitsuno, Hidetosi Murakami, Tetsuji Kawasaki, Shinji Motokoshi, Yoshiki Nakata, Nobuhiko Sarukura, Hiroyuki Shiraga, Noriaki Miyanaga, Hiroshi Azechi, Osaka Univ. (Japan) [7916-13]
- 5:20 pm: **HiPER laser**, Bruno Le Garrec, Chris Edwards, John Collier, Commissariat à l'Énergie Atomique (France) [7916-14]
- 5:40 pm: **Simulation tools to predict long-pulse system performance during shot operations on OMEGA EP**, Mark J. Guardalben, Leon J. Waxer, Univ. of Rochester (USA) [7916-15]

Thursday 27 January

SESSION 4

Room: 114 (Exhibit Level) Thurs. 8:00 to 10:10 am

Optical Systems

Session Chair: Brian E. Kruschwitz, Univ. of Rochester

- 8:00 am: **Programmable beam spatial shaping system for the National Ignition Facility** (*Invited Paper*), John E. Heebner, Michael Borden, Phil Miller, Steve Hunter, Kim Christensen, Michael Scanlan, Christopher A. Haynam, Paul Wegner, Lawrence Livermore National Lab. (USA) [7916-16]
- 8:30 am: **Recent advances in the front-end sources of the LMJ fusion laser**, Jean-François Gleyze, Nicolas Beck, Jerome Dubertrand, Arnaud Perrin, Commissariat à l'Énergie Atomique (France) [7916-17]
- 8:50 am: **Homogenised pump laser illumination of high-energy-laser-active-materials used under tilted angles**, Frank Kubacki, Thomas Mitra, Manfred Jarczyński, Lutz Aschke, LIMO Lissotschenko Mikrooptik GmbH (Germany) [7916-18]
- 9:10 am: **The progress of the front-end and preamplifier in PW and SG-II**, Xuechun Li, Wei Fan, Shanghai Institute of Optics and Fine Mechanics (China) [7916-19]
- 9:30 am: **Wavefront sensing and adaptive optics implementation on the generation of petawatt class lasers**, Jérôme Ballesta, Nicolas Lefaudeux, Xavier Levecq, Imagine Optic SA (France) [7916-20]
- 9:50 am: **Research of diode-pumped cryogenic Yb:YAG amplification at 10 Hz repetition rate**, Jiangfeng Wang, Youen Jiang, Xuechun Li, Xiang Li, Shanghai Institute of Optics and Fine Mechanics (China) [7916-21]
- Coffee Break 10:10 to 10:40 am

SESSION 5

Room: 114 (Exhibit Level) Thurs. 10:40 am to 12:00 pm

Control Systems

Session Chair: Michel Luttmann, Commissariat à l'Énergie Atomique (France)

- 10:40 am: **Laser Mégajoule alignment to target chamber center**, Michel Luttmann, Vincent Denis, Catherine Lanterrier, Commissariat à l'Énergie Atomique (France); Michel Péalat, Sagem Defense Securite (France); Eric Compain, Bertin Technologies (France) [7916-22]
- 11:00 am: **Automatic alignment system for the National Ignition Facility**, Karl Wilhelmsen, Lawrence Livermore National Lab. (USA) [7916-23]
- 11:20 am: **Adaptation of a cubic smoothing spline algorithm for multi-channel data stitching at the National Ignition Facility**, Charles G. Brown, Jr., Aaron B. Adcock, Judy A. Liebman, Essex J. Bond, Lawrence Livermore National Lab. (USA) [7916-24]
- 11:40 am: **Image processing and control of a programmable spatial light modulator for optic damage protection**, Abdul A. S. Awwal, Richard R. Leach, Jr., Gordon Brunton, Eddy Tse, JoAnn Matone, John E. Heebner, Lawrence Livermore National Lab. (USA) [7916-25]
- Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 6

Room: 114 (Exhibit Level) Thurs. 1:30 to 2:50 pm

Final Optics

Session Chair: Antonio Rivera, Univ. Politécnica de Madrid (Spain)

- 1:30 pm: **1W unconverted light management for the National Ignition Facility**, Jean-Michel G. Di Nicola, Sham N. Dixit, Christopher A. Haynam, Michael A. Johnson, Dan H. Kalantar, Jeremy J. Kroll, Brian J. MacGowan, William A. Molander, John D. Moody, Lawrence R. Siegel, Laurence J. Suter, Timothy L. Weiland, Lawrence Livermore National Lab. (USA) [7916-26]
- 1:50 pm: **Thermo-mechanical response of silica based final optics under HiPER irradiation conditions**, Antonio Rivera, Jesús Alvarez, David Garoz, Raquel González-Arrabal, J. Manuel Perlado, Univ. Politécnica de Madrid (Spain) [7916-27]
- 2:10 pm: **The experiment of the third harmonic generation with 'I+II' scheme in SGII NO.9**, Lailin Ji, Shanghai Institute of Optics and Fine Mechanics (China) [7916-28]
- 2:30 pm: **SG-II U final optics assembly: optical damage and clean gas controlling**, Dongfeng Zhao, Li Wang, Shao Ping, Zunqi Lin, Shanghai Institute of Optics and Fine Mechanics (China) [7916-29]
- Coffee Break 2:50 to 3:20 pm

SESSION 7

Room: 114 (Exhibit Level) Thurs. 3:20 to 4:40 pm

Future Laser Systems II

Session Chair: Hong Jin Kong, KAIST (Korea, Republic of)

- 3:20 pm: **Thermal birefringence and depolarization compensation in glass-based high-average-power laser systems**, Amber L. Bullington, Steve B. Sutton, Andy J. Bayramian, John A. Caird, Robert J. Deri, Alvin C. Erlandson, Mark A. Hennesian, Lawrence Livermore National Lab. (USA) [7916-30]
- 3:40 pm: **KrF lasers for fusion energy**, John Sethian, Matthew C. Myers, Matthew F. Wolford, John L. Giuliani, Jr., David Kehne, Stephen P. Obenschain, U.S. Naval Research Lab. (USA); Frank Hegeler, Commonwealth Technology, Inc. (USA); Robert H. Lehmborg, U.S. Naval Research Lab. (USA) [7916-31]
- 4:00 pm: **Progress of rep-rate plasma Pockels cell technology in LFRC**, Xiongjun Zhang, Dengsheng Wu, Chinese Academy of Engineering Physics (China) [7916-32]
- 4:20 pm: **Measurement and control of micro-errors on components-tiling and beams-combination**, Xiao Wang, Yuchuan Yang, Feng Jing, Fuquan Li, Kainan Zhou, Qihua Zhu, Yanlei Zuo, Lei Zhao, Zheng Huang, Xiaoming Zeng, Dongbin Jiang, Xiaojun Huang, Xin Hao, Xiaofeng Wei, Chinese Academy of Engineering Physics (China) [7916-33]

Courses of Related Interest

- SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm
 SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Nonlinear Frequency Generation and Conversion: Materials, Devices, and Applications X

Conference Chair: **Konstantin L. Vodopyanov**, Stanford Univ. Conference Co-Chair: **Yehoshua Y. Kalisky**, Nuclear Research Ctr. Negev (Israel)

Program Committee: **Darrell J. Armstrong**, Sandia National Labs.; **Pinhas Blau**, Soreq Nuclear Research Ctr. (Israel); **Majid Ebrahim-Zadeh**, ICFO - Instituto de Ciencias Fotónicas (Spain); **Peter P. Günter**, ETH Zurich (Switzerland); **Angus J. Henderson**, Lockheed Martin Aculight; **Baldemar Ibarra-Escamilla**, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); **Yun-Shik Lee**, Oregon State Univ.; **Rita D. Peterson**, Air Force Research Lab.; **Peter E. Powers**, Univ. of Dayton; **Kenneth L. Schepler**, Air Force Research Lab.; **Peter G. Schunemann**, BAE Systems; **Andrei V. Shchegrov**, Spectralus Corp.; **Wei Shi**, NP Photonics, Inc.; **Ramesh Shori**, Naval Air Warfare Ctr. Weapons Div.

Monday 24 January

SESSION 1

Room: 133 (Exhibit Level) Mon. 1:10 to 3:00 pm

Visible Lasers I

Joint Session with Conference 7912

Session Chairs: **W. Andrew Clarkson**, Univ. of Southampton (United Kingdom); **Andrei V. Shchegrov**, Spectralus Corp.

1:10 pm: **Multi-watt orange light generation by intracavity frequency doubling in a dual-gain quantum dot semiconductor disk laser** (*Invited Paper*), Jussi Rautiainen, Tampere Univ. of Technology (Finland); Igor L. Krestnikov, Innolume GmbH (Germany); Jari Nikkinen, Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland). [7917-01]

1:40 pm: **A compact optically pumped semiconductor laser emitting at 593 nm**, Wolf R. Seelert, Coherent Lubeck GmbH (Germany) [7912-17]

2:00 pm: **1 W at 531 nm generated in a ppMgO:LN planar waveguide by means of frequency doubling of a DBR tapered diode laser**, Daniel Jedrzejczyk, Reiner Güther, Katrin Paschke, Götz Erbert, Ferdinand-Braun-Institut (Germany) [7917-02]

2:20 pm: **High-power (1.1W) green (532nm) laser source based on single-pass second harmonic generation on a compact micro-optical bench**, Peter Q. Liu, Princeton Univ. (USA) and Ferdinand-Braun-Institut (Germany); Christian Fiebig, Mirko Uebernickel, Gunnar Blume, David Feise, Alexander Sahn, Daniel Jedrzejczyk, Katrin Paschke, Goetz Erbert, Ferdinand-Braun-Institut (Germany) [7917-03]

2:40 pm: **Modulation and efficiency characteristics of miniature microchip green laser sources based on PPMgOLN nonlinear material**, John Khaydarov, Andrei V. Shchegrov, Stepan Essaian, Slav Slavov, Spectralus Corp. (USA); Hakob Danielyan, Gevorg Gabrielyan, Armen Poghosyan, Suren Soghomonyan, Spectralus CJSC (Armenia) [7917-04]

Coffee Break 3:00 to 3:30 pm

SESSION 2

Room: 133 (Exhibit Level) Mon. 3:30 to 5:20 pm

Visible Lasers II

Joint Session with Conference 7912

Session Chairs: **Wolf R. Seelert**, Coherent Lubeck GmbH (Germany); **Angus J. Henderson**, Lockheed Martin Aculight

3:30 pm: **Fiber-laser-pumped CW OPO for red, green, blue laser generation** (*Invited Paper*), Yen-Yin Lin, Yen-Chieh Huang, National Tsing Hua Univ. (Taiwan) [7917-05]

4:00 pm: **Harmonic generation with fiber MOPAs and solid state lasers: technical challenges, state-of-the-art comparison, and future developments**, Andrei N. Starodoumov, Norman Hodgson, Coherent, Inc. (USA) [7912-18]

4:20 pm: **Raman lasers for yellow-orange spectrum coverage**, Nicolas Landru, Julien Rouvillain, Guy Lebail, Thierry Georges, Oxixus SA (France) [7912-19]

4:40 pm: **575 nm laser oscillation in Dy³⁺-doped waterproof fluoro-aluminate glass fiber pumped by violet GaN laser diodes**, Yasushi Fujimoto, Osaka Univ. (Japan); Osamu Ishii, Masaaki Yamazaki, Sumita Optical Glass, Inc. (Japan) [7912-20]

5:00 pm: **Efficient frequency conversion of pulsed microchip and fiber laser radiation in PPSLT**, Bernd Jungbluth, Sebastian Nyga, Enno Pawlowski, Thomas Fink, Fraunhofer-Institut für Lasertechnik (Germany) [7912-21]

Tuesday 25 January

SESSION 3

Room: 113 (Exhibit Level) Tues. 8:20 to 10:00 am

Visible and UV Lasers

Session Chair: **Yehoshua Y. Kalisky**, Nuclear Research Ctr. Negev (Israel)

8:20 am: **Amplification of ps-pulses from freely triggerable gain-switched laser diodes at 1062 nm and second harmonic generation in periodically poled lithium niobate**, Thomas Schönau, Sina M. Riecke, Kristian Lauritsen, Rainer Erdmann, PicoQuant GmbH (Germany) [7917-06]

8:40 am: **Thermal optimization of the second harmonic generation with tapered diode lasers**, Alexander Sahn, Mirko Uebernickel, Katrin Paschke, Götz Erbert, Günther Tränkle, Ferdinand-Braun-Institut (Germany) [7917-07]

9:00 am: **Deep ultraviolet light generation at 193 nm by quasi-phase-matched quartz**, Masaki Harada, National Institute for Materials Science (Japan) and Nikon Corp. (Japan); Muneyuki Adachi, National Institute for Materials Science (Japan) and Nidek Co., Ltd. (Japan); Ken-ichi Muramatsu, Motoi Ueda, Nikon Corp. (Japan); Tsuyoshi Yamada, NIDEK Co., Ltd. (Japan); Sunao Kurimura, National Institute for Materials Science (Japan) [7917-08]

9:20 am: **70% frequency-doubling efficiency of 0.8-W mode-locked picosecond Ti:sapphire laser with external cavity**, Tatsuya Ohira, Shingo Maeda, Yuma Takida, Hiroshi Kumagai, Osaka City Univ. (Japan) [7917-09]

9:40 am: **Multiple-wavelength synthetic green laser source for speckle reduction**, Dmitri V. Kuksenkov, Rostislav V. Roussev, Shenping Li, William A. Wood, Christopher M. Lynn, Corning Incorporated (USA) [7917-71]

Coffee Break 10:00 to 10:30 am

SESSION 4

Room: 113 (Exhibit Level) Tues. 10:30 am to 12:00 pm

Terahertz Generation I

Session Chair: **Wei Shi**, NP Photonics, Inc.

10:30 am: **Multi-THz fields exceeding 100 MV/cm: an ultrabroadband source for sub-cycle nonlinear optics** (*Invited Paper*), Alexander Sell, Friederike Junginger, Olaf Schubert, Bernhard Mayer, Univ. Konstanz (Germany); Tobias Kampfrath, Martin Wolf, Fritz-Haber-Institut der Max-Planck-Gesellschaft (Germany); Daniele Brida, Marco Marangoni, Giulio Cerullo, Politecnico di Milano (Italy); Alfred Leitenstorfer, Rupert Huber, Univ. Konstanz (Germany) [7917-11]

11:00 am: **Nonlinear holographic imaging of terahertz radiation**, Jean-Christophe Delagnes, Patrick Mounaix, Lionel Canioni, Univ. Bordeaux 1 (France) [7917-12]

11:20 am: **Investigation of metamaterials for terahertz frequency range**, Riad Yahiaoui, Univ. Bordeaux 1 (France); Hynek Nemeč, Petr Kužel, Filip Kadlec, Christelle Kadlec, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jörg Schilling, Martin-Luther-Univ. Halle-Wittenberg (Germany); M. Bari, Science and Technology Research Partners Ltd. (Ireland); Jean-Christophe Delagnes, Patrick Mounaix, Univ. Bordeaux 1 (France) [7917-13]

11:40 am: **Parametric generation of terahertz wave pumped by picosecond Ti:sapphire laser with MgO-doped LiNbO₃ installed in external enhancement cavity**, Yuma Takida, Shingo Maeda, Tatsuya Ohira, Hiroshi Kumagai, Shigeki Nashima, Osaka City Univ. (Japan) [7917-14]

Lunch/Exhibition Break 12:00 to 1:30 pm



SESSION 5

Room: 113 (Exhibit Level) Tues. 1:30 to 3:20 pm

Terahertz Generation II

Session Chairs: **Yehoshua Y. Kalisky**, Nuclear Research Ctr. Negev (Israel); **Peter P. Günter**, ETH Zurich (Switzerland)

- 1:30 pm: **Recent progress of THz generation and detection in ambient air or gases** (*Invited Paper*), Xiaofei Lu, Benjamin W. Clough, I-Chen Ho, Jingle Liu, Jianming Dai, Xi-Cheng Zhang, Rensselaer Polytechnic Institute (USA) [7917-15]
- 2:00 pm: **Coherent monolithic THz generation based on quasi-phase-matched GaP bonding structures pumped by pulsed fiber lasers at ~ 1.5 μm**, Wei Shi, NP Photonics, Inc. (USA); Eliot B. Petersen, NP Photonics, Inc. (USA) and The Univ. of Arizona (USA); Arturo Chavez-Pirson, NP Photonics, Inc. (USA); Nasser Peyghambarian, NP Photonics, Inc. (USA) and The Univ. of Arizona (USA) [7917-16]
- 2:20 pm: **Length dependence of forward and backward THz DFG in a strongly absorptive material**, Yen-Chieh Huang, Yen-Hou Lin, Yen-Yin Lin, National Tsing Hua Univ. (Taiwan). [7917-17]
- 2:40 pm: **Terahertz generation with tilted-front laser pulses: dynamical theory**, Michael I. Bakunov, Univ. of Nizhny Novgorod (Russian Federation); Sergey B. Bodrov, Institute of Applied Physics (Russian Federation); Eugene Mashkovich, Univ. of Nizhny Novgorod (Russian Federation) [7917-18]
- 3:00 pm: **Generation of difference frequency radiation by mutually orthogonal polarized few cycle laser pulses propagating in GaAs crystal**, Artsrun S. Martirosyan, Institute for Physical Research (Armenia); David L. Hovhannisyanyan, Yerevan State Univ. (Armenia); Vigen O. Chaltikyan, Institute for Physical Research (Armenia); Gevorg D. Hovhannisyanyan, Yerevan State Univ. (Armenia) [7917-19]
- Coffee Break 3:20 to 3:40 pm

SESSION 6

Room: 113 (Exhibit Level) Tues. 3:40 to 5:50 pm

Optical Parametric Devices I

Session Chair: **Pinhas Blau**, Soreq Nuclear Research Ctr. (Israel)

- 3:40 pm: **CdSiP₂ picosecond optical parametric generator**, Olivier Chalus, ICFO - Institut de Ciències Fotoniques (Spain); Peter G. Schunemann, Kevin T. Zawilski, BAE Systems (USA); Jens Biegert, Majid Ebrahim-Zadeh, ICFO - Institut de Ciències Fotoniques (Spain). [7917-20]
- 4:00 pm: **Ho:YAG laser pumped walk-off compensated mid-infrared ZGP optical parametric oscillation**, Xiaodong Mu, Helmuth E. Meissner, Huai-Chuan Lee, Onyx Optics Inc. (USA) [7917-21]
- 4:20 pm: **Development of a mid-infrared tunable optical parametric oscillator pumped by a Q-switched Tm:Ho:YAG laser**, Hisanao Hazama, Osaka Univ. (Japan); Masaki Yumoto, Takayo Ogawa, Satoshi Wada, RIKEN (Japan); Kunio Awazu, Osaka Univ. (Japan) [7917-22]
- 4:40 pm: **Generation of watt level mid-infrared wavelengths using intracavity ZnGeP₂ OPO within a 2.1 μm Ho:YAG laser**, Lihao Tan, Nanyang Technological Univ. (Singapore) and DSO National Labs. (Singapore); Poh Boon Phua, DSO National Labs. (Singapore) and Nanyang Technological Univ. (Singapore) [7917-23]
- 5:00 pm: **Improvement of mid-infrared pulsed OPOs efficiency by thermal management and cascaded nonlinear conversions**, Antoine Godard, Myriam Raybaut, Thomas Schmid, Michel Lefebvre, ONERA (France); Anne-Marie Michel, Michel Péalat, Sagem Defense Securite (France). [7917-24]
- 5:20 pm: **Classical-quantum analogies: SU(1,1) and Glauber photonic lattices** (*Invited Paper*), Hector M. Moya-Cessa, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico). [7917-25]

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

- Calculation characteristics of spontaneous parametric emission based on BaAlB₃F₂ crystal**, Hongying Wang, Xi'an Univ. of Arts and Science (China); Kang Li, Nigel J. Copner, Univ. of Glamorgan (United Kingdom) [7917-58]
- Optical studies of a semiorganic nonlinear optical crystal: lithium p-nitrophenolate trihydrate**, Philominal Arockiasamy, Dhanuskodi Sivasubramanian, Bharathidasan Univ. (India); Jacob Phillip, Cochin Univ. of Science & Technology (India) [7917-59]
- Output characteristics of 579nm Raman laser for medical application**, Yeong-Sik Kim, Woo-Jin Jeon, Dankook Univ. (Korea, Republic of); Eun-Joo Hahn, Univ. of Suwon (Korea, Republic of) [7917-60]
- Low-threshold, quasi-cw terahertz parametric amplification in an external ring cavity with an MgO:LiNbO₃ Crystal**, Shingo Maeda, Tatsuya Ohira, Yuma Takida, Hiroshi Kumagai, Shigeki Nashima, Osaka City Univ. (Japan). [7917-61]
- A study on fabrication of BaMgF₄ thin film toward frequency-conversion device in UV/VUV region**, Hiroya Matsukawa, Takaya Shimono, Nobuyuki Hirano, Hiroshi Kumagai, Osaka City Univ. (Japan) [7917-62]
- Study on periodic twinning of quartz crystal under bending stress**, Takaya Shimono, Hiroya Matsukawa, Nobuyuki Hirano, Hiroshi Kumagai, Osaka City Univ. (Japan); Naoaki Fukuda, Toshio Takiya, Norihiro Inoue, Koichiro Nakayama, Hitachi Zosen Corp. (Japan). [7917-63]
- Effect of post-growth annealing on the optical properties of LiGaS₂ nonlinear crystals**, Alexander P. Yelissev, Institute of Mineralogy and Petrography (Russian Federation); Marina K. Starikova, Novosibirsk State Technical Univ. (Russian Federation); Ludmila I. Isaenko, Sergei Lobanov, Institute of Mineralogy and Petrography (Russian Federation); Valentin P. Petrov, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) [7917-64]
- Parabolic pulse generation in the nonlinear nonuniform fibre cascade**, Igor Zolotovskiy, Marina Yavtushenko, Ulyanovsk State Univ. (Russian Federation); Alexej A. Sysoliatin, A. M. Prokhorov General Physics Institute (Russian Federation); Dmitry I. Sementsov, Igor Yavtushenko, Ulyanovsk State Univ. (Russian Federation); Oleg Okhotnikov, Tampere Univ. of Technology (Finland) [7917-65]
- Brillouin enhanced four-wave mixing with the liquid fluorocarbon**, Frank F. Wu, Anatoliy I. Khizhnyak, Vladimir Markov, MetroLaser, Inc. (USA) . . [7917-66]
- Modified Sellmeier equation for ZnGeP₂ in the 0.97-1640 μm range**, Nobuhiro Umemura, Chitose Institute of Science and Technology (Japan). [7917-67]
- Analysis of single frequency Raman amplifier for guide star application**, Iyad A. Dajani, Christopher L. Vergien, Clint Zeringue, Air Force Research Lab. (USA) [7917-68]
- Statistical properties of partially coherent CW fiber lasers**, Dmitriy V. Churkin, Institute of Automation and Electrometry (Russian Federation); Sergey V. Smirnov, Novosibirsk State Univ. (Russian Federation); Evgenii V. Podivilov, Institute of Automation and Electrometry (Russian Federation) [7917-69]
- Demonstration of a high power 1.5344 micrometer output Nd:YAG pumped OPO**, Michael D. Wojcik, Robert Foltynowicz, Utah State Univ. (USA) [7917-70]
- Reverse-proton-exchanged waveguide frequency doublers for green light generation**, Rostislav V. Roussev, Venkata A. Bhagavatula, John Himmelreich, Keith Becken, James Tingley, Corning Incorporated (USA) [7917-72]

Wednesday 26 January

SESSION 7

Room: 113 (Exhibit Level) Wed. 8:00 to 9:50 am

Ultrafast Nonlinear Devices and Applications

Session Chair: Darrell J. Armstrong, Sandia National Labs.

- 8:00 am: **Linear light bullets based on Airy-Bessel wave packets** (*Invited Paper*), Frank W. Wise, Andy Chong, William Renninger, Cornell Univ. (USA) [7917-26]
- 8:30 am: **Performing the triple auto-correlation of picosecond optical pulse train with a photo electromotive forces detector**, Alexandre S. Shcherbakov, Svetlana Mansurova, Pedro Moreno Zarate, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Joaquin Campos Acosta, Consejo Superior de Investigaciones Científicas (Spain); Sergey A. Némov, St. Petersburg State Polytechnical Univ. (Russian Federation) [7917-27]
- 8:50 am: **Broadband third-harmonic generation on interfaces using femtosecond pulses**, Lino Misoguti, Emerson C. Barbano, Jonathas de Paula Siqueira, Cleber R. Mendonça, Sérgio C. Zilio, Univ. de São Paulo (Brazil) [7917-28]
- 9:10 am: **MHz-rate picosecond laser discretely tunable from the near-IR to deep UV**, Vladislav V. Yakovlev, Univ. of Wisconsin-Milwaukee (USA) [7917-29]
- 9:30 am: **Highly simplified device for measuring the intensity and phase of picosecond pulses**, Jacob Cohen, Vikrant Chauhan, Georgia Institute of Technology (USA); Dongjoo Lee, Swamp Optics, LLC (USA); Peter M. Vaughan, Rick P. Trebino, Georgia Institute of Technology (USA) [7917-30]
- Coffee Break 9:50 to 10:20 am

LASE PLENARY SESSION

Room: 134 (Exhibit Level) Wed. 10:20 am to 12:30 pm

- 10:20 am: **Welcome and Opening Remarks**, Friedhelm Dorsch, TRUMPF GmbH & Co. KG (Germany) and Alberto Piqué, U.S. Naval Research Lab. (USA)
- 10:25 am: **Announcement of the Best Green Photonics Paper Awards in LASE**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)
- 10:30 am: **Of Light, Electrons, and Metamaterials**, Nader Engheta, Univ. of Pennsylvania (USA)
- 11:10 am: **Using Lasers in Particle-based Applications**, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)
- 11:50 am: **Advances in Lasers and Their Impact on Industrial Applications**, Paul E. Denney, Connecticut Ctr. for Advanced Technology, Inc. (USA)

See p. 20 for details.

Lunch/Exhibition Break 12:30 to 1:50 pm

SESSION 8

Room: 113 (Exhibit Level) Wed. 1:50 to 3:40 pm

Nonlinear Fiber Devices and Applications

Session Chair: Baldemar Ibarra-Escamilla, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico)

- 1:50 pm: **Rediscovered dynamics of nonlinear fiber optics: from breathers to extreme localisation**, Bertrand Kibler, Julien Fatome, Christophe Finot, Guy Millot, Univ. de Bourgogne (France); Frederic Dias, Ecole Normale Supérieure de Cachan (France); Goery Genty, Miro Erkintalo, Tampere Univ. of Technology (Finland); Nail Akhmediev, The Australian National Univ. (Australia); John M. Dudley, Univ. de Franche-Comté (France) [7917-31]
- 2:10 pm: **Enhanced supercontinuum generation by minute continuous wave seed**, Ka Yi K. Cheung, Yue Zhou, Kin-Yip K. Wong, Kevin K. Tsia, The Univ. of Hong Kong (Hong Kong, China) [7917-32]
- 2:30 pm: **The use of the nonlinear optical loop mirror for investigations of pulse breakup in optical fibers** (*Invited Paper*), Evgeny A. Kuzin, Baldemar Ibarra-Escamilla, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Olivier Pottiez, Ctr. de Investigaciones en Óptica, A.C. (Mexico) [7917-33]

- 3:00 pm: **Forward stimulated Brillouin scattering observed in standard highly-nonlinear optical fiber**, Yunhui Zhu, Duke Univ. (USA); Jing Wang, Duke Univ. (USA) and Beijing Jiaotong Univ. (China); Rui Zhang, Daniel J. Gauthier, Duke Univ. (USA) [7917-34]
- 3:20 pm: **Failure and limitations of linear Raman gain approximation for fiber supercontinuum generation modelling**, Miro Erkintalo, Goery Genty, Tampere Univ. of Technology (Finland); Benjamin Wetzel, John M. Dudley, Univ. de Franche-Comté (France) [7917-35]
- Coffee Break 3:40 to 4:00 pm

SESSION 9

Room: 113 (Exhibit Level) Wed. 4:00 to 6:10 pm

Optical Parametric Devices II

Session Chair: Peter E. Powers, Univ. of Dayton

- 4:00 pm: **Ultra-sensitive, room-temperature THz detection based on parametric upconversion by using a pulsed 1550nm optical source** (*Invited Paper*), Mohammad J. Khan, Jerry C. Chen, Zong-Long Liao, Sumanth Kaushik, MIT Lincoln Lab. (USA) [7917-36]
- 4:30 pm: **Amplification and wavelength conversion of a complex two-dimensional image by optical parametric amplification**, Peter M. Vaughan, Rick P. Trebino, Georgia Institute of Technology (USA) [7917-37]
- 4:50 pm: **High resolution 2-D image up-conversion of incoherent light**, Christian Pedersen, Jeppe S. Dam, Peter Tidemand-Lichtenberg, Technical Univ. of Denmark (Denmark) [7917-38]
- 5:10 pm: **A simple model for 2-D image up-conversion of incoherent light**, Jeppe S. Dam, Christian Pedersen, Peter Tidemand-Lichtenberg, Technical Univ. of Denmark (Denmark) [7917-39]
- 5:30 pm: **Characterizing the performances of an advanced acousto-optical filter exploiting the collinear calcium molybdate crystalline cell**, Alexandre S. Shcherbakov, National Institute for Astrophysics, Optics, and Electronics (Mexico); Jewgenij Maximov, Molecular Technology GmbH (Germany); Abraham Luna Castellanos, Daniel Sanchez Lucero, Karla J. Sanchez Perez, National Institute for Astrophysics, Optics, and Electronics (Mexico) [7917-40]
- 5:50 pm: **Compact all-solid-state integrated mid-IR Source**, Igor V. Melnikov, E.L.S. Co. (Russian Federation) and High Q Labs., Inc. (Canada); Alexander V. Shestakov, E.L.S. Co. (Russian Federation); Anton N. Knigavko, High Q Labs., Inc. (Canada) [7917-41]

Thursday 27 January

SESSION 10

Room: 113 (Exhibit Level) Thurs. 8:00 to 9:50 am

Mid-IR frequency Combs and Applications

Session Chair: Konstantin L. Vodopyanov, Stanford Univ.

- 8:00 am: **Dual-comb molecular spectroscopy in the NIR and MIR** (*Invited Paper*), Nathan R. Newbury, Esther Baumann, Ian Coddington, Fabrizio R. Giorgetta, William C. Swann, Alex Zolot, National Institute of Standards and Technology (USA) [7917-42]
- 8:30 am: **Mid-IR spectral comb with broad instantaneous bandwidth using subharmonic OPO**, Nicholas C. Leindecker, Alireza Marandi, Robert L. Byer, Konstantin L. Vodopyanov, Stanford Univ. (USA) [7917-43]
- 8:50 am: **Yb-fiber lasers for frequency comb spectroscopy: from XUV to mid-IR** (*Invited Paper*), Ingmar Hartl, Axel Ruehl, Martin E. Fermann, IMRA America, Inc. (USA); Arman Cingoz, JILA-AMO (USA) and National Institute of Standards and Technology (USA); Dylan C. Yost, JILA-AMO (USA); Florian Adler, Jun Ye, JILA-AMO (USA) and National Institute of Standards and Technology (USA) [7917-44]
- 9:20 am: **Mid-infrared femtosecond frequency combs for sensing and optical clocks** (*Invited Paper*), Irina T. Sorokina, Norwegian Univ. of Science and Technology (Norway); Evgeni Sorokin, Vienna Univ. of Technology (Austria) [7917-45]
- Coffee Break 9:50 to 10:30 am

LASE

SESSION 11

Room: 113 (Exhibit Level)Thurs. 10:30 am to 12:00 pm

Nonlinear Materials and Characterization I

Session Chair: **Peter G. Schunemann**, BAE Systems

10:30 am: **Mid-infrared photonics in silicon** (*Invited Paper*), Alexander Spott, Yang Liu, Tom W. Baehr-Jones, Rob Ilic, Michael Hochberg, Univ. of Washington (USA) [7917-46]

11:00 am: **Third harmonic generation in periodically poled crystals**, Jean-Christophe Delagnes, Lionel Canioni, Univ. Bordeaux 1 (France) [7917-47]

11:20 am: **Flattop wideband wavelength converters based on cascaded sum- and difference-frequency generation using step-chirped gratings**, Amirhossein Tehrani, Raman Kashyap, Ecole Polytechnique de Montréal (Canada) [7917-48]

11:40 am: **Laser heated pedestal growth of potassium lithium niobate for UV generation**, Gisele Maxwell, Dylan Dalton, Shasta Crystals (USA); Alan B. Petersen, Newport Spectra-Physics (USA) [7917-49]

Lunch/Exhibition Break 12:00 to 1:15 pm

SESSION 12

Room: 113 (Exhibit Level)Thurs. 1:15 to 3:35 pm

Nonlinear Materials and Characterization II

Session Chair: **Rita D. Peterson**, Air Force Research Lab.

1:15 pm: **Future directions in quasi-phasematched semiconductors for mid-infrared lasers**, Peter G. Schunemann, Scott D. Setzler, BAE Systems (USA) [7917-50]

1:35 pm: **Some properties of the mixed Ga_{0.4}Se_{0.6} nonlinear crystal in comparison to GaSe**, Georgi Manchev, Aleksey Tyazhev, Vladimir L. Panyutin, Valentin P. Petrov, Frank Noack, Kentaro Miyata, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Michael Griepentrog, Bundesanstalt für Materialforschung und -prüfung (Germany) [7917-51]

1:55 pm: **Frequency doubling of a CO₂ laser using orientation patterned GaAs**, Leonel P. Gonzalez, Derek Upchurch, Air Force Research Lab. (USA); Peter G. Schunemann, Kevin T. Zawilski, BAE Systems (USA); Shekhar Guha, Air Force Research Lab. (USA) [7917-52]

2:15 pm: **Photoacoustic Z-scan for the measurement of third-order nonlinear absorption coefficient**, Chandra S. Yelleswarapu, Univ. of Massachusetts Boston (USA); Sri-Rajasekhar Kothapalli, Stanford Univ. (USA); Devulapalli V. G. L. N. Rao, Univ. of Massachusetts Boston (USA) . . . [7917-53]

2:35 pm: **Thermally managed Z-scan measurements of titanium dioxide thin films**, Christopher C. Evans, Jonathan D. B. Bradley, Francois Parsy, Katherine C. Phillips, Ruwan Senaratne, Erwin A. Marti-Panameño, Eric D. Mazur, Harvard Univ. (USA) [7917-54]

2:55 pm: **Excited state nonlinear optics: limitations and improvements upon the two-level approximation for molecules**, David L. Andrews, David S. Bradshaw, Matt M. Coles, Univ. of East Anglia Norwich (United Kingdom) [7917-55]

3:15 pm: **New mixed LiGa_{0.5}In_{0.5}Se₂ nonlinear crystal for the mid-IR**, Vitaliy Vedenyapin, Ludmila I. Isaenko, Alexander P. Yelissev, Sergei Lobanov, Institute of Mineralogy and Petrography (Russian Federation); Aleksey Tyazhev, Georgi Manchev, Valentin P. Petrov, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) [7917-56]

Courses of Related Interest

SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm

SC931 Applied Nonlinear Frequency Conversion (Paschotta) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

SC1012 Coherent Mid-Infrared Sources and Applications (Vodopyanov) Monday, 1:30 to 5:30 pm

SC1020 Splicing of Specialty Fibers and Glass Processing of Fused Fiber Components (Wang) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.



Get the free mobile app at <http://gettag.mobi>

Open the tag reader app and hold your phone's camera over the tag. You'll go to the Photonics West program page, where you can browse by technology, by day/time, or by matrix view.

PLAN YOUR WEEK

Use the SPIE My Schedule tool on the Photonics West site

- Add Papers | Exhibitors | Courses | Special Events

Use the Entire Program webpage to view the program your way:

- By Symposium and Conference—papers, courses, special events
- By Day and Time—see what's happening now
- In a Matrix Grid by Program Track—handy at-a-glance reference

Free SPIE Apps for iPhone®

SPIE Conference Program FREE

Search and create your schedule at SPIE conferences.

SPIE Profiles FREE

Make valuable personal connections with SPIE Colleagues.

High-Power Diode Laser Technology and Applications IX

Conference Chair: **Mark S. Zediker**, Foro Energy, Inc.

Program Committee: **Friedrich G. Bachmann**, LUMERA LASER GmbH (Germany); **Stefan W. Heinemann**, Fraunhofer USA, Inc.; **Volker K. Krause**, Laserline GmbH (Germany); **Robert J. Martinsen**, nLIGHT Corp.; **Kurt J. Linden**, Spire Corp.; **Erik P. Zucker**, JDSU

Sunday 23 January

SESSION 1

Room: 130 (Exhibit Level) Sun. 9:00 to 11:50 am

Laser Diode Reliability

Session Chair: **Robert J. Martinsen**, nLIGHT Corp.

9:00 am: **Reliability of high power diode laser systems based on single emitters**, Paul O. Leisher, Ling Bao, Jun Wang, Mike Grimshaw, Mark A. Devito, Aaron Brown, Keith W. Kennedy, Scott R. Karlsen, Jay A. Small, Robert J. Martinsen, Jim Haden, nLIGHT Corp. (USA) [7918-01]

9:20 am: **Catastrophic optical bulk damage (COBD) in high power multi-mode InGaAs-AlGaAs strained quantum well lasers**, Yongkun Sin, Neil Ives, Stephen LaLumondiere, Steven C. Moss, The Aerospace Corp. (USA) [7918-02]

9:40 am: **Temperature and current accelerated lifetime conditions and testing of laser diodes for ESA BepiColombo space mission**, Genadi Klumel, Yoram Karni, Shalom Cohen, SCD Semiconductor Devices (Israel); Markus Rech, Kai Weidlich, Carl Zeiss Optronics GmbH (Germany) [7918-03]

Coffee Break 10:00 to 10:30 am

10:30 am: **Reliable high-power long-pulse 8XX-nm diode laser bars and arrays operating at high temperature**, Li Fan, Chuanshun Cao, Gerald Thaler, Dustin Nonnemacher, Feliks Lapinski, Irene Ai, Brian Caliva, Suhit Das, Linfei Zeng, Robert Walker, Mark McElhinney, Prabhu Thiagarajan, Lasertel, Inc. (USA) [7918-04]

10:50 am: **High reliability and high performance of 9xx-nm single emitter laser diodes**, Ling Bao, Jun Wang, Mark A. Devito, Paul O. Leisher, Dapeng Xu, Mike Grimshaw, Weimin Dong, Xingguo Guan, Shiguo Zhang, Chendong Bai, John G. Bai, Damian Wise, Robert J. Martinsen, nLIGHT Corp. (USA) [7918-05]

11:10 am: **Optimized biasing of pump laser diodes in a highly reliable metrology source for long-duration space missions**, Ilya Poberezhskiy, Daniel H. Chang, Herman Erlig, Jet Propulsion Lab. (USA) [7918-06]

11:30 am: **QCW laser diode array reliability at 80x and 88x nm**, Ryan Feeler, Edward Stephens, Joe L. Levy, Jeremy Junghans, Don Schnurbusch, Northrop Grumman Cutting Edge Optronics (USA) [7918-07]

Lunch Break 11:50 am to 1:20 pm

SESSION 2

Room: 130 (Exhibit Level) Sun. 1:20 to 3:00 pm

Frequency Stabilization and Beam Combining

Session Chair: **Kurt J. Linden**, Spire Corp.

1:20 pm: **Fiber coupled diode laser beam parameter product calculation and rule for optimized design**, Zuolan Wang, Armin Segref, Tobias P. Koenning, Rajiv Pandey, DILAS Diode Laser, Inc. (USA) [7918-08]

1:40 pm: **Simulation and analysis of volume holographic gratings integrated in collimation optics for wavelength stabilization**, Stefan Hengesbach, Ulrich Witte, Martin Traub, Hans-Dieter Hoffmann, Fraunhofer-Institut für Lasertechnik (Germany) [7918-09]

2:00 pm: **High efficiency frequency stabilized tapered amplifiers with improved brightness**, Patrick Friedmann, Jürgen Gilly, Stefan Moritz, Marco T. Kelemen, m2k-laser GmbH (Germany) [7918-10]

2:20 pm: **Wigner distribution function of DBR tapered diode laser**, Mirko Uebernickel, Bernd Eppich, Christian Fiebig, Katrin Paschke, Götz Erbert, Ferdinand-Braun-Institut (Germany) [7918-11]

2:40 pm: **Wavelength stabilized diode laser based devices free of power or efficiency penalties**, Keith W. Kennedy, nLIGHT Corp. (USA) [7918-12]

Coffee Break 3:00 to 3:30 pm

SESSION 3

Room: 130 (Exhibit Level) Sun. 3:30 to 5:10 pm

Mounting and Cooling High Power Laser Diodes

Session Chair: **Volker K. Krause**, Laserline GmbH (Germany)

3:30 pm: **Macro-channel cooled, high power, fiber coupled diode lasers exceeding 1.2kW of output power**, Tobias P. Koenning, Kimberly R. Alegria, Zuolan Wang, Armin Segref, Dean Spapleton, DILAS Diode Laser, Inc. (USA); Wilhelm Fassbender, Marco Flament, Karsten Rotter, Axel Noeske, Jens Biesenbach, DILAS Diodenlaser GmbH (Germany) [7918-13]

3:50 pm: **70% efficient, near 1kW, single 1-cm laser-diode bar at 20°C**, Maciej T. Knapczyk, Jonah H. Jacob, Henry Eppich, Science Research Lab., Inc. (USA); Aland K. Chin, Somerville Laser Technology, LLC. (USA); Keith D. F. Lang, Jonathan T. Vignati, Richard H. Chin, Science Research Lab., Inc. (USA) [7918-14]

4:10 pm: **Testing of active heat sink for advanced high-power laser diodes**, John Vetovec, Aqwest, LLC (USA); Ryan Feeler, Northrop Grumman Cutting Edge Optronics (USA) [7918-15]

4:30 pm: **Heat sink types for high-power diode laser bars**, Michael Leers, Erik Liermann, Fraunhofer-Institut für Lasertechnik (Germany); Manfred Goetz, Curamik Electronics GmbH (Germany); Dominic Schröder, JENOPTIK Laser GmbH (Germany) [7918-16]

4:50 pm: **Automated assembly processes for high power single emitter diode lasers**, Jörg Pierer, Markus Lützelshwab, Sylvain Grossmann, Christian A. Bosshard, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Bernd Valk, Reinhard Brunner, Rainer K. Bättig, Norbert Lichtenstein, Oclaro, Inc. (Switzerland) [7918-17]

Monday 24 January

SESSION 4

Room: 130 (Exhibit Level) Mon. 8:50 am to 12:00 pm

High Brightness Laser Diodes

Session Chair: **Erik P. Zucker**, JDSU

8:50 am: **High brightness diode laser module for pump and direct application**, Dominic Schröder, Alexander Franke, Ekkehard A. Werner, Steffen Wagner, Eckard Deichsel, JENOPTIK Laser GmbH (Germany) [7918-18]

9:10 am: **Technologies for high brilliance and high efficiency beam shaping of high power diode laser: trade-offs between technology and cost driven approaches**, Udo Fornahl, Jens Meinschien, Lutz Aschke, LIMO Lissotschenko Mikrooptik GmbH (Germany) [7918-19]

9:30 am: **Record CW-brightness from a single, 20% fill-factor, 1-cm laser-diode bar at 20°C**, Aland K. Chin, Somerville Laser Technology, LLC. (USA); Maciej T. Knapczyk, Jonah H. Jacob, Henry Eppich, Keith D. F. Lang, Richard H. Chin, Science Research Lab., Inc. (USA) [7918-20]

9:50 am: **Single emitter based diode lasers with high brightness and narrow linewidth**, Stefan W. Heinemann, Boris Regaard, Torsten Schmidt, Benjamin Lewis, Fraunhofer USA, Inc. (USA) [7918-21]

10:10 am: **Brightness and power scaling of diode-based light sources**, Eckard Deichsel, Peter Heist, Lars Wagner, Ekkehard A. Werner, JENOPTIK Laser GmbH (Germany) [7918-22]

Coffee Break 10:30 to 11:00 am

11:00 am: **High-power, high-brightness, and low-weight fiber coupled diode laser device**, Paul Wolf, Bernd Köhler, Karsten Rotter, Susanne Hertsch, Heiko Kissel, Jens Biesenbach, DILAS Diodenlaser GmbH (Germany) [7918-23]

11:20 am: **Suppression of lateral modes in wide aperture laser diodes by digital planar holograms**, V. Svetikov, Igor Ivonin, A. Koshelev, Nanooptika, LLC (Russian Federation); Leonid V. Velikov, Yu. Vorobiev, Nano-Optic Devices, LLC (USA); Alexander Goltsov, Nanooptika, LLC (Russian Federation); Vladimir V. Yankov, Nano-Optic Devices, LLC (USA) [7918-24]



11:40 am: **Bright laser source with high power single mode emitting diode laser stacked array assembly and fiber coupling**, Martin Forrer, FISBA OPTIK AG (Switzerland); Christian A. Bosshard, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Norbert Lichtenstein, Oclaro, Inc. (Switzerland) [7918-25]
 Lunch Break 12:00 to 1:40 pm

SESSION 5

Room: 130 (Exhibit Level) Mon. 1:40 to 5:30 pm

High Power Laser Diodes

Session Chair: Stefan W. Heinemann, Fraunhofer USA, Inc.

1:40 pm: **High-brightness distributed-Bragg-reflector tapered diode lasers: pushing your application to the next level**, Christian Fiebig, Ferdinand-Braun-Institut (Germany); Selina Pekarek, ETH Zurich (Switzerland); Mirko Uebernickel, Ferdinand-Braun-Institut (Germany); Thomas Südmeyer, Ursula Keller, ETH Zurich (Switzerland); Katrin Paschke, Götz Erbert, Ferdinand-Braun-Institut (Germany) [7918-26]

2:00 pm: **New developments of high-power single emitters and laser bars at JENOPTIK**, Martin Zorn, Ralf Huelsewede, Haike Schulze, Jürgen Sebastian, JENOPTIK Diode Lab GmbH (Germany); Dominic Schröder, Petra Hennig, JENOPTIK Laser GmbH (Germany) [7918-27]

2:20 pm: **Next generation 8xxnm laser bars and single emitters**, Uwe Strauss, Martin Müller, Tomasz Swietlik, Robin Fehse, Christian Lauer, Günther Grönninger, Harald Koenig, OSRAM Opto Semiconductors GmbH (Germany); Michael Stoiber, Iris Scholl, Jens Biesenbach, DILAS Diodenlaser GmbH (Germany); Thierry Fillardet, Andreas Kohl, Quantel Group (France) .. [7918-28]

2:40 pm: **New approach for high-power diode laser modules with homogenized intensity distribution**, Bernd Köhler, Florian Ahnepohl, Karsten Rotter, Jens Biesenbach, DILAS Diodenlaser GmbH (Germany) [7918-29]

3:00 pm: **100W high-brightness multi emitter laser pump**, Richard Duesterberg, Lei Xu, Jay A. Skidmore, James Guo, Jane Cheng, Jihua Du, Brad Johnson, David L. Vecht, Nicolas Guerin, Benlih Huang, Peter Cheng, Reddy Raju, Kong Weng Lee, Jason Cai, Victor V. Rossin, Erik P. Zucker, JDSU (USA) [7918-30]

Coffee Break 3:20 to 3:50 pm

3:50 pm: **Scaleable multi-format QCW pump stacks based on 200W laser diode bars and mini bars at 808nm and 940nm**, Yuri Berk, Yoram Karni, Genadi Klumel, Yaakov Openheim, Shalom Cohen, Dan A. Yanson, SCD Semiconductor Devices (Israel) [7918-31]

4:10 pm: **High-power, high-brightness QCW laser diodes based on cm-bars and mini-bars**, Hua Huang, Jun Wang, Mark A. Devito, Ling Bao, Dapeng Xu, Shiguo Zhang, Damian Wise, Weimin Dong, Mike Grimshaw, Chendong Bai, Geoff Fanning, Aaron L. Hodges, David Balsley, Charles E. Hamilton, Robert Ferina, Jake Bell, nLIGHT Corp. (USA) [7918-32]

4:30 pm: **Concept and experimental implementation of a scalable high power and highly homogeneous laser line generator for industrial applications**, Andreas Bayer, Melanie Brodner, Jens Meinschien, Alexei S. Mikhailov, Thomas Mitra, LIMO Lissotschenko Mikroskopik GmbH (Germany) [7918-33]

4:50 pm: **Facet engineering of high power single emitters**, Moshe Shamay, Dan A. Yanson, Moshe Levi, Renana Tessler, Yoram Karni, Yaroslav Don, Noam Rapaport, Itzhak Schnitzer, SCD Semiconductor Devices (Israel) . . . [7918-34]

5:10 pm: **Ultra-high brightness, wavelength-stabilized, kW-class fiber coupled diode laser**, Robin K. Huang, Bien Chann, John D. Glenn, TeraDiode, Inc. (USA) [7918-41]

Tuesday 25 January

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Short wavelength limitation in high power AlGaInP laser diodes, Takehiro Nishida, Naoyuki Shimada, Tetsuya Ogawa, Motoharu Miyashita, Tetsuya Yagi, Mitsubishi Electric Corp. (Japan) [7918-35]

Variation of refractive index step of 635nm ridge waveguide lasers for optimized index guiding, David Feise, Gunnar Blume, Christian Kaspari, Katrin Paschke, Götz Erbert, Ferdinand-Braun-Institut (Germany) [7918-36]

Optical elements for optimal brightness of single emitter devices, Oliver Homburg, Manfred Jarczyński, Udo Fornahl, Thomas Mitra, LIMO Lissotschenko Mikroskopik GmbH (Germany) [7918-37]

Spectral narrowing of a 980nm tapered diode laser bar, Deepak Vijayakumar, Ole B. Jensen, Paul M. Petersen, Technical Univ. of Denmark (Denmark); Gaëlle Lucas-Leclin, Institut d'Optique Graduate School (France); Birgitte Thestrup, Technical Univ. of Denmark (Denmark) [7918-38]

Coherent Polarization Combining of Multiple Spatial Modes Beams in a Diode Bar, Purnawirman Purnawirman, Nanyang Technological Univ. (Singapore); Poh Boon Phua, Nanyang Technological Univ. (Singapore) and DSO National Labs. (Singapore) [7918-39]

Courses of Related Interest

- SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm
- SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm
- SC974 Interconnection and Splicing of High-Power Optical Fibers (Yablon) Monday, 8:30 am to 12:30 pm
- SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm
- SC1020 Splicing of Specialty Fibers and Glass Processing of Fused Fiber Components (Wang) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Vertical External Cavity Surface Emitting Lasers (VECSELS)

Conference Chair: Ursula Keller, ETH Zurich (Switzerland)

Program Committee: Martin D. Dawson, Univ. of Strathclyde (United Kingdom); Norman Hodgson, Coherent, Inc.; Eli Elyahou Kapon, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Jerome V. Moloney, College of Optical Sciences, The Univ. of Arizona; Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland); Edik U. Rafailov, Univ. of Dundee (United Kingdom); Alexei Sirbu, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Anne C. Tropper, Univ. of Southampton (United Kingdom)

Monday 24 January

Introduction and Opening Remarks

Room: 111 (Exhibit Level) Mon. 8:00 to 8:15 am

Ursula Keller, ETH Zurich (Switzerland)

SESSION 1

Room: 111 (Exhibit Level) Mon. 8:15 to 10:00 am

CW VECSELS: Power Scaling I

Session Chair: Ursula Keller, ETH Zurich (Switzerland)

8:15 am: **Advances in directly visible VECSELS** (*Invited Paper*), Jennifer E. Hastie, Univ. of Strathclyde (United Kingdom); Andrey B. Krysa, The Univ. of Sheffield (United Kingdom); Stephane Calvez, Martin D. Dawson, Univ. of Strathclyde (United Kingdom) [7919-01]

8:45 am: **High power optically pumped VECSELS emitting in 1310 nm and 1550 nm bands** (*Invited Paper*), Alexei Sirbu, Alexandru Mereuta, Andrei Caliman, Eli E. Kapon, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Jussi Rautiainen, Jari Lytykainen, Oleg Okhotnikov, Tampere Univ. of Technology (Finland); Jaroslaw Walczak, Tomasz Czystanowski, Technical Univ. of Lodz (Poland) [7919-02]

9:15 am: **High-power 1.25 μm InAs QD VECSEL based on resonant periodic gain structure**, Alexander R. Albrecht, Thomas J. Rotter, Christopher P. Hains, Andreas Stintz, The Univ. of New Mexico (USA); Tsuei-Lian Wang, The Univ. of Arizona (USA); Yushi Kaneda, Jerome V. Moloney, College of Optical Sciences, The Univ. of Arizona (USA); Kevin J. Malloy, Ganesh Balakrishnan, The Univ. of New Mexico (USA) [7919-03]

9:30 am: **11 W single gain element dilute nitride disk laser emitting at 1180 nm**, Tomi Leinonen, Ville-Markus Korpijärvi, Janne Puustinen, Tampere Univ. of Technology (Finland); Ryan Epstein, Areté Associates (USA); Mircea Guina, Tampere Univ. of Technology (Finland) [7919-04]

9:45 am: **Gain coupling VECSELS**, Robert G. Bedford, Air Force Research Lab. (USA); Chris Hassenius, College of Optical Sciences, The Univ. of Arizona (USA); Nathan Terry, Air Force Research Lab. (USA); Mahmoud Fallahi, Jerome V. Moloney, College of Optical Sciences, The Univ. of Arizona (USA) . [7919-05]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 111 (Exhibit Level) Mon. 10:30 am to 12:00 pm

CW VECSELS: Power Scaling II

Session Chair: Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland)

10:30 am: **GaSb-based semiconductor disk lasers: versatile lasers for the 2-3 μm wavelength range** (*Invited Paper*), Marcel Rattunde, Benno Roesener, Sebastian Kaspar, Christian Manz, Klaus Koehler, Joachim Wagner, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany) [7919-06]

11:00 am: **Recent progress on high power optically pumped semiconductor lasers** (*Invited Paper*), Juan L. Chilla, Coherent, Inc. (USA) [7919-07]

11:30 am: **Lateral lasing and ASE reduction in VECSELS**, Chris Hassenius, Mahmoud Fallahi, Jerome V. Moloney, College of Optical Sciences, The Univ. of Arizona (USA); Robert G. Bedford, Air Force Research Lab. (USA) . . . [7919-08]

11:45 am: **2 W cw OPO in mid-IR pumped by OPSL laser intra-cavity radiation**, Andrea Caprara, Coherent, Inc. (USA) [7919-09]

Lunch Break 12:00 to 2:00 pm

SESSION 3

Room: 111 (Exhibit Level) Mon. 2:00 to 3:00 pm

Novel VECSEL Applications

Session Chair: Norman Hodgson, Coherent, Inc.

2:00 pm: **Wavelength tunable red AlGaInP-VECSEL emitting at around 660 nm**, Thomas Schwarzbäck, Hermann Kahle, Marcus Eichfelder, Wolfgang Michael Schulz, Robert K. Rossbach, Michael Jetter, Peter Michler, Univ. Stuttgart (Germany) [7919-10]

2:15 pm: **Blue light source based on spectrally stabilized external dual grating reflector coupled surface emitter array**, Yigit O. Yilmaz, Oleg V. Smolski, Viktor O. Smolski, Eric G. Johnson, The Univ. of North Carolina at Charlotte (USA) [7919-11]

2:30 pm: **Recent advances in VECSELS for laser projection applications** (*Invited Paper*), Hans H. Lindberg, Stefan Illek, Ines Pietzonka, Michael Furitsch, Andreas Plössl, Sebastian Haupt, Michael Kuehnelt, Roland Schulz, Thomas Hoefler, Uwe Strauss, OSRAM Opto Semiconductors GmbH (Germany)[7919-13]

Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 111 (Exhibit Level) Mon. 3:30 to 6:30 pm

Power Scaling VECSELS: Growth, Fabrication, and Electrical Pumping

Session Chair: Bernd Witzigmann, Univ. Kassel (Germany)

3:30 pm: **Properties of (GaIn)As-based near-infrared VECSEL grown by low-temperature metal organic vapour phase epitaxy process** (*Invited Paper*), Wolfgang Stolz, Philipps-Univ. Marburg (Germany) [7919-14]

4:00 pm: **MBE growth challenges of quantum dot saturable absorbers integrated into a MIXSEL**, Matthias C. Golling, Yohan Barbarin, Thomas Südmeyer, Ursula Keller, ETH Zurich (Switzerland) [7919-15]

4:15 pm: **Lattice mismatched growth for mid-IR VECSELS** (*Invited Paper*), Ganesh Balakrishnan, The Univ. of New Mexico (USA) [7919-16]

4:45 pm: **Recent advances in electrically pumped VECSELS for modelocking** (*Invited Paper*), Yohan Barbarin, ETH Zurich (Switzerland) [7919-17]

5:15 pm: **Beam quality optimization of electrically pumped VECSELS for passive modelocking**, Wolfgang P. Pallmann, Martin Hoffmann, ETH Zurich (Switzerland); Michael Miller, Philips Technologie GmbH U-L-M Photonics (Germany); Johannes Baier, Philips GmbH (Germany); Holger Moench, Philips Research (Germany); Imad Dahhan, Bernd Witzigmann, Univ. Kassel (Germany); Matthias C. Golling, Yohan Barbarin, Thomas Südmeyer, Ursula Keller, ETH Zurich (Switzerland) [7919-18]

5:30 pm: **High power Bessel beams from EP-VECSELS**, Grigori S. Sokolovskii, Ioffe Physico-Technical Institute (Russian Federation) and Univ. of Dundee (United Kingdom); Svetlana A. Zolotovskaya, Univ. of Dundee (United Kingdom); Sergey N. Losev, Vladislav V. Dudelev, Anton G. Deryagin, Vladimir I. Kuchinskii, Ioffe Physico-Technical Institute (Russian Federation); Wilson Sibbett, Univ. of St. Andrews (United Kingdom); Edik U. Rafailov, Univ. of Dundee (United Kingdom) [7919-19]

5:45 pm: **Design and characterization of electrically pumped vertical external cavity surface emitting lasers**, Jonathan R. Orchard, David M. Williams, David T. D. Childs, Li Chih Lin, Benjamin J. Stevens, John S. Roberts, Richard A. Hogg, The Univ. of Sheffield (United Kingdom) [7919-20]

6:00 pm: **Power and brightness scaling in large aperture semiconductor lasers** (*Invited Paper*), John McInerney, Univ. College Cork (Ireland) . [7919-21]

LASE

Tuesday 25 January

SESSION 5

Room: 111 (Exhibit Level) Tues. 8:00 to 10:00 pm

VECSELS: Theory and Simulations

Session Chair: **Jerome V. Moloney**,
College of Optical Sciences, The Univ. of Arizona

- 8:00 pm: **Design and optimisation of VECSELS for the IR and mid-IR** (*Invited Paper*), Jörg Hader, Nonlinear Control Strategies Inc. (USA) and College of Optical Sciences, The Univ. of Arizona (USA) [7919-22]
- 8:30 pm: **Quantum design and nonequilibrium effects in VECSELS** (*Invited Paper*), Stephan W. Koch, Philipps-Univ. Marburg (Germany). [7919-23]
- 9:00 pm: **Design and simulation of electrically pumped mode-locked VECSELS** (*Invited Paper*), Bernd Witzigmann, Univ. Kassel (Germany) [7919-24]
- 9:30 pm: **Scaling high-power ultrafast VECSELS into the femtosecond regime**, Oliver D. Sieber, Martin Hoffmann, Valentin J. Wittwer, Wolfgang P. Pallmann, Yohan Barbarin, Matthias C. Golling, Thomas Südmeyer, Ursula Keller, ETH Zurich (Switzerland). [7919-25]
- 9:45 pm: **Numerical modelling of optical Stark effect saturable absorbers in mode-locked femtosecond VECSELS**, Adrian H. Quarterman, Geoff J. Daniell, Stewart Carswell, Keith G. Wilcox, Zakaria Mihoubi, Aaron L. Chung, Vasilis Apostolopoulos, Anne C. Tropper, Univ. of Southampton (United Kingdom) [7919-26]
- Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 111 (Exhibit Level) Tues. 10:30 am to 12:00 pm

Ultrafast VECSELS and MIXSELS

Session Chair: **Anne C. Tropper**,
Univ. of Southampton (United Kingdom)

- 10:30 am: **Power scaling of the MIXSEL: an integrated picosecond semiconductor laser with >6 W average power** (*Invited Paper*), Thomas Südmeyer, ETH Zurich (Switzerland). [7919-27]
- 11:00 am: **Power scaling of cw and pulsed IR and mid-IR VECSELS** (*Invited Paper*), Jerome V. Moloney, College of Optical Sciences, The Univ. of Arizona (USA) [7919-28]
- 11:30 am: **QD-based saturable absorbers for ultrafast lasers** (*Invited Paper*), Edik U. Rafailov, Svetlana A. Zolotovskaya, Mantas Butkus, Univ. of Dundee (United Kingdom). [7919-29]
- Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 7

Room: 111 (Exhibit Level) Tues. 1:30 to 3:00 pm

Ultrafast VECSELS

Session Chair: **Uwe Griebner**, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany)

- 1:30 pm: **Tailoring the wavelength of semiconductor disk lasers** (*Invited Paper*), Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland). [7919-30]
- 2:00 pm: **VECSEL technology for modelocking at 1.55 μm** (*Invited Paper*), Sophie Bouchoule, Aghiad Khadour, Zhuang Zhao, Ctr. National de la Recherche Scientifique (France); Jean Decobert, Alcatel-Thales III-V Lab. (France); Jean-Christophe Harmand, Jean-Louis Oudar, Ctr. National de la Recherche Scientifique (France) [7919-31]
- 2:30 pm: **Timing jitter characterization of a quantum dot SESAM modelocked VECSEL**, Valentin J. Wittwer, Wolfgang P. Pallmann, Andreas E. H. Oehler, Benjamin Rudin, Matthias C. Golling, Yohan Barbarin, Thomas Südmeyer, Ursula Keller, ETH Zurich (Switzerland) [7919-32]
- 2:45 pm: **All quantum dot based femtosecond VECSEL**, Martin Hoffmann, Oliver D. Sieber, Wolfgang P. Pallmann, Valentin J. Wittwer, Yohan Barbarin, Thomas Südmeyer, Ursula Keller, ETH Zurich (Switzerland); Igor L. Krestnikov, Sergey S. Mikhlin, D. A. Livshits, Innolume GmbH (Germany); Graeme Malcolm, Craig Hamilton, M Squared Lasers Ltd. (United Kingdom). [7919-33]
- Coffee Break 3:00 to 3:30 pm

SESSION 8

Room: 111 (Exhibit Level) Tues. 3:30 to 6:00 pm

Femtosecond VECSELS and Novel Applications

Session Chair: **Thomas Südmeyer**, ETH Zurich (Switzerland)

- 3:30 pm: **Femtosecond surface emitting lasers** (*Invited Paper*), Anne C. Tropper, Univ. of Southampton (United Kingdom) [7919-34]
- 4:00 pm: **Pulse generation in the 100-fs range from a mode-locked semiconductor disk laser** (*Invited Paper*), Uwe Griebner, Peter Klopp, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Martin Zorn, Markus Weyers, Ferdinand-Braun-Institut (Germany) [7919-35]
- 4:30 pm: **169 GHz repetition rate passively harmonically mode-locked VECSEL emitting 265 fs pulses**, Adrian H. Quarterman, Keith G. Wilcox, Alex Perevedentsev, Vasilis Apostolopoulos, Zakaria Mihoubi, Aaron L. Chung, Univ. of Southampton (United Kingdom); Harvey E. Beere, Ian Farrer, David A. Ritchie, Univ. of Cambridge (United Kingdom); Anne C. Tropper, Univ. of Southampton (United Kingdom). [7919-36]
- 4:45 pm: **FROG measurements of a femtosecond modelocked VECSEL**, Stephen P. Elsmere, Keith G. Wilcox, Adrian H. Quarterman, Zakaria Mihoubi, Anne C. Tropper, Univ. of Southampton (United Kingdom) [7919-37]
- 5:00 pm: **High peak power femtosecond pulse VECSELS for terahertz time domain spectroscopy**, Keith G. Wilcox, Aaron L. Chung, Adrian H. Quarterman, Zakaria Mihoubi, Univ. of Southampton (United Kingdom); Ian Farrer, Harvey E. Beere, David A. Ritchie, Univ. of Cambridge (United Kingdom); Vasilis Apostolopoulos, Anne C. Tropper, Univ. of Southampton (United Kingdom) [7919-38]
- 5:15 pm: **Applications of high power OPS lasers in the visible and UV spectral range**, Brandon Morioka, Coherent, Inc. (USA) [7919-39]
- 5:30 pm: **Design and properties of high-power highly-coherent single-frequency VECSEL emitting in the near- to mid-IR** (*Invited Paper*), Arnaud Garnache, Univ. Montpellier 2 (France) [7919-12]

Courses of Related Interest

- SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm
- SC1012 Coherent Mid-Infrared Sources and Applications (Vodopyanov) Monday, 1:30 to 5:30 pm
- See course materials desk located in the SPIE Registration Area.

Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM) XVI

Conference Chairs: **Bo Gu**, IPG Photonics Corp.; **Guido Hennig**, Daetwyler Graphics AG (Switzerland); **Xianfan Xu**, Purdue Univ.; **Hiroyuki Niino**, National Institute of Advanced Industrial Science and Technology (Japan)

Program Committee: **Craig B. Arnold**, Princeton Univ.; **Ian W. Boyd**, Monash Univ. (Australia); **Paul V. Braun**, Univ. of Illinois at Urbana-Champaign; **Douglas B. Chrisey**, Rensselaer Polytechnic Institute; **Santiago Costantino**, Univ. de Montréal (Canada); **J. Thomas Dickinson**, Washington State Univ.; **Jan J. Dubowski**, Univ. de Sherbrooke (Canada); **Richard F. Haglund, Jr.**, Vanderbilt Univ.; **Yoshio Hayasaki**, Utsunomiya Univ. (Japan); **Andrew S. Holmes**, Imperial College London (United Kingdom); **Jyotirmoy Mazumder**, Univ. of Michigan; **Eric D. Mazur**, Harvard Univ.; **Michel Meunier**, Ecole Polytechnique de Montréal (Canada); **Beat Neuenschwander**, Berner Fachhochschule (Switzerland); **Henry Peng**, GE China Technology Ctr. (China); **Alberto Piqué**, U.S. Naval Research Lab.; **Koji Sugioka**, RIKEN (Japan); **Vassilia Zorba**, Lawrence Berkeley National Lab.

Monday 24 January

Opening Remarks

Room: 122 (Exhibit Level) Mon. 8:30 to 8:40 am

Bo Gu, IPG Photonics Corp. (USA)

SESSION 1

Room: 122 (Exhibit Level) Mon. 8:40 to 10:10 am

Fundamental Aspects of Laser Interaction

Session Chairs: **Bo Gu**, IPG Photonics Corp.; **Guido Hennig**, Daetwyler Graphics AG (Switzerland)

8:40 am: **Fundamental studies of the role of photo-induced defect production on laser modification and etching of surfaces: single crystal ZnO** (*Invited Paper*), Enamul H. Khan, John Unverferth, Steve C. Langford, J. Thomas Dickinson, Washington State Univ. (USA) [7920-01]

9:10 am: **Absorption of femtosecond laser pulse in fused silica: experiments and modelling**, Nadezda Varkentina, Olivier P. Uteza, Benoît Chimier, Nicolas Sanner, Lasers, Plasmas et Procédés Photoniques (France); Tatiana E. Itina, Lab. Hubert Curien (France); Marc L. Sentsis, Lasers, Plasmas et Procédés Photoniques (France) [7920-02]

9:30 am: **Goos-Hänchen effect enhanced by surface plasmon resonance in Kretschmann-Raether configuration**, Tao Duan, Xi'an Institute of Optics and Precision Mechanics (China) [7920-03]

9:50 am: **Effects of the source, surface, and sensor couplings and colorimetric of laser speckle pattern on the performance of optical imaging system**, Mohamed Darwiesh, Ashraf F. El-Sherif, Military Technical College (Egypt); Hatem El-Ghandour, Ain Shams Univ. (Egypt); Hussein Aly, Military Technical College (Egypt) [7920-04]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 122 (Exhibit Level) Mon. 10:40 am to 12:30 pm

Laser Microscale Materials Processing

Session Chairs: **J. Thomas Dickinson**, Washington State Univ.; **Yongfeng Lu**, Univ. of Nebraska-Lincoln

10:40 am: **Glass welding technology using ultra short laser pulses** (*Invited Paper*), Stephan Roth, Kristian Cvecek, Isamu Miyamoto, Michael H. M. Schmidt, BLZ Bayerisches Laserzentrum GmbH (Germany) [7920-05]

11:10 am: **Reliable laser micro-welding of copper**, Christoph Rüttimann, Ulrich Duerr, LASAG AG (Switzerland); Anas Moalem, Laser Zentrum Hannover e.V. (Germany) [7920-06]

11:30 am: **Advanced micro-machining applications for low nanosecond high brightness fiber lasers**, Anthony P. Hault, IPG Photonics Corp. (USA) [7920-07]

11:50 am: **Processing of metals with ps-laserpulses in the range between 10ps and 100ps**, Beat Neuenschwander, Marc Schmid, Valerio Romano, Beat Jaeggi, Urs W. Hunziker, Berner Fachhochschule Technik und Informatik (Switzerland) [7920-08]

12:10 pm: **Novel micromachining process using optical breakdown of a microdroplet**, Daehwan Ahn, Deoksuk Jang, Dongsik Kim, Pohang Univ. of Science and Technology (Korea, Republic of) [7920-09]

Lunch Break 12:30 to 2:00 pm

SESSION 3

Room: 122 (Exhibit Level) Mon. 2:00 to 3:30 pm

Surface Microstructuring and Cleaning

Session Chairs: **Guido Hennig**, Daetwyler Graphics AG (Switzerland); **Bo Gu**, IPG Photonics Corp.

2:00 pm: **Generation of superfine structure smaller than 10 nm by interfering femtosecond laser processing** (*Invited Paper*), Yoshiaki Nakata, Kazuma Momoo, Takuya Hiromoto, Noriaki Miyanaga, Osaka Univ. (Japan) [7920-10]

2:30 pm: **Surface morphology of SiO₂ coated InP/InGaAs/InGaAsP microstructures following irradiation with the ArF and KrF excimer lasers**, Neng Liu, Khalid Moumanis, Jan J. Dubowski, Univ. de Sherbrooke (Canada) [7920-11]

2:50 pm: **Generating sub-micron features on rough surfaces using optical trap assisted nanopatterning**, Yu-Cheng Tsai, Romain Fardel, Craig B. Arnold, Princeton Univ. (USA) [7920-12]

3:10 pm: **Novel surface cleaning method using high-speed micro jet generated by laser-induced breakdown of a microdroplet**, Deoksuk Jang, Daehwan Ahn, Dongsik Kim, Pohang Univ. of Science and Technology (Korea, Republic of) [7920-13]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 122 (Exhibit Level) Mon. 4:00 to 5:30 pm

Laser Modification of Materials

Session Chairs: **Hiroyuki Niino**, National Institute of Advanced Industrial Science and Technology (Japan); **Yoshiki Nakata**, Osaka Univ. (Japan)

4:00 pm: **Controlled growth of carbon nanotubes: from locations to structures** (*Invited Paper*), Yongfeng Lu, Yunshen Zhou, Masoud Mahjouri Samani, Wei Xiong, M. Mitchell, Univ. of Nebraska-Lincoln (USA) [7920-14]

4:30 pm: **High rep-rate UV laser precipitation of silicon nanocrystals**, Waqas Mustafeez, Stanford Univ. (USA); Daeho Lee, Costas P. Grigoropoulos, Univ. of California, Berkeley (USA); Alberto Salleo, Stanford Univ. (USA) [7920-15]

4:50 pm: **Femtosecond laser doping of TiO₂ for photocatalysis**, Katherine C. Phillips, Meng-Ju Sher, Anne Co, Elizabeth C. Landis, Cynthia M. Friend, Eric D. Mazur, Harvard Univ. (USA) [7920-16]

5:10 pm: **Sintering of solution-based nano-particles by a UV laser pulse train**, Jie Zhang, Ming Li, Panasonic Corp. of North America (USA); Kiyoshi Morimoto, Panasonic Corp. (Japan) [7920-17]

LASE

Tuesday 25 January

SESSION 5

Room: 122 (Exhibit Level) Tues. 8:00 to 10:20 am

Ultrashort Pulse Micromachining

Joint Session with Conference 7925

Session Chair: Craig B. Arnold, Princeton Univ.

- 8:00 am: **Fundamentals and industrial applications of ultrashort pulsed lasers at Bosch** (*Invited Paper*), Jens Koenig, Thorsten Bauer, Robert Bosch GmbH (Germany). [7925-32]
- 8:30 am: **Directly induced ablation of metal thin films by ultra short laser pulses**, Gerhard Heise, Christian Hellwig, Jan Konrad, Sebastian Sarrach, Heinz P. Huber, Hochschule München für Angewandte Wissenschaften (Germany) [7925-33]
- 8:50 am: **Colorizing of the stainless steel surface by single-beam direct femtosecond laser writing**, Md. S. Ahsan, KAIST (Korea, Republic of) and Khulna Univ. (Bangladesh); Yeong Gyu Kim, Man Seop Lee, KAIST (Korea, Republic of) [7925-34]
- 9:10 am: **Core techniques for precise and productive microdrilling in steel with ultrashort pulsed laser radiation** (*Invited Paper*), Martin Kraus, Andreas Michalowski, Johannes Fruechtenicht, Rudolf Weber, Thomas Graf, Univ. Stuttgart (Germany) [7925-35]
- 9:40 am: **Industrial production with ultra fast laser workstations**, Eric Audouard, Univ. Jean Monnet Saint-Etienne (France); Hervé Soder, Impulsion SAS (France) [7920-18]
- 10:00 am: **An investigation of piezoelectric cutting by femtosecond laser**, Yoan Di Maio, Eric Audouard, Jean-Philippe Colombier, Univ. Jean Monnet Saint-Etienne (France); Paul Cazottes, José Beitia, Sagem Defense Securite (France) [7920-19]
- Coffee Break 10:20 to 10:50 am

SESSION 6

Room: 122 (Exhibit Level) Tues. 10:50 am to 12:20 pm

Thin Film and Wafer Processing

Joint Session with Conference 7925

Session Chair: Jens Koenig, Robert Bosch GmbH (Germany)

- 10:50 am: **The effect of ambient conditions on thin wafers processed with fs-laser machining** (*Invited Paper*), Sae Chae Jeoung, Korea Research Institute of Standards and Science (Korea, Republic of) [7925-36]
- 11:20 am: **On the damage behaviour of Al₂O₃ insulating layers in thin film systems for the fabrication of sputtered strain gauges**, Oliver Suttmann, Ulrich Klug, Rainer Kling, Laser Zentrum Hannover e.V. (Germany) [7925-37]
- 11:40 am: **Laser ablation of AgInSe₂: a clean and effective approach for ternary semiconductors**, Dinesh Pathak, Guru Nanak Dev Univ. (India) [7920-20]
- 12:00 pm: **Investigation on solid state Nd³⁺:YAG line beam laser annealing and texturing of amorphous silicon thin films**, Nilesch J. Vasa, Anand I. Palani, Makaram Singaperumal, Indian Institute of Technology Madras (India) [7920-21]
- Lunch/Exhibition Break 12:20 to 2:00 pm

SESSION 7

Room: 122 (Exhibit Level) Tues. 2:00 to 3:00 pm

Online Monitoring

Joint Session with Conference 7925

Session Chair: Andreas Michalowski, Univ. Stuttgart (Germany)

- 2:00 pm: **In-situ coherent imaging to monitor and control laser micro machining processes** (*Invited Paper*), James M. Fraser, Paul J. Webster, Joe X. Yu, Benjamin Y. Leung, Logan G. Wright, Kevin D. Mortimer, Queen's Univ. (Canada) [7925-38]
- 2:30 pm: **In-situ observation of the hole formation during deep drilling with ultrashort laser pulses** (*Invited Paper*), Sven Döring, Sören Richter, Friedrich-Schiller-Univ. Jena (Germany); Stefan Nolte, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) and Fraunhofer Institute Applied Optics and Precision Engineering (Germany) [7925-39]
- Coffee Break 3:00 to 3:30 pm

SESSION 8

Room: 122 (Exhibit Level) Tues. 3:30 to 5:40 pm

Femtosecond Laser Nanoprocessing

Joint Session with Conference 7925

Session Chair: Beat Neuenschwander, Berner Fachhochschule Technik und Informatik (Switzerland)

- 3:30 pm: **Ultrafast microsphere near-field nanostructuring**, Karl-Heinz Leitz, Ulf Quentin, Lehrstuhl für Photonische Technologien (Germany) and Erlangen Graduate School of Advanced Optical Technologie (Germany); Benjamin Hornung, Consultant (Germany); Andreas Otto, Ilya Alexeev, Michael Schmidt, Lehrstuhl für Photonische Technologien (Germany) and Erlangen Graduate School of Advanced Optical Technologie (Germany) [7925-40]
- 3:50 pm: **Laser-induced breakdown spectroscopy with tailored femtosecond pulses for 3-dimensional chemical imaging with high spatial resolution** (*Invited Paper*), Jutta Mildner, Cristian Sarpe-Tudoran, Lars Englert, Dirk Otto, Nadine Goette, Matthias Wollenhaupt, Waldemar Wessel, Angelika Brueckner-Foit, Thomas Baumert, Univ. Kassel (Germany) [7920-24]
- 4:20 pm: **Uniform near-field nanopatterning due to the field distribution control by oblique femtosecond laser irradiation to nanoparticles**, Tomoya Miyanishi, Mitsuhiro Terakawa, Minoru Obara, Keio Univ. (Japan) [7920-25]
- 4:40 pm: **Nanostructure formation on silicon surfaces by high repetition-rate sub-15fs near-infrared laser pulses**, Martin H. Straub, Karsten König, Univ. des Saarlandes (Germany) [7920-26]
- 5:00 pm: **Towards all-in-glass micro-actuators fabricated with femtosecond lasers**, Yves Bellouard, Technische Univ. Eindhoven (Netherlands); Ali A. Said, Mark A. Dugan, Philippe Bado, Translume, Inc. (USA) [7925-45]
- 5:20 pm: **Optimization methods of hologram for holographic femtosecond laser processing**, Yoshio Hayasaki, Satoshi Hasegawa, Utsunomiya Univ. (Japan) [7920-28]

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

- Generation of complicated or duplicated structure by interfering femtosecond laser processing of metallic thin film**, Takuya Hiromoto, Kazuma Momoo, Yoshiki Nakata, Noriaki Miyayaga, Osaka Univ. (Japan) [7920-41]
- F₂ laser surface modification of UV transparent polymer for selective cell culture and its mechanism study**, Yasutaka Hanada, Koji Sugioka, Katsumi Midorikawa, RIKEN (Japan) [7920-42]
- Multiphoton lithography and ITO structuring by high repetition-rate sub-15 femtosecond laser pulses**, Maziar Afshar, Somaie Saremi, Henning Völlm, Dara Feili, Helmut Seidel, Martin H. Straub, Huijing Zhang, Karsten König, Univ. des Saarlandes (Germany) [7920-43]
- Non-destructive analysis on femtosecond laser doped silicon**, Yu-Ting Lin, Harvard Univ. (USA); Matthew J. Smith, Silvija Gradecak, Massachusetts Institute of Technology (USA); Eric D. Mazur, Harvard Univ. (USA) [7920-44]
- Manufacture of stacked-layers pattern by femto-second laser-induced forward transfer**, Chung Hao Lu, Bo Han Chen, Chia Min Chang, Ming Lun Tseng, National Taiwan Univ. (Taiwan); Cheng Hung Chu, Hai-Pang Chiang, National Taiwan Ocean Univ. (Taiwan); Din Ping Tsai, National Taiwan Univ. (Taiwan) [7920-45]
- Evaluation of a refractive index profiles for a modification induced by focused femtosecond laser irradiation in the optical glasses**, Tomohiro Hashimoto, Shuhei Tanaka, New Glass Forum (Japan) [7920-46]
- Laser cutting of carbon fiber reinforced plastics (CFRP) by UV pulsed laser ablation**, Hiroyuki Niino, Ryozo Kurosaki, National Institute of Advanced Industrial Science and Technology (Japan) [7920-47]
- F₂ laser formation of SiO₂ protective layer onto polycarbonate for lightweight vehicle window**, Shingo Sonobe, National Defense Academy (Japan); Yoshihiko Nojima, National Defense Academy (Japan) and Renias Co., Ltd. (Japan); Masayuki Okoshi, National Defense Academy (Japan); Hidetoshi Nojiri, Renias Co., Ltd. (Japan); Narumi Inoue, National Defense Academy (Japan) [7920-48]

Patterning of aluminum thin films by 157nm F₂ laser, Kazufumi Iwai, Masayuki Okoshi, National Defense Academy (Japan); Hidetoshi Nojiri, Renias Co., Ltd. (Japan); Narumi Inoue, National Defense Academy (Japan) . [7920-49]

Microwelding of glass substrates by double pulse irradiation of femtosecond laser, Makoto Iida, RIKEN (Japan) and Tokyo Denki Univ. (Japan); Yasutaka Hanada, Koji Sugioka, RIKEN (Japan); Hiroshi Takai, Tokyo Denki Univ. (Japan); Katsumi Midorikawa, RIKEN (Japan) [7920-50]

Laser micro welding of copper using a 532nm Nd:YAG laser, Geoff J. Shannon, Miyachi Unitek Corp. (USA). [7920-51]

Wednesday 26 January

SESSION 9

Room: 122 (Exhibit Level) Wed. 8:00 to 9:50 am

Laser Processing of Transparent Materials

Session Chairs: Xianfan Xu, Purdue Univ.;
Andreas Michalowski, Univ. Stuttgart (Germany)

8:00 am: **Designer pulses for optimal ablation** (*Invited Paper*), Razvan I. Stoian, Jean-Philippe Colombier, M. Guillermin, Florence Garrelie, Eric Audouard, Lab. Hubert Curien, CNRS, Univ. de Lyon, Univ. Jean Monnet Saint-Etienne (France). [7920-29]

8:30 am: **Micromachining display glass with picosecond lasers**, Dirk Mueller, Hatim Haloui, Bernhard H. Klimt, LUMERA LASER GmbH (Germany) . [7920-30]

8:50 am: **Novel applications of sub-surface laser machining**, Benjamin R. Campbell, David M. Bernot, Lucas A. Forster, The Pennsylvania State Univ. Electro-Optics Ctr. (USA) [7920-31]

9:10 am: **CO₂ laser scribe of chemically strengthened glass with high surface compressive stress**, Xinghua Li, Butchi R. Vaddi, Corning Inc. (USA). [7920-32]

9:30 am: **Laser machining and plasma analysis using a novel trepanning system**, Gerd Illing, David Ashkenasi, Tristan Kaszemeikat, Norbert Müller, Laser- und Medizin-Technologie GmbH, Berlin (Germany); David Diego-Vallejo, Instituto Politécnico Nacional (Mexico); Hans-Joachim Eichler, Technische Univ. Berlin (Germany) [7920-33]

Coffee Break 9:50 to 10:20 am

LASE PLENARY SESSION

Room: 134 (Exhibit Level) Wed. 10:20 am to 12:30 pm

10:20 am: **Welcome and Opening Remarks**, Friedhelm Dorsch, TRUMPF GmbH & Co. KG (Germany) and Alberto Piqué, U.S. Naval Research Lab. (USA)

10:25 am: **Announcement of the Best Green Photonics Paper Awards in LASE**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

10:30 am: **Of Light, Electrons, and Metamaterials**, Nader Engheta, Univ. of Pennsylvania (USA)

11:10 am: **Using Lasers in Particle-based Applications**, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

11:50 am: **Advances in Lasers and Their Impact on Industrial Applications**, Paul E. Denney, Connecticut Ctr. for Advanced Technology, Inc. (USA)

See p. 20 for details.

Lunch/Exhibition Break 12:30 to 2:00 pm

SESSION 10

Room: 122 (Exhibit Level) Wed. 2:00 to 4:00 pm

Processing with Novel Laser Systems and Optics

Session Chairs: Razvan I. Stoian, Lab. Hubert Curien, CNRS, Univ. de Lyon, Univ. Jean Monnet Saint-Etienne (France);

Hiroyuki Niino, National Institute of Advanced Industrial Science and Technology (Japan)

2:00 pm: **Laser surface structuring with long depth of focus** (*Invited Paper*), Andreas Michalowski, Christian Freitag, Rudolf Weber, Thomas Graf, Univ. Stuttgart (Germany). [7920-34]

2:30 pm: **A study on 8 beam laser diode to adopt laser scanning unit**, DaeGwon Song, QSI Co., Ltd. (Korea, Republic of) [7920-35]

2:50 pm: **Advantages offered by high average power picosecond lasers**, Colin J. Moorhouse, Coherent Scotland Ltd. (United Kingdom). [7920-36]

3:10 pm: **Novel 1.2kW UV Laser system for micro fabrication and annealing**, Ludolf Herbst, Rainer Paetzel, Kai Schmidt, Coherent GmbH (Germany) [7920-37]

3:30 pm: **Three-dimensional structuring inside transparent materials by a phase modulated fs laser beam with a LCOS-SLM** (*Invited Paper*), Masaaki Sakakura, Kiyotaka Miura, Kyoto Univ. (Japan); Tsutomu Sawano, New Glass Forum (Japan); Yasuhiko Shimotsuma, Kyoto Univ. (Japan); Kazuyuki Hirao, New Glass Forum (Japan). [7920-38]

Thursday 27 January

SESSION 11

Room: 111 (Exhibit Level) Thurs. 3:20 to 5:35 pm

Photovoltaics/Energy Devices

Joint Session with Conference 7921

Session Chair: Yongfeng Lu, Univ. of Nebraska-Lincoln

3:20 pm: **Recent status and prospects of the EU-funded ALPINE project** (*Invited Paper*), Stefano Selleri, Univ. degli Studi di Parma (Italy) [7921-26]

3:45 pm: **Laser selective patterning of ITO on flexible PET for organic photovoltaics**, Shizhou Xiao, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany) [7921-27]

4:00 pm: **The change of electrical properties of CIGS thin-film solar cells after structuring with ultrashort laser pulses**, Anja Wehrmann, H. Schulte-Huxe, Martin Ehrhardt, Klaus-Peter Zimmer, Leibniz-Institut für Oberflächenmodifizierung e.V. (Germany); Alexander Braun, Steffen Ragnow, Solarion AG (Germany) [7921-28]

4:15 pm: **Laser processing of organic photovoltaic cells with a roll-to-roll manufacturing process** (*Invited Paper*), Tino Petsch, Jens Hänel, Bernd Kelper, Maurice Clair, Christian Scholz, 3D-Micromac AG (Germany) [7921-29]

4:40 pm: **Multi-spot laser processing of crystalline solar cells**, Oliver Haupt, Viktor Schütz, Uwe Stute, Laser Zentrum Hannover e.V. (Germany) . . [7921-30]

4:55 pm: **Innovative laser based solar cell scribing** (*Invited Paper*), Bruno Frei, Stefan Schneeberger, Reiner Witte, Solneva SA (Switzerland). [7920-39]

5:20 pm: **Femtosecond laser doped silicon for photovoltaic applications**, Meng-Ju Sher, Mark T. Winkler, Yu-Ting Lin, Eric D. Mazur, Harvard Univ. (USA) [7920-40]

Courses of Related Interest

SC689 Introduction to MicroMachining Using Lasers (Schaeffer) Wednesday, 8:30 am to 12:30 pm

SC743 Micromachining with Femtosecond Lasers (Schaffer, Nolte) Monday, 1:30 to 5:30 pm

SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

SC532 Micro- and Nanofluidics - Technology and Applications (Gärtner) Wednesday, 8:30 am to 12:30 pm

SC1014 Microfabrication Technologies for Microfluidic Devices (Becker) Wednesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

LASE

Laser-based Micro- and Nanopackaging and Assembly V

Conference Chairs: **Wilhelm Pfleging**, Karlsruhe Institute of Technology (Germany); **Yongfeng Lu**, Univ. of Nebraska-Lincoln; **Kunihiko Washio**, Paradigm Laser Research Ltd. (Japan)

Conference Co-Chairs: **Jun Amako**, Seiko Epson Corp. (Japan); **Willem Hoving**, XiO Photonics B.V. (Netherlands)

Program Committee: **Friedrich G. Bachmann**, LUMERA LASER GmbH (Germany); **Ramona Eberhardt**, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); **Bo Gu**, IPG Photonics Corp.; **Duncan P. Hand**, Heriot-Watt Univ. (United Kingdom); **Minghui Hong**, National Univ. of Singapore (Singapore); **Sybille Hopman**, Fraunhofer-Institut für Solare Energiesysteme (Germany); **Lan Jiang**, Beijing Institute of Technology (China); **Nam Seong Kim**, EO Technics Co., Ltd. (Korea, Republic of); **Sonja M. Kittel**, Robert Bosch GmbH (Germany); **Rainer Kling**, Laser Zentrum Hannover e.V. (Germany); **Udo Klotzbach**, Fraunhofer-Institut für Werkstoff- und Strahltechnik (Germany); **Thomas Klotzbücher**, Institut für Mikrotechnik Mainz GmbH (Germany); **Xinbing Liu**, Panasonic Technologies Co.; **Tomoaki Matsushima**, Panasonic Electric Works Co., Ltd. (Japan); **Mariusz Przybylski**, ATL Lasertechnik GmbH (Germany); **Yasu Osako**, Electro Scientific Industries, Inc.; **Roberto Osellame**, Istituto di Fotonica e Nanotecnologie, CNR, Politecnico di Milano (Italy); **Andreas Ostendorf**, Ruhr-Univ. Bochum (Germany); **Koji Sugioka**, RIKEN (Japan); **Akira Watanabe**, Tohoku Univ. (Japan); **Xianfan Xu**, Purdue Univ.

Tuesday 25 January

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Fiber-coupled multi-kW laser processing head with versatile ring focus module, Roman Niedrig, Oliver Mehl, Björn Wedel, HIGHYAG Lasertechnologie GmbH (Germany) [7921-32]

Wednesday 26 January

SESSION 1

Room: 111 (Exhibit Level) Wed. 8:20 to 10:00 am

Direct-write Processing and Surface Modification

Session Chair: **Craig B. Arnold**, Princeton Univ.

8:20 am: **Direct laser writing for nanophotonics (Invited Paper)**, Georg von Freymann, Michael Thiel, Joachim Fischer, Isabelle Staude, Martin Wegener, Karlsruhe Institute of Technology (Germany) [7921-01]

8:50 am: **Laser forward transfer for digital microfabrication (Invited Paper)**, Alberto Piqué, Heungsoo Kim, Raymond A. Auyeung, Andrew Birnbaum, Nicholas A. Charipar, Kristin Metkus, Scott Mathews, U.S. Naval Research Lab. (USA) [7921-02]

9:20 am: **Formation of Si and Ge films and micropatterns by wet process using laser direct writing method**, Akira Watanabe, Tohoku Univ. (Japan) [7921-03]

9:40 am: **Direct laser cladding of titanium based material for bio-implant application**, Jyotsna Dutta Majumdar, Indian Institute of Technology, Kharagpur (India) [7921-04]

Coffee Break 10:00 to 10:20 am

LASE PLENARY SESSION

Room: 134 (Exhibit Level) Wed. 10:20 am to 12:30 pm

10:20 am: **Welcome and Opening Remarks**, Friedhelm Dorsch, TRUMPF GmbH & Co. KG (Germany) and Alberto Piqué, U.S. Naval Research Lab. (USA)

10:25 am: **Announcement of the Best Green Photonics Paper Awards in LASE**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

10:30 am: **Of Light, Electrons, and Metamaterials**, Nader Engheta, Univ. of Pennsylvania (USA)

11:10 am: **Using Lasers in Particle-based Applications**, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

11:50 am: **Advances in Lasers and Their Impact on Industrial Applications**, Paul E. Denney, Connecticut Ctr. for Advanced Technology, Inc. (USA)

See p. 20 for details.

Lunch/Exhibition Break 12:30 to 2:00 pm

SESSION 2

Room: 111 (Exhibit Level) Wed. 2:00 to 3:30 pm

Welding, Bonding, Brazing

Session Chair: **Kunihiko Washio**, Paradigm Laser Research Ltd. (Japan)

2:00 pm: **Extending the process limits of laser polymer welding with high-brilliance beam sources (recent status and prospects of POLYBRIGHT) (Invited Paper)**, Alexander M. Olowinsky, Fraunhofer-Institut für Lasertechnik (Germany) [7921-05]

2:30 pm: **Effect of different laser intensity profiles on laser brazed ceramic-steel joints**, Isabelle J. Suedmeyer, Magnus Rohde, Heino Besser, Birgitta Liesching, Markus Grein, Johannes Schneider, Karlsruhe Institute of Technology (Germany) [7921-06]

2:50 pm: **Micro joining of thin metallic films on flexible substrates with nanosecond laser pulses**, Martin Ehrhardt, Klaus-Peter Zimmer, Anja Wehrmann, Leibniz-Institut für Oberflächenmodifizierung e.V. (Germany) [7921-07]

3:10 pm: **Laser welding assembling of an implantable bio-medical device: investigation of temperature field**, Yaomin Lin, Guangqiang Jiang, Joseph Calderon, Alfred E. Mann Foundation for Scientific Research (USA) . . [7921-31]

Coffee Break 3:30 to 4:00 pm

SESSION 3

Room: 111 (Exhibit Level) Wed. 4:00 to 5:50 pm

Additive Manufacturing and Advanced Deposition Processes*Session Chair: Willem Hoving, XiO Photonics B.V. (Netherlands)*

- 4:00 pm: **Laser based manufacturing of shunt lines for OLED lighting** (*Invited Paper*), Manfred Ruske, Holger Schwab, Philips Technologie GmbH (Germany) [7921-09]
- 4:30 pm: **Strategy of fabrication of complex shape parts based on the stability of single laser melted track**, Igor Yadroitsev, Maria Doubenskaia, Igor Smurov, Ecole Nationale d'Ingénieurs de Saint-Etienne (France). [7921-10]
- 4:50 pm: **Optical monitoring of heat processes in selective laser melting**, Maria Doubenskaia, Mikhail Pavlov, Yuri Chivel, Ecole Nationale d'Ingénieurs de Saint-Etienne (France). [7921-11]
- 5:10 pm: **Laser-assisted synthesis of diamond crystals in open air through vibrational excitation of precursor molecules**, Zhiqiang Xie, Yunshen Zhou, Xiangnan He, Yang Gao, J. B. Park, T. Guillemet, Yongfeng Lu, Univ. of Nebraska-Lincoln (USA) [7921-12]
- 5:30 pm: **Diameter modulation of carbon nanotubes by rapid temperature modulation in laser-assisted chemical vapor deposition**, Masoud Mahjouri Samani, Yunshen Zhou, Wei Xiong, Yang Gao, M. Mitchell, Yongfeng Lu, Univ. of Nebraska-Lincoln (USA) [7921-13]

Thursday 27 January

SESSION 4

Room: 111 (Exhibit Level) Thurs. 8:20 to 10:00 am

Laser Micro-Structuring and Modification*Session Chair: Jun Amako, Seiko Epson Corp. (Japan)*

- 8:20 am: **Ultrafast laser fabrication of 3D photonic structures in rare-earth doped glasses and nonlinear optical materials** (*Invited Paper*), Kevin P. Chen, Univ. of Pittsburgh (USA). [7921-14]
- 8:50 am: **3D adaptive spatio-temporal control of laser-induced refractive index changes in optical glasses** (*Invited Paper*), Razvan I. Stoian, Lab. Hubert Curien (France) [7921-15]
- 9:20 am: **Laser selective patterning of ITO on flexible PET for organic photovoltaics**, Shizhou Xiao, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany) [7921-27]
- 9:40 am: **Laser-chemical finishing of micro forming tools**, Andreas Stephen, Christoph Gerhard, Frank Vollertsen, Bremer Institut für angewandte Strahltechnik GmbH (Germany) [7921-17]
- Coffee Break 10:00 to 10:30 am

SESSION 5

Room: 111 (Exhibit Level) Thurs. 10:30 am to 12:10 pm

Laser Nano-Structuring and Machining*Session Chair: Friedrich G. Bachmann, LUMERA LASER GmbH (Germany)*

- 10:30 am: **High aspect ratio taper-free micro and nano-channel fabrication in glass with ultrafast nondiffracting Bessel beams** (*Invited Paper*), Manoj K. Bhuyan, Francois Courvoisier, Maxime Jacquot, Pierre-Ambroise Lacourt, Roland Salut, Luca Furfaro, John M. Dudley, Univ. de Franche-Comté (France) [7921-18]
- 11:00 am: **Nanoprocessing of glass and PMMA by means of near infrared sub-15 femtosecond laser pulses**, Huijing Zhang, Karsten König, Maziar Afshar, Dara Feili, Helmut Seidel, Univ. des Saarlandes (Germany) [7921-19]
- 11:20 am: **Realization of high-performance optical element by optical near-field etching** (*Invited Paper*), Kazuya Hirata, Sigma Koki Co., Ltd. (Japan). [7921-20]
- 11:50 am: **Highly efficient diffractive beam splitters surface-structured on submicron scale using deep-UV laser interference lithography**, Jun Amako, Daisuke Sawaki, Eiichi Fujii, Seiko Epson Corp. (Japan) [7921-21]
- Lunch/Exhibition Break 12:10 to 1:30 pm

SESSION 6

Room: 111 (Exhibit Level) Thurs. 1:30 to 3:00 pm

Batteries and Thin Film Structuring*Session Chair: Wilhelm Pflöging, Karlsruhe Institute of Technology (Germany)*

- 1:30 pm: **Effects of incident laser energy on device performance in printed microbatteries and supercapacitors** (*Invited Paper*), Craig B. Arnold, Princeton Univ. (USA) [7921-22]
- 2:00 pm: **Laser processing of electrode materials for manufacturing of 3D micro-batteries**, Robert Kohler, Johannes Pröll, Carlos Ziebert, Michael Bruns, Monika Rinke, Stefan Heissler, Christel Adelhelm, Karlsruhe Institute of Technology (Germany); Marius Przybylski, ATL Lasertechnik GmbH (Germany); Wilhelm Pflöging, Karlsruhe Institute of Technology (Germany) [7921-23]
- 2:20 pm: **Laser modification and characterization of Li-Mn-O thin film cathodes for lithium-ion batteries**, Johannes Pröll, Robert Kohler, Christel Adelhelm, Michael Bruns, Monika Rinke, Stefan Heissler, Karlsruhe Institute of Technology (Germany); Marius Przybylski, ATL Lasertechnik GmbH (Germany); Carlos Ziebert, Wilhelm Pflöging, Karlsruhe Institute of Technology (Germany) [7921-24]
- 2:40 pm: **Laser selective thin film structuring with different wavelengths**, Keming Du, Peng Shi, EdgeWave GmbH (Germany) [7921-25]
- Coffee Break 3:00 to 3:35 pm

SESSION 7

Room: 111 (Exhibit Level) Thurs. 3:35 to 5:35 pm

Photovoltaics/Energy Devices

Joint Session with Conference 7920

Session Chair: Yongfeng Lu, Univ. of Nebraska-Lincoln

- 3:35 pm: **Recent status and prospects of the EU-funded ALPINE project** (*Invited Paper*), Stefano Selleri, Univ. degli Studi di Parma (Italy) [7921-26]
- 4:00 pm: **The change of electrical properties of CIGS thin-film solar cells after structuring with ultrashort laser pulses**, Anja Wehrmann, H. Schulte-Huxe, Martin Ehrhardt, Klaus-Peter Zimmer, Leibniz-Institut für Oberflächenmodifizierung e.V. (Germany); Alexander Braun, Steffen Ragnow, Solarion AG (Germany) [7921-28]
- 4:15 pm: **Laser processing of organic photovoltaic cells with a roll-to-roll manufacturing process** (*Invited Paper*), Tino Petsch, Jens Hänel, Bernd Keiper, Maurice Clair, Christian Scholz, 3D-Micromac AG (Germany) [7921-29]
- 4:40 pm: **Multi-spot laser processing of crystalline solar cells**, Oliver Haupt, Viktor Schütz, Uwe Stute, Laser Zentrum Hannover e.V. (Germany) [7921-30]
- 4:55 pm: **Innovative laser based solar cell scribing** (*Invited Paper*), Bruno Frei, Stefan Schneeberger, Reiner Witte, Solneva SA (Switzerland) [7920-39]
- 5:20 pm: **Femtosecond laser doped silicon for photovoltaic applications**, Meng-Ju Sher, Mark T. Winkler, Yu-Ting Lin, Eric D. Mazur, Harvard Univ. (USA) [7920-40]

Courses of Related Interest

- SC689 Introduction to MicroMachining Using Lasers (Schaeffer) Wednesday, 8:30 am to 12:30 pm
- SC743 Micromachining with Femtosecond Lasers (Schaffer, Nolte) Monday, 1:30 to 5:30 pm
- SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm
- SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm
- SC532 Micro- and Nanofluidics - Technology and Applications (Gärtner) Wednesday, 8:30 am to 12:30 pm
- SC1014 Microfabrication Technologies for Microfluidic Devices (Becker) Wednesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Synthesis and Photonics of Nanoscale Materials VIII

Conference Chairs: **David B. Geohegan**, Oak Ridge National Lab.; **Jan J. Dubowski**, Univ. de Sherbrooke (Canada); **Frank Träger**, Univ. Kassel (Germany)

Program Committee: **Carmen N. Afonso**, Consejo Superior de Investigaciones Científicas (Spain); **J. Thomas Dickinson**, Washington State Univ.; **Costas P. Grigoropoulos**, Univ. of California, Berkeley; **Richard F. Haglund, Jr.**, Vanderbilt Univ.; **Tony F. Heinz**, Columbia Univ.; **Ilko K. Ilev**, U.S. Food and Drug Administration; **Hiroshi Kumagai**, Osaka City Univ. (Japan); **Thomas K. Lippert**, Paul Scherrer Institut (Switzerland); **Vladimir Shalaev**, Purdue Univ.; **Xianfan Xu**, Purdue Univ.

Monday 24 January

SESSION 1

Room: 113 (Exhibit Level) Mon. 8:20 to 10:15 am

Laser Synthesis and Spectroscopy of Nanowires and Nanotubes

Session Chair: **David B. Geohegan**, Oak Ridge National Lab.

8:20 am: **Selective annealing by picosecond laser pulses for conductive patterns on the transparent zinc oxide thin film**, Daeho Lee, Heng Pan, Univ. of California, Berkeley (USA); Seung Hwan Ko, KAIST (Korea, Republic of); Costas P. Grigoropoulos, Univ. of California, Berkeley (USA); Hee K. Park, AppliFlex LLC. (USA) [7922-01]

8:40 am: **Fabrication of layer structured ZnO nanowire by nanoparticle-assisted pulsed laser deposition for optoelectronic application**, Daisuke Nakamura, Akio Kumeda, Kazuyuki Toya, Kota Okazaki, Kazuki Kubo, Koji Tsuta, Mitsuhiro Higashihata, Tatsuo Okada, Kyushu Univ. (Japan) [7922-02]

9:00 am: **In situ spectroscopic diagnostics of SnO₂ nanowire growth by laser-CVD at high temperatures**, Alex Puzosky, Junsoo Shin, Christopher Rouleau, Jason D. Readle, Norbert Thonnard, Amit Goyal, David B. Geohegan, Oak Ridge National Lab. (USA) [7922-03]

9:20 am: **Parametric study of laser assisted silicon nanowire growth mechanism**, Sang-gil Ryu, David J. Hwang, Costas P. Grigoropoulos, Univ. of California, Berkeley (USA) [7922-04]

9:40 am: **The single walled carbon nanotube: a model system for excitons in 1D (Invited Paper)**, Jacques Lefebvre, National Research Council Canada (Canada) [7922-05]

Coffee Break 10:15 to 10:45 am

SESSION 2

Room: 113 (Exhibit Level) Mon. 10:45 am to 12:00 pm

Nanoparticle Synthesis and Bioapplications

Session Chair: **Jan J. Dubowski**, Univ. de Sherbrooke (Canada)

10:45 am: **Nanoscale optoelectronic probes for carbon nanotube based nanobiohybrids (Invited Paper)**, Yaqiong Xu, Vanderbilt Univ. (USA) [7922-06]

11:20 am: **Photo-thermal mediated transformation of carbon nanoparticles**, Vijaylaxsmi Varadrajana, Ninad D. Ingle, Ali R. Koymen, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7922-07]

11:40 am: **Femtosecond laser-induced formation of AuAg nanoalloys from aqueous mixture of metallic ions**, Yuliati Herhani, Takahiro Nakamura, Shunichi Sato, Tohoku Univ. (Japan) [7922-08]

Lunch Break 12:00 to 1:15 pm

SESSION 3

Room: 113 (Exhibit Level) Mon. 1:15 to 3:20 pm

Frontiers in Plasmonics

Session Chair: **Frank Träger**, Univ. Kassel (Germany)

1:15 pm: **Plasmonic nanoparticle optical antennas and cavities for manipulation of radiative emission rate and directivity (Invited Paper)**, Harry A. Atwater, Jr., California Institute of Technology (USA) [7922-09]

1:50 pm: **Surface plasmon lasers (Invited Paper)**, Haim Grebel, New Jersey Institute of Technology (USA) [7922-10]

2:25 pm: **Tailoring the interaction between matter and polarized light with plasmonic optical antennas (Invited Paper)**, Paolo Biagioni, Politecnico di Milano (Italy) [7922-11]

3:00 pm: **Damping parameters of localized surface plasmon polariton resonances of gold nanoparticles**, Frank Hubenthal, Frank Träger, Univ. Kassel (Germany) [7922-12]

Coffee Break 3:20 to 3:50 pm

SESSION 4

Room: 113 (Exhibit Level) Mon. 3:50 to 5:45 pm

Controlling Laser Interactions at the Nanoscale

Session Chair: **Alex A. Puzosky**, Oak Ridge National Lab.

3:50 pm: **Resonant optical transmission through hole arrays in metal films: physics and applications (Invited Paper)**, Reuven Gordon, Univ. of Victoria (Canada) [7922-13]

4:25 pm: **Design parameters of surface-enhanced Raman spectroscopy templates for obtaining strong power enhancement factor with high area density at 532 nm excitation wavelength**, Akira Zenidaka, Yuto Tanaka, Tomoya Miyaniishi, Mitsuhiro Terakawa, Minoru Obara, Keio Univ. (Japan) [7922-14]

4:45 pm: **Nanostructure formation by self-assembled monolayers: influence of the isomerization state of azobenzene ligands on monolayer formation**, Florian Vogel, Frauke Bretthauer, Ulrich Siemeling, Frank Träger, Univ. Kassel (Germany) [7922-15]

5:05 pm: **Hyperspectral imaging of surface plasmon resonance effects induced by uncollimated semiconductor radiation**, Dominic Lepage, Jan J. Dubowski, Univ. de Sherbrooke (Canada) [7922-16]

5:25 pm: **Optical limiting behavior of Au-Ag nanoparticles under CW laser illumination**, P. K. Palanisamy, Ramachandran Kasu, Kirubha Elangovan, Anna Univ. Chennai (India) [7922-17]

Tuesday 25 January

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Synthesis of silicon fibrous nanoparticles aggregate structures using femtosecond laser radiation, Manickam Sivakumar, Ryerson Univ. (Canada) and Amrita Vishwa Vidyapeetham (India); Krishnan Venkatakrishnan, Bo Tan, Ryerson Univ. (Canada). [7922-19]

Fabrication of gold-platinum alloy nanoparticles by high-intensity laser irradiation of aqueous solution, Takahiro Nakamura, Yuliati Herbani, Shunichi Sato, Tohoku Univ. (Japan). [7922-19]

Atomic layer deposition of amorphous TiO₂/ZnO multilayers for soft x-ray coherent optics, Yasutaka Sanjo, Yuji Tanaka, Masaki Murata, Hiroshi Kumagai, Osaka City Univ. (Japan); Tsutomu Shinagawa, Osaka Municipal Technical Research Institute (Japan) [7922-20]

Horizontal alignment of zinc oxide nanowires for UV optoelectronic applications, Kota Okazaki, Kyushu Univ. (Japan) [7922-21]

Laser interactions with graphene: in situ and ex situ studies, Christopher Rouleau, Murari Regmi, Alex Puretzky, Gyula Eres, Jason D. Readle, David B. Geohegan, Oak Ridge National Lab. (USA). [7922-22]

In situ density measurements of carbon nanotube arrays by laser reflectometry: flux dependent density variations induced by pulsed CVD, David B. Geohegan, Jeremy J. Jackson, Alex A. Puretzky, Gyula Eres, Christopher Rouleau, Karren More, Oak Ridge National Lab. (USA) . . [7922-23]

Laser-based synthesis in liquid environment of silicon nanoparticles and their related structural and optical properties, Romuald Intartaglia, K. Bagga, Fernando Brandi, G. Das, A. Genovese, E. Di Fabrizio, Alberto Diaspro, Istituto Italiano di Tecnologia (Italy). [7922-24]

Don't miss the free Photonics West Exhibition

See new products and top companies at the most important event for the photonics and laser industry

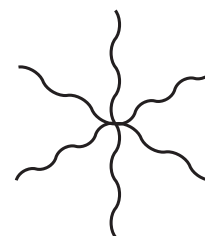
25-27 January 2011

Tuesday · 10:00 am to 5:00 pm

Wednesday · 10:00 am to 5:00 pm

Thursday · 10:00 am to 4:00 pm

LASE



Imaging

SPIE Digital Library

Find the answer

SPIEDigitalLibrary.org

Free-Space Laser Communication Technologies XXIII

Conference Chair: **Hamid Hemmati**, Jet Propulsion Lab.

Program Committee: **Don M. Boroson**, MIT Lincoln Lab.; **Vincent W. Chan**, Massachusetts Institute of Technology; **G. Charmaine C. Gilbreath**, U.S. Naval Research Lab.; **Michael A. Krainak**, NASA Goddard Space Flight Ctr.; **Robert Lange**, Tesat-Spacecom GmbH & Co. KG (Germany); **Zoran Sodnik**, European Space Research and Technology Ctr. (Netherlands); **Morio Toyoshima**, National Institute of Information and Communications Technology (Japan); **Alan Eli Willner**, The Univ. of Southern California; **Shiro Yamakawa**, Japan Aerospace Exploration Agency (Japan)

Tuesday 25 January

TECHNICAL EVENT

InterContinental Hotel, Nob Hill Room . Tues. 7:30 to 9:00 pm

Laser Communications

Session Chair: **Hamid Hemmati**, Jet Propulsion Lab. (USA)

This technical event on Laser Communications will hold its annual meeting in conjunction with the Free-Space Laser Communication Technologies XXIII and Atmospheric and Oceanic Propagation of Electromagnetic Waves V conferences. All professionals involved in theory and applications of free-space, atmospheric and oceanic laser communications, remote sensing and supporting technologies are invited to participate in an open discussion on a variety of topics related to the challenges and advancement of the field. Attendees are invited to bring suggestions for discussion topics.

Wednesday 26 January

LASE PLENARY SESSION

Room: 134 (Exhibit Level) Wed. 10:20 am to 12:30 pm

10:20 am: **Welcome and Opening Remarks**, Friedhelm Dorsch, TRUMPF GmbH & Co. KG (Germany) and Alberto Piqué, U.S. Naval Research Lab. (USA)

10:25 am: **Announcement of the Best Green Photonics Paper Awards in LASE**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

10:30 am: **Of Light, Electrons, and Metamaterials**, Nader Engheta, Univ. of Pennsylvania (USA)

11:10 am: **Using Lasers in Particle-based Applications**, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

11:50 am: **Advances in Lasers and Their Impact on Industrial Applications**, Paul E. Denney, Connecticut Ctr. for Advanced Technology, Inc. (USA)

See p. 20 for details.

Lunch/Exhibition Break 12:30 to 1:30 pm

SESSION 1

Room: 121 (Exhibit Level) Wed. 1:30 to 5:00 pm

Invited Session

Session Chair: **Hamid Hemmati**, Jet Propulsion Lab.

1:30 pm: **Overview of the lunar laser communications demonstration** (*Invited Paper*), Bryan S. Robinson, Don M. Boroson, Dennis A. Burianek, Daniel V. Murphy, MIT Lincoln Lab. (USA) [7923-01]

2:00 pm: **Coherent inter-satellite and satellite-ground links** (*Invited Paper*), Robert Lange, Tesat-Spacecom GmbH & Co. KG (Germany) [7923-02]

2:30 pm: **5.625 Gbps bidirectional laser communications and ranging measurements between the NFire Satellite and an optical ground station** (*Invited Paper*), Renny A. Fields, The Aerospace Corp. (USA); Mark Gregory, Bernhard Wandernoth, Tesat-Spacecom GmbH & Co. KG (Germany); David Kozlowski, Harold T. Yura, The Aerospace Corp. (USA); Frank F. Heine, Tesat-Spacecom GmbH & Co. KG (Germany); Robert L. Wong, Carl T. Lunde, The Aerospace Corp. (USA); Rolf Meyer, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany) [7923-03]

3:00 pm: **Tactical line-of-sight optical communications networks** (*Invited Paper*), Linda Wasiczko Thomas, William Rabinovich, Ray Burris, U.S. Naval Research Lab. (USA) [7923-04]

Coffee Break 3:30 to 4:00 pm

4:00 pm: **Orbital angular momentum (OAM) based LDPC-coded deep-space optical communication** (*Invited Paper*), Ivan B. Djordjevic, The Univ. of Arizona (USA) [7923-05]

4:30 pm: **Architecture, design, and numerical simulation of a code/pulse-position-swapping (CPPS) direct translating receiver** (*Invited Paper*), Antonio J. Mendez, Mendez R&D Associates (USA); Vincent J. Hernandez, Corey V. Bennett, Lawrence Livermore National Lab. (USA); Robert M. Gagliardi, The Univ. of Southern California (USA) [7923-06]

SESSION 2

Room: 121 (Exhibit Level) Wed. 5:00 to 6:00 pm

Modem and Coding

Session Chair: **Robert Lange**, Tesat-Spacecom GmbH & Co. KG (Germany)

5:00 pm: **Design of a high-speed space modem for the LLCD**, Laura E. Elgin, MIT Lincoln Lab. (USA) [7923-07]

5:20 pm: **Characterization of chaos generated by bistable optical systems with a nonlinearity of the form $\sin^2(x_n)$** , Anjan K. Ghosh, Pramode Verma, The Univ. of Oklahoma - Tulsa (USA) [7923-08]

5:40 pm: **Modulated laser radar decoding by inter symbol interference**, Xuesong Mao, Daisuke Inoue, Hiroyuki Matsubara, Manabu Kagami, Toyota Central Research and Development Labs., Inc. (Japan) [7923-09]

Thursday 27 January

SESSION 3

Room: 121 (Exhibit Level) Thurs. 8:00 to 8:40 am

Future Systems

Session Chair: **Morio Toyoshima**, National Institute of Information and Communications Technology (Japan)

8:00 am: **Study of optical inter-orbit communication technology for next generation space data-relay satellite**, Tatsuyuki Hanada, Shiro Yamakawa, Hiroki Kohata, Japan Aerospace Exploration Agency (Japan) [7923-10]

8:20 am: **Deep-space optical terminals concept conceptual design**, Hamid Hemmati, William H. Farr, Abhijit Biswas, Kevin M. Birnbaum, W. Thomas Roberts, Jet Propulsion Lab. (USA) [7923-11]

SESSION 4

Room: 121 (Exhibit Level) Thurs. 8:40 to 10:00 am

Lasers

Session Chair: **Michael A. Krainak**, NASA Goddard Space Flight Ctr.

8:40 am: **Fiber-MOPA based, multi-aperture, multi-kW, uplink laser beacon for deep-space laser communication links**, Doruk Engin, Wei Lu, Frank Kimpel, Youming Chen, Mehmetcan Akbulut, Shantanu Gupta, Fibertek, Inc. (USA) [7923-12]

9:00 am: **Compact laser transmitter providing precision aligned visible and infrared beams**, Hong-Shik Lee, Yeo-Taek Yoon, Chang-Hyun Park, Haeng-In Kim, Kwangwoon Univ. (Korea, Republic of); Seung-Chan Lim, Korea Telecom (Korea, Republic of); Sang-Shin Lee, Kwangwoon Univ. (Korea, Republic of) [7923-13]

9:20 am: **The optical intensity distribution in the far field**, Jan Vitásek, Jan Látal, Petr Koudełka, František Hanáček, Petr Kužel, Jan Skapa, Vladimír Vašínek, Technical Univ. of Ostrava (Czech Republic) [7923-14]

9:40 am: **Absolute time position of picosecond laser pulse**, Josef Blazej, Ivan Prochazka, Jan Kodet, Czech Technical Univ. in Prague (Czech Republic) [7923-15]

Coffee Break 10:00 to 10:30 am

SESSION 5

Room: 121 (Exhibit Level) Thurs. 10:30 to 11:50 am

Receivers

Session Chair: **William H. Farr**, Jet Propulsion Lab.

10:30 am: **Design of a transportable ground telescope array for the LLCD**, Denise Fitzgerald, MIT Lincoln Lab. (USA) [7923-16]

10:50 am: **Design of a fiber-coupled superconducting nanowire detector array system for the LLCD**, Matthew E. Grein, MIT Lincoln Lab. (USA) [7923-17]

11:10 am: **Coherent homodyne receiver with a compensator of Doppler shifts for inter orbit optical communication**, Toshiyuki Ando, Eisuke Haraguchi, Kenichi Tajima, Yoshihito Hirano, Mitsubishi Electric Corp. (Japan); Tatsuyuki Hanada, Shiro Yamakawa, Japan Aerospace Exploration Agency (Japan) [7923-18]

11:30 am: **Deep space uplink receiver prototype for optical communications**, Suzana Sburlan, Kevin M. Birnbaum, William H. Farr, Jet Propulsion Lab. (USA) [7923-19]

Lunch Break 11:50 am to 1:20 pm

SESSION 6

Room: 121 (Exhibit Level) Thurs. 1:20 to 2:20 pm

Pointing, Acquisition, Tracking

Session Chair: **Don M. Boroson**, MIT Lincoln Lab.

1:20 pm: **Design of an inertially-stabilized telescope for the LLCD**, Jamie W. Burnside, MIT Lincoln Lab. (USA) [7923-20]

1:40 pm: **High-performance two-axis gimbal system for free space laser communications onboard unmanned aircraft systems**, Michael Locke, Mariusz Czarnomski, Ashraf Qadir, Brian Adkins, Joshua LeBlanc, Nicolai Baer, The Univ. of North Dakota (USA) [7923-22]

2:00 pm: **Optical inter-satellite communication with dynamically reconfigurable optical device using Sn₂P₂S₆ crystal**, Kaori Nishimaki, Atsushi Okamoto, Tomohiro Fujita, Hokkaido Univ. (Japan); Alexander A. Grabar, Uzhgorod National Univ. (Ukraine); Masanori Takabayashi, Hokkaido Univ. (Japan); Jun Uozumi, Hokkai-Gakuen Univ. (Japan); Akihisa Tomita, Hokkaido Univ. (Japan); Yoshihisa Takayama, National Institute of Information and Communications Technology (Japan) [7923-23]

SESSION 7

Room: 121 (Exhibit Level) Thurs. 2:20 to 4:10 pm

Atmospherics

Session Chair: **Don M. Boroson**, MIT Lincoln Lab.

2:20 pm: **Operational condition of direct single-mode-fiber coupled FSO terminal under strong atmospheric turbulence**, Yoshinori Arimoto, National Institute of Information and Communications Technology (Japan) [7923-24]

Coffee Break 2:40 to 3:10 pm

3:10 pm: **Experimental analysis of the effects of atmospheric turbulence on a 29-km free-space laser communication link**, Vladimir V. Nikulin, Binghamton Univ. (USA); John Malowicki, Air Force Research Lab. (USA); Vijit Bedi, Binghamton Univ. (USA); David Hughes, Herbert Bloss, Air Force Research Lab. (USA) [7923-25]

3:30 pm: **Performance analysis of atmospheric field conjugation adaptive arrays**, Aniceto Belmonte, Univ. Politècnica de Catalunya (Spain); Joseph M. Kahn, Stanford Univ. (USA) [7923-26]

3:50 pm: **Study on the implementation of spatial light modulator liquid crystal device atmospheric simulator for short wavelength infrared applications**, Freddie Santiago, Carlos O. Font, Christopher C. Wilcox, Ty Martinez, Joseph A. Duperré III, Jonathan R. Andrews, Sergio R. Restaino, Charmaine Gilbreath, U.S. Naval Research Lab. (USA); Stephen Myers, Ctr. for High Technology Materials (USA); Don M. Payne, Narrascape, Inc. (USA) [7923-27]

SESSION 8

Room: 121 (Exhibit Level) Thurs. 4:10 to 4:30 pm

Ranging

Session Chair: **Morio Toyoshima**, National Institute of Information and Communications Technology (Japan)

4:10 pm: **Active laser ranging simultaneously with communications at planetary distances**, Yijiang Chen, Kevin M. Birnbaum, Hamid Hemmati, Jet Propulsion Lab. (USA) [7923-28]

Courses of Related Interest

SC188 Laser Beam Propagation for Applications in Laser Communications, Laser Radar, and Active Imaging (Phillips, Andrews) Tuesday, 8:30 am to 5:30 pm

SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

LASE

Atmospheric and Oceanic Propagation of Electromagnetic Waves V

Conference Chair: **Olga Korotkova**, Univ. of Miami

Program Committee: **Larry C. Andrews**, Univ. of Central Florida; **Yahya K. Baykal**, Çankaya Univ. (Turkey); **Yangjian Cai**, Soochow Univ. (China); **Frank D. Eaton**, Air Force Research Lab.; **Gregory Gbur**, The Univ. of North Carolina at Charlotte; **G. Charmaine C. Gilbreath**, U.S. Naval Research Lab.; **Merrick C. Haller**, Oregon State Univ.; **Vladimir P. Lukin**, V.E. Zuev Institute of Atmospheric Optics (Russian Federation); **Alex S. Mahalov**, Arizona State Univ.; **Ronald L. Phillips**, Florida Space Institute; **Jixiong Pu**, Huaqiao Univ. (China); **Robert K. Tyson**, The Univ. of North Carolina at Charlotte; **Daomu Zhao**, Zhejiang Univ. (China)

Tuesday 25 January

SESSION 1

Room: 121 (Exhibit Level) Tues. 8:00 to 10:10 am

Wave Propagation in Random Media: Theoretical Studies

Session Chair: **Olga Korotkova**, Univ. of Miami

8:00 am: **Generation of various partially coherent beams and their propagation properties in turbulent atmosphere** (*Invited Paper*), Yangjian Cai, Soochow Univ. (China) [7924-01]

8:30 am: **Scintillation of Airy beam arrays in atmospheric turbulence**, Gregory Gbur, Yalong Gu, The Univ. of North Carolina at Charlotte (USA) [7924-02]

8:50 am: **Scintillation of pseudo-Bessel correlated beams in atmospheric turbulence**, Yalong Gu, Gregory Gbur, The Univ. of North Carolina at Charlotte (USA) [7924-03]

9:10 am: **Spectral, coherence, and polarization properties of beam-like optical fields propagating in non-Kolmogorov atmospheric turbulence**, Olga Korotkova, Univ. of Miami (USA); Elena Shchepakina, Samara State Aerospace Univ. (Russian Federation) [7924-04]

9:30 am: **Method of evaluation of the mutual coherence function of laser beams and its application for symmetric dark hollow beams**, Victor A. Banakh, Dmitry Marakasov, Dmitry Rytchov, V.E. Zuev Institute of Atmospheric Optics (Russian Federation); Yahya K. Baykal, Halil T. Eyyuboglu, Çankaya Univ. (Turkey) [7924-05]

9:50 am: **Polarization properties of stochastic electromagnetic pulsed beams in turbulent atmosphere**, Chaoliang Ding, Zhiguo Zhao, Liuzhan Pan, Luoyang Normal Univ. (China); Xiao Yuan, Soochow Univ. (China) [7924-06]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 121 (Exhibit Level) Tues. 10:40 am to 12:30 pm

Wave Propagation in Random Media: Experimental Studies

Session Chair: **Olga Korotkova**, Univ. of Miami

10:40 am: **Long-range (149km) atmospheric propagation experiments with multi-wavelength laser beacons** (*Invited Paper*), Mikhail A. Vorontsov, Univ. of Dayton (USA) [7924-07]

11:10 am: **Probability density function of fluctuating intensity of laser beam propagating in marine atmospheric turbulence**, Svetlana Avramov-Zamurovic, U.S. Naval Academy (USA); Olga Korotkova, Univ. of Miami (USA); Reza Malek-Madani, U.S. Naval Academy (USA) [7924-08]

11:50 am: **Picosecond laser pulse propagation delay fluctuation through atmosphere**, Ivan Prochazka, Lukas Kral, Josef Blazej, Czech Technical Univ. in Prague (Czech Republic) [7924-09]

11:30 am: **Study of optical phase change measurement using the Hilbert transform and interferometric techniques**, Joseph A. Duperre III, Carlos O. Font, David Bonanno, Eshani Tarpara, Alexander Golden, Charmaine Gilbreath, U.S. Naval Research Lab. (USA) [7924-10]

12:10 pm: **Experimental study on high-order Bessel beams propagating in a turbulent atmosphere**, Jixiong Pu, Huaqiao Univ. (China) [7924-11]

Lunch Break 12:30 to 1:30 pm

SESSION 3

Room: 121 (Exhibit Level) Tues. 1:30 to 3:40 pm

Mitigation of Random Media (Atmosphere and Ocean) and Applications

Session Chair: **Olga Korotkova**, Univ. of Miami

1:30 pm: **Optical wireless communication through random media** (*Invited Paper*), Shlomi Arnon, Ben-Gurion Univ. of the Negev (Israel) [7924-12]

2:00 pm: **Adaptive mitigation of the laser wavefront perturbations**, Anatoliy I. Khizhnyak, Vladimir Markov, MetroLaser, Inc. (USA) [7924-13]

2:20 pm: **Wavefront sensing and adaptive control in phased array of fiber collimators**, Svetlana L. Lachinova, Univ. of Maryland, College Park (USA); Mikhail A. Vorontsov, Univ. of Dayton (USA) [7924-14]

2:40 pm: **Scintillation reduction for combined Gaussian-vortex beam propagating through turbulent atmosphere**, Gennady P. Berman, Los Alamos National Lab. (USA); Vyacheslav N. Gorshkov, Institute of Physics (Ukraine); Svetlana V. Torous, National Technical Univ. (Ukraine) [7924-15]

3:00 pm: **On fading probability density functions of fast-tracked and untracked free-space optical communication channels**, Zhijun Zhao, Rui Liao, Michigan Technological Univ. (USA) [7924-16]

3:20 pm: **RF-modulated pulsed fiber-optic lidar transmitter for improved underwater imaging and communications**, Frank Kimpel, Youming Chen, Bruce McIntosh, Jean-Luc Fournon, Shantanu Gupta, Fibertek, Inc. (USA) [7924-17]

Coffee Break 3:40 to 4:00 pm

SESSION 4

Room: 121 (Exhibit Level) Tues. 4:00 to 5:40 pm

Modeling and Measurements of Atmospheric Turbulence

Session Chair: **Olga Korotkova**, Univ. of Miami

4:00 pm: **USAF airborne laser: HEL-generated extinction effects and degradation along extended H₂O vapor lines-of-sight (including oceans and atmosphere)**, Clifford A. Paiva, BSM Research Associates (USA) [7924-18]

4:20 pm: **A tunable diode laser absorption system for long path atmospheric transmission and high energy laser applications**, Glen P. Perram, Christopher A. Rice, Air Force Institute of Technology (USA) [7924-19]

4:40 pm: **Atmospheric absorption spectroscopy using Tm: fiber ASE source around 2 micron**, Pankaj Kadwani, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Jeffrey Chia, College of Optical Sciences, The Univ. of Arizona (USA); Robert A. Sims, Christina Willis, Clemence Jollivet Salvin, Lawrence Shah, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Dennis Killinger, Univ. of South Florida (USA); Martin C. Richardson, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) [7924-20]

5:00 pm: **Temporal-frequency spectra for laser propagation through non-Kolmogorov turbulence in a maritime environment**, Italo Toselli, Naval Postgraduate School (USA); Sergio R. Restaino, U.S. Naval Research Lab. (USA); Brij Agrawal, Naval Postgraduate School (USA) [7924-21]

5:20 pm: **Hybrid technique for propagation and scattering from random medium containing random distribution of particles**, Zhisong Tong, Olga Korotkova, Univ. of Miami (USA) [7924-22]

TECHNICAL EVENT

InterContinental Hotel, Nob Hill Room . Tues. 7:30 to 9:00 pm

Laser Communications

Session Chair: **Hamid Hemmati**, Jet Propulsion Lab. (USA)

This technical event on Laser Communications will hold its annual meeting in conjunction with the Free-Space Laser Communication Technologies XXIII and Atmospheric and Oceanic Propagation of Electromagnetic Waves V conferences. All professionals involved in theory and applications of free-space, atmospheric and oceanic laser communications, remote sensing and supporting technologies are invited to participate in an open discussion on a variety of topics related to the challenges and advancement of the field. Attendees are invited to bring suggestions for discussion topics.

Courses of Related Interest

SC188 Laser Beam Propagation for Applications in Laser Communications, Laser Radar, and Active Imaging (Phillips, Andrews) Tuesday, 8:30 am to 5:30 pm

SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm

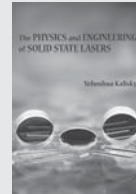
SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

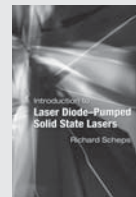
LASE



Field Guide to Lasers
by Rüdiger Paschotta
Vol. FG12



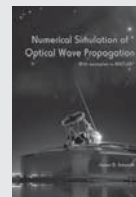
The Physics and Engineering of Solid State Lasers
by Yehoshua Y. Kalisky
Vol. TT71



Introduction to Laser Diode-Pumped Solid State Lasers
by Richard Scheps
Vol. TT53



Field Guide to Laser Pulse Generation
by Rüdiger Paschotta
Vol. FG14



Numerical Simulation of Optical Wave Propagation with Examples in MATLAB™
by Jason D. Schmidt
Vol. PM199



Laser Beam Propagation through Random Media, Second Edition
by Larry C. Andrews and Ronald L. Phillips
Vol. PM152



Laser Beam Propagation in the Atmosphere
by Hugo Weichel
Vol. TT03

spie.org/publications

LASE

Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XI

Conference Chairs: **Alexander Heisterkamp**, Laser Zentrum Hannover e.V. (Germany); **Joseph Neev**, Femto-Sec Tech, Inc.; **Stefan Nolte**, Friedrich-Schiller-Univ. Jena (Germany)

Program Committee: **Craig B. Arnold**, Princeton Univ.; **James E. Carey III**, SiOnyx Inc.; **Xun Gu**, Max-Planck-Institut für Quantenoptik (Germany); **Denise M. Krol**, Univ. of California, Davis; **Holger Lubatschowski**, Rowiak GmbH (Germany); **Eric D. Mazur**, Harvard Univ.; **Michael M. Mielke**, Raydiance, Inc.; **Thomas E. Milner**, The Univ. of Texas at Austin; **Eric Mottay**, Amplitude Systemes (France); **Christopher B. Schaffer**, Cornell Univ.; **Alexander Szameit**, Technion-Israel Institute of Technology (Israel); **Alfred Vogel**, Institute of Biomedical Optics, Univ. zu Lübeck (Germany); **Wataru Watanabe**, National Institute of Advanced Industrial Science and Technology (Japan)



Sunday 23 January

Opening Remarks

Room: 121 (Exhibit Level) Sun. 8:30 to 8:50 am

Alexander Heisterkamp, Laser Zentrum Hannover e.V. (Germany);
Stefan Nolte, Friedrich-Schiller-Univ. Jena (Germany);
Joseph Neev, Femto-Sec Tech, Inc.

SESSION 1

Room: 121 (Exhibit Level) Sun. 8:50 to 10:20 am

Biomedical Applications I: Imaging and Sensing

Session Chair: **Joseph Neev**, Femto-Sec Tech, Inc.

- 8:50 am: **Microcavity biosensing** (*Invited Paper*), Frank Vollmer, Harvard Univ. (USA) [7925-01]
- 9:20 am: **Ultrafast laser induced condensation of molecules**, Ling Gu, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7925-02]
- 9:40 am: **Method for imaging quantum dot photoluminescence during exposure to radiation**, Andrea N. Immucci, Jeffrey J. L. Carson, Lawson Health Research Institute (Canada) [7925-03]
- 10:00 am: **Femto second single optical fiber tweezers enabled two-photon fluorescence excitation of trapped microscopic objects**, Yogeshwar N. Mishra, Cochin Univ. of Science & Technology (India); Ninad D. Ingle, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7925-04]
- Coffee Break 10:20 to 10:50 am

SESSION 2

Room: 121 (Exhibit Level) Sun. 10:50 am to 12:20 pm

Biomedical Applications II

Session Chair: **Holger Lubatschowski**, Rowiak GmbH (Germany)

- 10:50 am: **Femtosecond laser micro/nano patterning of biological materials** (*Invited Paper*), Costas P. Grigoropoulos, Hojeong Jeon, Univ. of California, Berkeley (USA); Hirofumi Hidai, Univ. of California, Berkeley (Japan); David J. Hwang, Univ. of California, Berkeley (USA) [7925-05]
- 11:20 am: **Generation of UV and blue light by using off-axis pumping for fluorescence lifetime spectroscopy**, Stefano Taccheo, Swansea Univ. (United Kingdom); Cosimo D'Andrea, Andrea Bassi, Rinaldo Cubeddu, Politecnico di Milano (Italy); Kay Schuster, Jens Kobelke, Klaus W. Morl, IPHT Jena (Germany); Silvia Soria Huguet, Gualtiero Nunzio Conti, Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy) [7925-06]
- 11:40 am: **Holographic spatiotemporal lens (HSTL)**, Kouhei Kimura, Satoshi Hasegawa, Yoshio Hayasaki, Utsunomiya Univ. (Japan) [7925-07]
- 12:00 pm: **New femtosecond sources for laser surgery of the anterior segment of the eye**, Florent Deloison, Caroline Crotti, Tal Marciano, Donald A. Peyrot, Laura Kowalczyk, Ecole Nationale Supérieure de Techniques Avancées (France); Michèle Savoldelli, Jean-Marc Legeais, Hopital Hotel Dieu (France); Karsten Plamann, Ecole Nationale Supérieure de Techniques Avancées (France) [7925-08]
- Lunch/BIOS Exhibition Break 12:20 to 1:20 pm

SESSION 3

Room: 121 (Exhibit Level) Sun. 1:20 to 3:00 pm

Optical Perforation of Cells by fs Lasers I

Session Chair: **Alexander Heisterkamp**, Laser Zentrum Hannover e.V. (Germany)

- 1:20 pm: **Elucidating optimal photodisruption parameters in the femtosecond laser nanoablation of cellular membranes**, Daniel S. Eversole, Sigfried Haering, Adela Ben-Yakar, The Univ. of Texas at Austin (USA) [7925-09]
- 1:40 pm: **Towards high-throughput automated targeted femtosecond laser based transfection of adherent cells**, Maciej K. Antkowiak, Maria Leilani Y. Torres-Mapa, Frank J. Gunn-Moore, Kishan Dholakia, Univ. of St. Andrews (United Kingdom) [7925-10]
- 2:00 pm: **Near-field nanoablation thruster of gold solid nanoparticles by backside femtosecond laser irradiation for biomedical application**, Go Obara, Tomoya Miyaniishi, Toshiyuki Honda, Nikolay N. Nedyalkov, Petar A. Atanasov, Mitsuhiro Terakawa, Minoru Obara, Keio Univ. (Japan) [7925-11]
- 2:20 pm: **Near-field enhancement in plasmonic laser nanoablation using gold nanorods on a silicon substrate**, Richard K. Harrison, Adela Ben-Yakar, The Univ. of Texas at Austin (USA) [7925-12]
- 2:40 pm: **Optoporation and transfection of cells with kHz and MHz repetition rate femtosecond lasers**, Andrew A. Davis, Matthew J. Farrar, Nozomi Nishimura, Moonsoo Jin, Christopher B. Schaffer, Cornell Univ. (USA) [7925-13]
- Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 121 (Exhibit Level) Sun. 3:30 to 5:10 pm

Optical Perforation of Cells by fs Lasers II

Session Chair: **Christopher B. Schaffer**, Cornell Univ.

- 3:30 pm: **Mechanisms of gold nanoparticle mediated ultrashort laser cell membrane perforation**, Markus Schomaker, Laser Zentrum Hannover e.V. (Germany); Judith Baumgart, Ecole Polytechnique de Montréal (Canada); Deividas Motekaitis, Dag Heinemann, Judith Krawinkel, Laser Zentrum Hannover e.V. (Germany); Maria Pangalos, Willem Bintig, Leibniz Univ. Hannover (Germany); Étienne Boulais, Rémi Lachaine, Bastien St.-Louis Lalonde, Ecole Polytechnique de Montréal (Canada); Anacleto Ngezahayo, Leibniz Univ. Hannover (Germany); Michel Meunier, Ecole Polytechnique de Montréal (Canada); Alexander Heisterkamp, Laser Zentrum Hannover e.V. (Germany) [7925-14]
- 3:50 pm: **Basic mechanisms of the femtosecond laser interaction with a plasmonic nanostructure in water**, Michel Meunier, Étienne Boulais, Rémi Lachaine, Charles-André Caron, Ecole Polytechnique de Montréal (Canada) [7925-15]
- 4:10 pm: **Nanoparticle mediated femtosecond laser photodisruption mechanisms**, Sigfried Haering, Richard K. Harrison, Adela Ben-Yakar, The Univ. of Texas at Austin (USA) [7925-16]

4:30 pm: **Plasmonic enhanced femtosecond-laser optoporation and transfection of human melanoma cells**, Judith Baumgart, Ecole Polytechnique de Montréal (Canada); Laure Humbert, Royal Victoria Hospital (Canada); Bastien St.-Louis Lalonde, Ecole Polytechnique de Montréal (Canada); Jean-Jaques Lebrun, Royal Victoria Hospital (Canada); Michel Meunier, Ecole Polytechnique de Montréal (Canada) [7925-17]

4:50 pm: **Gold nanoparticle mediated cell manipulation using fs and ps laser pulses for cell perforation and transfection**, Dag Heinemann, Markus Schomaker, Deividas Motekaitis, Judith Krawinkel, Laser Zentrum Hannover e.V. (Germany); Doreen Killian, Univ. Rostock (Germany); Hugo Murua Escobar, Univ. of Veterinary Medicine Hannover (Germany); Christian Junghans, Univ. Rostock (Germany); Alexander Heisterkamp, Laser Zentrum Hannover e.V. (Germany) [7925-18]

Monday 24 January

SESSION 5

Room: 121 (Exhibit Level) Mon. 8:50 to 10:10 am

fs Laser Modification of Transparent Materials I: Structuring and 3D Modification

Session Chair: Stefan Nolte, Friedrich-Schiller-Univ. Jena (Germany)

8:50 am: **Direct laser written waveguide coupler with an optically-tunable splitting ratio**, Martin Ams, Robert J. Williams, Michael J. Withford, CUDOS @ Macquarie (Australia) [7925-19]

9:10 am: **Direct laser writing of nonlinear properties in photosensitive glass**, Gautier Papon, Univ. Bordeaux 1 (France); Jiyeon Choi, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Arnaud Royon, Univ. Bordeaux 1 (France); Martin C. Richardson, Leonid B. Glebov, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Lionel Canioni, Univ. Bordeaux 1 (France) [7925-20]

9:30 am: **3D patterning at the nanoscale of fluorescent emitters in glass**, Matthieu Bellec, Arnaud Royon, Kevin Bourhis, Gautier Papon, Bruno Bousquet, Thierry Cardinal, Lionel Canioni, Univ. Bordeaux 1 (France) [7925-21]

9:50 am: **New step towards the future perennial high capacity optical recording medium**, Arnaud Royon, Kevin Bourhis, Matthieu Bellec, Gautier Papon, Bruno Bousquet, Yannick Deshayes, Thierry Cardinal, Lionel Canioni, Univ. Bordeaux 1 (France) [7925-22]

Coffee Break 10:10 to 10:40 am

SESSION 6

Room: 121 (Exhibit Level) Mon. 10:40 am to 12:10 pm

fs Laser Modification of Transparent Materials II: Mechanisms and Side Effects

Session Chair: Michael J. Withford, Macquarie Univ. (Australia)

10:40 am: **Femtosecond filamentation induced micro and nano-structuring in the bulk of dielectrics and polymers (Invited Paper)**, Stelios Tzortzakis, Daryoush Abdollahpour, Dimitris G. Papazoglou, Savas K. Georgiou, Foundation for Research and Technology-Hellas (Greece) [7925-23]

11:10 am: **Breaking stress of glass welded with femtosecond laser pulses at high repetition rates**, Sören Richter, Sven Döring, Friedrich-Schiller-Univ. Jena (Germany); Thomas Peschel, Ramona Eberhardt, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Stefan Nolte, Friedrich-Schiller-Univ. Jena (Germany); Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) and Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7925-24]

11:30 am: **The influence of glass structure on femtosecond laser micro machining of waveguide amplifiers inside bulk Er-Yb doped polyphosphate glass**, Luke B. Fletcher, Neil Troy, Jon J. Witcher, Denise M. Krol, Univ. of California, Davis (USA); Richard K. Brow, Missouri Univ. of Science and Technology (USA) [7925-25]

11:50 am: **Time-resolved imaging of bulk a-SiO₂ upon various ultrashort excitation sequences**, Alexandre Mermillod-Blondin, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Cyril Mauclair, Lab. Hubert Curien (France); Arkadi Rosenfeld, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Jörn Bonse, Bundesanstalt für Materialforschung und -prüfung (Germany); Razvan I. Stoian, Eric Audouard, Lab. Hubert Curien (France) [7925-26]

Lunch Break 12:10 to 1:40 pm

SESSION 7

Room: 121 (Exhibit Level) Mon. 1:40 to 3:20 pm

Laser Sources and Systems, Modeling, and Measurement

Session Chair: Alexander Heisterkamp, Laser Zentrum Hannover e.V. (Germany)

1:40 pm: **CPA-free picosecond fiber amplifier with >10μJ pulse energy and >300kW peak power**, Yoann Zaouter, Maxime Lebugle, Franck Morin, Eric Mottay, Clemens Hönninger, Amplitude Systemes (France) [7925-27]

2:00 pm: **Technical advantages of disk laser technology in short and ultra-short pulse processes**, Paul Graham, Juergen Stollhof, TRUMPF Inc. (USA) [7925-28]

2:20 pm: **Versatile approach for frequency resolved wavefront characterization**, Eugene Frumker, NRC-Univ. of Ottawa Joint Attosecond Science Lab. (Canada) and Texas A&M Univ. (USA); Gerhard G. Paulus, Friedrich-Schiller-Univ. Jena (Germany) and Texas A&M Univ. (USA); David M. Villeneuve, National Research Council Canada (Canada); Paul B. Corkum, NRC-Univ. of Ottawa Joint Attosecond Science Lab. (Canada) [7925-46]

2:40 pm: **Optimal control of the population dynamics of the ground vibrational state of a polyatomic molecule**, Ludwig E. De Clercq, Council for Scientific and Industrial Research (South Africa) and Stellenbosch Univ. (South Africa); Lourens R. Botha, Hermann Uys, Council for Scientific and Industrial Research (South Africa); Anton Du Plessis, Council for Scientific and Industrial Research (South Africa) and Stellenbosch Univ. (South Africa); Erich G. Rohwer, Stellenbosch Univ. (South Africa) [7925-30]

3:00 pm: **Ultrasensitive resonant-cavity-enhanced spatial-spectral interferometry**, Xun Gu, Ioachim Pupeza, Thomas Udem, Ernst E. Fill, Jan Kaster, Max-Planck-Institut für Quantenoptik (Germany); Tino Eidam, Jens Limpert, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany); Ferenc Krausz, Max-Planck-Institut für Quantenoptik (Germany) [7925-31]

Coffee Break 3:20 to 3:50 pm

SESSION 8

Room: 121 (Exhibit Level) Mon. 3:50 to 4:50 pm

fs Laser Modification of Transparent Materials III

Session Chair: Xun Gu, Max-Planck-Institut für Quantenoptik (Germany)

3:50 pm: **Femtosecond laser processing of fused silica substrates for molding of polymeric materials**, Marco Matteucci, Frederic Madani-Grasset, Yves Bellouard, Technische Univ. Eindhoven (Netherlands) [7925-47]

4:10 pm: **Fs-induced apodised Bragg waveguides in fused silica**, Christian Voigtländer, Friedrich-Schiller-Univ. Jena (Germany); Peter Zeil, Royal Institute of Technology (Sweden); Jens Thomas, Andreas Tünnermann, Stefan Nolte, Friedrich-Schiller-Univ. Jena (Germany) [7925-48]

4:30 pm: **On the role of stress in the chemical etching of fused silica exposed to low-energy femtosecond laser pulses**, Audrey Champion, Yves Bellouard, Technische Univ. Eindhoven (Netherlands) [7925-49]

LASE

Photonics West maps:

Moscone Center Maps
pp. 2-4
Walking Map p. 14

Tuesday 25 January

SESSION 9

Room: 122 (Exhibit Level) Tues. 8:00 to 10:20 am

Ultrashort Pulse Micromachining

Joint Session with Conference 7920

Session Chair: **Craig B. Arnold**, Princeton Univ.

8:00 am: **Fundamentals and industrial applications of ultrashort pulsed lasers at Bosch** (*Invited Paper*), Jens Koenig, Thorsten Bauer, Robert Bosch GmbH (Germany). [7925-32]

8:30 am: **Directly induced ablation of metal thin films by ultra short laser pulses**, Gerhard Heise, Christian Hellwig, Jan Konrad, Sebastian Sarrach, Heinz P. Huber, Hochschule München für Angewandte Wissenschaften (Germany) [7925-33]

8:50 am: **Colorizing of the stainless steel surface by single-beam direct femtosecond laser writing**, Md. S. Ahsan, KAIST (Korea, Republic of) and Khulna Univ. (Bangladesh); Yeong Gyu Kim, Man Seop Lee, KAIST (Korea, Republic of) [7925-34]

9:10 am: **Core techniques for precise and productive microdrilling in steel with ultrashort pulsed laser radiation** (*Invited Paper*), Martin Kraus, Andreas Michalowski, Johannes Fruechtenicht, Rudolf Weber, Thomas Graf, Univ. Stuttgart (Germany). [7925-35]

9:40 am: **Industrial production with ultra fast laser workstations**, Eric Audouard, Univ. Jean Monnet Saint-Etienne (France); Hervé Soder, Impulsion SAS (France) [7920-18]

10:00 am: **An investigation of piezoelectric cutting by femtosecond laser**, Yoan Di Maio, Eric Audouard, Jean-Philippe Colombier, Univ. Jean Monnet Saint-Etienne (France); Paul Cazottes, José Beitia, Sagem Defense Securite (France) [7920-19]

Coffee Break 10:20 to 10:50 am

SESSION 10

Room: 122 (Exhibit Level) Tues. 10:50 am to 12:20 pm

Thin Film and Wafer Processing

Joint Session with Conference 7920

Session Chair: **Jens Koenig**, Robert Bosch GmbH (Germany)

10:50 am: **The effect of ambient conditions on thin wafers processed with fs-laser machining** (*Invited Paper*), Sae Chae Jeoung, Korea Research Institute of Standards and Science (Korea, Republic of) [7925-36]

11:20 am: **On the damage behaviour of Al₂O₃ insulating layers in thin film systems for the fabrication of sputtered strain gauges**, Oliver Suttman, Ulrich Klug, Rainer Kling, Laser Zentrum Hannover e.V. (Germany) [7925-37]

11:40 am: **Laser ablation of AgInSe₂: a clean and effective approach for ternary semiconductors**, Dinesh Pathak, Guru Nanak Dev Univ. (India) [7920-20]

12:00 pm: **Investigation on solid state Nd³⁺:YAG line beam laser annealing and texturing of amorphous silicon thin films**, Nilesh J. Vasa, Anand I. Palani, Makaram Singaperumal, Indian Institute of Technology Madras (India) [7920-21]

Lunch/Exhibition Break 12:20 to 2:00 pm

SESSION 11

Room: 122 (Exhibit Level) Tues. 2:00 to 3:00 pm

Online Monitoring

Joint Session with Conference 7920

Session Chair: **Andreas Michalowski**, Univ. Stuttgart (Germany)

2:00 pm: **In-situ coherent imaging to monitor and control laser micro machining processes** (*Invited Paper*), James M. Fraser, Paul J. Webster, Joe X. Yu, Benjamin Y. Leung, Logan G. Wright, Kevin D. Mortimer, Queen's Univ. (Canada) [7925-38]

2:30 pm: **In-situ observation of the hole formation during deep drilling with ultrashort laser pulses** (*Invited Paper*), Sven Döring, Sören Richter, Friedrich-Schiller-Univ. Jena (Germany); Stefan Nolte, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) and Fraunhofer Institute Applied Optics and Precision Engineering (Germany) [7925-39]

Coffee Break 3:00 to 3:30 pm

SESSION 12

Room: 122 (Exhibit Level) Tues. 3:30 to 5:40 pm

Femtosecond Laser Nanoprocessing

Joint Session with Conference 7920

Session Chair: **Beat Neuenschwander**, Berner Fachhochschule Technik und Informatik (Switzerland)

3:30 pm: **Ultrafast microsphere near-field nanostructuring**, Karl-Heinz Leitz, Ulf Quentin, Lehrstuhl für Photonische Technologien (Germany) and Erlangen Graduate School of Advanced Optical Technologie (Germany); Benjamin Hornung, Consultant (Germany); Andreas Otto, Ilya Alexeev, Michael Schmidt, Lehrstuhl für Photonische Technologien (Germany) and Erlangen Graduate School of Advanced Optical Technologie (Germany) [7925-40]

3:50 pm: **Laser-induced breakdown spectroscopy with tailored femtosecond pulses for 3-dimensional chemical imaging with high spatial resolution** (*Invited Paper*), Jutta Mildner, Cristian Sarpe-Tudoran, Lars Englert, Dirk Otto, Nadine Goette, Matthias Wollenhaupt, Waldemar Wessel, Angelika Brueckner-Foit, Thomas Baumert, Univ. Kassel (Germany) [7920-24]

4:20 pm: **Uniform near-field nanopatterning due to the field distribution control by oblique femtosecond laser irradiation to nanoparticles**, Tomoya Miyaniishi, Mitsuhiro Terakawa, Minoru Obara, Keio Univ. (Japan) [7920-25]

4:40 pm: **Nanostructure formation on silicon surfaces by high repetition-rate sub-15fs near-infrared laser pulses**, Martin H. Straub, Karsten König, Univ. des Saarlandes (Germany). [7920-26]

5:00 pm: **Towards all-in-glass micro-actuators fabricated with femtosecond lasers**, Yves Bellouard, Technische Univ. Eindhoven (Netherlands); Ali A. Said, Mark A. Dugan, Philippe Bado, Translume, Inc. (USA) [7925-45]

5:20 pm: **Optimization methods of hologram for holographic femtosecond laser processing**, Yoshio Hayasaki, Satoshi Hasegawa, Utsunomiya Univ. (Japan) [7920-28]

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Simulation the temperature increase in porcine cadaver iris during direct illumination by femtosecond laser pulses, Hui Sun, Ronald M. Kurtz M.D., Tibor Juhasz, Univ. of California, Irvine (USA). [7925-41]

Scattering-controlled femtosecond-laser induced nanostructuring of TiO₂ thin films, Susanta K. Das, Arkadi Rosenfeld, Martin Bock, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Andreas Pfuch, Innovent e.V. (Germany); Wolfgang Seeber, Friedrich-Schiller-Univ. Jena (Germany); Rüdiger Grunwald, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany). [7925-42]

Invisible two-dimensional barcode fabrication inside a synthetic silica glass by femtosecond laser processing using a computer-generated hologram, Hayato Kawashima, Masahiro Yamaji, Jun'ichi Suzuki, Shuhei Tanaka, New Glass Forum (Japan). [7925-43]

Optical device fabrication using femtosecond laser processing with glass-hologram, Jun'ichi Suzuki, Yasunori Arima, Shuhei Tanaka, New Glass Forum (Japan). [7925-44]

Wednesday 26 January

Student Competition and Award Ceremony

Room: 121 (Exhibit Level) Wed. 8:00 to 10:00 am

Session Chairs: **Stefan Nolte**, Friedrich-Schiller-Univ. Jena (Germany); **Alexander Heisterkamp**, Laser Zentrum Hannover e.V. (Germany); **Joseph Neev**, Femto-Sec Tech, Inc.

Papers submitted to this conference by graduate and undergraduate students are eligible (both poster and oral papers considered). In order to ensure a fair evaluation, the conference chairs and the program committee will judge the students during this special student competition session. Here students will present a brief 5-minute summary of their original talk or poster presented at the conference.

Following the student competition, the judges will meet and decide on the winner. The winner and runner-up will be announced at the end of this session and awarded a cash prize.

Coffee Break 10:00 to 10:20 am

LASE PLENARY SESSION

Room: 134 (Exhibit Level) Wed. 10:20 am to 12:30 pm

10:20 am: **Welcome and Opening Remarks**, Friedhelm Dorsch, TRUMPF GmbH & Co. KG (Germany) and Alberto Piqué, U.S. Naval Research Lab. (USA)

10:25 am: **Announcement of the Best Green Photonics Paper Awards in LASE**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

10:30 am: **Of Light, Electrons, and Metamaterials**, Nader Engheta, Univ. of Pennsylvania (USA)

11:10 am: **Using Lasers in Particle-based Applications**, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

11:50 am: **Advances in Lasers and Their Impact on Industrial Applications**, Paul E. Denney, Connecticut Ctr. for Advanced Technology, Inc. (USA)

See p. 20 for details.

Courses of Related Interest

SC689 Introduction to MicroMachining Using Lasers (Schaeffer) Wednesday, 8:30 am to 12:30 pm

SC743 Micromachining with Femtosecond Lasers (Schaffer, Nolte) Monday, 1:30 to 5:30 pm

SC744 Ultrafast Fiber Lasers (Fermann) Sunday, 8:30 am to 12:30 pm

SC746 Introduction to Ultrafast Technology (Trebino) Tuesday, 1:30 to 5:30 pm

SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.



Don't miss the free Photonics West Exhibition

See new products and top companies at the most important event for the photonics and laser industry

25-27 January 2011

Tuesday · 10:00 am to 5:00 pm

Wednesday · 10:00 am to 5:00 pm

Thursday · 10:00 am to 4:00 pm

MOEMS- MEMS

SPIE Photonics West

Conferences and Courses: 22–27 January 2011
Photonics West Exhibition: 25–27 January 2011
BiOS Exhibition: 22–23 January 2011
The Moscone Center | San Francisco, California, USA

Symposium Chair



Thomas J. Suleski
The Univ. of Carolina at
Charlotte (USA)

Symposium Cochair



Harald Schenk
Fraunhofer Institute for Photonic
Microsystems (Germany)

Steering Committee Chair



Rajeshuni Ramesham
Jet Propulsion Lab. (USA)

Steering Committee

Albert K. Henning, Nanolnk, Inc. (USA)
Larry J. Hornbeck, Texas Instruments Inc. (USA)
James W. Knutti, Acuity, Inc. (USA)
Marc J. Madou, Univ. of California, Irvine (USA)
M. Edward Motamedi, Revoltech Microsystems (USA)
Richard S. Payne, Pixtronix, Inc. (USA)
Ray Roop, Freescale Semiconductor, Inc. (USA)
Harald Schenk, Fraunhofer Institute for Photonic Microsystems (Germany)
Thomas J. Suleski, The Univ. of North Carolina at Charlotte (USA)
Marilyn Gorsuch, SPIE (USA)

Executive Organizing Committee

Holger Becker, microfluidic ChipShop GmbH (Germany)
Thomas Bifano, Boston Univ. (USA)
Jung-Chih Chiao, The Univ. of Texas at Arlington (USA)
Michael R. Douglass, Texas Instruments Inc. (USA)
Sonia Garcia-Blanco, Univ. Twente (Netherlands)
Joel Kubby, Univ. of California, Santa Cruz (USA)
Marko Loncar, Harvard Univ. (USA)
Mary Ann Maher, SoftMEMS (USA)
Patrick I. Oden, Texas Instruments Inc. (USA)
Scot S. Olivier, Lawrence Livermore National Lab. (USA)
Wibool Piyawattanametha, NECTEC (Thailand) and Stanford Univ. (USA)
Rajeshuni Ramesham, Jet Propulsion Lab. (USA)
Paul J. Resnick, Sandia National Labs. (USA)
Harald Schenk, Fraunhofer Institute for Photonic Microsystems (Germany)
Winston V. Schoenfeld, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA)
Thomas J. Suleski, The Univ. of North Carolina at Charlotte (USA)
Jian Jim Wang, OmniPV Inc. (USA)

Micro/Nanofabrication

7926	Room 110	Micromachining and Microfabrication Process Technology XVI (Maher/Chiao/Resnick)	210
7927	Room 110	Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV (Schoenfeld/Wang/Loncar/Suleski)	212
7920	Room 122/111	Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM)XVI (Gu/Hennig/Xu/Niino)	193
7921	Room 111	Laser-based Micro- and Nanopackaging and Assembly V (Pfleger/Lu/Washio)	196

Devices/Applications/Reliability

7928	Room 252/254/125	Reliability, Packaging, Testing, and Characterization of MEMS/MOEMS and Nanodevices X (Garcia-Blanco/Ramesham)	215
7929	Room 276/300	Microfluidics, BioMEMS, and Medical Microsystems IX (Becker)	218
7930	Room 274/304/125	MOEMS and Miniaturized Systems X (Schenk/Piyawattanametha)	221
7931	Room 274/125	MEMS Adaptive Optics V (Olivier/Bifano/Kubby)	224
7932	Room 276	Emerging Digital Micromirror Device Based Systems and Applications III (Douglass/Oden)	226

SPIE would like to express its deepest appreciation to the symposium chairs, conference chairs, program committees, session chairs, and authors who have so generously given their time and advice to make this symposium possible.

The symposium, like our other conferences and activities, would not be possible without the dedicated contribution of our participants and members. This program is based on commitments received up to the time of publication and is subject to change without notice.

MOEMS-MEMS Conference Daily Schedule

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Program on					
Micro/Nanofabrication					
			7927 Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV (Schoenfeld, Wang, Loncar, Suleski) p. 212		7926 Micro-machining and Micro-fabrication Process Technology XVI (Maher, Chiao, Resnick) p. 210
		7920 Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM) XVI (Gu, Hennig, Xu, Niino) p. 193			
			7921 Laser-based Micro- and Nanopackaging and Assembly V (Pfleger, Lu, Washio) p. 196		
Program on					
Devices/Applications/Reliability					
	7929 Microfluidics, BioMEMS, and Medical Microsystems IX (Becker) p. 218				
		7930 MOEMS and Miniaturized Systems X (Schenk, Piyawattanametha) p. 221			
		7928 Reliability, Packaging, Testing, and Characterization of MEMS/MOEMS and Nanodevices X (Garcia-Blanco, Ramesham) p. 215	7932 Emerging Digital Micromirror Device Based Systems and Applications III (Douglass, Oden) p. 226		7931 MEMS Adaptive Optics V (Olivier, Bifano, Kubby) p. 224
			Photonics West maps: Moscone Center Maps pp. 2-4 Walking Map p. 14		

MOEMS-MEMS

Micromachining and Microfabrication Process Technology XVI

Conference Chairs: **Mary Ann Maher**, SoftMEMS; **Jung-Chih Chiao**, The Univ. of Texas at Arlington; **Paul J. Resnick**, Sandia National Labs.

Program Committee: **Mu Chiao**, The Univ. of British Columbia (Canada); **Debabani Choudhury**, HRL Labs., LLC; **Sanjay Krishna**, The Univ. of New Mexico; **Tamal Mukherjee**, Carnegie Mellon Univ.; **Metin Ozen**, Ozen Engineering, Inc.; **Yu-Chuan Su**, National Tsing Hua Univ. (Taiwan); **T. C. Yih**, Oakland Univ.

Tuesday 25 January

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Near damage threshold micromachining on the chrome stainless mold steel using the femtosecond laser, Ho Lee, SangHoon Choi, Changwhan Kim, YounJung Park, Kyungpook National Univ. (Korea, Republic of); Ik-Bu Sohn, Gwangju Institute of Science and Technology (Korea, Republic of) . . . [7926-16]

Improved out-coupling efficiency of OLED with micro-lens array by screen printing, SangWon Lee, Byoung-Ho Kang, Kyu-Jin Kim, SeHyuk Yeom, Kyung-Woo Park, Hak-Rin Kim, Shin-Won Kang, Kyungpook National Univ. (Korea, Republic of) [7926-17]

Design and fabrication of a CMOS MEMS logic gate, Chun-Yin Tsai, Tsung-Lin Cheng, National Chiao Tung Univ. (Taiwan); Hsin-Hao Liao, Chen-Fu Lin, Ying-Zong Juang, National Chip Implementation Ctr. (Taiwan) [7926-18]

Develop a novel thermal switch through CMOS MEMS fabrication process, Lei-Chun Chou, National Chiao Tung Univ. (Taiwan); You-Liang Lai, National Chip Implementation Ctr. (Taiwan); Chun-Yin Tsai, Sheng-Chieh Huang, National Chiao Tung Univ. (Taiwan) [7926-19]

Charge dissipation material for nanolithography, Shyi-Long Shy, National Nano Device Labs. (Taiwan); Yung-Chiang Ting, Far East Univ. (Taiwan); Chao-Sin Hong, National Nano Device Labs. (Taiwan) [7926-20]

Large scale micro-patterning of multiwalled carbon tube: polydimethylsiloxane nanocomposite polymer on flexible 12 inch x 24 inch substrates, Ajit Khosla, Daniel D. Hilbich, Connie E. Drewbrook, Daehan Chung, Bonnie L. Gray, Simon Fraser Univ. (Canada) [7926-21]

Thursday 27 January

SESSION 1

Room: 110 (Exhibit Level) Thurs. 9:00 to 10:00 am

Optical Device Fabrication

Session Chair: **Mary Ann Maher**, SoftMEMS

9:00 am: **IR photodetector based on optically cooled micromirror as a light pressure sensor**, Gennady P. Berman, Boris M. Chernobrod, Los Alamos National Lab. (USA); Umar Mohideen, Univ. of California, Riverside (USA); Alan R. Bishop, Los Alamos National Lab. (USA) [7926-01]

9:20 am: **Endurance analysis of optical master stamps for UV-replication**, Frank C. Wippermann, Andreas Reimann, Gilbert Leibelng, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7926-02]

9:40 am: **Thermo-optic coefficients of SiC, GaN, and AlN up to 512°C from infrared to ultraviolet region for tunable filter applications**, Naoki Watanabe, Tsunenobu Kimoto, Jun Suda, Kyoto Univ. (Japan) [7926-03]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 110 (Exhibit Level) Thurs. 10:30 to 11:50 am

Laser-based Processing

Session Chair: **Mary Ann Maher**, SoftMEMS

10:30 am: **Fabrication of large-scale scaffolds for the regenerative medicine by two-photon polymerization**, Thomas Stichel, Fraunhofer-Institut für Silicatforschung (Germany) and Julius-Maximilians-Univ. Würzburg (Germany); Bert Hecht, Julius-Maximilians-Univ. Würzburg (Germany); Ruth Houbertz, Fraunhofer-Institut für Silicatforschung (Germany); Gerhard Sextl, Fraunhofer-Institut für Silicatforschung (Germany) and Lehrstuhl für Chemische Technologie der Materialsynthese (Germany) [7926-04]

10:50 am: **Laser processing inside transparent materials: dependence on pulse length and wavelength**, Udo Loeschner, Joerg Schille, Robby Ebert, Horst Exner, Hochschule Mittweida (Germany) [7926-05]

11:10 am: **Sub-micron texturing of silicon wafer with fiber laser**, Hamid Farokhi, Wei Zhou, Nanyang Technological Univ. (Singapore); Hongyu Zheng, Zhongli Li, A*STAR Singapore Institute of Manufacturing Technology (Singapore) [7926-06]

11:30 am: **Reliability of laser micro welding**, Franz-Josef Kahlen, Univ. of Cape Town (South Africa) [7926-07]

Lunch/Exhibition Break 11:50 am to 1:40 pm

SESSION 3

Room: 110 (Exhibit Level) Thurs. 1:40 to 3:00 pm

MEMS Device Fabrication

Session Chair: **Jung-Chih Chiao**, The Univ. of Texas at Arlington

1:40 pm: **First results on electrostatic polymer actuators based on UV-replication**, Nicolas Lange, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) and Friedrich-Schiller-Univ. Jena (Germany); Frank C. Wippermann, Robert Leitell, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Claudia Bruchmann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) and Friedrich-Schiller-Univ. Jena (Germany); Erik Beckert, Ramona Eberhardt, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Andreas Tünnemann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) and Friedrich-Schiller-Univ. Jena (Germany) [7926-08]

2:00 pm: **Commercial plexiglass mirrors and MEMS: new approach toward low cost polymer micro-systems**, Ajit Khosla, Bonnie L. Gray, Simon Fraser Univ. (Canada) [7926-09]

2:20 pm: **Fabrication of electrostatic-actuated single-crystalline 4H-SiC bridge structures by photoelectrochemical etching**, Naoki Watanabe, Tsunenobu Kimoto, Jun Suda, Kyoto Univ. (Japan) [7926-11]

2:40 pm: **Poly-HDDA microstructure fabrication using microstereolithography for micro-cantilever based sensor technology**, Ankur Goswami, Arindam Phani, Indian Institute of Science (India); Ankit Krishna, N. Balashanmugam, Central Manufacturing Technology Institute (India); Giridhar Madras, A. M. Umarji, Indian Institute of Science (India) [7926-22]

Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 110 (Exhibit Level) Thurs. 3:30 to 4:30 pm

Materials, Metrology, and Computer-Aided Design

Session Chair: Paul J. Resnick, Sandia National Labs.

3:30 pm: **MEMS product engineering: methodology and tools**, Kai Hahn, Thilo Schmidt, Univ. Siegen (Germany); Dirk Ortloff, Process Relations GmbH (Germany); Matthias Mielke, Univ. Siegen (Germany); Jens Popp, Process Relations GmbH (Germany); Rainer Brueck, Univ. Siegen (Germany) . [7926-12]

3:50 pm: **Automated measurement of centration errors and relative surface distances for the optimized assembly of micro-optics**, Patrik Langehanenberg, Eugen Dumitrescu, Josef Heinisch, Stefan Krey, Aiko K. Ruprecht, TRIOPTICS GmbH (Germany) [7926-13]

4:10 pm: **Impact of using filtration on global and local uniformity of spin on glue materials**, Sophie Bernard, Entegris, Inc. (Belgium); Jennifer Braggin, Entegris, Inc. (USA); Robert A. Miller, Fabrice F. C. Duval, IMEC (Belgium) [7926-14]

Courses of Related Interest

SC689 Introduction to MicroMachining Using Lasers (Schaeffer) Wednesday, 8:30 am to 12:30 pm

SC743 Micromachining with Femtosecond Lasers (Schaffer, Nolte) Monday, 1:30 to 5:30 pm

SC1014 Microfabrication Technologies for Microfluidic Devices (Becker) Wednesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.



Get the free mobile app at <http://gettag.mobi>

Open the tag reader app and hold your phone's camera over the tag. You'll go to the Photonics West program page, where you can browse by technology, by day/time, or by matrix view.

PLAN YOUR WEEK

Use the SPIE My Schedule tool on the Photonics West site

- Add Papers | Exhibitors | Courses | Special Events

Use the Entire Program webpage to view the program your way:

- By Symposium and Conference—papers, courses, special events
- By Day and Time—see what's happening now
- In a Matrix Grid by Program Track—handy at-a-glance reference

Free SPIE Apps for iPhone®

SPIE Conference Program FREE >

Search and create your schedule at SPIE conferences.

SPIE Profiles FREE >

Make valuable personal connections with SPIE Colleagues.

Advanced Fabrication Technologies for Micro/ Nano Optics and Photonics IV

Conference Chairs: **Winston Vaughan Schoenfeld**, CREOL, The College of Optics and Photonics, Univ. of Central Florida; **Jian Jim Wang**, OmniPV Inc.; **Marko Loncar**, Harvard Univ.; **Thomas J. Suleski**, The Univ. of North Carolina at Charlotte

Program Committee: **Stefano Cabrini**, Lawrence Berkeley National Lab.; **Aaron R. Hawkins**, Brigham Young Univ.; **Babak Heidari**, OBUDUCAT AB (Sweden); **Saulius Juodkazis**, Swinburne Univ. of Technology (Australia); **Shanalyn A. Kemme**, Sandia National Labs.; **Ernst-Bernhard Kley**, Friedrich-Schiller-Univ. Jena (Germany); **Stephen M. Kuebler**, CREOL, The College of Optics and Photonics, Univ. of Central Florida; **Dwayne L. LaBrake**, Molecular Imprints, Inc.; **Akhlesh Lakhtakia**, The Pennsylvania State Univ.; **Uriel Levy**, The Hebrew Univ. of Jerusalem (Israel); **Wen Liu**, Accelink Technologies Co., Ltd. (China); **Robert R. McLeod**, Univ. of Colorado at Boulder; **Yosuke Mizuyama**, Panasonic Technologies Co.; **Patrick P. Naulleau**, Lawrence Berkeley National Lab.; **Mahesh Pitchumani**, Ostendo Technologies, Inc.; **Dennis W. Prather**, Univ. of Delaware; **John A. Rogers**, Univ. of Illinois at Urbana-Champaign; **Georg von Freymann**, Karlsruher Institut für Technologie (Germany); **Michael P. Watts**, Impattern Solutions

Tuesday 25 January

SESSION 1

Room: 110 (Exhibit Level) Tues. 8:10 to 10:00 am

Nanofabrication I: Photonic Nanostructures

Session Chair: **Winston Vaughan Schoenfeld**,

CREOL, The College of Optics and Photonics, Univ. of Central Florida

8:10 am: **Elastic photonic crystals: nano-assembly and functionality on km-scales** (*Invited Paper*), Chris E. Finlayson, Jeremy J. Baumberg, David R. E. Snoswell, Andreas Kontogeorgos, Andrew I. Haines, Jason Sussman, Otto Pursiainen, Univ. of Cambridge (United Kingdom); Peter Spahn, Technische Univ. Darmstadt (Germany); G. P. Hellmann, Deutsches Kunststoff Institut (Germany) [7927-01]

8:40 am: **On-substrate photonic-crystal nanobeam cavities in electron-beam resist**, Ian B. Burgess, Yanan Zhang, Benjamin D. Hatton, Joanna Aizenberg, Marko Loncar, Harvard Univ. (USA) [7927-02]

9:00 am: **Photolithographic fabrication of slot waveguides** (*Invited Paper*), Michael Hochberg, Univ. of Washington (USA) [7927-03]

9:30 am: **Dynamic, adaptive optomechanical structures** (*Invited Paper*), Philseok Kim, Harvard School of Engineering and Applied Sciences (USA); Joanna Aizenberg, Harvard Univ. (USA) [7927-04]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 110 (Exhibit Level) Tues. 10:30 am to 12:00 pm

3D Lithography

Session Chair: **Vyngantas Mizeikis**, Shizuoka Univ. (Japan)

10:30 am: **Advanced fabrication methods for 3D meta-optics** (*Invited Paper*), Eric G. Johnson, The Univ. of North Carolina at Charlotte (USA) [7927-05]

11:00 am: **A new fabrication method for 3D Si-based photonic crystal structures**, Monica A. Taysing-Lara, Gerard Dang, Weimin Zhou, U.S. Army Research Lab. (USA) [7927-06]

11:20 am: **Diffraction-unlimited 3D laser lithography with improved lateral and axial resolution**, Joachim Fischer, Georg von Freymann, Martin Wegener, Karlsruher Institut für Technologie (Germany) [7927-07]

11:40 am: **Selective inhibition of polymerization enables sub-diffraction optical lithography**, Benjamin Harke, Fraz Anjum, Fernando Brandi, Alberto Diaspro, Istituto Italiano di Tecnologia (Italy) [7927-08]

Lunch/Exhibition Break 12:00 to 1:50 pm

SESSION 3

Room: 110 (Exhibit Level) Tues. 1:50 to 3:30 pm

Advanced Lithography

Session Chair: **Thomas J. Suleski**,
The Univ. of North Carolina at Charlotte

1:50 pm: **The evolution of wafer level cameras** (*Invited Paper*), William H. Welch, Tessera, Inc. (USA) [7927-10]

2:20 pm: **Fabrication of large area metallic nanoparticle arrays by nanosphere lithography for localized surface plasmon resonance protein biosensors**, Ryan C. Denomme, Krishna Iyer, Patricia M. Nieva, Univ. of Waterloo (Canada) [7927-11]

2:40 pm: **High-throughput roll-to-roll nanopatterning processes and applications in photonics** (*Invited Paper*), L. Jay Guo, Univ. of Michigan (USA) [7927-12]

3:10 pm: **Tailored hybrid materials for sub-100 nm two-photon lithography and micro optical applications**, Sönke Steenhuisen, Ferdinand Landgraf, Ruth Houbertz, Fraunhofer-Institut für Silicatforschung (Germany) [7927-13]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 110 (Exhibit Level) Tues. 4:00 to 5:40 pm

Laser-based Fabrication

Session Chair: **Menelaos K. Poutous**,
The Univ. of North Carolina at Charlotte

4:00 pm: **Femtosecond laser nanofabrication of metal structures through multiphoton photoreduction**, Kevin Vora, SeungYeon Kang, Michael Moebius, Eric D. Mazur, Harvard Univ. (USA) [7927-14]

4:20 pm: **Direct laser writing and applications of dielectric microstructures with low refractive index contrast**, Vyngantas Mizeikis, Shizuoka Univ. (Japan); Vytautas Purlys, Vilnius Univ. (Lithuania); Lina Maigyte, Kestutis Staliunas, Univ. Politècnica de Catalunya (Spain); Saulius Juodkazis, Swinburne Univ. of Technology (Australia) [7927-15]

4:40 pm: **Correcting aberrations in direct laser writing applications**, Alexander Jesacher, Innsbruck Medical Univ. (Austria); Ben Cumming, Swinburne Univ. of Technology (Australia); Graham D. Marshall, Macquarie Univ. (Australia); Min Gu, Swinburne Univ. of Technology (Australia); Tony Wilson, Martin J. Booth, Univ. of Oxford (United Kingdom) [7927-16]

5:00 pm: **2D nanosphere lithography by using surface plasmon-enhanced optical trapping**, Shean-Jen Chen, Yi-Cheng Li, National Cheng Kung Univ. (Taiwan) [7927-17]

5:20 pm: **Fabrication of large-area and periodical metallic nanoparticle arrays by nano-imprint lithography and laser annealing**, Hsing-Ying Lin, National Chung Cheng Univ. (Taiwan) and National Cheng Kung Univ. (Taiwan); Chen-Han Huang, National Cheng Kung Univ. (Taiwan) [7927-18]

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Ultrashort pulse induced nonlinear photo-polymerization and phase separation in liquid crystal and monomer mixtures, Kuei-Chu Hsu, Yao-Teng Tseng, National Central Univ. (Taiwan) [7927-38]

Fabrication of hybrid optical structure by direct machining, Toni Saastamoinen, Univ. of Eastern Finland (Finland); Juha T. Vayrynen, North Karelia Univ. of Applied Sciences (Finland); Jarkko Mutanen, Univ. of Eastern Finland (Finland); Kari Mönkkönen, North Karelia Univ. of Applied Sciences (Finland); Markku Kuittinen, Univ. of Eastern Finland (Finland). [7927-39]

Laser processing and monitoring of Ag photodoped patterns in GeS₂ amorphous films by dual functional laser scanning micro-processing / micro-scope system utilizing UV / VIS confocal laser scanning microscope, Yoshikazu Kanai, Tokai Univ. (Japan) and Genesis Corp. (Japan); Yoshihisa Murakami, Tokai Univ. (Japan) and Tsukuba Univ. of Technology (Japan); Moriaki Wakaki, Tokai Univ. (Japan); Norihide Takeyama, Genesis Corp. (Japan). [7927-40]

Hydrogen silsesquioxane (HSQ): a perfect negative tone resist for developing nanostructure patterns on a silicon platform, Ghanshyam Singh, Malaviya National Institute of Technology (India); Petri Stenberg, Pasi Vahima, Markku Kuittinen, Univ. of Eastern Finland (Finland); R. P. Yadav, Vijay Janyani, Malaviya National Institute of Technology (India) [7927-41]

Control of nanoparticle deposition with atomic force based Di-electrophoresis, Talia Yeshua, Mills Palchan, Yulia Lovsky, The Hebrew Univ. of Jerusalem (Israel); Hesham Taha, Nanonics Imaging Ltd. (Israel); Aaron Lewis, The Hebrew Univ. of Jerusalem (Israel). [7927-42]

Polarization dependent diffraction of gold nanoparticle grating, Tung-Kai Liu, I-Min Jiang, Wen-Chi Hung, National Sun Yat-Sen Univ. (Taiwan) [7927-43]

In-depth fiber optic two-photon polymerization and its applications in micromanipulation, Yogeshwar N. Mishra, Ninad D. Ingle, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7927-44]

Bimetallic grayscale photomasks written using optical density feedback control and a top-hat shaped laser, Glenn H. Chapman, James M. Dykes, Reza Qarehbaghi, Bruce Wong, Simon Fraser Univ. (Canada) [7927-45]

Efficiency enhancement of silicon solar cells using self-assembly nanospheres, Guan-Jhong Lin, Kun-Yu A. Lai, Han-Chieh Chang, Chin-an Lin, P. H. Fu, Jr-Hau He, National Taiwan Univ. (Taiwan) [7927-46]

Production multilevel DOE with E-beam lithography system for optical security holograms, Sergiy A. Kostyukevich, V. Lashkaryov Institute of Semiconductor Physics (Ukraine); Eugene V. Braginetz, National Taras Shevchenko Univ. of Kyiv (Ukraine); Volodymyr Giryk, Optronics PC (Ukraine); Vitaliy Kurashov, Kyiv National Taras Shevchenko Univ. (Ukraine); Katerina Kostyukevich, V. Lashkaryov Institute of Semiconductor Physics (Ukraine); Svitlana Honcharuk, Kievolografiya (Ukraine) [7927-47]

Wednesday 26 January

SESSION 5

Room: 110 (Exhibit Level) Wed. 8:10 to 10:10 am

Micro and Nano-optics

Session Chair: Jian Jim Wang, OmniPV Inc.

8:10 am: **Fabrication of singulated micro-retro-reflectors for textured surfaces**, Menelaos K. Poutous, The Univ. of North Carolina at Charlotte (USA); Michael Maston, Stephen Leibholtz, VizorNet, Inc. (USA); Eric G. Johnson, The Univ. of North Carolina at Charlotte (USA) [7927-19]

8:30 am: **Free-form micromachining of an infrared Alvarez lens**, Paul J. Smilie, Brian Dutterer, Jennifer L. Lineberger, Matthew A. Davies, Thomas J. Suleski, The Univ. of North Carolina at Charlotte (USA) . . . [7927-20]

8:50 am: **Wafer level glass optics: precision glass molding as an alternative manufacturing approach**, Martin Hüntten, Fritz Klocke, Olaf Dambon, Fraunhofer-Institut für Produktionstechnologie (Germany). [7927-21]

9:10 am: **Manufacturing of cylindrical diffractive lens by ruling**, Juha T. Vayrynen, North Karelia Univ. of Applied Sciences (Finland); Toni Saastamoinen, Jarkko Mutanen, Univ. of Eastern Finland (Finland); Kari Mönkkönen, North Karelia Univ. of Applied Sciences (Finland); Markku Kuittinen, Univ. of Eastern Finland (Finland) [7927-22]

9:30 am: **Diamond milling or turning for the fabrication of micro lens arrays?: comparing different diamond machining technologies**, Sebastian Scheiding, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7927-23]

9:50 am: **Fabrication of single mode channel waveguides through microtransfer molding and microfluidics**, Sarfaraz Baig, Univ. of Miami (USA); Jame J. Yang, New Span Opto-Technology Inc. (USA); Michael R. Wang, Univ. of Miami (USA). [7927-24]

Coffee Break 10:10 to 10:40 am

SESSION 6

Room: 110 (Exhibit Level) Wed. 10:40 am to 12:10 pm

Nanofabrication II: Growth and Deposition

Session Chair: Robert R. McLeod, Univ. of Colorado at Boulder

10:40 am: **Microfabrication of microsystem-enabled photovoltaic (MEPV) cells (Invited Paper)**, Gregory N. Nielson, Murat Okandan, Jose L. Cruz-Campa, Paul J. Resnick, Sandia National Labs. (USA); Mark W. Wanlass, National Renewable Energy Lab. (USA); Peggy J. Clews, Tammy C. Pluym, Carlos A. Sanchez, Vipin P. Gupta, Sandia National Labs. (USA) [7927-25]

11:10 am: **Atomic layer epitaxy of TiO₂/ZnO multilayer optics using ZnO buffer layer for water-window x-ray**, Masaki Murata, Hiroshi Kumagai, Yuji Tanaka, Yasutaka Sanjo, Osaka City Univ. (Japan); Tsutomu Shinagawa, Osaka Municipal Technical Research Institute (Japan) [7927-26]

11:30 am: **Fast and economic nanowire fabrication using nano-crack lithography**, Yu-Yuan Peng, Yun-Chorng Chang, National Cheng Kung Univ. (Taiwan) [7927-27]

11:50 am: **Fabrication of optical filters using multilayered porous silicon**, Noha A. Gaber, The American Univ. in Cairo (Egypt); Diaa Khalil, Ain Shams Univ. (Egypt); Amr Shaarawi, The American Univ. in Cairo (Egypt). . . [7927-28]

Lunch/Exhibition Break 12:10 to 1:40 pm

SESSION 7

Room: 110 (Exhibit Level) Wed. 1:40 to 3:30 pm

Active Optical Device Fabrication

Session Chair: Marko Loncar, Harvard Univ.

1:40 pm: **Microscale, printed LEDs for unusual lighting and display systems** (*Invited Paper*), John A. Rogers, Univ. of Illinois at Urbana-Champaign (USA). . . [7927-29]

2:10 pm: **CMOS-compatible fabrication, micromachining, and bonding strategies for silicon photonics** (*Invited Paper*), John Heck, Intel Corp. (USA) [7927-30]

2:40 pm: **Single quantum dot (QD) manipulation on nanowire using dielectrophoretic force**, Jinsik Kim, Jungho Park, Korea Univ. (Korea, Republic of); Hyun Joon Shin, Korea Institute of Science and Technology (Korea, Republic of) [7927-31]

3:00 pm: **DFB lasers fabricated by nanoimprint process** (*Invited Paper*), Wen Liu, Huazhong Univ. of Science and Technology (China) [7927-32]

Coffee Break 3:30 to 4:00 pm

SESSION 8

Room: 110 (Exhibit Level) Wed. 4:00 to 5:50 pm

Nanofabrication III: Passive Optical Devices

Session Chair: Mahesh Pitchumani, Ostendo Technologies, Inc.

4:00 pm: **Nanofabrication and nano-optics at CNST** (*Invited Paper*), James A. Liddle, Vladimir A. Aksyuk, Henri J. Lezec, Albert A. Talin, Kartik Srinivasan, National Institute of Standards and Technology (USA) [7927-33]

4:30 pm: **Fabrication of guided mode resonance filters on conformal surfaces**, Aaron T. Cannistra, Menelaos K. Poutous, Eric G. Johnson, Thomas J. Suleski, The Univ. of North Carolina at Charlotte (USA) [7927-34]

4:50 pm: **Novel light-transmitting nano-meshed metal electrode fabricated by self-assembled method**, Koji Asakawa, Eishi Tsutsumi, Ryota Kitagawa, Kumi Masunaga, Tsutomu Nakanishi, Akira Fujimoto, Toshiba Corp. (Japan) [7927-35]

5:10 pm: **Design and fabrication of binary multi-phase-level computer generated holograms based on an effective medium approach**, Wiebke Freese, Friedrich Schiller Univ. (Germany); Ernst-Bernhard Kley, Friedrich-Schiller-Univ. Jena (Germany); Hans-Christoph Eckstein, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7927-36]

5:30 pm: **Fabrication of novel instrumentation of multispectral imaging technology driven MEMS-based micro-arrayed multichannel optical filter mosaic**, Dingrong Yi, Prospect Photonics Inc. (USA); Linghua Kong, The Ctr. for Assistive Technology and Environmental Access (USA); Jiwu Wang, National Univ. of Defense Technology (China); Futing Zhao, Beijing Film Mechanism Research Institute (China) [7927-37]

Courses of Related Interest

SC689 Introduction to MicroMachining Using Lasers (Schaeffer) Wednesday, 8:30 am to 12:30 pm

SC743 Micromachining with Femtosecond Lasers (Schaffer, Nolte) Monday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Don't miss the free Photonics West Exhibition

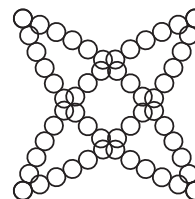
See new products and top companies at the most important event for the photonics and laser industry

25-27 January 2011

Tuesday · 10:00 am to 5:00 pm

Wednesday · 10:00 am to 5:00 pm

Thursday · 10:00 am to 4:00 pm



Nanophotonics

SPIE Digital Library

Find the answer
SPIEDigitalLibrary.org

Reliability, Packaging, Testing, and Characterization of MEMS/MOEMS and Nanodevices X

Conference Chairs: **Sonia Garcia-Blanco**, Univ. Twente (Netherlands); **Rajeshuni Ramesham**, Jet Propulsion Lab.

Program Committee: **Enakshi Bhattacharya**, Indian Institute of Technology Madras (India); **Christopher K. Harrison**, Schlumberger-Doll Research Ctr.; **Allyson Hartzell**, Boston Micromachines Corp.; **Albert K. Henning**, Nanolnk, Inc.; **Maurice S. Karpman**, The Charles Stark Draper Lab., Inc.; **Kee-Keun Lee**, Ajou Univ. (Korea, Republic of); **Richard C. Kullberg**, Vacuum Energy, Inc.; **Olivier N. Pierron**, Georgia Institute of Technology; **Herbert R. Shea**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Yanzhu Zhao**, Medtronic, Inc.



Monday 24 January

MOEMS-MEMS Plenary Session

Room: 132/133 (Exhibit Level) . Mon. 9:00 am to 12:00 pm

9:00 am: **Welcome and Opening Remarks**, **Thomas J. Suleski**, Univ. of North Carolina at Charlotte (USA); **Harald Schenk**, Fraunhofer Institute for Photonic Microsystems (Germany)

9:05 am: **Announcement of the Best Green Photonics Paper Awards in MOEMS-MEMS**, **Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)

9:10 am: **Microsystem Pathways to a Greener World**, **Amit Lal**, Cornell Univ. (USA)

Coffee Break 10:00 to 10:20 am

10:20 am: **Lateral Spread of MEMS WDM Technologies**, **Hiroshi Toshiyoshi**, Research Ctr. for Advanced Science and Technology (RCAST), The Univ. of Tokyo (Japan)

11:10 am: **What I Have Learned from Playing with Toys about the Physics of Living Cells**, **Robert H. Austin**, Princeton Univ. (USA) and Hong Kong Univ. of Technology (Hong Kong, China)

See p. 22 for details.

Lunch Break 12:00 to 1:30 pm

SESSION 1

Room: 252/254 (Mezzanine) Mon. 1:30 to 3:05 pm

Packaging and Integration Technologies of MOEMS/MEMS/NEMS I

Session Chair: **Sonia M. Garcia-Blanco**, Univ. Twente (Netherlands)

1:30 pm: **Atomic layer deposition/molecular layer deposition for packaging and interconnect of N/MEMS** (*Keynote Presentation*), **Y. C. Lee**, Univ. of Colorado at Boulder (USA) [7928-01]

2:15 pm: **A new era for the IC: the need for revolutionary innovation in system interconnection** (*Invited Paper*), **Muhannad Bakir**, Georgia Institute of Technology (USA) [7928-02]

2:45 pm: **Spherical and non-spherical microlens arrays fabricated utilizing polymer coating on isotropically etched quartz**, **Minwoo Nam**, **Haekwan Oh**, **Geunyoung Kim**, Ajou Univ. (Korea, Republic of); **Hyunwoo Seo**, **Yotak Song**, OPTO FINETECH Co., Ltd. (Korea, Republic of); **Sang Sik Yang**, **Kee-Keun Lee**, Ajou Univ. (Korea, Republic of) [7928-03]

Coffee Break 3:05 to 3:35 pm

SESSION 2

Room: 252/254 (Mezzanine) Mon. 3:35 to 4:55 pm

Packaging and Integration Technologies of MOEMS/MEMS/NEMS II

Session Chair: **Rajeshuni Ramesham**, Jet Propulsion Lab.

3:35 pm: **Packaging of MEMS/MOEMS and nanodevices: reliability, testing, and characterization aspects** (*Invited Paper*), **Tolga Tekin**, **Ha-Duong Ngo**, Technische Univ. Berlin (Germany); **Klaus-Dieter Lang**, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (Germany) [7928-04]

4:05 pm: **Silicon TSV interposers for photonics and VLSI packaging** (*Invited Paper*), **Nagesh Vodrahalli**, ALLVIA, Inc. (USA) [7928-05]

4:35 pm: **Development of surface acoustic wave (SAW) gyroscope structured by reflective delay line**, **Haekwan Oh**, **Kee-Keun Lee**, Ajou Univ. (Korea, Republic of) [7928-06]

Tuesday 25 January

SESSION 3

Room: 252/254 (Mezzanine) Tues. 8:20 to 10:30 am

Test Methodology and Reliability

Session Chair: **Rajeshuni Ramesham**, Jet Propulsion Lab.

8:20 am: **Fiber-based multi-beam laser Doppler vibrometer for measuring transient vibrations**, **Min Guo**, Nanyang Technological Univ. (Singapore) and DSO National Labs. (Singapore); **Yu Fu**, Nanyang Technological Univ. (Singapore); **Poh Boon Phua**, DSO National Labs. (Singapore) [7928-07]

8:40 am: **Infrared scanning white light interferometry using a solid state light source**, **Ville Heikkinen**, **Ben Wälchli**, **Heikki Räikkönen**, **Juha P. Aaltonen**, **Ivan Kassamakov**, **Edward Hæggström**, Univ. of Helsinki (Finland) [7928-08]

9:00 am: **Vibration and shock testing of a MOEMS tunable grating: new modeling methodology and its experimental validation**, **Subramanian Sundaram**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Maurizio Tormen**, **Branislav Timotijevic**, **Robert Lockhart**, **Ross P. Stanley**, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); **Herbert R. Shea**, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7928-09]

9:20 am: **Reliability of MEMS** (*Invited Paper*), **Alex Dommann**, **Antonia Neels**, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland) [7928-10]

9:50 am: **Reliability enhancement of Ohmic RF MEMS switches**, **Steffen Kurth**, **Stefan Leidich**, Fraunhofer-Institut für Einrichtung Elektronische Nanosysteme (Germany); **Andreas Bertz**, **Markus Nowack**, **Christian Kaufmann**, Technische Univ. Chemnitz (Germany); **Wolfgang Faust**, **Thomas Gessner**, Fraunhofer-Institut für Einrichtung Elektronische Nanosysteme (Germany); **Akira Akiba**, **Koichi Ikeda**, Sony Corp. (Japan) [7928-11]

10:10 am: **Crack growth and reliability modeling of multi-layer capacitors in microelectronics applications**, **Gilad Sharon**, **Donald Barker**, Univ. of Maryland, College Park (USA) [7928-12]

Coffee Break 10:30 to 11:00 am

MOEMS-MEMS

SESSION 4

Room: 252/254 (Mezzanine) Tues. 11:00 am to 12:10 pm

Reliability of MEMS for Space Applications

Session Chair: **Wilfried Noell**,

Ecole Polytechnique Fédérale de Lausanne (Switzerland)

11:00 am: **Effects of radiation on MEMS** (*Invited Paper*), Herbert R. Shea, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7928-13]

11:30 am: **Reliability of Sn-Pb and Pb-free surface mounted miniaturized passive components for extreme temperature space missions**, Rajeshuni Ramesham, Jet Propulsion Lab. (USA) [7928-14]

11:50 am: **Displacement damage effects in silicon MEMS at high proton doses**, Joao F. Gomes, Herbert R. Shea, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7928-15]

Lunch/Exhibition Break 12:10 to 1:40 pm

SESSION 5

Room: 252/254 (Mezzanine) Tues. 1:40 to 3:10 pm

Devices for Space Applications I

Session Chair: **Herbert R. Shea**,

Ecole Polytechnique Fédérale de Lausanne (Switzerland)

1:40 pm: **MEMS technology to achieve miniaturization, redundancy, and new functionality in space** (*Invited Paper*), Tor-Arne Gronland, NanoSpace AB (Sweden) [7928-16]

2:10 pm: **MOEMS for prospective space applications** (*Invited Paper*), Thierry Viard, Christophe Buisset, Thales Alenia Space (France); Frederic Zamkotsian, Lab. d'Astrophysique de Marseille (France) [7928-17]

2:40 pm: **Expanding the spacecraft application base with MEMS gyros** (*Invited Paper*), Tye Brady, The Charles Stark Draper Lab., Inc. (USA). [7928-18]

Coffee Break 3:10 to 3:40 pm

SESSION 6

Room: 125 (Exhibit Level) Tues. 3:40 to 6:20 pm

Devices for Space Applications II

Joint Session with Conference 7930 and 7931

Session Chair: **Sonia M. García-Blanco**, Univ. Twente (Netherlands)

3:40 pm: **Applications of MEMS in segmented mirror space telescopes** (*Invited Paper*), Brij Agrawal, Naval Postgraduate School (USA); Joel Kubby, Univ. of California, Santa Cruz (USA) [7931-01]

4:10 pm: **Ultra-low-power multiplexed electronic driver for high resolution deformable mirror systems**, Mark N. Horenstein, Robert Sumner, Boston Univ. (USA); Jason Stewart, Steven Cornelissen, Boston Micromachines Corp. (USA); Preston Miller, Boston Univ. (USA); Thomas Bifano, Boston Univ. (USA) and Boston Micromachines Corp. (USA) [7930-20]

4:30 pm: **Improved coupling to integrated spatial heterodyne spectrometers with applications to space**, Alan D. Scott, COM DEV Canada (Canada); Pavel Cheben, Przemek Bock, National Research Council Canada (Canada); Mirek Florjanczyk, York Univ. (Canada); Carlos A. Ramos, Univ. de Málaga (Spain); Boris Lamontagne, National Research Council Canada (Canada); I. M. Fernandez, Univ. de Málaga (Spain); Siegfried Janz, National Research Council Canada (Canada); Alejandro Ortega-Moñux, Univ. de Málaga (Spain); Brian H. Solheim, York Univ. (Canada); Dan-Xia Xu, National Research Council Canada (Canada) [7928-19]

4:50 pm: **MEMS-based programmable reflective slit mask for multi-object spectroscopy**, Michael D. Canonica, Univ. of Neuchâtel (Switzerland); Frederic Zamkotsian, Observatoire Astronomique de Marseille-Provence (France); Wilfried Noell, Univ. of Neuchâtel (Switzerland); Patrick Lanzoni, Observatoire Astronomique de Marseille-Provence (France); Nico de Rooij, Univ. of Neuchâtel (Switzerland) [7930-21]

5:10 pm: **Integration of optical waveguides and microfluidics in a miniaturized antibody micro-array system for life detection in the NASA/ESA ExoMars mission**, Henk Leeuwis, Albert Prak, René G. Heideman, Arne Leinse, Lionix BV (Netherlands); Guus Borst, Dutch Space B.V. (Netherlands) [7928-20]

5:30 pm: **Fully integrated imaging spectrometer instrument on a chip: miniaturization effort for space instruments**, Benedikt Guldemann, European Space Research and Technology Ctr. (Netherlands) [7930-36]

5:50 pm: **CANEUS** (*Invited Paper*), Milind Primpikar, CANEUS International (Canada) [7928-21]

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

The interference effect of the Rayleigh and shear-horizontal waves for a SAW gyroscope, Hyungkeun Lee, Haekwan Oh, Kee-Keun Lee, Sang Sik Yang, Ajou Univ. (Korea, Republic of) [7928-22]

A novel wireless love wave biosensor platform for multi-functional detection, Taehyeon Song, Kee-Keun Lee, Ajou Univ. (Korea, Republic of) [7928-23]

Investigation into graphene-based MEMS for future deep space telescopes, George Fercana, Jr., Clemson Univ. (USA) and NASA Goddard Space Flight Ctr. (USA); Gunther Kletetschka, Catholic Univ. of America (USA) and NASA Goddard Space Flight Ctr. (USA) and Gelogic Institute (Czech Republic); James Chervenak, NASA Goddard Space Flight Ctr. (USA); Vilem Mikula, Catholic Univ. of America (USA) and NASA Goddard Space Flight Ctr. (USA); Mary Li, NASA Goddard Space Flight Ctr. (USA) [7928-25]

Optoelectronic properties and interfacial durability of CNT and ITO on boro-silicate glass and PET substrates with nano- and hetero-structural aspects, Joung-Man Park, Gyeongsang National Univ. (Korea, Republic of) and The Univ. of Utah (USA); Zuoqia Wang, Dong-Jun Kwon, Gyeongsang National Univ. (Korea, Republic of); Lawrence K. DeVries, The Univ. of Utah (USA) [7928-26]

PANEL DISCUSSION

InterContinental Hotel, Sutter Room . . . Tues. 7:30 to 8:15 pm

Need for Standards for the Qualification of MEMS/MOEMS and Nanodevices for Use in Space: Present and Future Trends

In order to accelerate the introduction of MEMS/MOEMS and nanodevices in space missions, sufficient reliability data should be available in order to prove that these micro- nano-devices can be space qualified. However, lack of space heritage of such microsystems makes this task hard to achieve. In this panel, panelists representing different space agencies will discuss the current issues associated with MEMS/MOEMS qualification for space applications as well as the need for standardization.

Moderator: **Herbert R. Shea**, Ecole Polytechnique Fédérale de Lausanne (Switzerland)

Panelists: **Dr. Alex Dommann**, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland);

Dr. Paul Bierden, Boston Micromachines Corp. (USA);

Dr. Alan Scott, ComDEV (Canada)

Light Refreshments Sponsored By:



PANEL DISCUSSION

InterContinental Hotel, Sutter Room . . . Tues. 8:15 to 9:00 pm

Does Space want MEMS?

One of the benefits of MEMS is the added functionality within a given volume. Although MEMS and nanodevices are very small, all of the periphery to drive and control them might be large. So the total system is maybe not that much smaller than alternative systems. What are other advantages that justify the investments to bring MEMS into space? In this Panel, both supporters and skeptics will be brought together to answer the question: Does space want/ need MEMS?

Moderator: Wilfried Noell,

Ecole Polytechnique Fédérale de Lausanne (Switzerland)

Panelists: Dr. Henry Helvajian, The Aerospace Corp. (USA);

Dr. Tor-Arne Gronland, Nanospace (Sweden);

Dr. Volker Gass, RUAG Space (Switzerland);

Dr. Benedikt Guldemann, ESA (Netherlands);

Dr. Milind Primpikar, CANEUS International (Canada)

Light Refreshments Sponsored By:

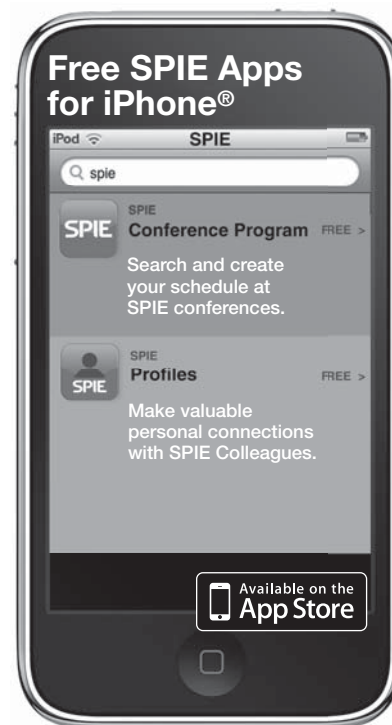


Courses of Related Interest

SC689 Introduction to MicroMachining Using Lasers (Schaeffer) Wednesday, 8:30 am to 12:30 pm

SC743 Micromachining with Femtosecond Lasers (Schaffer, Nolte) Monday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.



MOEMS-MEMS

Microfluidics, BioMEMS, and Medical Microsystems IX

Conference Chair: **Holger Becker**, microfluidic ChipShop GmbH (Germany) Conference Co-Chair: **Bonnie L. Gray**, Simon Fraser Univ. (Canada)

Program Committee: **Eva M. Campo**, Ctr. Nacional de Microelectrónica; **Bruce K. Gale**, The Univ. of Utah; **Albert K. Henning**, NanoInk, Inc.; **Yu-Cheng Lin**, National Cheng Kung Univ. (Taiwan); **Yuehe Lin**, Pacific Northwest National Lab.; **Ian Papautsky**, Univ. of Cincinnati; **Albert van den Berg**, Univ. Twente (Netherlands); **Claude M. Vauchier**, CEA-LETI (France); **WanJun Wang**, Louisiana State Univ.; **Bernhard H. Weigl**, PATH

Conference Cosponsors:



Sunday 23 January

SESSION 1

Room: 300 (Esplanade) Sun. 1:30 to 5:00 pm

Microfluidic Devices and Systems for Pathogen Detection

Session Chair: **Benjamin L. Miller**,
Univ. of Rochester Medical Ctr. (USA)

Joint Session with Conference 7888

1:30 pm: **Nanofluidic Raman spectroscopy: how combining nanofluidics with SERS can provide new insights into protein aggregation** (*Invited Paper*), David Erickson, Cornell Univ. (USA) [7888-19]

2:00 pm: **Optical and fluidic design for guaranteed trapping and detection of particles in a silicon microfluidic and photonic crystal system**, Adam Heiniger, Philippe M. Fauchet, Univ. of Rochester (USA) [7888-20]

2:15 pm: **On-chip optofluidic concentrator**, James E. Baker, Rashmi Sriram, Univ. of Rochester Medical Ctr. (USA); Philippe M. Fauchet, Univ. of Rochester (USA); Benjamin L. Miller, Univ. of Rochester Medical Ctr. (USA) [7888-21]

2:30 pm: **Integrated lab-on-a-chip: a combined sample preparation and PCR system as an ultrafast analytical tool for pathogen detection** (*Invited Paper*), Holger Becker, Nadine Hlawatsch, Richard Klemm, Claudia Gärtner, microfluidic ChipShop GmbH (Germany) [7929-01]

Coffee Break 3:00 to 3:30 pm

3:30 pm: **Merging nanophotonics and nanofluidics for active analyte delivery and biosensing** (*Invited Paper*), Hatice Altug, Boston Univ. (USA) [7888-22]

4:00 pm: **All-fiber optofluidic biosensor**, Yunbo Guo, Hao Li, Jing Liu, Karthik Chinna Balareddy, Xudong Fan, Univ. of Michigan (USA) [7888-23]

4:15 pm: **Application of field-modulated birefringence and light scattering to biosensing**, Louis H. Strong, Daniel B. Hall, Clark Edson, Gyula Varadi, Radiation Monitoring Devices, Inc. (USA) [7888-24]

4:30 pm: **Optofluidic biosensing with colorimetric signatures of deterministic aperiodic metal nanoparticle arrays**, Sylvanus Y. Lee, Svetlana V. Boriskina, Boston Univ. (USA); Fiorenzo G. Omenetto, Tufts Univ. (USA); Bjoern M. Reinhard, Luca Dal Negro, Boston Univ. (USA) [7888-25]

4:45 pm: **An integrated microfluidic biosensor for the rapid screening of foodborne pathogens by surface plasmon resonance imaging**, Michael D. Zordan, Meggie G. Grafton, James F. Leary, Purdue Univ. (USA) [7888-26]

Monday 24 January

MOEMS-MEMS Plenary Session

Room: 132/133 (Exhibit Level) . Mon. 9:00 am to 12:00 pm

9:00 am: **Welcome and Opening Remarks**, Thomas J. Suleski, Univ. of North Carolina at Charlotte (USA); Harald Schenk, Fraunhofer Institute for Photonic Microsystems (Germany)

9:05 am: **Announcement of the Best Green Photonics Paper Awards in MOEMS-MEMS**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

9:10 am: **Microsystem Pathways to a Greener World**, Amit Lal, Cornell Univ. (USA)

Coffee Break 10:00 to 10:20 am

10:20 am: **Lateral Spread of MEMS WDM Technologies**, Hiroshi Toshiyoshi, Research Ctr. for Advanced Science and Technology (RCAT), The Univ. of Tokyo (Japan)

11:10 am: **What I Have Learned from Playing with Toys about the Physics of Living Cells**, Robert H. Austin, Princeton Univ. (USA) and Hong Kong Univ. of Technology (Hong Kong, China)

See p. 22 for details.

Lunch Break 12:00 to 1:30 pm

SESSION 2

Room: 276 (Mezzanine). Mon. 1:30 to 3:40 pm

Cell and Particle-Based Systems

Session Chair: **Holger Becker**, microfluidic ChipShop GmbH (Germany)

1:30 pm: **Integrated single-cell analysis** (*Invited Paper*), J. Christopher Love, Massachusetts Institute of Technology (USA) [7929-02]

2:00 pm: **Complementary approaches to investigating cancer cell dynamics in the tumor microenvironment**, Michael R. Padgen, Waseem K. Raja, Univ. at Albany (USA); Bojana Gligorijevic, Albert Einstein College of Medicine of Yeshiva Univ. (USA); James Williams, Univ. at Albany (USA); John S. Condeelis, Albert Einstein College of Medicine of Yeshiva Univ. (USA); James Castracane, Univ. at Albany (USA) [7929-03]

2:20 pm: **A completely transparent MEMS for mechanical properties evaluation of a single living cell**, Raffaella Fior, Stefano Maggolino, Univ. degli Studi di Trieste (Italy); Marco Lazzarino, IOM-CNR Lab. TASC (Italy); Orfeo Sbaizero, Univ. degli Studi di Trieste (Italy) [7929-04]

2:40 pm: **Inertial microfluidics for continuous separation of cells and particles**, Arpita Chatterjee, Ian Papautsky, Univ. of Cincinnati (USA) [7929-05]

3:00 pm: **A pneumatic actuated renewable microfluidic bead trapping device**, Guocheng Shao, WanJun Wang, Louisiana State Univ. (USA); Richard M. Ozanich, Jun Wang, Yuehe Lin, Pacific Northwest National Lab. (USA) [7929-06]

3:20 pm: **Optical propulsion of mammalian eukaryotic cells on an integrated channel waveguide**, Mukhzeer M. Shahimin, Univ. of Southampton (United Kingdom) and Univ. Malaysia Perlis (Malaysia); Nicolas M. Perney, Suzanne Brooks, Univ. of Southampton (United Kingdom); Neil Hanley, The Univ. of Manchester (United Kingdom); Kate L. Wright, James S. Wilkinson, Tracy Melvin, Univ. of Southampton (United Kingdom) [7929-07]

Coffee Break 3:40 to 4:10 pm

SESSION 3

Room: 276 (Mezzanine)..... Mon. 4:10 to 6:10 pm

Diagnostics

Session Chair: Bonnie L. Gray, Simon Fraser Univ. (Canada)

- 4:10 pm: **Development path and current status of the NANIVID: a new device for cancer cell studies** (*Invited Paper*), James Castracane, Waseem K. Raja, Michael R. Padgen, College of Nanoscale Science & Engineering, Univ. at Albany (USA); Bojana Gligorijevic, John S. Condeelis, Albert Einstein College of Medicine of Yeshiva Univ. (USA)..... [7929-35]
- 4:40 pm: **Development of an integrated microsystem for the multiplexed detection of protein markers in serum using electrochemical immunosensors** (*Invited Paper*), Ciara K. O'Sullivan, Univ. Rovira i Virgili (Spain)..... [7929-08]
- 5:10 pm: **Design of a portable point-of-care BioMEMS microfluidic blood analyzer**, Meggie G. Grafton, Teimour Maleki, Michael D. Zordan, Lisa M. Reece, Purdue Univ. (USA); Alan L. Jones, Paul W. Todd, Techshot, Inc. (USA); James F. Leary, Purdue Univ. (USA)..... [7929-09]
- 5:30 pm: **A sample-in result-out lab-on-a-chip device: from prototype to mass fabrication**, Richard Klemm, Holger Becker, Claudia Gärtner, microfluidic ChipShop GmbH (Germany)..... [7929-10]
- 5:50 pm: **From bleed-to-read: integrated genotyping and immunological analysis microfluidic platforms for the diagnostic and treatment of coeliac disease**, Mathieu Jung, Julian Höth, Julia Erwes, Daniel Latta, Xenia Strobach, Institut für Mikrotechnik Mainz GmbH (Germany); Richard Klemm, Claudia Gärtner, microfluidic ChipShop GmbH (Germany); Thanos M. Demiris, micro2gen Ltd. (Greece); Ciara K. O'Sullivan, Univ. Rovira i Virgili (Spain); Marion Ritzi-Lehnert, Klaus S. Drese, Institut für Mikrotechnik Mainz GmbH (Germany)..... [7929-11]

Tuesday 25 January

SESSION 4

Room: 276 (Mezzanine).....Tues. 8:00 to 10:10 am

Devices and Systems I

Session Chair: James Castracane, Univ. at Albany

- 8:00 am: **A new electrowetting lab-on-a-chip platform based on programmable and virtual wall-less channels** (*Invited Paper*), Ian Papautsky, Jason C. Heikenfeld, Univ. of Cincinnati (USA)..... [7929-12]
- 8:30 am: **Fabrication and testing of hydrogel-based microvalves for lab-on-a-chip application**, Ang Li, Ajit Khosla, Bonnie L. Gray, Simon Fraser Univ. (Canada)..... [7929-13]
- 8:50 am: **Bidirectional magnetic microactuators for uTAS**, Daniel D. Hilbich, Ajit Khosla, Bonnie L. Gray, Simon Fraser Univ. (Canada)..... [7929-14]
- 9:10 am: **Cascaded silicon-on-insulator microring resonators for the detection of biomolecules in PDMS microfluidic channels**, Jonas Flueckiger, Samantha M. Grist, Gurpal Bisra, Lukas Chrostowski, Karen C. Cheung, The Univ. of British Columbia (Canada)..... [7929-15]
- 9:30 am: **Computational study of peristaltic micropumps**, Alireza Azarbadegan, Ian Eames, Emadaldin Moeendarbary, Univ. College London (United Kingdom)..... [7929-16]
- 9:50 am: **Optimum sensor placement in microchannel reactors: design tool applications**, Gregory J. Kowalski, Mehmet Sen, Northeastern Univ. (USA)..... [7929-17]
- Coffee Break..... 10:10 to 10:40 am

SESSION 5

Room: 276 (Mezzanine)..... Tues. 10:40 am to 12:30 pm

Devices and Systems II

Session Chair: Ian Papautsky, Univ. of Cincinnati

- 10:40 am: **Phononic fluidics: acoustically activated droplet manipulations** (*Invited Paper*), Julien Reboud, Rab Wilson, Yannik Bourquin, Yi Zhang, Steven L. Neale, Jonathan M. Cooper, Univ. of Glasgow (United Kingdom) .. [7929-18]
- 11:10 am: **Accelerated binding kinetics by surface acoustic waves (SAW) micromixing in surface plasmon resonance (SPR) system for biodetection**, Alan Renaudin, Vincent Chabot, Etienne Grondin, Vincent Aimez, Paul G. Charette, Univ. de Sherbrooke (Canada)..... [7929-19]
- 11:30 am: **Microfluidic chips integrated with different functions by femtosecond laser for mechanism study of Phormidium gliding**, Yasutaka Hanada, Koji Sugioka, Ikuko S. Ishikawa, Hiroyuki Kawano, Atsushi Miyawaki M.D., Katsumi Midorikawa, RIKEN (Japan)..... [7929-20]
- 11:50 am: **Free-flow electrophoresis with electrode-less injection molded chips**, Stefan Köhler, Univ. Leipzig (Germany); Holger Becker, microfluidic ChipShop GmbH (Germany); Volker Beushausen, Hainer Wackerbarth, Laser-Lab. Göttingen e.V. (Germany); Erik Beckert, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Steffen Howitz, GeSiM Gesellschaft fuer Silizium-Mikrosysteme mbH (Germany); Detlev Belder, Univ. Leipzig (Germany)..... [7929-21]
- 12:10 pm: **A femtosecond laser inscribed biochip for stem cell therapeutic applications**, Debaditya Choudhury, William T. Ramsay, Nicholas D. Psaila, Graeme Brown, Stephen Beecher, Lynn Paterson, Ajoy K. Kar, Robert Kiss, Nicholas A. Willoughby, Heriot-Watt Univ. (United Kingdom); Steve Pells, The Univ. of Edinburgh (United Kingdom)..... [7929-22]
- Lunch/Exhibition Break..... 12:30 to 2:20 pm

SESSION 6

Room: 276 (Mezzanine)..... Tues. 2:20 to 3:30 pm

BioMEMS and Medical Microsystems

Session Chair: Ciara K. O'Sullivan, Univ. Rovira i Virgili (Spain)

- 2:20 pm: **Nanoplasmonics as nanofluidics: transport and sensing in flow-through nanohole arrays** (*Invited Paper*), Carlos Escobedo, Alexandre G. Brolo, Reuven Gordon, David Sinton, Univ. of Victoria (Canada)..... [7929-23]
- 2:50 pm: **Fabrication of an implantable stretchable electro-osmosis pump**, Amir Jahanshahi, Univ. Gent (Belgium) and IMEC (Belgium); Fabrice Axisa, Jan M. Vanfleteren, Univ. Gent (Belgium)..... [7929-25]
- 3:10 pm: **Automated platform for multiparameter stimulus response studies of metabolic activity at the single-cell level**, Shashanka P. Ashili, Laimonas Kelbauskas, Yanqing Tain, Jeff Houkal, Haixin Zhu, Dean Smith, Yasser H. Anis, Saeed Merza, Xianfeng Zhou, Cody Youngbull, Roger H. Johnson, Mark R. Holl, Deirdre R. Meldrum, Arizona State Univ. (USA)..... [7929-26]
- Coffee Break..... 3:30 to 4:00 pm

SESSION 7

Room: 276 (Mezzanine)..... Tues. 4:00 to 5:30 pm

Detection Methods

- Session Chair: Holger Becker, microfluidic ChipShop GmbH (Germany)*
- 4:00 pm: **PharmaSat: drug dose dependence results in microgravity from a free-flying integrated biofluidic/optical culture-and-analysis satellite** (*Invited Paper*), Antonio J. Ricco, Macarena P. Parra, M. Piccini, Diana Ly, NASA Ames Research Ctr. (USA); D. Niesel, M. McGinnes, A. Kudlicki, The Univ. of Texas Medical Branch (USA); John W. Hines, NASA Ames Research Ctr. (USA)..... [7929-27]
- 4:30 pm: **Process analysis in micro-reactors: challenges and solutions with Raman spectrometry**, Sergey Mozharov, Alison Nordon, Univ. of Strathclyde (United Kingdom); John M. Girkin, Durham Univ. (United Kingdom); David Littlejohn, Univ. of Strathclyde (United Kingdom)..... [7929-28]

4:50 pm: **Real time ultrafast optical interferometry of NEMS operating in fluidic environment**, Oleksiy Svitelskiy, The Univ. of North Carolina at Charlotte (USA); Vince Sauer, National Institute for Nanotechnology (Canada); Ning Liu, Univ. of Alberta (Canada); Kar-Mun Cheng, Eric Finley, National Institute for Nanotechnology (Canada); Mark R. Freeman, National Institute for Nanotechnology (Canada) and Univ. of Alberta (Canada); Wayne K. Hiebert, National Institute for Nanotechnology (Canada) [7929-29]

5:10 pm: **Multi-parameter detection by spatially modulated fluorescence emission in a compact flow cytometer platform**, Joerg Martini, Peter Kiesel, Markus Beck, Malte F. Huck, Noble M. Johnson, Palo Alto Research Center, Inc. (USA) [7929-30]

POSTERS-Tuesday

Room: 103/104 (Exhibit Level) Tues. 6:00 to 7:30 pm

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

A MEMS ultrasonic sensor design for early detection of ovarian cancer, Onursal Onen, Patricia Kruk, Rasim O. Guldiken, Univ. of South Florida (USA) [7929-31]

Efficient control system for PCR chips, Jong Dae Kim, Hallym Univ. (Korea, Republic of); Jongwon Kim, Biomedlab Co., Ltd. (Korea, Republic of) [7929-32]

Initial experiments with flexible conductive electrodes for cancer tissue screening, Daehan Chung, Ajit Khosla, Bonnie L. Gray, Ash M. Parameswaran, Simon Fraser Univ. (Canada); Ram Ramaseshan, Kirpal Kohli, Fraser Valley Cancer Ctr. (Canada) [7929-33]

Robust detection of peak signals for lateral flow immunoassays, Jong Dae Kim, Hallym Univ. (Korea, Republic of); Jongwon Kim, Biomedlab Co., Ltd. (Korea, Republic of); Kie-Bong Nahm, Eui Yul Choi, Hallym Univ. (Korea, Republic of) [7929-34]

PANEL DISCUSSION

**InterContinental Hotel,
Telegraph Hill Room. Tues. 8:00 to 10:00 pm**

Progress and Prospects in Microfluidics

*Panel Moderator: Holger Becker,
microfluidic ChipShop GmbH (Germany)*

8:00 pm: **Student Paper Award Ceremony**

8:10 pm: **Panel Discussion**

In the past decade, microfluidics has rapidly emerged and become mainstream. Some of the microfluidic products have become commercially available, with many more to come in the near future. Most microfluidic devices today are made of glass and polymer materials. The main reason for this trend is that the biomedical researchers and analytical chemists have been using these materials for many years and accumulated enough know-how and knowledge. As a matter of fact, this rapid development of microfluidics has been driven by compelling applications in analytical chemistry and biomedical sciences, with enormous potential in developing new technologies and reducing costs. Recent years have seen a number of microfluidic chips brought to market, including those by Agilent and Fluidigm. One of the markets that is promising high potential for the use of microfluidics is the diagnostics market, especially in the field of point-of-care and molecular diagnostics. This panel discussion will provide an overview of microfluidic applications and technologies for the use in diagnostics, outlining trends and possible obstacles.

Courses of Related Interest

SC532 Micro- and Nanofluidics - Technology and Applications (Gärtner)
Wednesday, 8:30 am to 12:30 pm

SC1014 Microfabrication Technologies for Microfluidic Devices (Becker)
Wednesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Don't miss the free Photonics West Exhibition

See new products and top companies at the most important event for the photonics and laser industry

25-27 January 2011

Tuesday · 10:00 am to 5:00 pm

Wednesday · 10:00 am to 5:00 pm

Thursday · 10:00 am to 4:00 pm

MOEMS and Miniaturized Systems X

Conference Chairs: **Harald Schenk**, Fraunhofer Institute for Photonic Microsystems (Germany); **Wibool Piyawattanametha**, NECTEC (Thailand) and Stanford Univ.

Program Committee: **Susanne Arney**, Alcatel-Lucent Bell Labs.; **Wyatt O. Davis**, Microvision, Inc.; **David L. Dickensheets**, Montana State Univ.; **Jean-Christophe Eloy**, Yole Développement (France); **Sonia Garcia-Blanco**, INO (Canada); **Jason C. Heikenfeld**, Univ. of Cincinnati; **Wilfried Noell**, EPFL/IMT, Univ. of Neuchâtel (Switzerland); **Yong-Hwa Park**, Samsung Advanced Institute of Technology (Korea, Republic of); **Jason Stewart**, Boston Micromachines Corp.; **Wanjun Wang**, Louisiana State Univ.

Monday 24 January

MOEMS-MEMS Plenary Session

Room: 132/133 (Exhibit Level) . Mon. 9:00 am to 12:00 pm

9:00 am: **Welcome and Opening Remarks, Thomas J. Suleski**, Univ. of North Carolina at Charlotte (USA); **Harald Schenk**, Fraunhofer Institute for Photonic Microsystems (Germany)

9:05 am: **Announcement of the Best Green Photonics Paper Awards in MOEMS-MEMS, Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)

9:10 am: **Microsystem Pathways to a Greener World, Amit Lal**, Cornell Univ. (USA)

Coffee Break 10:00 to 10:20 am

10:20 am: **Lateral Spread of MEMS WDM Technologies, Hiroshi Toshiyoshi**, Research Ctr. for Advanced Science and Technology (RCAST), The Univ. of Tokyo (Japan)

11:10 am: **What I Have Learned from Playing with Toys about the Physics of Living Cells, Robert H. Austin**, Princeton Univ. (USA) and Hong Kong Univ. of Technology (Hong Kong, China)

See p. 22 for details.

Lunch Break 12:00 to 2:00 pm

SESSION 1

Room: 304 (Esplanade) . Mon. 2:00 to 3:40 pm

MEMS-Based Endomicroscopy

Joint Session with Conference 7893

Session Chair: **Wibool Piyawattanametha**, NECTEC (Thailand) and Stanford Univ.

2:00 pm: **MEMS-based laser scanning microscope for endoscopic use, Uwe Schelinski**, Jens Knobbe, Hans-Georg Dallmann, Mario Foerster, Michael Scholles, Markus Schwarzenberg, Fraunhofer Institute for Photonic Microsystems (Germany). [7930-01]

2:20 pm: **An improved focus control mirror using SU-8 wafer bonding process, Mohammad J. Moghimi**, Jeffrey B. Lutzenberger, Kyle W. Oliver, Steven C. Gates, Montana State Univ. (USA); **Brant Kaylor**, Bridger Photonics, Inc. (USA); **David L. Dickensheets**, Montana State Univ. (USA) [7930-02]

2:40 pm: **SU-8 focus control mirrors released by XeF₂ dry etch, Sarah J. Lukes**, **David L. Dickensheets**, Montana State Univ. (USA) [7930-03]

3:00 pm: **In vivo skin microscopy, Wibool Piyawattanametha**, National Electronics and Computer Technology Ctr. (Thailand); **Hyejun Ra**, Emilio Gonzalez-Gonzalez, Stanford Univ. School of Medicine (USA); **Michael J. Mandella**, National Electronics and Computer Technology Ctr. (Thailand); **Gordon S. Kino**, Stanford Univ. School of Medicine (USA); **Olav D. Solgaard**, National Electronics and Computer Technology Ctr. (Thailand); **Devin Leake**, Dharmacon, Inc. (USA); **Thomas D. Wang M.D.**, Univ. of Michigan (USA); **Roger L. Kaspar**, TransDerm, Inc. (USA); **Anthony Oro**, Christopher H. Contag, Stanford Univ. School of Medicine (USA) [7930-04]

3:20 pm: **MEMS motor-based common-path endoscopic Fourier-domain OCT, Rui Wang**, Clemson Univ. (USA); **Xiacong Yuan**, Nankai Univ. (China); **Bo Li**, Clemson Univ. (USA); **Richard L. Goodwin**, Univ. of South Carolina (USA); **Roger R. Markwald**, Medical Univ. of South Carolina (USA); **Bruce Z. Gao**, Clemson Univ. (USA) [7930-35]

Tuesday 25 January

SESSION 2

Room: 274 (Mezzanine) . Tues. 8:00 to 10:10 am

Display and Imaging I

Session Chair: **Harald Schenk**, Fraunhofer Institute for Photonic Microsystems (Germany)

8:00 am: **Electrowetting-based liquid lenses for endoscopy (Invited Paper), Stein Kuiper**, Philips Research Nederland B.V. (Netherlands) [7930-05]

8:30 am: **Liquid crystal lens with auto-focus and optical image stabilization for wafer level camera, Nicolas Fraval, Frédéric Berier, Evosens** (France) [7930-06]

8:50 am: **Tunable liquid lens with reduced chromatic and spherical aberration, Hongbin Yu, Guangya Zhou, Fook Siong Chau, Huimin Leung**, National Univ. of Singapore (Singapore) [7930-07]

9:10 am: **A multi aperture approach to wafer-level camera lenses, Andreas Brückner, Robert Leitel, Peter Dannberg, Andreas Bräuer**, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7930-08]

9:30 am: **Ultra-compact imaging system based on multi-aperture architecture, Julia Meyer, Andreas Brückner, Robert Leitel, Peter Dannberg, Andreas Bräuer, Andreas Tünnermann**, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7930-09]

9:50 am: **Design of an ultra-thin objective lens based on superposition compound eye, Anel Garza Rivera, Francisco J. Renero-Carrillo**, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) [7930-10]

Coffee Break 10:10 to 10:40 am

SESSION 3

Room: 274 (Mezzanine) . Tues. 10:40 am to 12:10 pm

Display and Imaging II

Session Chair: **Yong-Hwa Park**, Samsung Advanced Institute of Technology (Korea, Republic of)

10:40 am: **Microbolometers for thermography and night vision markets (Invited Paper), Eric Mounier**, Yole Développement (France) [7930-11]

11:10 am: **MEMS-based handheld projection systems and a survey of applications, Margaret K. Brown**, Microvision, Inc. (USA) [7930-12]

11:30 am: **MEMS-scanned laser head-up display, Mark O. Freeman**, Microvision, Inc. (USA) [7930-13]

11:50 am: **Vertical, electrostatically 90° turning flaps for reflective MEMS display, Fabio Jutzi, Wilfried Noell, Nico de Rooij**, Univ. of Neuchâtel (Switzerland) [7930-14]

Lunch/Exhibition Break 12:10 to 1:50 pm

SESSION 4

Room: 274 (Mezzanine) Tues. 1:50 to 3:10 pm

Microspectroscopy and Optical Filter

Session Chair: Sora Kim, GE Global Research

1:50 pm: **Out-of-plane translatory mems actuator with extraordinary large stroke for optical path length modulation**, Thilo Sandner, Thomas Grasshoff, Harald Schenk, Fraunhofer Institute for Photonic Microsystems (Germany); Andreas Kenda, Carinthian Tech Research AG (Austria) [7930-15]

2:10 pm: **Characterization of MEMS FTIR spectrometer**, Diaa Khalil, Yasser Sabry, Ain Shams Univ. (Egypt); Haitham Omran, Mostafa Medhat, Amr Hafez, Bassam Saadany, Si-Ware Systems (Egypt). [7930-17]

2:30 pm: **Tunable mid-infrared filter based on Fabry-Pérot interferometer with two movable reflectors**, Marco Meinig, Steffen Kurth, Fraunhofer-Institut für Einrichtung Elektronische Nanosysteme (Germany); Karla Hiller, Technische Univ. Chemnitz (Germany); Norbert Neumann, Martin Ebermann, InfraTec GmbH (Germany); Elvira Gittler, JENOPTIK Optical Systems GmbH (Germany); Thomas Gessner, Fraunhofer-Institut für Einrichtung Elektronische Nanosysteme (Germany) and Technische Univ. Chemnitz (Germany). [7930-18]

2:50 pm: **Fabrication and testing of MEMS-based optical filter combined with HgCdTe detector**, Dmitry A. Kozak, Univ. of California, Santa Cruz (USA) and EPIR Technologies, Inc. (USA); Silviu Velicu, EPIR Technologies, Inc. (USA); Joel Kubby, Univ. of California, Santa Cruz (USA) [7930-19]

Coffee Break 3:10 to 3:40 pm

SESSION 5

Room: 125 (Exhibit Level) Tues. 3:40 to 6:20 pm

Devices for Space Applications

Joint Session with Conference 7928 and 7931

Session Chair: Sonia M. García-Blanco, Univ. Twente (Netherlands)

3:40 pm: **Applications of MEMS in segmented mirror space telescopes (Invited Paper)**, Brij Agrawal, Naval Postgraduate School (USA); Joel Kubby, Univ. of California, Santa Cruz (USA) [7931-01]

4:10 pm: **Ultra-low-power multiplexed electronic driver for high resolution deformable mirror systems**, Mark N. Horenstein, Robert Sumner, Boston Univ. (USA); Jason Stewart, Steven Cornelissen, Boston Micromachines Corp. (USA); Preston Miller, Boston Univ. (USA); Thomas Bifano, Boston Univ. (USA) and Boston Micromachines Corp. (USA) [7930-20]

4:30 pm: **Improved coupling to integrated spatial heterodyne spectrometers with applications to space**, Alan D. Scott, COM DEV Canada (Canada); Pavel Cheben, Przemek Bock, National Research Council Canada (Canada); Mirek Florjanczyk, York Univ. (Canada); Carlos A. Ramos, Univ. de Málaga (Spain); Boris Lamontagne, National Research Council Canada (Canada); I. M. Fernandez, Univ. de Málaga (Spain); Siegfried Janz, National Research Council Canada (Canada); Alejandro Ortega-Moñux, Univ. de Málaga (Spain); Brian H. Solheim, York Univ. (Canada); Dan-Xia Xu, National Research Council Canada (Canada) [7928-19]

4:50 pm: **MEMS-based programmable reflective slit mask for multi-object spectroscopy**, Michael D. Canonica, Univ. of Neuchâtel (Switzerland); Frederic Zamkotsian, Observatoire Astronomique de Marseille-Provence (France); Wilfried Noell, Univ. of Neuchâtel (Switzerland); Patrick Lanzoni, Observatoire Astronomique de Marseille-Provence (France); Nico de Rooij, Univ. of Neuchâtel (Switzerland) [7930-21]

5:10 pm: **Integration of optical waveguides and microfluidics in a miniaturized antibody micro-array system for life detection in the NASA/ESA ExoMars mission**, Henk Leeuwis, Albert Prak, René G. Heideman, Arne Leinse, LionIX BV (Netherlands); Guus Borst, Dutch Space B.V. (Netherlands) [7928-20]

5:30 pm: **Fully integrated imaging spectrometer instrument on a chip: miniaturization effort for space instruments**, Benedikt Guldemann, European Space Research and Technology Ctr. (Netherlands) [7930-36]

5:50 pm: **CANEUS (Invited Paper)**, Milind Primpikar, CANEUS International (Canada) [7928-21]

Wednesday 26 January

SESSION 6

Room: 274 (Mezzanine) Wed. 8:20 to 10:10 am

MOEM Components and Systems I

Session Chair: Wibool Piyawattanametha, NECTEC (Thailand) and Stanford Univ.

8:20 am: **Shaping light with MOEMS (Invited Paper)**, Wilfried Noell, Univ. of Neuchâtel (Switzerland). [7930-22]

8:50 am: **Large diameter dual-axis MEMS-based mirror for laser beam steering**, Samir Ilias, Francis Picard, Karine Le Foulgoc, Jocelyne Osouf, Carl Larouche, Jean-Sol Caron, Patrice Topart, INO (Canada); Denis Vincent, Jean-Francois Lepage, Bruno Gilbert, Defence Research and Development Canada (Canada); Sonia Garcia-Blanco, INO (Canada) [7930-23]

9:10 am: **MEMS scanning laser projection based on high-Q vacuum packaged 2D-resonators**, Ulrich Hofmann, Joachim Janes, Hans J. Quenzer, Christian Schroeder, Oliver Schwarzelbach, Bjoern Jensen, Lars Ratzmann, Thorsten Giese, Georgios Fakas, Christian Eisermann, Frank Senger, Juergen Hagge, Fraunhofer-Institut für Siliziumtechnologie (Germany) [7930-24]

9:30 am: **Optical position feedback and phase control of resonant 1D and 2D MOEMS-scanners**, Andreas Tortschanoff, Albert Frank, Carinthian Tech Research AG (Austria); Michael Wildenhain, Thilo Sandner, Harald Schenk, Fraunhofer-Institut für Photonische Mikrosysteme (Germany); Andreas Kenda, Carinthian Tech Research AG (Austria) [7930-25]

9:50 am: **Integration of near-field probes and photonic crystal nanocavities for precise and low-loss resonance control**, Xiong-Yeu Chew, Guangya Zhou, Fook Siong Chau, National Univ. of Singapore (Singapore) [7930-26]

Coffee Break 10:10 to 10:40 am

SESSION 7

Room: 274 (Mezzanine) Wed. 10:40 am to 12:10 pm

MOEM Components and Systems II

Session Chair: Thilo Sandner, Fraunhofer Institute for Photonic Microsystems (Germany)

10:40 am: **MEMS eye for fast and high-precision 3D tracking and position measurement (Invited Paper)**, Veljko Milanovic, Mirrorcle Technologies, Inc. (USA) [7930-27]

11:10 am: **Integrated piezoresistive position detection for electrostatic driven micro scanning mirrors**, Jan Grahmann, Thomas Grasshoff, Holger Conrad, Thilo Sandner, Harald Schenk, Fraunhofer Institute for Photonic Microsystems (Germany). [7930-28]

11:30 am: **Large electrostatically and electromagnetically actuated mirror system**, Dara Bayat, Caglar Ataman, Univ. of Neuchâtel (Switzerland); Benedikt Guldemann, European Space Research and Technology Ctr. (Netherlands); Sébastien Lani, Wilfried Noell, Nico de Rooij, Univ. of Neuchâtel (Switzerland) [7930-29]

11:50 am: **Design and fabrication of an integrated free-space micro-optical interconnection device**, Zhengyu Miao, Wanjun Wang, Louisiana State Univ. (USA) [7930-30]

Lunch/Exhibition Break 12:10 to 1:40 pm

SESSION 8

Room: 274 (Mezzanine) Wed. 1:40 to 3:10 pm

MOEM Components and Systems III

Session Chair: Jason C. Heikenfeld, Univ. of Cincinnati

1:40 pm: **Microassembly of 3D MOEMS: rotating inclined mirrors and optical delay lines** (*Invited Paper*), Mohamed A. Basha, Univ. of Waterloo (Canada) [7930-31]

2:10 pm: **Development of on-CMOS chip MOEMS micro-systems**, Lukas W. Snyman, Timothy Okhai, Tshwane Univ. of Technology (South Africa); Tarik Bourouina, Groupe ESIEE (France); Wilfried Noell, Nico de Rooij, Univ. of Neuchâtel (Switzerland) [7930-32]

2:30 pm: **In situ surface topography measurement of MOEMS structures under laser exposure**, Alexander Mai, Mathias Krellmann, Steffen Sinning, Steffen Wolschke, Ulrike A. Dauderstädt, Michael Wagner, Fraunhofer Institute for Photonic Microsystems (Germany); Dieter Schmeißer, Brandenburgische Technische Univ. Cottbus (Germany); Harald Schenk, Fraunhofer Institute for Photonic Microsystems (Germany) [7930-34]

2:50 pm: **Steering micromirrors for high optical loads and with scalable actuation schemes**, Wilfried Noell, Caglar Ataman, Sébastien Lani, Nico de Rooij, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7930-35]

Tuesday 25 January

PANEL DISCUSSION

InterContinental Hotel, Sutter Room . . . Tues. 7:30 to 8:15 pm

Need for Standards for the Qualification of MEMS/MOEMS and Nanodevices for Use in Space: Present and Future Trends

In order to accelerate the introduction of MEMS/MOEMS and nanodevices in space missions, sufficient reliability data should be available in order to prove that these micro- nano-devices can be space qualified. However, lack of space heritage of such microsystems makes this task hard to achieve. In this panel, panelists representing different space agencies will discuss the current issues associated with MEMS/MOEMS qualification for space applications as well as the need for standardization.

Moderator: Herbert R. Shea, Ecole Polytechnique Fédérale de Lausanne (Switzerland)

Panelists: Dr. Alex Dommann, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland);

Dr. Paul Bierden, Boston Micromachines Corp. (USA);

Dr. Alan Scott, ComDEV (Canada)

Light Refreshments Sponsored By:



WWW.INO.CA

PANEL DISCUSSION

InterContinental Hotel, Sutter Room . . . Tues. 8:15 to 9:00 pm

Does Space want MEMS?

One of the benefits of MEMS is the added functionality within a given volume. Although MEMS and nanodevices are very small, all of the periphery to drive and control them might be large. So the total system is maybe not that much smaller than alternative systems. What are other advantages that justify the investments to bring MEMS into space? In this Panel, both supporters and skeptics will be brought together to answer the question: Does space want/ need MEMS?

Moderator: Wilfried Noell,

Ecole Polytechnique Fédérale de Lausanne (Switzerland)

Panelists: Dr. Henry Helvajian, The Aerospace Corp. (USA);

Dr. Tor-Arne Gronland, Nanospace (Sweden);

Dr. Volker Gass, RUAG Space (Switzerland);

Dr. Benedikt Guldemann, ESA (Netherlands);

Dr. Milind Primpikar, CANEUS International (Canada)

Light Refreshments Sponsored By:



WWW.INO.CA

MOEMS-MEMS

MEMS Adaptive Optics V

Conference Chairs: **Scot S. Olivier**, Lawrence Livermore National Lab.; **Thomas G. Bifano**, Boston Univ.; **Joel Kubby**, Univ. of California, Santa Cruz

Program Committee: **William D. Cowan**, Sandia National Labs.; **Christopher J. Dainty**, National Univ. of Ireland, Galway (Ireland); **Donald T. Gavel**, Univ. of California Observatories; **Andreas Gehner**, Fraunhofer-Institut für Photonische Mikrosysteme (Germany); **Wen-Han Jiang**, Institute of Optics and Electronics (China); **Alexis V. Kudryashov**, Moscow State Open Univ. (Russian Federation); **Sergio R. Restaino**, U.S. Naval Research Lab.; **Ulrich Wittrock**, Fachhochschule Münster (Germany)



Tuesday 25 January

SESSION 1

Room: 125 (Exhibit Level) Tues. 3:40 to 6:20 pm

Devices for Space Applications

Joint Session with Conference 7928 and 7930

Session Chair: **Sonia M. García-Blanco**, Univ. Twente (Netherlands)

3:40 pm: **Applications of MEMS in segmented mirror space telescopes** (*Invited Paper*), Brij Agrawal, Naval Postgraduate School (USA); Joel Kubby, Univ. of California, Santa Cruz (USA) [7931-01]

4:10 pm: **Ultra-low-power multiplexed electronic driver for high resolution deformable mirror systems**, Mark N. Horenstein, Robert Sumner, Boston Univ. (USA); Jason Stewart, Steven Cornelissen, Boston Micromachines Corp. (USA); Preston Miller, Boston Univ. (USA); Thomas Bifano, Boston Univ. (USA) and Boston Micromachines Corp. (USA) [7930-20]

4:30 pm: **Improved coupling to integrated spatial heterodyne spectrometers with applications to space**, Alan D. Scott, COM DEV Canada (Canada); Pavel Cheben, Przemek Bock, National Research Council Canada (Canada); Mirek Florjanczyk, York Univ. (Canada); Carlos A. Ramos, Univ. de Málaga (Spain); Boris Lamontagne, National Research Council Canada (Canada); I. M. Fernandez, Univ. de Málaga (Spain); Siegfried Janz, National Research Council Canada (Canada); Alejandro Ortega-Moñux, Univ. de Málaga (Spain); Brian H. Solheim, York Univ. (Canada); Dan-Xia Xu, National Research Council Canada (Canada) [7928-19]

4:50 pm: **MEMS-based programmable reflective slit mask for multi-object spectroscopy**, Michael D. Canonica, Univ. of Neuchâtel (Switzerland); Frederic Zamkotsian, Observatoire Astronomique de Marseille-Provence (France); Wilfried Noell, Univ. of Neuchâtel (Switzerland); Patrick Lanzoni, Observatoire Astronomique de Marseille-Provence (France); Nico de Rooij, Univ. of Neuchâtel (Switzerland) [7930-21]

5:10 pm: **Integration of optical waveguides and microfluidics in a miniaturized antibody micro-array system for life detection in the NASA/ESA ExoMars mission**, Henk Leeuwis, Albert Prak, René G. Heideman, Arne Leinse, Lionix BV (Netherlands); Guus Borst, Dutch Space B.V. (Netherlands) [7928-20]

5:30 pm: **Fully integrated imaging spectrometer instrument on a chip: miniaturization effort for space instruments**, Benedikt Guldemann, European Space Research and Technology Ctr. (Netherlands) [7930-36]

5:50 pm: **CANEUS** (*Invited Paper*), Milind Primpikar, CANEUS International (Canada) [7928-21]

PANEL DISCUSSION

InterContinental Hotel, Sutter Room . . . Tues. 7:30 to 8:15 pm

Need for Standards for the Qualification of MEMS/MOEMS and Nanodevices for Use in Space: Present and Future Trends

In order to accelerate the introduction of MEMS/MOEMS and nanodevices in space missions, sufficient reliability data should be available in order to prove that these micro- nano-devices can be space qualified. However, lack of space heritage of such microsystems makes this task hard to achieve. In this panel, panelists representing different space agencies will discuss the current issues associated with MEMS/MOEMS qualification for space applications as well as the need for standardization.

Moderator: **Herbert R. Shea**, Ecole Polytechnique Fédérale de Lausanne (Switzerland)

Panelists: **Dr. Alex Dommann**, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); **Dr. Paul Bierden**, Boston Micromachines Corp. (USA); **Dr. Alan Scott**, ComDEV (Canada)

Light Refreshments Sponsored By:



PANEL DISCUSSION

InterContinental Hotel, Sutter Room . . . Tues. 8:15 to 9:00 pm

Does Space want MEMS?

One of the benefits of MEMS is the added functionality within a given volume. Although MEMS and nanodevices are very small, all of the periphery to drive and control them might be large. So the total system is maybe not that much smaller than alternative systems. What are other advantages that justify the investments to bring MEMS into space? In this Panel, both supporters and skeptics will be brought together to answer the question: Does space want/ need MEMS?

Moderator: **Wilfried Noell**,

Ecole Polytechnique Fédérale de Lausanne (Switzerland)

Panelists: **Dr. Henry Helvajian**, The Aerospace Corp. (USA); **Dr. Tor-Arne Gronland**, Nanospace (Sweden); **Dr. Volker Gass**, RUAG Space (Switzerland); **Dr. Benedikt Guldemann**, ESA (Netherlands); **Dr. Milind Primpikar**, CANEUS International (Canada)

Light Refreshments Sponsored By:



Thursday 27 January

SESSION 2

Room: 274 (Mezzanine).....Thurs. 8:30 to 9:50 am

Astronomy and Vision Science

Session Chair: Scot S. Olivier, Lawrence Livermore National Lab.

8:30 am: **Development of an enhanced adaptive optics system for the Lick Observatory Shane 3-meter telescope** (*Invited Paper*), Donald T. Gavel, Univ. of California Observatories (USA) [7931-02]

8:55 am: **The use of a high-order MEMS deformable mirror in the Gemini Planet Imager** (*Invited Paper*), Lisa A. Poyneer, Bruce A. Macintosh, Lawrence Livermore National Lab. (USA) [7931-03]

9:20 am: **MEMs adaptive optics for horizontal turbulence correction**, Sergio R. Restaino, Jonathan R. Andrews, Ty Martinez, Air Force Research Lab. (USA); Don M. Payne, Narrascope, Inc. (USA); Freddie Santiago, Christopher C. Wilcox, Air Force Research Lab. (USA) [7931-04]

9:35 am: **Wide field of view retinal imaging one-micrometer adaptive optics scanning laser ophthalmoscope**, Kazuhiro Sasaki, Kazuhiro Kurokawa, Shuichi Makita, Daiki Tamada, Yiheng Lim, Univ. of Tsukuba (Japan); Barry Cense, Utsunomiya Univ. (Japan); Yoshiaki Yasuno, Univ. of Tsukuba (Japan)..... [7931-05]

Coffee Break 9:50 to 10:20 am

SESSION 3

Room: 274 (Mezzanine).....Thurs. 10:20 to 11:25 am

MEMS DMs I

Session Chair: Thomas Bifano, Boston Univ.

10:20 am: **Novel unimorph deformable mirror with monolithic tip-tilt functionality for solid state lasers**, Sven Verpoort, Ulrich Wittrock, Fachhochschule Münster (Germany) [7931-06]

10:35 am: **MEMS DM development at Iris AO, Inc.** (*Invited Paper*), Michael A. Helmbrecht, Min He, Carl Kempf, Marc Besse, Iris AO, Inc. (USA) ... [7931-07]

11:00 am: **Recent developments and future challenges for MEMS adaptive optics** (*Invited Paper*), Frédéric Rooms, ALPAO (France). [7931-08]

Lunch/Exhibition Break 11:25 am to 12:55 pm

SESSION 4

Room: 274 (Mezzanine).....Thurs. 12:55 to 1:25 pm

MEMS DMs II

Session Chair: Thomas Bifano, Boston Univ.

12:55 pm: **High-stroke monolithic gold MEMS deformable mirror for adaptive optics**, Bautista R. Fernandez, Joel Kubby, Univ. of California, Santa Cruz (USA)..... [7931-09]

1:10 pm: **Tunable refractive beam steering using aluminum nitride thermal actuators**, Steffen Leopold, Daniel Paetz, Technische Univ. Ilmenau (Germany); Fabian Knöbber, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Tobias Polster, Technische Univ. Ilmenau (Germany); Oliver Ambacher, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Stefan Sinzinger, Martin Hoffmann, Technische Univ. Ilmenau (Germany) [7931-10]

SESSION 5

Room: 274 (Mezzanine).....Thurs. 1:25 to 1:55 pm

Optical Systems

Session Chair: Joel Kubby, Univ. of California, Santa Cruz

1:25 pm: **A multi-conjugate adaptive optics testbed using two MEMS deformable mirrors**, Jonathan R. Andrews, Ty Martinez, U.S. Naval Research Lab. (USA); Scott W. Teare, New Mexico Institute of Mining and Technology (USA); Sergio R. Restaino, Christopher C. Wilcox, Freddie Santiago, U.S. Naval Research Lab. (USA); Don M. Payne, Narrascope, Inc. (USA) [7931-11]

1:40 pm: **Polymorphic optical zoom with MEMS DMs**, Yang Lu, Samuel M. Hoffman, Christopher R. Stockbridge, Andrew P. LeGendre, Boston Univ. (USA); Jason Stewart, Boston Micromachines Corp. (USA); Thomas G. Bifano, Boston Univ. (USA) [7931-12]

SESSION 6

Room: 274 (Mezzanine).....Thurs. 1:55 to 5:25 pm

Microscopy

Session Chair: Joel Kubby, Univ. of California, Santa Cruz

1:55 pm: **Implementation of adaptive optics in beam scanning and widefield optical microscopy** (*Invited Paper*), John M. Girkin, Durham Univ. (United Kingdom)..... [7931-14]

2:20 pm: **Coherence gated wavefront sensing in highly scattering tissue** (*Invited Paper*), Jonas R. H. Binding, Ecole Supérieure de Physique et de Chimie Industrielles (France) and Neuroscience Section, IBENS, Paris (France) and Max-Planck-Institut für medizinische Forschung (Germany); Michelle Roth, Sylvain Gigan, Ecole Supérieure de Physique et de Chimie Industrielles (France); Markus Rückel, Max-Planck-Institut für medizinische Forschung (Germany) and BASF SE, Ludwigshafen (Germany); Winfried Denk, Max-Planck-Institut für medizinische Forschung (Germany); Claude A. Boccara, Ecole Supérieure de Physique et de Chimie Industrielles (France); Jean-François Leger, Laurent Bourdieu, Ecole Normale Supérieure (France) [7931-15]

2:45 pm: **Aberration correction in harmonic generation microscopy** (*Invited Paper*), Alexander Jesacher, Innsbruck Medical Univ. (Austria); Anisha Thayil, Tomoko Watanabe, Tony Wilson, Shankar Srinivas, Martin J. Booth, Univ. of Oxford (United Kingdom). [7931-16]

Coffee Break 3:10 to 3:40 pm

3:40 pm: **Adaptive optics two photon scanning laser fluorescence microscopy** (*Invited Paper*), Yaopeng Zhou, GE Healthcare (USA); Thomas Bifano, Boston Univ. (USA); Charles Lin, Wellman Ctr. for Photomedicine (USA) [7931-17]

4:05 pm: **Pupil-segmentation-based adaptive optics for microscopy** (*Invited Paper*), Na Ji, Eric Betzig, Howard Hughes Medical Institute (USA); Daniel Milkie, Coleman Technologies, Inc. (USA) [7931-18]

4:30 pm: **Adaptive optics widefield microscope corrections using a MEMS DM and Shack-Hartmann wavefront sensor**, Oscar A. Azucena, Joel Kubby, Univ. of California, Santa Cruz (USA) [7931-19]

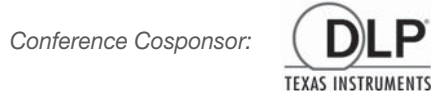
4:45 pm: **Adaptive optics in wide-field microscopy** (*Invited Paper*), Peter A. Kner, The Univ. of Georgia (USA) [7931-20]

5:10 pm: **Adaptive optics confocal fluorescence microscopy with direct wavefront sensing for brain tissue imaging**, Xiaodong Tao, Bautista R. Fernandez, Univ. of California, Santa Cruz (USA); Diana C. Chen, Lawrence Livermore National Lab. (USA); Oscar A. Azucena, Min Fu, Yi Zuo, Joel Kubby, Univ. of California, Santa Cruz (USA) [7931-21]

Emerging Digital Micromirror Device Based Systems and Applications III

Conference Chairs: **Michael R. Douglass**, Texas Instruments Inc.; **Patrick I. Oden**, Texas Instruments Inc.

Program Committee: **Michael F. Becker**, The Univ. of Texas at Austin; **Jonathan T. Fong**, Texas Instruments Inc.; **Georgina Park**, Texas Instruments Inc.; **Paul Rancuret**, Texas Instruments Inc.; **Joseph P. Rice**, National Institute of Standards and Technology; **Karel J. Zuzak**, The Univ. of Texas at Arlington and Digital Light Innovations



Wednesday 26 January

Introduction and Welcome

Room: 276 (Mezzanine) Wed. 8:00 to 8:10 am

Michael R. Douglass, Texas Instruments Inc.;
Patrick I. Oden, Texas Instruments Inc.

SESSION 1

Room: 276 (Mezzanine) Wed. 8:10 to 10:10 am

Medical Applications using Hyperspectral Imaging

Session Chairs: **Karel J. Zuzak**,
The Univ. of Texas at Arlington and Digital Light Innovations;
Michael R. Douglass, Texas Instruments Inc.

8:10 am: **Assessment of renal oxygenation during partial nephrectomy using DLP® hyperspectral imaging** (*Invited Paper*), Sara L. Best, Michael S. Holzer, Neil Jackson, The Univ. of Texas Southwestern Medical Ctr. at Dallas (USA); Abhas Thapa, The Univ. of Texas at Arlington (USA); Saad Mir, Chester Donnelly, The Univ. of Texas Southwestern Medical Ctr. at Dallas (USA); Shekar Rao, Texas Instruments Inc. (USA); Eleanor F. Wehner, The Univ. of Texas at Arlington (USA); Ganesh Raj, Edward Livingston, Jeffrey A. Cadeddu, The Univ. of Texas Southwestern Medical Ctr. at Dallas (USA); Karel Zuzak, The Univ. of Texas at Arlington and Digital Light Innovations (USA) [7932-01]

8:40 am: **Visible to NIR DLP® hyperspectral imaging system for surgical utility using inherent chromophores and fluorescent probes**, Michael Mangum, The Univ. of Texas at Arlington (USA); Michel Saint-Cyr, The Univ. of Texas Southwestern Medical Ctr. at Dallas (USA); Eleanor F. Wehner, University of Texas at Arlington (USA); Abhas Thapa, The Univ. of Texas at Arlington (USA); Edward Livingston, The Univ. of Texas Southwestern Medical Ctr. at Dallas (USA); Karel J. Zuzak, The Univ. of Texas at Arlington and Digital Light Innovations (USA) [7932-02]

9:00 am: **NIR DLP® hyperspectral imaging system for medical applications**, Eleanor F. Wehner, Abhas Thapa, The Univ. of Texas at Arlington (USA); Edward Livingston, The Univ. of Texas Southwestern Medical Ctr. at Dallas (USA); Karel J. Zuzak, The Univ. of Texas at Arlington and Digital Light Innovations (USA) [7932-03]

9:20 am: **An examination of spectral diversity of medical scenes for hyperspectral projection**, David W. Allen, National Institute of Standards and Technology (USA); Karel Zuzak, The Univ. of Texas at Arlington and Digital Light Innovations (USA); Eleanor F. Wehner, The Univ. of Texas at Arlington (USA); Maritoni Litorja, Jeeseong C. Hwang, National Institute of Standards and Technology (USA); Abhas Thapa, The Univ. of Texas at Arlington (USA)[7932-04]

9:40 am: **Hyperspectral retinal imaging with a spectrally tunable light source** (*Invited Paper*), Robert P. Francis, Raytheon ELCAN Optical Technologies (USA); Karel J. Zuzak, The Univ. of Texas at Arlington and Digital Light Innovations (USA); Rafael Ufret-Vincenty, The Univ. of Texas Southwestern Medical Ctr. at Dallas (USA) [7932-05]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 276 (Mezzanine) Wed. 10:40 am to 12:10 pm

Direct Imaging and Beam Projection

Session Chairs: **Jonathan T. Fong**, Texas Instruments Inc.;
Michael F. Becker, The Univ. of Texas at Austin

10:40 am: **High speed maskless lithography of printed circuit boards using digital micromirrors** (*Invited Paper*), Eric J. Hansotte, William D. Meisburger, Maskless Lithography (USA) [7932-06]

11:10 am: **High-precision beam shaper for coherent and incoherent light using DLP® spatial light modulator**, Jinyang Liang, Rudolph N. Kohn, Jr., Michael F. Becker, Daniel J. Heinzen, The Univ. of Texas at Austin (USA) [7932-07]

11:30 am: **Novel emissive projection display on transparent and black screens**, Ted Sun, SuperImaging Inc. (USA) [7932-08]

11:50 am: **Successful evaluation for space applications of the 2048x1080 DMD**, Frederic Zamkotsian, Patrick Lanzoni, Emmanuel Grassi, Rudy Barette, Christophe Fabron, Observatoire Astronomique de Marseille-Provence (France); Kyrre Tangen, Visitech AS (Norway); Luca Valenziano, INAF - IASF Bologna (Italy); Laurent Marchand, Ludovic Duvet, European Space Agency (Netherlands) [7932-09]

Lunch/Exhibition Break 12:10 to 1:30 pm

SESSION 3

Room: 276 (Mezzanine) Wed. 1:30 to 3:30 pm

3D Measurement Systems Using Structured Light

Session Chairs: **Georgina Park**, Texas Instruments Inc.;
Joseph P. Rice, National Institute of Standards and Technology

1:30 pm: **Overview of 3D surface measurement technologies and applications: opportunities for DLP®-based structured illumination** (*Invited Paper*), Jason Geng, IEEE Intelligent Transportation Systems Society (USA) [7932-10]

2:00 pm: **Non-contact, 3D fingerprint scanner using structured light illumination** (*Invited Paper*), Mike Troy, Flashscan3D LLC (USA); Laurence Hassebrook, Univ. of Kentucky (USA); Veeraganesh Yalla, Raymond Daley, Flashscan3D LLC (USA) [7932-11]

2:30 pm: **DLP®/DSP-based optical 3D-sensors for the mass market in industrial metrology and life sciences**, Gottfried J. Frankowski, GFMesstechnik GmbH (Germany) [7932-12]

2:50 pm: **3D metrology system using an active triangulation with high dynamic range**, Daniel Härter, Claas Müller, Holger Reinecke, Albert-Ludwigs-Univ. Freiburg (Germany) [7932-13]

3:10 pm: **3D triangulation system based on out-of-axis aperture configuration for micro-scaled objects shape measurement**, Erwan Dupont, Frederic Lamarque, Christine Prella, Univ. de Technologie Compiègne (France); Tanneguy Redarce, Institut National des Sciences Appliquées de Lyon (France) [7932-14]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 276 (Mezzanine) Wed. 4:00 to 5:20 pm

Multi-Spectral Metrology and Microscopy

*Session Chairs: Paul Rancuret, Texas Instruments Inc.;
Patrick I. Oden, Texas Instruments Inc.*

4:00 pm: **A novel programmable array microscope (PAM) with digital micro-mirror device (DMD)**, Pieter A. A. De Beule, Max-Planck-Institut für biophysikalische Chemie (Germany) and International Iberian Nanotechnology Lab. (Portugal); Anthony H. B. de Vries, Donna J. Arndt-Jovin, Thomas M. Jovin, Max-Planck-Institut für biophysikalische Chemie (Germany) [7932-15]

4:20 pm: **Two-photon time-resolved confocal microscopy using a digital micromirror device**, Markus Schellenberg, Michael Kloster, Eltimir Peev, James Napier, Walter Neu, Fachhochschule Oldenburg/Ostfriesland/Wilhelmshaven (Germany) [7932-16]

4:40 pm: **Development of a DMD-based compressive sampling hyperspectral imaging system (CS-HSI)**, Yuehao Wu, Iftekhar Mirza, Dennis W. Prather, Arce Gonzalo, Univ. of Delaware (USA) [7932-17]

5:00 pm: **Spectral transmittance reflectance measurements utilizing a DLP®-based spectral source**, Alexandre Y. Fong, Gooch & Housego, Orlando (USA) [7932-18]

MOEMS- MEMS



MOEMS: Micro-Opto-Electro-Mechanical Systems
Editor: Manouchehr E. Motamedi
Vol. PM126



Fundamentals of BioMEMS and Medical Microdevices
by Steven S. Saliterman
Vol. PM153



MEMS and MOEMS Technology and Applications
Editor: Prosenjit Rai-Choudhury
Vol. PM85

spie.org/publications

MOEMS-MEMS

OPTO

SPIE Photonics West

Conferences and Courses: 22–27 January 2011
Photonics West Exhibition: 25–27 January 2011
BIOS Exhibition: 22–23 January 2011
The Moscone Center | San Francisco, California, USA

Symposium Chair



Liang-Chy Chien
Kent State Univ. (USA)

Symposium Cochairs



Klaus P. Streubel
OSRAM GmbH
(Germany)



E. Fred Schubert
Rensselaer
Polytechnic Institute
(USA)

Optoelectronic Materials and Devices

Program Chair: **James G. Grote**, Air Force Research Lab. (USA)

7933	Room 302	Physics and Simulation of Optoelectronic Devices XIX (Witzigmann/Henneberger/Arakawa/Freundlich)	232
7934	Room 232	Optical Components and Materials VIII (Digonnet/Jiang/Glesener/Dries)	236
7935	Room 234	Organic Photonic Materials and Devices XIII (Nelson/Kajzar/Kaino/Koike)	239
7936	Room 234	RF and Millimeter-Wave Photonics (Nelson/Prather/Schuetz)	242
7937	Room 236	Ultrafast Phenomena in Semiconductors and Nanostructure Materials XV (Tsen/Song)	243
7938	Room 236	Terahertz Technology and Applications IV (Sadwick/O'Sullivan)	247
7939	Room 300	Gallium Nitride Materials and Devices VI (Chyi/Nanishi/Morkoç)	248
7940	Room 238	Oxide-based Materials and Devices II (Teherani/Look/Rogers)	254

Photonic Integration

Program Chair: **Yakov Sidorin**, Quarles Brady LLP (USA)

7941	Room 250/252	Integrated Optics: Devices, Materials, and Technologies XV (Broquin/Nunzi Conti)	258
7942	Room 226/270/272	Optoelectronic Integrated Circuits XIII (Eldada/Lee)	261
7943	Room 226/310	Silicon Photonics VI (Kubby/Reed)	263
7944	Room 270/272	Optoelectronic Interconnects and Component Integration XI (Glebov/Chen)	266
7936	Room 234	RF and Millimeter-Wave Photonics (Nelson/Prather/Schuetz)	242

Nanotechnologies in Photonics

Program Chair: **Ali Adibi**, Georgia Institute of Technology (USA)

7945	Room 123	Quantum Sensing and Nanophotonic Devices VIII (Razeghi)	269
7946	Room 124	Photonic and Phononic Properties of Engineered Nanostructures (Adibi/Lin/Scherer)	274
7947	Room 133	Quantum Dots and Nanostructures: Synthesis, Characterization, and Modeling VIII (Eyink/Szmulowicz/Huffaker)	278
7927	Room 110	Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV (Schoenfeld/Wang/Loncar/Suleski)	212

Advanced Quantum and Optoelectronic Applications

Program Chair: **Zameer UI Hasan**, Temple Univ. (USA)

7948	Room 132/302	Advances in Photonics of Quantum Computing, Memory, and Communication IV (Hasan/Hemmer/Lee/Santori)	280
7949	Room 125	Advances in Slow and Fast Light IV (Shahriar/Hemmer)	283
7950	Room 125	Complex Light and Optical Forces V (Andrews)	286
7951	Room 112	Laser Refrigeration of Solids IV (Epstein/Sheik-Bahae)	288
7945	Room 123	Quantum Sensing and Nanophotonic Devices VIII (Razeghi)	269
7947	Room 133	Quantum Dots and Nanostructures: Synthesis, Characterization, and Modeling VIII (Eyink/Szmulowicz/Huffaker)	178

Semiconductor Lasers and LEDs

Program Chair: **Klaus P. Streubel**, OSRAM GmbH (Germany)

7952	Room 308	Vertical-Cavity Surface-Emitting Lasers XV (Guenther/Lei)	289
7953	Room 310	Novel In-Plane Semiconductor Lasers X (Belyanin/Smowton)	291
7954	Room 304	Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XV (Streubel/Jeon/Tu)	295
7918	Room 130	High-Power Diode Laser Technology and Applications IX (Zediker)	289
7919	Room 111	Vertical External Cavity Surface Emitting Lasers (VECSELs) (Keller)	191
7933	Room 302	Physics and Simulation of Optoelectronic Devices XIX (Witzigmann/Henneberger/Arakawa/Freundlich)	232
7939	Room 300	Gallium Nitride Materials and Devices VI (Chyi/Nanishi/Morkoç)	248

Displays and Holography

Program Chair: **Liang-Chy Chien**, Kent State Univ. (USA)

7955	Room 208/210	Emerging Liquid Crystal Technologies VI (Chien)	298
7956A	Room 238	E-papers and Flexible Displays (Blankenbach)	300
7956B	Room 238	Advances in Display Technologies (Chien/Lee/Wu)	301
7957	Room 110	Practical Holography XXV: Materials and Applications (Bjelkhagen)	302

Optical Communications: Devices to Systems

Program Chair: **Benjamin Dingel**, Nasfine Photonics, Inc. (USA)

7958	Room 202/204/206	Broadband Access Communication Technologies V (Dingel/Jain/Tsakamoto)	305
7959	Room 206	Optical Metro Networks and Short-Haul Systems III (Weiershausen/Dingel/Dutta/Srivastava)	308
7960	Room 256/206	Coherent Optical Communication: Components, Subsystems, and Systems (Li/Jäger)	311
7943	Room 226/310	Silicon Photonics VI (Kubby/Reed)	263
7944	Room 270/272	Optoelectronic Interconnects and Component Integration XI (Glebov/Chen)	266
7923	Room 121	Free-Space Laser Communication Technologies XXIII (Hemmati)	200

Executive Organizing Committee

Ali Adibi, Georgia Institute of Technology (USA)
David L. Andrews, Univ. of East Anglia Norwich (United Kingdom)
Yasuhiko Arakawa, The Univ. of Tokyo (Japan)
Alexey A. Belyanin, Texas A&M Univ. (USA)
Markus Betz, Technische Univ. Dortmund (Germany)
Hans I. Bjelkhagen, Glyndwr Univ. and Technium OpTIC (United Kingdom)
Karlheinz Blankenbach, Pforzheim Univ. (Germany)
Jean Emmanuel Broquin, Institut de Microélectronique Électromagnétisme Photonique/Lab. d'Hyperfréquence et Caractérisation (France)
Ray T. Chen, The Univ. of Texas at Austin (USA)
Liang-Chy Chien, Kent State Univ. (USA)
Jen-Inn Chyi, National Central Univ. (Taiwan)
Michel J. F. Digonnet, Stanford Univ. (USA)
Benjamin Dingel, Nasfine Photonics, Inc. (USA)
J. Christopher Dries, DOLCE Technologies, LLC (USA)
Achyut K. Dutta, Banpil Photonics, Inc. (USA)
Louay A. Eldada, HelioVolt Corp. (USA)
Abdulhakem Y. Elezzabi, Univ. of Alberta (Canada)

Richard Epstein, The Univ. of New Mexico (USA)
Kurt G. Eyink, Air Force Research Lab. (USA)
Alexandre Freundlich, Univ. of Houston (USA)
Enrique J. Galvez, Colgate Univ. (USA)
Alexei L. Glebov, OptiGrate Corp. (USA)
John W. Glesener, L-3 Electro-Optical Systems (USA)
Jesper Glückstad, Technical Univ. of Denmark (Denmark)
James G. Grote, Air Force Research Lab. (USA)
James K. Guenter, Finisar Corp. (USA)
Zameer U. Hasan, Temple Univ. (USA)
Philip R. Hemmer, Texas A&M Univ. (USA)
Fritz Henneberger, Humboldt- Univ. zu Berlin (Germany)
Diana L. Huffaker, Univ. of California, Los Angeles (USA)
Dieter S. Jäger, Univ. Duisburg-Essen (Germany)
Raj Jain, Washington Univ. in St. Louis (USA)
Heonsu Jeon, Seoul National Univ. (Korea, Republic of)
Shibin Jiang, AdValue Photonics, Inc. (USA)
Toshikuni Kaino, Tohoku Univ. (Japan)
François Kajzar, Univ. d'Angers (France)
Yasuhiro Koike, Keio Univ. (Japan)

Joel A. Kubby, Univ. of California, Santa Cruz (USA)
Ei-Hang Lee, Inha Univ. (Korea, Republic of)
Hwang Lee, Louisiana State Univ. (USA)
Sin-Doo Lee, Seoul National Univ. (Korea, Republic of)
Chun Lei, EMCORE Corp. (USA)
Guifang Li, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA)
Shawn-Yu Lin, Rensselaer Polytechnic Institute (USA)
David C. Look, Wright State Univ. (USA)
Hadis Morkoç, Virginia Commonwealth Univ. (USA)
Yasushi Nanishi, Ritsumeikan Univ. (Japan)
Robert L. Nelson, Air Force Research Lab. (USA)
Gualtiero Nunzi Conti, Istituto di Fisica Applicata Nello Carrara (Italy)
Créidhe M. M. O'Sullivan, National Univ. of Ireland, Maynooth (Ireland)
Dennis W. Prather, Univ. of Delaware (USA)
Manijeh Razeghi, Northwestern Univ. (USA)
Graham T. Reed, Univ. of Surrey (United Kingdom)
David J. Rogers, Nanovation (France)
Laurence P. Sadwick, InnoSys, Inc. (USA)
Charles M. Santori, Hewlett-Packard Labs. (USA)
Axel Scherer, California Institute of Technology (USA)

E. Fred Schubert, Rensselaer Polytechnic Institute (USA)
Christopher A. Schuetz, Phase Sensitive Innovations, Inc. (USA)
Selim M. Shahriar, Northwestern Univ. (USA)
Mansoor Sheik-Bahae, The Univ. of New Mexico (USA)
Yakov Sidorin, Quarles Brady LLP (USA)
Peter M. Smowton, Cardiff Univ. (United Kingdom)
Jin-Joo Song, Univ. of California, San Diego (USA)
Atul K. Srivastava, OneTerabit (USA)
Klaus P. Streubel, OSRAM GmbH (Germany)
Rengarajan Sudharsanan, Spectrolab, Inc. (USA)
Frank Szmulowicz, Univ. of Dayton Research Institute (USA)
Ferechteh H. Teherani, Nanovation (France)
Kong-Thon Tsen, Arizona State Univ. (USA)
Katsutoshi Tsukamoto, Osaka Univ. (Japan)
Li-Wei Tu, National Sun Yat-Sen Univ. (Taiwan)
Werner Weiershausen, Deutsche Telekom AG (Germany)
Bernd Witzigmann, Univ. Kassel (Germany)
Ming Hsien Wu, Hamamatsu Corp. (USA)

OPTO Conference Daily Schedule

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Program on Optoelectronic Materials and Devices Program Chair: James G. Grote , Air Force Research Lab. (USA)					
	7936 RF and Millimeter-Wave Photonics <i>(Nelson, Prather, Schuetz)</i> p. 242	7939 Gallium Nitride Materials and Devices VI <i>(Chyi, Nanishi, Morkoç)</i> p. 248			
	7940 Oxide-based Materials and Devices II <i>(Teherani, Look, Rogers)</i> p. 254				
	7937 Ultrafast Phenomena in Semiconductors and Nanostructure Materials XV <i>(Tsen, Song)</i> p. 243				
		7935 Organic Photonic Materials and Devices XIII <i>(Nelson, Kajzar, Kaino, Koike)</i> p. 239			
		7933 Physics and Simulation of Optoelectronic Devices XIX <i>(Witzigmann, Henneberger, Arakawa, Freundlich)</i> p. 232			
			7934 Optical Components and Materials VIII <i>(Digonnet, Jiang, Glesener, Dries)</i> p. 236		
				7938 Terahertz Technology and Applications IV <i>(Sadwick, O'Sullivan)</i> p. 247	
Program on Photonic Integration Program Chair: Yakov Sidorin , Quarles Brady LLP (USA)					
	7936 RF and Millimeter-Wave Photonics <i>(Nelson, Prather, Schuetz)</i> p. 242	7941 Integrated Optics: Devices, Materials, and Technologies XV <i>(Broquin, Nunzi Conti)</i> p.258			
	7943 Silicon Photonics VI <i>(Kubby, Reed)</i> p. 263				
		7944 Optoelectronic Interconnects and Component Integration XI <i>(Glebov, Chen)</i> p. 266			
				7942 Optoelectronic Integrated Circuits XIII <i>(Eldada, Lee)</i> p. 261	
Program on Nanotechnologies in Photonics Program Chair: Ali Adibi , Georgia Institute of Technology (USA)					
		7945 Quantum Sensing and Nanophotonic Devices VIII <i>(Razeghi)</i> p. 269			
		7946 Photonic and Phononic Properties of Engineered Nanostructures <i>(Adibi, Lin, Scherer)</i> p. 274			
			7947 Quantum Dots and Nanostructures: Synthesis, Characterization, and Modeling VIII <i>(Eyink, Szmulowicz, Huffaker)</i> p. 278		
			7927 Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV <i>(Schoenfeld, Wang, Loncar, Suleski)</i> p. 212		
	Photonics West maps: Moscone Center Maps pp. 2–4 Walking Map p. 14				

OPTO Conference Daily Schedule

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Program on Advanced Quantum and Optoelectronic Applications Program Chair: Zameer UI Hasan , Temple Univ. (USA)					
	7949 Advances in Slow and Fast Light IV (<i>Shahriar, Hemmer</i>) p. 283			7950 Complex Light and Optical Forces V (<i>Andrews</i>) p. 286	
	7945 Quantum Sensing and Nanophotonic Devices VIII (<i>Razeghi</i>) p. 269				
			7947 Quantum Dots and Nanostructures: Synthesis, Characterization, and Modeling VIII (<i>Eyink, Szmulowicz, Huffaker</i>) p. 278		
			7948 Advances in Photonics of Quantum Computing, Memory, and Communication IV (<i>Hasan, Hemmer, Lee, Santori</i>) p. 280		
				7951 Laser Refrigeration of Solids IV (<i>Epstein, Sheik-Bahae</i>) p. 288	
Program on Semiconductor Lasers and LEDs Program Chair: Klaus P. Streubel , OSRAM GmbH (Germany)					
			7939 Gallium Nitride Materials and Devices VI (<i>Chyi, Nanishi, Morkoc</i>) p. 248		
			7953 Novel In-Plane Semiconductor Lasers X (<i>Belyanin, Smowton</i>) p. 291		
			7933 Physics and Simulation of Optoelectronic Devices XIX (<i>Witzigmann, Henneberger, Arakawa, Freundlich</i>) p. 232		
			7954 Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XV (<i>Streubel, Tu, Jeon</i>) p. 295		
	7918 High-Power Diode Laser Technology and Applications IX (<i>Zediker</i>) p. 189			7952 Vertical-Cavity Surface-Emitting Lasers XV (<i>Guenther, Lei</i>) p. 289	
			7919 Vertical External Cavity Surface Emitting Lasers (VECSELs) (<i>Keller</i>) p. 191		
Program on Displays and Holography Program Chair: Liang-Chy Chien , Kent State Univ. (USA)					
			7957 Practical Holography XXV: Materials and Applications (<i>Bjelkhagen</i>) p. 302		
			7955 Emerging Liquid Crystal Technologies VI (<i>Chien</i>) p. 298		
			7956A E-papers and Flexible Displays (<i>Blankenbach</i>) p. 300		7956B Advances in Display Technologies (<i>Chien, Lee, Wu</i>) p. 301
Program on Optical Communications: Devices to Systems Program Chair: Benjamin Dingel , Nasfinc Photonics, Inc. (USA)					
			7943 Silicon Photonics VI (<i>Kubby, Reed</i>) p. 263		
			7944 Optoelectronic Interconnects and Component Integration XI (<i>Glebov, Chen</i>) p. 266		
			7958 Broadband Access Communication Technologies V (<i>Dingel, Jain, Tsukamoto</i>) p. 305		
			7960 Coherent Optical Communication: Components, Subsystems, and Systems (<i>Li, Jäger</i>) p. 311		
			7959 Optical Metro Networks and Short-Haul Systems III (<i>Weiershausen, Dingel, Dutta, Srivastava</i>) p. 308		
				7923 Free-Space Laser Communication Technologies XXIII (<i>Hemmati</i>) p. 200	

Physics and Simulation of Optoelectronic Devices XIX

Conference Chairs: **Bernd Witzigmann**, Univ. Kassel (Germany); **Fritz Henneberger**, Humboldt-Univ. zu Berlin (Germany); **Yasuhiko Arakawa**, The Univ. of Tokyo (Japan); **Alexandre Freundlich**, Univ. of Houston

Program Committee: **Hiroshi Amano**, Meijo Univ. (Japan); **Toshihiko Baba**, Yokohama National Univ. (Japan); **Weng W. Chow**, Sandia National Labs.; **Shun Lien Chuang**, Univ. of Illinois at Urbana-Champaign; **Aldo Di Carlo**, Univ. degli Studi di Roma Tor Vergata (Italy); **Silvano Donati**, Univ. degli Studi di Pavia (Italy); **Keiichi Edamatsu**, Tohoku Univ. (Japan); **Nicholas J. Ekins-Daukes**, Imperial College London (United Kingdom); **Shanhui Fan**, Stanford Univ.; **Stephan W. Koch**, Philipps-Univ. Marburg (Germany); **Vassillios I. Kovanis**, Air Force Research Lab.; **Nikolay N. Ledentsov**, VI Systems GmbH (Germany); **Norbert Linder**, OSRAM Opto Semiconductors GmbH (Germany); **Cun-Zheng Ning**, Arizona State Univ.; **Marek Osirski**, The Univ. of New Mexico; **Joachim Piprek**, NUSOD Institute LLC; **Ikuo Suemune**, Hokkaido Univ. (Japan)

Monday 24 January

SESSION 1

Room: 302 (Esplanade) Mon. 8:00 to 10:00 am

Photovoltaics I: Advanced Concepts

Session Chair: **Bernd Witzigmann**, Univ. Kassel (Germany)

8:00 am: **Plasmonics for improved photovoltaics** (*Invited Paper*), Harry A. Atwater, Jr., California Institute of Technology (USA) [7933-01]

8:40 am: **Quantum wells in multiple junction photovoltaics** (*Invited Paper*), Tom N. D. Tibbits, M. P. Lumb, QuantaSol Ltd. (United Kingdom) [7933-02]

9:10 am: **Hot carrier solar cells: the ultimate photovoltaic conversion in practice** (*Invited Paper*), Jean-Francois F. Guillemoles, Institut de Recherche et Développement sur l'Energie Photovoltaïque (France) [7933-03]

9:40 am: **Simulation of nipi photovoltaic devices**, Michael Slocum, Stephen Polly, Rochester Institute of Technology (USA); Cory D. Cress, U.S. Naval Research Lab. (USA); David Forbes, Seth M. Hubbard, Rochester Institute of Technology (USA) [7933-04]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 302 (Esplanade) Mon. 10:30 am to 12:30 pm

Minisymposium Fundamentals of Hybrid Optoelectronics

Session Chair: **Sven Burger**, Konrad-Zuse-Zentrum für Informationstechnik Berlin (Germany)

10:30 am: **FRET Optoelectronics: from photovoltaics to light emitting diodes** (*Invited Paper*), Pavlos G. Lagoudakis, Univ. of Southampton (United Kingdom) [7933-05]

11:00 am: **Light harvesting nanocrystals for hybrid optoelectronics** (*Invited Paper*), Hilmi V. Demir, Nanyang Technological Univ. (Singapore) [7933-06]

11:30 am: **Energy level adjustment at organic/inorganic hybrid interfaces** (*Invited Paper*), Sylke Blumstengel, Humboldt-Univ. zu Berlin (Germany) [7933-07]

12:00 pm: **Hybrid organic/inorganic optical cavities: weak and strong-coupled structures** (*Invited Paper*), David G. Lidzey, The Univ. of Sheffield (United Kingdom) [7933-08]

Lunch Break 12:30 to 1:30 pm

SESSION 3

Room: 302 (Esplanade) Mon. 1:30 to 3:20 pm

Semiconductor Lasers and Optical Injection Effects

Session Chair: **David G. Lidzey**, The Univ. of Sheffield (United Kingdom)

1:30 pm: **Optical injection of quantum-dash semiconductor lasers at 1550 nm for tunable photonic oscillators** (*Invited Paper*), Michael C. Pochet, Nader A. Naderi, The Univ. of New Mexico (USA); Vassillios I. Kovanis, Air Force Research Lab. (USA); Luke F. Lester, The Univ. of New Mexico (USA) [7933-09]

2:00 pm: **Polarization-resolved nonlinear dynamics in long-wavelength single-mode VCSELs subject to orthogonal optical injection**, Pablo Perez, Ana Quirce, Angel Valle, Luis Pesquera, Univ. de Cantabria (Spain) . . . [7933-10]

2:20 pm: **Properties of a single-mode quantum-dash semiconductor laser emitting at 1.55 μm submitted to optical injection**, Zhenyu Hao, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); Pascal Besnard, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France) and Univ. Européenne de Bretagne, Enssat (France); François LeLarge, Guang-Hua Duan, Alcatel-Thales III-V Lab. (France); Jean-François Hayau, Institut de Physique de Rennes (France); Alain Accard, Alcatel-Thales III-V Lab. (France) [7933-11]

2:40 pm: **Rate equation analysis of dynamic response in strongly injection-locked semiconductor microring lasers**, Gennady A. Smolyakov, Marek Osinski, The Univ. of New Mexico (USA) [7933-12]

3:00 pm: **Influence of the linewidth enhancement factor on the modulation response of a quantum nanostructure based semiconductor laser operating under external optical feedback**, Frederic Grillot, Institut National des Sciences Appliquées de Rennes (France) and Ecole Nationale Supérieure des Télécommunications (France); Nikhil Dubey, Indian Institute of Technology Guwahati (India) [7933-13]

Coffee Break 3:20 to 3:50 pm

SESSION 4

Room: 302 (Esplanade) Mon. 3:50 to 5:30 pm

Photovoltaics II: Materials

Session Chair: **Vassillios I. Kovanis**, Air Force Research Lab.

3:50 pm: **Epitaxial III-V photovoltaics on flexible low cost metal substrates**, Alexandre Freundlich, Akhil Mehrotra, MingChe Wu, Andenet Alemu, Univ. of Houston (USA); Senthil N. Sambandam, SuperPower, Inc. (USA); Venkat Selvamaniackam, Univ. of Houston (USA) [7933-14]

4:10 pm: **Dilute nitride multi-quantum well multi-junction design: a route to ultra-efficient photovoltaic devices**, Gopi Krishna Vijaya, Andenet Alemu, Alexandre Freundlich, Univ. of Houston (USA) [7933-15]

4:30 pm: **Carrier dynamics in MOVPE-grown bulk dilute nitride materials for multi-junction solar cells**, Yongkun Sin, Stephen LaLumondiere, The Aerospace Corp. (USA); Toby Garrod, Luke J. Mawst, Univ. of Wisconsin-Madison (USA); Steven C. Moss, The Aerospace Corp. (USA) [7933-16]

4:50 pm: **Up-conversion luminescence enhancement in erbium-doped porous silicon photonic crystals for photovoltaics**, Craig M. Johnson, Peter J. Reece, Gavin J. Conibeer, The Univ. of New South Wales (Australia) [7933-17]

5:10 pm: **Excitation-dependent photoluminescence of a CdSe/CdTe type-II superlattice for solar cell applications**, Jing-Jing Li, Ding Ding, Shumin Wang, Arizona State Univ. (USA); Xinyu Liu, Jacek K. Furdyna, Univ. of Notre Dame (USA); Yong-Hang Zhang, Arizona State Univ. (USA) [7933-18]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: Liang-Chy Chien, Kent State Univ. (USA); Klaus P. Streubel, OSRAM GmbH (Germany)

- 8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien, Kent State Univ. (USA)**
- 8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)**
- 8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim, LG Display R&D Ctr. (Republic of Korea)**
- 8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell, Max-Planck-Institute for Biophysical Chemistry (Germany)**
- 9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch, Univ. of California, Berkeley (USA)**

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 5

Room: 302 (Esplanade) Tues. 10:30 am to 12:10 pm

Photovoltaics III: Optical Design

Session Chair: Pavlos G. Lagoudakis, Univ. of Southampton (United Kingdom)

- 10:30 am: **Broadband all-dielectric nanophotonic light trapping for thin active layers in organic solar cells, Aaswath P. Raman, Zongfu Yu, Shanhui Fan, Stanford Univ. (USA) [7933-19]**
- 10:50 am: **Numerical study on the optical properties of vertically-aligned silicon nanowire and nanohole arrays for photovoltaic applications, Chenxi Lin, Michelle L. Povinelli, The Univ. of Southern California (USA) [7933-20]**
- 11:10 am: **Rigorous optical simulation of light management in thin film polycrystalline silicon solar cells with textured interfaces, Daniel Lockau, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany) and Konrad-Zuse-Zentrum für Informationstechnik Berlin (Germany); Sven Burger, Lin W. Zschiedrich, Frank Schmidt, Konrad-Zuse-Zentrum für Informationstechnik Berlin (Germany); Florian Ruske, Bernd Rech, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany) [7933-21]**
- 11:30 am: **High efficiency triple-junction solar cells employing biomimetic antireflective structures, MengYih Chiu, Chia-Hua Chang, Feng-Yu Chang, Peichen Yu, National Chiao Tung Univ. (Taiwan) [7933-22]**
- 11:50 am: **Luminescence coupling effects on spectral photocurrent response of multi-junction solar cells, Swee H. Lim, Jing-Jing Li, Ding Ding, Michael DiNezza, Hank Detlaff, Yong-Hang Zhang, Arizona State Univ. (USA) [7933-23]**
- Lunch/Exhibition Break 12:10 to 1:40 am

SESSION 6

Room: 302 (Esplanade) Tues. 1:40 to 3:20 pm

Photovoltaics IV: Physics and Simulation

Session Chair: Alexandre Freundlich, Univ. of Houston

- 1:40 pm: **Modeling of radiation induced defects in space solar cells (Invited Paper), Robert J. Walters, Scott R. Messenger, Cory D. Cress, U.S. Naval Research Lab. (USA); Maria Gonzalez, Serguei I. Maximenko, Global Defense Technology & Systems, Inc. (USA) [7933-24]**
- 2:10 pm: **Advanced concept solar cells using hybrid approaches (Invited Paper), Christiana B. Honsberg, Arizona State Univ. (USA) . . . [7933-25]**
- 2:40 pm: **Modeling and analysis of multijunction solar cells incorporating quantum wells, Ned J. Ekins-Daukes, Jessica Adams, Paul N. Stavrinou, Imperial College London (United Kingdom); Robert J. Walters, U.S. Naval Research Lab. (USA); Maria Gonzalez, Global Defense Technology & Systems, Inc. (USA); Cory D. Cress, Phillip P. Jenkins, U.S. Naval Research Lab. (USA) [7933-26]**
- 3:00 pm: **Resonant thermo-tunneling design for ultra-efficient nanostructured solar cells, Andenet Alemu, Alex Freundlich, Univ. of Houston (USA) [7933-27]**
- Coffee Break 3:20 to 3:50 pm

SESSION 7

Room: 302 (Esplanade) Tues. 3:50 to 5:30 pm

Integrated Optoelectronics

Session Chair: Alexey V. Maslov, Canon U.S.A., Inc.

- 3:50 pm: **FEM solver for 3D numerical simulations of integrated optical devices, Sven Burger, Konrad-Zuse-Zentrum für Informationstechnik Berlin (Germany); Jan Pomplun, Lin Zschiedrich, Frank Schmidt, JCMwave GmbH (Germany) [7933-28]**
- 4:10 pm: **Design of complex large-scale photonic integrated circuits (PICs) based on ring-resonator structures, Cristina Arellano, VPIsystems GmbH (Germany); Sergei F. Mingaleev, VPI Development Ctr. (Belarus); Igor Koltchanov, André Richter, VPIsystems GmbH (Germany) [7933-29]**
- 4:30 pm: **Ultra wideband integrated polarization splitter/combiner using electro-optic effect in GaAs, Mohamed A. Swillam, Mohamed H. Bakr, Xun Li, McMaster Univ. (Canada) [7933-30]**
- 4:50 pm: **The performance of all-optical switching based on fiber Bragg grating, Wenxuan Yang, Zhigang Zang, Harbin Institute of Technology (China) [7933-31]**
- 5:10 pm: **Analysis of thermoelectric properties of AlInN semiconductor alloys, Hua Tong, Jing Zhang, Juan A. Herbsommer, Nelson Tansu, Lehigh Univ. (USA) [7933-32]**

Wednesday 26 January

SESSION 8

Room: 302 (Esplanade) Wed. 8:00 to 10:20 am

Quantum Dot and Quantum Dash Devices

Session Chair: Tom N. D. Tibbits, QuantaSol Ltd. (United Kingdom)

- 8:00 am: **Quantum optics with semiconductor quantum dots in microcavities (Invited Paper), Frank Jahnke, Univ. Bremen (Germany) [7933-33]**
- 8:30 am: **Impact of temperature and excited states on quantum dot laser dynamics (Invited Paper), Kathy Lüdge, Niels Majer, Eckehard Schöll, Technische Univ. Berlin (Germany) [7933-34]**
- 9:00 am: **Dynamical properties of semiconductor quantum dot based nanocavity devices, Michael Lorke, Torben R. Nielsen, Jesper Mørk, Technical Univ. of Denmark (Denmark) [7933-35]**
- 9:20 am: **Modeling and simulation of nanocrystal solids with rate equations, Oray O. Celtek, ASELSAN Inc. (Turkey); Matt Law, Univ. of California, Irvine (USA) [7933-36]**
- 9:40 am: **Modeling the impact of temperature on the performance of monolithic passively mode-locked quantum dot lasers, Mark T. Crowley, Nishant B. Patel, David Murrell, Magnus Breivik, Chang-Yi Lin, Yan Li, Luke F. Lester, The Univ. of New Mexico (USA) [7933-37]**
- 10:00 am: **Modeling spectral responsivity of InAs QD-embedded GaAs solar cells, Christopher G. Bailey, David V. Forbes, Seth M. Hubbard, Rochester Institute of Technology (USA); Ryne P. Raffaele, National Renewable Energy Lab. (USA) [7933-38]**
- Coffee Break 10:20 to 10:50 am

SESSION 9

Room: 302 (Esplanade) Wed. 10:50 am to 12:10 pm

Physics and Simulation of Light Emitting Diodes

Session Chair: Joachim Piprek, NUSOD Institute LLC

10:50 am: **Position controlled GaN nanorods: growth mechanisms and optical properties**, Christopher Koelper, OSRAM Opto Semiconductors GmbH (Germany) and Univ. Kassel (Germany); Werner Bergbauer, Matthias Sabathil, Martin Strassburg, Patrick Rode, Ulrich Steegmueller, OSRAM Opto Semiconductors GmbH (Germany); Friedhard Roemer, Bernd Witzigmann, Univ. Kassel (Germany); Sönke Fuendling, Shunfeng Li, Hergo-Heinrich Wehmann, Andreas Waag, Technische Univ. Braunschweig (Germany); Claudia Roder, Jonas Laehemann, Achim Trampert, Paul-Drude-Institut für Festkörperelektronik (Germany); Ki-Dong Lee, OBUDUCAT AB (Sweden)[7933-39]

11:10 am: **Photon transport and recycling in high efficiency LED structures**, Oskari Heikkilä, Jani Oksanen, Jukka Tulkki, Aalto Univ. School of Science and Technology (Finland) [7933-40]

11:30 am: **An investigation into LED multiplexing and homogenisation**, Kevin Rogers, Cymtec Ltd. (United Kingdom); Kang Li, Univ. of Glamorgan (United Kingdom); Nigel J. Copner, Ron Yandle, Cymtec Ltd. (United Kingdom) [7933-41]

11:50 am: **Numerical study on efficiency droop of blue InGaN light-emitting diodes**, Yen-Kuang Kuo, Jih-Yuan Chang, Jen-De Chen, National Changhua Univ. of Education (Taiwan) [7933-42]

Lunch/Exhibition Break 12:10 to 1:40 pm

SESSION 10

Room: 302 (Esplanade) Wed. 1:40 to 3:20 pm

Electromagnetic Analysis of Resonators and Gratings

Session Chair: Mark R. Stevenson, Toshiba Research Europe Ltd. (United Kingdom)

1:40 pm: **FDTD simulation of metal-embedded semiconductor single quantum dot and improved photon extraction with corn structure**, Ikuo Suemune, Jae-Hoon Huh, Claus Hermannstaedter, Hokkaido Univ. (Japan); Kouichi Akahane, National Institute of Information and Communications Technology (Japan); Nahid A. Jahan, Soutarou Ida, Masaki Wada, Hirota Sasaki, Hitoshi Iijima, Hokkaido Univ. (Japan); Masahide Sasaki, National Institute of Information and Communications Technology (Japan) [7933-43]

2:00 pm: **The limit of light trapping in grating structures**, Zongfu Yu, Aaswath P. Raman, Shanhuai Fan, Stanford Univ. (USA) [7933-44]

2:20 pm: **Composite-mode theory for coupled semiconductor lasers and external cavities**, Zhenshan Yang, Weng W. Chow, Sandia National Labs. (USA) [7933-45]

2:40 pm: **The pole condition as transparent boundary condition for resonance problems: detection of spurious modes**, Benjamin Kettner, Konrad-Zuse-Zentrum für Informationstechnik Berlin (Germany); Frank Schmidt, Konrad-Zuse-Zentrum für Informationstechnik Berlin (Germany) and JCMwave GmbH (Germany) [7933-46]

3:00 pm: **Similar structures, different characteristics: optical performances of circular polarizers with single- and multi-helical metamaterials**, ZhenYu Yang, Ming Zhao, Huazhong Univ. of Science and Technology (China) [7933-47]

Coffee Break 3:20 to 3:50 pm

SESSION 11

Room: 302 (Esplanade) Wed. 3:50 to 5:40 pm

Semiconductor Lasers

Session Chair: Stephan W. Koch, Philipps-Univ. Marburg (Germany)

3:50 pm: **Analogue modulation performance of 20 GHz vertical cavity surface emitting lasers for radio over fiber applications** (*Invited Paper*), Richard V. Penty, Ian H. White, Zihad Qureshi, Jonathan D. Ingham, Michael J. Crisp, Univ. of Cambridge (United Kingdom); Nikolay N. Ledentsov, James A. Lott, VI Systems GmbH (Germany) [7933-48]

4:20 pm: **Novel mode hop free chirped laser**, Nigel J. Copner, Univ. of Glamorgan (United Kingdom) and Swansea Univ. (United Kingdom); Raymond Chaney, Univ. of Glamorgan (United Kingdom); Nayla El-dahdah, Swansea Univ. (United Kingdom) [7933-49]

4:40 pm: **Performance of vertical-external-cavity surface-emitting lasers in the multi-10W regime**, Sangam Chatterjee, Alexey Chernikov, Jens Herrmann, Martin Koch, Philipps-Univ. Marburg (Germany); Tsuei-Lian Wang, Yushi Kaneda, Michael Yarborough, Jörg Hader, Jerome V. Moloney, College of Optical Sciences, The Univ. of Arizona (USA); Bernardette Kunert, NAsP III/V GmbH (Germany); Wolfgang Stolz, Stephan W. Koch, Philipps-Univ. Marburg (Germany) [7933-50]

5:00 pm: **Giant lasing effect in magnetic nanoconductors and its detection by DC electrical measurements**, Anatoly M. Kadigrobov, Robert I. Shekhter, Mats Jonson, Univ. of Gothenburg (Sweden) [7933-51]

5:20 pm: **Optimization of current injection area for low threshold operation of 3D lasers**, Alexey V. Maslov, Mamoru Miyawaki, Canon U.S.A., Inc. (USA) [7933-97]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Top transmission grating GaN LED simulations for light extraction improvement, Simeon Trieu, Xiaomin Jin, California Polytechnic State Univ., San Luis Obispo (USA); Bei Zhang, Xiang-Ning Kang, Guo-Yi Zhang, Chang Xiong, Wei Wei, Yong-Jian Sun, Xing-Xing Fu, Peking Univ. (China) [7933-68]

Influence of pressure on optical absorption of triglycine selenium single crystals, Jan A. Owsik, Military Univ. of Technology (Poland); Katarzyna Ozga, Ivan V. Kityk, Czestochowa Univ. of Technology (Poland); Jan Berdowski, J. Dlugosz Univ. de Czestochowa (Poland); Zbigniew Tylczynski, Adam Mickiewicz Univ. (Poland); Artur Wojciechowski, Andrzej Slezak, Czestochowa Univ. of Technology (Poland); Anna Z. Rembielińska, LOT Polish Airlines (Poland) [7933-69]

Design and theoretical characteristics of directional coupler-type optical polarization splitters using dielectric periodic multilayers, Kazutaka Baba, Takenao Nakai, Sendai National College of Technology (Japan) [7933-70]

Modeling of energy band diagram of asymmetric variable-gap multilayer structures, Bogdan S. Sokolovsky, Ivan Franko National Univ. of L'viv (Ukraine) [7933-71]

Demonstration of arbitrary channel selection utilizing a pulse-injected double phase-locked semiconductor laser with optical injection, Yu-Shan Juan, Fan-Yi Lin, National Tsing Hua Univ. (Taiwan) [7933-72]

Energy enhancement in mode-locked lasers using sinusoidal transmission functions for saturable absorption, Edwin Ding, Eli Shlizerman, Jose Nathan Kutz, Univ. of Washington (USA) [7933-73]

Qualitative analysis of ultra-short optical dissipative solitary pulses in the actively mode-locked semiconductor heterolaser with an external fiber cavity, Alexandre S. Shcherbakov, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Joaquin Campos Acosta, Consejo Superior de Investigaciones Científicas (Spain); Pedro Moreno Zarate, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Alicia Pons Aglio, Consejo Superior de Investigaciones Científicas (Spain) [7933-74]

Simulation of hot electron quantum well AlGaAs/GaAs photovoltaics, Hamid Z. Fardi, Univ. of Colorado Denver (USA) [7933-75]

Bias-dependent measurement of quantum efficiency in GaAs-based multi-junction solar cells, Dae-Hwan Kim, Han-Youl Ryu, Inha Univ. (Korea, Republic of) [7933-76]

Rapidly prototyping optoelectronic devices using full wave 3D simulation software, Igor Bendoyim, Nafiseh Pishbin, David T. Crouse, The City College of New York (USA) [7933-77]

Plasmonic dye-sensitized solar cell, Shu-Te Ho, National Taiwan Univ. (Taiwan) and National Applied Research Labs. (Taiwan); Din Ping Tsai, National Taiwan Univ. (Taiwan) and National Applied Research Labs. (Taiwan) and Research Ctr. for Applied Sciences, Academia Sinica (Taiwan) [7933-78]

Efficiency enhancement of organic solar cells using plasmonic silver nanowire electrodes, Ting Xu, Myung-Gyu Kang, Hui-Joon Park, L. Jay Guo, Univ. of Michigan (USA) [7933-79]

Plasmonics-based nonmagnetic optical polarization rotators for optical isolation, Hong Seung Kim, Tae-Kyeong Lee, Geum-Yoon Oh, Young-Wan Choi, Chung-Ang Univ. (Korea, Republic of) [7933-80]

Effect of polarization state on characteristics of InGaN/GaN multiple quantum well solar cells, Jih-Yuan Chang, Yen-Kuang Kuo, National Changhua Univ. of Education (Taiwan) [7933-81]

2x2 Photonic crystal fiber splitter for 800 nm spectral domain optical coherence tomography, Joo Beom Eom, Gwangju Institute of Science and Technology (Korea, Republic of) and Korea Photonics Technology Institute (Korea, Republic of); Eun Jung Min, Kwan Seob Park, Seong Jun Park, Gwangju Institute of Science and Technology (Korea, Republic of); Hae-Ryong Lim, Jong-Hyuk Park, Korea Photonics Technology Institute (Korea, Republic of); Byeong-Ha Lee, Gwangju Institute of Science and Technology (Korea, Republic of) [7933-82]

Efficient couplers for spoof surface plasmon polaritons, Wangshi Zhao, Zhaolin Lu, Rochester Institute of Technology (USA) [7933-84]

Effect of rapid thermal annealing on optical and photovoltaic properties of dilute nitride bulk and quantum well materials, Mingche Wu, Akhil Mehrotra, Gopi Krishna Vijaya, Alexandre Freundlich, Univ. of Houston (USA) . . [7933-86]

Super fast physical-random number generation using laser diode emitting noises, Tetsuro Ushiki, Niigata Univ. (Japan); Shinya Maehara, Kohei Doi, Takashi Sato, Yasuo Ohdaira, Masashi Ohkawa, Niigata Univ. (USA) [7933-87]

Modeling and optimal designs for dislocation and radiation tolerant single and multijunction solar cells, Akhil Mehrotra, Alexandre Freundlich, Andenet Alemu, Univ. of Houston (USA) [7933-88]

Charge density waves in superconductors, Nadezhda P. Netesova, Lomonosov Moscow State Univ. (Russian Federation) [7933-89]

Revisit of transmission spectrum through a single nano slit in metallic thick film: a universal phase shift effect in the slit interface, Shih-Hui G. Chang, Yu-Lun Su, National Cheng Kung Univ. (Taiwan) [7933-90]

1550 nm DFB semiconductor laser with high power and low noise, Yi-Guang Zhao, Anguel Nikolov, Birendra R. Dutt, APIC Corp. (USA) . [7933-92]

Modeling and design particularities for distributed feedback lasers with laterally-coupled surface gratings, Antti I. Laakso, Jukka Karinen, Mihail M. Dumitrescu, Tampere Univ. of Technology (Finland) [7933-93]

Theoretical and experimental investigation of excitability in semiconductor microring lasers, Werner Coomans, Stefano Berì, Lilia A. Mashal, Lendert Gelens, Guy Van der Sande, Vrije Univ. Brussel (Belgium); Gabor Mezosi, Marc Sorel, Univ. of Glasgow (United Kingdom); Guy Verschaffelt, Jan Danckaert, Vrije Univ. Brussel (Belgium) [7933-94]

Enhanced near-infrared light harvesting using micro- and nano-scale surface textures in crystalline silicon photovoltaics, Chia-Hua Chang, Peichen Yu, Min-Hsiang Hsu, National Chiao Tung Univ. (Taiwan); Wei-Lun Chang, Wen-Ching Sun, Industrial Technology Research Institute (Taiwan) [7933-95]

Design of simultaneous bidirectional CMOS transceiver with a resistor-transconductor hybrid for optical chip-to-chip interconnects, Ikechi A. Ukaegbu, Jamshid Sangirov, Trong-Hieu Ngo, Tae-Woo Lee, Hyo-Hoon Park, KAIST (Korea, Republic of) [7933-96]

Thursday 27 January

SESSION 12

Room: 302 (Esplanade) Thurs. 8:30 to 10:20 am

Nonlinear Dynamics and Mode-Locking of Semiconductor Lasers I

Session Chair: Yohan Barbarin, ETH Zurich (Switzerland)

8:30 am: **Modulation effects in multi-section semiconductor lasers** (*Invited Paper*), Nicholas G. Usechak, Matthew Grupen, Vassilios I. Kovanis, Air Force Research Lab. (USA); Nader A. Naderi, Yan Li, Luke F. Lester, The Univ. of New Mexico (USA) [7933-52]

9:00 am: **Mode-locking theory for ultra-short few-femtosecond laser pulses**, Jose Nathan Kutz, Univ. of Washington (USA); Edward D. Farnum, Kean Univ. (USA) [7933-53]

9:20 am: **Four-wave mixing analysis of quantum dot and quantum well lasers**, HungHsin Lin, Fan-Yi Lin, National Tsing Hua Univ. (Taiwan) . [7933-54]

9:40 am: **Characterizing and suppressing multi-pulsing instabilities in mode-locked lasers**, Eli Shlizerman, Edwin Ding, Matthew O. Williams, Jose Nathan Kutz, Univ. of Washington (USA) [7933-55]

10:00 am: **Noise suppression in chaotic lidars under different synchronization schemes**, Yi-Huan Liao, Wen Ting Wu, Fan-Yi Lin, National Tsing Hua Univ. (Taiwan) [7933-56]

Coffee Break 10:20 to 10:50 am

SESSION 13

Room: 302 (Esplanade) Thurs. 10:50 am to 12:20 pm

Nonlinear Dynamics of Semiconductor Lasers II

Session Chair: Frank Jahnke, Univ. Bremen (Germany)

10:50 am: **The dynamics of optoelectronic oscillators** (*Invited Paper*), Thomas Erneux, Univ. Libre de Bruxelles (Belgium); Laurent Larger, Univ. de Franche-Comté (France) [7933-57]

11:20 am: **Oscillation frequency shifts observed in vertical cavity surface emitting lasers exposed to magnetic fields**, Tsuyoshi Kobayashi, Takashi Sato, Masashi Ohkawa, Yuki Yamagishi, Hideaki Arai, Yoshihiko Matsumoto, Niigata Univ. (Japan) [7933-58]

11:40 am: **New modeling of laterally coupled diode lasers: analysis and comparison with experimental results**, Bruno Gonzalez Izquierdo, Horacio Lamela Rivera, Rui Santos, Univ. Carlos III de Madrid (Spain) [7933-59]

12:00 pm: **Influence of the alfa factor in a nonlinear semiconductor optical amplifier loop mirror performance for pulse shaping of Gain switching diode lasers**, Cristina de Dios Fernandez, Horacio Lamela, Univ. Carlos III de Madrid (Spain) [7933-60]

Lunch/Exhibition Break 12:20 to 2:00 pm

SESSION 14

Room: 302 (Esplanade) Thurs. 2:00 to 3:00 pm

Photodetectors

Session Chair: Michael Lorke, Technical Univ. of Denmark (Denmark)

2:00 pm: **Modeling of afterpulsing in single-photon avalanche diodes**, Michele Anti, Alberto Tosi, Fabio Acerbi, Franco Zappa, Politecnico di Milano (Italy) [7933-61]

2:20 pm: **Determination of internal quantum efficiency of a photodetector through its voltage-current characteristics**, Aleksey Mikryukov, Alexander Kovalev, Sergey Moskaluk, Anatoly A. Liberman, All-Russian Research Institute for Optical and Physical Measurement (Russian Federation) [7933-62]

2:40 pm: **Laser power converters for space based power transfer applications**, Jayanta Mukherjee, Stephen J. Sweeney, Advanced Technology Institute (United Kingdom); Matthew Perren, EADS Astrium (France) . [7933-63]

Coffee Break 3:00 to 3:30 pm

SESSION 15

Room: 302 (Esplanade) Thurs. 3:30 to 5:00 pm

Devices for Quantum Communications

Joint Session with Conference 7948

Session Chair: Marek Osinski, The Univ. of New Mexico

3:30 pm: **A light emitting diode for entangled photons** (*Invited Paper*), Mark R. Stevenson, Toshiba Research Europe Ltd. (United Kingdom); C. L. Salter, Toshiba Research Europe Ltd. (United Kingdom) and Univ. of Cambridge (United Kingdom); Ian Farrer, Christine A. Nicoll, David A. Ritchie, Univ. of Cambridge (United Kingdom); Andrew J. Shields, Toshiba Research Europe Ltd. (United Kingdom) [7933-64]

4:00 pm: **Modeling the evolution of quantum optical states in optoelectronic devices**, Teppo Häyrynen, Jani Oksanen, Jukka J. Tulkki, Aalto Univ. School of Science and Technology (Finland) [7933-65]

4:20 pm: **High Q photonic crystal cavities with tapered air holes**, Frederic Brossard, Hitachi Cambridge Lab. (United Kingdom); Sophie Schirmer, Univ. of Cambridge (United Kingdom); Alexander Chalcraft, David Whittaker, The Univ. of Sheffield (United Kingdom) [7933-66]

4:40 pm: **Electrically-pumped photonic nanowire single-photon source with an efficiency of 89%**, Niels Gregersen, Technical Univ. of Denmark (Denmark); Julien Claudon, Commissariat à l'Énergie Atomique (France); Torben R. Nielsen, Jesper Mørk, Technical Univ. of Denmark (Denmark); Jean-Michel Gérard, Commissariat à l'Énergie Atomique (France) [7933-67]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Optical Components and Materials VIII

Conference Chairs: **Michel J. F. Digonnet**, Stanford Univ.; **Shibin Jiang**, AdValue Photonics, Inc.; **John W. Glesener**, L-3 Electro-Optical Systems; **J. Christopher Dries**, DOLCE Technologies, LLC

Program Committee: **Jean-Luc Adam**, Univ. de Rennes 1 (France); **Norman C. Anheier, Jr.**, Pacific Northwest National Lab.; **Robert P. Dahlgren**, Silicon Valley Photonics, Ltd. and Univ. of California, Santa Cruz; **Leonid B. Glebov**, CREOL, The College of Optics and Photonics, Univ. of Central Florida; **Min Gu**, Swinburne Univ. of Technology (Australia); **Seppo K. Honkanen**, Aalto Univ. School of Science and Technology (Finland); **Jacques Lucas**, Univ. de Rennes 1 (France); **Yasutake Ohishi**, Toyota Technological Institute (Japan); **Aydogan Ozcan**, Univ. of California, Los Angeles; **Giancarlo Cesare Righini**, Istituto di Fisica Applicata Nello Carrara (Italy); **Feng Song**, Nankai Univ. (China); **Setsumi Tanabe**, Kyoto Univ. (Japan); **John M. Zavada**, U.S. Army Research Office

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA); **Klaus P. Streubel**, OSRAM GmbH (Germany)

- 8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**, Kent State Univ. (USA)
- 8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)
- 8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim**, LG Display R&D Ctr. (Republic of Korea)
- 8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell**, Max-Planck-Institute for Biophysical Chemistry (Germany)
- 9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 1

Room: 232 (Mezzanine). Tues. 10:30 am to 12:00 pm

Crystallized Glass and Transparent Ceramics

- 10:30 am: **Nano-watt active fiber devices in electro-optic crystallized glass (Invited Paper)**, Takumi Fujiwara, Tohoku Univ. (Japan) [7934-01]
- 11:00 am: **Synthesis of novel transparent glass ceramics containing rare earth ion-doped YLF nanocrystals for fiber amplifiers and fiber lasers**, Takenobu Suzuki, Shin-ichiro Masaki, Kento Mizuno, Toyota Technological Institute (Japan); Shintaro Mizuno, Toyota Central Research and Development Labs., Inc. (Japan); Yasutake Ohishi, Toyota Technological Institute (Japan) [7934-02]
- 11:20 am: **Transparent Ce³⁺:GdYAG ceramic phosphors for white LED**, Shotaro Nishiura, Setsumi Tanabe, Kyoto Univ. (Japan); Kana Fujioka, Yasushi Fujimoto, Osaka Univ. (Japan) [7934-03]
- 11:40 am: **Fabrication and scintillation characteristic of Pr:LuAG transparent ceramics**, Yiqiang Shen, Yubai Pan, Shanghai Institute of Ceramics (China) [7934-04]
- Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 2

Room: 232 (Mezzanine). Tues. 1:30 to 3:00 pm

Rare-Earth Doped Glasses and Fiber

- 1:30 pm: **What Er³⁺-doped laser materials can do for you (Invited Paper)**, Mark Dubinskii, U.S. Army Research Lab. (USA) [7934-05]
- 2:00 pm: **Lifetime and energy-transfer in rare-earth highly-doped glasses for 2 micron lasers**, Stefano Taccheo, Masud A. Taher, Swansea Univ. (United Kingdom); Hrvoje Gebavi, Joris Lousteau, Daniel Milanese, Politecnico di Torino (Italy); Nasser Peyghambarian, College of Optical Sciences, The Univ. of Arizona (USA) [7934-07]
- 2:20 pm: **Nd³⁺ sensitized upconversion luminescence of Nd³⁺/Pr³⁺ codoped KPb₂Cl₅ low phonon crystal**, Rolindes Balda, Mohammad Al-Saleh, Joaquin Fernandez, Univ. del Pais Vasco (Spain) [7934-08]
- 2:40 pm: **Investigation of all-optical gain clamped erbium-doped amplifier in the presence of variable burst traffic**, Karin M. Ennser, M. Zannin, Stefano Taccheo, Swansea Univ. (United Kingdom); D. Careglio, Univ. Politècnica de Catalunya (Spain) [7934-09]
- Coffee Break 3:00 to 3:30 pm

SESSION 3

Room: 232 (Mezzanine). Tues. 3:30 to 5:20 pm

Novel Photonics Devices

- 3:30 pm: **Ultra-compact reconfigurable integrated silicon photonic structures (Invited Paper)**, Ali Adibi, Georgia Institute of Technology (USA) [7934-10]
- 4:00 pm: **Si-based 1D and 2D slot waveguides for magneto-optics**, Amit Khanna, Antti Säynätjoki, Ari Tervonen, Seppo K. Honkanen, Aalto Univ. School of Science and Technology (Finland) [7934-11]
- 4:20 pm: **Erbium-doped metaphosphate glasses for temperature sensing**, Márcio A. R. C. Alencar, Ricardo M. Romão, Univ. Federal de Alagoas (Brazil); Roger G. Fernandes, Gaël Y. Poirier, Fabia C. Cassanjes, Univ. Federal de Alfenas (Brazil); Jandir M. Hickmann M.D., Univ. Federal de Alagoas (Brazil) [7934-12]
- 4:40 pm: **High temperature multiparameter sensor with 1000°C capability**, Robert B. Walker, Dan Grobnc, Stephen J. Mihailov, Communications Research Ctr. Canada (Canada) [7934-13]
- 5:00 pm: **Phase response characterization of semiconductor saturable absorber for applications in nonlinear optical signal processing and phase-modulated signals regeneration**, Lokanath Mishra, Indian Institute of Technology, Kharagpur (India); An Nguyen, Claudio Porzi, Scuola Superiore Sant'Anna (Italy); Prasanta K. Datta, Indian Institute of Technology Kharagpur (India); Antonella Bogoni, Luca Poti, Consorzio Nazionale Interuniversitario per le Telecomunicazioni (Italy) [7934-14]

Wednesday 26 January

SESSION 4

Room: 232 (Mezzanine) Wed. 8:50 to 10:30 am

Hybrid Materials and Devices

8:50 am: **Organic-inorganic hybrid films highly doped with functional centers for advanced photonics applications** (*Invited Paper*), Masahide Takahashi, Osaka Prefecture Univ. (Japan); Hiroshi Kakiuchida, National Institute of Advanced Industrial Science and Technology (Japan) [7934-15]

9:20 am: **Hybrid polymer optical materials and devices: the best of both worlds** (*Invited Paper*), Robert A. Norwood, College of Optical Sciences, The Univ. of Arizona (USA) [7934-16]

9:50 am: **Polarization tunable circular Damman grating generated from azo-dye doped nematic liquid crystals**, Dan Luo, Xiao Wei Sun, Nanyang Technological Univ. (Singapore) [7934-17]

10:10 am: **Hybrid Si-LiNbO₃ micro-ring resonators for active microphotonic devices**, Yoo Seung Lee, The Univ. of Southern California (USA); Gun-Duk Kim, Kwangwoon Univ. (Korea, Republic of); Sang-Shin Lee, Kwangwoon Univ. (Korea, Republic of) and The Univ. of Southern California (USA); Wan-Gyu Lee, National Nanofab Ctr. (Korea, Republic of); William H. Steier, The Univ. of Southern California (USA) [7934-18]

Coffee Break 10:30 to 11:00 am

SESSION 5

Room: 232 (Mezzanine) Wed. 11:00 am to 12:00 pm

Detectors

11:00 am: **Development of ultrahigh-speed CCD with maximum frame rate of 2 million frames per second**, Toshiki Arai, Tetsuya Hayashida, Kazuya Kitamura, Jun Yonai, Hirotaka Maruyama, Hiroshi Ootake, Japan Broadcasting Corp. (Japan); Takeharu G. Etoh, Kinki Univ. (Japan); Harry van Kuijk, DALSA Corp. (Netherlands) [7934-19]

11:20 am: **Ultra-high sensitivity photodetector arrays with integrated amplification and passivation nano-layers**, Jie Yao, Sean X. Wang, Jack X. Zhou, Qun Li, B&W Tek, Inc. (USA); Weiguo Yang, Western Carolina Univ. (USA); Patrick J. Gardner, The Charles Stark Draper Lab., Inc. (USA); Leora Peltz, Robert Frampton, Jeffrey H. Hunt, The Boeing Co. (USA); Irina Mokina, Feng Liu, B&W Tek, Inc. (USA) [7934-20]

11:40 am: **Experimental characterization of afterpulsing and timing jitter of InGaAs/InP SPAD**, Fabio Acerbi, Alberto Tosi, Alberto Dalla Mora, Michele Anti, Franco Zappa, Politecnico di Milano (Italy) [7934-21]

Lunch/Exhibition Break 12:00 to 1:00 pm

SESSION 6

Room: 232 (Mezzanine) Wed. 1:00 to 3:10 pm

Passive Materials and Devices

1:00 pm: **Glass imprint process for optical device fabrication** (*Invited Paper*), Naoyuki Kitamura, Kohei Fukumi, National Institute of Advanced Industrial Science and Technology (Japan); Junji Nishii, Hokkaido Univ. (Japan) [7934-22]

1:30 pm: **Highly nonlinear tellurite microstructured fibers for broadband wavelength conversion and flattened supercontinuum generation**, Guanshi Qin, Xin Yan, Chihiro Kito, Meisong Liao, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan) [7934-23]

1:50 pm: **Structured material combined HMO-silica fibers: preparation, optical and mechanical behaviour**, Kay Schuster, Jens Kobelke, Doris Litzkendorf, Anka Schwuchow, Florian Lindner, Johannes Kirchhof, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany); Jean-Louis Auguste, Georges J. Humbert, Univ. de Limoges (France) [7934-24]

2:10 pm: **Guiding and confining light in low-index circularly symmetric waveguides**, Wenfu Zhang, Xi'an Institute of Optics and Precision Mechanics (China); Jianwei Mu, McMaster Univ. (Canada); Jihong Liu, Xi'an Institute of Posts and Telecommunications (China); Wei-Ping Huang, McMaster Univ. (Canada); Wei Zhao, Xi'an Institute of Optics and Precision Mechanics (China) [7934-25]

2:30 pm: **Transmission characteristics of a modal interferometer based on a polarization-maintaining photonic crystal fiber depending on input polarization states**, Young-Geun Han, Hyun-Joo Kim, Hanyang Univ. (Korea, Republic of) [7934-26]

2:50 pm: **Hexagonal photonic crystal waveguide based on barium titanate thin films**, Jianheng Li, Zhifu Liu, Bruce W. Wessels, Yongming Tu, Seng-Tiong Ho, Northwestern Univ. (USA) [7934-27]

Coffee Break 3:10 to 3:40 pm

SESSION 7

Room: 232 (Mezzanine) Wed. 3:40 to 5:00 pm

Gratings

3:40 pm: **A novel fabrication technique of long-period fiber gratings based on periodic ridge structures in the cladding of a single-mode fiber**, Young-Geun Han, Oh-Jang Kwon, Sang-Oh Park, Hanyang Univ. (Korea, Republic of) [7934-28]

4:00 pm: **Wavelength tunable long period gratings based on silica waveguide geometric modulation**, Jia Jiang, Claire L. Callender, Christopher J. Lederhof, Communications Research Ctr. Canada (Canada); Jianfu Ding, National Research Council Canada (Canada) [7934-29]

4:20 pm: **Subwavelength metallic gratings as an integrated device: polarized color filter**, Huu Nghia Nguyen, Yu-Lung Lo, Yu-Bin Chen, Tsai-Yu Yang, National Cheng Kung Univ. (Taiwan) [7934-30]

4:40 pm: **Polarization-insensitive stacked liquid crystal polarization grating bandpass filters**, Elena Nicolescu, Michael J. Escuti, North Carolina State Univ. (USA) [7934-31]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Emission from a bismuth doped chalcogenide glass spanning from 1 μm to 2.7 μm , Mark A. Hughes, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan); Daniel Hewak, Univ. of Southampton (United Kingdom) [7934-06]

Research on testing instrument and method for correction of the uniformity of image intensifier fluorescence screen brightness, Yafeng Qiu, Nanjing Univ. of Science & Technology (China) [7934-32]

Novel method for fabrication of metal- or oxide-nanoparticle doped silica-based specialty optical fibers, Borut Lenardic, Miha Kveder, Optacore d.o.o. (Slovenia); Darja Lisjak, Jožef Stefan Institute (Slovenia); Herve Guillon, Samuel Bonnafous, KEMSTREAM (France) [7934-33]

Measurement of a single polarization state and transmission characteristics of a Sagnac loop interferometer based on a single polarization fiber, Young-Geun Han, Oh-Jang Kwon, Hanyang Univ. (Korea, Republic of) [7934-34]

Fabrication of long-period fiber grating based on a periodic micro-tapering technique, Young-Geun Han, Min-Seok Yoon, Hanyang Univ. (Korea, Republic of) [7934-35]

Dielectric analysis on optical properties of ZrO₂ thin films dispersed with silver nanoparticles prepared by sol-gel method, Moriaki Wakaki, Eisuke Yokoyama, Yoshitugu Sotodate, Tokai Univ. (Japan) [7934-36]

Study on photodoping properties for the multilayered films GeS₂/Ag/GeS₂ and Ag/GeS₂/Ag, Yoshihisa Murakami, Moriaki Wakaki, Takahiro Iijima, Takehisa Shibuya, Tokai Univ. (Japan) [7934-37]

Soliton self-frequency shift in tellurite microstructured fiber, Xin Yan, Guanshi Qin, Meisong Liao, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan) [7934-38]

Dispersion controlled tellurite air-clad fibers for supercontinuum generations pumped by picosecond and femtosecond fiber lasers respectively, Meisong Liao, Xin Yan, Guanshi Qin, Chitrarekha B. Chaudhari, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan) [7934-39]

Polarization hologram with a low aspect ratio, Kayoko Fujimura, Nalux Co., Ltd. (Japan) [7934-40]

Ion beam figuring of silicon aspheres, Marcel Demmler, Michael Zeuner, Frank Allenstein, Thoralf Dunger, Roth & Rau MicroSystems GmbH (Germany); Sven R. Kiontke, asphericon GmbH (Germany) [7934-41]

Global characterization of an advanced prototype of a multi-channel acousto-optical spectrometer for the Mexican Large Millimeter Telescope, Alexandre S. Shcherbakov, Daniel Sanchez Lucero, Abraham Luna Castellanos, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) [7934-42]

Furnace chemical vapor deposition (FCVD) method for special optical fibers fabrication, Alexei A. Malinin, Optogear Oy (Finland); Alexander S. Zlenko, Fiber Optics Research Ctr. (Russian Federation); Ural G. Akhmetshin, Aston Univ. (United Kingdom); Sergei L. Semjonov, Fiber Optics Research Ctr. (Russian Federation) [7934-43]

Optical absorption spectra of GaMnN films, Hai-Ying Xing, Tianjin Polytechnic Univ. (China); Guanghan Fan, South China Normal Univ. (China); Xian-Song Fu, Tianjin Polytechnic Univ. (China) [7934-44]

Photocurrent spectrum measurements of doped black silicon, Shengkun Zhang, Borough of Manhattan Community College (USA); Hani E. Ahmar, Wubao Wang, Robert R. Alfano, The City College of New York (USA); Meng-Ju Sher, Eric D. Mazur, Harvard Univ. (USA) [7934-45]

Comparison of spectroscopic properties of neodymium-doped aluminium garnet (Nd:YAG) ceramics obtained by reactive sintering of Al_2O_3 , Y_2O_3 and Nd_2O_3 and by synthesis of nanocrystalline Nd:YAG powders, Anna Kozłowska, Magdalena Nakielska, Institute of Electronic Materials Technology (Poland); Dariusz Podniesinski, Institute of Electronic Materials Technology (Poland) and Military Univ. of Technology (Poland); Helena Weglarz, Anna Wajler, Zdzislaw Librant, Tadeusz Lukasiewicz, Institute of Electronic Materials Technology (Poland) [7934-46]

Toward single-material multilayer interference mid-infrared filters with sub-wavelength structures for cryogenic infrared astronomical missions, Hironobu Makitsubo, Japan Aerospace Exploration Agency (Japan) and The Univ. of Tokyo (Japan); Takehiko Wada, Makoto Mita, Japan Aerospace Exploration Agency (Japan) [7934-47]

Spectroscopic properties of Nd Er codoped glasses for solar-pumped fiber lasers, Shintaro Mizuno, Toyota Central Research and Development Labs., Inc. (Japan); Hiroyuki Kawai, Hiroyuki Nasu, Mark A. Hughes, Takenobu Suzuki, Toyota Technological Institute (Japan); Kazuo Hasegawa, Hiroshi Ito, Toyota Central Research and Development Labs., Inc. (Japan); Yasutake Ohishi, Toyota Technological Institute (Japan) [7934-48]

Fabrication and performance characterization of 1550nm hetero-multiplication avalanche photodiodes for single photon detection, Wen-Jeng Ho, Jheng-Jie Liu, Shih-Hao Ou, Cheng-Ju Chen, Hsuan-Ming Tang, National Taipei Univ. of Technology (Taiwan) [7934-49]

Characterization of a generalized elliptical phase plate by using equivalent theorem of a linear phase retarder and a polarization rotator, Chien Chou, Chih-Jen Yu, Liann-Be Chang, Chang Gung Univ. (Taiwan) [7934-50]

Linear polarization modulation heterodyne ellipsometer using digital signal processing technique, Chien Chou, Chih-Jen Yu, Kou-Chen Liu, Chang Gung Univ. (Taiwan) [7934-51]

Characterizing the polarization features of a multi-prism fused-silica beam expander for a wide-aperture acousto-optic applications, Alexandre S. Shcherbakov, Daniel Sanchez Lucero, Abraham Luna Castellanos, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Jewgenij Maximov, Molecular Technology GmbH (Germany) [7934-52]

Metal-clad nanoring laser, Min W. Kim, Pei-Cheng Ku, Univ. of Michigan (USA) [7934-53]

Passive fiber ring as a device for effective refractive index measurement, Vladimir Va?inek, Jan Latal, Petr Koudelka, Jan Vitasek, Petr Siska, Jan Skapa, Technical Univ. of Ostrava (Czech Republic) [7934-54]

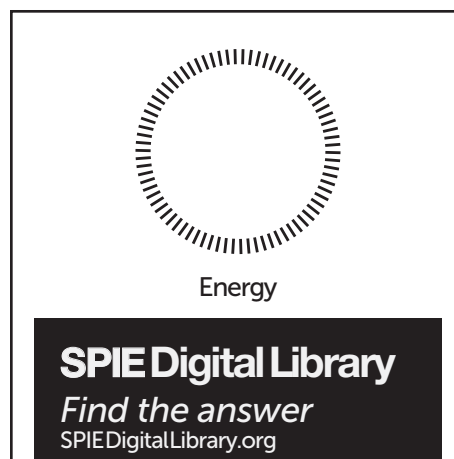
Broadband source for sensor characterization, Miguel A. Medina, Jason A. Mazzetta, Stephen D. Scopatz, Electro Optical Industries, Inc. (USA) . [7934-55]

Design of closed-loop double-cell self-phase modulation based optical regenerator, Karin M. Ennser, Stefano Taccheo, Swansea Univ. (United Kingdom); Giorgio Tosi Beleffi, Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione (Spain) [7934-57]

Performance of randomly distributed holes optical fibers under low dose gamma-ray irradiation, Bassam Alfeeli, Shree Narayanan, Doug Smiley, Donald Conner, Jr., Gary Pickrell, Virginia Polytechnic Institute and State Univ. (USA) [7934-58]

Structural and optical properties of different dielectric thin films for planar waveguiding applications, Stuart J. Pearce, Greg J. Parker, Martin D. B. Charlton, James S. Wilkinson, Univ. of Southampton (United Kingdom)[7934-59]

The effect of hydrogenation on the photoconductivity of exfoliated mono- and multi-layer graphene, Yudong Mo, Kyungmin Lee, Jason Jones, Philip Ecton, Univ. of North Texas (USA); Zhou Ye, Guang-Lin Zhao, Southern Univ. and A&M College (USA); Tae-Youl Choi, Jose Perez, Univ. of North Texas (USA) [7934-60]



Organic Photonic Materials and Devices XIII

Conference Chairs: **Robert L. Nelson**, Air Force Research Lab.; **François Kajzar**, Univ. d'Angers (France); **Toshikuni Kaino**, Tohoku Univ. (Japan); **Yasuhiro Koike**, Keio Univ. (Japan)

Program Committee: **Chantal Andraud**, Ecole Normale Supérieure de Lyon (France); **Werner J. Blau**, Trinity College Dublin (Ireland); **Christoph Bubeck**, Max-Planck-Institut für Polymerforschung (Germany); **Fabrice Charra**, Commissariat à l'Énergie Atomique (France); **Darnell E. Diggs**, Air Force Research Lab.; **Alain F. Fort**, Institut de Physique et Chimie des Matériaux de Strasbourg (France); **James G. Grote**, Air Force Research Lab.; **F. Kenneth Hopkins**, Air Force Research Lab.; **Alex K. Y. Jen**, Univ. of Washington; **Michael H. C. Jin**, The Univ. of Texas at Arlington; **Eunkyong Kim**, Yonsei Univ. (Korea, Republic of); **Jang-Joo Kim**, Seoul National Univ. (Korea, Republic of); **Nakjoong Kim**, Hanyang Univ. (Korea, Republic of); **Junya Kobayashi**, NTT Photonics Labs. (Japan); **Isabelle N. Ledoux-Rak**, Ecole Normale Supérieure de Cachan (France); **Charles Y. C. Lee**, Air Force Office of Scientific Research; **Kwang-Sup Lee**, Hannam Univ. (Korea, Republic of); **Emisoan Mah**, Air Force Research Lab.; **Seth R. Marder**, Georgia Institute of Technology; **Antoni Cz. Mitus**, Wroclaw Univ. of Technology (Poland); **Robert A. Norwood**, College of Optical Sciences, The Univ. of Arizona; **Jean-Michel Nunzi**, Queen's Univ. (Canada); **Susanna Orlic**, Technische Univ. Berlin (Germany); **Ileana Rau**, Polytechnical Univ. of Bucharest (Romania); **Niyazi Serdar Sariciftci**, Johannes Kepler Univ. Linz (Austria); **Kenneth D. Singer**, Case Western Reserve Univ.; **Don J. Smith**, U.S. Air Force (United Kingdom); **Rebecca E. Taylor**, Lockheed Martin Space Systems Co.; **Toshiyuki Watanabe**, Tokyo Univ. of Agriculture and Technology (Japan); **Shiyoshi Yokoyama**, Kyushu Univ. (Japan)

Monday 24 January

SESSION 1

Room: 234 (Mezzanine) Mon. 8:10 to 10:10 am

Nonlinear Optics

Session Chair: **Robert L. Nelson**, Air Force Research Lab.

8:10 am: **Optimization of organic NLO materials for integration with silicon photonic, plasmonic (metal optics), and metamaterial devices**, Larry R. Dalton, Univ. of Washington (USA) [7935-01]

8:50 am: **Materials development for both 2nd and 3rd order materials for Si and other waveguide devices** (*Invited Paper*), Alex K. Y. Jen, Univ. of Washington (USA) [7935-02]

9:20 am: **Third-order optical nonlinearity of C60 dispersed LB films and its charge-transfer complexes**, Masanao Era, Saga Univ. (Japan); Teruki Senokuchi, Kyushu Univ. (Japan) [7935-03]

9:40 am: **Concentration variation of quadratic NLO susceptibility in PMMA-DR1 side chain polymer** (*Invited Paper*), François Kajzar, Univ. d'Angers (France); Oksana Krupka, National Taras Shevchenko Univ. of Kyiv (Ukraine); Antoni Mitus, Grzegorz Pawlik, Wroclaw Univ. of Technology (Poland); Ileana Rau, Polytechnical Univ. of Bucharest (Romania) [7935-04]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 234 (Mezzanine) Mon. 10:40 am to 12:10 pm

Organic LED

Session Chair: **Alex K. Y. Jen**, Univ. of Washington

10:40 am: **Enhanced light extraction in OLEDs using nanostructures** (*Invited Paper*), Jang-Joo Kim, Seoul National Univ. (Korea, Republic of) [7935-05]

11:10 am: **High performance DNA-based phosphorescent organic light emitting diodes** (*Invited Paper*), Andrew J. Steckl, Hans Spaeth, Eliot Gomez, Han You, Univ. of Cincinnati (USA); James G. Grote, Air Force Research Lab. (USA) [7935-06]

11:30 am: **Flexible top-emitting organic light-emitting diodes with highly reflective Ni/Ag/Ni/ITO reflective anode**, Sungjun Kim, Kihyon Hong, Kisoo Kim, Illhwan Lee, Pohang Univ. of Science and Technology (Korea, Republic of); Kyoung-Bo Kim, Dong Yoeul Lee, Tae-Yeob Kim, Pohang Iron & Steel Co., Ltd. (Korea, Republic of); Jong-Lam Lee, Pohang Univ. of Science and Technology (Korea, Republic of) [7935-07]

11:50 am: **Hybrid organic light emitting device with silicon-rich oxide as hole transporting layer**, Guangzhao Ran, D. F. Jiang, Wanjing Xu, Peking Univ. (China) [7935-08]

Lunch Break 12:10 to 1:40 pm

SESSION 3

Room: 234 (Mezzanine) Mon. 1:40 to 3:30 pm

Organic Laser and Emission

Session Chair: **Chantal Andraud**, Ecole Normale Supérieure de Lyon (France)

1:40 pm: **Approaches to widely-tunable and highly-efficient liquid crystal microlasers** (*Invited Paper*), Fumito Araoka, Tokyo Institute of Technology (Japan) [7935-09]

2:10 pm: **Characterization of fluorescence resonance energy transfer of a nanopatterned fluorophore doped polymer film fabricated using nanoimprint lithography**, Rei A. Furukawa, The Univ. of Electro-Communications (Japan) [7935-10]

2:30 pm: **Energy transfer processes in conjugate polymer lasers**, Mohammad AlSalhi, Ziyadh Suliman AM, Vadivel Masilamani, King Saud Univ. (Saudi Arabia) [7935-11]

2:50 pm: **Laser from liquid excimer**, Vadivel Masilamani, Mohamad AlSalhi, Ibanouf Khalid, King Saud Univ. (Saudi Arabia) [7935-12]

3:10 pm: **Preparation and characterization of DNA-aromatic surfactant complexes for optoelectronic applications**, Ting-Yu Lin, Chia-Yun Chang, Chien-Hsiang Lien, Yi-Wen Chiu, Wei-Ting Hsu, Che-Hsuan Su, Yu-Sheng Wang, Yu-Chueh Hung, National Tsing Hua Univ. (Taiwan) [7935-13]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 234 (Mezzanine) Mon. 4:00 to 5:30 pm

Organic Electronics

Session Chair: **Jang-Joo Kim**, Seoul National Univ. (Korea, Republic of)

4:00 pm: **Janus-like 3D tectons for self-assembly of single emitters towards nanophotonics** (*Invited Paper*), Andre-Jean Attias, David Bléger, David Kreher, Fabrice Mathevet, Univ. Pierre et Marie Curie (France); Ludovic Douillard, Céline Fiorini-Debuisschert, Fabrice Charra, Commissariat à l'Énergie Atomique (France) [7935-14]

4:30 pm: **Effect of intermolecular interactions on charge and energy transfer in high-performance organic semiconductors**, Whitney E. Shepherd, Andrew D. Platt, David Hofer, Oregon State Univ. (USA); Marsha A. Loth, John E. Anthony, Univ. of Kentucky (USA); Oksana Ostroverkhova, Oregon State Univ. (USA) [7935-15]

4:50 pm: **Charge transport anisotropy in a pentacene transistor with an underlying photo-alignment layer**, Tatsuhiko Kawaguchi, Takehiro Okura, Yuuki Kondo, Ichiro Fujieda, Ritsumeikan Univ. (Japan) [7935-16]

5:10 pm: **Chemical mechanisms and electrical characteristics of C60/Al and C60/LiF/Al cathodes studied by electron spin resonance, infrared reflection-absorption, and impedance spectroscopy**, Eric D. Glowacki, Johannes Kepler Univ. Linz (Austria) and Univ. of Rochester (USA); Kenneth L. Marshall, Ching W. Tang, Univ. of Rochester (USA); Niyazi S. Sariciftci, Johannes Kepler Univ. Linz (Austria) [7935-17]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA);
Klaus P. Streubel, OSRAM GmbH (Germany)

- 8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**, Kent State Univ. (USA)
 - 8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)
 - 8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim**, LG Display R&D Ctr. (Republic of Korea)
 - 8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell**, Max-Planck-Institute for Biophysical Chemistry (Germany)
 - 9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**, Univ. of California, Berkeley (USA)
- See page 24 for details.*

Coffee Break 10:10 to 10:30 am

SESSION 5

Room: 234 (Mezzanine). Tues. 10:30 am to 12:20 pm

Photonic Technologies

Session Chair: **Yasuhiro Koike**, Keio Univ. (Japan)

- 10:30 am: **Photonic polymer research based on strategic promotion of innovative research and development supported by Japan Science and Technology Agency**, Seizo Miyata, Tokyo Institute of Technology (Japan). [7935-18]
 - 11:10 am: **Smart morphing systems based on photomechanical optical devices (Invited Paper)**, Mark G. Kuzyk, Washington State Univ. (USA)[7935-19]
 - 11:40 am: **Template assisted polymerization of functional materials and their opto-electronic properties**, Jeonghun Kim, Yonsei Univ. (Korea, Republic of); Chokkalingam Anand, National Institute for Materials Science (Japan); Jungmok You, Byeongwan Kim, Yonsei Univ. (Korea, Republic of); Ajayan Vinu, National Institute for Materials Science (Japan); Eunyoung Kim, Yonsei Univ. (Korea, Republic of) [7935-20]
 - 12:00 pm: **Fabrication and characterization of PDMS thin film**, Shuping Wang, Ajay Kallur, Univ. of North Texas (USA); Abeselom Goshu, Total Wire Corp. (USA) [7935-21]
- Lunch/Exhibition Break 12:20 to 1:50 pm

SESSION 6

Room: 234 (Mezzanine). Tues. 1:50 to 3:00 pm

Nano Photonics

Session Chair: **Toshikuni Kaino**, Tohoku Univ. (Japan)

- 1:50 pm: **Photopatternable quantum dots forming quasi-ordered arrays (Invited Paper)**, Kwang-Sup Lee, Hannam Univ. (Korea, Republic of) . [7935-22]
 - 2:20 pm: **Construction of organic-inorganic perovskite superlattice LB film having amphiphilic phenylenevinylene as an organic layer**, Masanao Era, Yu Shironita, Saga Univ. (Japan) [7935-23]
 - 2:40 pm: **Effects of surface chemistry on nonlinear absorption, scattering, and refraction of PbSe and PbS nanocrystals**, Igor L. Bolotin, Daniel J. Asunskis, Ali M. Jawaid, Yaoming Liu, Preston T. Snee, Luke Hanley, Univ. of Illinois at Chicago (USA) [7935-24]
- Coffee Break 3:00 to 3:30 pm

SESSION 7

Room: 234 (Mezzanine). Tues. 3:30 to 4:50 pm

Nonlinear Absorption

Session Chair: **Kwang-Sup Lee**, Hannam Univ. (Korea, Republic of)

- 3:30 pm: **Chromophores design for nonlinear optics in the near infrared (Invited Paper)**, Chantal Andraud, Ecole Normale Supérieure de Lyon (France) [7935-26]
- 4:00 pm: **Effects of ligand on two-photon absorption of platinum acetylidy complexes**, Aleksander K. Rebane, Mikhail Drobizhev, Nikolay S. Makarov, Erich B. Beuerman, Montana State Univ. (USA); Thomas M. Cooper, Joy E. Rogers-Haley, Daniel G. McLean, Johnathan E. Slagle, Douglas M. Krein, Jennifer L. Monahan, Aaron R. Burke, Albert Fratini, Air Force Research Lab. (USA) [7935-27]
- 4:20 pm: **Multifunctional hybrid nanoparticles for two-photon fluorescence imaging and photodynamic therapy (Invited Paper)**, Patrice L. Baldeck, Univ. Joseph Fourier (France) and CNRS (France). [7935-28]

Wednesday 26 January

SESSION 8

Room: 234 (Mezzanine). Wed. 8:10 to 10:00 am

New Materials and Methods

Session Chair: **François Kajzar**, Univ. d'Angers (France)

- 8:10 am: **New developments in molecular photonics: from photoswitchable nonlinearities to nonlinear nanoplasmonics**, Isabelle N. Ledoux-Rak, Khuyen Hoang Thi, Anu Anu, Joseph Zyss, Ecole Normale Supérieure de Cachan (France) [7935-30]
 - 8:50 am: **Ferromagnetism in pristine polythiophene at low temperature (Invited Paper)**, André P. Persoons, Katholieke Univ. Leuven (Belgium) and Arizona Univ. (USA); Palash Gangopadhyay, College of Optical Sciences, The Univ. of Arizona (USA) and Katholieke Univ. Leuven (Belgium) [7935-31]
 - 9:20 am: **Chirality appearance in molecular films of achiral molecules at the air/water interface**, Emmanuel Benichou, Isabelle Russier-Antoine, Guillaume Bachelier, Christian Jonin, Univ. Claude Bernard Lyon 1 (France); Minghua Liu, Institute of Chemistry (China); Pierre-François Brevet, Univ. Claude Bernard Lyon 1 (France) [7935-32]
 - 9:40 am: **Realization of all optical AND-OR logic gates using z-scan method**, P. K. Palanisamy, A. N. Dhinaa, K. Murali, Anna Univ. Chennai (India). [7935-33]
- Coffee Break 10:00 to 10:30 am

SESSION 9

Room: 234 (Mezzanine). Wed. 10:30 am to 12:00 pm

Applications

Session Chair: **André P. Persoons**, Katholieke Univ. Leuven (Belgium)

- 10:30 am: **Organic materials chemistry in Air Force Office of Scientific Research (Invited Paper)**, Charles Y. C. Lee, Air Force Office of Scientific Research (USA) [7935-34]
- 11:00 am: **Switching mechanism of an optically-gated optical switch using an organic dye**, Takashi Hiraga, Ichiro Ueno, National Institute of Advanced Industrial Science and Technology (Japan); Noriyasu Shiga, Trimatiz Ltd. (Japan); Hirofumi Watanabe, Shiroh Futaki, Inter Energy Co., Ltd. (Japan); Masaki Kubo, Himeji Rika Co., Ltd. (Japan); Shigeru Takarada, Norio Tanaka, Dainichiseika Color & Chemicals Mfg. Co., Ltd. (Japan). [7935-35]
- 11:20 am: **Enhanced updatable holography using a dynamic holographic network recording system**, Pengfei Wu, Qunhui Sun, New Span Opto-Technology Inc. (USA); Sarfaraz Baig, Michael R. Wang, Univ. of Miami (USA) [7935-36]
- 11:40 am: **Optical data storage in photochromic compounds**, William Dallari, Marco Scotto d'Abbusco, Marco Allione, Elena Samoylova, Francesca Pignatelli, Athanassia Athanassiou, Roberto Cingolani, Alberto Diaspro, Istituto Italiano di Tecnologia (Italy). [7935-37]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Nanoparticle imbedded polymer waveguide array devices with extremely low crosstalk between adjacent channels, Jeong-Rae Lee, Jun-Whee Kim, Ji-Hyang Jang, Min-Cheol Oh, Pusan National Univ. (Korea, Republic of) [7935-25]

Inspirations for EO polymer design gained from modeling of chromophore poling by Langevin dynamics, Martins A. Rutkis, Andrejs Jurgis, Univ. of Latvia (Latvia) [7935-38]

Implementation of Mach-Zehnder interferometric technique for electro-optic measurement on thin organic films, Edgars Nitiss, Martins A. Rutkis, Oskars Vilitis, Univ. of Latvia (Latvia) [7935-39]

Emission behavior of active optical silica fiber with doped polymer cladding layer, Hiroyuki Mochizuki, Kensuke Murai, National Institute of Advanced Industrial Science and Technology (Japan) [7935-41]

Improvement in viewing angle properties of top-emitting organic light-emitting devices, Bo-Ting Liou, Hsiuping Institute of Technology (Taiwan); Miao-Chan Tsai, Yi-Hsiang Huang, Fang-Ming Chen, Yen-Kuang Kuo, National Changhua Univ. of Education (Taiwan) [7935-42]

Photopatterning and electro-optical switching of redox active fluorescent polymers, Seogjae Seo, Yuna Kim, Jungmok You, Eunyoung Kim, Yonsei Univ. (Korea, Republic of) [7935-43]

Ultrafast nonlinear optical properties and excited state dynamics of phthalocyanine thin films, Soma Venugopal Rao, Shuvan Prashant Turaga, P. T. Anusha, Swain Debasis, Surya Prakash Tewari, Univ. of Hyderabad (India) [7935-44]

Synthesis of thiophene-based conjugated copolymer containing ferrocene units for organic electronics, Sehwan Kim, Yuna Kim, Eunyoung Kim, Yonsei Univ. (Korea, Republic of) [7935-45]

New apparatus and processes to produce ethereal oil, Constantin Oprean, Claudiu I. Isarie, Rodica Ciudin, Ilie V. Isarie, Adriana Pop, Valentin D. Petrescu, Toderita Nemes, Univ. Lucian Blaga din Sibiu (Romania) [7935-46]

Refractometric sensor using poli (p-phenylenevinylene) PPV and poli(p-xylylene) PPX, Maria E. Armas Alvarado, Daniel Orquiza de Carvalho, Gustavo P. Rehder, Jonas Gruber, Rosamaria W. C. Li, Marco I. Alayo Chavez, Univ. de São Paulo (Brazil) [7935-47]

Fabrication of an organic photovoltaic cell using spray deposition on heated substrate, JinJu Bae, Kyu-Jin Kim, SangWon Lee, SeHyuk Yeom, Byoung-Ho Kang, Shin-Won Kang, Kyungpook National Univ. (Korea, Republic of) [7935-48]

Integrated optical wave plates fabricated by incorporating reactive mesogen in polymer waveguides, Hyun-Soo Do, Woo-Sung Chu, Jun-Whee Kim, Kyung-Jo Kim, Min-Cheol Oh, Pusan National Univ. (Korea, Republic of) [7935-49]

Realization of compact optical coherence tomography, Karam Lee, Hae-dong Yim, Se-Geun Park, Seung-Gol Lee, El-Hang Lee, Beom-Hoan O, Inha Univ. (Korea, Republic of) [7935-50]

Performance analysis of interface treatments on the polymer substrate and ITO film applied for flexible solar cells, Jyh-Jier Ho, Yuang-Tung Cheng, Chien-Kun Wang, National Taiwan Ocean Univ. (Taiwan); William J. Lee, Industrial Technology Research Institute (Taiwan); Jhen-Liang Nain, National Taiwan Ocean Univ. (Taiwan); Chih-Chiang Lu, Industrial Technology Research Institute (Taiwan); Jia-Show Ho, Kang L. Wang, Univ. of California, Los Angeles (USA) [7935-51]

Courses of Related Interest

- SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm
- SC931 Applied Nonlinear Frequency Conversion (Paschotta) Monday, 8:30 am to 5:30 pm
- SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.



Get the free mobile app at <http://gettag.mobi>

Open the tag reader app and hold your phone's camera over the tag. You'll go to the Photonics West program page, where you can browse by technology, by day/time, or by matrix view.

PLAN YOUR WEEK

- Use the **SPIE My Schedule tool** on the Photonics West site
 - Add Papers | Exhibitors | Courses | Special Events
- Use the **Entire Program webpage** to view the program your way:
 - By Symposium and Conference—papers, courses, special events
 - By Day and Time—see what's happening now
 - In a Matrix Grid by Program Track—handy at-a-glance reference

Free SPIE Apps for iPhone®

SPIE Conference Program FREE >

Search and create your schedule at SPIE conferences.

SPIE Profiles FREE >

Make valuable personal connections with SPIE Colleagues.

RF and Millimeter-Wave Photonics

Conference Chairs: **Robert L. Nelson**, Air Force Research Lab.; **Dennis W. Prather**, Univ. of Delaware; **Christopher A. Schuetz**, Phase Sensitive Innovations, Inc.

Program Committee: **Glenn D. Boreman**, CREOL, The College of Optics and Photonics, Univ. of Central Florida; **Ray T. Chen**, The Univ. of Texas at Austin; **Charles H. Cox III**, Photonic Systems Inc.; **Larry R. Dalton**, Univ. of Washington; **Ronald Esman**, Defense Advanced Research Projects Agency; **Yeshaiahu Fainman**, Univ. of California, San Diego; **Peter R. Herczfeld**, Drexel Univ.; **Warren N. Herman**, Univ. of Maryland, College Park; **Michael Hochberg**, Univ. of Washington; **Yeifi Li**, Univ. of Massachusetts Dartmouth; **Joseph N. Mait**, U.S. Army Research Lab.; **Mark S. Mirotznik**, Univ. of Delaware; **Robert A. Norwood**, College of Optical Sciences, The Univ. of Arizona; **Gernot S. Pomrenke**, Air Force Office of Scientific Research; **Attila A. Szep**, Air Force Research Lab.; **Keith I. Williams**, U.S. Naval Research Lab.; **Qiwen Zhan**, Univ. of Dayton

Sunday 23 January

SESSION 1

Room: 234 (Mezzanine). Sun. 8:00 to 9:10 am

Components and Materials

Session Chair: **Christopher A. Schuetz**, Phase Sensitive Innovations, Inc.

8:00 am: **Hybrid optical polymer materials and devices for RF photonics applications** (*Invited Paper*), Robert A. Norwood, College of Optical Sciences, The Univ. of Arizona (USA) [7936-01]

8:30 am: **Full wave analysis of a composite right/left-handed leaky wave antenna**, Haifeng Zhou, Kazuaki Sakoda, National Institute for Materials Science (Japan) [7936-02]

8:50 am: **Phase shifter using carbon nanotube thin-film transistor for flexible phased-array antenna**, Daniel Pham, The Univ. of Texas at Austin (USA); Harish Subbaraman, Omega Optics, Inc. (USA); Maggie Yihong Chen, Texas State Univ. San Marcos (USA); Xiaochuan Xu, Ray T. Chen, The Univ. of Texas at Austin (USA) [7936-03]

SESSION 2

Room: 234 (Mezzanine). Sun. 9:10 to 10:20 am

Sources and Modulators I

Session Chair: **Shouyuan Shi**, Univ. of Delaware

9:10 am: **Analog optical links with ultra-low vpi polymer slot waveguide modulators** (*Invited Paper*), Jeremy Witzens, Michael Hochberg, Univ. of Washington (USA) [7936-05]

9:40 am: **Traveling wave directional coupler modulator based on electro-optic polymer**, Beomsuk Lee, Cheyun Lin, The Univ. of Texas at Austin (USA); Alan X. Wang, Omega Optics, Inc. (USA); Raluca Dinu, GigOptix, Inc. (USA); Ray T. Chen, The Univ. of Texas at Austin (USA) [7936-06]

10:00 am: **High speed electro-optic polymer phase modulator using an in-plane slotline RF waveguide**, Dong Hun Park, Yongzheng Leng, Univ. of Maryland, College Park (USA); Jingdong Luo, Alex K. Y. Jen, Univ. of Washington (USA); Warren N. Herman, Univ. of Maryland, College Park (USA) [7936-07]

Coffee Break 10:20 to 10:50 am

SESSION 3

Room: 234 (Mezzanine). Sun. 10:50 am to 12:30 pm

Sources and Modulators II

Session Chair: **Shouyuan Shi**, Univ. of Delaware

10:50 am: **Recent progress toward a nanoslot modulator**, Gary E. Betts, Alan Chen, Photonic Systems, Inc. (USA); William H. Steier, The Univ. of Southern California (USA) [7936-08]

11:10 am: **High-frequency microwave signal generation in a semiconductor laser under double injection locking**, Yu-Shan Juan, Yi-Chun Chen, Fan-Yi Lin, National Tsing Hua Univ. (Taiwan) [7936-09]

11:30 am: **Fiber ring resonator based opto-electronic oscillator phase noise and temperature stability evaluation**, Khaldoun Saleh, Aude Bouchier, Pierre-Henri Merrer, Olivier Llopis, Lab. d'Analyse et d'Architecture des Systèmes (France); Gilles Cibiel, Ctr. National d'Études Spatiales (France) [7936-10]

11:50 am: **Compact optoelectronic oscillator using whispering gallery mode resonators for radio-frequency and millimeter wave generation**, Kirill Volyanskiy, Patrice Salzenstein, Hervé Tavernier, Institut FEMTO-ST (France); Maxim Pogurmirskiy, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Yanne K. Chemo, Laurent Larger, Institut FEMTO-ST (France) [7936-11]

12:10 pm: **Poling study of EO polymers in silicon slot waveguides**, Attila A. Szep, Air Force Research Lab. (USA) [7936-12]

Lunch Break 12:30 to 1:30 pm

SESSION 4

Room: 234 (Mezzanine). Sun. 1:30 to 3:20 pm

Sensors/Receivers

Session Chair: **Dennis W. Prather**, Univ. of Delaware

1:30 pm: **Progress in millimeter-wave imaging** (*Invited Paper*), David A. Wikner, U.S. Army Research Lab. (USA) [7936-13]

2:00 pm: **Design and construction of an electro-optic rf metamaterial array** (*Invited Paper*), Weibin Chen, Univ. of Dayton (USA); Robert L. Nelson, Air Force Research Lab. (USA) [7936-14]

2:30 pm: **ACP-OPLL photonic integrated circuit for high dynamic range RF/photonic links**, Yifei Li, Univ. of Massachusetts Dartmouth (USA); Ashish Bhardwaj, John E. Bowers, Univ. of California, Santa Barbara (USA); Peter R. Herczfeld, Drexel Univ. (USA) [7936-15]

2:50 pm: **Large dynamic range electromagnetic field sensor based on domain inverted electro-optic polymer directional coupler** (*Invited Paper*), Alan X. Wang, Omega Optics, Inc. (USA); Beom-Suk Lee, Ray T. Chen, The Univ. of Texas at Austin (USA) [7936-16]

Coffee Break 3:20 to 3:50 pm

SESSION 5

Room: 234 (Mezzanine). Sun. 3:50 to 6:10 pm

Systems

Session Chair: **Robert L. Nelson**, Air Force Research Lab.

3:50 pm: **Design of a 10-Gb/s satellite downlink at millimeter-wave frequencies** (*Invited Paper*), Richard W. Ridgway, David W. Nippa, Stephen Yen, Thomas Barnum, Battelle (USA) [7936-17]

4:20 pm: **Design of a millimeter-wave full-Stokes polarimeter utilizing optical up-conversion**, John P. Wilson, Univ. of Delaware (USA); Christopher A. Schuetz, Richard D. Martin, Thomas E. Dillon III, Peng Yao, Phase Sensitive Innovations, Inc. (USA); Dennis W. Prather, Univ. of Delaware (USA) [7936-18]

4:40 pm: **RF photonic integration for distributed millimeter wave imaging applications**, Christopher A. Schuetz, Phase Sensitive Innovations, Inc. (USA) [7936-19]

5:00 pm: **Millimeter wave image processing through point spread function engineering**, Joseph N. Mait, U.S. Army Research Lab. (USA) [7936-20]

5:20 pm: **Phase modulated radio-over-fiber systems: linearization and photonic downconversion** (*Invited Paper*), Thomas E. Murphy, Univ. of Maryland, College Park (USA) [7936-21]

5:50 pm: **Novel WDM to OTDM wavelength converter system for transmission of discrete sampling spectrum in single wavelength channel**, Tianxin Yang, Changle Wang, Junlong Wang, Chunfeng Ge, Mei Sang, Tianjin Univ. (China) [7936-22]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Ultrafast Phenomena in Semiconductors and Nanostructure Materials XV

Conference Chairs: **Kong-Thon Tsen**, Arizona State Univ.; **Jin-Joo Song**, Univ. of California, San Diego

Conference Co-Chairs: **Markus Betz**, Technische Univ. Dortmund (Germany); **Abdulkhakem Y. Elezzabi**, Univ. of Alberta (Canada)

Program Committee: **Mischa Bonn**, FOM Institute for Atomic and Molecular Physics (Netherlands); **Yujie J. Ding**, Lehigh Univ.; **Jan A. Gaj**, Univ. of Warsaw (Poland); **Rupert Huber**, Univ. Konstanz (Germany); **Robert A. Kaindl**, Lawrence Berkeley National Lab.; **Jacek Kasprzak**, Cardiff Univ. (United Kingdom); **Dai-Sik Kim**, Seoul National Univ. (Korea, Republic of); **Torsten Meier**, Univ. Paderborn (Germany); **Walter Pfeiffer**, Univ. Bielefeld (Germany); **Chi-Kuang Sun**, National Taiwan Univ. (Taiwan); **Fabrice Vallee**, Univ. Claude Bernard Lyon 1 (France); **Hailin Wang**, Univ. of Oregon; **Klaas Wynne**, Univ. of Strathclyde (United Kingdom); **Chih-Chung Yang**, National Taiwan Univ. (Taiwan)

Sunday 23 January

SESSION 1

Room: 236 (Mezzanine)..... Sun. 8:45 to 10:15 am

Carrier Dynamics in Quantum Dots I

Session Chair: **Jin-Joo Song**, Univ. of California, San Diego

8:45 am: **Ultrafast few-fermion dynamics in single self-assembled InGaAs/GaAs quantum dots and dot molecules** (*Invited Paper*), Markus Betz, Technische Univ. Dortmund (Germany) [7937-01]

9:10 am: **Ultrafast carrier capture and THz resonances in InGaAs quantum posts** (*Invited Paper*), Dominik Stehr, Univ. of California, Santa Barbara (USA) and Forschungszentrum Dresden-Rossendorf e.V. (Germany); Christopher M. Morris, Univ. of California, Santa Barbara (USA); Diyar Talbalyev, Los Alamos National Lab. (USA); Martin Wagner, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Hyochul Kim, Univ. of California, Santa Barbara (USA); Antoinette J. Taylor, Los Alamos National Lab. (USA); Harald Schneider, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Pierre M. Petroff, Mark S. Sherwin, Univ. of California, Santa Barbara (USA) [7937-02]

9:35 am: **Ultrafast conditional carrier dynamics in semiconductor quantum dots** (*Invited Paper*), Paola Borri, Wolfgang Langbein, Cardiff Univ. (United Kingdom) [7937-03]

10:00 am: **Spin-flip limited exciton dephasing in CdSe colloidal quantum dots**, Nicolo Accanto, Francesco Masia, Cardiff Univ. (United Kingdom); Iwan Moreels, Zeger Hens, Univ. Gent (Belgium); Wolfgang Langbein, Paola Borri, Cardiff Univ. (United Kingdom) [7937-04]

Coffee Break 10:15 to 10:45 am

SESSION 2

Room: 236 (Mezzanine)..... Sun. 10:45 am to 12:25 pm

Carrier Dynamics in Quantum Dots II

Session Chairs: **Rupert Huber**, Univ. Konstanz (Germany); **Markus Betz**, Technische Univ. Dortmund (Germany)

10:45 am: **Influence of Coulomb interactions on emission dynamics in semiconductor quantum dot systems** (*Invited Paper*), Kamil Gradkowski, Tomasz J. Ochalski, Nicola Pavarelli, David P. Williams, Eoin P. O'Reilly, Tyndall National Institute (Ireland); Jun Tatebayashi, Baolai Liang, Diana L. Huffaker, Univ. of California, Los Angeles (USA); David J. Mowbray, The Univ. of Sheffield (United Kingdom); Guillaume Huyet, Tyndall National Institute (Ireland) [7937-05]

11:10 am: **Ultrafast density- and temperature-dependent carrier dynamics in a quantum dots-in-a-well heterostructure** (*Invited Paper*), Rohit P. Prasankumar, Los Alamos National Lab. (USA); Rajeev V. Shenoi, The Univ. of New Mexico (USA); Junji Urayama, Weng W. Chow, Sandia National Labs. (USA); Sanjay Krishna, The Univ. of New Mexico (USA); Antoinette J. Taylor, Los Alamos National Lab. (USA) [7937-06]

11:35 am: **Time resolved spectroscopy on quantum dots and graphene at the FELBE free-electron laser** (*Invited Paper*), Stephan F. Winnerl, Dominik Stehr, Harald Schneider, Manfred Helm, Wolfgang Seidel, Peter Michel, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Evgeny Zibik, Ben Carpenter, Nathan Porter, Maurice S. Skolnick, Luke R. Wilson, The Univ. of Sheffield (United Kingdom); Thomas Grange, Robson Ferreira, Gerald Bastard, Ecole Normale Supérieure (France); Milan Orlić, Paulina Plochocka, Piotr Kossacki, Marek Potemski, Grenoble High Magnetic Field Lab. (France); Mike Sprinkle, Clair Berger, Walt de Heer, Georgia Institute of Technology (USA) [7937-07]

12:00 pm: **Enhancing slow- and fast-light effects in quantum dot semiconductor waveguides through ultrafast dynamics** (*Invited Paper*), Yaohui Chen, Jesper Moerk, Technical Univ. of Denmark (Denmark) . [7937-08]

Lunch Break 12:25 to 1:30 pm

SESSION 3

Room: 236 (Mezzanine)..... Sun. 1:30 to 3:30 pm

Terahertz Plasmonics

Session Chair: **Chih-Chung Yang**, National Taiwan Univ. (Taiwan)

1:30 pm: **Tapered terahertz plasmonic waveguides** (*Invited Paper*), Daniel M. Mittleman, Hui Zhan, Jingbo Liu, Rajind Mendis, Rice Univ. (USA) . . . [7937-09]

1:55 pm: **Ultrafast optical control of terahertz surface plasmons in subwavelength hole-arrays at room temperature** (*Invited Paper*), Abul K. Azad, Los Alamos National Lab. (USA) [7937-10]

2:20 pm: **Controlling THz plasmons with the electron spin state**, Cameron J. E. Straatsma, Abdulkhakem Y. Elezzabi, Univ. of Alberta (Canada) . . . [7937-11]

2:35 pm: **Semiconductor plasmons for THz frequency plasmonics** (*Invited Paper*), Euan Hendry, The Univ. of Exeter (United Kingdom) . . [7937-12]

3:00 pm: **THz patterned antennas for THz-TDS**, Pouya Maraghechi, Abdulkhakem Y. Elezzabi, Univ. of Alberta (Canada) [7937-13]

3:15 pm: **Ultrafast photoconductors based on subwavelength metallic gratings for the next generation of photoconductive terahertz sources**, Christopher W. Berry, Mona Jarrahi, Univ. of Michigan (USA) [7937-14]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 236 (Mezzanine)..... Sun. 4:00 to 5:40 pm

Laser Induced Structural Modifications

Session Chair: **Kong-Thon Tsen**, Arizona State Univ.

4:00 pm: **Optoacoustic response of a single submicronic gold particle revealed by the picosecond ultrasonics technique** (*Invited Paper*), Yannick Guillet, Clément Rossignol, Bertrand Audoin, Mélanie Ferrie, Serge Ravaine, Univ. Bordeaux 1 (France) [7937-15]

4:25 pm: **Damping of acoustic vibrations in gold nanoparticles** (*Invited Paper*), Matthew A. Pelton, Argonne National Lab. (USA); John Sader, The Univ. of Melbourne (Australia); Mingzhao Liu, Harvard Univ. (USA); Yiliang Wang, Argonne National Lab. (USA); Julien Burgin, Institut de Chimie de la Matière Condensée de Bordeaux (France); Philippe Guyot-Sionnest, The Univ. of Chicago (USA); David Gosztola, Argonne National Lab. (USA) [7937-16]

4:50 pm: **Ultrafast energy transfer between water molecules** (*Invited Paper*), Till N. Jahnke, Johann Wolfgang Goethe-Univ. Frankfurt am Main (Germany) [7937-17]

5:15 pm: **Femtosecond laser-induced protein crystallization in a gel solution** (*Invited Paper*), Ryota Murai, Osaka Univ. (Japan); Hiroshi Y. Yoshikawa, Ruprecht-Karls-Univ. Heidelberg (Germany); Yoshinori Takahashi, Mihoko Maruyama, Shigeru Sugiyama, Osaka Univ. (Japan); Gen Sasaki, Hokkaido Univ. (Japan); Adachi Hiroaki, Kazufumi Takano, Hiroyoshi Matsumura, Osaka Univ. (Japan); Satoshi Murakami, Tokyo Institute of Technology (Japan); Tsuyoshi Inoue, Yusuke Mori, Osaka Univ. (Japan) [7937-18]

Monday 24 January

SESSION 5

Room: 236 (Mezzanine) Mon. 8:00 to 10:05 am

Dynamics at Surfaces

Session Chair: **Yujie J. Ding**, Lehigh Univ.

8:00 am: **Toward determinism in surface damaging of dielectrics using few-cycle laser pulses** (*Invited Paper*), Nicolas Sanner, Olivier Utéza, Benoît Chimier, Marc Sentis, Lasers, Plasmas et Procédés Photoniques (France); Philippe Lassonde, François Légaré, Jean-Claude Kieffer, Institut National de la Recherche Scientifique (Canada) [7937-19]

8:25 am: **355 nm and 1064 nm-pulse mixing to identify the laser-induced damage mechanisms in the nanosecond regime** (*Invited Paper*), Stéphane Reyné, Guillaume Duchateau, Commissariat à l'Énergie Atomique (France); Jean-Yves Natoli, Institut Fresnel (France); Laurent Lemaignère, Commissariat à l'Énergie Atomique (France) [7937-20]

8:50 am: **Spin dynamics of carriers injected across interfaces with organic semiconductors** (*Invited Paper*), Mirko Cinchetti, Sabine Neuschwander, Nicolas Großmann, Kathrin Koffler, Jan-Peter Wüstenberg, Martin Aeschlimann, Technische Univ. Kaiserslautern (Germany) [7937-21]

9:15 am: **Ultrafast dynamics of femtosecond laser-induced nanostructure formation on metals** (*Invited Paper*), Chunlei Guo, Univ. of Rochester (USA) [7937-22]

9:40 am: **Tip-enhanced ultrafast spectroscopy and microscopy of organic solar cell blend film** (*Invited Paper*), Alfred J. Meixner, Dai Zhang, Eberhard Karls Univ. Tübingen (Germany) [7937-23]

Coffee Break 10:05 to 10:35 am

SESSION 6

Room: 236 (Mezzanine) Mon. 10:35 am to 12:10 pm

Dynamics in Laser Devices

Session Chair: **Robert A. Taylor**, Univ. of Oxford (United Kingdom)

10:35 am: **Ultrafast gain switching of quantum cascade lasers** (*Invited Paper*), Sukhdeep S. Dhillon, Nathan Jukam, Dimitri Oustinov, Rakchanok Rungsawang, Julien Madeo, Ecole Normale Supérieure (France); Stefano Barbieri, Christophe Manquest, Carlo Sirtori, Univ. Paris 7-Denis Diderot (France); Suraj P. Khanna, Edmund H. Linfield, Giles Davies, Univ. of Leeds (United Kingdom); Jerome Tignon, Ecole Normale Supérieure (France) [7937-24]

11:00 am: **Carrier dynamics investigation in quantum cascade lasers using ultrafast pulses**, Sheng Liu, Elaine Lalanne, Robinson A. Kuis, Anthony M. Johnson, Univ. of Maryland, Baltimore County (USA) [7937-25]

11:15 am: **Broadband bulk solid-state laser mode-locking based on carbon nanostructures** (*Invited Paper*), Fabian Rotermund, Ajou Univ. (Korea, Republic of) [7937-26]

11:40 am: **Passively mode-locked two section laser diode with intracavity dispersion control**, Tobias Schlauch, Jan Balzer, Martin R. Hofmann, Ruhr-Univ. Bochum (Germany); Andreas Klehr, Götz Erbert, Günther Tränkle, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany) [7937-27]

11:55 am: **Spin-controlled switching of lasing circular polarizations in (110)-oriented VCSELs**, Nobuhide Yokota, Kazuhiro Ikeda, Shinji Koh, Hitoshi Kawaguchi, Nara Institute of Science and Technology (Japan) [7937-28]

Lunch Break 12:10 to 1:30 pm

SESSION 7

Room: 236 (Mezzanine) Mon. 1:30 to 3:10 pm

Ultrafast Coherent Spectroscopy

Session Chairs: **Walter Pfeiffer**, Univ. Bielefeld (Germany); **Abdulhakem Y. Elezabi**, Univ. of Alberta (Canada)

1:30 pm: **Ultrafast generation of injection currents in semiconductor quantum wells** (*Invited Paper*), Torsten Meier, Huynh Thanh Duc, Jens Förstner, Univ. Paderborn (Germany); Shekhar Priyadarshi, Ana Maria Racu, Klaus Pierz, Uwe Siegner, Mark Bieler, Physikalisch-Technische Bundesanstalt (Germany) [7937-29]

1:55 pm: **Coherent control of ultrafast photocurrents in GaAs** (*Invited Paper*), Sangam Chatterjee, Kapil K. Kohli, Jan Mertens, Philipps-Univ. Marburg (Germany); Mark Bieler, Physikalisch-Technische Bundesanstalt (Germany) [7937-30]

2:20 pm: **Ultrafast coherent optoelectronics of semiconductor-metal hybrid structures** (*Invited Paper*), Claudia Ruppert, Technische Univ. München (Germany); Markus Betz, Technische Univ. Dortmund (Germany) [7937-31]

2:45 pm: **One- and two-dimensional THz spectroscopy on semiconductor nanostructures** (*Invited Paper*), Michael Woerner, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) [7937-32]

Coffee Break 3:10 to 3:40 pm

SESSION 8

Room: 236 (Mezzanine) Mon. 3:40 to 6:00 pm

Carrier Dynamics in Nitrides

Session Chair: **Torsten Meier**, Univ. Paderborn (Germany)

3:40 pm: **Carrier dynamics of Mg-doped indium nitride** (*Invited Paper*), Hyeeyoung Ahn, Chi-Chang Hong, National Chiao Tung Univ. (Taiwan); Yu-Liang Hong, Shangir Gwo, National Tsing Hua Univ. (Taiwan) [7937-33]

4:05 pm: **Identification of extremely radiative nature of AlN by time-resolved photoluminescence and time-resolved cathodoluminescence measurements** (*Invited Paper*), Shigefusa F. Chichibu, Kouji Hazu, Takeyoshi Onuma, Tohoku Univ. (Japan); Takayuki Sota, Waseda Univ. (Japan); Akira Uedono, Univ. of Tsukuba (Japan) [7937-34]

4:30 pm: **Ultrafast hot carrier dynamics in InN epitaxial films** (*Invited Paper*), Tsongru Tsai, Chih-Fu Chang, Chih-Wei Kuo, Cheng-Yu Chang, National Taiwan Ocean Univ. (Taiwan); S. Gwo, National Tsing Hua Univ. (Taiwan) [7937-35]

4:55 pm: **Long room-temperature electron spin lifetimes in bulk cubic GaN**, Jan H. Buss, Jörg Rudolph, Ruhr-Univ. Bochum (Germany); Thorsten Schupp, Donat J. As, Klaus Lischka, Univ. Paderborn (Germany); Daniel Hägele, Ruhr-Univ. Bochum (Germany) [7937-36]

5:10 pm: **Photoexcited carrier relaxation dynamics of InN films and nanocolumns** (*Invited Paper*), Kazuhiro Ema, Masafumi Hashimoto, Kazuya Fukunaga, Hideyuki Kunugita, Junpei Kamimura, Akihiko Kikuchi, Katsumi Kishino, Sophia Univ. (Japan) [7937-37]

5:35 pm: **Internal field shielding and the quantum confined stark effect in single and multiple In_xGa_{1-x}N quantum disks** (*Invited Paper*), Robert A. Taylor, Mark J. Holmes, Univ. of Oxford (United Kingdom); Young S. Park, Dongguk Univ. (Korea, Republic of); Jamie H. Warner, Jun Luo, Xu Wang, Anas Jarjour, Univ. of Oxford (United Kingdom) [7937-38]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA); **Klaus P. Streubel**, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**, Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim**, LG Display R&D Ctr. (Republic of Korea)

8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell**, Max-Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:45 am

SESSION 9

Room: 236 (Mezzanine) Tues. 10:45 am to 12:00 pm
Ultrafast Electron/X-ray Diffraction

Session Chair: **Markus Betz**, Technische Univ. Dortmund (Germany)

10:45 am: **Making the molecular movie: first frames**, Dwayne R. J. Miller, Univ. Hamburg (Germany) and Deutsches Elektronen Synchrotron (Germany) and Univ. of Toronto (Canada) [7937-39]

11:10 am: **Time-resolved x-ray scattering (Invited Paper)**, Matias Bargheer, Univ. Potsdam (Germany) [7937-40]

11:35 am: **Quasi-ballistic thermal transport from nanoscale interfaces observed using ultrafast coherent soft x-ray beams (Invited Paper)**, Mark E. Siemens, Univ. of Denver (USA); Qing Li, Ronggui Yang, Univ. of Colorado at Boulder (USA); Keith A. Nelson, Massachusetts Institute of Technology (USA); Erik H. Anderson, Lawrence Berkeley National Lab. (USA); Margaret M. Murnane, Henry C. Kapteyn, Univ. of Colorado at Boulder (USA) [7937-41]
Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 10

Room: 236 (Mezzanine) Tues. 1:30 to 3:25 pm
Nanoplasmonics

Session Chair: **Jan A. Gaj**, Univ. of Warsaw (Poland)

1:30 pm: **Trends in nanoplasmonics: ultrasmall, ultrafast, ultrastrong (Invited Paper)**, Mark I. Stockman, Georgia State Univ. (USA) [7937-42]

1:55 pm: **Ultrafast active plasmonic coupling (Invited Paper)**, Nir Rotenberg, Markus Betz, Jan N. Caspers, Henry M. van Driel, Univ. of Toronto (Canada) [7937-43]

2:20 pm: **Amplification of surface plasmons (Invited Paper)**, Israel De Leon, Pierre Berini, Univ. of Ottawa (Canada) [7937-44]

2:45 pm: **Metal nanoring fabrication and its biomedical application (Invited Paper)**, Hung-Yu Tseng, Cheng-Kuang Lee, Shou-Yen Wu, Ting-Ta Chi, Kai-Min Yang, Jyh-Yang Wang, National Taiwan Univ. (Taiwan); Meng-Tsan Tsai, Chang Gung Univ. (Taiwan); Yean-Woei Kiang, Chih-Chung Yang, National Taiwan Univ. (Taiwan) [7937-45]

3:10 pm: **The operation of nanoscale antennae with complex geometries**, Matthew S. Sederberg, Abdulhakem Y. Elezzabi, Univ. of Alberta (Canada) [7937-46]

Coffee Break 3:25 to 3:55 pm

SESSION 11

Room: 236 (Mezzanine) Tues. 3:55 to 6:00 pm
Carrier Dynamics in Quantum Dots III

Session Chair: **Chunlei Guo**, Univ. of Rochester

3:55 pm: **Robust quantum dot state preparation via adiabatic passage with frequency-swept laser pulses (Invited Paper)**, Xavier Marie, Institut National des Sciences Appliquées de Toulouse (France) [7937-47]

4:20 pm: **Photon statistics and phonon signatures in the quantum light emission from semiconductor quantum dots (Invited Paper)**, Alexander Carmele, Julia Kabuss, Andreas Knorr, Technische Univ. Berlin (Germany); Marten Richter, Univ. of California, Irvine (USA); Weng W. Chow, Sandia National Labs. (USA) [7937-48]

4:45 pm: **Picosecond charge state dynamics of CdTe/ZnTe quantum dots studied by excitation correlation spectroscopy (Invited Paper)**, Tomasz Kazmierczuk, Univ. of Warsaw (Poland) [7937-49]

5:10 pm: **Two-photon excited fluorescence from colloidal quantum dots on SiN photonic crystals (Invited Paper)**, Xingsheng Xu, Institute of Semiconductors (China) [7937-50]

5:35 pm: **Effect of donor-acceptor concentration ratios on nonradiative energy transfer in closely packed CdTe quantum dots (Invited Paper)**, Yan-Cheng Lin, Wu-Ching Chou, National Chiao Tung Univ. (Taiwan) [7937-51]

Wednesday 26 January

SESSION 12

Room: 236 (Mezzanine) Wed. 8:00 to 10:20 am

Nonlinear Optical Processes

Session Chairs: **Fabrice Vallee**, Univ. Claude Bernard Lyon 1 (France); **Abdulhakem Y. Elezzabi**, Univ. of Alberta (Canada)

8:00 am: **Novel terahertz emission devices based on efficient optical frequency conversion in GaAs/AlAs coupled multilayer cavity structures on high-index substrates (Invited Paper)**, Takahiro Kitada, Fumiya Tanaka, Tomoya Takahashi, Ken Morita, Toshiro Iisu, Univ. of Tokushima (Japan) [7937-52]

8:25 am: **Efficient generation of coherent mid-infrared and far-infrared waves in highly lossy second-order nonlinear media at polariton resonances under transverse-pumping geometry (Invited Paper)**, Yujie J. Ding, Lehigh Univ. (USA) [7937-53]

8:50 am: **Nanosecond large aperture optical switcher**, Olga V. Asmolova, Pavlo A. Molchanov, Tom Curran, Ampac Inc. (USA) [7937-54]

9:05 am: **Ultrafast switching of light by absorption saturation in vacuum ultraviolet region (Invited Paper)**, Hitoki Yoneda, The Univ. of Electro-Communications (Japan); Yuichi Inubushi, Osaka Univ. (Japan); Fumiya Sato, The Univ. of Electro-Communications (Japan); Shunsuke Morimoto, Taisuke Kumagaya, Osaka Univ. (Japan); Mitsuru Nagasono, Atsushi Higashiya, Makina Yabashi, Tetsuya Ishikawa, Haruhiko Ohashi, Hiroaki Kimura, Tadashi Togashi, RIKEN (Japan); Hikaru Kitamura, Kyoto Univ. (Japan); Ryosuke Kodama, Osaka Univ. (Japan) [7937-55]

9:30 am: **In vivo harmonic generation biopsy of human skin (Invited Paper)**, Chi-Kuang Sun, National Taiwan Univ. (Taiwan) and Academia Sinica (Taiwan) [7937-56]

9:55 am: **Fiber-optic Cherenkov radiation excited by few-cycle pulses (Invited Paper)**, Guoqing Chang, Li-Jin Chen, Franz Kaertner, Massachusetts Institute of Technology (USA) [7937-57]

Coffee Break 10:20 to 10:50 am

SESSION 13

Room: 236 (Mezzanine) Wed. 10:50 am to 12:05 pm

Dynamics in Strongly Correlated Materials

Session Chairs: **Guoqing Chang**, Massachusetts Institute of Technology; **Jin-Joo Song**, Univ. of California, San Diego

10:50 am: **Coherent magnetization dynamics in ferromagnetic materials (Invited Paper)**, Jean-Yves Bigot, Institut de Physique et Chimie des Matériaux de Strasbourg (France) [7937-58]

11:15 am: **Photocarrier recombination dynamics of SrTiO₃ (Invited Paper)**, Yasuhiro Yamada, Yoshihiko Kanemitsu, Kyoto Univ. (Japan) [7937-59]

11:40 am: **Electron relaxation in metals and high-T_c superconductors on the 10-fs timescale (Invited Paper)**, Daniele Brida, Politecnico di Milano (Italy); Christoph Gadermaier, Jožef Stefan Institute (Slovenia); Dario Polli, Politecnico di Milano (Italy); Viktor V. Kabanov, Dragan Mihailovic, Jožef Stefan Institute (Slovenia); Giulio Cerullo, Politecnico di Milano (Italy) [7937-60]

Lunch/Exhibition Break 12:05 to 1:25 pm

SESSION 14

Room: 236 (Mezzanine) Wed. 1:25 to 3:30 pm

Carrier Dynamics in Carbon Nanomaterials

Session Chair: **Chi-Kuang Sun**, National Taiwan Univ. (Taiwan)

1:25 pm: **Ultrafast carrier and phonon dynamics in graphene: relaxation, recombination, and transport (Invited Paper)**, Farhan Rana, Haining Wang, Jared H. Strait, Cornell Univ. (USA) [7937-61]

1:50 pm: **Microscopic theory of ultrafast processes in carbon nanomaterials (Invited Paper)**, Ermin Malic, Torben Winzer, Andreas Knorr, Technische Univ. Berlin (Germany) [7937-62]

2:15 pm: **Phonon dynamics of carbon nanotubes and graphene using broadband time-resolved CARS microscopy (Invited Paper)**, Young Lee, Sapun H. Parekh, Jeffrey A. Fagan, Marcus T. Cicerone, National Institute of Standards and Technology (USA) [7937-63]

2:40 pm: **Ultrafast terahertz spectroscopy of few-layer graphene** (*Invited Paper*), Hyunyoung Choi, Ferenc Borondics, David A. Siegel, Shuyun Zhou, Michael C. Martin, Alessandra Lanzara, Robert A. Kaindl, Lawrence Berkeley National Lab. (USA) [7937-64]

3:05 pm: **Ultrafast exciton and charge transfer in small aggregates of carbon nanotubes** (*Invited Paper*), Larry Lüer, Instituto Madrileño de Estudios Avanzados (Spain); Jared Crochet, Los Alamos National Lab. (USA); Tobias Hertel, Univ. of Würzburg (Germany); Sajjad Hoseinkhani, Italian Institute of Technology (Italy); Giulio Cerullo, Politecnico di Milano (Italy); Guglielmo Lanzani, Italian Institute of Technology (Italy) [7937-65]

Coffee Break 3:30 to 4:00 pm

SESSION 15

Room: 236 (Mezzanine) Wed. 4:00 to 5:30 pm

Ultrafast Electron Dynamics

Session Chair: **Markus Betz**, Technische Univ. Dortmund (Germany)

4:00 pm: **Phonon-sideband spectroscopy: plasma contribution and interaction mechanisms** (*Invited Paper*), Alexej Chernikov, Thomas Feldtmann, Christoph Böttge, Philipps-Univ. Marburg (Germany); Thomas A. Wassner, Technische Univ. München (Germany); Martin H. Eickhoff, Justus-Liebig-Univ. Giessen (Germany); Martin Koch, Mackillo Kira, Stephan W. Koch, Sangam Chatterjee, Philipps-Univ. Marburg (Germany) [7937-66]

4:25 pm: **Time-resolved nonlinear optical-holographic techniques for investigation of nonequilibrium carrier dynamics in semiconductors** (*Invited Paper*), Kestutis Jarasiunas, Vilnius University (Lithuania) [7937-67]

4:50 pm: **Probing correlated electron dynamics with attosecond pulses** (*Invited Paper*), Zenghu Chang, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) [7937-68]

5:15 pm: **Quantum turbulences in semiconductor microcavities**, Gael Nardin, G. Grosso, Y. Léger, Barbara Pietka, Francois Morier-Genoud, Benoit Deveaud-Pledran, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7937-72]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

GAWS and its effect on SBS based slow light in optical fibers, Christopher K. Horne, Chung Yu, Khanh Tranh, North Carolina A&T State Univ. (USA) [7937-69]

Generation of femtosecond asymmetric beam with helical geometry, Chris Ceroici, Abdulhakem Y. Elezzabi, Univ. of Alberta (Canada) [7937-70]

Pulse shaping properties of multi-layer volume holographic gratings, Aimin Yan, Jianfeng Sun, Yu Zhou, Liren Liu, Shanghai Institute of Optics and Fine Mechanics (China) [7937-71]

Magnetic micro-trapping of excitons in multiple quantum wells system using local field minima, Ahmed M. Abdelrahman, Edith Cowan Univ. (Australia); Hoonsoo Kang, Gwangju Institute of Science and Technology (Korea, Republic of); Mikhail Vasiliev, Edith Cowan Univ. (Australia); Kamal E. Alameh, Edith Cowan Univ. (Australia) and Gwangju Institute of Science and Technology (Korea, Republic of) [7937-73]

Inhomogeneous spin-dependent spatial distribution of excitons in an integrated magnetic-multiple quantum wells system, Ahmed M. Abdelrahman, Edith Cowan Univ. (Australia); Hoonsoo Kang, Gwangju Institute of Science and Technology (Korea, Republic of); Mikhail Vasiliev, Edith Cowan Univ. (Australia); Sang Y. Yim, Gwangju Institute of Science and Technology (Korea, Republic of); Kamal E. Alameh, Edith Cowan Univ. (Australia) and Gwangju Institute of Science and Technology (Korea, Republic of); Yong-Tak Lee, Gwangju Institute of Science and Technology (Korea, Republic of) [7937-74]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Don't miss the free Photonics West Exhibition

See new products and top companies at the most important event for the photonics and laser industry

25-27 January 2011

Tuesday · 10:00 am to 5:00 pm

Wednesday · 10:00 am to 5:00 pm

Thursday · 10:00 am to 4:00 pm

Terahertz Technology and Applications IV

Conference Chairs: **Laurence P. Sadwick**, InnoSys, Inc.; **Crédhe M. M. O'Sullivan**, National Univ. of Ireland, Maynooth (Ireland)

Program Committee: **Antao Chen**, Univ. of Washington; **Robert H. Giles**, Univ. of Massachusetts Lowell; **R. Jennifer Hwu**, InnoSys, Inc.; **John Anthony Murphy**, National Univ. of Ireland, Maynooth (Ireland); **Michael C. Wanke**, Sandia National Labs.

Wednesday 26 January

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Some aspects of far infrared spectroscopy of explosive materials, Norbert Palka, Mieczyslaw Szustakowski, Tomasz Trzcinski, Military Univ. of Technology (Poland) [7938-19]

Thursday 27 January

SESSION 1

Room: 236 (Mezzanine) Thurs. 8:00 to 10:30 am

THz Imaging, Spectroscopy, and Instrumentation

Session Chairs: **Laurence P. Sadwick**, InnoSys, Inc.;
Michael C. Wanke, Sandia National Labs.

8:00 am: **Advancements in photomixing and photoconductive switching for THz spectroscopy and imaging** (*Invited Paper*), Elliott R. Brown, Wright State Univ. (USA) and Physical Domains, LLC (USA) [7938-01]

8:30 am: **New experimental methods in terahertz spectroscopy**, Elizabeth J. Slingerland, Robert H. Giles, Thomas M. Goyette, Univ. of Massachusetts Lowell (USA) [7938-02]

8:50 am: **Encoding terahertz signatures into laser-induced plasma acoustic waves**, Benjamin W. Clough, Jingle Liu, Xi-Cheng Zhang, Rensselaer Polytechnic Institute (USA) [7938-03]

9:10 am: **Efficient material parameters estimation with terahertz time domain spectroscopy**, Osman S. Ahmed, Mohamed A. Swillam, Mohamed H. Bakr, Xun Li, McMaster Univ. (Canada) [7938-04]

9:30 am: **Terahertz imaging in dielectric media with quasi-Bessel beams**, Takashi Buma, Zhuopeng Zhang, Univ. of Delaware (USA) [7938-05]

9:50 am: **Comparison of GaAs and DAST electro-optic crystals for THz time domain spectroscopy using 1.55 μm fiber laser pulses**, Matthieu Martin, Juliette Mangeney, Paul Crozat, Univ. Paris-Sud 11 (France); Patrick Mounaix, Univ. Bordeaux 1 (France) [7938-06]

10:10 am: **Terahertz time-lapse video of hydration in physiological tissues**, David B. Bennett, Zachary D. Taylor, Sijun Sung, Borokh Makkabi, Priyamvada Tewari, Neha Bajwa, Rahul S. Singh, Martin O. Culjat, Warren S. Grundfest M.D., Univ. of California, Los Angeles (USA); Elliott R. Brown, Univ. of California, Santa Barbara (USA) and Wright State Univ. (USA) [7938-20]

Coffee Break 10:30 to 11:00 am

Courses of Related Interest

SC547 Terahertz Wave Technology and Applications (Zhang) Wednesday, 8:30 am to 12:30 pm

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

SESSION 2

Room: 236 (Mezzanine) Thurs. 11:00 am to 12:00 pm

THz Modeling and Simulation

Session Chairs: **Tianxin Yang**, Tianjin Univ. (China);
Laurence P. Sadwick, InnoSys, Inc.

11:00 am: **The effects of various approximations on electron-electron scattering calculations in QCLs**, Philip Slingerland, Christopher S. Baird, Robert H. Giles, Univ. of Massachusetts Lowell (USA) [7938-07]

11:20 am: **Semiconductor-coated deep subwavelength spoof surface plasmonic waveguide for THz and MIR applications**, Ruoxi Yang, Wangshi Zhao, Zhaolin Lu, Rochester Institute of Technology (USA) [7938-08]

11:40 am: **Optical frequency conductance model of terahertz/infrared emission and detection in quantum wells, quantum dots, and narrow-gap semiconductors**, Thomas Szkopek, Elizabeth Ledwosinska, McGill Univ. (Canada) [7938-09]

Lunch/Exhibition Break 12:00 to 1:20 pm

SESSION 3

Room: 236 (Mezzanine) Thurs. 1:20 to 3:10 pm

THz Sources, Generation, and Detection

Session Chairs: **Laurence P. Sadwick**, InnoSys, Inc.;
Antao Chen, Univ. of Washington

1:20 pm: **THz lasing concepts based upon InAs/GaSb broken-gap heterostructures** (*Invited Paper*), Dwight L. Woolard, U.S. Army Research Office (USA); Weidong Zhang, North Carolina State Univ. (USA) [7938-10]

1:50 pm: **A mechanically tunable terahertz modulator based on antiresonant reflecting hollow waveguide**, Ja-Yu Lu, Hao-Zai Chen, National Cheng Kung Univ. (Taiwan); Chih-Hsien Lai, Hung-Chun Chang, National Taiwan Univ. (Taiwan); Borwen You, National Cheng Kung Univ. (Taiwan); Tze-An Liu, Jin-Long Peng, Industrial Technology Research Institute (Taiwan) [7938-11]

2:10 pm: **THz thermal emission from a 1D photonic crystal**, Ian A. Zimmerman, Ziran Wu, Hao Xin, Richard W. Ziolkowski, The Univ. of Arizona (USA) [7938-12]

2:30 pm: **Room temperature Nb5N6 microbolometer for detecting signals at terahertz region**, Lin Kang, Xuchou Tu, Jian Chen, Peiheng Wu, Nanjing Univ. (China) [7938-13]

2:50 pm: **THz and millimeter wave vacuum electronic sources**, Laurence P. Sadwick, InnoSys, Inc. (USA) [7938-14]

Coffee Break 3:10 to 3:40 pm

SESSION 4

Room: 236 (Mezzanine) Thurs. 3:40 to 5:00 pm

THz Materials and Configurations

Session Chairs: **R. Jennifer Hwu**, InnoSys, Inc.;
Robert H. Giles, Univ. of Massachusetts Lowell

3:40 pm: **Applications of holography in the millimeter-wave and terahertz region**, Ian McAuley, Ronan J. Mahon, J. Anthony Murphy, National Univ. of Ireland, Maynooth (Ireland) [7938-15]

4:00 pm: **Electromagnetic crystal (EMXT) based THz components**, Ziran Wu, Wei-Ren Ng, Michael E. Gehm, Hao Xin, The Univ. of Arizona (USA) [7938-16]

4:20 pm: **Modelling of detector cavities at THz frequencies**, Stephen D. Doherty, National Univ. of Ireland, Maynooth (Ireland) [7938-17]

4:40 pm: **Terahertz antiresonant reflecting hollow-core waveguides for sensing applications**, Borwen You, Ja-Yu Lu, National Cheng Kung Univ. (Taiwan); Chi-Yu Chan, Chin-Ping Yu, National Sun Yat-Sen Univ. (Taiwan); Hao-Zai Chen, National Cheng Kung Univ. (Taiwan); Tze-An Liu, Jin-Long Peng, Industrial Technology Research Institute (Taiwan) [7938-18]

Gallium Nitride Materials and Devices VI

Conference Chairs: **Jen-Inn Chyi**, National Central Univ. (Taiwan); **Yasushi Nanishi**, Ritsumeikan Univ. (Japan); **Hadis Morkoç**, Virginia Commonwealth Univ.

Conference Co-Chairs: **Joachim Piprek**, NUSOD Institute LLC; **Euijoon Yoon**, Seoul National Univ. (Korea, Republic of)

Program Committee: **Hiroshi Amano**, Meijo Univ. (Japan); **Jong-Hyeob Baek**, Korea Photonics Technology Institute (Korea, Republic of); **Alison A. Baski**, Virginia Commonwealth Univ.; **Shoou-Jinn Chang**, National Cheng Kung Univ. (Taiwan); **Li-Chyong Chen**, National Taiwan Univ. (Taiwan); **Hiroshi Fujioka**, The Univ. of Tokyo (Japan); **Nicolas Grandjean**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Detlef Hommel**, Univ. Bremen (Germany); **Yoichi Kawakami**, Kyoto Univ. (Japan); **Michael Kneissl**, Technische Univ. Berlin (Germany); **Hao-Chung Kuo**, National Chiao Tung Univ. (Taiwan); **Narihiko Maeda**, NTT Photonics Labs. (Japan); **Hideto Miyake**, Mie Univ. (Japan); **Yong-Tae Moon**, LG Electronics Inc. (Korea, Republic of); **Takashi Mukai**, Nichia Corp. (Japan); **Ok-Hyun Nam**, Korea Polytechnic Univ. (Korea, Republic of); **Ulrich T. Schwarz**, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); **Tae-Yeon Seong**, Korea Univ. (Korea, Republic of); **Jong-In Shim**, Hanyang Univ. (Korea, Republic of); **Kenji Shiojima**, Univ. of Fukui (Japan); **Cheolsoo Sone**, Samsung Electro-Mechanics (Korea, Republic of); **Chih-Chung Yang**, National Taiwan Univ. (Taiwan)

Monday 24 January

SESSION 1

Room: 300 (Esplanade) Mon. 8:00 to 10:10 am

Growth I

Session Chair: **Hadis Morkoç**, Virginia Commonwealth Univ.

8:00 am: **Growth of bulk GaN crystal by Na flux method** (*Invited Paper*), Yusuke Mori, Yasuo Kitaoka, Mamoru Imade, Osaka Univ. (Japan). . . [7939-01]

8:30 am: **Growth and optoelectrical properties of single III-nitride nanowires** (*Invited Paper*), Raffaella Calarco, Paul-Drude-Institut für Festkörperelektronik (Germany) and Forschungszentrum Jülich GmbH (Germany); Toma Stoica, Forschungszentrum Jülich GmbH (Germany); Tobias Gotschke, Paul-Drude-Institut für Festkörperelektronik (Germany) and Forschungszentrum Jülich GmbH (Germany); Timo Schumann, Forschungszentrum Jülich GmbH (Germany); Friederich Limbach, Paul-Drude-Institut für Festkörperelektronik (Germany) and Forschungszentrum Jülich GmbH (Germany); Eike-Oliver Schaefer-Nolte, Thomas Schaeepers, Detlev Gruetzmacher, Forschungszentrum Jülich GmbH (Germany); Eli Sutter, Peter Sutter, Brookhaven National Lab. (USA); Anna Cavallini, Laura Polenta, Univ. degli Studi di Bologna (Italy) [7939-02]

9:00 am: **Growth and fabrication of InN-based III-nitride device structure using droplet elimination process by radical beam irradiation** (*Invited Paper*), Tomohiro Yamaguchi, Ritsumeikan Univ. (Japan); Yasushi Nanishi, Ritsumeikan Univ. (Japan) and Seoul National Univ. (Korea, Republic of) [7939-03]

9:30 am: **MOCVD growths of linearly shaped staggered InGaN quantum wells light-emitting diodes at green spectral regime**, Hongping Zhao, Jing Zhang, Takahiro Toma, Guangyu Liu, Jonathan D. Poplawsky, Volkmar Dierolf, Nelson Tansu, Lehigh Univ. (USA) [7939-04]

9:50 am: **Impact of thermal treatment on the luminescence properties of InGaN/GaN MQWs grown on GaN-on-Si(111) templates**, Anja Dempewolf, Frank Bertram, Thomas Hempel, Jürgen Christen, Otto-von-Guericke-Univ. Magdeburg (Germany); Philipp Drechsel, Paul-Drude-Institut für Festkörperelektronik (Germany) [7939-05]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 300 (Esplanade) Mon. 10:40 am to 12:30 pm

GaN Doping

Session Chair: **Yasushi Nanishi**, Ritsumeikan Univ. (Japan)

10:40 am: **Photoluminescence of Mg-doped m-plane GaN grown on bulk GaN templates** (*Invited Paper*), Bo Monemar, Plamen P. Paskov, Galia R. Pozina, Carl Hemmingsson, Peder Bergman, Linköping Univ. (Sweden); David Lindgren, Lars Samuelson, Lund Univ. (Sweden); Xianfeng Ni, Hadis Morkoç, Virginia Commonwealth Univ. (USA); Tanya Paskova, Kyma Technologies, Inc. (USA) [7939-20]

11:10 am: **Optimization of p-type doping for GaN-based blue light emitting devices**, Antonino Castiglia, Jean-Francois Carlin, Nicolas Grandjean, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7939-21]

11:30 am: **Detailed photoluminescence study of the magnesium related acceptor states in GaN**, Gordon Callsen, Technische Univ. Berlin (Germany) and Univ. of Technology, Sydney (Australia); Marc Hoffmann, North Carolina State Univ. (USA); Markus R. Wagner, Ronny Kirste, Juan S. Reparaz, Axel Hoffmann, Technische Univ. Berlin (Germany); Seymen Aygun, James Tweedie, Ramon Collazo, Zlatko Sitar, North Carolina State Univ. (USA); Christian Nenstiel, Matthew R. Phillips, Univ. of Technology, Sydney (Australia) [7939-22]

11:50 am: **Kelvin probe measurements of p-type and n-type GaN**, Michael A. Foussekis, Xianfeng Ni, Hadis Morkoç, Michael A. Reshchikov, Alison A. Baski, Virginia Commonwealth Univ. (USA) [7939-23]

12:10 pm: **Fermi level effect on the strain of Si doped GaN**, Jinqiao Xie, Seiji Mita, HexaTech, Inc. (USA); Ramón Collazo, Anthony Rice, James Tweedie, Zlatko Sitar, North Carolina State Univ. (USA) [7939-24]

Lunch Break 12:30 to 2:00 pm

SESSION 3

Room: 300 (Esplanade) Mon. 2:00 to 3:20 pm

FET I

Session Chair: **Jen-Inn Chyi**, National Central Univ. (Taiwan)

2:00 pm: **The role of fluorine ions in GaN heterojunction transistors: applications and stability** (*Invited Paper*), Kevin J. Chen, Hong Kong Univ. of Science and Technology (Hong Kong, China) [7939-25]

2:30 pm: **500 GHz GaN transistors: when and how?** (*Invited Paper*), Tomas Palacios, Massachusetts Institute of Technology (USA) [7939-26]

3:00 pm: **Effect of substrate offcut on Al incorporation in AlGaIn/GaN HFET structures on bulk GaN substrates**, Jacob H. Leach, Kyma Technologies, Inc. (USA) and Virginia Commonwealth Univ. (USA); Tanya Paskova, Edward A. Preble, Keith R. Evans, Kyma Technologies, Inc. (USA); Xianfeng Ni, Xing Li, Mo Wu, Ümit Özgür, Hadis Morkoç, Virginia Commonwealth Univ. (USA) . [7939-27]

Coffee Break 3:20 to 3:50 pm

SESSION 4

Room: 300 (Esplanade) Mon. 3:50 to 5:10 pm

FET II

Session Chair: Joachim Piprek, NUSOD Institute LLC

- 3:50 pm: **Power electronics for hybrid and all electronics automobiles** (*Invited Paper*), Tetsu Kachi, Toyota Central Research and Development Labs., Inc. (Japan) [7939-28]
- 4:20 pm: **GaN power device and its future prospects** (*Invited Paper*), Yoshiharu Anda, Masahiro Ishida, Tetsuzo Ueda, Tsuyoshi Tanaka, Daisuke Ueda, Panasonic Semiconductor Discrete Devices Co., Ltd. (Japan) . [7939-29]
- 4:50 pm: **New factors affecting HFET stability, 1/f noise, and reliability**, Peter H. Handel, Univ. of Missouri-St. Louis (USA); Hadis Morkoç, Virginia Commonwealth Univ. (USA) [7939-30]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: Liang-Chy Chien, Kent State Univ. (USA); Klaus P. Streubel, OSRAM GmbH (Germany)

- 8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien, Kent State Univ. (USA)**
- 8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)**
- 8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim, LG Display R&D Ctr. (Republic of Korea)**
- 8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell, Max-Planck-Institute for Biophysical Chemistry (Germany)**
- 9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch, Univ. of California, Berkeley (USA)**

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 5

Room: 300 (Esplanade) Tues. 10:30 am to 12:10 pm

Advanced Techniques I

Session Chair: Euijoon Yoon, Seoul National Univ. (Korea, Republic of)

- 10:30 am: **Point defects in GaN and related group-III nitrides studied by means of positron annihilation** (*Invited Paper*), Akira Uedono, Univ. of Tsukuba (Japan); Shoji Ishibashi, National Institute of Advanced Industrial Science and Technology (Japan); Shigefusa F. Chichibu, Tohoku Univ. (Japan); Katsuhiko Akimoto, Univ. of Tsukuba (Japan) [7939-31]
 - 11:00 am: **Role of In-segregation in anomalously large band gap bowings of (In,Al,Ga)N** (*Invited Paper*), Tadek Suski, Izabella Gorczyca, Institute of High Pressure Physics (Poland) [7939-32]
 - 11:30 am: **Electroluminescence analysis of patterned ZnO nanorod array on light-extraction efficiency of GaN-based light-emitting diodes**, Hyoungwon Park, Kyeong-Jae Byeon, Joong-Yeon Cho, Seong-Hwan Lee, Heon Lee, Korea Univ. (Korea, Republic of) [7939-33]
 - 11:50 am: **Exciton binding energies and energy splittings in aluminium nitride bulk and epilayers**, Bernard Gil, Brahim Guizal, Didier Felbacq, Univ. Montpellier 2 (France); Guy Bouchitté, Univ. de Toulon et du var (France) [7939-34]
- Lunch/Exhibition Break 12:10 to 1:40 pm

SESSION 6

Room: 300 (Esplanade) Tues. 1:40 to 3:20 pm

Advanced Techniques II

Session Chair: Akira Uedono, Univ. of Tsukuba (Japan)

- 1:40 pm: **Bowing of biexciton binding in AlGaIn ternary alloys** (*Invited Paper*), Yoichi Yamada, Yamaguchi Univ. (Japan) [7939-35]
 - 2:10 pm: **Inhomogeneous carrier distribution in InGaIn multiple quantum wells and its influences on device performances** (*Invited Paper*), Han-Youl Ryu, Inha Univ. (Korea, Republic of); Jong-In Shim, Hanyang Univ. (Korea, Republic of) [7939-36]
 - 2:40 pm: **Thermoelectric properties of MOCVD-grown AlInN alloys with various compositions**, Jing Zhang, Hua Tong, Guangyu Liu, Juan A. Herbsommer, Gensheng Huang, Nelson Tansu, Lehigh Univ. (USA) . . [7939-37]
 - 3:00 pm: **Hydrogen etch of GaN and its application to produce porous GaN caves**, Wei-I Lee, Ying-Chia Hsu, Yen-Hsien Yeh, Yin-Hao Wu, Kuei-Ming Chen, National Chiao Tung Univ. (Taiwan) [7939-38]
- Coffee Break 3:20 to 3:50 pm

SESSION 7

Room: 300 (Esplanade) Tues. 3:50 to 5:40 pm

Advanced Techniques III

Session Chair: Bernard Gil, Univ. Montpellier 2 (France)

- 3:50 pm: **Plasmonic effects in InGaIn** (*Invited Paper*), Sergey V. Ivanov, Tatiana V. Shubina, Alexey A. Toropov, Ioffe Physico-Technical Institute (Russian Federation) [7939-39]
- 4:20 pm: **LPP coupling in AlGaIn**, Ronny Kirste, Stefan Mohn, Axel Hoffmann, Technische Univ. Berlin (Germany) [7939-40]
- 4:40 pm: **Cathodoluminescence microscopy of planar semipolar (11-22) and (10-11) GaN grown directly on pre-patterned sapphire substrates**, Sebastian Metzner, Frank Bertram, Silvio Neugebauer, Thomas Hempel, Jürgen Christen, Otto-von-Guericke-Univ. Magdeburg (Germany); Stephan Schwaiger, Ilona Argut, Thomas Wunderer, Frank Lipski, Rudolf Roesch, Ferdinand Scholz, Univ. Ulm (Germany) [7939-41]
- 5:00 pm: **Optical pump-terahertz probe studies of AlGaIn**, Timothy M. Sweeney, Univ. of Oregon (USA); Grace D. Metcalfe, Gregory A. Garrett, Anand V. Sampath, Paul H. Shen, U.S. Army Research Lab. (USA); Hailin Wang, Univ. of Oregon (USA); Michael Wraback, U.S. Army Research Lab. (USA) . [7939-42]
- 5:20 pm: **Optical, EPR and PAS measurements on Gd doped GaIn as material for spintronics**, Ole Hitzemann, Wolfgang Gehlhoff, Technische Univ. Berlin (Germany); Belal Salameh, Technische Univ. Berlin (Germany) and Tafila Technical Univ. (Jordan); Axel Hoffmann, Technische Univ. Berlin (Germany); Martin Röver, Jörg Malindretos, Angela Rizzi, Georg-August-Univ. Göttingen (Germany); Christian Rauch, Filip Tuomisto, Aalto Univ. School of Science and Technology (Finland) [7939-86]

Wednesday 26 January

SESSION 8

Room: 300 (Esplanade) Wed. 8:20 to 10:00 am

Lasers

Session Chair: Hiroshi Amano, Meijo Univ. (Japan)

- 8:20 am: **Recent developments in AlGaIn based laser diodes for short ultraviolet region** (*Invited Paper*), Harumasa Yoshida, Masakazu Kuwabara, Yoji Yamashita, Kazuya Uchiyama, Hirofumi Kan, Hamamatsu Photonics K.K. (Japan) [7939-43]
- 8:50 am: **An overview on the physical mechanisms determining the degradation of GaN-based LEDs and lasers** (*Invited Paper*), Enrico Zanoni, Gaudenzio Meneghesso, Matteo Meneghini, Univ. degli Studi di Padova (Italy) [7939-44]
- 9:20 am: **Nano-scale correlation of structural and optical properties of lattice matched AlInN/GaN DBRs using helium temperature scanning transmission electron microscopy cathodoluminescence**, Barbara Bastek, Peter Veit, Jürgen Christen, Silke Petzold, Frank Bertram, Christoph Berger, Armin Dadgar, Alois J. Krost, Otto-von-Guericke-Univ. Magdeburg (Germany) [7939-46]

OPTO

9:40 am: **High-performance blue and green laser diodes based on nonpolar/semipolar InGaN**, James W. Raring, Mathew C. Schmidt, Christiane Poblenz, Ben Li, Yu-Chia Chang, Mark J. Mondry, Don Kebort, Michael R. Krames, Richard Craig, James S. Speck, Steven P. DenBaars, Shuji Nakamura, Soraa, Inc. (USA) [7939-47]

Coffee Break 10:00 to 10:30 am

SESSION 9

Room: 300 (Esplanade) Wed. 10:30 am to 12:30 pm

Novel Devices

Session Chair: Enrico Zanoni, Univ. degli Studi di Padova (Italy)

10:30 am: **Quantum cascade detectors based on III-nitride heterostructures (Invited Paper)**, Eva Monroy, Yulia Kotsar, Qiran Li, Prem Kumar Kandaswamy, Commissariat à l'Énergie Atomique (France); Salam Sakr, Maria Tchernycheva, François Julien, Univ. Paris-Sud 11 (France); Alon Vardi, Gad Bahir, Technion-Israel Institute of Technology (Israel) [7939-48]

11:00 am: **The development of monolithic alternating current light-emitting diode (Invited Paper)**, Wen-Yung Yeh, Hsi-Hsuan Yen, Yi-Jen Chan, Industrial Technology Research Institute (Taiwan) [7939-49]

11:30 am: **III-nitride resonant tunneling devices from growth to fabrication**, Manijeh Razeghi, Northwestern Univ. (USA) [7939-50]

11:50 am: **Green range (520-565 nm) optical pumped stimulated emissions on 2D-DFB scheme from InGaN-based nanocolumn arrays**, Katsumi Kishino, Shunsuke Ishizawa, R. Araki, K. Yamano, T. Kouno, Akihiko Kikuchi, Sophia Univ. (Japan) [7939-51]

12:10 pm: **Etching formation of GaN micro emitter array device**, Qian Fan, Frank Lee, Kameshwar Yadavalli, Michael S. Lee, Chih-Li Chuang, Hussein El-Ghoroury, Ostendo Technologies, Inc. (USA) [7939-52]

Lunch/Exhibition Break 12:30 to 2:00 pm

SESSION 10

Room: 300 (Esplanade) Wed. 2:00 to 3:16 pm

Poster Highlights I

Session Chair: Yasushi Nanishi, Ritsumeikan Univ. (Japan)

2:00 pm: **Helical deposition with alternating indium composition in growing an InGaN nano-needle with the vapor-liquid-solid growth mode**, W. Chang, C. Liao, T. Tang, C. Chen, Y. Chen, W. Shiao, J. Wang, Y. Kiang, C. Yang, National Taiwan Univ. (Taiwan) [7939-53]

2:04 pm: **Characteristics of InGaN/sapphire-based photovoltaic devices with different superlattice absorption layers and buffer layers**, C. Yang, J. Sheu, M. Huang, S. Tu, F. Huang, K. Chang, National Cheng Kung Univ. (Taiwan); M. Lee, Southern Taiwan Univ. of Technology (Taiwan); W. Lai, National Cheng Kung Univ. (Taiwan) [7939-54]

2:08 pm: **Feasibility study on large area optical devices with PSD growth group III nitrides**, H. Fujioka, J. Ohta, S. Inoue, The Univ. of Tokyo (Japan) [7939-55]

2:12 pm: **Growth of a-plane GaN on vicinal r-plane sapphire substrates**, J. Park, S. Park, D. You, D. Y. Moon, E. Yoon, Seoul National Univ. (Korea, Republic of) [7939-57]

2:16 pm: **Plasma-assisted MBE growth of semipolar quantum dots**, A. Das, L. Lahourcade, P. Sinha, Commissariat à l'Énergie Atomique (France); G. P. Dimitrakopoulos, T. Kehagias, P. Komninou, Aristotle Univ. of Thessaloniki (Greece); E. Monroy, Commissariat à l'Énergie Atomique (France) [7939-58]

2:20 pm: **Raman scattering spectroscopy for epitaxial AlN films**, S. Yang, R. Miyagawa, H. Miyake, K. Hiramatsu, Mie Univ. (Japan); H. Harima, Kyoto Institute of Technology (Japan) [7939-59]

2:24 pm: **Two-dimensional drift-diffusion simulation of GaN HFETs**, Q. Fan, H. Morkoç, Virginia Commonwealth Univ. (USA) [7939-60]

2:28 pm: **Heterostructure designs for enhanced performance and reliability in GaN HFETs**, J. H. Leach, H. Morkoç, Virginia Commonwealth Univ. (USA); A. Matulionis, Semiconductor Physics Institute (Lithuania) [7939-61]

2:32 pm: **AlN homo-epitaxial growth on sublimation-AlN substrate by low-pressure HVPE**, T. Nomura, K. Okumura, H. Miyake, K. Hiramatsu, Mie Univ. (Japan); O. Eryuu, Nagoya Institute Technology (Japan); Y. Yamada, Yamaguchi Univ. (Japan) [7939-62]

2:36 pm: **Realization of high-conversion-efficiency GaInN based solar cells**, M. Iwaya, Y. Kuwahara, T. Fujii, Y. Fujiyama, T. Takeuchi, S. Kamiyama, I. Akasaki, Meijo Univ. (Japan); H. Amano, Nagoya Univ. (Japan) [7939-63]

2:40 pm: **1/f noise in Schottky diodes**, P. H. Handel, Univ. of Missouri-St. Louis (USA); H. Morkoç, Virginia Commonwealth Univ. (USA) [7939-64]

2:44 pm: **Fabrication and lasing characteristics of GaN nanopillars**, M. Lo, National Chiao Tung Univ. (Taiwan); Y. Cheng, Academia Sinica (Taiwan) and National Chiao Tung Univ. (Taiwan); H. Kuo, S. Wang, National Chiao Tung Univ. (Taiwan) [7939-65]

2:48 pm: **The defect characterization of GaN epitaxial layers using optical defect detection methods**, J. Jhin, LG Display (Korea, Republic of); S. Cho, S. Han, KLA-Tencor Corp. (USA) [7939-66]

2:52 pm: **Fabrication of high efficiency LED using moth-eye structure**, H. Sakurai, Meijo Univ. (Japan) and EL-SEED Corp. (Japan); T. Kondo, F. Teramae, A. Suzuki, T. Kitano, M. Mori, EL-SEED Corp. (Japan); M. Iwaya, T. Takeuchi, S. Kamiyama, I. Akasaki, Meijo Univ. (Japan) [7939-67]

2:56 pm: **Optical and structural properties of m-plane GaN grown on Si(112) patterned substrates**, N. Izyumskaya, S. Liu, V. Avrutin, X. Ni, M. Wu, Ü. Özgür, Virginia Commonwealth Univ. (USA); F. Bertram, J. Christen, Otto-von-Guericke Univ. Magdeburg (Germany); D. J. Smith, Arizona State Univ. (USA); H. Morkoç, Virginia Commonwealth Univ. (USA) [7939-68]

3:00 pm: **Growth of semi-polar GaN-based light-emitting diodes grown on a patterned Si substrate**, Z. Li, C. Chiu, D. Lin, S. Ling, H. Kuo, T. Lu, S. Wang, National Chiao Tung Univ. (Taiwan); W. Liao, Industrial Technology Research Institute (Taiwan); T. Tanikawa, Y. Honda, M. Yamaguchi, Nagoya Univ. (Japan); N. Sawaki, Aichi Institute of Technology (Japan) [7939-69]

3:04 pm: **High efficiency GaN-based light emitting diodes grown on nano-patterned substrates**, C. Chiu, C. Jang, S. Chang, C. H. Wang, Z. Li, H. Kuo, T. Lu, S. Wang, National Chiao Tung Univ. (Taiwan) [7939-70]

3:08 pm: **Enhancement in light extraction efficiency of GaN-based vertical light-emitting diodes by AgCu-based reflectors**, T. Jeong, J. H. Baek, Korea Photonics Technology Institute (Korea, Republic of) [7939-71]

3:12 pm: **Deep inductively coupled plasma etching of ELO-GaN grown with high fill factor**, H. Gao, J. Lee, X. Ni, J. H. Leach, Ü. Özgür, H. Morkoç, Virginia Commonwealth Univ. (USA) [7939-72]

Coffee Break 3:16 to 3:50 pm

SESSION 11

Room: 300 (Esplanade) Wed. 3:50 to 5:10 pm

Poster Highlights II

Session Chair: Hiroshi Fujioka, The Univ. of Tokyo (Japan)

3:50 pm: **Enhancement of light power for green strain-compensated hybrid InGaN/InGaMgZnO light-emitting diodes**, S. Park, Catholic Univ. of Daegu (Korea, Republic of); Y. Moon, J. S. Lee, H. K. Kwon, J. S. Park, LG Electronics Inc. (Korea, Republic of); D. Ahn, The Univ. of Seoul (Korea, Republic of) [7939-73]

3:54 pm: **Domain matching epitaxy of Mg-containing Ag contact on p-type GaN**, Y. Song, J. Lee, Pohang Univ. of Science and Technology (Korea, Republic of) [7939-74]

3:58 pm: **The nanocavity fabrication in light-emitting diodes for enhancing light extraction efficiency**, S. Hong, H. Lee, Korea Univ. (Korea, Republic of) [7939-75]

4:02 pm: **Numerical study on AlGaIn-based ultraviolet light-emitting diodes**, M. Tsai, National Changhua Univ. of Education (Taiwan); S. Yen, Epistar Corp. (Taiwan); Y. Chen, S. Chang, Y. Kuo, National Changhua Univ. of Education (Taiwan) [7939-76]

4:06 pm: **Enhanced hydrogen gas generation rate by n-GaN photoelectrode with immersed finger-type indium tin oxide ohmic contacts**, S. Liu, J. Ye, K. Chang, National Cheng Kung Univ. (Taiwan); M. Lee, Southern Taiwan Univ. of Technology (Taiwan); W. Lai, J. Sheu, National Cheng Kung Univ. (Taiwan) [7939-77]

4:10 pm: **Diffusion barrier combined n-type electrodes for GaN-based vertical light-emitting diode**, J. Jeon, S. H. Park, T. Seong, Korea Univ. (Korea, Republic of) [7939-78]

4:14 pm: **High modal gain in Ga(NAsP)/(BGa)((As)P) heterostructures grown lattice-matched on (001) silicon**, N. Koukourakis, D. A. Funke, N. C. Gerhardt, M. R. Hofmann, Ruhr-Univ. Bochum (Germany); S. Liebich, S. Zinnkann, M. Zimprich, A. Beyer, S. Chatterjee, C. Bückers, S. W. Koch, K. Volz, W. Stolz, Philipps-Univ. Marburg (Germany); B. Kunert, NASP III/V GmbH (Germany) [7939-79]

4:18 pm: **Electrical properties of laser-annealed n-contacts to N-face GaN for vertical light-emitting diodes**, J. W. Jeon, S. Park, T. Seong, S. Y. Lee, J. Song, Korea Univ. (Korea, Republic of) [7939-80]

4:22 pm: **Probing electrical properties of single GaN nanorod p-n junctions by electron microscopy**, Y. Lu, H. Lin, Y. Yang, H. Chen, S. Gwo, National Tsing Hua Univ. (Taiwan) [7939-81]

4:26 pm: **Growth GaN single crystals by Ca- and Ba-added Na flux method**, H. Ukegawa, Y. Konishi, T. Fujimori, N. Miyoshi, M. Imade, M. Yoshimura, Y. Kitaoka, T. Sasaki, Y. Mori, Osaka Univ. (Japan) [7939-82]

4:30 pm: **Measurement of nonuniform bowing in GaN/sapphire epi-wafers and subsequent stress analysis by using a theoretical model**, Y. Jang, D. Jang, J. Shim, D. Shin, Hanyang Univ. (Korea, Republic of) [7939-83]

4:34 pm: **Surface-plasmon-mediated photoluminescence enhancement from red-emitting InGaN coupled with colloidal gold nanocrystals: origin of luminescence enhancement or quenching**, C. Wu, C. He, H. Lee, H. Chen, S. Gwo, National Tsing Hua Univ. (Taiwan) [7939-84]

4:38 pm: **Direct observation of lattice constant variations depending on layer structures in an InGaN / GaN multiple quantum-well LED**, S. Kimura, K. Tachibana, T. Oka, H. Nago, S. Nunoue, Toshiba Corp. (Japan) [7939-85]

4:42 pm: **Optimization of ZnO:Ga properties for application as a transparent conducting oxide in InGaN based light emitting diodes**, H. Liu, X. Li, S. Liu, X. Ni, V. Avrutin, N. Izyumskaya, Ü. Özgür, H. Morkoç, Virginia Commonwealth Univ. (USA) [7939-87]

4:46 pm: **Measurements of generation-recombination effect by low-frequency noise technique in AlGaIn/GaN MOSHFETs**, C. Kayis, J. H. Leach, C. Zhu, M. Wu, X. Li, Ü. Özgür, H. Morkoç, Virginia Commonwealth Univ. (USA); X. Yang, V. Misra, North Carolina State Univ. (USA); P. H. Handel, Univ. of Missouri-St. Louis (USA) [7939-88]

4:50 pm: **Low-frequency noise measurements of degradation in AlGaIn/GaN heterostructure field-effect transistors**, C. Kayis, C. Zhu, M. Wu, X. Li, Ü. Özgür, H. Morkoç, Virginia Commonwealth Univ. (USA) [7939-89]

4:54 pm: **Crack-free semi-polar (1-101) GaN grown on 7°-off (001) Si substrate by metal-organic chemical vapor deposition**, H. Lin, H. Liu, National Central Univ. (Taiwan); C. Liao, Industrial Technology Research Institute (Taiwan); J. Chyi, National Central Univ. (Taiwan) [7939-90]

4:58 pm: **Free-standing GaN-based photonic crystal surface emitting laser with honeycomb lattice**, D. Kim, S. Kim, J. Lee, H. Jeon, Seoul National Univ. (Korea, Republic of); S. Jeon, Korea Photonics Technology Institute (Korea, Republic of) [7939-91]

5:02 pm: **Electrical properties of In-doped ZnO films grown by plasma-assisted molecular beam epitaxy on GaN(0001) template**, C. Chen, L. Siao, J. Chyi, National Central Univ. (Taiwan); C. Chao, C. Wu, Institute of Nuclear Energy Research (Taiwan) [7939-92]

5:06 pm: **Study of current spreading effect in vertical GaN/InGaN LEDs**, C. Li, Y. Wu, National Taiwan Univ. (Taiwan) [7939-93]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Helical deposition with alternating indium composition in growing an InGaN nano-needle with the vapor-liquid-solid growth mode, Wen-Ming Chang, Che-Hao Liao, Tsung-Yi Tang, Chih-Yen Chen, Yung-Sheng Chen, Wen-Yu Shiao, Jyh-Yang Wang, Yean-Woei Kiang, Chih-Chung Yang, National Taiwan Univ. (Taiwan) [7939-53]

Characteristics of InGaN/sapphire-based photovoltaic devices with different superlattice absorption layers and buffer layers, Chih-Ciao Yang, Jinn-Kong Sheu, Min-Shun Huang, Shang-Ju Tu, Feng-Wen Huang, Kuo-Hua Chang, National Cheng Kung Univ. (Taiwan); Ming-Lun Lee, Southern Taiwan Univ. of Technology (Taiwan); Wei-Chih Lai, National Cheng Kung Univ. (Taiwan) [7939-54]

Feasibility study on large area optical devices with PSD grown group III nitrides, Hiroshi Fujioka, Jitsuo Ohta, Shigeru Inoue, The Univ. of Tokyo (Japan) [7939-55]

Growth of a-plane GaN on vicinal r-plane sapphire substrates, Jinsub Park, Sunghyun Park, Duck-Jae You, Dae Young Moon, Euijooon Yoon, Seoul National Univ. (Korea, Republic of) [7939-57]

Plasma-assisted MBE growth of semipolar quantum dots, Aparna Das, Lise Lahourcade, Priyasmitha Sinha, Commissariat à l'Énergie Atomique (France); G. P. Dimitrakopoulos, Th. Kehagias, Ph. Komninou, Aristotle Univ. of Thessaloniki (Greece); Eva Monroy, Commissariat à l'Énergie Atomique (France) [7939-58]

Raman scattering spectroscopy for epitaxial AlN films, Shibo Yang, Reina Miyagawa, Hideto Miyake, Kazumasa Hiramatsu, Mie Univ. (Japan); Hiroshi Harima, Kyoto Institute of Technology (Japan) [7939-59]

Two-dimensional drift-diffusion simulation of GaN HFETs, Qian Fan, Hadis Morkoç, Virginia Commonwealth Univ. (USA) [7939-60]

Heterostructure designs for enhanced performance and reliability in GaN HFETs, Jacob H. Leach, Hadis Morkoç, Virginia Commonwealth Univ. (USA); Arvydas Matulionis, Semiconductor Physics Institute (Lithuania) [7939-61]

AIN homo-epitaxial growth on sublimation-AIN substrate by low-pressure HVPE, Takuya Nomura, Kenta Okumura, Hideto Miyake, Kazumasa Hiramatsu, Mie Univ. (Japan); Osamu Eryuu, Nagoya Institute Technology (Japan); Yoichi Yamada, Yamaguchi Univ. (Japan) [7939-62]

Realization of high-conversion-efficiency GaInN based solar cells, Motoaki Iwaya, Yousuke Kuwahara, Takahiro Fujii, Yasuharu Fujiyama, Tetsuya Takeuchi, Satoshi Kamiyama, Isamu Akasaki, Meijo Univ. (Japan); Hiroshi Amano, Nagoya Univ. (Japan) [7939-63]

1/f noise in Schottky diodes, Peter H. Handel, Univ. of Missouri-St. Louis (USA); Hadis Morkoç, Virginia Commonwealth Univ. (USA) [7939-64]

Fabrication and lasing characteristics of GaN nanopillars, Ming-Hua Lo, National Chiao Tung Univ. (Taiwan); Yuh-Jen Cheng, Academia Sinica (Taiwan) and National Chiao Tung Univ. (Taiwan); Hao-Chung Kuo, Shing-Chung Wang, National Chiao Tung Univ. (Taiwan) [7939-65]

The defect characterization of GaN epitaxial layers using optical defect detection methods, Jungkeun Jhin, LG Display (Korea, Republic of); Sungchan Cho, Sanghyun Han, KLA-Tencor Corp. (USA) [7939-66]

Fabrication of high efficiency LED using moth-eye structure, Hisashi Sakurai, Meijo Univ. (Japan) and EL-SEED Corp. (Japan); Toshiyuki Kondo, Fumiharu Teramae, Atsushi Suzuki, Tsukasa Kitano, Midori Mori, EL-SEED Corp. (Japan); Motoaki Iwaya, Tetsuya Takeuchi, Satoshi Kamiyama, Isamu Akasaki, Meijo Univ. (Japan) [7939-67]

Optical and structural properties of m-plane GaN grown on Si(112) patterned substrates, Natalia Izyumskaya, Shujian Liu, Vitaliy Avrutin, Xianfeng Ni, Mo Wu, Ümit Özgür, Virginia Commonwealth Univ. (USA); Frank Bertram, Jürgen Christen, Otto-von-Guericke Univ. Magdeburg (Germany); David J. Smith, Arizona State Univ. (USA); Hadis Morkoç, Virginia Commonwealth Univ. (USA) [7939-68]

Growth of semi-polar GaN-based light-emitting diodes grown on an patterned Si substrate, Zhen-Yu Li, Ching-Hsueh Chiu, Da-Wei Lin, Shih-Chun Ling, Hao-Chung Kuo, Tien-Chang Lu, Shing-Chung Wang, National Chiao Tung Univ. (Taiwan); Wei-Tasi Liao, Industrial Technology Research Institute (Taiwan); Tomoyuki Tanikawa, Yoshio Honda, Masahito Yamaguchi, Nagoya Univ. (Japan); Nobuhiko Sawaki, Aichi Institute of Technology (Japan) [7939-69]

High efficiency GaN-based light emitting diodes grown on nano-patterned substrates, Ching-Hsueh Chiu, Chung-Ying Jang, Shih-Pang Chang, C. H. Wang, Zhen-Yu Li, Hao-Chung Kuo, Tien-Chang Lu, Shing-Chung Wang, National Chiao Tung Univ. (Taiwan) [7939-70]

Enhancement in light extraction efficiency of GaN-based vertical light-emitting diodes by AgCu-based reflectors, Tak Jeong, Jong Hyeob Baek, Korea Photonics Technology Institute (Korea, Republic of) [7939-71]

Deep inductively coupled plasma etching of ELO-GaN grown with high fill factor, Haiyong Gao, Jaesoong Lee, Xianfeng Ni, Jacob H. Leach, Ümit Özgür, Hadis Morkoç, Virginia Commonwealth Univ. (USA) [7939-72]

Enhancement of light power for green strain-compensated hybrid InGaN/InGaN/MgZnO light-emitting diodes, Seoung-Hwan Park, Catholic Univ. of Daegu (Korea, Republic of); Yong-Tae Moon, Jeong Sik Lee, Ho Ki Kwon, Joong Seo Park, LG Electronics Inc. (Korea, Republic of); Doyeol Ahn, The Univ. of Seoul (Korea, Republic of) [7939-73]

Domain matching epitaxy of Mg-containing Ag contact on p-type GaN, Yanghee Song, Jong-Lam Lee, Pohang Univ. of Science and Technology (Korea, Republic of) [7939-74]

The nanocavity fabrication in light-emitting diodes for enhancing light extraction efficiency, Sung-Hoon Hong, Heon Lee, Korea Univ. (Korea, Republic of) [7939-75]

Thursday 27 January

SESSION 12

Room: 300 (Esplanade) Thurs. 8:30 to 10:10 am

LEDs I

Session Chair: **Sergey Yu. Karpov**,
STR Group-Soft Impact Ltd. (Russian Federation)

Numerical study on AlGaN-based ultraviolet light-emitting diodes, Miao-Chan Tsai, National Changhua Univ. of Education (Taiwan); Sheng-Hong Yen, Epistar Corp. (Taiwan); Yu-Tong Chen, Shu-Hsuan Chang, Yen-Kuang Kuo, National Changhua Univ. of Education (Taiwan) [7939-76]

Enhanced hydrogen gas generation rate by n-GaN photoelectrode with immersed finger-type indium tin oxide ohmic contacts, Shu-Yen Liu, Zhao-Cheng Ye, Kuo-Hua Chang, National Cheng Kung Univ. (Taiwan); Ming-Lun Lee, Southern Taiwan Univ. of Technology (Taiwan); Wei-Chih Lai, Jinn-Kong Sheu, National Cheng Kung Univ. (Taiwan) [7939-77]

Diffusion barrier combined n-type electrodes for GaN-based vertical light-emitting diode, Joon-Woo Jeon, Seong Han Park, Tae-Yeon Seong, Korea Univ. (Korea, Republic of) [7939-78]

High modal gain in Ga(NAsP)/(BGa)(AsP) heterostructures grown lattice-matched on (001) silicon, Nektarios Koukourakis, Dominic A. Funke, Nils C. Gerhardt, Martin R. Hofmann, Ruhr-Univ. Bochum (Germany); Sven Liebich, Steffen Zinnkann, Martin Zimprich, Andreas Beyer, Sangam Chatterjee, Christina Bückers, Stephan W. Koch, Kerstin Volz, Wolfgang Stolz, Philipps-Univ. Marburg (Germany); Bernadette Kunert, NAsP III/V GmbH (Germany) [7939-79]

Electrical properties of laser-annealed n-contacts to N-face GaN for vertical light-emitting diodes, Joon Woo Jeon, Seong-Han Park, Tae-Yeon Seong, Sang Youl Lee, June-O Song, Korea Univ. (Korea, Republic of) [7939-80]

Probing electrical properties of single GaN nanorod p-n junctions by electron microscopy, Yu-Jung Lu, Hon-Way Lin, Yu-Chen Yang, Hung-Ying Chen, Shangjr Gwo, National Tsing Hua Univ. (Taiwan) [7939-81]

Growth GaN single crystals by Ca- and Ba-added Na flux method, Hiroshi Ukegawa, Yusuke Konishi, Taku Fujimori, Naoya Miyoshi, Mamoru Imade, Masashi Yoshimura, Yasuo Kitaoka, Takatomo Sasaki, Yusuke Mori, Osaka Univ. (Japan) [7939-82]

Measurement of nonuniform bowing in GaN/sapphire epi-wafers and subsequent stress analysis by using a theoretical model, Yuseong Jang, Dong-Hyun Jang, Jong-In Shim, Dong-Soo Shin, Hanyang Univ. (Korea, Republic of) [7939-83]

Surface-plasmon-mediated photoluminescence enhancement from red-emitting InGaN coupled with colloidal gold nanocrystals: origin of luminescence enhancement or quenching, Chen-Ying Wu, Chieh-Lun He, Hong-Mao Lee, Hung-Ying Chen, Shangjr Gwo, National Tsing Hua Univ. (Taiwan) [7939-84]

Direct observation of lattice constant variations depending on layer structures in an InGaN / GaN multiple quantum-well LED, Shigeya Kimura, Koichi Tachibana, Toshiyuki Oka, Hajime Nago, Shinya Nunoue, Toshiba Corp. (Japan) [7939-85]

Optimization of ZnO:Ga properties for application as a transparent conducting oxide in InGaN based light emitting diodes, Huiyong Liu, Xing Li, Shujian Liu, Xianfeng Ni, Vitaliy Avrutin, Natalia Izyumskaya, Ümit Özgür, Virginia Commonwealth Univ. (USA); A. B. Yankovich, A. V. Kvit, P. M. Voyles, Univ. of Wisconsin-Madison (USA); Hadis Morkoç, Virginia Commonwealth Univ. (USA) [7939-87]

Measurements of generation-recombination effect by low-frequency noise technique in AlGaN/GaN MOSHFETs, Cemil Kayis, Jacob H. Leach, Congyong Zhu, Mo Wu, Xing Li, Ümit Özgür, Hadis Morkoç, Virginia Commonwealth Univ. (USA); X. Yang, Veena Misra, North Carolina State Univ. (USA); Peter H. Handel, Univ. of Missouri-St. Louis (USA) [7939-88]

Low-frequency noise measurements of degradation in AlGaN/GaN heterostructure field-effect transistors, Cemil Kayis, Congyong Zhu, Mo Wu, Xing Li, Ümit Özgür, Hadis Morkoç, Virginia Commonwealth Univ. (USA) [7939-89]

Crack-free semi-polar (1-101) GaN grown on 7°-off (001) Si substrate by metal-organic chemical vapor deposition, Hsien-Yu Lin, Hsueh-Hsing Liu, National Central Univ. (Taiwan); Chen-Zi Liao, Industrial Technology Research Institute (Taiwan); Jen-Inn Chyi, National Central Univ. (Taiwan) [7939-90]

Free-standing GaN-based photonic crystal surface emitting laser with honeycomb lattice, Dong-uk Kim, Sunghwan Kim, Jeongkug Lee, Heonsu Jeon, Seoul National Univ. (Korea, Republic of); Seong-Ran Jeon, Korea Photonics Technology Institute (Korea, Republic of) [7939-91]

Electrical properties of In-doped ZnO films grown by plasma-assisted molecular beam epitaxy on GaN(0001) template, Cheng-Yu Chen, Li-Han Siao, Jen-Inn Chyi, National Central Univ. (Taiwan); Chih-Kang Chao, Chih-Hung Wu, Institute of Nuclear Energy Research (Taiwan) [7939-92]

Current spreading effect in vertical GaN/InGaN LEDs, Chi-Kang Li, Yuh-Renn Wu, National Taiwan Univ. (Taiwan) [7939-93]

8:30 am: **InGaN/GaN nanorod light-emitting diodes as white and full-color light sources** (*Invited Paper*), Shangjr Gwo, Hon-Way Lin, Yu-Jung Lu, Hung-Ying Chen, Yu-Chen Yang, Hong-Mao Lee, National Tsing Hua Univ. (Taiwan) [7939-06]

9:00 am: **High voltage LED for general lighting application** (*Invited Paper*), Schang-Jing Hon, Chien-Fu Shen, Chao Hsing Chen, Tsun-Kai Ko, Ta-Cheng Hsu, Min-Hsun Hsieh, Epistar Corp. (Taiwan) [7939-07]

9:30 am: **Unified model for the GaN LED efficiency droop**, Joachim Piprek, NUSOD Institute LLC (USA) [7939-08]

9:50 am: **Impact of ballistic electron transport and increased hole concentration on efficiency of InGaN based LEDs**, Xing Li, Xianfeng Ni, Shujian Liu, Serdal Okur, Jaesoong Lee, Vitaliy Avrutin, Ümit Özgür, Hadis Morkoç, Virginia Commonwealth Univ. (USA); Arvydas Matulionis, Semiconductor Physics Institute (Lithuania); Michael V. Kisin, Ostendo Technologies, Inc. (USA) [7939-09]

Coffee Break 10:10 to 10:40 am

SESSION 13

Room: 300 (Esplanade) Thurs. 10:40 am to 12:20 pm

LEDs II

Session Chair: **Shangir Gwo**, National Tsing Hua Univ. (Taiwan)

10:40 am: **InGaIn optical emitters: novel solutions from the visible to deep UV** (*Invited Paper*), Christopher L. Chua, Zhihong Yang, Clifford Knollenberg, Pierre Ricou, Bowen Cheng, Andre Strittmatter, David Bour, Noble M. Johnson, Palo Alto Research Center, Inc. (USA) [7939-10]

11:10 am: **Properties of TCO anodes deposited by APCVD and their applications to OLED lighting** (*Invited Paper*), Roman Y. Korotkov, Liang Fang, Pierre Ricou, James Coffey, Gary S. Silverman, Arkema Inc. (USA); Manfred Ruske, Holger Schwab, Philips Technologie GmbH (Germany); Asanga B. Padmaperuma, Daniel J. Gaspar, Pacific Northwest National Lab. (USA) [7939-11]

11:40 am: **An efficiency droop model of the saturated radiative recombination rate and its verification by radiative and nonradiative carrier lifetime measurements in InGaN-based light emitting diodes**, Jong-In Shim, Hyunsung Kim, Dong-Soo Shin, Hanyang Univ. (Korea, Republic of); Han-Youl Ryu, Inha Univ. (Korea, Republic of) [7939-12]

12:00 pm: **Investigating the cause of droop in InGaN quantum well LEDs using a temperature and pressure dependent analysis**, Benjamin G. Crutchley, Igor P. Marko, Alfred R. Adams, Stephen J. Sweeney, Univ. of Surrey (United Kingdom) [7939-13]

Lunch/Exhibition Break 12:20 to 1:50 pm

SESSION 14

Room: 300 (Esplanade) Thurs. 1:50 to 3:10 pm

LEDs III

Session Chair: **Christopher L. Chua**, Palo Alto Research Center, Inc.

1:50 pm: **Modeling of III-nitride LEDs: progress, problems, and perspectives** (*Invited Paper*), Sergey Y. Karpov, STR Group-Soft Impact Ltd. (Russian Federation) [7939-14]

2:20 pm: **Enhancing the external quantum efficiency in GaN based LEDs** (*Invited Paper*), Jong-Lam Lee, Pohang Univ. of Science and Technology (Korea, Republic of) [7939-15]

2:50 pm: **Vertical composition variation in nominally uniform InGaIn layers revealed by aberration-corrected STEM imaging**, Andrew B. Yankovich, Alex V. Kvit, Univ. of Wisconsin-Madison (USA); Vitaliy Avrutin, Xing Li, Huiyong Liu, Natalia Izyumskaya, Ümit Özgür, Hadis Morkoç, Virginia Commonwealth Univ. (USA); Paul M. Voyles, Univ. of Wisconsin-Madison (United States) [7939-94]

Coffee Break 3:10 to 3:40 pm

SESSION 15**Room: 300 (Esplanade) Thurs. 3:40 to 4:50 pm****LEDs IV***Session Chair: Christopher L. Chua, Palo Alto Research Center, Inc.*

3:40 pm: **Thermodynamic aspects of the MOVPE of AlGaInN to realize highly efficient DUV/UV and green/yellow light emitters** (*Invited Paper*), Hiroshi Amano, Masahito Yamaguchi, Yoshio Honda, Nagoya Univ. (Japan). [7939-17]

4:10 pm: **Optical polarization characteristics of near and deep ultraviolet light emitting diodes**, Tim Kolbe, Technische Univ. Berlin (Germany); Arne Knauer, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany); Christopher L. Chua, Zhihong Yang, Palo Alto Research Center, Inc. (USA); Hernan Rodriguez, Sven Einfeldt, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany); Patrick Vogt, Technische Univ. Berlin (Germany); Noble M. Johnson, Palo Alto Research Center, Inc. (USA); Markus Weyers, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany); Michael Kneissl, Technische Univ. Berlin (Germany) and Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany) [7939-18]

4:30 pm: **Fabrication of photonic crystal patterns with various refractive-indexed materials on GaN-based light-emitting diodes to improve light extraction efficiency**, Kyeong-Jae Byeon, Hyoungwon Park, Joong-Yeon Cho, Seong-Hwan Lee, Korea Univ. (Korea, Republic of); Hyeong-Seok Kim, Chung-Ang Univ. (Korea, Republic of); Heon Lee, Korea Univ. (Korea, Republic of) [7939-19]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Don't miss the free Photonics West Exhibition

See new products and top companies at the most important event for the photonics and laser industry

25-27 January 2011

Tuesday · 10:00 am to 5:00 pm

Wednesday · 10:00 am to 5:00 pm

Thursday · 10:00 am to 4:00 pm

Oxide-based Materials and Devices II

Conference Chairs: **Ferechteh Hosseini Teherani**, Nanovation (France); **David C. Look**, Wright State Univ.; **David J. Rogers**, Nanovation (France)

Program Committee: **Rodrigo Ferrão de Paiva Martins**, CEMOP/Uninova (Portugal); **Elvira M. C. Fortunato**, Univ. Nova de Lisboa (Portugal); **Michael D. Gerhold**, U.S. Army Research Office; **Hanns-Ulrich Habermeyer**, Max-Planck-Institut für Festkörperforschung (Germany); **Axel Hoffmann**, Technische Univ. Berlin (Germany); **Masashi Kawasaki**, Tohoku Univ. (Japan); **Yicheng Lu**, Rutgers, The State Univ. of New Jersey; **Tatsuo Okada**, Kyushu Univ. (Japan); **Manijeh Razeghi**, Northwestern Univ.; **Zhong Lin Wang**, Georgia Institute of Technology

Sunday 23 January

Introduction and Opening Remarks

Room: 238 (Mezzanine) Sun. 8:10 to 8:30 am

8:10 am: **ZnO technical challenges and market opportunities**, Ferechteh H. Teherani, David J. Rogers, Nanovation (France) [7940-01]

SESSION 1

Room: 238 (Mezzanine) Sun. 8:30 to 9:50 am

ZnO Doping I

Session Chairs: **David C. Look**, Wright State Univ.; **Bruno K. Meyer**, Justus-Liebig-Univ. Giessen (Germany)

8:30 am: **Pursuit of ultrahigh conductivity in ZnO**, David C. Look, Wright State Univ. (USA); Robin C. Scott, Arizona State Univ. (USA); Kevin D. Leedy, Burhan Bayraktaroglu, Air Force Research Lab. (USA); Yong-Hang Zhang, Arizona State Univ. (USA) [7940-02]

9:00 am: **Deep level luminescence in lithium doped ZnO**, Matthew R. Phillips, Katie E. McBean, Cuong Ton-That, Univ. of Technology, Sydney (Australia) [7940-03]

9:25 am: **ZnO: from single crystals to 1D nanostructures - excitons, strain fields, and recombination dynamics**, Markus R. Wagner, Technische Univ. Berlin (Germany) and A.F. Ioffe Physico-Technical Institute (Russian Federation); Juan S. Reparaz, Gordon Callens, Ronny Kirste, Axel Hoffmann, Technische Univ. Berlin (Germany); Anna V. Rodina, Ioffe Physico-Technical Institute (Russian Federation); Andre Schleife, Friedrich-Schiller-Univ. Jena (Germany); Stefan Lautenschläger, Bruno K. Meyer, Justus-Liebig-Univ. Giessen (Germany) [7940-04]

Coffee Break 9:50 to 10:20 am

SESSION 2

Room: 238 (Mezzanine) Sun. 10:20 to 11:40 am

ZnO Doping II

Session Chairs: **David C. Look**, Wright State Univ.; **Bruno K. Meyer**, Justus-Liebig-Univ. Giessen (Germany)

10:20 am: **Photoluminescence and Hall study for the production and recovery of defects in phosphorus implanted ZnO films**, Saurabh Nagar, Arjun Mandal, Subhananda Chakrabarti, Indian Institute of Technology, Bombay (India); S. K. Gupta, Bhabha Atomic Research Ctr. (India) [7940-05]

10:45 am: **Exploring polymorphism in ZnO: a prospective route to new properties and applications** (*Invited Paper*), Stefan T. Bromley, Univ. de Barcelona (Spain) and Institutió Catalana de Recerca i Estudis Avançats (Spain); Daniele Stradi, Francesc Illas, Univ. de Barcelona (Spain) [7940-06]

11:10 am: **Nitrogen incorporation in ZnO thin films grown by chemical vapor deposition (CVD)** (*Invited Paper*), Bruno K. Meyer, Stefan Lautenschläger, Sebastian Eisermann, A. Laufer, Justus-Liebig-Univ. Giessen (Germany); M. Pinnisch, M. Hofmann, Justus-Liebig-Univ. Magdeburg (Germany) [7940-07]

Lunch Break 11:40 am to 1:00 pm

SESSION 3

Room: 238 (Mezzanine) Sun. 1:00 to 2:55 pm

ZnO Nanostructures: Growth and Device Fabrication I

Session Chairs: **Jean-Jacques Delaunay**, The Univ. of Tokyo (Japan); **Tatsuo Okada**, Kyushu Univ. (Japan)

1:00 pm: **Zinc oxide nanostructures with metal particles based on surface plasmons for optoelectronic device applications** (*Invited Paper*), Jae Su Yu, Yeong Hwan Ko, Hee Kwan Lee, Jung Woo Leem, Kyung Hee Univ. (Korea, Republic of) [7940-08]

1:25 pm: **Intrinsic white light emission from zinc oxide nanorods heterojunctions on large area substrates** (*Invited Paper*), Magnus Willander, Linköping Univ. (Sweden) [7940-09]

1:50 pm: **ZnO nanorods for light emitting diode applications** (*Invited Paper*), Aleksandra B. Djuricic, Alan M. C. Ng, Xinyi Chen, Fang Fang, Wai Kin Chan, The Univ. of Hong Kong (Hong Kong, China) [7940-10]

2:15 pm: **Synthesis and characterization of layer structured ZnO nanowire for ultraviolet light emitting diode**, Daisuke Nakamura, Akio Kumeda, Kazuyuki Toya, Kota Okazaki, Kazuki Kubo, Koji Tsuta, Mitsuhiro Higashihata, Tatsuo Okada, Kyushu Univ. (Japan) [7940-12]

2:35 pm: **Strong blue emission of ZnO colloids dispersed in hexane**, Jorge Roberto Oliva-Uc, Elder De La Rosa, Ctr. de Investigaciones en Óptica, A.C. (Mexico); Pedro Salas, Univ. Nacional Autónoma de México (Mexico); Alejandro Torres, Univ. Autonoma de Nuevo Leon (Mexico) [7940-14]

Coffee Break 2:55 to 3:30 pm

SESSION 4

Room: 238 (Mezzanine) Sun. 3:30 to 5:10 pm

ZnO Nanostructures: Growth and Device Fabrication II

Session Chairs: **Jean-Jacques Delaunay**, The Univ. of Tokyo (Japan); **Tatsuo Okada**, Kyushu Univ. (Japan)

3:30 pm: **Bridging metal-oxide nanowires for ultraviolet light detection**, Jean-Jacques Delaunay, Yanbo Li, Takero Tokizono, The Univ. of Tokyo (Japan); Meiyong Liao, National Institute for Materials Science (Japan); Miao Zhong, Masaki Shuzo, Ichiro Yamada, The Univ. of Tokyo (Japan); Yasuo Koide, National Institute for Materials Science (Japan) [7940-13]

3:55 pm: **Applications of zinc oxide nanowires for biophotonics and bioelectronics** (*Invited Paper*), Magnus Willander, Linköping Univ. (Sweden) [7940-15]

4:20 pm: **Multifunctional ZnO nanostructures: from material growth to novel applications** (*Invited Paper*), Xudong Wang, Univ. of Wisconsin-Madison (USA) [7940-16]

4:45 pm: **Use of PLD-grown ZnO thin films and nNanostructures on SiO₂/Si substrates as templates for MOVPE growth of GaN**, David J. Rogers, Vinod E. Sandana, Ferechteh H. Teherani, Nanovation (France); Simon Gautier, Supélec (France) and Univ. de Metz (France); Tarik Moudakir, Supélec (France); Gaëlle Orsal, Supélec (France) and Univ. de Metz (France); Michael Molinari, Michel Troyon, Univ. de Reims Champagne-Ardenne (France); Marco Peres, M. J. Soares, A. J. Neves, Teresa Monteiro, Univ. de Aveiro (Portugal); D. McGrouther, J. N. Chapman, Univ. of Glasgow (United Kingdom); Manijeh Razeghi, Northwestern Univ. (USA); Henri-Jean M. Drouhin, Ecole Polytechnique (France); Abdallah Ougazzaden, Georgia Institute of Technology (France) [7940-17]

Monday 24 January

SESSION 5

Room: 238 (Mezzanine)..... Mon. 8:00 to 10:00 am

Towards Understanding Oxides Properties I

Session Chairs: **Mohammed A. Gondal**, King Fahd Univ. of Petroleum and Minerals (Saudi Arabia); **Walter R. L. Lambrecht**, Case Western Reserve Univ.

8:00 am: **A density functional theory study on the electronic and magnetic properties of (Mn,N)-codoped ZnO**, Long Zhao, PengFei Lu, ZhongYuan Yu, Han Ye, Yue Shen, XiaoTao Guo, Guifang Yuan, Beijing Univ. of Posts and Telecommunications (China)..... [7940-18]

8:20 am: **Role of Yb³⁺ ions in the IR to visible upconversion of Er³⁺ ions in LTT glasses**, Mohan Babu A, Suresh Kumar Jakka, Sri Venkateswara Univ. (India); B.C. Jamalalah, Pukyong National Univ. (Korea, Republic of); Neeraj Kumar Giri, S.B. Rai, Banaras Hindu Univ. (India); Rama Moorthy Lalapeta, Sri Venkateswara Univ. (India)..... [7940-19]

8:45 am: **Electro-optical properties of hybrid metal oxide complexes**, Diane M. Steeves, U.S. Army Natick Soldier Research, Development and Engineering Ctr. (USA); Jisun Im, Jagdeep Singh, James E. Whitten, Univ. of Massachusetts Lowell (USA); Jason W. Soares, U.S. Army Natick Soldier Research, Development and Engineering Ctr. (USA)..... [7940-20]

9:10 am: **Studies of PLD-made thin ZnO layers by x-ray scattering methods: beyond the restrictive (00.2)rocking curve linewidth as a figure-of-merit (Invited Paper)**, Olivier Durand, Antoine Letoublon, Univ. Européenne de Bretagne (France); David J. Rogers, Ferechteh H. Teherani, Nanovation (France)..... [7940-21]

9:35 am: **Electroluminescence studies on n-type wide-band-gap oxides/n--Si isotype heterojunction (Invited Paper)**, Junliang Zhao, Tianjin Univ. (China) and Nanyang Technological Univ. (Singapore)..... [7940-22]

Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 238 (Mezzanine)..... Mon. 10:30 am to 12:10 pm

Towards Understanding Oxides Properties II

Session Chairs: **Mohammed A. Gondal**, King Fahd Univ. of Petroleum and Minerals (Saudi Arabia); **Walter R. L. Lambrecht**, Case Western Reserve Univ.

10:30 am: **Electronic structure, doping, and lattice dynamics of LiGaO₂ - an alternative to Zn_{(1-x)Mg_(x)O alloys: first-principles computational predictions (Invited Paper)}**, Walter R. L. Lambrecht, Adisak Boonchun, Case Western Reserve Univ. (USA)..... [7940-23]

10:55 am: **Radiation damage formation and annealing in GaN and ZnO (Invited Paper)**, Katharina Lorenz, S. M. C. Miranda, Nuno Franco, Eduardo Alves, Univ. de Lisboa (Portugal); Elke Wendler, Friedrich-Schiller-Univ. Jena (Germany); Jose Gonçaves Marques, Univ. de Lisboa (Portugal); Werner Wesch, Friedrich-Schiller-Univ. Jena (Germany); Marco Peres, Teresa Monteiro, Univ. de Aveiro (Portugal)..... [7940-24]

11:20 am: **Away from silicon era: the paper electronics (Invited Paper)**, Rodrigo Martins, Elvira Fortunato, Univ. Nova de Lisboa (Portugal)..... [7940-25]

11:45 am: **Emergence of new phases on oxide surfaces by electric-field charge accumulation (Invited Paper)**, Kazunori Ueno, Tohoku Univ. (Japan)..... [7940-26]

Lunch Break 12:10 to 1:15 pm

SESSION 7

Room: 238 (Mezzanine)..... Mon. 1:15 to 2:30 pm

Towards Understanding Oxides Properties III

Session Chairs: **Mohammed A. Gondal**, King Fahd Univ. of Petroleum and Minerals (Saudi Arabia); **Walter R. L. Lambrecht**, Case Western Reserve Univ.

1:15 pm: **Band gaps and electronic structure of alkaline-earth and post-transition-metal oxides (Invited Paper)**, John McLeod, R. G. Wilks, A. Moewes, Univ. of Saskatchewan (Canada); N. A. Skorikov, L. D. Finkelstein, E. Z. Kurmaev, Institute of Metal Physics (Russian Federation); M. Abu-Samak, Al-Hussein Bin Talal Univ. (Jordan)..... [7940-27]

1:40 pm: **Optical and electrical properties of deep-UV ZnMgAlO thin films grown by RF magnetron sputtering**, Jang Ho Park, Jin Bum Lim, Byung-Teak Lee, Chonnam National Univ. (Korea, Republic of)..... [7940-28]

2:05 pm: **Probing complex oxide interfaces (Invited Paper)**, TeYu Chien, Argonne National Lab. (USA); Jian Liu, Jacques Chakhalian, Univ. of Arkansas (USA); Nathan P. Guisinger, John W. Freeland, Argonne National Lab. (USA)..... [7940-29]

SESSION 8

Room: 238 (Mezzanine)..... Mon. 2:30 to 5:30 pm

Novel ZnO-based Devices/Approaches

Session Chairs: **David J. Rogers**, Nanovation (France); **Aleksandra B. Djuricic**, The Univ. of Hong Kong (Hong Kong, China)

2:30 pm: **ZnO/ZnMgO QW Schottky photodiodes sensitive to light polarization**, Adrian Hierro, Gema Tabares, Univ. Politécnica de Madrid (Spain); Christiane Deparis, Christian Morhain, Jean-Michel Chauveau, Ctr. de Recherche sur l'Hétéro-Epitaxie et ses Applications (France)..... [7940-30]

2:55 pm: **n-ZnO/CdZnO/ZnMgO/p-GaN multiple-quantum-well light-emitting diodes with MBE/MOCVD growth**, Shao-Ying Ting, Jeng-Jie Huang, Wen-Ming Chang, Che-Hao Liao, Chih-Yen Chen, Cheng-Hung Lin, Chieh Hsieh, Chih-Chung Yang, National Taiwan Univ. (Taiwan)..... [7940-31]

Coffee Break 3:20 to 3:50 pm

3:50 pm: **MgZnO/ZnO/MgZnO double heterojunction light emitting diodes on c-plane sapphire**, Sheng Chu, Jianze Zhao, Zheng Zuo, Jianlin Liu, Univ. of California, Riverside (USA)..... [7940-32]

4:15 pm: **Application of dilute boron B(Al,Ga)N alloys for UV light sources (Invited Paper)**, Simon Gautier, Supélec (France); Mohamed Abid, Georgia Institute of Technology (France); Tarik Moudakir, Gaëlle Orsal, Supélec (France); V. Ravindran, Georgia Institute of Technology (France); O. Naciri, Univ. de Metz (France); A. Migan-Dubois, Z. Djebbour, Lab. de Génie Électrique de Paris (France); D. Troadec, A. Soltani, Institut d'Electronique, de Microélectronique, et de Nanotechnologie (France); Gilles Patriarche, Ctr. National de la Recherche Scientifique (France); Abdallah Ougazzaden, Georgia Institute of Technology (France)..... [7940-58]

4:40 pm: **Novel lift-off approach for (In)GaN LEDs and PV using ZnO template layers**, David J. Rogers, Ferechteh H. Teherani, Nanovation (France)..... [7940-34]

5:05 pm: **Growth and characterization of ZnO nanostructures for UV sensor applications**, Ashok K. Sood, Yash R. Puri, Magnolia Optical Technologies, Inc. (USA); Tariq Manzur, Naval Undersea Warfare Ctr. (USA); Dennis L. Polla, Defense Advanced Research Projects Agency (USA); Zhong Lin Wang, Georgia Institute of Technology (USA); A. F. Mehdi Anwar, Univ. of Connecticut (USA); Martin B. Soprano, U.S. Army Research, Development and Engineering Command (USA)..... [7940-56]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA);
Klaus P. Streubel, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**,
Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper
Awards in OPTO, Stephen J. Eglash**, Precourt Institute
for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display
Application, Chang-Dong Kim**, LG Display R&D Ctr.
(Republic of Korea)

8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell**, Max-
Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**,
Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 9

Room: 238 (Mezzanine) Tues. 10:30 to 11:40 am

Growth and Patterning of Oxides I

Session Chairs: **Katharina Lorenz**, Univ. de Lisboa (Portugal);
TeYu Chien, Argonne National Lab.

10:30 am: **Preparation of conductive Ti-oxide thin films**, Yen-Shuo Liu,
National Central Univ. (Taiwan) [7940-35]

10:50 am: **Patterning of indium-tin-oxide (ITO) films using laser-induced
forward transfer (LIFT) technique**, Hironobu Sakata, Tokai Univ. (Japan); Akira
Yoshikado, Zeta Photon Co., Ltd. (Japan); Eisuke Yokoyama, Moriaki Wakaki,
Tokai Univ. (Japan) [7940-36]

11:15 am: **Layer-by-layer epitaxial growth of polar MgO (111) films
(Invited Paper)**, Kosuke Matsuzaki, Hideo Hosono, Tomofumi Susaki, Tokyo
Institute of Technology (Japan) [7940-37]

Lunch/Exhibition Break 11:40 am to 1:00 pm

SESSION 10

Room: 238 (Mezzanine) Tues. 1:00 to 2:15 pm

Growth and Patterning of Oxides II

Session Chairs: **Katharina Lorenz**, Univ. de Lisboa (Portugal);
TeYu Chien, Argonne National Lab.

1:00 pm: **Growth of oxide nanoparticles using pulsed laser ablation
technique (Invited Paper)**, Mohammed A. Gondal, Q. A. Drmsh, T. A. Saleh,
Z. H. Yamani, King Fahd Univ. of Petroleum and Minerals
(Saudi Arabia) [7940-38]

1:25 pm: **P-type oxide based thin film transistors deposited at low
temperatures (Invited Paper)**, Elvira Fortunato, Raquel Barros, Pedro
Barquinha, Vitor Figueiredo, Elangovan Elamurugu, Gonçalo Gonçalves, Univ.
Nova de Lisboa (Portugal); Sang-Hee K. Park, Chi-Sun Hwang, Electronics and
Telecommunications Research Institute (Korea, Republic of); S. Sajy, Rodrigo
Martins, Univ. Nova de Lisboa (Portugal) [7940-39]

1:50 pm: **The influence of crystallographic polarity on the optical properties
of ZnO (Invited Paper)**, Martin Allen, Univ. of Canterbury (New Zealand); Steven
M. Durbin, Univ. at Buffalo (USA); Roger J. Reeves, Univ. of Canterbury (New
Zealand) [7940-40]

SESSION 11

Room: 238 (Mezzanine) Tues. 2:15 to 3:25 pm

Oxide-based Devices I

Session Chairs: **Puxian Gao**, Georgia Institute of Technology;
Martin Allen, Univ. of Canterbury (New Zealand)

2:15 pm: **Effects of annealing on optical properties of TiO₂ planar
waveguides**, Ruwan Senaratne, Christopher C. Evans, Francois Parsy,
Katherine C. Phillips, Jonathan D. B. Bradley, Erwin A. Marti, Eric Mazur,
Harvard Univ. (USA) [7940-41]

2:40 pm: **Pedestal anti-resonant reflecting optical waveguides**,
Daniel Orquiza de Carvalho, Marco I. Alayo Chavez, Univ. de São Paulo
(Brazil) [7940-42]

3:00 pm: **Photovoltaic conversion enhancement of TiO₂ sensitized with
P3OT, CdSe, QDs and Au nanoparticles**, Isaac Zarazua, Elder De La Rosa,
Tzarara Lopez-Luke, Saul Ruiz Berberna, Ctr. de Investigaciones en Óptica,
A.C. (Mexico); Juan Reyes, Univ. de Colima (Mexico) [7940-43]

Coffee Break 3:25 to 3:55 pm

SESSION 12

Room: 238 (Mezzanine) Tues. 3:55 to 6:00 pm

Oxide-based Devices II

Session Chairs: **Puxian Gao**, Georgia Institute of Technology;
Martin Allen, Univ. of Canterbury (New Zealand)

3:55 pm: **Quantifying octahedral rotations in strained perovskite films
(Invited Paper)**, Steve J. May, Drexel Univ. (USA); J.-W. Kim, Argonne National
Lab. (USA); J. M. Rondinelli, Argonne National Lab. (USA) and Univ. of
California, Santa Barbara (USA); Evguenia Karapetrova, Argonne National Lab.
(USA); N. A. Spaldin, Univ. of California, Santa Barbara (USA); A. Bhattacharya,
P. J. Ryan, Argonne National Lab. (USA) [7940-44]

4:20 pm: **Hierarchical oxide-based composite nanostructures for energy,
environmental, and sensing applications (Invited Paper)**, Puxian Gao, Univ. of
Connecticut (USA) [7940-45]

4:45 pm: **Low-threshold continuous current driven random lasers realized
in zinc oxide (Invited Paper)**, Chong-Xin Shan, Hai Zhu, Binghui Li, De-Zhen
Shen, Xi-Wu Fan, Changchun Institute of Optics, Fine Mechanics and Physics
(China) [7940-46]

5:10 pm: **Fluorescent oxide nanoparticles adapted to active tips for
near-field optics and light conversion in white LEDs (Invited Paper)**, Bruno
Masenelli, Univ. Claude Bernard Lyon 1 (France); Aurelien Cuche, Oriane Mollet,
J. F. Motte, Institut NÉEL (France); G. Ledoux, D. Amans, Christophe Dujardin,
Patrice Melinon, Univ. Claude Bernard Lyon 1 (France); Serge Huant, Institut
NÉEL (France) [7940-45]

5:35 pm: **The use of hybrid ZnO/InGaN photoelectrodes for use in H₂
generation via solar photoelectrochemical water splitting**, S. Harinipriya,
Indian Institute of Technology Rajasthan (India); David J. Rogers, Ferechteh
H. Teherani, Nanovation (France); Vinod E. Sandana, Nanovation (France)
and Northwestern Univ. (USA) and École Polytechnique (France); Abdallah
Ougazzaden, Georgia Institute of Technology (France); Manijeh Razeghi,
Northwestern Univ. (USA) [7940-57]

Wednesday 26 January

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Influence of Li implantation on the optical and electrical properties of ZnO film, Saurabh Nagar, Arjun Mandal, Subhananda Chakrabarti, Indian Institute of Technology, Bombay (India); S. K. Gupta, Bhabha Atomic Research Ctr. (India). [7940-47]

Nonlinear optical effects-induced spectral broadening in ZnO channel waveguides, Edgar Yoshio Morales Teraoka, Tomohiro Kita, Tohoku Univ. (Japan); Daniel H. Broaddus, Cornell Univ. (USA); Atsushi Tsukazaki, The Univ. of Tokyo (Japan) and PRESTO, Japan Science and Technology Agency (Japan); Masashi Kawasaki, Tohoku Univ. (Japan) and WPI Advanced Institute for Materials Research, Tohoku Univ. (Japan); Alexander L. Gaeta, Cornell Univ. (USA); Hirohito Yamada, Tohoku Univ. (Japan) [7940-48]

Rutile TiO₂ nonlinear optical waveguide, Tomohiro Kita, Abe Koichi, Edgar Yoshio Morales Teraoka, Hirohito Yamada, Tohoku Univ. (Japan). . . . [7940-49]

Concentration dependent luminescence characteristics of 5D₄ and 5D₃ excited states of Tb³⁺ ions in CFB glasses, Suresh Kumar Jakka, K. Pavani, T. Sasikala, Sri Venkateswara Univ. (India); M. Jayasimhadri, Delhi Technological Univ. (India); Kiwan Jang, Changwon National Univ. (Korea, Republic of); Rama Moorthy Lalapeta, Sri Venkateswara Univ. (India). [7940-50]

Integration of a micro-incandescent lamp and an interferometric filter for optical applications, Hector Baez Medina, Marco I. Alayo Chavez, Univ. de São Paulo (Brazil) [7940-51]

RTA study of BSCCO 2201 superconductor thin films grown by MBE, David J. Rogers, Nanovation (France); Philippe Bove, NANO-UV SAS (France); Ferechteh H. Teherani, Nanovation (France). [7940-52]

ZnO grown by PLD for transparent electronics applications, David J. Rogers, Vinod E. Sandana, Ferechteh H. Teherani, Nanovation (France) [7940-53]

Optical and structural properties of polycrystalline ZnO films grown via thermal oxidation of Zn-metal on glass and c-plane sapphire substrates, James C. Moore, Coastal Carolina Univ. (USA); Ryan L. Foster, Earl J. Gee, Mario R. Jones, Scidney A. Morris, Longwood Univ. (USA) [7940-54]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Photonics West maps:

Moscone Center Maps pp. 2–4
Walking Map p. 14

Integrated Optics: Devices, Materials, and Technologies XV

Conference Chairs: **Jean Emmanuel Broquin**, Institut de Microélectronique Électromagnétisme Photonique/Lab. d'Hyperfréquence et Caractérisation (France); **Gualtiero Nunzi Conti**, Istituto di Fisica Applicata Nello Carrara (Italy)

Conference Co-Chairs: **Christoph M. Greiner**, LightSmyth Technologies, Inc.; **Christoph A. Wächter**, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany)

Program Committee: **Pierre Berini**, Univ. of Ottawa (Canada); **Pavel Cheben**, National Research Council Canada (Canada); **Xudong Fan**, Univ. of Michigan; **Helmut Heidrich**, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); **Andrea Melloni**, Politecnico di Milano (Italy); **Robert L. Nelson**, Air Force Research Lab.; **Jens H. Schmid**, National Research Council Canada (Canada); **Frank Schmidt**, JCMwave GmbH (Germany); **Yakov Sidorin**, Quarles Brady LLP; **Stefano Taccheo**, Swansea Univ. (United Kingdom)

Monday 24 January

SESSION 1

Room: 250/252 (Mezzanine) Mon. 8:30 to 10:20 am

Waveguide Engineering I

Session Chair: **Jean Emmanuel Broquin**, Institut de Microélectronique Électromagnétisme et Photonique (France)

8:30 am: **Large-scale planar lightwave circuits** (*Invited Paper*), Serge Bidnyk, Matt Pearson, Ashok Balakrishnan, Hua Zhang, Enablence (Canada) . [7941-01]

9:00 am: **Characterization of irradiance effects on curing of siloxane for embedded waveguide applications**, Thomas Daunais, Karl A. Walczak, Christopher T. Middlebrook, Paul Bergstrom, Michigan Technological Univ. (USA) [7941-02]

9:20 am: **Impact of sputtering parameters on titanium dioxide thin films for nonlinear nanophotonics**, Francois Parsy, Jonathan D. B. Bradley, Christopher C. Evans, Katherine C. Phillips, Ruwan Senaratne, Erwin A. Marti, Eric Mazur, Harvard Univ. (USA) [7941-03]

9:40 am: **Nonreciprocal racetrack resonators for on-chip optical isolation**, Lei Bi, Massachusetts Institute of Technology (USA); Juejun Hu, Massachusetts Institute of Technology (USA) and Univ. of Delaware (USA); Lionel C. Kimerling, Caroline A. Ross, Massachusetts Institute of Technology (USA) [7941-04]

10:00 am: **Fully compatible magneto-optical sol-gel material with glass waveguides technologies: application to mode converters**, François Royer, Damien Jamon, Univ. Jean Monnet Saint-Etienne (France); Jean-Emmanuel Broquin, Institut de Microélectronique Électromagnétisme et Photonique (France); Hadi Amata, Renata Kekesi, Univ. Jean Monnet Saint-Etienne (France); Sophie Neveu, Univ. Pierre et Marie Curie (France); Marie-Françoise Blanc-Mignon, Univ. Jean Monnet Saint-Etienne (France); Elise Ghibaud, Institut de Microélectronique Électromagnétisme et Photonique (France) [7941-05]

Coffee Break 10:20 to 10:50 am

SESSION 2

Room: 250/252 (Mezzanine) Mon. 10:50 am to 12:20 pm

Amplifiers and Lasers

Session Chair: **Gualtiero Nunzi Conti**, Istituto di Fisica Applicata Nello Carrara (Italy)

10:50 am: **Luminescence and amplified stimulated emission of quantum dot doped sol-gel waveguides** (*Invited Paper*), Alessandro Martucci, Univ. degli Studi di Padova (Italy) [7941-06]

11:20 am: **Mode-lock laser made by ion-exchange**, Bertrand Charlet, Institut de Microélectronique Électromagnétisme et Photonique (France); Lionel Bastard, Ecole Nationale Supérieure d'Electronique et de Radioélectricité de Grenoble (France); Jean-Emmanuel Broquin, Institut de Microélectronique Électromagnétisme et Photonique (France) [7941-07]

11:40 am: **High-power 1.5 micron single-frequency waveguide laser**, Stefano Taccheo, Swansea Univ. (United Kingdom) [7941-08]

12:00 pm: **All-optical clock recovery using two parallel ridge-width varied DFB lasers integrated with Y-branch waveguide coupler**, DuanHua Kong, Song Liang, Hongliang Zhu, Lingjuan Zhao, Institute of Semiconductors (China) [7941-09]

Lunch Break 12:20 to 1:30 pm

SESSION 3

Room: 250/252 (Mezzanine) Mon. 1:30 to 3:30 pm

Photonic Integration

Session Chair: **Stefano Taccheo**, Swansea Univ. (United Kingdom)

1:30 pm: **InP monolithic optical integration for 100Gbit/sec data transmission** (*Invited Paper*), Martin Schell, Heinz-Gunther Bach, Karl-Otto Velthaus, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) [7941-10]

2:00 pm: **Hybrid photonic integrated circuits for faster and greener optical communication networks** (*Invited Paper*), Leontios Stampoulidis, Efstratios Kehayas, CONSTELEX Technology Enablers (Greece); Lars Zimmermann, IHP GmbH (Germany) and Technische Univ. Berlin (Germany) [7941-11]

2:30 pm: **Light-bullet routing and logic in planar waveguide arrays**, Matthew O. Williams, Jose Nathan Kutz, Univ. of Washington (USA) [7941-12]

2:50 pm: **Innovative high resolution Fourier transform spectrometer based on SWIFTS technology: presentation of recent results in the 400-1000 nm wavelength range**, Thierry Gonthiez, Floralis (France); Etienne Le Coarer, Lab. d'Astrophysique de l'Observatoire de Grenoble (France); Alain Morand, Pierre Benech, Institut de Microélectronique Électromagnétisme et Photonique (France); Jumana Boussey, Commissariat à l'Énergie Atomique (France); Denis Barbier, Teem Photonics S.A. (France); Christophe Bonneville, e2v semiconductors SAS (France); Sylvain Blaize, Univ. de Technologie Troyes (France) [7941-13]

3:10 pm: **Multi-threshold photonic comparator by square-wave synthesis**, Yossef Ehrlichman, Ofer Amrani, Shlomo Ruschin, Tel Aviv Univ. (Israel) [7941-14]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 250/252 (Mezzanine) Mon. 4:00 to 5:00 pm

Modelling and Design

Session Chair: **Christoph A. Wächter**, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany)

4:00 pm: **Fast online simulation of 3D nanophotonic structures by the reduced basis method**, Frank Schmidt, JCMwave GmbH (Germany) and Zuse Institute Berlin (Germany); Jan Pomplun, Konrad-Zuse-Zentrum für Informationstechnik Berlin (Germany) and JCMwave GmbH (Germany); Lin Zschiedrich, Sven Burger, JCMwave GmbH (Germany) [7941-15]

4:20 pm: **Light scattering by a waveguide-coupled nanowire optical antenna**, Sylvain Blaize, Laurent Arnaud, Aurélien Bruyant, Mickael Renault, Yassine Hadjar, Gilles Lérondel, Pascal Royer, Univ. de Technologie Troyes (France); Guillaume Custillon, Alain Morand, Pierre Benech, Ecole Nationale Supérieure d'Electronique et de Radioélectricité de Grenoble (France); Jérôme Ferrand, Univ. Joseph Fourier (France) [7941-16]

4:40 pm: **Accurate simulation algorithm of imperfect polarizers combination attenuator**, Chong Huang, Haiqing Chen, Shuang Zhao, Binbing Liu, Huazhong Univ. of Science and Technology (China) [7941-18]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: Liang-Chy Chien, Kent State Univ. (USA); Klaus P. Streubel, OSRAM GmbH (Germany)

- 8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien, Kent State Univ. (USA)**
 - 8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)**
 - 8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim, LG Display R&D Ctr. (Republic of Korea)**
 - 8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell, Max-Planck-Institute for Biophysical Chemistry (Germany)**
 - 9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch, Univ. of California, Berkeley (USA)**
- See page 24 for details.*

Coffee Break 10:10 to 10:30 am

SESSION 5

Room: 250/252 (Mezzanine) Tues. 10:30 am to 12:00 pm

Sensors I

Session Chair: Xudong Fan, Univ. of Michigan

- 10:30 am: **Integrated photonic biosensor platforms for point-of-care diagnostic devices (Invited Paper), Laura M. Lechuga, Ctr. d'Investigacions en Nanociència i Nanotecnologia (Spain) [7941-19]**
 - 11:00 am: **Photonic crystal slot waveguide spectrometer for the detection of methane, Swapnajit Chakravarty, Omega Optics, Inc. (USA); Wei-Cheng Lai, The Univ. of Texas at Austin (USA); Xiaolong A. Wang, Omega Optics, Inc. (USA); Cheyun Lin, Ray T. Chen, The Univ. of Texas at Austin (USA) . [7941-20]**
 - 11:20 am: **Optimization of waveguide thickness for local evanescent field shift detection, Zhangjing Yi, Rongjin Yan, Rashid Safaisini, Kevin L. Lear, Colorado State Univ. (USA) [7941-21]**
 - 11:40 am: **Carbon nanotubes coated fiber optic ammonia gas sensor, Sellaperumal Manivannan, Loukkose R. Shobin, Aruppukottai M. Saranya, Balusamy Renganathan, Dillibabu Sastikumar, National Institute of Technology, Tiruchirappalli (India); Kyu Chang Park, Kyung Hee Univ. (Korea, Republic of) [7941-22]**
- Lunch/Exhibition Break 12:00 to 1:40 pm

SESSION 6

Room: 250/252 (Mezzanine) Tues. 1:40 to 3:00 pm

Sensors II

- 1:40 pm: **Low-noise and wide-directivity ultrasound detection using high-Q and small size polymer micro-ring resonators, Tao Ling, Sung-Liang Chen, L. Jay Guo, Univ. of Michigan (USA) [7941-23]**
 - 2:00 pm: **Subwavelength palladium hole arrays for optical hydrogen detection, Etsuo Maeda, Masaki Shuzo, Ichiro Yamada, The Univ. of Tokyo (Japan); Atsushi Suda, Japan Aviation Electronics Industry, Ltd. (Japan); Jean-Jacques Delaunay, The Univ. of Tokyo (Japan) [7941-24]**
 - 2:20 pm: **Consideration of sensitivity with respect to diaphragm thickness and waveguide position in silicon-based guided-wave optical accelerometer, Miura Yousuke, Hideto Endo, Takuya Oshima, Masashi Ohkawa, Takashi Sato, Niigata Univ. (Japan) [7941-25]**
 - 2:40 pm: **Design of amorphous nanostructured photonic waveguides for chemical sensing in the visible and near-UV, Aarthi Srinivasan, Tara Chalasani, Parthi Rajan, Ohio Univ. (USA); Gines Lifante, Univ. Autónoma de Madrid (Spain); Ralph D. Whaley, Jr., Ohio Univ. (USA) [7941-26]**
- Coffee Break 3:00 to 3:30 pm

SESSION 7

Room: 250/252 (Mezzanine) Tues. 3:30 to 5:00 pm

Waveguide Engineering II

Session Chair: Pavel Cheben, National Research Council Canada (Canada)

- 3:30 pm: **New tracks toward 3D light harnessing: high Q Slow Bloch mode engineering and coupling to 0D nanophotonic structures (Invited Paper), Taha Benyattou, Institut National des Sciences Appliquées de Lyon (France) and CNRS (France) and INSA de Lyon (France); Ali Belarouci, Xavier Letartre, Ecole Centrale de Lyon (France) and CNRS (France); Emmanuel Gerelli, Institut National des Sciences Appliquées de Lyon (France) and INSA de Lyon (France); Taiping Zhang, Ecole Centrale de Lyon (France); Pierre Viktorovitch, Ecole Centrale de Lyon (France) and CNRS (France) [7941-27]**
- 4:00 pm: **GaAs-SOI integration as a path to low-cost optical interconnects, Timo Aalto, Mikko Harjanne, Markku Kapulainen, Gualtiero Nunzi Conti, Stefano Puustinen, Tampere Univ. of Technology (Finland); Mircea Guina, Kimmo Haring, Janne Vladimir Mikhlin, Innolume GmbH (Germany) [7941-28]**
- 4:20 pm: **Liquid-crystal infiltrated hollow waveguide modulators, Chii-Chang Chen, Kuei-Chu Hsu, Hua-Kung Chiu, Shan-Chi Nian, National Central Univ. (Taiwan) [7941-29]**
- 4:40 pm: **Coupling of lithium niobate disk resonators to integrated waveguides, Simone Berneschi, Franco Cosi, Gualtiero Nunzi Conti, Stefano Pelli, Silvia Soria, Giancarlo Righini, Istituto di Fisica Applicata Nello Carrara (Italy); Massimiliano Dispenza, Alberto Secchi, SELEX Sistemi Integrati S.p.A. (Italy) [7941-31]**

Wednesday 26 January

SESSION 8

Room: 250/252 (Mezzanine) Wed. 8:00 to 10:10 am

Plasmonic

Session Chair: Pierre Berini, Univ. of Ottawa (Canada)

- 8:00 am: **Plasmonics: the next ten years (Invited Paper), Harry A. Atwater, Jr., California Institute of Technology (USA) [7941-33]**
 - 8:30 am: **Rigorous characterization of surface plasmon modes by using the finite element method, B. M. Azizur Rahman, Huda Tanvir, Anita Quadir, Ken Grattan, The City Univ. (United Kingdom) [7941-34]**
 - 8:50 am: **Plasmon-induced transparency in subwavelength metal-dielectric-metal waveguides, Yin Huang, Changjun Min, Georgios Veronis, Louisiana State Univ. (USA) [7941-35]**
 - 9:10 am: **Proper definition of mode size for novel nanoscale waveguides from crosstalk and nonlinearity point of views, Jonghwa Shin, Yong-Hee Lee, KAIST (Korea, Republic of) [7941-36]**
 - 9:30 am: **Linear and nonlinear resonant effects in metallic arrays of sub-wavelength channels, Maria Antonietta Vincenti, Domenico de Ceglia, The AEGIS Technologies Group, Inc. (USA); Neset Akozbek, Michael Scalora, U.S. Army Aviation and Missile Command (USA) [7941-37]**
 - 9:50 am: **Characteristics and applications of rectangular waveguide in sensing, slow light, and negative refraction, Mohamed A. Swillam, Amr S. Helmy, Univ. of Toronto (Canada) [7941-38]**
- Coffee Break 10:10 to 10:40 am

SESSION 9

Room: 250/252 (Mezzanine) Wed. 10:40 am to 12:30 pm

Subwavelength/Diffractive Photonics

Session Chair: **Christoph M. Greiner**, LightSmyth Technologies, Inc.

10:40 am: **Diffractive and subwavelength waveguide structures and their applications in nanophotonics, sensing, and spectroscopy** (*Invited Paper*), Pavel Cheben, Przemek Bock, Jens Schmid, Jean Lapointe, Siegfried Janz, Danxia Xu, Ruben Ma, Adam Densmore, Boris Lamontagne, National Research Council Canada (Canada); Trevor Hall, Univ. of Ottawa (Canada); Robert Halir, Carlos Ramos, Alejandro Monux, Inigo Molina-Fernandez, Juan Wanguemert-Perez, Univ. de Málaga (Spain) [7941-39]

11:10 am: **Long period and fiber Bragg gratings written within the same fibre for sensing purposes**, Francesco Baldini, Massimo Brenci, Ambra Giannetti, Riccardo Falciai, Cosimo Trono, Istituto di Fisica Applicata Nello Carrara (Italy); Francesco Chiaiaoli, Marco Mugnaini, Univ. degli Studi di Siena (Italy) [7941-40]

11:30 am: **Pixelated resonant subwavelength grating filters for greenhouse gas monitoring**, David W. Peters, Shanalyn A. Kemme, Alvaro A. Cruz-Cabrera, Robert R. Boye, Chad A. Bustard, Sandia National Labs. (USA) [7941-41]

11:50 am: **High sensitive non-linear detection of steroids by resonant double grating waveguide structures based immunosensors**, Silvia Soria, Istituto di Fisica Applicata Nello Carrara (Italy); Alejandro Muriano, Consejo Superior de Investigaciones Científicas (Spain) and CIBER de Bioingeniería, Biomateriales y Nanomedicina (Spain); J. Pablo Salvador, Consejo Superior de Investigaciones Científicas (Spain) and Applied Molecular Receptors group (AMRg), IQAC-CSIC (Spain); Roger Galve, M. Pilar Marco, Consejo Superior de Investigaciones Científicas (Spain) and CIBER de Bioingeniería, Biomateriales y Nanomedicina (Spain); Anisha Thayil, Univ. of Oxford (United Kingdom); Pablo Loza-Alvarez, ICFO - Instituto de Ciencias Fotónicas (Spain) [7941-42]

12:10 pm: **Photonic nanojet engineering: Focal point shaping with scattering phenomena of dielectric microspheres**, Myun-Sik Kim, Toralf Scharf, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Stefan Mühlig, Carsten Rockstuhl, Friedrich-Schiller-Univ. Jena (Germany); Hans Peter Herzig, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7941-49]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Optical current sensors comprised of polymeric waveguide components, Woo-Sung Chu, Ji-Hyang Jang, Jun-Whee Kim, Kyung-Jo Kim, Min-Cheol Oh, Pusan National Univ. (Korea, Republic of) [7941-43]

Waveguide integrated plasmonic platform for sensing and spectroscopy, Fatih Degirmenci, Irfan Bulu, Harvard Univ. (USA); Parag Deotare, Mughees Khan, Harvard School of Engineering and Applied Sciences (USA); Marko Loncar, Federico Capasso, Harvard Univ. (USA) [7941-44]

Enhanced Q-factor of triangular resonator using surface plasmon resonance, Geum-Yoon Oh, Chung-Ang Univ. (Korea, Republic of); Doo-Gun Kim, Korea Photonics Technology Institute (Korea, Republic of); Hong-Seung Kim, Tae-Kyung Lee, Young-Wan Choi, Chung-Ang Univ. (Korea, Republic of) [7941-45]

Enhanced light transmission through a metallic nanolens consisting of multiple nano-rings, Youngjin Oh, Jong-Ryul Choi, Kyujung Kim, Donghyun Kim, Yonsei Univ. (Korea, Republic of) [7941-46]

Analytical modeling of plasmonic-waveguide-based devices for nanophotonic applications, Asanka Pannipitiya, Ivan D. Rukhlenko, Malin Premaratne, Monash Univ. (Australia) [7941-47]

Effects of amplitude and timing jitter on the performance of photonic sigma-delta modulators, Yean Wee Tan, Chang Ho Nam, Phillip E. Pace, Naval Postgraduate School (USA) [7941-48]

Don't miss the free Photonics West Exhibition

See new products and top companies at the most important event for the photonics and laser industry

25-27 January 2011

Tuesday · 10:00 am to 5:00 pm

Wednesday · 10:00 am to 5:00 pm

Thursday · 10:00 am to 4:00 pm

Optoelectronic Integrated Circuits XIII

Conference Chairs: **Louay A. Eldada**, HelioVolt Corp.; **El-Hang Lee**, Inha Univ. (Korea, Republic of)

Program Committee: **Yung-Jui Chen**, Univ. of Maryland, Baltimore County; **Larry A. Coldren**, Univ. of California, Santa Barbara; **Mario Dagenais**, Univ. of Maryland, College Park; **P. Daniel Dapkus**, The Univ. of Southern California; **Yeshaiahu Fainman**, Univ. of California, San Diego; **Chennupati Jagadish**, The Australian National Univ. (Australia); **Richard M. Osgood, Jr.**, Columbia Univ.; **Manijeh Razeghi**, Northwestern Univ.; **Giancarlo Cesare Righini**, Istituto di Fisica Applicata Nello Carrara (Italy)

Wednesday 26 January

SESSION 1

Room: 270/272 (Mezzanine) Wed. 8:20 to 10:00 am

Optoelectronic Devices for Optical Interconnects

Joint Session with Conference 7944

Session Chair: **Louay A. Eldada**, HelioVolt Corp.

8:20 am: **Free-space-wave add/drop multiplexing for WDM optical-interconnect system in package** (*Invited Paper*), Shogo Ura, Kyoto Institute of Technology (Japan); Kenji Kintaka, National Institute of Advanced Industrial Science and Technology (Japan) [7942-01]

8:50 am: **Three-dimensional crossbar interconnection using planar-integrated free-space optics and digital mirror-device** (*Invited Paper*), Ulrich Lohmann, Jürgen Jahns, Univ. of Hagen (Germany); Steffen Limmer, Dietmar Fey, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [7942-02]

9:20 am: **Photonic switching for reliable nanoscale three-dimensional integrated network-on-chips**, Ivan B. Djordjevic, The Univ. of Arizona (USA) [7944-29]

9:40 am: **Low-power high-speed SerDes with new dynamic latch and flip-flop for optical interconnect in 180 nm CMOS technology**, Jamshid Sangirov, Augustine Ikechi Ukaegbu, Tae-Woo Lee, Mu Hee Cho, Hyo-Hoon Park, KAIST (Korea, Republic of) [7944-30]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 270/272 (Mezzanine) Wed. 10:30 am to 12:20 pm

Si Photonics for Optical Interconnects

Joint Session with Conference 7944

Session Chair: **Ray T. Chen**, The Univ. of Texas at Austin

10:30 am: **Devices and architectures for large scale integrated silicon photonics circuits** (*Invited Paper*), Raymond G. Beausoleil, Andrei Faraon, David Fattal, Marco Fiorentino, Zheng Peng, Charles M. Santori, Hewlett-Packard Labs. (USA) [7942-03]

11:00 am: **Pure silicon - high performance: advanced optical receivers in standard silicon BiCMOS technologies** (*Invited Paper*), Kerstin Schneider-Hornstein, Technische Univ. Wien (Austria); Robert Swoboda, A3PICs Electronics Development GmbH (Austria); Bernhard Goll, Horst K. Zimmermann, Technische Univ. Wien (Austria) [7944-31]

11:30 am: **CMOS compatible waveguides for all-optical signal processing** (*Invited Paper*), David J. Moss, The Univ. of Sydney (Australia) [7942-04]

12:00 pm: **High-speed CMOS optical communication using silicon light emitters**, Petrus J. Venter, Univ. of Pretoria (South Africa); Marius E. Goosen, INSiAVA (Pty) Ltd. (South Africa); Monuko du Plessis, Univ. of Pretoria (South Africa) and INSiAVA (Pty) Ltd. (South Africa); Ilse J. Nell, Univ. of Pretoria (South Africa); Alfons W. Bogalecki, Pieter Rademeyer, INSiAVA (Pty) Ltd. (South Africa) [7944-32]

Lunch/Exhibition Break 12:20 to 1:30 pm

Note Room Change

SESSION 3

Room: 226 (Mezzanine) Wed. 1:30 to 3:00 pm

Trends in OEICs

Session Chair: **El-Hang Lee**, Inha Univ. (Korea, Republic of)

1:30 pm: **Scaling technologies for terabit fiber optic transmission systems** (*Invited Paper*), David V. Plant, McGill Univ. (Canada) [7942-05]

2:00 pm: **Nanoparticle-enabled polymeric photorefractivity and their application in three-dimensional optical data storage** (*Invited Paper*), Min Gu, Xiangping Li, Swinburne Univ. of Technology (Australia) [7942-06]

2:30 pm: **Integration of RF-optical upconversion modules for millimeter-wave sensing and imaging systems** (*Invited Paper*), Peng Yao, Phase Sensitive Innovations, Inc. (USA); Rowan Shrieen, Julien Macario, Univ. of Delaware (USA); Christopher A. Schuetz, Phase Sensitive Innovations, Inc. (USA); Dennis W. Prather, Univ. of Delaware (USA) [7942-07]

Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 226 (Mezzanine) Wed. 3:30 to 5:00 pm

VLSI Photonic ICs

Session Chair: **Louay A. Eldada**, HelioVolt Corp.

3:30 pm: **Design and integration of functional plasmonic wires and devices for VLSI photonic circuit application** (*Invited Paper*), El-Hang Lee, Inha Univ. (Korea, Republic of) [7942-08]

4:00 pm: **Nanophotonic devices and circuits** (*Invited Paper*), Maziar P. Nezhad, Aleksandar Simic, Olesya Bondarenko, Boris A. Slutsky, Amit Mizrahi, Yeshaiahu Fainman, Univ. of California, San Diego (USA) [7942-09]

4:30 pm: **Micro-rings for photonic integration** (*Invited Paper*), Yung-Jui Chen, Univ. of Maryland, Baltimore County (USA) [7942-10]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Chromatic dispersion measurement of nano-silicon waveguides using a white-light interferometry method, Seung-Hwan Kim, Seoung Hun Lee, Dong Wook Kim, Kyong-Hon Kim, El-Hang Lee, Inha Univ. (Korea, Republic of); Jong-Moo Lee, Electronics and Telecommunications Research Institute (Korea, Republic of) [7942-26]

Measurement of the refractive index of liquids in magnetic field using common-path optical coherence tomography, Hae-Dong Yim, El-Hang Lee, Seung-Gol Lee, Se-Geun Park, Beom-Hoan O, Inha Univ. (Korea, Republic of) [7942-28]

Design of optical H-tree network for on-chip CMOS clock distribution, Shinmo An, Seung-Gol Lee, Beom-Hoan O, Kyong-Hon Kim, Se-Geun Park, El-Hang Lee, Inha Univ. (Korea, Republic of) [7942-29]

Design of a directional-coupler-type active switch based on plasmonic nanostrip waveguides, Jun-Hwa Song, Hyun-Shik Lee, Beom-Hoan O, Seung-Gol Lee, Se-Geun Park, El-Hang Lee, Inha Univ. (Korea, Republic of) [7942-30]

Thursday 27 January

SESSION 5

Room: 226 (Mezzanine) Thurs. 8:30 to 10:00 am

Silicon OEICs

Session Chair: Louay A. Eldada, HelioVolt Corp.

8:30 am: **On-chip silicon nonlinear optical circuits: letting light make decisions** (*Invited Paper*), Jeffrey B. Driscoll, Xiaoping Liu, Jerry I. Dadap, Jr., Columbia Univ. (USA); William M. J. Green, Yurii A. Vlasov, IBM Thomas J. Watson Research Ctr. (USA); William S. Astar, The Lab. for Physical Sciences (USA) and The Ctr. for Advanced Studies in Photonics Research (USA); Gary M. Carter, The Lab. for Physical Sciences (USA) and The Ctr. for Advanced Studies in Photonics Research (USA) and Univ. of Maryland, Baltimore County (USA); Richard M. Osgood, Jr., Columbia Univ. (USA) [7942-11]

9:00 am: **Hybrid silicon lasers** (*Invited Paper*), Roel G. Baets, Univ. Gent (Belgium) [7942-12]

9:30 am: **Silicon photonic integrated circuits: from devices to integration** (*Invited Paper*), Tsung-Yang Liow, Qing Fang, Andy E. Lim, Liang Ding, Qing Xin Zhang, Jing Zhang, Ning Duan, Junfeng Song, Fang-Fang Ren, Hong Cai, Samson T. H. Silalahi, Mingbin Yu, Patrick G. Q. Lo, Dim-Lee Kwong, A*STAR Institute of Microelectronics (Singapore) [7942-13]

Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 226 (Mezzanine) Thurs. 10:30 to 11:30 am

Green OEIC Technologies

Session Chair: Richard M. Osgood, Jr., Columbia Univ.

10:30 am: **Thin film CIGS photovoltaic modules: monolithic integration, interconnection, and packaging for low cost and high reliability** (*Invited Paper*), Louay A. Eldada, HelioVolt Corp. (USA) [7942-14]

11:00 am: **Development of a sacrificial ZnO/c-Al₂O₃ template approach to enable the fabrication of cost-effective, superior efficiency, InGaN-based solar cells via wafer-bonding to low cost substrates** (*Invited Paper*), David J. Rogers, Ferechteh H. Teherani, Nanovation (France); Vinod E. Sandana, Nanovation (France) and Northwestern Univ. (USA); K. Pantzas, Georgia Institute of Technology (France); Simon Gautier, Tarik Moudakir, Supélec (France); P. Voss, Georgia Institute of Technology (France); Michael Molinari, Michel Troyon, Univ. de Reims Champagne-Ardenne (France); D. McGrouther, J. N. Chapman, Univ. of Glasgow (United Kingdom); François Jomard, Univ. de Versailles Saint-Quentin-en Yvelines (France); Z. Djebbour, Lab. de Génie Électrique de Paris (France); Manijeh Razeghi, Northwestern Univ. (USA); Abdallah Ougazzaden, Georgia Institute of Technology (France) [7942-15]

Lunch/Exhibition Break 11:30 am to 1:00 pm

SESSION 7

Room: 226 (Mezzanine) Thurs. 1:00 to 3:00 pm

Nanoscale and Quantum OEICs

Session Chair: El-Hang Lee, Inha Univ. (Korea, Republic of)

1:00 pm: **Nonlinear parametric processes in photonic crystal nanostructures** (*Invited Paper*), Chee Wei Wong, James F. McMillan, Chad A. Husko, Jiangjun Zheng, Ying Li, Jie Gao, Jing Shu, Serdar Kocaman, Tingyi Gu, Mehmet Aras, Columbia Univ. (USA) [7942-16]

1:30 pm: **Record-high output power from large area photonic crystal band-edge lasers**, Sunghwan Kim, Sungmo Ahn, Jeongkug Lee, Heonsu Jeon, Seoul National Univ. (Korea, Republic of); Christian Seassal, Ecole Centrale de Lyon (France) [7942-17]

1:50 pm: **Techniques for integration of quantum dot-based optoelectronic devices** (*Invited Paper*), Hark Hoe Tan, Lan Fu, Sudha Mokkaapati, Chennupati Jagadish, The Australian National Univ. (Australia) [7942-18]

2:20 pm: **Towards arrays of smart-pixels for time-correlated single photon counting and time-of-flight application**, Bojan Markovic, Politecnico di Milano (Italy); Simone Tisa, Micro Photon Devices S.r.l. (Italy); Alberto Tosi, Franco Zappa, Politecnico di Milano (Italy) [7942-19]

2:40 pm: **1024 pixels single photon imaging array for 3D ranging**, Simone Bellisai, Fabrizio Guerrieri, Politecnico di Milano (Italy); Simone Tisa, Micro Photon Devices S.r.l. (Italy); Franco Zappa, Alberto Tosi, Politecnico di Milano (Italy) [7942-20]

Coffee Break 3:00 to 3:30 pm

SESSION 8

Room: 226 (Mezzanine) Thurs. 3:30 to 5:40 pm

Hybrid OEICs

Session Chair: Chee Wei Wong, Columbia Univ.

3:30 pm: **Photonic network-on-chip architecture using 3D integration** (*Invited Paper*), Keren Bergman, Columbia Univ. (USA) [7942-21]

4:00 pm: **The integration of silica and polymer waveguide devices for ROADM applications** (*Invited Paper*), Junichiro Fujita, Reinold Gerhardt, Tomoyuki Izuohara, Wenhua Lin, Hongzhen Wei, Boris Grek, Enablence (USA) [7942-22]

4:30 pm: **InP on SOI devices for optical communication and optical network on chip** (*Invited Paper*), Jean-Marc Fédéli, Badhise Ben Bakir, Lab. d'Electronique de Technologie de l'Information (France) [7942-23]

5:00 pm: **Optical signal processing with a network of semiconductor optical amplifiers in the context of photonic reservoir computing**, Kristof T. Vandoorne, Martin Fiers, David Verstraeten, Benjamin Schrauwen, Joni Dambre, Peter Bienstman, Univ. Gent (Belgium) [7942-24]

5:20 pm: **Nd-doped waveguide amplifiers for heterogeneous integration in optical backplanes**, Feridun Ay, Jing Yang, Univ. Twente (Netherlands); Tobias Lamprecht, IBM Research GmbH (Switzerland); Kerstin Wörhoff, Sonia M. Garcia-Blanco, Alfred Driessen, Univ. Twente (Netherlands); Folkert Horst, Bert-Jan Offrein, IBM Research GmbH (Switzerland); Markus Pollnau, Univ. Twente (Netherlands) [7942-25]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Silicon Photonics VI

Conference Chairs: **Joel A. Kubby**, Univ. of California, Santa Cruz; **Graham T. Reed**, Univ. of Surrey (United Kingdom)

Program Committee: **Laurence W. Cahill**, La Trobe Univ. (Australia); **Philippe M. Fauchet**, Univ. of Rochester; **L. Cary Gunn**, Genalyte, Inc.; **Siegfried Janz**, National Research Council Canada (Canada); **Andrew P. Knights**, McMaster Univ. (Canada); **Laura M. Lechuga**, Ctr. d'Investigacions en Nanociència i Nanotecnologia (Spain); **Sebania Libertino**, Istituto per la Microelettronica e Microsistemi (Italy); **Goran Z. Mashanovich**, Univ. of Surrey (United Kingdom); **Mario J. Paniccia**, Intel Corp.; **Andrew W. Poon**, Hong Kong Univ. of Science and Technology (Hong Kong, China); **Holger Schmidt**, Univ. of California, Santa Cruz; **Dan-Xia Xu**, National Research Council Canada (Canada); **Zhiping Zhou**, Peking Univ. (China)

Sunday 23 January

SESSION 1

Room: 226 (Mezzanine) Sun. 10:30 am to 12:00 pm

Lab-on-a-Chip

Session Chair: **Holger Schmidt**, Univ. of California, Santa Cruz

10:30 am: **Integrated plasmonic systems for ultrasensitive biodetection** (*Invited Paper*), Hatice Altug, Ahmet A. Yanik, Ronen Adato, Serap Aksu, Alp Artar, Min Huang, Arif E. Cetin, Boston Univ. (USA) [7943-01]

11:00 am: **Microfluidic manipulations with sub-cellular optical resolution** (*Invited Paper*), Mehmet F. Yanik, Massachusetts Institute of Technology (USA) [7943-02]

11:30 am: **Nano-plasmonic resonance integrated with optofluidics for biochemical sensing and identification** (*Invited Paper*), Lin Pang, Haiping M. Chen, Joanna N. Ptasiński, Pang-Chen Sun, Yeshaiahu Fainman, Univ. of California, San Diego (USA) [7943-03]

Lunch Break 12:00 to 1:00 pm

SESSION 2

Room: 226 (Mezzanine) Sun. 1:00 to 1:40 pm

Materials

Session Chair: **Andrew P. Knights**, McMaster Univ. (Canada)

1:00 pm: **Molecular beam epitaxial growth of GaAs/AlGaAs multi quantum well on germanium substrate**, Sreetama Banerjee, Nilanjan Halder, Subhananda Chakrabarti, Indian Institute of Technology, Bombay (India) [7943-04]

1:20 pm: **Phase change characteristics of Ge₂Sb₂Te₅ thin film for a self-holding optical gate switch**, Tatsuya Toyosaki, Keio Univ. (Japan) [7943-05]

SESSION 3

Room: 226 (Mezzanine) Sun. 1:40 to 3:00 pm

Ring Resonators

Session Chair: **Graham Trevor Reed**, Univ. of Surrey (United Kingdom)

1:40 pm: **Highly-sensitive optical sensor based on two cascaded micro-ring resonators with an LED light source**, Lei Jin, Mingyu Li, Jian-Jun He, Zhejiang Univ. (China) [7943-06]

2:00 pm: **Defect mediated detection of wavelengths around 1550nm in a ring resonant structure**, Andrew P. Knights, Jonathan K. Doyle, Dylan Logan, Jason Ackert, Paul E. Jessop, McMaster Univ. (Canada); Philippe Velha, Marc Sorel, Richard M. De La Rue, Univ. of Glasgow (United Kingdom); Frédéric Y. Gardes, Graham T. Reed, Univ. of Surrey (United Kingdom) [7943-07]

2:20 pm: **Liquid core integrated ring resonator**, Genni Testa, Consiglio Nazionale delle Ricerche (Italy); Yujian Huang, Technische Univ. Delft (Netherlands); Luigi Zeni, Seconda Univ. degli Studi di Napoli (Italy); Pasqualina M. Sarro, Technische Univ. Delft (Netherlands); Romeo Bernini, Consiglio Nazionale delle Ricerche (Italy) [7943-08]

2:40 pm: **Silicon photonic resonator integration with CMOS electronics**, William Zortman, Anthony L. Lentine, Douglas C. Trotter, Gideon A. Robertson, Michael R. Watts, Sandia National Labs. (USA) [7943-09]

Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 226 (Mezzanine) Sun. 3:30 to 5:20 pm

Photonic Crystals

Session Chair: **Andrew P. Knights**, McMaster Univ. (Canada)

3:30 pm: **CMOS photonic crystal and slow light** (*Invited Paper*), Toshihiko Baba, Yokohama National Univ. (Japan) [7943-10]

4:00 pm: **Low loss off axis photonic crystal waveguides with bends**, Robert C. Gauthier, Kristian E. Medri, Scott R. Newman, Carleton Univ. (Canada) [7943-11]

4:20 pm: **Reconfigurable bi-directional optical routing in photonic crystals enabled by silicon nanomembrane modules**, Mathew J. Zablocki, Dennis W. Prather, Univ. of Delaware (USA); Ahmed S. Sharkawy, Ozgenc Ebil, EM Photonics, Inc. (USA) [7943-12]

4:40 pm: **Transformation of one-dimensional silicon photonic crystal into Fabry-Pérot resonator with tunable defect mode**, Tatiana S. Perova, Trinity College Dublin (Ireland); Vladimir Tolmachev, Ioffe Physico-Technical Institute (Russian Federation); Vasily Melnikov, Anna Baldycheva, Trinity College Dublin (Ireland) [7943-13]

5:00 pm: **Design, fabrication, and optical characterization of multi-component photonic crystals for integrated Si microphotronics**, Anna Baldycheva, Trinity College Dublin (Ireland); Vladimir Tolmachev, Ioffe Physico-Technical Institute (Russian Federation); Tatiana S. Perova, Trinity College Dublin (Ireland); Julia A. Zharova, Ekaterina Astrova, Ioffe Physico-Technical Institute (Russian Federation); Kevin Berwick, Dublin Institute of Technology (Ireland) [7943-14]

Monday 24 January

SESSION 5

Room: 226 (Mezzanine) Mon. 9:00 to 10:10 am

Photonic Wires

Session Chair: **Graham Trevor Reed**, Univ. of Surrey (United Kingdom)

9:00 am: **Engineering light at the sub-wavelength scale using silicon photonics** (*Invited Paper*), Siegfried Janz, Pavel Cheben, Dan-Xia Xu, Adam Densmore, Jens Schmid, Rubin Ma, Przemek Bock, National Research Council Canada (Canada); Robert Halir, Inigo Molina-Fernandez, Univ. de Málaga (Spain); Andre Delage, Martin Vachon, Jean Lapointe, William Sinclair, Edith Post, Boris Lamontagne, National Research Council Canada (Canada) [7943-15]

9:30 am: **Rigorous characterization of silicon nanowires and nanophotonic devices**, B. M. Azizur Rahman, David Leung, Kejalakshmy Namassivayane, The City Univ. (United Kingdom); A. Law, Harith B. Ahmed, Univ. of Malaya (Malaysia); Ken T. V. Grattan, The City Univ. (United Kingdom) [7943-16]

9:50 am: **Reflection and transmission characteristics of silicon photonic wire Bragg gratings**, Paul Mueller, Roman Bruck, Austrian Institute of Technology (Austria); Matthias Karl, Matthias Baus, Thorsten Wahlbrink, AMO GmbH (Germany); Rainer Hainberger, Austrian Institute of Technology (Austria) [7943-17]

Coffee Break 10:10 to 10:40 am

SESSION 6

Room: 226 (Mezzanine) Mon. 10:40 to 11:50 am

Waveguides I

Session Chair: **Graham Trevor Reed**, Univ. of Surrey (United Kingdom)

10:40 am: **Backscattering in silicon photonic waveguides and circuits** (*Invited Paper*), Francesco Morichetti, Antonio Canciamilla, Carlo Ferrari, Mario Martinelli, Andrea Melloni, Politecnico di Milano (Italy) [7943-18]

11:10 am: **Development of a 0.75 micron wavelength, all-silicon, CMOS-based optical communication system**, Lukas W. Snyman, Kingsley A. Ogudo, Tshwane Univ. of Technology (South Africa); Daniel Foty, Gligamesh Associates, LLC (USA) [7943-19]

11:30 am: **Patterned overlays**, Kristian E. Medri, Robert C. Gauthier, Carleton Univ. (Canada) [7943-20]

Lunch Break 11:50 am to 1:20 pm

SESSION 7

Room: 226 (Mezzanine) Mon. 1:20 to 2:50 pm

Waveguides II

Session Chair: **Siegfried Janz**,
National Research Council Canada (Canada)

1:20 pm: **Fabrication of nanoscale photonic components in bulk silicon using ion irradiation** (*Invited Paper*), Mark B. Breeze, National Univ. of Singapore (Singapore) [7943-21]

1:50 pm: **Far-field approximation in two-dimensional slab-waveguides**, Amir Hosseini, Ray T. Chen, The Univ. of Texas at Austin (USA) [7943-22]

2:10 pm: **All optical broadband absorption modulation in submicron silicon waveguide**, Ilya Goykhman, Boris Desiatov, Uriel Levy, The Hebrew Univ. of Jerusalem (Israel) [7943-23]

2:30 pm: **Pluggable compact optical connector for Si-photonics chip using MT-ferrule**, Do-Won Kim, Jun Yeong Lee, Jonghun Kim, Gyungock Kim, Electronics and Telecommunications Research Institute (Korea, Republic of) [7943-24]

Coffee Break 2:50 to 3:20 pm

SESSION 8

Room: 226 (Mezzanine) Mon. 3:20 to 4:50 pm

Waveguides III

Session Chair: **Siegfried Janz**,
National Research Council Canada (Canada)

3:20 pm: **Mid-infrared silicon photonic devices** (*Invited Paper*), Goran Z. Mashanovich, Milan M. Milosevic, Milos Nedeljkovic, Nathan Owens, William R. Headley, Univ. of Surrey (United Kingdom); Ee Jin Teo, Boqian Xiong, National Univ. of Singapore (Singapore); Pengyuan Yang, Youfang Hu, Univ. of Surrey (United Kingdom) [7943-25]

3:50 pm: **Light confinement and propagation characteristics in plasmonic gap waveguides on Si**, Rafael Salas-Montiel, Sylvain Blaize, Aurélien Bruyant, Aniello Apuzzo, Gilles Lerondel, Univ. de Technologie Troyes (France); Cecile Delacour, Philippe Grosse, Jean-Marc Fedeli, Alexei Tchelnokov, Commissariat à l'Énergie Atomique (France) [7943-26]

4:10 pm: **Optical near field in silicon photonics**, Rafael Salas-Montiel, Sylvain Blaize, Aurélien Bruyant, Aniello Apuzzo, Zohreh Sedaghat, Gilles Lerondel, Pascal Royer, Univ. de Technologie Troyes (France) [7943-27]

4:30 pm: **Micro-cavities based on width modulated SOI waveguides**, Stefan Meister, Aws Al-Saadi, Bülent A. Franke, Shaimaa Mahdi, Mirosław Szczambura, Berndt Kuhlöw, Technische Univ. Berlin (Germany); Lars Zimmermann, Harald H. Richter, David Stolarek, IHP GmbH (Germany); Sigurd K. Schrader, Technische Fachhochschule Wildau (Germany); Hans J. Eichler, Technische Univ. Berlin (Germany) [7943-28]

SESSION 9

Room: 226 (Mezzanine) Mon. 4:50 to 6:10 pm

Integration

Session Chair: **Andrew W. Poon**, Hong Kong Univ. of Science and Technology (Hong Kong, China)

4:50 pm: **Integrated recirculating optical hybrid silicon buffers** (*Invited Paper*), Geza Kurczveil, Martijn J. R. Heck, John M. Garcia, Henrik N. Poulsen, Hyundai Park, John E. Bowers, Daniel J. Blumenthal, Univ. of California, Santa Barbara (USA) [7943-29]

5:20 pm: **Fast 100-channel wavelength selectors integrated on silicon**, Timo Aalto, Mikko Harjanne, Markku Kapulainen, Sami Ylinen, VTT Technical Research Ctr. of Finland (Finland); Ludwig Mörl, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) [7943-30]

5:40 pm: **Progress in waveguide-integrated germanium avalanche photodetectors** (*Invited Paper*), Solomon Assefa, Fengnian Xia, Yurii A. Vlasov, IBM Thomas J. Watson Research Ctr. (USA) [7943-31]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA);
Klaus P. Streubel, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks**, Liang-Chy Chien, Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display Application**, Chang-Dong Kim, LG Display R&D Ctr. (Republic of Korea)

8:50 am: **Nanoscopy with Focused Light**, Stefan W. Hell, Max-Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier**, Eli Yablonovitch, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 10

Room: 226 (Mezzanine) Tues. 10:30 to 11:10 am

Filters

Session Chair: **Zhiping Zhou**, Peking Univ. (China)

10:30 am: **Design of SOI wavelength filter based on multiple MMIs structures**, Youfang Hu, Frédéric Y. Gardes, Univ. of Surrey (United Kingdom); Richard M. Jenkins, Ewan D. Finlayson, QinetiQ Ltd. (United Kingdom); Goran Z. Mashanovich, Graham T. Reed, Univ. of Surrey (United Kingdom) [7943-32]

10:50 am: **Integrated optical phased array based large angle beam steering system fabricated on silicon-on-insulator**, David N. Kwong, Amir Hosseini, Yang Zhang, Ray T. Chen, The Univ. of Texas at Austin (USA) [7943-33]

SESSION 11**Room: 226 (Mezzanine) Tues. 11:10 am to 12:20 pm****Gratings***Session Chair: Zhiping Zhou, Peking Univ. (China)*11:10 am: **Polarization dispersion compensated waveguide grating on silicon** (*Invited Paper*), Jian-Jun He, Zhejiang Univ. (China) [7943-34]11:40 am: **Low energy silicon on insulator ion implanted gratings for optical wafer scale testing**, Renzo Loiacono, Graham T. Reed, Russell M. Gwilliam, Goran Z. Mashanovich, Univ. of Surrey (United Kingdom); Ran Feldesh, Numonyx Israel (Israel); Richard Jones, Intel Corp. (USA) [7943-35]12:00 pm: **SOI ring resonators with controllable MMI coupler sessions**, Youfang Hu, Frédéric Y. Gardes, Goran Z. Mashanovich, Graham T. Reed, Univ. of Surrey (United Kingdom) [7943-36]

Lunch/Exhibition Break 12:20 to 1:50 pm

SESSION 12**Room: 226 (Mezzanine) Tues. 1:50 to 3:30 pm****Emitters***Session Chair: Philippe M. Fauchet, Univ. of Rochester*1:50 pm: **Towards integrated photonic quantum technologies with fiber-integrated single photon emitters** (*Invited Paper*), Oliver Benson, Tim Schröder, Andreas Schell, Thomas Aichele, Günther Kewes, Michael Barth, Humboldt-Univ. zu Berlin (Germany) [7943-37]2:20 pm: **Spintronics using Si** (*Invited Paper*), Hanan Dery, Pengke Li, Univ. of Rochester (USA) [7943-38]2:50 pm: **Polarized electroluminescence from edge-emission Si-based organic light emitting device**, Guangzhao Ran, D. F. Jiang, Peking Univ. (China) [7943-39]3:10 pm: **Spontaneous and stimulated Raman scattering in planar silicon waveguides**, Sha Wang, Stefan Meister, Shaimaa Mahdi, Bülent Franke, Aws Al-Saadi, Technische Univ. Berlin (Germany); Lars Zimmermann, Harald H. Richter, David Stolarek, IHP GmbH (Germany); Viktor Lisinetskii, Sigurd K. Schrader, Technische Fachhochschule Wildau (Germany); Hans Eichler, Technische Univ. Berlin (Germany) [7943-40]

Coffee Break 3:30 to 4:00 pm

SESSION 13**Room: 226 (Mezzanine) Tues. 4:00 to 5:50 pm****Modulators***Session Chair: Philippe M. Fauchet, Univ. of Rochester*4:00 pm: **High-speed silicon optical modulator with self-aligned fabrication process** (*Invited Paper*), David J. Thomson, Frédéric Y. Gardes, Graham T. Reed, Univ. of Surrey (United Kingdom); Frédéric Milesi, Jean-Marc Fedeli, Commissariat à l'Énergie Atomique (France) [7943-41]4:30 pm: **A CMOS-based light modulator for contactless data transfer**, Alexander Serb, Timothy G. Constandinou, Konstantin Nikolic, Imperial College London (United Kingdom) [7943-42]4:50 pm: **A compact depletion mode silicon modulator based on a photonic hybrid-lattice mode-gap resonator**, Maoqing Xin, National Univ. of Singapore (Singapore); Ching Eng J. Png, A*STAR Institute of High Performance Computing (Singapore); Aaron J. Danner, National Univ. of Singapore (Singapore) [7943-43]5:10 pm: **40 Gb/s high-speed silicon modulator for TE and TM polarisation**, Frédéric Y. Gardes, David J. Thomson, Graham T. Reed, Univ. of Surrey (United Kingdom) [7943-44]5:30 pm: **SiGe metallized stub and plasmonic gap mode electro-absorption modulators**, Roney Thomas, Zoran Ikonc, Robert W. Kelsall, Univ. of Leeds (United Kingdom) [7943-45]**Wednesday 26 January**

Note Room Change

SESSION 14**Room: 310 (Esplanade) Wed. 8:10 to 10:20 am****Silicon Photonics**

Joint Session with Conference 7953

*Session Chair: Mario J. Paniccia, Intel Corp.*8:10 am: **A monolithic Ge-on-Si laser** (*Invited Paper*), Lionel C. Kimerling, Massachusetts Institute of Technology (USA) [7953-30]8:40 am: **Carrier recombination mechanisms in monolithically integrated Ga(NAsP)/(BGa)P QW lasers on Si**, Nadir Hossain, Shirong R. Jin, Stephen J. Sweeney, Univ. of Surrey (United Kingdom); Sven Liebich, Peter Ludewig, Martin Zimprich, Kerstin Volz, Philipps-Univ. Marburg (Germany); Bernardette Kunert, NAsP III/V GmbH (Germany); Wolfgang Stolz, Philipps-Univ. Marburg (Germany) [7953-31]9:00 am: **Electrically pumped diode lasers on silicon substrates based on Ga(NAsP)/GaP multi-quantum well heterostructures**, Stephan Rogowsky, Ralf Ostendorf, Gudrun Kaufel, Wilfried Pleitschen, Joachim Wagner, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Sven Liebich, Kerstin Volz, Wolfgang Stolz, Martin Zimprich, Philipps-Univ. Marburg (Germany); Bernardette Kunert, NAsP III/V GmbH (Germany) [7953-32]9:20 am: **Hybrid silicon ring laser** (*Invited Paper*), Di Liang, Marco Fiorentino, Hewlett-Packard Labs. (USA); John E. Bowers, Univ. of California, Santa Barbara (USA); Raymond G. Beausoleil, Hewlett-Packard Labs. (USA) [7943-46]9:50 am: **Self-organized InAs quantum dot tube lasers and integrated optoelectronics on Si** (*Invited Paper*), Zetian Mi, Pablo Bianucci, Feng Li, Zhaobing Tian, Venkat Veerasubramanian, Andrew G. Kirk, David V. Plant, McGill Univ. (Canada); Philip J. Poole, National Research Council Canada (Canada) [7943-47]**POSTERS-Wednesday****Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm**

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Effects of substrate temperature on SiO₂ films deposited by PECVD, Shang Gao, Lian Jie, Song Ping, Shandong Univ. (China) [7943-48]**PECVD grown silicon dioxide film process optimization**, Song Ping, Lian Jie, Shang Gao, Shandong Univ. (China) [7943-49]**Variation of optical properties by the crystalline phase transition of polycrystalline silicon**, Iwata Hidenori, Kita Tomohiro, Hirohito Yamada, Tohoku Univ. (Japan) [7943-50]**Si photonic-wire waveguide ring filters for wavelength tunable lasers**, Ken Suzuki, Kita Tomohiro, Hirohito Yamada, Tohoku Univ. (Japan) [7943-51]**Design and demonstration of a polarized light-emitting structure based on omni-directional porous silicon waveguide**, Kyungwook Hwang, Yeonsang Park, Heonsu Jeon, Seoul National Univ. (Korea, Republic of) [7943-52]**Investigation of optical properties of two-dimensional photonic crystals by means of the scattering matrix method**, Sergey A. Dyakov, Tatiana S. Perova, Trinity College Dublin (Ireland); Ekaterina Astrova, Ioffe Physico-Technical Institute (Russian Federation); Sergei G. Tikhodeev, Nikolai A. Gippius, A. M. Prokhorov General Physics Institute (Russian Federation) [7943-53]**Courses of Related Interest**

SC817 Silicon Photonics (Michel, Saini) Wednesday, 8:30 am to 12:30 pm
 SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm
 SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Optoelectronic Interconnects and Component Integration XI

Conference Chairs: **Alexei L. Glebov**, OptiGrate Corp.; **Ray T. Chen**, The Univ. of Texas at Austin

Program Committee: **Jerry R. Bautista**, Intel Corp.; **John E. Cunningham**, Sun Microsystems, Inc.; **Allen M. Earman**, Intersil Corp.; **Ruth Houbertz-Krauss**, Fraunhofer-Institut für Silicatiforschung (Germany); **Willem Hoving**, XiO Photonics B.V. (Netherlands); **Jürgen Jahns**, FernUniv. in Hagen (Germany); **Takashi Mikawa**, National Institute of Advanced Industrial Science and Technology (Japan); **Bert-Jan Offrein**, IBM Zürich Research Lab. (Switzerland); **Hyo-Hoon Park**, Korea Advanced Institute of Science and Technology (Korea, Republic of); **Henning Schröder**, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (Germany); **Yakov G. Soskind**, David H. Pollock Consultants, Inc.; **Peter Van Daele**, Univ. Gent (Belgium); **Alan X. Wang**, Omega Optics, Inc.; **Tetsuzo Yoshimura**, Tokyo Univ. of Technology (Japan); **Xuping Zhang**, Nanjing Univ. (China)

Monday 24 January

SESSION 1

Room: 270/272 (Mezzanine) Mon. 8:20 to 10:00 am

Ultra-Performance Nanophotonic Interconnects (UNIC Program)

Session Chair: **John E. Cunningham**, Oracle

8:20 am: **Low power thermal tuning of SOI-CMOS photonic structures** (*Invited Paper*), Ivan N. Shubin, Xuezheng Zheng, Hiren D. Thacker, Jin Yao, Guoliang Li, Ashok V. Krishnamoorthy, John E. Cunningham, Oracle (USA); Thierry Pinguet, Attila Mekis, Luxtera (USA); Bruce Guenin, Oracle (USA) [7944-01]

8:50 am: **Low power photonics components for optical interconnects** (*Invited Paper*), Po Dong, Roshanak Shafiha, Dazeng Feng, Mehdi Asghari, Kotura, Inc. (USA) [7944-02]

9:20 am: **Ge/SiGe quantum well waveguide modulator integrated with silicon-on-insulator waveguide**, Shen Ren, Yiwen Rong, Theodore I. Kamins, James S. Harris, Jr., David A. B. Miller, Stanford Univ. (USA); Po Dong, Shirong Liao, Kotura, Inc. (USA) [7944-03]

9:40 am: **Grating coupler based optical proximity coupling for scalable computing systems**, Jin Yao, Xuezheng Zheng, Guoliang Li, Ivan N. Shubin, Ying Luo, Hiren D. Thacker, Oracle (USA); Attila Mekis, Thierry Pinguet, Luxtera (USA); Kannan Raj, John E. Cunningham, Ashok V. Krishnamoorthy, Oracle (USA) [7944-04]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 270/272 (Mezzanine) Mon. 10:30 am to 12:10 pm

Waveguide Technologies for Optical Interconnects

Session Chair: **Alexei L. Glebov**, OptiGrate Corp.

10:30 am: **Evaluation of graded index glass waveguides for board-level WDM optical chip-to-chip communications** (*Invited Paper*), Juergen Schrage, C-LAB (Germany) and Siemens AG (Germany); Oliver Stuebbe, C-LAB (Germany) and Univ. Paderborn (Germany); Lars Brusberg, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (Germany); Yasin Soenmez, C-LAB (Germany) and Univ. Paderborn (Germany); Henning Schroeder, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (Germany); Rolf Schuhmann, Univ. Paderborn (Germany) [7944-05]

11:00 am: **Next generation optical interconnection technology; high performance photonics polymers for optical waveguide fabrication and evaluation** (*Invited Paper*), Okihiko Sugihara, Toshikuni Kaino, Tohoku Univ. (Japan) [7944-06]

11:30 am: **PCB with fully integrated optical interconnects**, Gregor Langer, Austria Technologie & Systemtechnik AG (Austria); Valentin Satzinger, Volker Schmidt, JOANNEUM RESEARCH Forschungsgesellschaft GmbH (Austria); Gerhard Schmid, Walter R. Leeb, Technische Univ. Wien (Austria) . . . [7944-07]

11:50 am: **Optical loss characterization of polymer waveguides on halogen and halogen free FR-4 substrates**, Brandon W. Swatowski, Christopher T. Middlebrook, Karl Walczak, Michael C. Roggemann, Michigan Technological Univ. (USA) [7944-08]

Lunch Break 12:10 to 1:30 pm

SESSION 3

Room: 270/272 (Mezzanine) Mon. 1:30 to 3:00 pm

Optical Interconnects: Integration and Packaging

Session Chair: **Alexei L. Glebov**, OptiGrate Corp.

1:30 pm: **20 Gbps optical link with high efficiency 1060 nm VCSEL** (*Invited Paper*), Jean Benoit Héroux, Masao Tokunari, Shigeru Nakagawa, IBM Japan, Ltd. (Japan) [7944-09]

2:00 pm: **Hybrid-integrated silicon photonic bridge chips for ultralow energy inter-chip communications**, Hiren D. Thacker, Ivan N. Shubin, Ying Luo, Joannes Costa, Jon Lexau, Xuezheng Zheng, Guoliang Li, Jin Yao, Ron Ho, Oracle (USA); Thierry Pinguet, Luxtera (USA); Mehdi Asghari, Kotura, Inc. (USA); Kannan Raj, James G. Mitchell, Ashok V. Krishnamoorthy, John E. Cunningham, Oracle (USA) [7944-10]

2:20 pm: **Thin glass based packaging and photonic single-mode waveguide integration by ion-exchange technology on board and module level**, Lars Brusberg, Henning Schröder, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (Germany) [7944-11]

2:40 pm: **A concept for the assembly and alignment of arrayed microelectronic and micro-optical systems for optical multi-gigabit communication**, Fernando Merchán, Karl-Heinz Brenner, Ruprecht-Karls-Universität Heidelberg (Germany) [7944-12]

Coffee Break 3:00 to 3:30 pm

SESSION 4

Room: 270/272 (Mezzanine) Mon. 3:30 to 4:50 pm

Polymer Optical Interconnects

Session Chair: **Hyo-Hoon Park**, KAIST (Korea, Republic of)

3:30 pm: **Packaging technology enabling flexible optical interconnections**, Erwin Bosman, Geert Van Steenberge, Bram Van Hoe, Jeroen Missinne, Sandeep Kalathimekkad, Peter Van Daele, Univ. Gent (Belgium) [7944-13]

3:50 pm: **Transfer and characterization of silicon nanomembrane based photonic devices on flexible polyimide substrate**, Xiaochuan Xu, The Univ. of Texas at Austin (USA); Harish Subbaraman, Omega Optics, Inc. (USA); Daniel Pham, Amir Hosseini, Cheyun Lin, Yang Zhang, Xiaohui Lin, Xinyuan Dou, Ray T. Chen, The Univ. of Texas at Austin (USA) [7944-14]

4:10 pm: **Autonomous and dynamic reconfigurable waveguide for optical interconnection with large shift-tolerance**, Atsushi Okamoto, Kazutaka Hira, Hokkaido Univ. (Japan); Alexander A. Grabar, Uzhgorod National Univ. (Ukraine); Hisatoshi Funakoshi, Gifu Univ. (Japan); Yuta Wakayama, Akihisa Tomita, Hokkaido Univ. (Japan) [7944-15]

4:30 pm: **Inter-channel crosstalk analysis for W-shaped and graded-index core polymer optical waveguides with ray tracing method**, Hsiang-Han Hsu, Keishiro Shitanda, Takaaki Ishigure, Keio Univ. (Japan) [7944-16]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA);
Klaus P. Streubel, OSRAM GmbH (Germany)

- 8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**, Kent State Univ. (USA)
- 8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)
- 8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim**, LG Display R&D Ctr. (Republic of Korea)
- 8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell**, Max-Planck-Institute for Biophysical Chemistry (Germany)
- 9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 5

Room: 270/272 (Mezzanine) Tues. 10:30 am to 12:10 pm

Active Modules for Optical Links

Session Chair: **Bert-Jan Offrein**, IBM Zürich Research Lab. (Switzerland)

- 10:30 am: **300 Gb/s bidirectional fiber-coupled optical transceiver module based on 24 TX + 24 RX "holey" CMOS IC** (*Invited Paper*), Fuad E. Doany, Clint L. Schow, Benjamin G. Lee, Alexander Ryljakov, Christopher Jahnes, Young Kwark, Christian Baks, Daniel M. Kuchta, Jeffrey A. Kash, IBM Thomas J. Watson Research Ctr. (USA) [7944-17]
 - 11:00 am: **Silicon nanophotonics for optical interconnects and applications**, Ray T. Chen, The Univ. of Texas at Austin (USA) [7944-37]
 - 11:30 am: **Group velocity independent coupling into slow light photonic crystal waveguide on silicon nanophotonic integrated circuits**, Cheyun Lin, The Univ. of Texas at Austin (USA); Xiaolong A. Wang, Omega Optics, Inc. (USA); Ray T. Chen, The Univ. of Texas at Austin (USA) [7944-41]
 - 11:50 am: **High density active optical cable: from a new concept to a prototype**, Denis Wohlfeld, Frank Lemke, Holger Froening, Sven Schenk, Ulrich Bruening, Ruprecht-Karls-Univ. Heidelberg (Germany) [7944-20]
- Lunch/Exhibition Break 12:10 to 1:30 pm

SESSION 6

Room: 270/272 (Mezzanine) Tues. 1:30 to 3:10 pm

Materials for Optical Interconnects

Session Chair: **Ruth Houbertz**, Fraunhofer-Institut für Silicatsforschung (Germany)

- 1:30 pm: **Novel organic-inorganic hybrid materials for optical interconnects** (*Invited Paper*), Tetsuo Sato, Nissan Chemical Industries, Ltd. (Japan) [7944-21]
 - 2:00 pm: **Direct fabrication of optical elements by photoinduced processes on sol-gel materials** (*Invited Paper*), Olivier Soppera, Univ. de Haute Alsace (France) [7944-22]
 - 2:30 pm: **Densely-aligned graded-index multiple-core polymer optical waveguide: fabrication and inter-channel crosstalk property**, Takaaki Ishigure, Yosuke Nitta, Yusuke Sugimori, Shin Morikawa, Keio Univ. (Japan) [7944-23]
 - 2:50 pm: **The Franz-Keldysh effect in CVD grown GeSi epi on SOI**, Ying Luo, John Simons, Joannes Costa, Ivan N. Shubin, Jin Yao, Winnie Chen, Oracle (USA); Bill Frans, Lawrence Semiconductor Research Lab., Inc. (USA); Roshanak Shafiiha, Shirong Liao, Kotura, Inc. (USA); Xuezhe Zheng, Guoliang Li, Hiren D. Thacker, Kannan Raj, Ashok V. Krishnamoorthy, John E. Cunningham, Oracle (USA) [7944-24]
- Coffee Break 3:10 to 3:40 pm

SESSION 7

Room: 270/272 (Mezzanine) Tues. 3:40 to 5:10 pm

Microoptics

Session Chair: **Peter Van Daele**, Univ. Gent (Belgium)

- 3:40 pm: **A novel boundary-confined method for microlens arrays fabrication** (*Invited Paper*), Guo-Dung J. Su, National Taiwan Univ. (Taiwan) [7944-25]
- 4:10 pm: **Self-organization of optical Z-connections in three-dimensional optical circuits simulated by the finite difference time domain method**, Tetsuzo Yoshimura, Kazuyuki Wakabayashi, Tokyo Univ. of Technology (Japan) [7944-26]
- 4:30 pm: **Modeling of a tunable refractive lens based on liquid crystals**, Liwei Li, Lei Shi, Doug Bryant, Kent State Univ. (USA); Dwight Duston, eVision, LLC (USA); Philip J. Bos, Kent State Univ. (USA) [7944-27]
- 4:50 pm: **Micro-optics packaging and integration for high power diode laser beam combining**, Yakov G. Soskind, David H. Pollock Consultants, Inc. (USA) [7944-28]

Wednesday 26 January

SESSION 8

Room: 270/272 (Mezzanine) Wed. 8:20 to 10:00 am

Optoelectronic Devices for Optical Interconnects

Joint Session with Conference 7942

Session Chair: **Louay A. Eldada**, HelioVolt Corp.

- 8:20 am: **Free-space-wave add/drop multiplexing for WDM optical-interconnect system in package** (*Invited Paper*), Shogo Ura, Kyoto Institute of Technology (Japan); Kenji Kintaka, National Institute of Advanced Industrial Science and Technology (Japan) [7942-01]
 - 8:50 am: **Three-dimensional crossbar interconnection using planar-integrated free-space optics and digital mirror-device®**, Ulrich Lohmann, Jürgen Jahns, Univ. of Hagen (Germany); Steffen Limmer, Dietmar Fey, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [7942-02]
 - 9:20 am: **Photonic switching for reliable nanoscale three-dimensional integrated network-on-chips**, Ivan B. Djordjevic, The Univ. of Arizona (USA) [7944-29]
 - 9:40 am: **Low-power high-speed SerDes with new dynamic latch and flip-flop for optical interconnect in 180 nm CMOS technology**, Jamshid Sangirov, Augustine Ikechi Ukaegbu, Tae-Woo Lee, Mu Hee Cho, Hyo-Hoon Park, KAIST (Korea, Republic of) [7944-30]
- Coffee Break 10:00 to 10:30 am

SESSION 9

Room: 270/272 (Mezzanine) Wed. 10:30 am to 12:20 pm

Si Photonics for Optical Interconnects

Joint Session with Conference 7942

Session Chair: **Ray T. Chen**, The Univ. of Texas at Austin

- 10:30 am: **Devices and architectures for large scale integrated silicon photonics circuits** (*Invited Paper*), Raymond G. Beausoleil, Andrei Pareaon, David Fattal, Marco Fiorentino, Zheng Peng, Charles M. Santori, Hewlett-Packard Labs. (USA) [7942-03]
- 11:00 am: **Pure silicon - high performance: advanced optical receivers in standard silicon BiCMOS technologies** (*Invited Paper*), Kerstin Schneider-Hornstein, Technische Univ. Wien (Austria); Robert Swoboda, A3PICs Electronics Development GmbH (Austria); Bernhard Goll, Horst K. Zimmermann, Technische Univ. Wien (Austria) [7944-31]
- 11:30 am: **CMOS compatible waveguides for all-optical signal processing** (*Invited Paper*), David J. Moss, The Univ. of Sydney (Australia) [7942-04]
- 12:00 pm: **High-speed CMOS optical communication using silicon light emitters**, Petrus J. Venter, Univ. of Pretoria (South Africa); Marius E. Goosen, INSIAVA (Pty) Ltd. (South Africa); Monuko du Plessis, Univ. of Pretoria (South Africa) and INSIAVA (Pty) Ltd. (South Africa); Ilse J. Nell, Univ. of Pretoria (South Africa); Alfons W. Bogalecki, Pieter Rademeyer, INSIAVA (Pty) Ltd. (South Africa) [7944-32]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Fabrication of 2-layer silicon-on-insulator based optical phased array for 2-dimensional beam steering, Yang Zhang, David N. Kwong, Amir Hosseini, Ray T. Chen, The Univ. of Texas at Austin (USA) [7944-33]

The effect on Strehl ratio from thickness variations in liquid crystal diffractive lenses, Lu Lu, Lei Shi, Kent State Univ. (USA); Dwight Duston, eVision, LLC (USA); Philip J. Bos, Kent State Univ. (USA) [7944-34]

Group velocity independent coupling into slow light photonic crystal waveguide, Che-Yun Lin, The Univ. of Texas at Austin (USA); Xiaolong A. Wang, Swapnajit Chakravarty, Omega Optics, Inc. (USA); Beom-Suk Lee, Weicheng Lai, Ray T. Chen, The Univ. of Texas at Austin (USA) [7944-35]

Polymeric waveguide array with 45 degree slopes fabricated by bottom side tilted exposure, Xiaohui Lin, Xinyuan Dou, The Univ. of Texas at Austin (USA); Xiaolong Wang, Omega Optics, Inc. (USA); Ray T. Chen, The Univ. of Texas at Austin (USA) [7944-36]

Courses of Related Interest

- SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm
- SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.



Defense & Security

SPIE Digital Library
Find the answer
SPIEDigitalLibrary.org

Quantum Sensing and Nanophotonic Devices VIII

Conference Chair: **Manijeh Razeghi**, Northwestern Univ.

Conference Co-Chairs: **Rengarajan Sudharsanan**, Spectrolab, Inc.; **Gail J. Brown**, Air Force Research Lab.

Program Committee: **Jong-Hyeob Baek**, Korea Photonics Technology Institute (Korea, Republic of); **Alexei N. Baranov**, Univ. Montpellier 2 (France); **Olivier Briot**, Univ. Montpellier 2 (France); **David A. Cardimona**, Air Force Research Lab.; **Mahmoud Fallahi**, College of Optical Sciences, The Univ. of Arizona; **Jung Han**, Yale Univ.; **John E. Hubbs**, Ball Aerospace & Technologies Corp.; **Jean-Pierre Huignard**, Thales Research & Technology (France); **Mark A. Itzler**, Princeton Lightwave, Inc.; **Christine A. Jhabvala**, NASA Goddard Space Flight Ctr.; **Woo-Gwang Jung**, Kookmin Univ. (Korea, Republic of); **Shigeyuki Kuboya**, The Univ. of Tokyo (Japan); **Armin Lambrecht**, Fraunhofer-Institut für Physikalische Messtechnik (Germany); **In-Hwan Lee**, Chonbuk National Univ. (Korea, Republic of); **Ryan P. McClintock**, Northwestern Univ.; **Jerry R. Meyer**, U.S. Naval Research Lab.; **Nicolas Péré-Laperne**, Ctr. National de la Recherche Scientifique (France); **Mauro Fernandes Pereira, Jr.**, Sheffield Hallam Univ. (United Kingdom); **Steven Slivken**, Northwestern Univ.; **Marija Strojnik**, Ctr. de Investigaciones en Óptica, A.C. (Mexico); **Ferechteh Hosseini Teherani**, Nanovation (France); **Meimei Z. Tidrow**, U.S. Army Night Vision & Electronic Sensors Directorate; **Miriam S. Vitiello**, National Research Council (Italy); **Sheng Wu**, California Institute of Technology; **Franco Zappa**, Politecnico di Milano (Italy); **John M. Zavada**, U.S. Army Research Office

Sunday 23 January

SESSION 1

Room: 123 (Exhibit Level) Sun. 8:10 to 9:50 am

Quantum Cascade Lasers and Applications I

Session Chairs: **Armin Lambrecht**, Fraunhofer-Institut für Physikalische Messtechnik (Germany); **Manijeh Razeghi**, Northwestern Univ.

8:10 am: **Mid-IR quantum cascade lasers as an enabling technology for a new generation of chemical analyzers for liquids** (*Invited Paper*), Bernhard Lendl, Martin Brandstetter, Technische Univ. Wien (Austria); Wolfgang Ritter, QuantaRed Technologies GmbH (Austria) [7945-02]

8:30 am: **Isotopic N₂O analysis using quantum cascade lasers** (*Invited Paper*), Eric R. Crosson, Picarro Inc. (USA); David Balslev-Clausen, Univ. of Copenhagen (Denmark) [7945-03]

8:50 am: **Narrow linewidth quantum cascade lasers as ultra-sensitive probes of molecules** (*Invited Paper*), Saverio Bartalini, Simone Borri, Pablo Cancio Pastor, Iacopo Galli, Giovanni Giusfredi, Davide Mazzotti, European Lab. for Non-linear Spectroscopy (Italy); Paolo de Natale, Istituto Nazionale di Ottica Applicata (Italy) [7945-04]

9:10 am: **Quantum cascade laser sensors for online gas chromatography** (*Invited Paper*), Sheng Wu, Andrei Deev, Yongchun Tang, California Institute of Technology (USA) [7945-05]

9:30 am: **Amplitude modulation and stabilisation of QC lasers** (*Invited Paper*), Carlo Sirtori, Stefano Barbieri, Sabine Laurent, Univ. Paris 7-Denis Diderot (France) [7945-06]

Coffee Break 9:50 to 10:20 am

SESSION 2

Room: 123 (Exhibit Level) Sun. 10:20 to 11:55 am

Quantum Cascade Lasers and Applications II

Session Chairs: **Alexei N. Baranov**, Univ. Montpellier 2 (France); **Shigeyuki Kuboya**, The Univ. of Tokyo (Japan)

10:20 am: **latest progress in high power vecsels** (*Invited Paper*), Robert G. Bedford, Nathan Terry, Air Force Research Lab. (USA); Chris Hessenius, Mahmoud Fallahi, Jerome V. Moloney, College of Optical Sciences, The Univ. of Arizona (USA) [7945-08]

10:40 am: **GaSb and InP-based VCSELs at 2.3 μm emission wavelength for tuneable diode laser spectroscopy of carbon monoxide** (*Invited Paper*), Markus Ortsiefer, Christian Neumeyer, Jürgen Roskopf, Vertilas GmbH (Germany); Shamsul Arafin, Gerhard Boehm, Walter Schottky Institute (Germany); A. Hangauer, J. Chen, Walter Schottky Institute (Germany) and Siemens AG (Germany); Rainier Strzoda, Siemens AG (Germany); Markus-Christian Amann, Walter Schottky Institute (Germany) [7945-09]

11:00 am: **High finesse external cavity VCSELs: from very low noise lasers to dual frequency lasers** (*Invited Paper*), Ghaya Baili, Thales Research & Technology (France); Medhi Alouini, Univ. de Rennes 1 (France); Loic Morvan, Thales Research & Technology (France); Fabien Bretenaker, Lab. Aimé Cotton (France); Isabel Sagnes, Ctr. National de la Recherche Scientifique (France); Arnaud Garnache, Univ. Montpellier 2 (France); Daniel Dolfi, Thales Research & Technology (France) [7945-10]

11:20 am: **Integrated Terahertz pulse generation and amplification in quantum cascade lasers** (*Invited Paper*), Sukhdeep S. Dhillon, Simon Sawallich, Nathan Jukam, Dimitri Oustinov, Julien Madeo, Rakchanok Rungsawang, Ecole Normale Supérieure (France); Stefano Barbieri, Pascal G. Filloux, Carlo Sirtori, Univ. Paris 7-Denis Diderot (France); Xavier Marcadet, Alcatel-Thales III-V Lab. (France); Jerome Tignon, Ecole Normale Supérieure (France) [7945-11]

11:40 am: **High power 1D and 2D photonic crystal distributed feedback quantum cascade lasers**, Burc Gökden, Yanbo Bai, Stanley Tsao, N. Bandyopadhyay, Steven Slivken, Manijeh Razeghi, Northwestern Univ. (USA) [7945-12]

Lunch Break 11:55 am to 12:55 pm

SESSION 3

Room: 123 (Exhibit Level) Sun. 12:55 to 3:25 pm

Quantum Cascade Lasers and Applications III

Session Chairs: **Jerry R. Meyer**, U.S. Naval Research Lab.; **Miriam S. Vitiello**, National Research Council (Italy)

12:55 pm: **The progress of QD laser in the near IR wavelength region** (*Invited Paper*), Daekon Oh, Electronics and Telecommunications Research Institute (Korea, Republic of); Jinsoo Kim, Chonbuk National Univ. (Korea, Republic of); Jinhong Lee, Korea Photonics Technology Institute (Korea, Republic of); Seungui Hong, Cheoluk W. Lee, Wonseok Han, Byung-Seok Choi, Electronics and Telecommunications Research Institute (Korea, Republic of) [7945-13]

1:15 pm: **DFB lasers for sensing applications in the 3.0-3.5 μm wavelength range** (*Invited Paper*), Marc O. Fischer, Michael von Edlinger, Lars Nähle, Johannes Koeth, nanoplus GmbH (Germany); Adam Bauer, Matthias Dallner, Sven Höfling, Lukas Worschech, Alfred W. B. Forchel, Julius-Maximilians-Univ. Würzburg (Germany); Sofiane Belahsene, Yves Rouillard, Univ. Montpellier 2 (France) [7945-14]

1:35 pm: **Circuit, antenna-based, and photonic crystal terahertz quantum cascade lasers** (*Invited Paper*), Jerome Faist, Christophe Walther, Maria Amanti, Giacomo Scalari, Mattias Beck, ETH Zurich (Switzerland); Hua Zhang, Romuald Houdre, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7945-15]

1:55 pm: **All photonic crystal DFBs for laser arrays** (*Invited Paper*), Alexandre Larrue, Julien Campos, Olivier Gauthier-Lafaye, Antoine Monmayrant, Sophie Bonnefont, Françoise Lozes-Dupuy, Lab. d'Analyse et d'Architecture des Systèmes (France) [7945-16]

2:15 pm: **The InAs/GaSb/InSb short-period superlattice: an active zone for mid-IR lasers** (*Invited Paper*), Eric Tournie, A. Gassenq, Laurent Cerutti, Univ. Montpellier 2 (France) [7945-17]

2:35 pm: **Modulation cancellation method for laser spectroscopy** (*Invited Paper*), Vincenzo Spagnolo, Politecnico di Bari (Italy); Lei Dong, Anatoliy A. Kosterev, David Thomazy, James H. Doty III, Frank K. Tittel, Rice Univ. (USA) [7945-18]

2:55 pm: **Acetylene measurement using quantum cascade lasers at 14 μ m**, Johannes Herbst, Fraunhofer Institute Physical Measurement Techniques (Germany); Benjamin Scherer, Ferdinand Singer, Jochen Erb, Armin Lambrecht, Fraunhofer-Institut für Physikalische Messtechnik (Germany); Carsten Rathke, Stefan Filip, Jürgen Kappler, ABB Automation GmbH (Germany); Peter Fuchs, Johannes Koeth, nanoplus GmbH (Germany); Jochen Friedl, Julius-Maximilians-Univ. Würzburg (Germany); Tobias Schlereth, Univ. Würzburg (Germany); J. Semmel, Sven Höfling, Lukas Worschech, Alfred W. B. Forchel, Julius-Maximilians-Univ. Würzburg (Germany) [7945-19]

3:10 pm: **Real time ammonia detection in exhaled human breath using a distributed feedback quantum cascade laser based sensor**, Rafal Lewicki, Anatoliy A. Kosterev, David M. Thomazy, Rice Univ. (USA); Terence H. Risby, The Johns Hopkins Univ. (USA); Steven Solga M.D., Tim Schwartz, St. Luke's Hospital (USA); Frank K. Tittel, Rice Univ. (USA) [7945-20]

Coffee Break 3:25 to 3:45 pm

SESSION 4

Room: 123 (Exhibit Level) Sun. 3:45 to 6:15 pm

Quantum Cascade Lasers and Applications IV

Session Chairs: **Jean-Pierre Huignard**, Thales Research & Technology (France); **Sheng Wu**, California Institute of Technology

3:45 pm: **MBE growth and characterization of dilute nitrides for mid-infrared optoelectronic devices** (*Invited Paper*), Martin I. de la Mare, Tony Krier, Qian Zhuang, Peter J. Carrington, Lancaster Univ. (United Kingdom); Amalia Patane, The Univ. of Nottingham (United Kingdom) [7945-21]

4:05 pm: **Low power consumption lasers for next generation miniature optical spectrometers for trace gas analysis** (*Invited Paper*), Siamak Forouhar, C. Frez, Alexander Ksendzov, Yueming Qiu, K. J. Franz, Alexander Soibel, Jet Propulsion Lab. (USA); Jianfeng Chen, Takashi Hosoda, Gela Kipshidze, Leon Shterengas, Gregory Belenky, Stony Brook Univ. (USA) [7945-22]

4:25 pm: **Process analytical applications in the mid-infrared** (*Invited Paper*), Stefan H. Lundqvist, Pawel Kluczynski, Siemens Laser Analytics AB (Sweden) [7945-23]

4:45 pm: **Faraday rotation spectroscopy of nitrogen dioxide based on a widely tunable external cavity quantum cascade laser**, Christian A. Zaugg, Rafal Lewicki, Rice Univ. (USA); Tim Day, Daylight Solutions Inc. (USA); Robert F. Curl, Frank K. Tittel, Rice Univ. (USA) [7945-24]

5:00 pm: **Stand-off explosive detection on surfaces using multispectral MIR imaging**, Kai A. Degreif, Sven Rademacher, Petya Dasheva, Fraunhofer-Institut für Physikalische Messtechnik (Germany); Frank Fuchs, Stefan Hugger, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Frank H. Schnürer, Wenka Schweikert, Fraunhofer-Institut für Chemische Technologie (Germany) [7945-25]

5:15 pm: **Recent advances in resonant optothermalacoustic detection**, James H. Doty III, Anatoliy A. Kosterev, Frank K. Tittel, Rice Univ. (USA) [7945-27]

5:30 pm: **compact portable QEPAS multi-gas sensor**, Lei Dong, Anatoliy Kosterev, David Thomazy, Frank K. Tittel, Rice Univ. (USA) [7945-28]

5:45 pm: **Compact spectroscopic sensor for air quality monitoring in spacecrafts**, Benjamin Scherer, Hakim Hamid, Fraunhofer-Institut für Physikalische Messtechnik (Germany); Siamak Forouhar, Jet Propulsion Lab. (USA); Jürgen Roskopf, Vertilas GmbH (Germany) [7945-29]

6:00 pm: **Engineering intersubband population inversion with dilute nitrides**, Mauro F. Pereira, Jr., Sheffield Hallam Univ. (United Kingdom); Stanco Tomic, Daresbury Lab. (United Kingdom) [7945-30]

Monday 24 January

SESSION 5

Room: 123 (Exhibit Level) Mon. 8:00 to 10:10 am

Terahertz and Plasmonics Devices I

Session Chairs: **Nicolas Péré-Laperne**, Ctr. National de la Recherche Scientifique (France); **In-Hwan Lee**, Chonbuk National Univ. (Korea, Republic of)

8:00 am: **Monolithic focal plane arrays for terahertz active spectroscopic imaging: an experimental study** (*Invited Paper*), Michele Ortolani, Roberto Casini, Fabio Chiarello, Sara Cibella, Alessandra Di Gaspere, Istituto di Fotonica e Nanotecnologie (Italy); Florestano Evangelisti, Istituto di Fotonica e Nanotecnologie (Italy) and Univ. Roma Tre (Italy); Vittorio Foglietti, Ennio Giovine, Roberto Leoni, Guido Torrioli, Istituto di Fotonica e Nanotecnologie (Italy); Alessandro Tredicucci, Scuola Normale Superiore di Pisa (Italy); Miriam S. Vitiello, National Research Council (Italy); Gaetano Scamarcio, Univ. di Bari (Italy) [7945-31]

8:20 am: **Bound terahertz waves on meta-surfaces and active metamaterials** (*Invited Paper*), Marco Rahm, Fraunhofer-Institut für Physikalische Messtechnik (Germany) and Technische Univ. Kaiserslautern (Germany); Juan Luis Garcia Pomar, Benjamin Reinhard, Jens Neu, Viktoria Wollrab, Oliver Paul, Rene Beigang, Fraunhofer-Institut für Physikalische Messtechnik (Germany) [7945-32]

8:40 am: **Intersubband impact ionization in THz QWIPs: shaping band structure reorganizations to design novel detectors** (*Invited Paper*), A. Delga, Univ. Paris 7-Denis Diderot (France); F.-R. Jasnot, Ecole Normale Supérieure (France); Amandine Buffaz, Univ. Paris 7-Denis Diderot (France); H. Guo, National Research Council Canada (Canada); Laetitia Doyennette, Univ. Paris 7-Denis Diderot (France); Louis-Anne de Vaulchier, Ecole Normale Supérieure (France); Zbigniew R. Wasilewski, Hui Chun Liu, National Research Council Canada (Canada); Vincent Berger, Univ. Paris 7-Denis Diderot (France) [7945-33]

9:00 am: **Phonon and polaron enhanced IR-THz photodetectors** (*Invited Paper*), Hui Chun Liu, Chun-Ying Song, Zbigniew R. Wasilewski, Margaret Buchanan, National Research Council Canada (Canada) . . . [7945-34]

9:20 am: **GaN for THz sources** (*Invited Paper*), Michel Marso, Univ. du Luxembourg (Luxembourg) [7945-35]

9:40 am: **Terahertz emission from Mg-doped a-plane InN**, Hyeoung Ahn, Yi-Jou Yeh, National Chiao Tung Univ. (Taiwan); Shangji Gwo, National Tsing Hua Univ. (Taiwan) [7945-36]

9:55 am: **Subpicosecond Sub-terahertz soliton laser based on a C-MOS compatible integrated microring resonator**, Marco Peccianti, Institut National de la Recherche Scientifique (Canada) and Institute for Chemical and Physical Processes (Italy); Alessia Pasquazi, Yongwoo Park, Institut National de la Recherche Scientifique (Canada); Brent Little, Sai-Tak Chu, Infinera Corp. (USA); David J. Moss, Univ. of Sydney (Australia); Roberto Morandotti, Institut National de la Recherche Scientifique (Canada) [7945-37]

Coffee Break 10:10 to 10:40 am

SESSION 6

Room: 123 (Exhibit Level) Mon. 10:40 am to 12:30 pm

Terahertz and Plasmonics Devices II

Session Chairs: **Mauro Fernandes Pereira, Jr.**, Sheffield Hallam Univ. (United Kingdom); **Vincenzo Spagnolo**, Politecnico di Bari (Italy)

10:40 am: **Enhanced optical characteristics of light emitting diodes by surface plasmon of Ag nanostructures** (*Invited Paper*), Lee-Woon Jang, Jin-Woo Ju, Ju-Won Jeon, Dae-Woo Jeon, Jung-Hun Choi, Chonbuk National Univ. (Korea, Republic of); Seung-Jae Lee, Seong-Ran Jeon, Jong Hyeob Baek, Korea Photonics Technology Institute (Korea, Republic of); Emre Sari, H. V. Demir, Bilkent Univ. (Turkey); Hyung-Do Yoon, Sung-Min Hwang, Korea Electronics Technology Institute (Korea, Republic of); In-Hwan Lee, Chonbuk National Univ. (Korea, Republic of) [7945-38]

11:00 am: **Infrared plasmonic detectors** (*Invited Paper*), Nicolas Péré-Laperne, Stéphane S. Collin, Fabrice Pardo, Jean-Luc Pelouard, Ctr. National de la Recherche Scientifique (France) [7945-39]

11:20 am: **Surface plasmons polaritons for optical circuitry** (*Invited Paper*), Alain Dereux, K. Hassan, Jean-Claude Weeber, N. Djellali, Institut Carnot de Bourgogne (France); Sergey I. Bozhevolnyi, Univ. of Southern Denmark (Denmark); O. Tsilipakos, A. Pitilakis, Emmanouil E. Kriezis, S. Papaioannou, Konstantinos Vyrosokinos, Nikos Pleros, Aristotle Univ. of Thessaloniki (Greece); Tolga Tekin, Fraunhofer Institut für Zuverlässigkeit & Mikrointegration (Germany); Matthias Baus, AMO GmbH (Germany); Dimitrios Kalavrouziotis, G. Giannoulis, Hercules Avramopoulos, National Technical Univ. of Athens (Greece) [7945-40]

Tuesday 25 January

11:40 am: **Application of the theory of transients in low-background IR detectors to the research of the cold Universe** (*Invited Paper*), Boris I. Fouks, Institute of Radio Engineering and Electronics (Russian Federation) . . . [7945-41]

12:00 pm: **Multiprobe apertureless near-field imaging of optical plasmonic distribution**, Boaz Fleishman, Hebrew Univ. of Jerusalem (Israel); Hesham Taha, Nanonics Imaging Ltd. (Israel); Aaron Lewis, Hebrew Univ. of Jerusalem (Israel) [7945-42]

12:15 pm: **Optimization of plasmonic nanostructures**, Prathamesh Pavaskar, Jesse Theiss, Zuwei Liu, Wenbo Hou, Stephen Cronin, The Univ. of Southern California (USA) [7945-43]

Lunch Break 12:30 to 2:00 pm

SESSION 7

Room: 123 (Exhibit Level) Mon. 2:00 to 3:15 pm

Thin Films Nitrides I

Session Chairs: **Woo-Gwang Jung**, Kookmin Univ. (Korea, Republic of); **Manijeh Razeghi**, Northwestern Univ.

2:00 pm: **Cubic III-nitrides: potential photonic materials** (*Invited Paper*), Kentaro Onabe, The Univ. of Tokyo (Japan); S. Sanorpim, Chulalongkorn Univ. (Thailand); Hidetoshi Katori, M. Kakuda, Tomohiko Nakamura, K. Nakamura, Shigeyuki Kuboya, R. Katayama, The Univ. of Tokyo (Japan) [7945-44]

2:20 pm: **Optical properties of narrow-bandgap dilute nitrides** (*Invited Paper*), Shigeyuki Kuboya, M. Kuroda, Q. T. Thieu, R. Katayama, Kentaro Onabe, The Univ. of Tokyo (Japan) [7945-45]

2:40 pm: **Paving the way to high-quality indium nitride: the effects of pressurized reactor** (*Invited Paper*), Takashi Matsuoka, Yuhuai Liu, Tohoku Univ. (Japan) and CREST (Japan); Takeshi Kimura, Yuantao Zhang, Kiattiwut Prasertsuk, Tohoku Univ. (Japan); Ryuji Katayama, Tohoku Univ. (Japan) and CREST (Japan) [7945-47]

3:00 pm: **Effects of substrate quality and orientation on the characteristics of III-nitride resonant tunneling diodes**, Zahra Vashaei, Can Bayram, Ryan P. McClintock, Manijeh Razeghi, Northwestern Univ. (USA) [7945-48]

Coffee Break 3:15 to 3:40 pm

SESSION 8

Room: 123 (Exhibit Level) Mon. 3:40 to 5:40 pm

Thin Films Nitrides II

Session Chairs: **Kentaro Onabe**, The Univ. of Tokyo (Japan); **Ferechteh Hosseini Teherani**, Nanovation (France)

3:40 pm: **Control of characteristic performance by patterned structure in light-emitting diodes** (*Invited Paper*), Jong-Hyeob Baek, Sang-Mook Kim, Korea Photonics Technology Institute (Korea, Republic of); In-Hwan Lee, Chonbuk National Univ. (Korea, Republic of); Nam Hwang, Korea Photonics Technology Institute (Korea, Republic of) [7945-49]

4:00 pm: **Efficiency enhancement of light-emitting diodes based on regularly patterned GaN nanocolumn growth and coalescence overgrowth** (*Invited Paper*), Che-Hao Liao, Chih-Yen Chen, Tsung-Yi Tang, Wen-Yu Shiao, Yung-Sheng Chen, Cheng-Hung Lin, Kun-Ching Shen, Jeng-Jie Huang, Shao-Ying Ting, Wen-Ming Chang, Jyh-Yang Wang, Yean-Woei Kiang, Chih-Chung Yang, National Taiwan Univ. (Taiwan) [7945-50]

4:20 pm: **III-Nitride semiconductors for intersubband devices** (*Invited Paper*), Y. Kotsar, Commissariat à l'Énergie Atomique (France); Houssaine Machhadani, Salam Sakr, Univ. Paris-Sud 11 (France); Prem K. Kandaswamy, Commissariat à l'Énergie Atomique (France); Maria Tchernycheva, Univ. Paris-Sud 11 (France); Edith Bellet-Amalric, Commissariat à l'Énergie Atomique (France); François H. Julien, Univ. Paris-Sud 11 (France); Eva Monroy, Commissariat à l'Énergie Atomique (France) [7945-51]

4:40 pm: **Structural characterization of III-nitride materials and devices** (*Invited Paper*), David J. Smith, Lin Zhou, Arizona State Univ. (USA); Theodore D. Moustakas, The Boston Univ. Photonics Ctr. (USA) [7945-52]

5:00 pm: **GaN as a detector of α -particles and neutrons** (*Invited Paper*), Alexander Y. Polyakov, N. B. Smirnov, A. V. Govorkov, Institute of Rare Metals (Russian Federation); In-Hwan Lee, Chonbuk National Univ. (Korea, Republic of); Stephen J. Pearton, Univ. of Florida (USA); Nikolay G. Kolin, Karpov Institute of Physical Chemistry (Russian Federation); I. L. Gazizov, International Univ. of Nature, Society and Humanity (Russian Federation); V. M. Zalyetin, Institute of Physical-Technical Problems (Russian Federation) [7945-53]

5:20 pm: **Advances in UV sensitive visible blind GaN-based APDs** (*Invited Paper*), Melville P. Ulmer, Ryan P. McClintock, Manijeh Razeghi, Northwestern Univ. (USA) [7945-54]

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA); **Klaus P. Streubel**, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks**, Liang-Chy Chien, Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display Application**, Chang-Dong Kim, LG Display R&D Ctr. (Republic of Korea)

8:50 am: **Nanoscopy with Focused Light**, Stefan W. Hell, Max-Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier**, Eli Yablonovitch, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

KEYNOTE SESSION

Room: 123 (Exhibit Level) Tues. 10:30 to 11:00 am

Session Chair: **Manijeh Razeghi**, Northwestern Univ.

10:30 am: **Quantum crystals: from quantum plasticity to supersolidity**, Sebastien Balibar, A. Haziot, X. Rojas, Ecole Normale Supérieure (France) [7945-01]

SESSION 9

Room: 123 (Exhibit Level) Tues. 11:00 am to 12:00 pm

Detectors and Imaging I

Session Chairs: **Meimei Z. Tidrow**, U.S. Army Night Vision & Electronic Sensors Directorate; **Marija Strojnik**, Ctr. de Investigaciones en Óptica, A.C. (Mexico)

11:00 am: **Asymmetric InAs/GaSb superlattice pin photodiode to improve temperature operation** (*Invited Paper*), Philippe Christol, Cyril Cervera, Jean Baptiste Rodriguez, Univ. Montpellier 2 (France); Katarzyna Jaworowicz, Isabelle Ribet-Mohamed, ONERA (France) [7945-55]

11:20 am: **Room temperature photovoltaic response of split-off band infrared detectors with a graded barrier** (*Invited Paper*), A. G. Unil Perera, Steven G. Matsik, P. K. Duleepa D. P. Pitigala, Yan-Feng Lao, Georgia State Univ. (USA); Suraj P. Khanna, Lianhe Li, Edmund H. Linfield, Univ. of Leeds (United Kingdom); Zbigniew R. Wasilewski, Margaret Buchanan, Xiaohua Wu, Hui Chun Liu, National Research Council Canada (Canada) [7945-56]

11:40 am: **Enhancing the performance of infrared detectors for space applications** (*Invited Paper*), David A. Cardimona, Danhong Huang, Mayor Landau, Chris P. Morath, Brian P. Feller, Air Force Research Lab. (USA) [7945-57]

Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 10

Room: 123 (Exhibit Level) Tues. 1:30 to 3:05 pm
Detectors and Imaging II

Session Chairs: **David A. Cardimona**, Air Force Research Lab.;
Jung Han, Yale Univ.

1:30 pm: **Heterogeneous GaSb/SOI mid-infrared photonic integrated circuits for spectroscopic applications** (*Invited Paper*), Nannicha Hattasan, Univ. Gent (Belgium); Laurent Cerutti, Jean-Baptiste Rodriguez, Eric Tournie, Univ. Montpellier 2 (France); Dries Van Thourhout, Günther Roelkens, Univ. Gent (Belgium) [7945-58]

1:50 pm: **VLWIR high operating temperature non-equilibrium photovoltaic HgCdTe devices** (*Invited Paper*), Silviu Velicu, Christoph H. Grein, EPIR Technologies, Inc. (USA); Anne Itsuno, Jamie D. Phillips, Univ. of Michigan (USA) [7945-59]

2:30 pm: **Strained Layer Superlattice (SLS) single and dual color Focal Plane Arrays (FPAs) at Teledyne Imaging Sensors** (*Invited Paper*), Allan J. Evans, Andrew D. Hood, Paul H. Kobrin, William E. Tennant, Teledyne Imaging Sensors (USA) [7945-60]

2:30 pm: **Defect density reduction in InAs/GaSb type II superlattice focal plane array infrared detectors** (*Invited Paper*), Martin Walther, Robert H. Rehm, Johannes Schmitz, Jasmin Niemasz, Frank Rutz, Andreas Wörl, Lutz Kirste, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Ralf Scheibner, Joachim C. Wendler, Johann Ziegler, AIM Infrarot-Module GmbH (Germany) [7945-61]

2:50 pm: **Growth and characterization of long wavelength infrared type II superlattice photodiodes on a 3" GaSb wafer**, Binh-Minh Nguyen, Guanxi Chen, Minh-Anh Hoang, Manijeh Razeghi, Northwestern Univ. (USA) . [7945-62]

Coffee Break 3:05 to 3:35 pm

SESSION 11

Room: 123 (Exhibit Level) Tues. 3:35 to 5:00 pm
Detectors and Imaging III

Session Chairs: **John E. Hubbs**, Ball Aerospace & Technologies Corp.;
Mahmoud Fallahi, College of Optical Sciences, The Univ. of Arizona

3:35 pm: **High-performance long wavelength superlattice infrared detectors** (*Invited Paper*), Alexander Soibel, David Z. Y. Ting, Cory J. Hill, Mike C. Lee, Jean Nguyen, Sam A. Keo, Jason Mumolo, Sarath D. Gunapala, Jet Propulsion Lab. (USA) [7945-63]

3:55 pm: **High-power highly-coherent single-frequency compact semiconductor laser for photonic applications** (*Invited Paper*), Arnaud Garnache, Alexandre Laurain, Mikhael Myara, Jean-Philippe Perez, Laurent Cerutti, Univ. Montpellier 2 (France); Adrien Michon, Grégoire Beaudoin, Isabel Sagnes, Ctr. National de la Recherche Scientifique (France); Peter Cermak, Daniele Romanini, Univ. Joseph Fourier (France) [7945-67]

4:15 pm: **Lateral diffusion of minority carriers in InAsSb-based nBn detectors**, Elena Plis, Stephen Myers, Maya N. Kuttly, Julien Mailfert, Ctr. for High Technology Materials (USA); Edward P. Smith, Scott Johnson, Raytheon Vision Systems (USA); Sanjay Krishna, Ctr. for High Technology Materials (USA) [7945-65]

4:30 pm: **Gamma-ray irradiation effects on InAs/GaSb-based nBn IR detector**, Vincent M. Cowan, Christian P. Morath, Seth M. Swift, Air Force Research Lab. (USA); Stephen Myers, Nutan Gautam, Sanjay Krishna, Ctr. for High Technology Materials (USA) [7945-66]

4:45 pm: **Pixel isolation of low dark-current large-format InAs/GaSb superlattice complementary barrier infrared detector focal plane arrays with high fill factor**, Vincent M. Cowan, Christian P. Morath, Seth M. Swift, Air Force Research Lab. (USA); Stephen Myers, Nutan Gautam, Sanjay Krishna, Ctr. for High Technology Materials (USA) [7945-67]

Wednesday 26 January

SESSION 12

Room: 123 (Exhibit Level) Wed. 8:30 to 10:10 am
Detectors and Imaging IV

Session Chairs: **Gail J. Brown**, Air Force Research Lab.;
Christine A. Jhabvala, NASA Goddard Space Flight Ctr.

8:30 am: **Vertical transport in InAs/GaSb superlattices: model results and relation to in-plane transport**, Frank Szmulowicz, Univ. of Dayton Research Institute (USA); Gail J. Brown, Air Force Research Lab. (USA) [7945-68]

8:45 am: **Barrier engineered superlattice and quantum dot detectors for HOT operation** (*Invited Paper*), Jiayi Shao, Thomas E. Vandervelde, Ajit V. Barve, Woo-Yong Jang, Andreas Stintz, Sanjay Krishna, Ctr. for High Technology Materials, Univ. of New Mexico (USA) [7945-69]

9:05 am: **Progress in Sb-based type II superlattice infrared detector technology and minority carrier lifetime study** (*Invited Paper*), Sumith Bandara, Meimei Z. Tidrow, U.S. Army Night Vision & Electronic Sensors Directorate (USA) [7945-70]

9:25 am: **Modified type-II superlattices for long wavelength infrared applications**, Yiqiao Chen, SVT Associates, Inc. (USA) [7945-71]

9:40 am: **Effect of the oxide-semiconductor interface on the passivation of hybrid type-II superlattice long-wave infrared photodiodes**, Jill A. Nolde, U.S. Naval Research Lab. (USA); Rory Stine, Nova Research, Inc. (USA); Eric M. Jackson, Chadwick L. Canedy, Igor Vurgafitman, U.S. Naval Research Lab. (USA); Serguei I. Maximenko, Global Defense Technology & Systems, Inc. (USA); Chaffra A. Affouda, U.S. Naval Research Lab. (USA); Maria Gonzalez, Global Defense Technology & Systems, Inc. (USA); Edward H. Aifer, Jerry R. Meyer, U.S. Naval Research Lab. (USA) [7945-72]

9:55 am: **Quantitative analysis of formation and thermal stability of oxide phases between SiO₂ and InSb**, Jaeyel Lee, Sehun Park, Jungsub Kim, Changjae Yang, Sujin Kim, Chulkyun Seok, Jinsub Park, Euijoon Yoon, Seoul National Univ. (Korea, Republic of) [7945-73]

Coffee Break 10:10 to 10:40 am

SESSION 13

Room: 123 (Exhibit Level) Wed. 10:40 am to 12:15 pm
Nanophotonic Devices I

Session Chairs: **Jong Hyeob Baek**, Korea Photonics Technology Institute (Korea, Republic of); **Olivier Briot**, Univ. Montpellier 2 (France)

10:40 am: **Leveraging electric and magnetic dipole transitions for active nanophotonic devices** (*Invited Paper*), Rashid Zia, Brown Univ. (USA) [7945-74]

11:00 am: **Potential of carbon nanotubes films for infrared bolometers** (*Invited Paper*), Charlie Koechlin, Sylvain B. Maine, ONERA (France) and Ctr. National de la Recherche Scientifique (France); Stéphanie Rennesson, Riad Haïdar, B. Tretout, Julien Jaeck, ONERA (France); Nicolas Péré-Laperne, Jean-Luc Pelouard, Ctr. National de la Recherche Scientifique (France) [7945-75]

11:20 am: **Spontaneous emission of light in nanostructured disordered media** (*Invited Paper, Presentation Only*), Rémi Carminati, Ecole Supérieure de Physique et de Chimie Industrielles (France) [7945-76]

11:40 am: **Advances in nano-enabled GaN photonic devices** (*Invited Paper*), Philip A. Shields, C. Liu, Wang N. Wang, Duncan W. E. Allsopp, Federica Causa, Univ. of Bath (United Kingdom) [7945-77]

12:00 pm: **Patterns with PS-b-PMMA block copolymer on various substrates and their applications**, Md. Mahbub Alam, Yu-Rim Lee, Woo-Gwang Jung, Kookmin Univ. (Korea, Republic of) [7945-78]

Lunch/Exhibition Break 12:15 to 1:45 pm

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

SESSION 14

Room: 123 (Exhibit Level) Wed. 1:45 to 3:20 pm

Nanophotonic Devices II

Session Chairs: **Charlie Koechlin**, ONERA (France);
Philip A. Shields, Univ of Bath (United Kingdom)

1:45 pm: **Quantum-dot-based nano-pillar light emitting diodes** (*Invited Paper*), Joon Seop Kwak, Min Joo Park, Sunchon National Univ. (Korea, Republic of); Fan Zhang, The Pennsylvania State Univ. (USA); Chunfeng Zhang, The Pennsylvania State Univ. (USA) and Nanjing Univ. (China); Jian Xu, Suzanne E. Mohny, The Pennsylvania State Univ. (USA). [7945-79]

2:05 pm: **Flexible nanogenerators for self-powered touch and light sensor applications** (*Invited Paper*), Keun Young Lee, Sungkyunkwan Univ. (Korea, Republic of); Dukhyun Choi, Kyung Hee Univ. (Korea, Republic of); Jae-Young Choi, Samsung Advanced Institute of Technology (Korea, Republic of); Sang-Woo Kim, Sungkyunkwan Univ. (Korea, Republic of). [7945-80]

2:25 pm: **Luminescence quenching and enhancement dynamics in composites of CdSe/ZnS quantum dots and gold nanoparticles** (*Invited Paper*), Yong-Hoon Cho, KAIST (Korea, Republic of). [7945-81]

2:45 pm: **Optical nano-antennas: a new approach for optical imaging and detection** (*Invited Paper*), Jacob Scheuer, Inbal Freidler, Yuval Yifat, Zeev Iluz, Michal Eitan, Yael Hanein, Amir Boag, Tel Aviv Univ. (Israel). [7945-82]

3:05 pm: **Dielectric optical waveguides using periodic layers of metamaterials and dielectrics**, Anjan K. Ghosh, Pramode Verma, The Univ. of Oklahoma - Tulsa (USA). [7945-83]

Coffee Break 3:20 to 3:50 pm

SESSION 15

Room: 123 (Exhibit Level) Wed. 3:50 to 5:30 pm

Nanophotonic Devices III

Session Chairs: **Joon Seop Kwak**, Sunchon National Univ. (Korea, Republic of); **Rashid Zia**, Brown Univ.

3:50 pm: **Energy transfer driven optoelectronics of semiconductor nanocrystals for energy efficiency** (*Invited Paper*), Hilmi V. Demir, Bilkent Univ. (Turkey) and Nanyang Technological Univ. (Singapore). [7945-84]

4:10 pm: **Manufacturing and optical properties of band gap graded ZnCdO nanostructures** (*Invited Paper*), Andrej Y. Kuznetsov, Vishnukanthan V., M. Trunk, T. Zhang, A. Y. Azarov, A. Galeckas, Univ. of Oslo (Norway) [7945-85]

4:30 pm: **Development of chip-scale chalcogenide glass based infrared chemical sensors** (*Invited Paper*), Juejun Hu, Univ. of Delaware (USA); J. David Musgraves, Clemson Univ. (USA); Nathan Carlie, Clemson Univ. (Albania); Bogdan Zdyrko, Igor Luzinov, Clemson Univ. (USA); Anuradha M. Agarwal, Massachusetts Institute of Technology (USA); Kathleen Richardson, Clemson Univ. (USA); Lionel C. Kimerling, Massachusetts Institute of Technology (USA). [7945-86]

4:50 pm: **Photonic sensors for explosive detection** (*Invited Paper*), Ulrike Willer, Clausthal Univ. of Technology (Germany); Rozalia Orghici, Peter Lützwow, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Wolfgang Schade, Technische Univ. Clausthal (Germany) and Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany). [7945-87]

5:10 pm: **Differential spectral imaging with gold nanorod light scattering labels** (*Invited Paper*), Lev T. Perelman, Le Qiu, Edward Vitkin, LianYu Guo, Eugene B. Hanlon, Irving Itzkan, Harvard Univ. (USA). [7945-88]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Fabrication of an all-spin-coated CdSe/ZnS quantum dot light-emitting diode, Alexander Weiss, Jörg Martin, Doreen Piasta, Thomas Otto, Thomas Gessner, Fraunhofer-Institut für Einrichtung Elektronische Nanosysteme (Germany). [7945-102]

Design and development of carbon nanostructure based microbolometers for IR imagers, Ashok K. Sood, Robert A. Richwine, Yash R. Puri, Magnolia Optical Technologies, Inc. (USA); Gustavo E. Fernandes, Jimmy Xu, Brown Univ. (USA); Neil Goldsman, Univ. of Maryland, College Park (USA); Nibir K. Dhar, Defense Advanced Research Projects Agency (USA); Priyalal S. Wijewarnasuriya, U.S. Army Research Lab. (USA); Bobby Lineberry, U.S. Army (USA). [7945-103]

Thursday 27 January

SESSION 16

Room: 123 (Exhibit Level) Thurs. 8:00 to 10:00 am

Single Photon Sources and Detectors I

Session Chairs: **Mark A. Itzler**, Princeton Lightwave, Inc.;
Melville P. Ulmer, Northwestern Univ.

8:00 am: **Single photon emission from nitrogen delta-doped semiconductors** (*Invited Paper*), Hiroyuki Yaguchi, Saitama Univ. (Japan). [7945-89]

8:20 am: **Single photon image discrimination** (*Invited Paper*), John C. Howell, Curtis Broadbent, Gregory A. Howland, Univ. of Rochester (USA). [7945-90]

8:40 am: **Growth and characterization of low density droplet GaAs quantum dots for single photon sources** (*Invited Paper*), S. K. Ha, Jin Dong Song, Ju Young Lim, Nano Convergence Devices Ctr. (Korea, Republic of); Samir Bounouar, Fabrice Donatini, Le Si Dang, Jean-Philippe Poizat, Institut NEEL (France); J. S. Kim, Yeungnam Univ. (Korea, Republic of); Won Jun Choi, Il Ki Han, Jung Il Lee, Nano Convergence Devices Ctr. (Korea, Republic of) [7945-91]

9:00 am: **A solid state ultrabright source of entangled photon pairs** (*Invited Paper*), Pascale Senellart, Adrien Dousse, Jan Suffczynski, Alexios Beveratos, Olivier Krebs, Aristide Lemaitre, Isabelle Sagnes, Jacqueline Bloch, Paul Voisin, Ctr. National de la Recherche Scientifique (France). [7945-92]

9:20 am: **Semiconductor integrated sources of quantum light at room temperature** (*Invited Paper*), Adeline Orieux, Univ. Paris 7-Denis Diderot (France); Aristide Lemaitre, Ctr. National de la Recherche Scientifique (France); Pascal G. Filloux, Ivan Favero, Giuseppe Leo, Sara Ducci, Univ. Paris 7-Denis Diderot (France). [7945-93]

9:40 am: **Ultra-low-noise high-speed single-photon detection using a sinusoidally gated InGaAs/InP avalanche photodiode** (*Invited Paper*), Naoto Namekata, Shuichiro Inoue, Nihon Univ. (Japan). [7945-94]

Coffee Break 10:00 to 10:30 am

SESSION 17

Room: 123 (Exhibit Level) Thurs. 10:30 am to 12:00 pm

Single Photon Sources and Detectors II

Session Chairs: **Rengarajan Sudharsanan**, Spectrolab, Inc.;
Franco Zappa, Politecnico di Milano (Italy)

10:30 am: **Compact detection module based on InGaAs/InP SPADs for near-infrared single-photon counting up to 1.7 μm** (*Invited Paper*), Alberto Tosi, Andrea Bahgat Shehata, Politecnico di Milano (Italy); Adriano Della Frera, Micro Photon Devices S.r.l. (Italy); Alberto Dalla Mora, Politecnico di Milano (Italy); Simone Tisa, Micro Photon Devices S.r.l. (Italy); Fabio Acerbi, Franco Zappa, Politecnico di Milano (Italy). [7945-95]

10:50 am: **Single-photon detection in time-of-flight-depth imaging and quantum key distribution** (*Invited Paper*), Gerald S. Buller, Robert J. Collins, Patrick J. Clarke, Nils J. Krichel, Aongus McCarthy, Ryan E. Warburton, Frauke Izdebski, Robert H. Hadfield, Heriot-Watt Univ. (United Kingdom). [7945-97]

11:10 am: **SPAD electronics for high-speed quantum communications** (*Invited Paper*), Joshua C. Bienfang, Alessandro Restelli, Alan Migdall, National Institute of Standards and Technology (USA). [7945-98]

11:30 am: **Advanced single photon counting instrumentation for SPADs**, Alberto Tosi, Alberto Dalla Mora, Politecnico di Milano (Italy); Adriano Della Frera, Micro Photon Devices S.r.l. (Italy); Fabio Acerbi, Andrea Bahgat Shehata, Franco Zappa, Politecnico di Milano (Italy). [7945-99]

11:45 am: **Planar silicon SPADs with improved photon detection efficiency**, Angelo Gulinatti, Francesco Panzeri, Ivan Rech, Politecnico di Milano (Italy); Piera Maccagnani, Consiglio Nazionale delle Ricerche (Italy); Massimo Ghioni, Sergio D. Cova, Politecnico di Milano (Italy). [7945-100]

Photonic and Phononic Properties of Engineered Nanostructures

Conference Chairs: **Ali Adibi**, Georgia Institute of Technology; **Shawn-Yu Lin**, Rensselaer Polytechnic Institute; **Axel Scherer**, California Institute of Technology

Program Committee: **Shanhui Fan**, Stanford Univ.; **Abdelkrim Khelif**, CNRS-Georgia Tech Lorraine (France); **Maryanne C. J. Large**, The Univ. of Sydney (Australia); **Susumu Noda**, Kyoto Univ. (Japan); **Masaya Notomi**, NTT Basic Research Labs. (Japan); **Ekmel Özbay**, Bilkent Univ. (Turkey); **Domenico Pacifici**, California Institute of Technology; **Dennis W. Prather**, Univ. of Delaware; **William J. Wadsworth**, Univ. of Bath (United Kingdom); **Yong Xu**, Virginia Polytechnic Institute and State Univ.; **Eli Yablonovitch**, Univ. of California, Berkeley

Monday 24 January

SESSION 1

Room: 124 (Exhibit Level) Mon. 8:00 to 10:00 am

Recent Advances in Engineered Nanostructures

Session Chair: **Ali Adibi**, Georgia Institute of Technology

8:00 am: **Controlling light emission in nanostructures** (*Invited Paper*), Axel Scherer, S. Walavalkar, A. Homyk, California Institute of Technology (USA) [7946-01]

8:30 am: **EIT-like metamaterials** (*Invited Paper*), Xiang Zhang, Univ. of California, Berkeley (USA) [7946-02]

9:00 am: **Plasmonic, semiconductor, and dielectric building blocks for nanophotonics** (*Invited Paper*), Mark L. Brongersma, Geballe Lab. for Advanced Materials, Stanford Univ. (USA) [7946-03]

9:30 am: **Acoustic metamaterials based on the homogenization of periodic scatterers** (*Invited Paper*), Jose Sanchez-Dehesa, Daniel Torrent, Univ. Politécnica de Valencia (Spain) [7946-04]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 124 (Exhibit Level) Mon. 10:30 am to 12:00 pm

Photonic Crystal Light Emitters

Session Chair: **Axel Scherer**, California Institute of Technology

10:30 am: **High peak power (34 W) photonic crystal distributed feedback quantum cascade lasers** (*Invited Paper*), Manijeh Razeghi, Northwestern Univ. (USA) [7946-05]

11:00 am: **Surface emitting laser based on random photonic crystals**, Seiji Takeda, Shimpei Hamada, Keio Univ. (Japan); Romain Peretti, Christian Seassal, Xavier Letartre, Pierre Viktorovitch, Ecole Centrale de Lyon (France); Minoru Obara, Keio Univ. (Japan) [7946-06]

11:20 am: **Purcell-enhanced single-photon emission from an InP quantum dot coupled to GaInP photonic crystal nanocavity**, Isaac J. Luxmoore, Ehsaneh D. Ahmadi, Nicholas A. Wasley, Alexander I. Tartakovskii, Andrey B. Krysa, Mark Fox, Maurice S. Skolnick, The Univ. of Sheffield (United Kingdom) [7946-07]

11:40 am: **Photonic crystal cavities for efficient thermophotovoltaics: exceeding Planck's free-space energy transfer rate**, Charles M. Reinke, Sandia National Labs. (USA); Mehmet F. Su, The Univ. of New Mexico (USA); Ihab El-Kady, Sandia National Labs. (USA) and The Univ. of New Mexico (USA) [7946-08]

Lunch Break 12:00 to 1:30 pm

SESSION 3

Room: 124 (Exhibit Level) Mon. 1:30 to 3:30 pm

Photonic Crystal Resonators

Session Chair: **Shanhui Fan**, Stanford Univ.

1:30 pm: **Diamond nanophotonics and quantum optics** (*Invited Paper*), Marko Loncar, Thomas M. Babinec, Birgit M. Hausmann, Jennifer T. Choy, Yinan Zhang, Qimin Quan, Harvard Univ. (USA) [7946-09]

2:00 pm: **Nonlinear optics in photonic crystal nanocavities: from light sources to quantum photonic interfaces** (*Invited Paper*), Jelena Vuckovic, Kelley Rivoire, Sonia Buckley, Arka Majumdar, Gary Shambat, Stanford Univ. (USA) [7946-10]

2:30 pm: **Silicon membrane photonic crystal microcavities for the mid-infrared**, Raji Shankar, Irfan Bulu, Marko Loncar, Harvard Univ. (USA) [7946-11]

2:50 pm: **Sub-wavelength size cavity mode supported by dielectric grooves with optical field standing in the free space**, Jingjing Li, David Fattal, Marco Fiorentino, Raymond G. Beausoleil, Hewlett-Packard Labs. (USA) ... [7946-12]

3:10 pm: **Optical microcavities clad by transparent conductive oxides**, Ozlem Senlik, Lingling Tang, Pantana Tor-ngern, Tomoyuki Yoshie, Duke Univ. (USA) [7946-13]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 124 (Exhibit Level) Mon. 4:00 to 5:50 pm

Modeling and Simulation of Photonic Crystal Structures

Session Chair: **Marko Loncar**, Harvard Univ.

4:00 pm: **Theory of nanophotonic light trapping for solar cell applications** (*Invited Paper*), Shanhui Fan, Zongfu Yu, Aaswath Raman, Stanford Univ. (USA) [7946-14]

4:30 pm: **Finite difference simulation of thermally tuned hexagonal photonic crystals**, Scott R. Newman, Robert C. Gauthier, Carleton Univ. (Canada) [7946-15]

4:50 pm: **Modeling of the topological surface states in 2D photonic crystals**, Natalia Malkova, Garnett W. Bryant, National Institute of Standards and Technology (USA) [7946-16]

5:10 pm: **Band structure properties of mixed photonic crystals arranged in digital alloy format**, Jeongkug Lee, Dong-uk Kim, Heonsu Jeon, Seoul National Univ. (Korea, Republic of) [7946-17]

5:30 pm: **Theoretical analysis of the order to disorder phase transition in random photonic crystals**, Shimpei Hamada, Keio Univ. (Japan); Seiji Takeda, Keio Univ. (Japan) and Ecole Centrale de Lyon (France); Pierre Viktorovitch, Ecole Centrale de Lyon (France); Mitsuhiro Terakawa, Minoru Obara, Keio Univ. (Japan) [7946-18]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: Liang-Chy Chien, Kent State Univ. (USA); Klaus P. Streubel, OSRAM GmbH (Germany)

- 8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien, Kent State Univ. (USA)**
- 8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)**
- 8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim, LG Display R&D Ctr. (Republic of Korea)**
- 8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell, Max-Planck-Institute for Biophysical Chemistry (Germany)**
- 9:30 am: **Metal Optics: The New Frontier, Eii Yablonovitch, Univ. of California, Berkeley (USA)**

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 5

Room: 124 (Exhibit Level) Tues. 10:30 am to 12:10 pm

Three-dimensional Photonic Crystal Structures

Session Chair: Andrea Alu, The Univ. of Texas at Austin

- 10:30 am: **Colloidal co-assembly route to large-area high-quality photonic crystals (Invited Paper), Joanna Aizenberg, Benjamin Hatton, Lidiya Mishchenko, Harvard Univ. (USA) [7946-19]**
- 11:00 am: **Electrically-driven emission from 3D photonic crystal devices formed by selective area MOVPE (Invited Paper), Paul V. Braun, Erik C. Nelson, Frederick Seitz Materials Research Lab. (USA) and Univ. of Illinois at Urbana-Champaign (USA); Kevin P. Bassett, Univ. of Illinois at Urbana-Champaign (USA); Xiuling Li, Beckman Institute for Advanced Science and Technology (USA) and Univ. of Illinois at Urbana-Champaign (USA) . . [7946-20]**
- 11:30 am: **Woodpile photonic crystal of various crystal orientations, Lingling Tang, Shu-Yu Su, Tomoyuki Yoshie, Duke Univ. (USA) [7946-21]**
- 11:50 am: **On the physics of the darkest material: 3D mesh-like nanostructure, Shawn-Yu Lin, Rensselaer Polytechnic Institute (USA); Mei-Li Hsieh, National Taiwan Normal Univ. (Taiwan) [7946-22]**
- Lunch/Exhibition Break 12:10 to 1:30 pm

SESSION 6

Room: 124 (Exhibit Level) Tues. 1:30 to 3:30 pm

Photonic Metamaterials I

Session Chair: Ekmel Özbay, Bilkent Univ. (Turkey)

- 1:30 pm: **Flatland metamaterials with graphene (Invited Paper), Ashkan Vakil, Nader Engheta, Univ. of Pennsylvania (USA) [7946-23]**
- 2:00 pm: **Transforming light with tunable and active metamaterials (Invited Paper), Vladimir M. Shalaev, A. V. Kildishev, S. Xiao, V. P. Drachev, X. Ni, G. Naik, Z. Jacob, J-Y Kim, A. Boltasseva, E. E. Narimanov, Purdue Univ. (USA) [7946-24]**
- 2:30 pm: **3D invisibility cloaks at optical frequencies (Invited Paper), Tolga Ergin, Nicolas Stenger, Karlsruhe Institute of Technology (Germany); Jad C. Halimeh, Max-Planck-Institute for Quantum Optics (Germany) and Ludwig-Maximilians-Univ. (Germany); Martin Wegener, Karlsruhe Institute of Technology (Germany) [7946-25]**
- 3:00 pm: **Coupling in complex plasmonic nanostructures and metamaterials (Invited Paper), Harald W. Giessen, Univ. Stuttgart (Germany) [7946-26]**
- Coffee Break 3:30 to 4:00 pm

SESSION 7

Room: 124 (Exhibit Level) Tues. 4:00 to 6:00 pm

Photonic Metamaterials II

Session Chair: Harald W. Giessen, Univ. Stuttgart (Germany)

- 4:00 pm: **Broadband circular polarizer formed by stacked plasmonic metasurfaces (Invited Paper), Andrea Alu, Yang Zhao, The Univ. of Texas at Austin (USA) [7946-27]**
- 4:30 pm: **Enhanced transmission through deep subwavelength apertures using metamaterials (Invited Paper), Ekmel Özbay, Bilkent Univ. (Turkey) [7946-28]**
- 5:00 pm: **Controlling ultrafast light with dispersive metamaterials, Dean P. Brown, UES, Inc. (USA); Augustine M. Urbas, Air Force Research Lab. (USA) [7946-29]**
- 5:20 pm: **Inverting scattered fields for sub-wavelength resolution using negative index materials, Michael A. Fiddy, The Univ. of North Carolina at Charlotte (USA); Yuan Zhang, Nanyang Technological Univ. (Singapore) [7946-30]**
- 5:40 pm: **Infrared metamaterial design using derivative-free numerical optimization, Kenneth Diest, Luke A. Sweatlock, Daniel E. Marthaler, Northrop Grumman Aerospace Systems (USA) [7946-31]**

Wednesday 26 January

SESSION 8

Room: 124 (Exhibit Level) Wed. 8:20 to 10:00 am

Photonic Crystal Fibers

Session Chair: Elison Matioli, Univ. of California, Santa Barbara

- 8:20 am: **Low loss and broadband hollow-core photonic crystal fibers (Invited Paper), Fetah A. Benabid, Yingying Wang, Univ. of Bath (United Kingdom) [7946-32]**
- 8:50 am: **Novel aspects of pulse propagation in photonic crystal fibers (Invited Paper), Sebastian P. Stark, Alexander V. Podlipensky, Philip S. Russell, Max-Planck Institute for the Science of Light (Germany) [7946-33]**
- 9:20 am: **Selective filling of metals into photonic crystal fibers, Ron Spittel, Anka Schwuchow, Sven Brückner, Kay Schuster, Jens Kobelke, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany) [7946-34]**
- 9:40 am: **Improved laser damage threshold for chalcogenide glasses through surface microstructuring, Jasbinder Sanghera, U.S. Naval Research Lab. (USA); Catalin Florea, Global Defense Technology & Systems, Inc. (USA); Lynda Busse, Brandon Shaw, Ishwar Aggarwal, U.S. Naval Research Lab. (USA); Douglas Hobbs, Jim Nole, TelAztec LLC (USA) [7946-35]**
- Coffee Break 10:00 to 10:30 am

SESSION 9

Room: 124 (Exhibit Level) Wed. 10:30 am to 12:10 pm

Novel Phenomena in Photonic Crystals

Session Chair: Fetah A. Benabid, Univ. of Bath (United Kingdom)

- 10:30 am: **Bi-layer photonic crystal for optomechanics (Invited Paper), Masaya Notomi, NTT Basic Research Labs. (Japan) [7946-36]**
- 11:00 am: **Photonic crystals for high efficiency LEDs (Invited Paper), Elison Matioli, Univ. of California, Santa Barbara (USA) [7946-37]**
- 11:30 am: **Optically reconfigurable photonic crystal nanobeam filter and modulator, Parag B. Deotare, Yinan Zhang, Qimin Quan, Ian Frank, Harvard School of Engineering and Applied Sciences (USA); Rob Elic, Cornell Univ. (USA); Marko Loncar, Harvard School of Engineering and Applied Sciences (USA) [7946-38]**
- 11:50 am: **Photonic crystal waveguide based sensors, Murtaza Askari, Siva Yegnanarayanan, Ali Adibi, Georgia Institute of Technology (USA) . . . [7946-39]**
- Lunch/Exhibition Break 12:10 to 1:30 pm

SESSION 10

Room: 124 (Exhibit Level) Wed. 1:30 to 3:30 pm

Phononic Crystal Structures

Session Chair: **Ali Adibi**, Georgia Institute of Technology

- 1:30 pm: **Surface acoustic wave band gap in semi-infinite medium with locally resonant two-dimensional phononic structure** (*Invited Paper*), Abdelkrim Khelif, CNRS-Georgia Tech Lorraine (France); Younes Achaoui, Institut FEMTO-ST (France) [7946-40]
- 2:00 pm: **Functional microfabricated phononic crystal structures for communications and sensing signal processing applications** (*Invited Paper*), Saeed Mohammadi, Ali Adibi, Georgia Institute of Technology (USA) . [7946-41]
- 2:30 pm: **Is there really a sound line limit for surface waves in phononic crystals?** (*Invited Paper*), Sarah Benchabane, Institut Femto-ST (France); Abdelkrim Khelif, CNRS-Georgia Tech Lorraine (France); Vincent Laude, Institut Femto-ST (France) [7946-42]
- 3:00 pm: **Time-resolved two-dimensional imaging of GHz surface acoustic waves in 1D and 2D phononic crystals and devices based on them** (*Invited Paper*), Osamu Matsuda, Hokkaido Univ. (Japan); Istvan A. Veres, Univ. of Strathclyde (United Kingdom); Oliver B. Wright, Hokkaido Univ. (Japan) [7946-43]
- Coffee Break 3:30 to 4:00 pm

SESSION 11

Room: 124 (Exhibit Level) Wed. 4:00 to 5:40 pm

Plasmonic Structures for Sensing Applications

- 4:00 pm: **Plasmo-photonic nanopillar array for large-area surface-enhanced Raman scattering sensor**, Francisco J. Bezares, Joshua Caldwell, Orest Glembocki, Ron W. Rendell, Loretta Shirey, U.S. Naval Research Lab. (USA) [7946-44]
- 4:20 pm: **Planar metallic nanostructures in a waveguide for sensing applications**, Matthieu Roussey, Qing Tan, Armando Cosentino, Hans-Peter Herzig, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7946-45]
- 4:40 pm: **InGaAsP photonic crystal slot nanobeam waveguides for refractive index sensing**, Bowen Wang, Mehmet A. Dündar, Richard Nötzel, Fouad Karouta, Technische Univ. Eindhoven (Netherlands); Sailing He, Joint Research Ctr. of Photonics (China); Rob W. van der Heijden, Technische Univ. Eindhoven (Netherlands) [7946-46]
- 5:00 pm: **On-chip nanostructures for polarization imaging and multispectral sensing using dedicated layers of modified CMOS processes**, Stephan Junger, Wladimir Tschekalinskij, Nanko Verwaal, Norbert Weber, Fraunhofer-Institut für Integrierte Schaltungen (Germany) [7946-47]
- 5:20 pm: **ZnSe nanowires as harmonophores for multicontrast nonlinear microscopy**, Richard Cisek, Univ. of Toronto Mississauga (Canada) and Institute for Optical Sciences (Canada); Alex Shik, Harry Ruda, Univ. of Toronto (Canada) and Centre for Advanced Nanotechnology (Canada); Virginijus Barzda, Univ. of Toronto Mississauga (Canada) [7946-48]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

- Revisiting the Jaynes-Cummings-Paul model in the limit of very strong coupling**, Elahe Ahmadi, Abbas Arab, Sina Khorasani, Sharif Univ. of Technology (Iran, Islamic Republic of) [7946-67]
- Wannier functions of two-dimensional plasmonic structures**, Aryan Hazeghi, Sina Khorasani, Sharif Univ. of Technology (Iran, Islamic Republic of) [7946-68]
- Numerical simulation and rational design of optically anisotropic GLAD films**, Viktor A. Leontyev, Nicholas Wakefield, Matthew Hawkeye, Kyrlo Tabunshchik, Jeremy Sit, Univ. of Alberta (Canada); Andriy Kovalenko, Univ. of Alberta (Canada) and Department of Mechanical Engineering, University of Alberta (Canada); Michael Brett, Univ. of Alberta (Canada) and NRC, National Institute for Nanotechnology (Canada) [7946-69]
- Femtosecond laser-ultrasonic investigation of plasmonic fields on embedded interface**, Hung-Pin Chen, Yu-Chieh Wen, Cheng-Hua Tsai, National Taiwan Univ. (Taiwan); Kuang-Li Lee, Pei-Kuen Wei, Academia Sinica (Taiwan); Jinn-Kong Sheu, National Cheng Kung Univ. (Taiwan); Chi-Kuang Sun, National Taiwan Univ. (Taiwan) and Academia Sinica (Taiwan) [7946-70]
- Experimental demonstration of deep subwavelength waveguiding and focusing with designer surface plasmonic waveguides**, Wangshi Zhao, Omar Eldaiki, Ruoxi Yang, Zhaolin Lu, Rochester Institute of Technology (USA) [7946-71]
- Nanostructured metal-insulator-metal resonators for high-resolution color filtering and spectral imaging**, Ting Xu, Yi-Kuei Wu, L. Jay Guo, Univ. of Michigan (USA) [7946-72]
- Supported gold plasmonic dimers in total internal reflection microscopy and spectroscopy: effects of evanescent field distribution**, Chun-Yuan Wang, Shu-Chun Yang, Hung-Ying Chen, Shangir Gwo, National Tsing Hua Univ. (Taiwan) [7946-73]
- Analysis of optical filter using microcavity SOI slot waveguides**, Tae-Kyeong Lee, Hong-Seung Kim, Geum-Yoon Oh, Young-Wan Choi, Chung-Ang Univ. (Korea, Republic of) [7946-74]
- Computational analysis of the effects of gain material inclusion in engineered nanostructures**, Jinsong Duan, General Dynamics Information Technology (USA); Ruth Pachter, Air Force Research Lab. (USA) [7946-75]
- Enhancement and suppression of transmission in 2D-periodic arrays of nanoslits**, Maria Antonietta Vincenti, Domenico de Ceglia, The AEGIS Technologies Group, Inc. (USA); Michael Scalora, U.S. Army Aviation and Missile Command (USA); Roberto Marani, Valeria Marrocco, Marco Grande, Giuseppe Morea, Antonella D'Orazio, Politecnico di Bari (Italy) [7946-76]
- Investigation of the nonlinear optical response from arrays of Au bowtie nanoantennas**, Kaspar D. Ko, Anil Kumar, Kin Hung Fung, Gang L. Liu, Nicholas X. Fang, Kimani C. Toussaint, Jr., Univ. of Illinois at Urbana-Champaign (USA) [7946-78]
- Simulation of photonic bandgaps in real holographically formed 3D photonic crystals and holographic fabrication**, Yuankun Lin, Kris Ohlinger, Faraon Torres, The Univ. of Texas-Pan American (USA); Di Xu, Kevin Chen, Univ. of Pittsburgh (USA) [7946-79]
- Plasmon-induced photoconductivity of porous anodic aluminum oxide films based on embedded silver nanoparticles**, Hsing-Ying Lin, Chen-Han Huang, National Cheng Kung Univ. (Taiwan) [7946-80]
- Anderson localization of light in a random configuration of semiconductor nanocolumns**, Yuta Inose, Sophia Univ. (Japan) and CREST, Japan Science and Technology Agency (Japan); Masaru Sakai, Univ. of Yamanashi (Japan); Kazuhiro Ema, Akihiko Kikuchi, Katsumi Kishino, Tomi Ohtsuki, Sophia Univ. (Japan) [7946-81]
- Precise permittivity measurement technique for low dimensionality structures**, Laurent Arnaud, Sylvain Blaize, Aurélien Bruyant, Michel Kazan, Gilles Lérondel, Pascal Royer, Univ. de Technologie Troyes (France) . [7946-82]

Thursday 27 January

SESSION 12

Room: 124 (Exhibit Level) Thurs. 8:00 to 10:00 am

Resonance-based Plasmonic Structures

Session Chair: Rashid Zia, Brown Univ.

- 8:00 am: **Optical manipulation using surface plasmons and silicon micro-ring resonators** (*Invited Paper*), Kenneth B. Crozier, Harvard Univ. (USA) [7946-49]
- 8:30 am: **Lithographically defined plasmonic-photonic hybrid cavities**, Nils C. Nüsse, Max Schoengen, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); Michael Barth, Humboldt-Univ. zu Berlin (Germany); Bernd Löchel, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); Oliver Benson, Humboldt-Univ. zu Berlin (Germany); Wolfgang Eberhardt, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany) [7946-50]
- 8:50 am: **Efficient coupling to plasmonic nanoresonators using on-chip Silicon Nitride integrated photonic structures**, Maysamreza Chamanzar, Siva Yegnanarayanan, Ehsan Shah Hosseini, Ali Adibi, Georgia Institute of Technology (USA) [7946-51]
- 9:10 am: **A new class of plasmonic crystals: the eigen modes, field enhancement, and applications**, Masanobu Iwanaga, National Institute for Materials Science (Japan) [7946-52]
- 9:30 am: **A surface plasmon enhanced infrared photo-detector based on InAs quantum dots** (*Invited Paper*), Shawn-Yu Lin, Rensselaer Polytechnic Institute (USA) [7946-53]
- Coffee Break 10:00 to 10:30 am

SESSION 13

Room: 124 (Exhibit Level) Thurs. 10:30 am to 12:10 pm

Novel Phenomena in Plasmonic Structures I

Session Chair: Kenneth B. Crozier, Harvard Univ.

- 10:30 am: **Engineering aperiodic order in nanoplasmonic devices: past, present, and future opportunities** (*Invited Paper*), Luca Dal Negro, Boston Univ. (USA) [7946-54]
- 11:00 am: **Quantifying multipolar light emission** (*Invited Paper*), Rashid Zia, Brown Univ. (USA) [7946-55]
- 11:30 am: **Study of plasmonic nanoprisms via apertureless near-field scanning optical microscopy**, Shean-Jen Chen, Chak-Fong Cheang, National Cheng Kung Univ. (Taiwan) [7946-56]
- 11:50 am: **Phonon confinement effects in nanowires revealed by scanning near-field optical microscopy: theory and experiment**, Aurélien Bruyant, Michel Kazan, Zohreh Sedaghat, Sylvain Blaize, Univ. de Technologie Troyes (France); Nevine Rochat, Nicolas Chevalier, Commissariat à l'Énergie Atomique (France); Pierre Morin, STMicroelectronics (France); Julien Vaillant, Pascal Royer, Univ. de Technologie Troyes (France) [7946-57]
- Lunch/Exhibition Break 12:10 to 1:30 pm

SESSION 14

Room: 124 (Exhibit Level) Thurs. 1:30 to 3:30 pm

Novel Phenomena in Plasmonic Structures II

Session Chair: Luca Dal Negro, Boston Univ.

- 1:30 pm: **Single particle photocatalysis: towards solar-fuels with non-linear optics and plasmonics** (*Invited Paper*), Jennifer A. Dionne, Stanford University (USA) [7946-58]
- 2:00 pm: **Infrared spoof plasmons on nano-membranes: physics and applications** (*Invited Paper*), Gennady Shvets, The Univ. of Texas at Austin (USA); Alexander Khanikaev, The Univ. of Texas at Austin (USA) and Macquarie Univ. (Australia); S. Hossein Mousavi, Burton Neuner III, The Univ. of Texas at Austin (USA) [7946-59]
- 2:30 pm: **High-throughput engineering of infrared plasmonic nanoantenna arrays with nanostencil lithography**, Serap Aksu, Ahmet A. Yanik, Ronen Adato, Alp Artar, Min Huang, Hatice Altug, Boston Univ. (USA) [7946-60]
- 2:50 pm: **Multipolar nonlinear optics with metallic nanoparticles**, Jeremy Butet, Guillaume Bachelier, Emmanuel Benichou, Christian Jonin, Isabelle Russier-Antoine, Pierre-François Brevet, Univ. Claude Bernard Lyon 1 (France) [7946-61]
- 3:10 pm: **Nanoplasmonic photonic crystal phytoliths**, Mark P. Andrews, Farshid Hajjiboli, Jonathan Hiltz, Timothy Gonzalez, Gursimranbir Singh, Bruce Lennox, McGill Univ. (Canada) [7946-62]
- Coffee Break 3:30 to 4:00 pm

SESSION 15

Room: 124 (Exhibit Level) Thurs. 4:00 to 5:00 pm

Design and Characterization of Plasmonic Structures

Session Chair: Jennifer A. Dionne, Univ. of California, Berkeley

- 4:00 pm: **Observation of full plasmonic stop bands in fractal structures**, Navid Yasrebi, Sina Khorasani, Bizhan Rashidian, Sharif Univ. of Technology (Iran, Islamic Republic of) [7946-64]
- 4:20 pm: **Mapping of surface plasmon polaritons on nanostructured thin films using cathodoluminescence imaging**, Anil Kumar, Kin Hung Fung, Nicholas X. Fang, Univ. of Illinois at Urbana-Champaign (USA) [7946-65]
- 4:40 pm: **Description and characterization of the complex modes in a linear chain of noble metal nanospheres**, Salvatore Campione, Univ. of California, Irvine (USA); Sergiy Steshenko, Univ. degli Studi di Siena (Italy) and Institute of Radiophysics and Electronics of the National Academy of Sciences of Ukraine (Ukraine); Filippo Capolino, Univ. of California, Irvine (USA) [7946-66]

Courses of Related Interest

- SC608 Photonic Crystals: A Crash Course, from Bandgaps to Fibers (Johnson) Sunday, 1:30 to 5:30 pm
- SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm
- SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Quantum Dots and Nanostructures: Synthesis, Characterization, and Modeling VIII

Conference Chairs: **Kurt G. Eyink**, Air Force Research Lab.; **Frank Szmulowicz**, Univ. of Dayton Research Institute; **Diana L. Huffaker**, Univ. of California, Los Angeles

Program Committee: **Pallab K. Bhattacharya**, Univ. of Michigan; **C. Jeffrey Brinker**, Sandia National Labs.; **Dennis G. Deppe**, CREOL, The College of Optics and Photonics, Univ. of Central Florida; **Alfred W. B. Forchel**, Julius-Maximilians-Univ. Würzburg (Germany); **L. Jay Guo**, Univ. of Michigan; **Axel Hoffmann**, Technische Univ. Berlin (Germany); **Yong-Hee Lee**, Korea Advanced Institute of Science and Technology (Korea, Republic of); **Luke F. Lester**, The Univ. of New Mexico; **James A. Lott**, VI Systems GmbH (Germany); **Philip Poole**, National Research Council Canada (Canada); **Manijeh Razeghi**, Northwestern Univ.; **Kevin L. Silverman**, National Institute of Standards and Technology; **Jian Xu**, The Pennsylvania State Univ.

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA); **Klaus P. Streubel**, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**, Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim**, LG Display R&D Ctr. (Republic of Korea)

8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell**, Max-Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 1

Room: 133 (Exhibit Level) Tues. 10:30 to 11:50 am

Quantum Cavity Structures I

10:30 am: **Cavity quantum electrodynamics studies with site-controlled InGaAs quantum dots integrated into high quality microcavities** (*Invited Paper*), Stephan Reitzenstein, Christian Schneider, Ferdinand Albert, Tobias Heindel, Julius-Maximilians-Univ. Würzburg (Germany); Søren Stobbe, Technical Univ. of Denmark (Denmark); Matthias Lerner, Alexander Huggenberger, Pia Weinmann, Julius-Maximilians-Univ. Würzburg (Germany); Peter Lodahl, Technical Univ. of Denmark (Denmark); Sven Höfling, Martin Kamp, Lukas Worschech, Alfred W. B. Forchel, Julius-Maximilians-Univ. Würzburg (Germany) [7947-01]

11:00 am: **Dephasing non-resonant radiation and few dot coherent coupling in electrically tunable photonic crystal nanocavities** (*Invited Paper*), Jonathan J. Finley, Technische Univ. München (Germany) [7947-02]

11:30 am: **Control of the electronic structure of single site-controlled InAs/InP quantum dots via intermixing**, Khaled Mnyamneh, Dan Dalacu, Philip Poole, Jean Lapointe, Robin L. Williams, National Research Council Canada (Canada) [7947-03]

Lunch/Exhibition Break 11:50 am to 1:20 pm

SESSION 2

Room: 133 (Exhibit Level) Tues. 1:20 to 2:50 pm

Quantum Cavity Structures II

1:20 pm: **Artificial atom lasers: lasing oscillation in a single quantum dot-photonic crystal nanocavity strongly coupled system** (*Invited Paper*), Yasuhiko Arakawa, Masahiro Nomura, Satoshi Iwamoto, Yasutomo Ota, The Univ. of Tokyo (Japan) [7947-04]

1:50 pm: **Metal-embedded semiconductor single quantum dot as a novel highly pure single photon source**, Hideaki Nakajima, Shingo Ekuni, Hidekazu Kumano, Yasuhiro Idutsu, Sotaro Ida, Hirotaaka Sasakura, Ikuro Suemune, Hokkaido Univ. (Japan) [7947-05]

2:10 pm: **Coherent coupling of the excitonic states in a single quantum dot**, Anthony J. Bennett, Toshiba Research Europe Ltd. (United Kingdom); Matthew Pooley, Cavendish Lab. (United Kingdom); R. Mark Stevenson, Martin B. Ward, Raj B. Patel, Toshiba Research Europe Ltd. (United Kingdom); Antoine Boyer de la Giroday, Cavendish Lab. (United Kingdom); Niklas Skold, Toshiba Research Europe Ltd. (United Kingdom); Ian Farrer, Cavendish Lab. (United Kingdom); Christine A. Nicoll, Cavendish Lab. (USA); David A. Ritchie, Cavendish Lab. (United Kingdom); Andrew J. Shields, Toshiba Research Europe Ltd. (United Kingdom) [7947-06]

2:30 pm: **Capture delay and modulation bandwidth in a quantum dot laser**, Levon V. Asryan, Virginia Polytechnic Institute and State Univ. (USA); Yuchang Wu, Virginia Polytechnic Institute and State Univ (USA); Robert A. Suris, Ioffe Physico-Technical Institute (Russian Federation) [7947-07]

Coffee Break 2:50 to 3:20 pm

SESSION 3

Room: 133 (Exhibit Level) Tues. 3:20 to 5:40 pm

Colloidal Quantum Dots

3:20 pm: **Single colloidal quantum dots as sources of single photons for quantum cryptography** (*Invited Paper*), Massimo De Vittorio, National Nanotechnology Lab. (Italy); F. Pisanello, National Nanotechnology Lab. (Italy) and Univ. Pierre et Marie Curie (France); Luigi Martiradonna, Istituto Italiano di Tecnologia (Italy); A. Quattieri, Tiziana Stomeo, National Nanotechnology Lab. (Italy); G. Leménager, Univ. Pierre et Marie Curie (France); Jean-Pierre Hermier, Univ. de Versailles Saint-Quentin-en Yvelines (France); Alberto Bramati, Univ. Pierre et Marie Curie (France) [7947-08]

3:50 pm: **Fabrication of the CdSeTe alloy and CdSeTe/ZnS core-shell quantum dots** (*Invited Paper*), Jun-Jie Zhu, Nanjing Univ. (China) . . . [7947-09]

4:20 pm: **Probing oxygen consumption in epileptic brain slices with QDs-based FRET sensors** (*Invited Paper*), Chunfeng Zhang, Min Xiao, Nanjing Univ. (China); Jian Xu, Justin Ingram, Steven J. Schiff M.D., The Pennsylvania State Univ. (USA) [7947-10]

4:50 pm: **Developing coherent coding with colloidal quantum dot-based two photon lasers** (*Invited Paper*), Jian Xu, The Pennsylvania State Univ. (USA) and Univ. of Shanghai for Science and Technology (China); Guanjun You, Chuang Xie, The Pennsylvania State Univ. (USA); Fengbing Wu, Songlin Zhuang, Univ. of Shanghai for Science and Technology (China); Chunfeng Zhang, The Pennsylvania State Univ. (USA); Y. Andrew Wang, Ocean NanoTech (USA) [7947-11]

5:20 pm: **Photothermal lens spectrometry of metallic nanoparticle colloids**, Aristides Marcano, Franz Delima, Sharina Haynes, Yuri Markushin, Chandran R. Sabanayagam, Nouredine Melikechi, Delaware State Univ. (USA) . . . [7947-12]

Wednesday 26 January

SESSION 4

Room: 133 (Exhibit Level) Wed. 8:00 to 10:30 am

Quantum Wires

- 8:00 am: **Controlled formation of well-aligned GaAs nanowires with high aspect ratio on transparent substrates** (*Invited Paper*), Jiun-Jie Chao, Ching-Fuh Lin, National Taiwan Univ. (Taiwan). [7947-33]
- 8:30 am: **Exciton states in quantum tetrapods** (*Invited Paper*), Kazuaki Sakoda, National Institute for Materials Science (Japan) and Univ. of Tsukuba (Japan). [7947-13]
- 9:00 am: **Catalyst-free growth and characterization of III-AsSb nanowires by MOCVD** (*Invited Paper*), Ping-Show Wong, Andrew Lin, Pradeep N. Senanayake, Joshua N. Shapiro, Adam Scofield, Diana L. Huffaker, Univ. of California, Los Angeles (USA) [7947-14]
- 9:30 am: **Emission dynamics of GaP/GaInP core/shell nano-wires grown on silicon substrate**, Nicola Pavarelli, Tyndall National Institute (Ireland) and Cork Institute of Technology (Ireland); Tomasz J. Ochalski, Tyndall National Institute (Ireland); Jun Tatebayashi, Univ. of California, Los Angeles (USA) and National Institute for Materials Science (Japan); Baolai Liang, Univ. of California, Los Angeles (USA); Guillaume Huyet, Tyndall National Institute (Ireland) and Cork Institute of Technology (Ireland); Diana L. Huffaker, Univ. of California, Los Angeles (USA) [7947-15]
- 9:50 am: **Silicon Nanowire Optical Waveguide (SNOW): achieving high optical confinement in nanowire structures**, Mohammadreza Khorasaninejad, Simarjeet S. Saini, Univ. of Waterloo (Canada) [7947-16]
- 10:10 am: **Positioned growth of InP nanowires**, Philip Poole, Dan Dalacu, Jean Lapointe, Alicia Kam, Xiaohua Wu, National Research Council Canada (Canada) [7947-17]
- Coffee Break 10:30 to 11:00 am

SESSION 5

Room: 133 (Exhibit Level) Wed. 11:00 am to 12:20 pm

Quantum Dots I

- 11:00 am: **Antimony-based quantum dot memories** (*Invited Paper*), Dieter Bimberg, Andreas Marent, Tobias Nowozin, Technische Univ. Berlin (Germany) [7947-18]
- 11:30 am: **GaSb/GaAs quantum dots with type-II band alignments prepared by molecular beam epitaxy for device applications** (*Invited Paper*), Shih-Yen Lin, Academia Sinica (Taiwan) and National ChiaoTung Univ. (Taiwan) and Institute of Optoelectronic Sciences, National Taiwan Ocean Univ. (Taiwan); Chi-Che Tseng, Wei-Hsun Lin, National Tsing Hua Univ. (Taiwan); Shu-Han Chen, Academia Sinica (Taiwan). [7947-19]
- 12:00 pm: **Dense lying GaSb quantum dots on GaAs by Stranski-Krastanov growth**, Thomas H. Loeber, Dirk Hoffmann, Henning Fouckhardt, Technische Univ. Kaiserslautern (Germany). [7947-20]
- Lunch/Exhibition Break 12:20 to 1:30 pm

SESSION 6

Room: 133 (Exhibit Level) Wed. 1:30 to 2:50 pm

Quantum Dots II

- 1:30 pm: **High resolution photocurrent spectroscopy and imaging of sub-surface InAs quantum dots by atomic force microscopy**, Juergen Smoliner, Monika Madl, Wolfgang Brezna, Pavel Klang, Aaron M. Andrews, Gottfried Strasser, Vienna Univ. of Technology (Austria) [7947-21]
- 1:50 pm: **Real time metrology of self assembled quantum dots by reflection high energy electron diffraction**, Alexandre Freundlich, Chandani Rajapaksha, Univ. of Houston (USA) [7947-22]
- 2:10 pm: **Title to be determined (Quantum Dots)**, Diana L. Huffaker, Univ. of California, Los Angeles (USA) [7947-23]
- 2:30 pm: **Fully coupled piezoelectric models on the optical properties of InGaN quantum dots**, K. B. Hong, Mao-Kuen Kuo, National Taiwan Univ. (Taiwan) [7947-24]
- Coffee Break 2:50 to 3:20 pm

SESSION 7

Room: 133 (Exhibit Level) Wed. 3:20 to 4:40 pm

Novel Quantum Structures

- 3:20 pm: **Gain recovery characteristics of an InAs/InGaAsP quantum dot amplifier operating at 1.5 μ m: wavelength dependence**, Jaegyung Park, Namje Kim, Yudong Jang, Eun Gu Lee, J. M. Lee, J. S. Paek, Ki-Ju Yee, Donghan Lee, Chungnam National Univ. (Korea, Republic of); Su Hyun Pyun, Weon Guk Jeong, Sungkyunkwan Univ. (Korea, Republic of); J. Kim, Kyung Hee Univ. (Korea, Republic of) [7947-25]
- 3:40 pm: **Size, strain, and band offset engineering in GaAs(Sb)(N)-capped InAs quantum dots for 1.3 - 1.55 μ m LEDs and LDs**, Jose María M. Ulloa, Miguel Montes, Kenji Yamamoto, Alvaro Guzman, Adrian Hierro, Univ. Politécnic de Madrid (Spain); Murat Bozkurt, Paul M. Koenraad, Technische Univ. Eindhoven (Netherlands); David Fernandez, David Gonzalez, David L. Sales, Univ. de Cádiz (Spain) [7947-26]
- 4:00 pm: **Surface states in negative-band-gap slabs**, Natalia Malkova, Garnett W. Bryant, National Institute of Standards and Technology (USA) [7947-27]
- 4:20 pm: **Size dependent surface energy of silicon nanoclusters in SiO₂ determined from the thermal evolution of their size distribution using a combination of X-TEM and Raman**, Iain F. Crowe, The Univ. of Manchester (United Kingdom); Oksana Hulko, Andrew P. Knights, McMaster Univ. (Canada); Matthew P. Halsall, The Univ. of Manchester (United Kingdom); Russell M. Gwilliam, Univ. of Surrey (United Kingdom) [7947-28]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Surface enhanced Raman radiation of crystal violet dye with a SiO₂ buffer, Tung-Kai Liu, I-Min Jiang, Wen-Chi Hung, National Sun Yat-Sen Univ. (Taiwan) [7947-29]

Synthesis of well-aligned and high density nanopore arrays with the assistance of ultrasonic, Yung-Chiang Ting, Far East Univ. (Taiwan); Shyi-Long Shy, National Nano Device Labs. (Taiwan) [7947-30]

Synthesis and oxidation of silver nanoparticles, Hua Qi, Dimitri Alexson, Orest J. Glembocki, Sharka M. Prokes, U.S. Naval Research Lab. (USA) [7947-31]

Formation of organic nanodots with a minimum diameter of 40 nm using conventional vacuum vapor deposition, Manabu Nakata, BEANS Lab. (Japan) and Panasonic Electric Works Co., Ltd. (Japan); Kenji Kawano, Panasonic Electric Works Co., Ltd. (Japan); Mao Yasumatsu, BEANS Lab. (Japan) and Kyushu Univ. (Japan); Masayuki Yahiro, Chihaya Adachi, BEANS Lab. (Japan) and Kyushu Univ. (Japan) and Institute of Systems & Information Technologies/KYUSHU (Japan) [7947-32]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Advances in Photonics of Quantum Computing, Memory, and Communication IV

Conference Chairs: **Zameer UI Hasan**, Temple Univ.; **Philip R. Hemmer**, Texas A&M Univ.; **Hwang Lee**, Louisiana State Univ.; **Charles M. Santori**, Hewlett-Packard Labs.

Program Committee: **Dmitry Budker**, Univ. of California, Berkeley; **Alan E. Craig**, Montana State Univ.; **Jonathan P. Dowling**, Louisiana State Univ.; **Gurudev Dutt**, Univ. of Pittsburgh; **James D. Franson**, Univ. of Maryland, Baltimore County; **David H. Hughes**, Air Force Research Lab.; **Fedor Jelezko**, Univ. Stuttgart (Germany); **Seth Lloyd**, Massachusetts Institute of Technology; **Aleksander K. Rebane**, Montana State Univ.; **Selim M. Shahriar**, Northwestern Univ.; **Alan Eli Willner**, The Univ. of Southern California; **Joerg Wrachtrup**, Univ. Stuttgart (Germany); **Horace P. Yuen**, Northwestern Univ.; **M. Suhail Zubairy**, Texas A&M Univ.

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA); **Klaus P. Streubel**, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**, Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim**, LG Display R&D Ctr. (Republic of Korea)

8:50 am: **Nanoscapy with Focused Light, Stefan W. Hell**, Max-Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 1

Room: 132 (Exhibit Level) Tues. 10:30 am to 12:10 pm

Spectral Holeburning: Optical Tomography and Other Applications I

Session Chair: **Charles M. Santori**, Hewlett-Packard Labs.

10:30 am: **The low temperature: do we need it? (Invited Paper)**, Zameer U. Hasan, Temple Univ. (USA) [7948-01]

10:55 am: **Improving the imaging ability of ultrasound-modulated optical tomography with spectral-hole burning (Invited Paper)**, Xiao Xu, Honglin Liu, Washington Univ. in St. Louis (USA); Sri-Rajasekhar Kothapalli, Stanford Univ. (USA); Lihong V. Wang, Washington Univ. in St. Louis (USA) [7948-03]

11:20 am: **Deep tissue (phantom) imaging with spectral hole burning in Pr:YSO (Invited Paper)**, Huiliang Zhang, Texas A&M Univ. (USA); Mahmood Sabooni, Lars Rippe, Stefan Kröll, Lund Univ. (Sweden); Chulhong Kim, Lihong V. Wang, Washington Univ. in St. Louis (USA); Philip R. Hemmer, Texas A&M Univ. (USA) [7948-02]

11:45 am: **High-resolution large dynamic range spectral filtering at 800 nm using Tm³⁺:YAG crystals (Invited Paper)**, Anne Louchet-Chauvet, Romain Lauro, Lab. Aimé Cotton (France); Philippe Goldner, Ecole Nationale Supérieure de Chimie de Paris (France); Francois Ramaz, Ecole Supérieure de Physique et de Chimie Industrielles (France); Thierry Chanelière, Jean-Louis Le Gouët, Lab. Aimé Cotton (France) [7948-04]

Lunch/Exhibition Break 12:10 to 1:20 pm

SESSION 2

Room: 132 (Exhibit Level) Tues. 1:20 to 3:10 pm

Spectral Holeburning: Optical Tomography and Other Applications II

Session Chair: **Zameer UI Hasan**, Temple Univ.

1:20 pm: **Coherence in quantum photo-cell: effect of Fano coupling (Invited Paper)**, Konstantin E. Dorfman, Marlan O. Scully, Anatoly A. Svidzinsky, Texas A&M Univ. (USA) [7948-05]

1:45 pm: **Photon echoes in scattering media (Invited Paper)**, Philippe Goldner, Ecole Nationale Supérieure de Chimie de Paris (France); Jean-Louis Le Gouët, Thierry Chanelière, Lab. Aimé Cotton (France); Alban Ferrier, Ecole Nationale Supérieure de Chimie de Paris (France) [7948-06]

2:10 pm: **Different optical centers in Eu-doped MgS and CaS thin films for ultra-high density spectral storage applications**, Francisco J. Bezares, Zameer Hasan, Jishook Park, Temple Univ. (USA) [7948-07]

2:30 pm: **Coherent detection of ultrasound using spectral hole burning media**, Jian Wei Tay, Univ. of Otago (New Zealand) [7948-08]

2:50 pm: **High Q/V photonic crystal cavities for cavity QED and microwave photonics applications**, Irfan Bulu, Yanan Zhang, Marko Loncar, Harvard Univ. (USA) [7948-09]

Coffee Break 3:10 to 3:40 pm

SESSION 3

Room: 132 (Exhibit Level) Tues. 3:40 to 5:45 pm

Quantum Metrology and Imaging

Session Chair: **Philip R. Hemmer**, Texas A&M Univ.

3:40 pm: **Optimal multi-photon phase sensing with a single interference fringe (Invited Paper)**, Geoff J. Pryde, Guoyong Xiang, Brendon L. Higgins, Howard M. Wiseman, Griffith Univ. (Australia); Holger F. Hofmann, Hiroshima Univ. (Japan); Dominic W. Berry, Univ. of Waterloo (Australia) [7948-10]

4:05 pm: **Bounds on entangled imaging (Invited Paper)**, Gerald N. Gilbert, Stephen P. Pappas, Yaakov S. Weinstein, MITRE Corp. (USA) [7948-11]

4:30 pm: **Heisenberg-limited quantum sensing and metrology with superpositions of twin-Fock states (Invited Paper)**, Christopher C. Gerry, Lehman College (USA) [7948-12]

4:55 pm: **Super-resolution at the shot-noise limit with coherent states (Invited Paper)**, Jonathan P. Dowling, Petr M. Anisimov, Louisiana State Univ. (USA) [7948-13]

5:20 pm: **Multiparticle entanglement and quantum interferometry (Invited Paper)**, Augusto Smerzi, Univ. degli Studi di Trento (Italy); Luca Pezze, Lab. Charles Fabry (France) [7948-14]

Wednesday 26 January

SESSION 4

Room: 132 (Exhibit Level) Wed. 8:00 to 10:00 am

Quantum Computing with Photons and Ions

Session Chair: Hwang Lee, Louisiana State Univ.

8:00 am: **Chip-integrated fiber optics for efficient and scalable ion and atom detection** (*Invited Paper*), Yves Colombe, Aaron P. VanDevender, National Institute of Standards and Technology (USA); Jason Amini, National Institute of Standards and Technology (USA) and Georgia Tech Research Institute (USA); Andrew Wilson, National Institute of Standards and Technology (USA); Tilo Steinmetz, Lab. Kastler Brossel (France) and Max-Planck-Institut fuer Quantenoptik / LMU (Germany); Guilhem Dubois, Roger Gehr, Jürgen Volz, Felix Linke, Lab. Kastler Brossel (France); David Hunger, Ludwig-Maximilians-Univ. München (Germany); Romain Long, Jérôme Estève, Christian Deutsch, Lab. Kastler Brossel (France); Benjamin L. Lev, Univ. of Illinois at Urbana-Champaign (USA); Theodor W. Hänsch, Ludwig-Maximilians-Univ. München (Germany); Jakob Reichel, Lab. Kastler Brossel (France); Dietrich Leibfried, David J. Wineland, National Institute of Standards and Technology (USA) [7948-15]

8:25 am: **Optical quantum circuit combining tailored optical nonlinearities** (*Invited Paper*), Shigeki Takeuchi, Ryo Okamoto, Masazumi Fujiwara, Hong-Quan Zhao, Hokkaido Univ. (Japan) and Osaka Univ. (Japan); Hideaki Takashima, Hokkaido Univ. (Japan); Akira Tanaka, Osaka Univ. (Japan) and Hokkaido Univ. (Japan); Holger Hofmann, Hiroshima Univ. (Japan); Jeremy L. O’Brien, Univ. of Bristol (United Kingdom) [7948-16]

8:50 am: **Large nonlinearities with few photons** (*Invited Paper*), Barry C. Sanders, Univ. of Calgary (Canada) [7948-17]

9:15 am: **Experimental implementation of the universal transpose operation** (*Invited Paper*), Hyang-Tag Lim, Young-sik Ra, Yong-Su Kim, Pohang Univ. of Science and Technology (Korea, Republic of); Joonwoo Bae, Korea Institute for Advanced Study (Korea, Republic of); Yoon-Ho Kim, Pohang Univ. of Science and Technology (Korea, Republic of) [7948-18]

9:40 am: **Imaging trapped ions with a microfabricated lens for quantum information processing**, Erik W. Streed, Benjamin G. Norton, Andreas Jechow, Griffith Univ. (Australia); Till J. Weinhold, The Univ. of Queensland (Australia) and Griffith Univ. (Australia); David Kielpinski, Griffith Univ. (Australia) [7948-19]

Coffee Break 10:00 to 10:25 am

SESSION 5

Room: 132 (Exhibit Level) Wed. 10:25 am to 12:00 pm

Quantum Communication I

Session Chair: Jonathan P. Dowling, Louisiana State Univ.

10:25 am: **Quantum key distribution in a high-dimensional state space: exploiting the transverse degree of freedom of the photon** (*Invited Paper*), Robert W. Boyd, Univ. of Rochester (USA) [7948-20]

10:50 am: **Efficient photon number detection with silicon avalanche photodiodes** (*Invited Paper*), Oliver Thomas, Zhiliang L. Yuan, James F. Dynes, Andrew W. Sharpe, Andrew J. Shields, Toshiba Research Europe Ltd. (United Kingdom) [7948-21]

11:15 am: **Generation of optical Schrödinger cat states by number-resolved photon subtraction from squeezed vacuum** (*Invited Paper*), Thomas Gerrits, Scott Glancy, Tracy S. Clement, Brice Calkins, Adriana E. Lita, National Institute of Standards and Technology (USA); Aaron J. Miller, Albion College (USA); Alan L. Migdall, National Institute of Standards and Technology (USA) and Joint Quantum Institute, Univ. of Maryland (USA); Sae Woo Nam, Richard P. Mirin, Emanuel Knill, National Institute of Standards and Technology (USA) . [7948-22]

11:40 am: **N-bits all-optical circular shift register based on semiconductor optical amplifier buffer**, Emma Lazzeri, Gianluca Berrettini, Gianluca Meloni, Scuola Superiore Sant’Anna (Italy); Antonella Bogoni, Luca Poti, Consorzio Nazionale Interuniversitario per le Telecomunicazioni (Italy) [7948-23]

Lunch/Exhibition Break 12:00 to 1:00 pm

SESSION 6

Room: 132 (Exhibit Level) Wed. 1:00 to 2:05 pm

Quantum Communication II

Session Chair: Jonathan P. Dowling, Louisiana State Univ.

1:00 pm: **Photonic interference between different sources** (*Invited Paper*), Sergey V. Polyakov, Andreas Muller, Alex Ling, Natalia Borjemscaia, Edward B. Flagg, National Institute of Standards and Technology (USA); Edward Van Keuren, Georgetown Univ. (USA); Alan L. Migdall, Glenn S. Solomon, National Institute of Standards and Technology (USA) [7948-24]

1:25 pm: **Informational geometric analysis of superactivation of zero-capacity optical quantum channels**, Laszlo Gyongyosi, Sandor Imre, Budapest Univ. of Technology and Economics (Hungary) [7948-26]

1:45 pm: **Nonlinear strong and weak pulse generation for the B92 protocol**, Anil Prabhakar, S. Thiruthakka Thevan, Indian Institute of Technology Madras (India) [7948-28]

SESSION 7

Room: 132 (Exhibit Level) Wed. 2:05 to 3:20 pm

Manipulation of Single or Coupled Spins I

Session Chair: Zameer UI Hasan, Temple Univ.

2:05 pm: **Optical properties and optical control of the electronic state of nitrogen-vacancy centers in diamond** (*Invited Paper*), Kai-Mei C. Fu, Hewlett-Packard Labs. (USA) and Univ. of Washington (USA); Charles M. Santori, Hewlett-Packard Labs. (USA); Paul E. Barclay, Hewlett-Packard Labs. (USA) and Univ. of Calgary (Canada) and NRC-NINT (Canada); Andrei Faraon, Raymond G. Beausoleil, Hewlett-Packard Labs. (USA) [7948-25]

2:30 pm: **Gigahertz quantum control and nanoscale placement of single spins in diamond** (*Invited Paper*), Gregory D. Fuchs, David M. Toyli, Univ. of California, Santa Barbara (USA); Christoph Weis, Thomas Schenkel, Lawrence Berkeley National Lab. (USA); David D. Awschalom, Univ. of California, Santa Barbara (USA) [7948-27]

2:55 pm: **Nuclear feedback in a single charged quantum dot under pulsed optical control** (*Invited Paper*), Thaddeus D. Ladd, David L. Press, Kristiaan De Greve, Peter L. McMahon, Stanford Univ. (USA); Benedikt Friess, Christian Schneider, Martin Kamp, Sven Höfling, Alfred W. B. Forchel, Julius-Maximilians-Univ. Würzburg (Germany); Yoshihisa Yamamoto, Stanford Univ. (USA)[7948-29]

Coffee Break 3:20 to 3:45 pm

SESSION 8

Room: 132 (Exhibit Level) Wed. 3:45 to 6:05 pm

Manipulation of Single or Coupled Spins II

Session Chair: Zameer UI Hasan, Temple Univ.

3:45 pm: **Control and coherence of the optical transition of single defect centers in diamond** (*Invited Paper*), Ronald Hanson, Kavli Institute of Nanoscience Delft (Netherlands) [7948-30]

4:10 pm: **Picosesla-scale magnetometry with diamond NV centers** (*Invited Paper*), Victor M. Acosta, Micah P. Ledbetter, Univ. of California, Berkeley (USA); Andrey Jarmola, Univ. of California, Berkeley (USA) and Laser Ctr, Univ. of Latvia (Latvia); Lucas J. Zipp, Univ. of California, Berkeley (USA); Dmitry Budker, Univ. of California, Berkeley (USA) and Lawrence Berkeley National Lab. (USA) [7948-31]

4:35 pm: **Optical far-field addressing of single spins with nanometric precision**, Dominik Wildanger, Max-Planck-Institut für biophysikalische Chemie (Germany); Jeronimo R. Maze, Harvard Univ. (USA); Eva Rittweger, Stefan W. Hell, Max-Planck-Institut für biophysikalische Chemie (Germany) [7948-32]

4:55 pm: **Diamond defect center spin clusters** (*Invited Paper*), Joerg Wrachtrup, Philipp Neumann, Fedor Jelezko, Helmut Fedder, Friedemann Reinhard, Boris Naydenov, Univ. Stuttgart (Germany) [7948-33]

5:20 pm: **Probing hole spin coherence in a quantum dot** (*Invited Paper*), Brian D. Gerardot, Heriot-Watt Univ. (United Kingdom) [7948-34]

5:45 pm: **Optical readout of a quantum dot electron spin via intermittent resonance fluorescence**, Nick Vamivakas, Chao-Yang Lu, Clemens Matthiesen, Yong Zhao, Univ. of Cambridge (United Kingdom); Stefan B. Falt, Sol Voltaics AB (Sweden); Antonio Badolato, Univ. of Rochester (USA); Mete Atatüre, Univ. of Cambridge (United Kingdom) [7948-35]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Frequency-coded scheme for BB84 QKD protocol using spin wave-optical interactions, Pradeep Kumar Krishnamurthy, Indian Institute of Technology Kanpur (India); Anil Prabhakar, Indian Institute of Technology Madras (India) [7948-48]

Thursday 27 January

SESSION 9

Room: 132 (Exhibit Level) Thurs. 8:20 to 10:10 am

Cavity QED-based Implementations

Session Chair: Charles M. Santori, Hewlett-Packard Labs.

8:20 am: **Photonic circuits for coherent feedback quantum control** (*Invited Paper*), Hideo Mabuchi, Stanford Univ. (USA) [7948-36]

8:45 am: **Quantum optics with microwave photons and cavity-based hybrid quantum systems** (*Invited Paper*), David I. Schuster, The Univ. of Chicago (USA) [7948-37]

9:10 am: **Cavity quantum electrodynamics based quantum low-density parity-check encoders and decoders**, Ivan B. Djordjevic, The Univ. of Arizona (USA) [7948-38]

9:30 am: **Modification of the spontaneous emission rate of nitrogen-vacancy centers in diamond by coupling to plasmons**, Andrei Faraon, Hewlett-Packard Labs. (USA); Young Chul Jun, Stanford Univ. (USA); Paul E. Barclay, Kai-Mei C. Fu, Charles M. Santori, Hewlett-Packard Labs. (USA); Mark L. Brongersma, Stanford Univ. (USA); Raymond G. Beausoleil, Hewlett-Packard Labs. (USA) [7948-39]

9:50 am: **Towards efficient nanophotonic coupling to NV centers**, Paul E. Barclay, Univ. of Calgary (Canada); Kai-Mei C. Fu, Charles M. Santori, Andrei Faraon, Raymond G. Beausoleil, Hewlett-Packard Labs. (USA) [7948-40]

Coffee Break 10:10 to 10:40 am

SESSION 10

Room: 132 (Exhibit Level) Thurs. 10:40 am to 12:00 pm

Photonic Interface to Solid-state Systems I

Session Chair: Hideo Mabuchi, Stanford Univ.

10:40 am: **Quantum optics with single molecules** (*Invited Paper*), Stephan J. Goetzinger, Yves Rezes, Robert Lettow, Martin Pototschnig, Jaesuk Hwang, Alois Renn, Gert H. Zumofen, Vahid Sandoghdar, ETH Zurich (Switzerland) [7948-41]

11:10 am: **A solid-state atomic ensemble as a light-matter quantum interface** (*Invited Paper*), Christoph Clausen, Imam Usmani, Felix Bussieres, Nicolas Sangouard, Hugues de Riedmatten, Mikael Afzelius, Nicolas Gisin, Univ. of Geneva (Switzerland) [7948-42]

11:35 am: **Interference of single photons from two separate semiconductor quantum dots** (*Invited Paper*), Edward B. Flagg, Andreas Muller, Sergey V. Polyakov, Alex Ling, Alan L. Migdall, Glenn S. Solomon, Joint Quantum Institute (USA) [7948-43]

Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 11

Room: 132 (Exhibit Level) Thurs. 1:30 to 3:00 pm

Photonic Interface to Solid-state Systems II

Session Chair: Hwang Lee, Louisiana State Univ.

1:30 pm: **Quantum interface between photons and electron spins in a semiconductor** (*Invited Paper*), Hideo Kosaka, Tohoku Univ. (Japan) [7948-44]

1:55 pm: **Novel single photon sources in diamond** (*Invited Paper*), Igor Aharonovich, Stefania Castelletto, Univ. of Melbourne (Australia); David Simpson, Brant Gibson, Alastair Stacey, Julius Orwa, Brett Johnson, The Univ. of Melbourne (Australia); Snjezana Tomljenovic-Hanic, The Univ. of Sydney (Australia); Jeff McCallum, Andrew Greentree, Lloyd Hollenberg, Steven Praver, The Univ. of Melbourne (Australia) [7948-45]

2:20 pm: **Two-photon interference using electrically tunable remote quantum dots**, Raj B. Patel, Toshiba Research Europe Ltd. (United Kingdom) and Univ. of Cambridge (United Kingdom); Anthony J. Bennett, Toshiba Research Europe Ltd. (United Kingdom); Ian Farrer, Christine A. Nicoll, David A. Ritchie, Univ. of Cambridge (United Kingdom); Andrew J. Shields, Toshiba Research Europe Ltd. (United Kingdom) [7948-46]

2:40 pm: **Single-qubit quantum gates using magnon-photon interactions**, Pradeep Kumar, Indian Institute of Technology Madras (India) [7948-47]

Coffee Break 3:00 to 3:30 pm

SESSION 12

Room: 302 (Esplanade) Thurs. 3:30 to 5:00 pm

Note Room Change

Devices for Quantum Communications

Joint Session with Conference 7933

Session Chair: Marek Osirski, The Univ. of New Mexico

3:30 pm: **A light emitting diode for entangled photons** (*Invited Paper*), Mark R. Stevenson, Toshiba Research Europe Ltd. (United Kingdom); C. L. Salter, Toshiba Research Europe Ltd. (United Kingdom) and Univ. of Cambridge (United Kingdom); Ian Farrer, Christine A. Nicoll, David A. Ritchie, Univ. of Cambridge (United Kingdom); Andrew J. Shields, Toshiba Research Europe Ltd. (United Kingdom) [7933-64]

4:00 pm: **Modeling the evolution of quantum optical states in optoelectronic devices**, Teppo Häyrynen, Jani Oksanen, Jukka J. Tulkki, Aalto Univ. School of Science and Technology (Finland) [7933-65]

4:20 pm: **High Q photonic crystal cavities with tapered air holes**, Frederic Brossard, Hitachi Cambridge Lab. (United Kingdom); Sophie Schirmer, Univ. of Cambridge (United Kingdom); Alexander Chalcraft, David Whittaker, The Univ. of Sheffield (United Kingdom) [7933-66]

4:40 pm: **Electrically-pumped photonic nanowire single-photon source with an efficiency of 89%**, Niels Gregersen, Technical Univ. of Denmark (Denmark); Julien Claudon, Commissariat à l'Énergie Atomique (France); Torben R. Nielsen, Jesper Mørk, Technical Univ. of Denmark (Denmark); Jean-Michel Gérard, Commissariat à l'Énergie Atomique (France) [7933-67]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Advances in Slow and Fast Light IV

Conference Chairs: **Selim M. Shahriar**, Northwestern Univ.; **Philip R. Hemmer**, Texas A&M Univ.

Program Committee: **Shanhui Fan**, Stanford Univ.; **Daniel J. Gauthier**, Duke Univ.; **Kohzo Hakuta**, The Univ. of Electro-Communications (Japan); **Ortwin Hess**, Univ. of Surrey (United Kingdom); **John C. Howell**, Univ. of Rochester; **Jacob B. Khurgin**, The Johns Hopkins Univ.; **Gour S. Pati**, Delaware State Univ.; **Jacob Scheuer**, Tel Aviv Univ. (Israel); **Holger Schmidt**, Univ. of California, Santa Cruz; **M. Suhail Zubairy**, Texas A&M Univ.

Sunday 23 January

SESSION 1

Room: 125 (Exhibit level) Sun. 8:10 to 9:55 am

Slow and Fast Light in Photonic Crystal Structures

Session Chair: **Jesper Moerk**, Technical Univ. of Denmark (Denmark)

- 8:10 am: **Nonlinear enhancement in photonic crystal waveguide with spot-size converter**, Mizuki Shinkawa, Yokohama National Univ. (Japan); Toshihiko Baba, Yokohama National Univ. (USA) [7949-01]
- 8:25 am: **Slow and fast light in photonic crystals with gain and loss** (*Invited Paper*), Andrey Sukhorukov, The Australian National Univ. (Australia) . [7949-02]
- 8:50 am: **Optofluidic dispersion engineering of photonic crystal waveguides**, Alvaro Casas Bedoya, Peter Domachuk, Christian Grillet, Christelle Monat, Snjezana Tomljenovic-Hanic, Eric Magi, Benjamin J. Eggleton, The Univ. of Sydney (Australia) [7949-03]
- 9:05 am: **Ultrafast modulators based on nonlinear photonic crystal waveguides** (*Invited Paper*), Bruce Wessels, Northwestern Univ. (USA) [7949-04]
- 9:30 am: **Large-core photonic microcells for coherent optics and laser metrology** (*Invited Paper*), Fetah A. Benabid, Univ. of Bath (United Kingdom) [7949-05]
- Coffee Break 9:55 to 10:20 am

SESSION 2

Room: 125 (Exhibit level) Sun. 10:20 am to 12:15 pm

Slow and Fast Light in Optical Fibers, Waveguides, and Gratings I

Session Chair: **Fetah A. Benabid**, Univ. of Bath (United Kingdom)

- 10:20 am: **A novel grating based temporal buffering approach**, Nigel J. Copner, Univ. of Glamorgan (United Kingdom) [7949-06]
- 10:35 am: **Recent advances in tunable optical delays and their applications** (*Invited Paper*), Alan E. Willner, The Univ. of Southern California (USA) [7949-07]
- 11:00 am: **Broadband slow light with a swept-frequency source** (*Invited Paper*), Rui Zhang, Yunhui Zhu, Daniel J. Gauthier, Duke Univ. (USA) . [7949-08]
- 11:25 am: **Polarization attributes of stimulated Brillouin scattering slow light in fiber** (*Invited Paper*), Avi Zadok, Moshe Tur, Avishay Eyal, Tel Aviv Univ. (Israel); Luc Thevenaz, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7949-09]
- 11:50 am: **Slow light fibre systems in microwave photonics** (*Invited Paper*), Luc Thevenaz, Sang-Hoon Chin, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Perrine Berger, Jérôme Bourderionnet, Thales Research & Technology (France); Salvador Sales, Juan Sancho-Dura, Univ. Politécnic de Valencia (Spain) [7949-10]
- Lunch Break 12:15 to 1:15 pm

SESSION 3

Room: 125 (Exhibit level) Sun. 1:15 to 3:10 pm

Slow and Fast Light in Optical Fibers, Waveguides, and Gratings II

Session Chair: **Luc Thevenaz**, Ecole Polytechnique Fédérale de Lausanne (Switzerland)

- 1:15 pm: **Manipulating slow light propagation using optical nanofibers with low finesse cavity** (*Invited Paper*), Kohzo Hakuta, Kali P. Nayak, Fam L. Kien, The Univ. of Electro-Communications (Japan) [7949-11]
- 1:40 pm: **A chirped grating based white light cavity for high-speed data buffering and gravitational wave detection**, Young Jang, Honam Yum, Northwestern Univ. (USA); Philip R. Hemmer, Texas A&M Univ. (USA); Selim M. Shahriar, Northwestern Univ. (USA) [7949-12]
- 1:55 pm: **Slow light in fiber Bragg gratings** (*Invited Paper*), Michel J. F. Digonnet, He Wen, Shanhui Fan, Stanford Univ. (USA) [7949-13]
- 2:20 pm: **Enhancing waveguide properties using slow light** (*Invited Paper*), Jesper Moerk, S. Ek, P. Lunnemann, Torben R. Nielsen, Kresten Vvind, Technical Univ. of Denmark (Denmark) [7949-14]
- 2:45 pm: **Slow and fast light in semiconductor optical amplifier for microwave applications** (*Invited Paper*), Perrine Berger, Jérôme Bourderionnet, Daniel Dolfi, Thales Research & Technology (France); Fabien Bretenaker, Lab. Aimé Cotton (France); Medhi Alouini, Univ. de Rennes 1 (France) [7949-48]
- Coffee Break 3:10 to 3:30 pm

SESSION 4

Room: 125 (Exhibit level) Sun. 3:30 to 6:15 pm

Slow and Fast Light in Microresonators

Session Chair: **Andrey Sukhorukov**, The Australian National Univ. (Australia)

- 3:30 pm: **Pulse propagation through a dispersive intracavity medium**, Honam Yum, Young Jang, Selim M. Shahriar, Northwestern Univ. (USA) [7949-15]
- 3:45 pm: **Efficient nonlinear wave-mixing processes via slow and fast light** (*Invited Paper*), Yuri V. Rostovtsev, Univ. of North Texas (USA) [7949-16]
- 4:10 pm: **Experimental and theoretical explorations of dark resonances in coupled micro-cavities** (*Invited Paper*), Shanhui Fan, Sunil Sandhu, Jun Pan, Yijie Huo, Norbert Sthurman, Stanford Univ. (USA); Michelle L. Povinelli, The Univ. of Southern California (USA); Martin M. Fejer, James S. Harris, Jr., Stanford Univ. (USA) [7949-17]
- 4:35 pm: **Mid-band zero group velocity in slow light structures** (*Invited Paper*), Jacob Scheuer, Ori Weiss, Tel Aviv Univ. (Israel) [7949-18]
- 5:00 pm: **Controlling the speed of light using resonators** (*Invited Paper*), Michal F. Lipson, Cornell Univ. (USA) [7949-19]
- 5:25 pm: **Slow light in hundreds of coupled silicon-on-insulator microrings** (*Invited Paper*), Shayan Mookherjee, Univ. of California, San Diego (USA) [7949-20]
- 5:50 pm: **Evolution of light along a conical surface and a high Q-factor cone microresonator** (*Invited Paper*), Mikhail Sumetsky, OFS (USA) [7949-21]

Monday 24 January

SESSION 5

Room: 125 (Exhibit level). Mon. 8:00 to 10:25 am

Slow and Fast Light in Unconventional Media

Session Chair: Selim M. Shahriar, Northwestern Univ.

8:00 am: **Three-dimensional plasmonic metamaterials for slow light propagation at visible frequencies**, HungYing Chen, Meng-Hsien Lin, Shangji Gwo, National Tsing Hua Univ. (Taiwan) [7949-22]

8:15 am: **The role of slow light on hyperbolic metamaterials and plasmonic nano antennas** (*Invited Paper*), Meir Orenstein, Technion-Israel Institute of Technology (Israel) [7949-23]

8:40 am: **Gain in negative-refractive-index slow-light waveguides** (*Invited Paper*), Ortwin Hess, Edmund I. Kirby, Joachim Hamm, Kosmas L. Tsakmakidis, Univ. of Surrey (United Kingdom) [7949-24]

9:05 am: **Slow-light generation in a rare-earth-doped glass via electromagnetically induced transparency** (*Invited Paper*), Igor V. Melnikov, Optolink Ltd. (Russian Federation); Anton N. Knigavko, High Q Labs., Inc. (Canada) [7949-25]

9:30 am: **Slowlight issues in SOAs**, Gadi Eisenstein, Technion-Israel Institute of Technology (Israel); Sean O'Duill, Univ. College Dublin (Ireland) [7949-26]

9:45 am: **Slow light for cancer detection: ultrasound-modulated optical tomography using slow light enhanced with spectral hole burning**, Huijiang Zhang, Texas A&M Univ. (USA); Mahmood Sabooni, Lars Rippe, Stefan Kroll, Lund Univ. (Sweden); Lihong V. Wang, Washington Univ. in St. Louis (USA); Philip R. Hemmer, Texas A&M Univ. (USA) [7949-27]

10:00 am: **On chip silicon platform for slow and fast light** (*Invited Paper*), Uriel Levy, Ilya Goykhman, Boris Desiatov, Avner Yanai, Liron Stern, The Hebrew Univ. of Jerusalem (Israel) [7949-28]

Coffee Break 10:25 to 10:50 am

SESSION 6

Room: 125 (Exhibit level). Mon. 10:50 am to 12:30 pm

Slow and Fast Light in Atomic Media I

Session Chair: Uriel Levy, The Hebrew Univ. of Jerusalem (Israel)

10:50 am: **Tunable optical delay hole burning and ground state depletion effects in cesium vapor** (*Invited Paper*), Monte D. Anderson, Glen Perram, Air Force Institute of Technology (USA) [7949-29]

11:15 am: **Slow light and EIT in atomic spectroscopy chips** (*Invited Paper*), Bin Wu, Univ. of California, Santa Cruz (USA); John F. Hulbert, Katie Hurd, Aaron R. Hawkins, Brigham Young Univ. (USA); Holger Schmidt, Univ. of California, Santa Cruz (USA) [7949-30]

11:40 am: **Large contrast resonant absorption due to three photon coherent effects in three level atomic lambda system** (*Invited Paper*), Gadi Eisenstein, Ido Ben-Aroya, Technion-Israel Institute of Technology (Israel) [7949-31]

12:05 pm: **Buffered images on demand** (*Invited Paper*), John C. Howell, David Starling, Praveen K. V. Setu, Univ. of Rochester (USA) [7949-32]

Lunch Break 12:30 to 1:30 pm

SESSION 7

Room: 125 (Exhibit level). Mon. 1:30 to 3:35 pm

Slow and Fast Light in Atomic Media II

Session Chair: John C. Howell, Univ. of Rochester

1:30 pm: **Diffraction manipulation with atomic diffusion** (*Invited Paper*), O. Firstenberg, P. London, M. Shuker, A. Ron, Nir Davidson, Weizmann Institute of Science (Israel) [7949-33]

1:55 pm: **Optical Ramsey interference and its performance in D1 line excitation in rubidium vapor for implementation of a vapor cell clock** (*Invited Paper*), Gour S. Pati, Delaware State Univ. (USA); Fredrik K. Fatemi, Mark Bashkansky, U.S. Naval Research Lab. (USA); Selim M. Shahriar, Northwestern Univ. (USA) [7949-34]

2:20 pm: **Spread spectrum technology with single photons and slow light** (*Invited Paper*), Chih-Sung Chuu, Chinmay Belthangady, Stanford Univ. (USA); Ite A. Yu, National Tsing Hua Univ. (Taiwan); Guang-Yu Yin, Joseph M. Kahn, Stephen E. Harris, Stanford Univ. (USA) [7949-35]

2:45 pm: **A quantum memory with telecom photon conversion** (*Invited Paper*), Alex M. Kuzmich, Georgia Institute of Technology (USA) [7949-36]

3:10 pm: **Localized structures in bidirectional ring lasers** (*Invited Paper*), Jorge R. Tredicce, L. Colombo, Lionel Gil, Institut Non Linéaire de Nice Sophia Antipolis (France) [7949-37]

Coffee Break 3:35 to 4:00 pm

SESSION 8

Room: 125 (Exhibit level). Mon. 4:00 to 5:55 pm

Metrological Applications of Slow and Fast Light

Session Chair: Gour S. Pati, Delaware State Univ.

4:00 pm: **Practical considerations for a fast-light enhanced helium-neon ring laser gyroscope** (*Invited Paper*), Joseph Schaar, Los Gatos Research, Inc. (USA); Selim M. Shahriar, Northwestern Univ. (USA) [7949-38]

4:25 pm: **Slow-light interactions in liquid crystal light-valves and applications for adaptive interferometric detection** (*Invited Paper*), Stefania Residori, Umberto Bortolozzo, Jean-Pierre Huignard, Institut Non Linéaire de Nice Sophia Antipolis (France) [7949-39]

4:50 pm: **Enhancing the sensitivity of interometer using fiber resonators** (*Invited Paper*), Yundong Zhang, Jinfang Wang, Xuenan Zhang, Hao Wu, Jing Zhang, Yuanxue Cai, Ping Yuan, Harbin Institute of Technology (China)[7949-40]

5:15 pm: **A zero-area Sagnac superluminal ring laser for high-sensitivity accelerometry**, Joshua Yablou, Honam Yum, Yanfei Tu, Selim M. Shahriar, Northwestern Univ. (USA) [7949-41]

5:30 pm: **SBS based radar true time delay** (*Invited Paper*), Michael J. Steiner, David R. Walker, Mark Bashkansky, U.S. Naval Research Lab. (USA) . [7949-42]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: Liang-Chy Chien, Kent State Univ. (USA); Klaus P. Streubel, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks**, Liang-Chy Chien, Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display Application**, Chang-Dong Kim, LG Display R&D Ctr. (Republic of Korea)

8:50 am: **Nanoscopy with Focused Light**, Stefan W. Hell, Max-Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier**, Eli Yablonovitch, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 9

Room: 125 (Exhibit level). Tues. 10:30 am to 12:35 pm

Challenges and Constraints in Slow and Fast Light

Session Chair: Jorge R. Tredicce,

Institut Non Linéaire de Nice Sophia Antipolis (France)

10:30 am: **Nonlinear light matter interactions in slow light photonic structures: performance metrics** (*Invited Paper*), Jacob B. Khurgin, The Johns Hopkins Univ. (USA) [7949-43]

10:55 am: **Energy considerations in slow and fast propagation of light** (*Invited Paper*), Robert W. Boyd, Univ. of Rochester (USA); Paul Narum, Norwegian Defence Research Establishment (Norway); Daniel J. Gauthier, Duke Univ. (USA) [7949-44]

11:20 am: **Pulse distortion in linear slow light systems: theoretical limits and compensation strategies** (*Invited Paper*), Miguel González-Herráez, Univ. de Alcalá de Henares (Spain); Luc Thevenaz, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7949-45]

11:45 am: **Resonance photonic structures: from light basics towards quantum-matter quill and hardware design** (*Invited Paper*), Igor V. Melnikov, E.L.S. Co. (Russian Federation) [7949-46]

12:10 pm: **Influence of non-linear interactions on electromagnetic-field propagation in quantized many-electron systems** (*Invited Paper*), Verne L. Jacobs, U.S. Naval Research Lab. (USA) [7949-47]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.



Get the free mobile app at <http://gettag.mobi>

Open the tag reader app and hold your phone's camera over the tag. You'll go to the Photonics West program page, where you can browse by technology, by day/time, or by matrix view.

PLAN YOUR WEEK

- Use the SPIE My Schedule tool on the Photonics West site
 - Add Papers | Exhibitors | Courses | Special Events
- Use the Entire Program webpage to view the program your way:
 - By Symposium and Conference—papers, courses, special events
 - By Day and Time—see what's happening now
 - In a Matrix Grid by Program Track—handy at-a-glance reference

Free SPIE Apps for iPhone®

SPIE Conference Program FREE >

Search and create your schedule at SPIE conferences.

SPIE Profiles FREE >

Make valuable personal connections with SPIE Colleagues.

Complex Light and Optical Forces V

Conference Chair: **David L. Andrews**, Univ. of East Anglia Norwich (United Kingdom)

Conference Co-Chairs: **Enrique J. Galvez**, Colgate Univ.; **Jesper Glückstad**, Technical Univ. of Denmark (Denmark)

Program Committee: **Nicholas P. Bigelow**, Univ. of Rochester; **Shu-Chun Chu**, National Cheng Kung Univ. (Taiwan); **Kishan Dholakia**, Univ. of St. Andrews (United Kingdom); **Wolfgang A. Ertmer**, Leibniz Univ. Hannover (Germany); **Jean-Marc R. Fournier**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **David G. Grier**, New York Univ.; **Rüdiger Grunwald**, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); **Gerard Nienhuis**, Leiden Univ. (Netherlands); **Miles J. Padgett**, Univ. of Glasgow (United Kingdom); **Monika A. Ritsch-Marte**, Innsbruck Medical Univ. (Austria); **Halina H. Rubinsztein-Dunlop**, The Univ. of Queensland (Australia); **Marat S. Soskin**, Institute of Physics (Ukraine); **Grover A. Swartzlander, Jr.**, Rochester Institute of Technology; **Juan P. Torres**, ICFO - Instituto de Ciencias Fotónicas (Spain); **Ewan M. Wright**, College of Optical Sciences, The Univ. of Arizona

Wednesday 26 January

SESSION 1

Room: 125 (Exhibit level). Wed. 8:40 to 10:00 am

Optical Angular Momentum I

Session Chair: **David L. Andrews**, Univ. of East Anglia Norwich (United Kingdom)

- 8:40 am: **Orbital angular momentum of light as a tool for nanophotonics** (*Invited Paper*), Gabriel Molina-Terriza, MacQuarie Univ. (Australia). . . [7950-01]
- 9:10 am: **Angular momenta and spin-orbit interaction of nonparaxial light in free space** (*Invited Paper*), Konstantin Y. Bliokh, National Univ. of Ireland, Galway (Ireland); Miguel A. Alonso, Univ. of Rochester (USA); Elena A. Ostrovskaya, The Australian National Univ. (Australia) [7950-02]
- 9:40 am: **Evolution of orbital angular momentum entangled bi-photon propagating through a turbulent atmosphere**, Filippus S. Roux, National Laser Ctr. Trust (South Africa). [7950-03]
- Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 125 (Exhibit level). Wed. 10:30 am to 12:00 pm

Optical Manipulation I

Session Chair: **Jesper Glückstad**, Technical Univ. of Denmark (Denmark)

- 10:30 am: **The macro-tweezer: a long-range optical mirror trap to catch large and highly motile micro-organisms** (*Invited Paper*), Gregor Thalhammer, Ruth Steiger, Stefan Bernet, Monika A. Ritsch-Marte, Innsbruck Medical Univ. (Austria) [7950-04]
- 11:00 am: **Development of a two-photon polymerization and optical tweezers microscope for fabrication and manipulation of microstructures**, Ninad D. Ingle, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7950-05]
- 11:20 am: **Optical vortex singularities and atomic circulation in evanescent waves**, Vassilis E. Lembessis, New York College (Greece); Mohamed Babiker, The Univ. of York (United Kingdom); David L. Andrews, Univ. of East Anglia Norwich (United Kingdom) [7950-06]
- 11:40 am: **Hybrid optical transport trap: loading and unloading of microscale objects using a microfabricated optical fiber into optical tweezers**, Yogeshwar N. Mishra, Cochin Univ. of Science & Technology (India); Nelson Cardenas, Samarendra K. Mohanty, The Univ. of Texas at Arlington (USA) [7950-07]
- Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 3

Room: 125 (Exhibit level). Wed. 1:30 to 3:20 pm

Structured Light

Session Chair: **Miles J. Padgett**, Univ. of Glasgow (United Kingdom)

- 1:30 pm: **Adaptive shaping of complex pulsed nondiffracting light fields** (*Invited Paper*), Martin Bock, Ruediger Grunwald, Susanta K. Das, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) . . . [7950-08]
- 2:00 pm: **Complex light with optical singularities induced by nanocomposites**, Marat S. Soskin, Vladislav V. Ponevchinsky, Institute of Physics (Ukraine); Andrew I. Goncharuk, F. D. Ovcharenko Institute of Biocolloidal Chemistry (Ukraine); Sergey S. Minenko, Longin N. Lisetski, Institute for Scintillation Materials (Ukraine); Nikolay I. Lebovka, F. D. Ovcharenko Institute of Biocolloidal Chemistry (Ukraine) [7950-09]
- 2:20 pm: **Measuring extremely complex ultrashort pulses with time-bandwidth products exceeding 65,000 using multiple-delay crossed-beam spectral interferometry**, Jacob Cohen, Georgia Institute of Technology (USA); Pamela Bowlan, Swamp Optics, LLC (USA); Vikrant Chauhan, Rick Trebino, Peter M. Vaughan, Georgia Institute of Technology (USA) [7950-10]
- 2:40 pm: **Helical ionizing channels generated with ultrafast interfering Bessel laser pulses**, Nicholas Barbieri, Matthew Weidman, Matthieu Baudelet, Martin Richardson, Demetrios Christodoulides, Georgios Siviloglou, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Eric Johnson, Zachary Roth, The Univ. of North Carolina at Charlotte (USA) [7950-11]
- 3:00 pm: **Fermionic transformation rules for spatially filtered light beams in conical refraction**, Yuri V. Loiko, Univ. de Barcelona (Spain); Maria A. Bursukova, Conerefringent optics SL (Spain); Todor K. Kalkanjev, Univ. Autònoma de Barcelona (Spain); Edik U. Rafailov, Univ. of Dundee (United Kingdom); Jordi Mompert, Univ. Autònoma de Barcelona (Spain) [7950-12]
- Coffee Break 3:20 to 3:50 pm

SESSION 4

Room: 125 (Exhibit level). Wed. 3:50 to 5:50 pm

Optical Angular Momentum II

Session Chair: **Mark R. Dennis**, Univ. of Bristol (United Kingdom)

- 3:50 pm: **Measuring the orbital angular momentum of light** (*Invited Paper*), Miles J. Padgett, Univ. of Glasgow (United Kingdom); Gregorius Berkhout, Leiden Univ. (Netherlands); Martin Lavery, Johannes Courtial, Univ. of Glasgow (United Kingdom); Marco Beijersbergen, Leiden Univ. (Netherlands) . . [7950-13]
- 4:20 pm: **Orbital angular momentum induced beam shifts**, Nathaniel P. Hermosa II, Michele Merano, Leiden Univ. (Netherlands); Andrea Aiello, Max-Planck-Institut für die Physik des Lichts (Germany); Han Woerdman, Leiden Univ. (Netherlands) [7950-14]
- 4:40 pm: **Generation of an optical vortex with a topological charge of $l=4$ by use of double-pass configuration with an axially-symmetric polarization element**, Kazuhiko Oka, Moritsugu Sakamoto, Naoshi Murakami, Ryuji Morita, Naoshi Baba, Hokkaido Univ. (Japan) [7950-15]
- 5:00 pm: **Raman optical activity by light with spin and orbital angular momentum**, Giovanni Milione, Jeff Secor, Gregory Michel, Stefan Evans, Robert R. Alfano, The City College of New York (USA) [7950-16]
- 5:20 pm: **Measurement of angular momentum of light** (*Invited Paper*), Halina H. Rubinsztein-Dunlop, Norman R. Heckenberg, Timo A. Nieminen, The Univ. of Queensland (Australia) [7950-34]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Hybrid vector beam generation, Giovanni Milione, Stefan D. Evans, Robert R. Alfano, The City College of New York (USA) [7950-33]

Thursday 27 January

SESSION 5

Room: 125 (Exhibit level). Thurs. 8:30 to 10:20 am

Theoretical Advances

Session Chair: Gabriel Molina-Terriza, Macquarie Univ. (Australia)

8:30 am: **Waves near varying boundaries: spatial shifts, localization, and Dirichlet points** (*Invited Paper*), Mark R. Dennis, Univ. of Bristol (United Kingdom) [7950-17]

9:00 am: **Cylindrical vector beam generation from a multicore optical fiber**, Giovanni Milione, Henry I. Sztul, Robert R. Alfano, The City College of New York (USA); Daniel A. Nolan, Michael Etienne, Joseph McCarthy, Ji Wang, Corning Inc. (USA) [7950-18]

9:20 am: **Structured light and multipoles**, David L. Andrews, Univ. of East Anglia Norwich (United Kingdom) [7950-19]

9:40 am: **Engineering the spin-orbit coupling of the Rashba-Dresselhaus type for cold atoms**, Gediminas Juzeliunas, Vilnius Univ. (Lithuania) . [7950-20]

10:00 am: **Generalized spherical vector wave functions expansion of arbitrary electromagnetic fields: basic formalism**, Wendel L. Moreira, Univ. Estadual de Campinas (Brazil); Antônio A. R. Neves, Univ. del Salento (Italy); Martin K. Garbos, The International Max-Planck Research School for Optics and Imaging (Germany); Tijmen G. Euser, Philip J. Russell, Max-Planck-Institut für die Physik des Lichts (Germany); Carlos Lenz Cesar, Univ. Estadual de Campinas (Brazil) [7950-21]

Coffee Break 10:20 to 10:50 am

SESSION 6

Room: 125 (Exhibit level). Thurs. 10:50 am to 12:00 pm

Optical Manipulation II

Session Chair: Marat S. Soskin, Institute of Physics (Ukraine)

10:50 am: **Shining new light on counter-propagating trapping geometries** (*Invited Paper*), Jesper Glückstad, Darwin Palima, Sandeep Tauro, Andrew R. Banas, Technical Univ. of Denmark (Denmark) [7950-22]

11:20 am: **Optical waveguide trapping forces on hollow glass spheres**, Pål Lovhagen, Balpreet S. Ahluwalia, Olav G. Hellesø, Univ. of Tromsø (Norway) [7950-23]

11:40 am: **Manipulating functionalized 2PP structures on the BioPhotonics Workstation**, Tomoyo Matsuoka, Masayuki Nishi, Masaaki Sakakura, Kazuyuki Hirao, Kyoto Univ. (Japan); Darwin Palima, Sandeep Tauro, Andrew R. Banas, Jesper Glückstad, Technical Univ. of Denmark (Denmark) [7950-24]

Lunch/Exhibition Break 12:00 to 1:30 pm

SESSION 7

Room: 125 (Exhibit level). Thurs. 1:30 to 3:00 pm

Optical Phase Properties

Session Chair: Grover A. Swartzlander, Jr., Rochester Institute of Technology

1:30 pm: **Optical sculpting** (*Invited Paper*), Kishan Dholakia, Univ. of St. Andrews (United Kingdom) [7950-25]

2:00 pm: **Geometric phase associated with transformations of cylindrical vector beams**, Giovanni Milione, Henry I. Sztul, Robert R. Alfano, The City College of New York (USA) [7950-26]

2:20 pm: **Evolution of optical vortex distributions in stochastic vortex fields**, Filippus S. Roux, National Laser Ctr. Trust (South Africa) [7950-27]

2:40 pm: **Probing quantum cores of optical vortices with atoms**, Jörg B. Götte, Mark R. Dennis, Univ. of Bristol (United Kingdom) [7950-28]

Coffee Break 3:00 to 3:30 pm

SESSION 8

Room: 125 (Exhibit level). Thurs. 3:30 to 5:00 pm

Optical Forces and Trapping

Session Chair: Kishan Dholakia, Univ. of St. Andrews (United Kingdom)

3:30 pm: **Optical lift** (*Invited Paper*), Grover A. Swartzlander, Jr., Rochester Institute of Technology (USA) [7950-29]

4:00 pm: **Microparticle sorting using a slot waveguide splitter**, Shiyun Lin, Kenneth B. Crozier, Harvard Univ. (USA) [7950-30]

4:20 pm: **Optical trapping efficiencies from n-phase cylindrical vector beams**, Brian J. Roxworthy, Kimani C. Toussaint, Jr., Univ. of Illinois at Urbana-Champaign (USA) [7950-31]

4:40 pm: **Characterization of optical trap for metallic particles using external magnetic field**, Vivek S. Jadhav, Wasim A. Sayyad, Univ. of Pune (India) and Anna Univ. (India); Gauri R. Kulkarni, Univ. of Pune (India); B. M. Jaffar Ali, Anna Univ. Chennai (India) [7950-32]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Laser Refrigeration of Solids IV

Conference Chairs: **Richard Epstein**, The Univ. of New Mexico; **Mansoor Sheik-Bahae**, The Univ. of New Mexico

Program Committee: **Rolf H. Binder**, College of Optical Sciences, The Univ. of Arizona; **Steven R. Bowman**, U.S. Naval Research Lab.; **Zameer Ul Hasan**, Temple Univ.; **Jacob B. Khurgin**, The Johns Hopkins Univ.; **Roberto Onofrio**, Dartmouth College; **Yong-Hang Zhang**, Arizona State Univ.

Wednesday 26 January

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Mach-Zehnder interferometric measurement of laser cooling/heating of solids, Carlton W. Farley III, Rami R. Bommareddi, Alabama A&M Univ. (USA) [7951-17]

Sensitive thermal reflectance measurement for laser cooling applications, Mohammadreza Ghasemkhani, Denis Seletskiy, Mansoor Sheik-Bahae, The Univ. of New Mexico (USA) [7951-18]

Thursday 27 January

SESSION 1

Room: 112 (Exhibit Level) Thurs. 8:00 to 10:10 am

Applications of Solid-State Laser Cooling

Session Chair: **Kent L. Miller**, Air Force Office of Scientific Research

8:00 am: **USAF space sensing cryogenic considerations** (*Invited Paper*), Erin Pettyjohn, Air Force Research Lab. (USA) [7951-01]

8:30 am: **Progress toward sub-100 Kelvin operation of an optical cryocooler**, Denis Seletskiy, Richard I. Epstein, Mansoor Sheik-Bahae, The Univ. of New Mexico (USA) [7951-02]

8:50 am: **Higher operating temperature infrared detectors using quantum dots and type II superlattices** (*Invited Paper*), Sanjay Krishna, Ctr. for High Technology Materials (USA) [7951-03]

9:20 am: **Experimental evidence for laser cooling of Yb:YLF to 120 Kelvin**, Seth D. Melgaard, Denis Seletskiy, The Univ. of New Mexico (USA); Alberto Di Lieto, Mauro Tonelli, Univ. di Pisa (Italy); Mansoor Sheik-Bahae, The Univ. of New Mexico (USA) [7951-04]

9:40 am: **Optical cooling in Nd-doped crystals and nanocrystalline powders revisited** (*Invited Paper*), Angel J. Garcia-Adeva, Rolindes Balda, Mohammed Al Saleh, Sara Garcia-Revilla, Joaquin Fernandez, Univ. del País Vasco (Spain) [7951-05]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 112 (Exhibit Level) Thurs. 10:40 am to 12:10 pm

Heat Removal and Radiational Balanced Lasers

Session Chair: **Joaquín Fernández**, Univ. del País Vasco (Spain)

10:40 am: **Raman cooling of semiconductor devices: feasibility study** (*Invited Paper*), Jacob B. Khurgin, The Johns Hopkins Univ. (USA) . . . [7951-06]

11:10 am: **Radiation balanced holmium fiber lasers** (*Invited Paper*), Steven R. Bowman, Nicholas J. Condon, Shawn O'Connor, U.S. Naval Research Lab. (USA); Thomas Ehrenreich, Scott Christensen, Nuferrn (USA) [7951-07]

11:40 am: **A conceptual study of a fiber-optical approach to solid-state laser cooling** (*Invited Paper*), Dan T. Nguyen, College of Optical Sciences, The Univ. of Arizona (USA); Jianfeng Wu, Zhidong Yao, Jie Zong, Arturo Chavez-Pirson, NP Photonics, Inc. (USA); Jeff Weiss, Christopher Shanor, Rudolf Binder, College of Optical Sciences, The Univ. of Arizona (USA) [7951-08]

Lunch/Exhibition Break 12:10 to 1:30 pm

SESSION 3

Room: 112 (Exhibit Level) Thurs. 1:30 to 3:20 pm

Optomechanical and Semiconductor Cooling

Session Chair: **Jacob B. Khurgin**, The Johns Hopkins Univ.

1:30 pm: **Cooling a mechanical resonator near the ground state of motion using a side-band resolved microwave resonator** (*Invited Paper*), Keith C. Schwab, California Institute of Technology (USA) [7951-09]

2:00 pm: **Efficient optomechanical cooling in one-dimensional interferometers** (*Invited Paper*), Peter Domokos, Research Institute for Solid-State Physics and Optics (Hungary); André Xuereb, Timothy G. M. Freegarde, Peter Horak, Univ. of Southampton (United Kingdom) [7951-10]

2:30 pm: **Optomechanical cooling of mechanical oscillators** (*Invited Paper*), Tobias J. Kippenberg, Ecole Polytechnique Fédérale de Lausanne (Switzerland); R. Riviere, Max-Planck-Institut für Quantenoptik (Germany); S. Deleglise, Albert Schliesser, E. Gavartin, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7951-11]

3:00 pm: **GaAs/GaN double heterostructure characterization for laser cooling of semiconductors**, Chengao Wang, Chia-Yeh Li, Michael Hasselbeck, The Univ. of New Mexico (USA); Jerry Olson, National Renewable Energy Lab. (USA); Thomas J. Rotter, Kevin Malloy, Mansoor Sheik-Bahae, The Univ. of New Mexico (USA) [7951-12]

Coffee Break 3:20 to 3:50 pm

SESSION 4

Room: 112 (Exhibit Level) Thurs. 3:50 to 5:20 pm

Laser Cooling in Rare-Earth-doped Solids

Session Chair: **Erin Pettyjohn**, Air Force Research Lab.

3:50 pm: **Laser cooling in materials with high concentration of erbium** (*Invited Paper*), Zameer U. Hasan, Zhengle Qiu, Jonathan Lynch, Temple Univ. (USA) [7951-13]

4:20 pm: **Growth and optical characterization of holmium-doped potassium lead chloride**, Nicholas J. Condon, Steven R. Bowman, Shawn O'Connor, U.S. Naval Research Lab. (USA) [7951-14]

4:40 pm: **Breaking the low phonon energy barrier for laser cooling in rare-earth doped hosts**, Galina A. Nemova, Raman Kashyap, Ecole Polytechnique de Montréal (Canada) [7951-15]

5:00 pm: **Effects of photon transport, emission saturation, and reflection losses on thermophotonic cooling**, Jani Oksanen, Jukka Tulkki, Aalto Univ. School of Science and Technology (Finland) [7951-16]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

Vertical-Cavity Surface-Emitting Lasers XV

Conference Chairs: **James K. Guenter**, Finisar Corp.; **Chun Lei**, EMCORE Corp.

Program Committee: **Kent D. Choquette**, Univ. of Illinois at Urbana-Champaign; **Kent M. Geib**, Sandia National Labs.; **Martin Grabherr**, Philips Technologie GmbH U-L-M Photonics (Germany); **Karlheinz H. Gulden**, Oclaro, Inc.; **Jeong-Ki Hwang**, Avago Technologies Singapore (Singapore); **Fumio Koyama**, Tokyo Institute of Technology (Japan); **Kevin L. Lear**, Colorado State Univ.; **James A. Lott**, VI Systems GmbH (Germany) and Technische Univ. Berlin (Germany); **Krassimir Panajotov**, Vrije Univ. Brussel (Belgium); **Jean-Francois Seurin**, Princeton Optronics, Inc.; **Noriyuki Yokouchi**, The Furukawa Electric Co., Ltd. (Japan)

Wednesday 26 January

SESSION 1

Room: 308 (Esplanade) Wed. 8:30 to 10:10 am

VCSEL for Optical Interconnects

Session Chair: **Chun Lei**, EMCORE Corp.

8:30 am: **Light peak (Invited Paper)**, Hengju Cheng, Jamyuen Ko, Christine Krause, Maiobin Gao, Intel Corp. (USA) [7952-01]

9:00 am: **WDM and parallel optical interconnects for aerospace applications (Invited Paper)**, Duane A. Louderback, Sven Mahnkopf, Tyler J. Eustis, Mitchell Harris, Vera Koleva, Kjersti Kleven, OptiComp Corp. (USA) [7952-02]

9:30 am: **1060nm VCSEL for intra-chip optical interconnection**, Keishi Takaki, Suguru Imai, Shinichi Kamiya, Hitoshi Shimizu, Yasumasa Kawakita, Koji Hiraiwa, Tomohiro Takagi, Hiroshi Shimizu, Junji Yoshida, Takuya Ishikawa, Naoki Tsukiji, Akihiko Kasukawa, The Furukawa Electric Co., Ltd. (Japan) [7952-03]

9:50 am: **850nm oxide high-speed VCSEL development at Avago**, Jingyi Wang, Chen Ji, David Soderstrom, Jian Tong, Laura Giovane, Sumon Ray, Avago Technologies Ltd. (USA); Zheng-Wen Feng, Friedhelm Hopfer, Jeong-Ki Hwang, Avago Technologies Singapore (Singapore); Terry Sale, Sumitro Joyo Taslim, Chen Chu, Avago Technologies Singapore (USA) [7952-04]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 308 (Esplanade) Wed. 10:40 to 11:50 am

Commercial VCSEL Development

Session Chair: **James A. Lott**, VI Systems GmbH (Germany)

10:40 am: **New high speed VCSEL product development at Emcore (Invited Paper)**, Chuan Xie, Nelson Li, Wenlin Luo, Chun Lei, Xinyu Sun, Livia Zhao, Dan Jensen, EMCORE Corp. (USA) [7952-05]

11:10 am: **High power VCSEL systems for tailored intensity distributions**, Holger Moench, Philips Research (Germany); Michael Miller, Philips Technologie GmbH U-L-M Photonics (Germany); Stephan Gronenborn, Peter Loosen, Fraunhofer-Institut für Lasertechnik (Germany) [7952-06]

11:30 am: **Record high temperature high-output power red VCSELS**, Klein Johnson, Mary Hibbs-Brenner, William Hogan, Matthew Dummer, Kabir Dogubo, Garrett Berg, Vixar (USA) [7952-07]

Lunch/Exhibition Break 11:50 am to 1:30 pm

SESSION 3

Room: 308 (Esplanade) Wed. 1:30 to 2:50 pm

VCSEL Reliability and Characterization

Session Chair: **Martin Grabherr**, Philips Technologie GmbH U-L-M Photonics (Germany)

1:30 pm: **Phenomenological study of VCSEL wearout reliability**, James K. Guenter, Bobby Hawkins, Robert A. Hawthorne III, Finisar Corp. (USA) [7952-08]

1:50 pm: **Reliability study of encapsulated VCSELS**, Kent D. Choquette, Daniel M. Grasso, Matthias Kasten, Univ. of Illinois at Urbana-Champaign (USA); David McElfresh, Daniel Vacar, Leoncio D. Lopez, Oracle (USA) [7952-09]

2:10 pm: **Spin induced gigahertz polarization oscillations in vertical-cavity surface-emitting laser devices**, Mingyuan Li, Jaehme Hendrik, Henning Soldat, Nils C. Gerhardt, Martin R. Hofmann, Ruhr-Univ. Bochum (Germany); Thorsten Ackemann, Univ. of Strathclyde (United Kingdom) [7952-10]

2:30 pm: **Electrical characterization of tunnel junction based long wavelength VCSELS**, Antonio Consoli, Univ. Politécnic de Madrid (Spain); Julia Arias, Univ. Miguel Hernández de Elche (Spain); Jose Manuel Tijero, Francisco J. López Hernández, Ignacio Esquivias, Univ. Politécnic de Madrid (Spain) [7952-11]

Coffee Break 2:50 to 3:30 pm

SESSION 4

Room: 308 (Esplanade) Wed. 3:30 to 5:00 pm

VCSEL Sensors and Applications

Session Chair: **Kent M. Geib**, Sandia National Labs.

3:30 pm: **Single-mode and tunable GaSb-based VCSELS for wavelengths above 2 μm (Invited Paper)**, Markus-Christian Amann, Shamsul Arafin, Kristijonas Vizbaras, Walter Schottky Institute (Germany) [7952-12]

4:00 pm: **Modeling of compact Pd coated VCSELS for hydrogen sensing**, Christopher A. Edwards, Gautam Shine, Lynford Goddard, Univ. of Illinois at Urbana-Champaign (USA) [7952-13]

4:20 pm: **A VCSEL based system for on site monitoring of low level methane emission**, Arun Kannath, Geotechnical Instruments (UK) Ltd. (United Kingdom) and Geotechnical Instruments Ltd, Leamington Spa (United Kingdom); Jane Hodgkinson, Cranfield Univ. (United Kingdom); Richard Gillard, Roger Riley, Geotechnical Instruments (UK) Ltd. (United Kingdom); Ralph P. Tatam, Cranfield Univ. (United Kingdom) [7952-14]

4:40 pm: **Efficient vertical-cavity surface-emitting lasers for infrared illumination applications**, Jean-Francois Seurin, Guoyang Xu, Baiming Guo, Alexander Miglo, Qing Wang, Prachi Pradhan, James D. Wynn, Viktor Khafin, Wei-Xiong Zou, Chuni Ghosh, Robert Van Leeuwen, Princeton Optronics, Inc. (USA) [7952-15]

Thursday 27 January

SESSION 5

Room: 308 (Esplanade) Thurs. 8:30 to 10:10 am

High Speed VCSELS

Session Chair: **James K. Guenter**, Finisar Corp.

8:30 am: **High-speed highly temperature stable 980 nm VCSELS operating at 25 Gb/s at up to 85 °C for short reach optical interconnects (Invited Paper)**, Alex Mutig, Technische Univ. Berlin (Germany); James A. Lott, VI Systems GmbH (Germany); Sergey S. Blokhin, Philip Moser, Philip Wolf, Werner Hofmann, Alexey M. Nadochiy, Alexey Payusov, Dieter Bimberg, Technische Univ. Berlin (Germany) [7952-16]

9:00 am: **Energy efficient VCSEL digital modulation sources (Invited Paper)**, Kent D. Choquette, Univ. of Illinois (USA) [7952-17]

9:30 am: **High-speed single-mode quantum dot and quantum well VCSELS**, Nikolai N. Ledentsov, VI Systems GmbH (Germany); Alexey M. Nadochiy, Technische Univ. Berlin (Germany); Sergey A. Blokhin, Connector Optics LLC (Russian Federation); Philip Wolf, Philip Moser, Technische Univ. Berlin (Germany); James A. Lott, Vitaly A. Shchukin, VI Systems GmbH (Germany); Werner Hofmann, Dieter Bimberg, Technische Univ. Berlin (Germany) [7952-18]

9:50 am: **Higher speed VCSELS by photon lifetime reduction**, Petter Westbergh, Johan Gustavsson, Benjamin Kögel, Åsa Haglund, Anders Larsson, Chalmers Univ. of Technology (Sweden); Andrew Joel, IQE Europe Ltd. (United Kingdom) [7952-19]

Coffee Break 10:10 to 10:30 am

SESSION 6

Room: 308 (Esplanade) Thurs. 10:30 am to 12:20 pm

Innovative VCSEL Structures

Session Chair: Kent D. Choquette, Univ. of Illinois at Urbana-Champaign

10:30 am: **Fully microfabricated VCSEL at 850 nm** (*Invited Paper*), Darwin K. Serkland, Kent M. Geib, Gordon A. Keeler, Gregory M. Peake, Sandia National Labs. (USA) [7952-20]

11:00 am: **Feedback in close-coupled axial VCSEL-photodiode pairs**, Kent M. Geib, Darwin K. Serkland, Gregory M. Peake, Sandia National Labs. (USA); Victoria M. Sanchez, L&M Technologies, Inc. (USA) [7952-21]

11:20 am: **Transverse mode selection and injection locking in 1550-nm multimode VCSELs induced by optical injection**, Ana Quirce, Angel Valle, Univ. de Cantabria (Spain); Antonio Hurtado, Univ. of Essex (United Kingdom); Luis Pesquera, Univ. de Cantabria (Spain); Michael J. Adams, Univ. of Essex (United Kingdom) [7952-22]

11:40 am: **Scaling properties of lithographic VCSELs**, Abdullah Demir, Guowei Zhao, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Sabine Freisem, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) and sdPhotonics, LLC (USA); Xiaohang Liu, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Dennis Deppe, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) and sdPhotonics, LLC (USA) [7952-23]

12:00 pm: **Dual-wavelength vertical-cavity surface-emitting lasers based on asymmetric photonic crystal structures**, Baolu Guan, Xia Guo, Beijing Univ. of Technology (China) [7952-24]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

SC1012 Coherent Mid-Infrared Sources and Applications (Vodopyanov) Monday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Don't miss the free Photonics West Exhibition

See new products and top companies at the most important event for the photonics and laser industry

25-27 January 2011

Tuesday · 10:00 am to 5:00 pm

Wednesday · 10:00 am to 5:00 pm

Thursday · 10:00 am to 4:00 pm

Novel In-Plane Semiconductor Lasers X

Conference Chairs: **Alexey A. Belyanin**, Texas A&M Univ.; **Peter M. Smowton**, Cardiff Univ. (United Kingdom)

Program Committee: **Martin Achtenhagen**, Photodigm, Inc.; **Yasuhiko Arakawa**, The Univ. of Tokyo (Japan); **Dan Botez**, Univ. of Wisconsin-Madison; **David Bour**, Palo Alto Research Center, Inc.; **Federico Capasso**, Harvard Univ.; **Claire F. Gmachl**, Princeton Univ.; **Michael Kneissl**, Technische Univ. Berlin (Germany); **Hui Chun Liu**, National Research Council Canada (Canada); **Luke J. Mawst**, Univ. of Wisconsin-Madison; **Jerry R. Meyer**, U.S. Naval Research Lab.; **Jesper Moerk**, Technical Univ. of Denmark (Denmark); **Mario J. Paniccia**, Intel Corp.; **Richard V. Penty**, Univ. of Cambridge (United Kingdom); **Johann Peter Reithmaier**, Univ. Kassel (Germany); **Nelson Tansu**, Lehigh Univ.

Monday 24 January

SESSION 1

Room: 310 (Esplanade) Mon. 8:10 to 10:00 am

Low Dimensional Materials

Session Chair: **Johann Peter Reithmaier**, Univ. Kassel (Germany)

- 8:10 am: **Quantum dot composite light sources**, David W. Grund, Jr., Dennis W. Prather, Univ. of Delaware (USA) [7953-01]
- 8:30 am: **Gain and absorption characteristics of bilayer quantum dot lasers beyond 1.3 μm**, Abdul Majid Mohammed, Hifsa Shahid, Siming C. Chen, David T. Childs, Robert J. Airey, Kenneth Kennedy, Richard A. Hogg, The Univ. of Sheffield (United Kingdom); Edmund M. Clarke, Peter Spencer, Ray Murray, Imperial College London (United Kingdom) [7953-02]
- 8:50 am: **nanopatterned quantum dot active region lasers on InP substrates (Invited Paper)**, Luke J. Mawst, Joo Hyung Park, Y. Huang, Jeremy Kirch, Univ. of Wisconsin-Madison (USA); Yongkun Sin, Brendan Foran, The Aerospace Corp. (USA); Chi-Chun Liu, Paul F. Nealey, Thomas F. Kuech, Univ. of Wisconsin-Madison (USA) [7953-03]
- 9:20 am: **Temperature dependence and physical properties of GaAsSb/GaAs QW lasers**, Nadir Hossain, Konstanze Hild, Shirong R. Jin, Stephen J. Sweeney, Univ. of Surrey (United Kingdom); Shui-Qing Yu, Univ. of Arkansas (USA); Shane R. Johnson, Ding Ding, Yong-Hang Zhang, Arizona State Univ. (USA) [7953-04]
- 9:40 am: **The lateral ambipolar diffusion length in quantum dot lasers**, Deepal Naidu, Angela Sobiesierski, Peter M. Smowton, Cardiff Univ. (United Kingdom) [7953-05]
- Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 310 (Esplanade) Mon. 10:30 am to 12:20 pm

Grating Coupled

Session Chair: **Luke J. Mawst**, Univ. of Wisconsin-Madison

- 10:30 am: **Lateral current injection GaInAsP/InP laser for membrane based photonic circuits (Invited Paper)**, Shigehisa Arai, Nobuhiko Nishiyama, Tadashi Okumura, Takahiko Shindo, Tokyo Institute of Technology (Japan) . . . [7953-06]
- 11:00 am: **700-730nm emitting deep etched DBR InP/AlGaInP quantum dot lasers**, Sam Shutts, Gareth T. Edwards, Peter M. Smowton, Cardiff Univ. (United Kingdom) [7953-07]
- 11:20 am: **Index-coupled holographically patterned 1.3μm quantum dot distributed feedback lasers fabricated with a combined MBE/MOCVD process**, Junjie Hu, David J. Klotzkin, Binghamton Univ. (USA); Jia-Sheng Huang, Xinyu Sun, Nelson Li, EMCORE Corp. (USA) [7953-08]
- 11:40 am: **High power distributed feedback and Fabry-Perot Al-free laser diodes at 780 nm for rubidium pumping**, Charles Cayron, Michael Tran, Michel Lecomte, Yannick Robert, Michel Calligaro, Olivier Parillaud, Michel Krakowski, Alcatel-Thales III-V Lab. (France) [7953-09]
- 12:00 pm: **Narrow-linewidth distributed feedback lasers with laterally-coupled ridge-waveguide surface gratings fabricated using nanoimprint lithography**, Mihail M. Dumitrescu, Jarkko Telkkala, Antti I. Laakso, Jukka Viheriala, Jukka Karinen, Tomi Leinonen, Markus Pessa, Tampere Univ. of Technology (Finland) [7953-10]
- Lunch Break 12:20 to 1:30 pm

SESSION 3

Room: 310 (Esplanade) Mon. 1:30 to 3:10 pm

Telecom/Datacom

- Session Chair: **Richard V. Penty**, Univ. of Cambridge (United Kingdom)
- 1:30 pm: **Cross saturation characteristics of inhomogeneously broadened InP quantum dash optical amplifiers: fundamental properties and applications (Invited Paper)**, Gadi Eisenstein, Technion-Israel Institute of Technology (Israel) [7953-11]
- 2:00 pm: **Development of 1.3μm high-speed directly-modulated DFB and DBR lasers with surface gratings**, Mihail M. Dumitrescu, Antti I. Laakso, Jukka Karinen, Jukka Viheriala, Tampere Univ. of Technology (Finland); Johann Peter Reithmaier, Univ. Kassel (Germany); Martin Kamp, Julius-Maximilians-Univ. Würzburg (Germany); Ivo Montrosset, Paolo Bardella, Politecnico di Torino (Italy); Gadi Eisenstein, Technion-Israel Institute of Technology (Israel); Petteri Uusimaa, Petri Melanen, Modulight, Inc. (Finland) [7953-12]
- 2:20 pm: **1.55μm directly modulated CCIG lasers fabricated by surface-defined lateral feedback gratings**, Sohaib Afzal, Florian Schnabel, Wenzel Scholz, Johann Peter Reithmaier, Univ. Kassel (Germany); Gadi Eisenstein, Amir Capua, Evgeny Shumakher, Technion-Israel Institute of Technology (Israel); Olivier Parillaud, Michel Krakowski, Alcatel-Thales III-V Lab. (France) . [7953-13]
- 2:40 pm: **40 Gbit/s directly modulated lasers: physics and application (Invited Paper)**, Ute Troppenz, Jochen Kreissl, Martin Möhrle, Carsten Bornholdt, Wolfgang Rehbein, Bernd Sartorius, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Ian Woods, Cogo Optronics Inc. (Canada); Martin Schell, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) [7953-14]
- Coffee Break 3:10 to 3:40 pm

SESSION 4

Room: 310 (Esplanade) Mon. 3:40 to 5:50 pm

Nitrides

Session Chair: **Michael Kneissl**, Technische Univ. Berlin (Germany)

- 3:40 pm: **Recent results of blue and green InGaN laser diodes for laser projection (Invited Paper)**, Stephan Lutgen, Adrian Avramescu, Teresa Lermer, Christoph Eichler, Jens Müller, Georg Bruederl, Alvaro Gomez-Iglesias, Uwe Strauss, OSRAM Opto Semiconductors GmbH (Germany); Wolfgang G. Scheibenzuber, Ulrich T. Schwarz, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Bernhard Pasenow, Stephan W. Koch, Philipps-Univ. Marburg (Germany) [7953-15]
- 4:10 pm: **Gain characteristics of deep UV AlGaIn quantum wells lasers**, Jing Zhang, Hongping Zhao, Nelson Tansu, Lehigh Univ. (USA) [7953-16]
- 4:30 pm: **Plasmonic cladding InGaN MQW laser diodes (Invited Paper)**, Piotr Perlin, Katarzyna Holc, Marcin Sarzynski, Michal Leszczynski, Robert Czernecki, Lucja Marona, Przemek Wisniewski, adek Suski, Institute of High Pressure Physics (Poland) [7953-17]
- 5:00 pm: **High peak power picosecond optical pulse generation from GaInN semiconductor diode lasers (Invited Paper)**, Rintaro Koda, Sony Corp. (Japan) and Tohoku Univ. (Japan); Tomoyuki Oki, Sony Corp. (Japan); Takao Miyajima, Sony Corp. (Japan) and Tohoku Univ. (Japan); Hideki Watanabe, Sony Corp. (Japan) and Tohoku Univ. (Japan); Shunsuke Kono, Tohoku Univ. (Japan); Masaru Kuramoto, Masao Ikeda, Sony Corp. (Japan); Hiroyuki Yokoyama, Tohoku Univ. (Japan) [7953-18]
- 5:30 pm: **Dynamics of GaN-based laser diodes from ultraviolet to green**, Wolfgang G. Scheibenzuber, Ulrich T. Schwarz, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Teresa Lermer, Jens Müller, Stephan Lutgen, Uwe Strauss, OSRAM Opto Semiconductors GmbH (Germany) [7953-19]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA);
Klaus P. Streubel, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**,
Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper
Awards in OPTO, Stephen J. Eglash**, Precourt Institute
for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display
Application, Chang-Dong Kim**, LG Display R&D Ctr.
(Republic of Korea)

8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell**, Max-
Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**,
Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 5

Room: 310 (Esplanade) Tues. 10:30 am to 12:10 pm

Quantum Cascade Lasers I

Session Chair: **Claire F. Gmachl**, Princeton Univ.

10:30 am: **Quantum cascade lasers: genetic algorithm design and
broadband operation**, Jerome Faist, Romain Terazzi, Alfredo Bismuto, Andreas
Hugi, Matthias Beck, ETH Zurich (Switzerland) [7953-20]

11:10 am: **The relevance of positive differential conductivity for quantum
cascade lasers (Invited Paper)**, Andreas Wacker, Lund Univ. (Sweden) [7953-21]

11:40 am: **Temperature dependence of the key electro-optical
characteristics for mid-infrared emitting quantum cascade lasers
(Invited Paper)**, Dan Botez, Univ. of Wisconsin-Madison (USA); Sushil Kumar,
Massachusetts Institute of Technology (USA); Jae-Cheol Shin, Luke J. Mawst,
Univ. of Wisconsin-Madison (USA); Igor Vurgaftman, Jerry R. Meyer, U.S. Naval
Research Lab. (USA) [7953-22]

Lunch/Exhibition Break 12:10 to 1:30 pm

SESSION 6

Room: 310 (Esplanade) Tues. 1:30 to 2:50 pm

THz Quantum Cascade Lasers I

Session Chair: **Mikhail A. Belkin**, The Univ. of Texas at Austin

1:30 pm: **High-temperature operation and broad tunability of terahertz
quantum-cascade lasers (Invited Paper)**, Sushil Kumar, Lehigh Univ. (USA);
Qi Qin, Chun W. I. Chan, Qing Hu, Massachusetts Institute of Technology (USA);
John L. Reno, Sandia National Labs. (USA) [7953-23]

2:00 pm: **Broadband emission from THz quantum cascade lasers**, Dana
Turcinkova, Giacomo Scalari, Maria Amanti, Matthias Beck, Jerome Faist, ETH
Zurich (Switzerland) [7953-24]

2:20 pm: **Terahertz quantum cascade lasers with designer plasmonic
collimators (Invited Paper)**, Nanfang Yu, Harvard Univ. (USA); Qi Jie Wang,
Nanyang Technological Univ. (Singapore); Mikhail A. Kats, Jonathan A. Fan,
Harvard Univ. (USA); Suraj P. Khanna, Lianhe Li, Alexander G. Davies, Edmund
H. Linfield, Univ. of Leeds (United Kingdom); Federico Capasso, Harvard Univ.
(USA) [7953-25]

Coffee Break 2:50 to 3:30 pm

SESSION 7

Room: 310 (Esplanade) Tues. 3:30 to 5:10 pm

THz Lasers II

Session Chair: **Nanfang Yu**, Harvard Univ.

3:30 pm: **Phase-locking and synthesis of terahertz quantum cascade laser
emission (Invited Paper)**, Stefano Barbieri, Marco Ravano, Pierre Gellie, Univ.
Paris 7-Denis Diderot (France); Giorgio Santarelli, LNE-SYRTE, CNRS, UPMC
(France); Christophe Manquest, Carlo Sirtori, Univ. Paris 7-Denis Diderot
(France); Suraj P. Khanna, Edmund H. Linfield, Univ. of Leeds (United
Kingdom) [7953-26]

4:00 pm: **Monolithically integrated THz transceivers (Invited Paper)**,
Michael C. Wanke, Mark Lee, Christopher D. Nordquist, Michael J. Cich,
Sandia National Labs. (USA); Albert D. Grine, LMATA Government Services
(USA); Chuck T. Fuller, John L. Reno, Sandia National Labs. (USA) . . [7953-27]

4:30 pm: **Stimulated Smith-Purcell semiconductor THz sources**,
Don D. Smith, Texas A&M Univ. (USA) [7953-28]

4:50 pm: **Upper limits on terahertz difference frequency generation power
in quantum well heterostructures**, Yong-Hee Cho, Texas A&M Univ. (USA);
Mikhail A. Belkin, The Univ. of Texas at Austin (USA); Alexey A. Belyanin, Texas
A&M Univ. (USA) [7953-29]

Wednesday 26 January

SESSION 8

Room: 310 (Esplanade) Wed. 8:10 to 10:20 am

Silicon Photonics

Joint Session with Conference 7943

Session Chair: **Mario J. Paniccia**, Intel Corp.

8:10 am: **A monolithic Ge-on-Si laser (Invited Paper)**, Lionel C. Kimerling,
Massachusetts Institute of Technology (USA) [7953-30]

8:40 am: **Carrier recombination mechanisms in monolithically integrated
Ga(NAsP)/(BGa)P QW lasers on Si**, Nadir Hossain, Shirong R. Jin, Stephen
J. Sweeney, Univ. of Surrey (United Kingdom); Sven Liebich, Peter Ludewig,
Martin Zimprich, Kerstin Volz, Philipps-Univ. Marburg (Germany); Bernardette
Kunert, NAsP III/V GmbH (Germany); Wolfgang Stolz, Philipps-Univ. Marburg
(Germany) [7953-31]

9:00 am: **Electrically pumped diode lasers on silicon substrates based on
Ga(NAsP)/GaP multi-quantum well heterostructures**, Stephan Rogowsky,
Ralf Ostendorf, Gudrun Kaufel, Wilfried Pletschen, Joachim Wagner,
Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Sven
Liebich, Kerstin Volz, Wolfgang Stolz, Martin Zimprich, Philipps-Univ. Marburg
(Germany); Bernardette Kunert, NAsP III/V GmbH (Germany) [7953-32]

9:20 am: **Hybrid silicon ring laser (Invited Paper)**, Di Liang, Marco Fiorentino,
Hewlett-Packard Labs. (USA); John E. Bowers, Univ. of California, Santa
Barbara (USA); Raymond G. Beausoleil, Hewlett-Packard Labs.
(USA) [7943-46]

9:50 am: **Self-organized InAs quantum dot tube lasers and integrated
optoelectronics on Si (Invited Paper)**, Zetian Mi, Pablo Bianucci, Feng Li,
Zhaobing Tian, Venkat Veerasubramanian, Andrew G. Kirk, David V. Plant,
McGill Univ. (Canada); Philip J. Poole, National Research Council Canada
(Canada) [7943-47]

Coffee Break 10:20 to 10:50 am

SESSION 9

Room: 310 (Esplanade) Wed. 10:50 am to 12:20 pm

High Power I

Session Chair: **Paul O. Leisher**, nLIGHT Corp.

10:50 am: **Wavelength-stabilized pump diodes for wide operating
temperature range frequency-doubled green lasers (Invited Paper)**, Manoj
Kanskar, David Barton, Jason Cai, Toby Garrod, Yiping He, Michael Klaus,
Thomas Klos, Richard Lu, Michael G. Martin, Robert S. Williamson III, Don
Olson, Alfalight, Inc. (USA) [7953-33]

11:20 am: **670nm nearly diffraction limited tapered lasers with more than
30% conversion efficiency and 1 W cw and 3 W pulsed output power**, Bernd
Sumpf, Pawel Adamiec, Hans Wenzel, Götz Erbert, Günther Tränkle, Ferdinand-
Braun-Institut für Höchstfrequenztechnik (Germany) [7953-34]

11:40 am: **Versatile 1 W narrow band 976 nm light source**, Stefan Mohrdiek, Hans-Ulrich Pfeiffer, Evgeny A. Zibik, Boris N. Sverdlov, Norbert Lichtenstein, Tomas Pliska, Oclaro, Inc. (Switzerland) [7953-35]

12:00 pm: **1 W semiconductor based laser module with a narrow linewidth emitting near 1064 nm**, Stefan Spiessberger, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany); Max Schiemangk, Humboldt-Univ. zu Berlin (Germany); Alexander Sahn, Andreas Wicht, Hans Wenzel, Jörg Fricke, Götz Erbert, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany) [7953-36]

Lunch/Exhibition Break 12:20 to 1:50 pm

SESSION 10

Room: 310 (Esplanade) Wed. 1:50 to 3:30 pm

Mid-infrared Lasers

Session Chair: Dan Botez, Univ. of Wisconsin-Madison

1:50 pm: **Advances in the development of type-I quantum well GaSb-based diode lasers** (*Invited Paper*), Gregory Belenky, Leon Shterengas, Stony Brook Univ. (USA); Gela Kipshidze, Stony Brook Univ. (USA) and Power Photonic Corp. (USA); Takashi Hosoda, Jianfeng Chen, Stony Brook Univ. (USA) [7953-37]

2:20 pm: **High-power continuous-wave interband cascade lasers**, William W. Bewley, Chadwick L. Canedy, Chul Soo Kim, Mijin Kim, J. Ryan Lindle, Joshua Abell, Igor Vurgaftman, Jerry R. Meyer, U.S. Naval Research Lab. (USA) [7953-38]

2:40 pm: **Room-temperature 4.0- μ m broadened optical pumping injection cavity lasers**, Linda J. Olafsen, Lauren E. Bain, Baylor Univ. (USA); William W. Bewley, Igor Vurgaftman, Jerry R. Meyer, U.S. Naval Research Lab. (USA); Hao Lee, Sarnoff Corp. (USA) and Applied Optoelectronics Inc. (USA); Ramon U. Martinelli, Sarnoff Corp. (USA) [7953-39]

3:00 pm: **InGaAs/AlInAs quantum cascade laser sources based on intracavity second harmonic generation emitting in 2.6 - 3.6 micron range** (*Invited Paper*), Mikhail A. Belkin, Min Jang, Robert W. Adams, The Univ. of Texas at Austin (USA); Jianxin Chen, William O. Charles, Claire F. Gmachl, Princeton Univ. (USA); Liwei Cheng, Fow-Sen Choa, Univ. of Maryland, Baltimore County (United States); Xiaojun Wang, Mariano Troccoli, AdTech Optics, Inc. (USA); Augustinas Vizbaras, Matthias Anders, Christian Grasse, Markus-Christian Amann, Walter Schottky Institute (Germany) [7953-40]

Coffee Break 3:30 to 4:00 pm

SESSION 11

Room: 310 (Esplanade) Wed. 4:00 to 6:00 pm

Mid-infrared QCLs

Session Chair: Jerry R. Meyer, U.S. Naval Research Lab.

4:00 pm: **High average power short wavelength InGaAs/AlAs(Sb)/InP quantum cascade lasers** (*Invited Paper*), Dmitry G. Revin, Kenneth Kennedy, Shiyong Y. Zhang, Paul Commin, Andrey B. Krysa, John W. Cockburn, The Univ. of Sheffield (United Kingdom) [7953-41]

4:30 pm: **High performance quantum cascade lasers with broadband gain spectra** (*Invited Paper*), Yu Yao, Princeton Univ. (USA); Xiaojun Wang, Jen-Yu Fan, AdTech Optics, Inc. (USA); William O. Charles, Tracy R. Tsai, Princeton Univ. (USA); Jianxin Chen, Princeton Univ. (USA) and Shanghai Institute of Technical Physics, Chinese Academy of Science (China); Gerard Wysocki, Claire F. Gmachl, Princeton Univ. (USA) [7953-42]

5:00 pm: **Transport and gain in quantum cascade laser: model and equivalent circuit**, Jacob B. Khurgin, Yamac Dikmelik, The Johns Hopkins Univ. (USA) [7953-43]

5:20 pm: **Mode synchronization and multistability in quantum cascade lasers**, Aleksander K. Wojcik, Texas A&M Univ. (USA); Nanfang Yu, Laurent Diehl, Federico Capasso, Harvard Univ. (USA); Alexey A. Belyanin, Texas A&M Univ. (USA) [7953-44]

5:40 pm: **3.5- μ m strain balanced GaInAs/AlInAs quantum cascade lasers operating at room temperature**, Feng Xie, Catherine G. Caneau, Herve P. LeBlanc, Nick J. Visovsky, Lawrence C. Hughes, Jr., Chung-En Zah, Corning Incorporated (USA); Yin Wang, Gerard Wysocki, Princeton Univ. (USA) [7953-47]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Molecular beam epitaxy for high spectral bandwidth quantum dot sources for optical coherence tomography applications, Abdul Majid Mohammed, Maxime Hugues, David T. Childs, Kenneth Kennedy, Richard A. Hogg, The Univ. of Sheffield (United Kingdom) [7953-64]

Comparison of gain measurement techniques for 1.3 μ m quantum dot lasers, Hifsa Shahid, David T. Childs, Benjamin J. Stevens, Richard A. Hogg, The Univ. of Sheffield (United Kingdom) [7953-65]

Optical gain in erbium lithium niobate titanium diffused waveguides, Garrett A. Ejzak, Dennis W. Prather, Univ. of Delaware (USA) [7953-66]

Controlled intermixing of multiple quantum wells for broadly tunable integrated lasers, Abdullah J. Zakariya, Nathan Bickel, Patrick LiKamWa, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) [7953-67]

Low threshold short cavity quantum cascade lasers, Xing Chen, Liwei Cheng, Dingkai Guo, Fow-Sen Choa, Terrance Worchesky, Univ. of Maryland, Baltimore County (USA) [7953-69]

Thermal investigation of mid-infrared quantum cascade lasers under quasi-continuous-wave operations, Xing Chen, Liwei Cheng, Dingkai Guo, Fow-Sen Choa, Terrance Worchesky, Univ. of Maryland, Baltimore County (USA) [7953-70]

Thursday 27 January

SESSION 12

Room: 310 (Esplanade) Thurs. 8:30 to 10:00 am

High Power II

Session Chair: Gary A. Evans, Photodigm, Inc.

8:30 am: **Performance and reliability of high power 7xx nm laser diodes** (*Invited Paper*), Ling Bao, Jun Wang, Mark A. Devito, Dapeng Xu, Mike Grimshaw, Weimin Dong, Xingguo Guan, Hua Huang, Shiguo Zhang, Damian Wise, Robert J. Martinsen, Jim Haden, nLIGHT Corp. (USA) [7953-45]

9:00 am: **Very high modulation efficiency two-sections tapered laser diode at 1060nm for free space optical communications**, Myke Ruiz, Nicolas Michel, Michel Calligaro, Yannick Robert, Michel Lecomte, Olivier Parillaud, Michel Krakowski, Alcatel-Thales III-V Lab. (France); Ignacio Esquivias, Helena Odriozola, Jose Manuel Garcia Tijero, Univ. Politécnica de Madrid (Spain); Chi-Hang Kwok, Richard V. Penty, Ian H. White, Univ. of Cambridge (United Kingdom) [7953-46]

9:20 am: **Compact ps-pulse laser source with free adjustable repetition rate and nJ pulse energy on microbench**, Andreas Klehr, Armin Liero, Thomas Hoffmann, Sven Schwertfeger, Hans Wenzel, Götz Erbert, Wolfgang Heinrich, Günther Tränkle, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany) [7953-47]

9:40 am: **Low-cost high-reliability 830nm single mode lasers for consumer electronics and CtP applications**, Julien Boucart, Evgeny Zibik, Boris N. Sverdlov, Jürgen Müller, Oclaro Switzerland AG (Switzerland); Chris Button, David C. Inder, Oclaro, Inc. (United Kingdom); Norbert Lichtenstein, Oclaro Switzerland AG (Switzerland) [7953-48]

Coffee Break 10:00 to 10:30 am

SESSION 13

Room: 310 (Esplanade) Thurs. 10:30 am to 12:20 pm

High Power III

Session Chair: **Martin Achtenhagen**, Photodigm, Inc.

10:30 am: **Mitigation of thermal lensing effect as a brightness limitation of fiber coupled laser diodes**, John G. Bai, Paul O. Leisher, Chendong Bai, Louis J. Bintz, David C. Dawson, Ling Bao, Jun Wang, Mark A. DeVito, Robert J. Martinsen, Jim Haden, nLIGHT Corp. (USA) [7953-49]

10:50 am: **reliable operation of 976nm high power DFB broad area diode lasers with over 60% power conversion efficiency (Invited Paper)**, Paul A. Crump, Christoph Schultz, Hans Wenzel, Steffen Knigge, Olaf Brox, Andre Maassdorf, Frank Bugge, Götz Erbert, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany) [7953-50]

11:20 am: **Emission characteristics of Transvers-Bragg-Resonance lasers**, Danilo Skoczowski, Christof Zink, Axel M. Heuer, Ralf Menzel, Univ. Potsdam (Germany) [7953-51]

11:40 am: **A novel approach to finite-aperture tapered unstable resonator lasers**, Martin Spreemann, Bernd Eppich, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany); Mark Lichtner, Weierstrass Institut für Angewandte Analysis und Stochastik (Germany); Hans Wenzel, Götz Erbert, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany) [7953-52]

12:00 pm: **Control of slow axis mode behavior with waveguide phase structures in semiconductor broad-area lasers**, Hans-Christoph Eckstein, Uwe D. Zeitner, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Wolfgang Schmid, Uwe Strauss, OSRAM Opto Semiconductors GmbH (Germany) [7953-53]

Lunch/Exhibition Break 12:20 to 1:30 pm

SESSION 14

Room: 310 (Esplanade) Thurs. 1:30 to 3:20 pm

Mid-IR Lasers and Applications I

Session Chair: **Mariano Troccoli**, AdTech Optics, Inc.

1:30 pm: **Recent results on widely tunable quantum cascade lasers (Invited Paper)**, Timothy Day, David Caffey, David F. Arnone, Miles J. Weida, Daylight Solutions Inc. (USA) [7953-54]

2:00 pm: **High performance continuous-wave room temperature 4.0 μm quantum cascade lasers with single-facet optical emission exceeding 2 watts**, Arkadiy A. Lyakh, Richard Maulini, Alexei G. Tsekoun, Rowel Go, Steven Von der Porten, Pranalytica, Inc. (USA); Christian J. Pflügl, Laurent Diehl, Federico Capasso, Harvard Univ. (USA); Chandra Kumar N. Patel, Pranalytica, Inc. (USA) [7953-55]

2:20 pm: **Highly power efficient distributed feedback quantum cascade lasers at 4.55 μm**, Mariano Troccoli, Xiaojun Wang, Jenyu Fan, AdTech Optics, Inc. (USA) [7953-56]

2:40 pm: **Broadband quantum cascade laser arrays for mid-infrared spectroscopy**, Christian J. Pflügl, Laurent Diehl, Stefan Menzel, Romain Blanchard, Harvard Univ. (USA); Anish K. Goyal, Christine A. Wang, Antonio Sanchez, George W. Turner, MIT Lincoln Lab. (USA); Yong Huang, Jae-Hyun Ryou, Russell D. Dupuis, Georgia Institute of Technology (USA); Federico Capasso, Harvard Univ. (USA) [7953-57]

3:00 pm: **Spectral beam combining of infrared quantum cascade laser arrays**, Ralf Ostendorf, Stefan Hugger, Rolf Aidam, Rainer Loesch, Quankui K. Yang, Wolfgang Bronner, Rachid Driad, Frank Fuchs, Joachim Wagner, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Michael Raab, Eugen Romasew, Hans-Dieter Tholl, Diehl BGT Defence GmbH & Co. KG (Germany) [7953-58]

Coffee Break 3:20 to 3:50 pm

SESSION 15

Room: 310 (Esplanade) Thurs. 3:50 to 5:50 pm

Mid-IR Lasers and Applications II

Session Chair: **Stefan Menzel**, Harvard Univ.

3:50 pm: **Design and operation of mid-IR integrated DBR tunable lasers**, Liwei Cheng, Fow-Sen Choa, Univ. of Maryland, Baltimore County (USA) [7953-59]

4:10 pm: **Type-I GaSb based diode single lateral mode lasers operating at room temperature in 3.1 - 3.2 μm spectral region**, Gene Tsvaid, Stony Brook Univ. (USA); Alexander Soibel, Jet Propulsion Lab. (USA); Takashi Hosoda, Jianfeng Chen, Gela Kipshidze, Leon Shterengas, Stony Brook Univ. (USA); Clifford F. Frez, Siamak Forouhar, Jet Propulsion Lab. (USA); Gregory Belenky, Stony Brook Univ. (USA) [7953-60]

4:30 pm: **Broad area lasers with folded-resonator geometry for integrated transverse mode selection**, Dirk Hoffmann, Klaus Huthmacher, Christoph Döring, Henning Fouckhardt, Technische Univ. Kaiserslautern (Germany) [7953-61]

4:50 pm: **Near-IR induced negative photoconductance and its relationship with optical quenching of mid-IR quantum cascade lasers (QCLs)**, Dingkai Guo, Liwei Cheng, Xing Chen, Fow-Sen Choa, Terrance Worchesky, Univ. of Maryland, Baltimore County (USA) [7953-62]

5:10 pm: **Novel mid-IR coupling technique**, David Shyu, Fow-Sen Choa, Xing Chen, Univ. of Maryland, Baltimore County (USA); Sudhir B. Trivedi, Brimrose Corp. of America (USA) [7953-63]

5:30 pm: **Two-dimensional surface emitting single mode quantum cascade laser arrays**, Elvis Mujagic, Clemens Schwarzer, Werner Schrenk, Gottfried Strasser, Technische Univ. Wien (Austria); Yu Yao, Princeton Univ. (USA); Jianxin Chen, Shanghai Institute of Technical Physics (China); Claire F. Gmachl, Princeton Univ. (USA) [7953-64]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC818 Laser Beam Quality (Paschotta) Tuesday, 8:30 am to 12:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

SC1012 Coherent Mid-Infrared Sources and Applications (Vodopyanov) Monday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XV

Conference Chairs: **Klaus P. Streubel**, OSRAM GmbH (Germany); **Li-Wei Tu**, National Sun Yat-Sen Univ. (Taiwan); **Heonsu Jeon**, Seoul National Univ. (Korea, Republic of)

Conference Co-Chair: **Norbert Linder**, OSRAM Opto Semiconductors GmbH (Germany)

Program Committee: **Gerd Bacher**, Univ. Duisburg-Essen (Germany); **Mitch M. C. Chou**, National Sun Yat-Sen Univ. (Taiwan); **Michael Heuken**, AIXTRON AG (Germany); **Z. Rena Huang**, Rensselaer Polytechnic Institute; **Satoshi Kamiyama**, Meijo Univ. (Japan); **Jong Kyu Kim**, Pohang Univ. of Science and Technology (Korea, Republic of); **Markus Klein**, OSRAM Opto Semiconductors GmbH (Germany); **Michael R. Krames**, Soraa, Inc.; **Kei May Lau**, Hong Kong Univ. of Science and Technology (Hong Kong, China); **Kurt J. Linden**, Spire Corp.; **Hans Nikol**, Philips Lighting B.V. (Netherlands); **E. Fred Schubert**, Rensselaer Polytechnic Institute; **Jerry A. Simmons**, Sandia National Labs.; **Ross P. Stanley**, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland)



Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA); **Klaus P. Streubel**, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks**, **Liang-Chy Chien**, Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO**, **Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display Application**, **Chang-Dong Kim**, LG Display R&D Ctr. (Republic of Korea)

8:50 am: **Nanoscopy with Focused Light**, **Stefan W. Hell**, Max-Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier**, **Eli Yablonovitch**, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

SESSION 1

Room: 304 (Esplanade) Tues. 10:30 am to 12:30 pm

Special Session on Light and Health: Human Factors for SSL

Session Chair: **Klaus P. Streubel**, OSRAM GmbH (Germany)

10:30 am: **Energy efficient lighting for the human biological clock** (*Invited Paper*), **Dieter Lang**, OSRAM GmbH (Germany) [7954-01]

11:00 am: **Human preference in tunable solid state lighting** (*Invited Paper*), **Jeremy M. Spaulding**, **Maria R. Thompson**, **Robert E. Levin**, OSRAM SYLVANIA Inc. (USA) [7954-02]

11:30 am: **Human health and well-being: promises for a bright future from solid state lighting** (*Invited Paper*), **Mark S. Rea**, Rensselaer Polytechnic Institute (USA) [7954-03]

12:00 pm: **Daytime light, performance, and sleep** (*Invited Paper*), **Dieter Kunz**, Charité Universitätsmedizin Berlin (Germany) [7954-04]

Lunch/Exhibition Break 12:30 to 1:50 pm

SESSION 2

Room: 304 (Esplanade) Tues. 1:50 to 3:30 pm

High Current Performance and Droop Effect in LEDs I

Session Chair: **Jong Kyu Kim**, Pohang Univ. of Science and Technology (Korea, Republic of)

1:50 pm: **The efficiency droop in GaInN light-emitting diodes** (*Invited Paper*), **E. Fred Schubert**, **Jaehee Cho**, Rensselaer Polytechnic Institute (USA) [7954-05]

2:20 pm: **Reduction of the efficiency droop effect of a light-emitting diode through surface plasmon coupling**, **Chih-Feng Lu**, **Che-Hao Liao**, **Chih-Yen Chen**, **Chieh Hsieh**, **Yean-Woei Kiang**, **Chih-Chung Yang**, National Taiwan Univ. (Taiwan) [7954-06]

2:40 pm: **Improvement in efficiency droop of GaN-based light-emitting diodes by optimization of active regions** (*Invited Paper*), **Chao-Hsun Wang**, **Da-Wei Lin**, **Shih-Pang Chang**, **Zhen-Yu Li**, **Jinchai Li**, National Chiao Tung Univ. (Taiwan); **Hung-Chih Yang**, **Epistar Corp.** (Taiwan); **Hao-Chung Kuo**, **Tien-Chang Lu**, **Shing-Chung Wang**, National Chiao Tung Univ. (Taiwan) [7954-07]

3:10 pm: **Microscopic model for internal efficiency of InGaN light-emitting diodes**, **Weng W. Chow**, **Mary Crawford**, Sandia National Labs. (USA) [7954-08]

Coffee Break 3:30 to 4:00 pm

SESSION 3

Room: 304 (Esplanade) Tues. 4:00 to 5:30 pm

LED Applications and SSL

Session Chair: **Kei May Lau**, Hong Kong Univ. of Science and Technology (Hong Kong, China)

4:00 pm: **Randomized micro lens arrays for color mixing** (*Invited Paper*), **Julius A. Muschaweck**, OSRAM Opto Semiconductors GmbH (Germany) [7954-09]

4:30 pm: **Intelligent sensor for color and proximity control in solid state lighting applications**, **Alex Gourevitch**, **Thomas Thurston**, **Rajiv Singh**, **Bartosz Banachowicz**, **Vladimir Korobov**, **Cliff Drowley**, Cypress Semiconductor Corp. (USA) [7954-10]

4:50 pm: **Effect of C-plane coverages of patterned sapphire substrate on the lighting efficiency of GaN-based LED**, **Hong-yu Lin**, National Central Univ. (Taiwan) [7954-11]

5:10 pm: **Glare effect of LED indoor illumination**, **Chun-Ming Yeh**, **Yung-Tsan Chen**, National Chung Cheng Univ. (Taiwan); **Shih-Wei Feng**, National Univ. of Kaohsiung (Taiwan); **Chu-Chi Ting**, National Chung Cheng Univ. (Taiwan); **Fang-Hsuan Cheng**, **Chung Hua Univ.** (Taiwan); **Hsiang-chen Wang**, National Chung Cheng Univ. (Taiwan) [7954-12]

Wednesday 26 January

SESSION 4

Room: 304 (Esplanade) Wed. 8:00 to 10:10 am

High Current Performance and Droop Effect in LEDs II

Session Chair: **E. Fred Schubert**, Rensselaer Polytechnic Institute

8:00 am: **Materials challenges in group-III nitride high efficiency devices** (*Invited Paper*), Fernando Ponce, Arizona State Univ. (USA) [7954-51]

8:30 am: **Improvement of efficiency droop by employing InAlN electron blocking layers in III-N visible LEDs grown by metalorganic chemical vapor deposition** (*Invited Paper*), Russell D. Dupuis, Suk Choi, Jeomoh Kim, Hee-Jin Kim, Mi-Hee Ji, Jae-Hyun Ryou, P. Douglas Yoder, Georgia Institute of Technology (USA); Kewei Sun, Alec M. Fischer, Reid Juday, Fernando Ponce, Arizona State Univ. (USA) [7954-13]

9:00 am: **Polarization-mismatch-reduced AlGaN/GaN multiple quantum well light-emitting diodes with reduced efficiency droop** (*Invited Paper*), Jong Kyu Kim, Pohang Univ. of Science and Technology (Korea, Republic of); E. Fred Schubert, Jaehee Cho, Martin Schubert, Rensselaer Polytechnic Institute (USA); Hun-Jae Chung, Samsung Electro-Mechanics (Korea, Republic of) [7954-14]

9:30 am: **Density-activated defect recombination as a possible explanation for the efficiency droop in GaN-based diodes**, Jörg Hader, Jerom V. Moloney, College of Optical Sciences, The Univ. of Arizona (USA); Stephan W. Koch, Philipps-Univ. Marburg (Germany) [7954-15]

9:50 am: **Carrier recombination mechanisms and efficiency droop in GaInN/GaN light-emitting diodes**, Qi Dai, Qifeng Shan, Jing Wang, Sameer Chhajer, Jaehee Cho, E. Fred Schubert, Rensselaer Polytechnic Institute (USA); Mary H. Crawford, Daniel D. Koleske, Sandia National Labs. (USA); Min-Ho Kim, Yongjo Park, Samsung Electro-Mechanics (Korea, Republic of) [7954-16]

Coffee Break 10:10 to 10:30 am

SESSION 5

Room: 304 (Esplanade) Wed. 10:30 to 11:40 am

LED Manufacturing and Applications

Session Chair: **Michael R. Krames**, Soraa, Inc.

10:30 am: **High productivity MOCVD reactors for LED mass production** (*Invited Paper*), Christof Sommerhalder, Brian Dlugosch, AIXTRON Inc. / Genus (USA); R. Poesche, A. Boyd, Bernd Schineller, AIXTRON AG (Germany); Michael Heuken, AIXTRON AG (Germany) and RWTH Aachen (Germany) [7954-17]

11:00 am: **Characteristics of a linear position sensor based on a bi-cell photodiode**, Igor Friedland, Amit Brandes, Elbit Systems Electro-Optics El-Op Ltd. (Israel) [7954-18]

11:20 am: **A flexible rugged testbed for passive solar collector development**, Balaji Srinivasan, A. N. Bharathwaj, Anand Mishra, Indian Institute of Technology Madras (India) [7954-19]

Lunch/Exhibition Break 11:40 am to 12:50 pm

SESSION 6

Room: 304 (Esplanade) Wed. 12:50 to 2:20 pm

Novel Substrates for LEDs

Session Chair: **Michael Heuken**, AIXTRON AG (Germany)

12:50 pm: **Direct microscopic correlation of optical and structural properties of non-polar m-plane GaN on patterned Si substrates using cathodoluminescence spectroscopy** (*Invited Paper*), Jürgen Christen, Frank Bertram, Sebastian Metzner, Otto-von-Guericke-Univ. Magdeburg (Germany); Xianfeng Ni, Natalia Izyumskaya, Hadis Morkoç, Virginia Commonwealth Univ. (USA) [7954-20]

1:20 pm: **Non-polar GaInN-Based light-emitting diodes: an approach for wavelength-stable and polarized-light emitters** (*Invited Paper*), Theeradetch Detchprohm, Christian Wetzels, Rensselaer Polytechnic Institute (USA) [7954-21]

1:50 pm: **Growth of nonpolar GaN crystals on the alternate substrates** (*Invited Paper*), Mitch M. C. Chou, Chenlong Chen, Jin-Wei Lu, Chu-An Li, National Sun Yat-Sen Univ. (Taiwan) [7954-22]

SESSION 7

Room: 304 (Esplanade) Wed. 2:20 to 3:30 pm

UV Emitting LEDs

Session Chair: **Gerd Bacher**, Univ. Duisburg-Essen (Germany)

2:20 pm: **High-power AlInGaN deep UV LED lamps and their system applications** (*Invited Paper*), Asif M. Khan, Univ. of South Carolina (USA) [7954-23]

2:50 pm: **Efficient 350 nm LEDs on low edge threading dislocation density AlGaIn buffer layers**, Richard Gutt, Thorsten Passow, Wilfried Pletschen, Michael Kunzer, Lutz Kirste, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Kamran Forghani, Ferdinand Scholz, Univ. Ulm (Germany); Klaus Köhler, Joachim Wagner, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany) [7954-24]

3:10 pm: **ITO/Al based reflector for high-power UV LEDs via thermal and plasma treatments**, Dong Ju Chae, Dong Yoon Kim, Dong Ho Kim, Su Jin Kim, Korea Univ. (Korea, Republic of); Seong-Ran Jeon, Korea Photonics Technology Institute (Korea, Republic of); Tae Geun Kim, Korea Univ. (Korea, Republic of) [7954-25]

Coffee Break 3:30 to 4:00 pm

SESSION 8

Room: 304 (Esplanade) Wed. 4:00 to 6:00 pm

Nanomaterials and Nanostructures for LEDs

Session Chair: **Mitch M. C. Chou**, National Sun Yat-Sen Univ. (Taiwan)

4:00 pm: **Nitride Nanowire structures for LED applications** (*Invited Paper*), Henning Riechert, Paul-Drude-Institut für Festkörperelektronik (Germany) [7954-26]

4:30 pm: **III-nitride nanowires: novel materials for solid-state lighting** (*Invited Paper*), George T. Wang, Qiming Li, Jianyu Huang, A. Alec Talin, Andrew Armstrong, Sandia National Labs. (USA); Prashanth Upadhyaya, Rohit Prasankumar, Los Alamos National Lab. (USA) [7954-27]

5:00 pm: **Enhancement of light extraction efficiency of InGaIn quantum wells light-emitting diodes using TiO₂ microsphere arrays**, Xiao-Hang Li, Yik-Khoon Ee, Renbo Song, Nelson Tansu, Lehigh Univ. (USA) [7954-28]

5:20 pm: **White light emitting devices based on ZnO-Si nanoparticle multilayers**, Ekaterina Neshataeva, Tilmar Kümmell, Gerd Bacher, Univ. Duisburg-Essen (Germany); Andre Ebbens, Degussa Consumer Solutions (Germany) [7954-29]

5:40 pm: **Nanostructure-based anti-reflection coatings for EO/IR sensor applications**, Ashok K. Sood, Roger E. Welsler, Adam W. Sood, Yash R. Puri, Magnolia Optical Technologies, Inc. (USA); E. Fred Schubert, Rensselaer Polytechnic Institute (USA); Dennis L. Polla, Defense Advanced Research Projects Agency (USA); Martin B. Soprano, U.S. Army Research, Development and Engineering Command (USA) [7954-50]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Hybrid nanocrystal enhanced white light emitting diode, Roza Shirazi, Oleksii Kopylov, Beata Kardynal, Technical Univ. of Denmark (Denmark) [7954-30]

Enhanced optical emission from organic light-emitting diode mediated with gold nanoparticles, Soh Fukui, Go Obara, Akira Zenidaka, Yuto Tanaka, Shinichi Takahashi, Minoru Obara, Keio Univ. (Japan) [7954-45]

Electroluminescence kinetics of variable-gap HgCdTe structures with Ohmic contacts, Bogdan S. Sokolovsky, Roman M. Kovtun, Ivan Franko National Univ. of L'viv (Ukraine); Anna V. Shevchenko, National Taras Shevchenko Univ. of Kyiv (Ukraine) [7954-46]

Improved electrical properties of Ni/Al Ohmic contacts to nonpolar a-plane n-type GaN, Dong Ho Kim, Su Jin Kim, Dong Ju Chae, Dong Yoon Kim, Korea Univ. (Korea, Republic of); Sung Min Hwang, Korea Electronics Technology Institute (Korea, Republic of); Tae Geun Kim, Korea Univ. (Korea, Republic of) [7954-47]

Enhancement of the light extraction efficiency of GaN-based vertical light-emitting diodes with nanosphere lithography technique, Ji Won Yang, Jae In Sim, Ho Myoung An, Dong Ho Kim, Su Jin Kim, Kai-Ming Ho, Tae Geun Kim, Korea Univ. (Korea, Republic of) [7954-48]

Efficiency enhancement of blue InGaN LEDs with indium composition graded InGaN barriers, Tsun-Hsin Wang, Jih-Yuan Chang, Miao-Chan Tsai, Yen Kuang Kuo, National Changhua Univ. of Education (Taiwan) [7954-49]

Thursday 27 January

SESSION 9

Room: 304 (Esplanade) Thurs. 8:10 to 10:00 am

OLEDs and OLED Lighting

Session Chair: Ross P. Stanley, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland)

8:10 am: **Light-emitting electrochemical cells (LECs): next-generation lighting devices based on liquid processes and ionic organometallic complexes** (*Invited Paper*), Wiebke Sarfert, David Hartmann, Guenter Schmid, Sebastian Meier, Siemens AG (Germany); Hendrik Bolink, Univ. de València (Spain) [7954-31]

8:40 am: **Layer cross-fading in OVPD-based OLED for optimized carrier distribution and exciton recombination** (*Invited Paper*), Holger Kalisch, Florian Lindla, Manuel Bösing, RWTH Aachen (Germany); Dietrich Bertram, Philips Technologie GmbH (Germany); Andrei Vescan, RWTH Aachen (Germany); Michael Heuken, AXTRON AG (Germany) and RWTH Aachen (Germany); Rolf H. Jansen, RWTH Aachen (Germany) [7954-32]

9:10 am: **New concept for In-Line OLED manufacturing** (*Invited Paper*), Uwe Hoffmann, Heike Landgraf, Manuel Campo, Stefan Keller, Michael Koenig, Applied Materials GmbH (Germany) [7954-33]

9:40 am: **Adapted OLED stacks enabling accurate emitter characterization**, Michael Flämmich, Dirk Michaelis, Norbert Danz, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7954-34]

Coffee Break 10:00 to 10:30 am

SESSION 10

Room: 304 (Esplanade) Thurs. 10:30 am to 12:20 pm

Phosphors for LEDs

Session Chair: Kurt J. Linden, Spire Corp.

10:30 am: **Photometric design for color-conversion LEDs using narrow-emitter nanophosphors** (*Invited Paper*), Hilmi V. Demir, Nanyang Technological Univ. (Singapore) [7954-35]

11:00 am: **Luminescent features of novel sol-gel derived lanthanide doped oxyfluoride nano-structured phosphors for white LED**, Artur S. Gouveia-Neto, Andréa da Silva, Luciano Bueno, Ernande Costa, Univ. Federal Rural de Pernambuco (Brazil) [7954-36]

11:20 am: **Electrical properties of O₂ plasma-treated Ti/Al ohmic contacts to N-face n-type GaN**, Su Jin Kim, Tae Yang Nam, Dong Ho Kim, Tae Geun Kim, Korea Univ. (Korea, Republic of) [7954-37]

11:40 am: **Process to measure particulate down-converting phosphors and create well-correlated software models of LED performance**, Michael W. Zollers, Optical Research Associates (USA); Jonathan H. Melman, Haitao Yang, Xiaofeng Xu, Intematix Corp. (USA); Stuart David, Optical Research Associates (USA) [7954-38]

12:00 pm: **Luminescent ceramics for LED conversion**, Krister Bergenek, Dominik Eisert, OSRAM Opto Semiconductors GmbH (Germany); Mark Hannah, John Kelso, OSRAM SYLVANIA Inc. (USA); Alexander Linkov, OSRAM Opto Semiconductors GmbH (Germany); Madis Raukas, Matt Stough, George C. Wei, OSRAM SYLVANIA Inc. (USA); Ralph Wirth, OSRAM Opto Semiconductors GmbH (Germany); Yi Zheng, Nate Zink, OSRAM SYLVANIA Inc. (USA) [7954-39]

Lunch/Exhibition break 12:20 to 1:40 pm

SESSION 11

Room: 304 (Esplanade) Thurs. 1:40 to 3:30 pm

Novel Technologies for LED Design and Fabrication

Session Chair: Satoshi Kamiyama, Meijo Univ. (Japan)

1:40 pm: **Development of patterned sapphire substrate and the application to grow nonpolar and semipolar GaN for light-emitting diodes** (*Invited Paper*), Kazuyuki Tadatomo, Yamaguchi Univ. (Japan) [7954-40]

2:10 pm: **Novel approaches to realizing chemical lift-off of GaN epilayer from sapphire substrate** (*Invited Paper*), Ray-Hua Horng, National Cheng Kung Univ. (Taiwan) and National Chung Hsing Univ. (Taiwan); Tsung-Yen Tsai, Cheng-Ying Yen, Ming-Tsung Hung, Chun-Ting Pan, Dong-Sing Wu, National Chung Hsing Univ. (Taiwan) [7954-41]

2:40 pm: **Novel approaches for high-efficiency InGaN quantum wells light-emitting diodes: device physics and epitaxy engineering** (*Invited Paper*), Nelson Tansu, Hongping Zhao, Jing Zhang, Guangyu Liu, Yik-Khoon Ee, Hua Tong, Takahiro Toma, Xiao-Hang Li, Gen-Sheng Huang, Lehigh Univ. (USA) [7954-42]

3:10 pm: **Optimisation of pattern geometry and investigation of physical mechanisms contributing to improved light extraction from patterned substrate LEDs**, Martin D. B. Charlton, Univ. of Southampton (United Kingdom); Sean Linn, Dennis Yu, Unilite Corp. (Taiwan) [7954-43]

Courses of Related Interest

SC011 Design of Efficient Illumination Systems (Cassarly) Monday, 1:30 to 5:30 pm

SC052 Light-Emitting Diodes (Schubert) Monday, 8:30 am to 12:30 pm

SC657 Accurate Measurement of LED Optical Properties (Tirpak) Monday, 8:30 am to 12:30 pm

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC958 LED & Solid-State Lighting Standardization (Jiao) Monday, 1:30 to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Emerging Liquid Crystal Technologies VI

Conference Chair: **Liang-Chy Chien**, Kent State Univ.

Conference Co-Chair: **Hiroshi Yokoyama**, Kent State Univ.

Program Committee: **Dirk J. Broer**, Technische Univ. Eindhoven (Netherlands); **Vladimir G. Chigrinov**, Hong Kong Univ. of Science and Technology (Hong Kong, China); **Harry J. Coles**, Univ. of Cambridge (United Kingdom); **Gregory P. Crawford**, Univ. of Notre Dame; **Andy Y. Fuh**, National Cheng Kung Univ. (Taiwan); **Otto Wolfgang Haase**, Technische Univ. Darmstadt (Germany); **Jun-ichi Hanna**, Tokyo Institute of Technology (Japan); **Hirotsugu Kikuchi**, Kyushu Univ. (Japan); **Heinz-Siegfried Kitzerow**, Univ. Paderborn (Germany); **Shunsuke Kobayashi**, Tokyo Univ. of Science (Japan); **Seung Hee Lee**, Chonbuk National Univ. (Korea, Republic of); **Antonio Martins Figueiredo Neto**, Univ. de São Paulo (Brazil); **Akihiro Mochizuki**, Nano Loa, Inc.; **Masanori Ozaki**, Osaka Univ. (Japan); **Ci-Ling Pan**, National Tsing Hua Univ. (Taiwan); **Ryo Sakurai**, Bridgestone Corp. (Japan); **Ivan I. Smalyukh**, Univ. of Colorado at Boulder; **Richard L. Sutherland**, Mount Vernon Nazarene Univ.; **Shin-Tson Wu**, CREOL, The College of Optics and Photonics, Univ. of Central Florida; **Tae-Hoon Yoon**, Pusan National Univ. (Korea, Republic of)

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA);
Klaus P. Streubel, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**,
Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper
Awards in OPTO, Stephen J. Eglash**, Precourt Institute
for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display
Application, Chang-Dong Kim**, LG Display R&D Ctr.
(Republic of Korea)

8:50 am: **Nanoscscopy with Focused Light, Stefan W. Hell**, Max-
Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**,
Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

KEYNOTE SESSION

Room: 208/210 (Mezzanine) Tues. 10:30 to 11:10 am

Session Chair: **Liang-Chy Chien**, Kent State Univ.

10:30 am: **Liquid crystal photonic crystal fibers and their applications**,
Tomasz R. Wolinski, Warsaw Univ. of Technology (Poland) [7955-33]

SESSION 1

Room: 208/210 (Mezzanine) Tues. 11:10 am to 12:40 pm

Organic Semiconductors

Session Chair: **Liang-Chy Chien**, Kent State Univ.

11:10 am: **Discotic-decorated nanomaterials (Invited Paper)**, Sandeep Kumar,
Raman Research Institute (India) [7955-01]

11:40 am: **Liquid crystallinity in organic field effect transistor materials
(Invited Paper)**, Jun-ichi Hanna, Hiroaki Iino, Tokyo Institute of Technology
(Japan) [7955-02]

12:10 pm: **Liquid crystalline phthalocyanines as a self-assembling
organic semiconductor for solution-processing thin film devices (Invited
Paper)**, Yasuo Miyake, National Institute of Advanced Industrial Science and
Technology (Japan) and Osaka Univ. (Japan); Tetsuro Hori, Hiroyuki Yoshida,
Osaka Univ. (Japan); Hirosato Monobe, National Institute of Advanced Industrial
Science and Technology (Japan); Akihiko Fujii, Masanori Ozaki, Osaka Univ.
(Japan); Yo Shimizu, National Institute of Advanced Industrial Science and
Technology (Japan) and Osaka Univ. (Japan) [7955-03]

Lunch/Exhibition Break 12:40 to 1:40 pm

SESSION 2

Room: 208/210 (Mezzanine) Tues. 1:40 to 2:40 pm

Grating, Beam Steering, and Photonic Bandgap Devices

Session Chair: **Richard L. Sutherland**, Mount Vernon Nazarene Univ.

1:40 pm: **Photonic bandgaps controllable blue phase liquid crystal (Invited
Paper)**, Tsung-Hsien Lin, Chun-Ta Wang, Hu-Y Liu, National Sun Yat-Sen Univ.
(Taiwan) [7955-04]

2:10 pm: **Optically-tunable beam steering grating based on azobenzene
doped cholesteric liquid crystal (Invited Paper)**, Andy Y. Fuh, Hung-Chang
Jau, National Cheng Kung Univ. (Taiwan); Tsung-Hsien Lin, National Sun Yat-
Sen Univ. (Taiwan); San-Yi Huang, Jui-Hsiang Liu, National Cheng Kung Univ.
(Taiwan) [7955-05]

SESSION 3

Room: 208/210 (Mezzanine) Tues. 2:40 to 3:30 pm

Adaptive Optics and Optical Microcavities

Session Chair: **Harry J. Coles**, Univ. of Cambridge (United Kingdom)

2:40 pm: **Pancharatnam-Berry phase in the optical near field (Invited Paper)**,
Hiroshi Yokoyama, Kent State Univ. (USA) [7955-06]

3:10 pm: **Tunable liquid crystal optical microcavities**, Igor Muševic, Univ. of
Ljubljana (Slovenia); Matjaz Humar, Jožef Stefan Institute (Slovenia) [7955-07]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 208/210 (Mezzanine) Tues. 4:00 to 6:00 pm

Nonlinear Optics, Lasing, and Waveguide

Session Chair: **Andy Y.-G. Fuh**, National Cheng Kung Univ. (Taiwan)

4:00 pm: **Non-linear optical response of native and oxidized lyotropic-like
low and high-density lipoproteins studied by using the Z-scan technique
(Invited Paper)**, Antonio Martins Figueiredo Neto, Magnus A. Gidlund, Sarah
Alves, Andrea M. Monteiro, Univ. de São Paulo (Brazil); Sylvia Carneiro, Institutul
Butantan (Brazil); Sergio L. Gomez, Univ. Estadual de Ponta Grossa
(Brazil) [7955-08]

4:30 pm: **Three-dimensional finite element modeling of liquid crystal
devices (Invited Paper)**, Pieter J. M. Vanbrabant, Jeroen Beeckman, Kristiaan
Neyts, Univ. Gent (Belgium); Richard W. James, Eero Willman, F. Anibal
Fernandez, Univ. College London (United Kingdom) [7955-09]

5:00 pm: **Multimodal nonlinear optical polarizing microscopy of long-range
orientational order in liquid crystals (Invited Paper)**, Ivan I. Smalyukh, Rahul P.
Trivedi, Taewoo Lee, Univ. of Colorado at Boulder (USA) [7955-10]

5:30 pm: **High efficiency "white light" liquid crystal lasers for use on flexible
substrates (Invited Paper)**, Harry J. Coles, Damian J. Gardiner, Stephen M.
Morris, Philip J. W. Hands, Timothy D. Wilkinson, Univ. of Cambridge (United
Kingdom) [7955-11]

Wednesday 26 January

SESSION 5

Room: 208/210 (Mezzanine) Wed. 8:00 to 10:00 am

Advances in Display Technologies

Session Chair: **Tae-Hoon Yoon**,
Pusan National Univ. (Korea, Republic of)

8:00 am: **Solvent-less repair inks for color filters** (*Invited Paper*), Huang-Ming P. Chen, National Chiao Tung Univ. (Taiwan); Feng-Chin Tang, Wen-Jen Hsieh, Yu-Chuan Lin, Chunghwa Picture Tubes, Ltd. (Taiwan) [7955-12]

8:30 am: **Recent advances in optically-isotropic liquid crystals for emerging display applications** (*Invited Paper*), Meizi Jiao, Jin Yan, Shin-Tson Wu, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) [7955-13]

9:00 am: **A wide-viewing-angle liquid-crystal display using front-scattering film and directional backlight**, Takashi Saruta, Keio Univ. (Japan); Akihiro Tagaya, Japan Science and Technology Agency (Japan); Yasuhiro Koike, Keio Univ. (Japan) [7955-14]

9:20 am: **Wide temperature range blue phase liquid crystals for Kerr effect devices**, Jie Xiang, Shin-Ying Lu, Jeoung-Yeon Hwang, Liang-Chy Chien, Kent State Univ. (USA) [7955-15]

9:40 am: **Tuning liquid crystal properties at hybrid glasses interfaces with polarized self-inscribing guided waves**, Mark P. Andrews, Timothy Gonzalez, McGill Univ. (Canada); Tigran Galstian, Univ. Laval (Canada) [7955-16]

Coffee Break 10:00 to 10:20 am

SESSION 6

Room: 208/210 (Mezzanine) Wed. 10:20 am to 12:20 pm

Alignment and Nanostructured Surfaces

Session Chair: **Hiroshi Yokoyama**, Kent State Univ.

10:20 am: **Bent-core alignment layers** (*Invited Paper*), Elizabeth K. Mann, Wilder G. Iglesias, Kent State Univ. (USA); Timothy J. Smith, Case Western Reserve Univ. (USA); Prem Basnet, Sharon Stefanovic, Kent State Univ. (USA); Carsten Tschierske, Martin-Luther-Univ. Halle-Wittenberg (Germany); Antal I. Jakli, Kent State Univ. (USA); Daniel J. Lacks, Case Western Reserve Univ. (USA) [7955-17]

10:50 am: **A new liquid crystal application: lithography and optoelectronics** (*Invited Paper*), Hee-Tae Jung, Yunho Kim, Doingki Yoon, Hyeonsu Jeong, KAIST (Korea, Republic of) [7955-18]

11:20 am: **Nematic liquid crystal interfaces for biological and chemical detection** (*Invited Paper*), Bharat R. Acharya, Platypus Technologies (USA) [7955-19]

11:50 am: **Polar and biaxial properties of mesophases derived from bent-core mesogens with an acute-subtended angle** (*Invited Paper*), E-Joon Choi, Kumoh National Institute of Technology (Korea, Republic of); Ji-Hoon Lee, Korea Univ. (Korea, Republic of); Wang-Cheol Zin, Pohang Univ. of Science and Technology (Korea, Republic of) [7955-32]

Lunch/Exhibition Break 12:20 to 1:20 pm

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

SESSION 7

Room: 208/210 (Mezzanine) Wed. 1:20 to 3:40 pm

Photonic and Optical Response Materials

Session Chair: **Ivan I. Smalyukh**, Univ. of Colorado at Boulder

1:20 pm: **LC/polymer composite and its applications in photonics devices** (*Invited Paper*), Xiao Wei Sun, HaiTao Dai, Nanyang Technological Univ. (Singapore) and Tianjin Univ. (China); Dan Luo, Yanjun Liu, Nanyang Technological Univ. (Singapore) [7955-20]

1:50 pm: **Light-responsive actuation materials based on azo-containing liquid-crystalline polymers** (*Invited Paper*), Yanlei Yu, Xiaoying Li, Zeng Yan, Ze Feng, Futao Cheng, Fudan Univ. (China) [7955-21]

2:20 pm: **Optically responsive liquid crystal microfibers for display and nondisplay applications** (*Invited Paper*), Ebru A. Buyuktanir, John L. West, Kent State Univ. (USA); Margaret W. Frey, Cornell Univ. (USA) [7955-22]

2:50 pm: **Coupled surface plasmon resonance sensor with sensitive liquid crystal layer**, Alaeddin S. Abu-Abed, Univ. of Central Oklahoma (USA); Shadi A. Alboon, Yarmouk Univ. (Jordan); Yongbin Lin, Robert G. Lindquist, The Univ. of Alabama in Huntsville (USA) [7955-23]

3:10 pm: **Liquid crystalline block copolymers for macroscopic nanodomain orientation and photoinduced microphase separation** (*Invited Paper*), Dehui Han, Yi Zhao, Xia Tong, Yue Zhao, Univ. de Sherbrooke (Canada) [7955-34]

Coffee Break 3:40 to 4:00 pm

SESSION 8

Room: 208/210 (Mezzanine) Wed. 4:00 to 5:50 pm

Switchable Filters and Reflectors

Session Chair: **Antonio Martins Figueiredo Neto**,
Univ. de São Paulo (Brazil)

4:00 pm: **Liquid crystal Bragg filters** (*Invited Paper*), Richard L. Sutherland, Mount Vernon Nazarene Univ. (USA); Lalgudi V. Natarajan, Vincent P. Tondiglia, SAIC (USA); Christopher A. Bailey, Madeline Duning, Anastasia Voevodin, Timothy J. White, Timothy J. Bunning, Air Force Research Lab. (USA) [7955-24]

4:30 pm: **Optical properties and applications of liquid crystals in the THz frequency range** (*Invited Paper*), Ci-Ling Pan, National Tsing Hua Univ. (Taiwan) [7955-25]

5:00 pm: **Light directed effects in cholesteric liquid crystal reflectors** (*Invited Paper*), Timothy J. White, Air Force Research Lab. (USA) [7955-26]

5:30 pm: **Origin of iridescence in chiral nematic phase nanocrystalline cellulose for encryption and enhanced color**, Mark P. Andrews, Yu-Ping Zhang, Andrew G. Kirk, Vamsy P. Chodavarapu, McGill Univ. (Canada)[7955-27]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Holographic polymer dispersed liquid crystal system utilizing the copolymerizations with siloxane compounds and polypropylene glycol derivatives, Tomoe Takano, Makio Kurashige, Kazutoshi Ishida, Yasuyuki Ohyagi, Masachika Watanabe, Dai Nippon Printing Co., Ltd. (Japan); YeongHee Cho, Pusan National Univ. (Korea, Republic of) [7955-28]

Viewing angle enhancement of inverse twisted nematic liquid crystal displays with four domains by alternating alignment technique, Jun-Hee Na, Jong-Ho Hong, Sin-Doo Lee, Seoul National Univ. (Korea, Republic of)[7955-29]

Pixelated liquid crystal laser using a sol-gel microcavity, Na Young Ha, Seong Hwan Lee, Ajou Univ. (Korea, Republic of) [7955-30]

Fabrication of highly periodic patterning using cholesteric liquid crystal mask, Hyeonsu Jeong, Yunho Kim, Jisun Lee, Junghyun Kim, Hee-Tae Jung, KAIST (Korea, Republic of) [7955-31]

OPTO

E-papers and Flexible Displays

Conference Chair: **Karlheinz Blankenbach**, Pforzheim Univ. (Germany)

Conference Co-Chair: **Liang-Chy Chien**, Kent State Univ.

Program Committee: **Janglin Chen**, Industrial Technology Research Institute (Taiwan); **Jurgen H. Daniel**, Palo Alto Research Center, Inc.; **Paul S. Drzaic**, Drzaic Consulting Services; **Mark Fihn**, Veritas et Visus; **Norbert Fruehauf**, Univ. Stuttgart (Germany); **Alex Henzen**, IREX Technologies (Netherlands); **Koichi Kanzaki**, Consultant (Japan); **Takashi Kitamura**, Chiba Univ. (Japan); **Kars-Michiel H. Lenssen**, Philips Research Nederland B.V. (Netherlands); **Keith Rollins**, DuPont Teijin Films U.K. Ltd. (United Kingdom); **Robert A. Sprague**, SiPix Imaging Inc.; **Chris Williams**, Logystyx UK Ltd. (United Kingdom)

Wednesday 26 January

SESSION 1

Room: 238 (Mezzanine). Wed. 8:00 to 10:05 am

Flexible Displays and Electronics

Session Chair: **Karlheinz Blankenbach**, Pforzheim Univ. (Germany)

8:00 am: **Human factors and optical design considerations for mobile display applications** (*Invited Paper, Presentation Only*), Ulrich Barnhoefer, Apple Inc. (USA) [7956A-01]

8:25 am: **Printing technology for displays and electronic systems** (*Invited Paper*), Jurgen Daniel, Tse Nga Ng, Ana Claudia Arias, Leah Lavery, Sean M. Garner, Brent S. Krusor, Beverly Russo, Palo Alto Research Center, Inc. (USA). [7956A-02]

8:50 am: **Metal oxide transistor technology in rigid and flexible displays** (*Invited Paper*), Warren B. Jackson, Hewlett-Packard Labs. (USA); Randy L. Hoffman, Bao Yeh, Hewlett-Packard Co. (USA); Ohseung Kwon, Han-Jun Kim, Hewlett-Packard Labs. (USA) [7956A-03]

9:15 am: **Single-grain Si TFTs for high-speed flexible electronics** (*Invited Paper*), Ryoichi Ishihara, Technische Univ. Delft (Netherlands) [7956A-04]

9:40 am: **Exploring polymer ferroelectric transistors and diodes for flexible optoelectronics** (*Invited Paper*), Gerwin H. Gelinck, Holst Ctr., TNO Science and Industry (Netherlands) [7956A-05]

Coffee Break 10:05 to 10:30 am

SESSION 2

Room: 238 (Mezzanine). Wed. 10:30 to 11:45 am

Electrowetting Displays

Session Chair: **Jurgen Daniel**, Palo Alto Research Center, Inc.

10:30 am: **Electrowetting: a flexible e-paper technology** (*Invited Paper*), Andrew J. Steckl, Univ. of Cincinnati (USA) [7956A-06]

10:55 am: **A new bi-primary color system for print-quality e-paper and electrofluidic displays** (*Invited Paper*), Jason C. Heikenfeld, Univ. of Cincinnati (USA) [7956A-07]

11:20 am: **Bistable electrowetting displays** (*Invited Paper*), Karlheinz Blankenbach, Pforzheim Univ. (Germany); Juergen Rawert, adt Deutschland GmbH (Germany). [7956A-08]

Lunch/Exhibition Break 11:45 pm to 1:00 am

SESSION 3

Room: 238 (Mezzanine). Wed. 1:00 to 3:05 pm

E-Paper Display Technologies and Applications

1:00 pm: **Flexible displays as key for high-value and unique automotive design** (*Invited Paper*), Robert Isele, BMW Group Research and Technology (Germany) [7956A-09]

1:25 pm: **Improvements in in-plane electrophoretic displays** (*Invited Paper*), Alex Henzen, IREX Technologies (Netherlands) [7956A-10]

1:50 pm: **Electrophoretic display technologies for e-book readers: system integration aspects** (*Invited Paper*), Philippe Gentric, Texas Instruments France (France) [7956A-11]

2:15 pm: **Thin and light weight flexible electronic paper display using QR-LPD™ technology** (*Invited Paper*), Ryo Sakurai, Bridgestone Corp. (Japan). [7956A-12]

2:40 pm: **Toner display based on particle control technologies** (*Invited Paper*), Takashi Kitamura, Chiba Univ. (Japan) [7956A-13]

Coffee Break 3:05 to 3:30 pm

SESSION 4

Room: 238 (Mezzanine). Wed. 3:30 to 4:20 pm

Reflective LCD Technologies

Session Chair: **Takashi Kitamura**, Chiba Univ. (Japan)

3:30 pm: **A wide-view transfective display using polymer-stabilized blue-phase liquid crystal** (*Invited Paper*), Yan Li, Meizi Jiao, Shin-Tson Wu, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) [7956A-14]

3:55 pm: **Achromatic reflection by long-pitch chiral-nematic liquid crystal and its application to displays switchable between reflective and transmissive modes** (*Invited Paper*), Tae-Hoon Yoon, Ki-Han Kim, Dong Han Song, Jae-Chang Kim, Pusan National Univ. (Korea, Republic of) . . . [7956A-15]

SESSION 5

Room: 238 (Mezzanine). Wed. 4:20 to 5:35 pm

Flexible OLEDs

Session Chair: **Alex Henzen**, IREX Technologies (Netherlands)

4:20 pm: **(In)Flexible OLEDs: from prototypes to applications** (*Invited Paper*), Stefan Monz, Konrad Wolf, Hildegard Möbius, Fachhochschule Kaiserslautern (Germany); Karlheinz Blankenbach, Pforzheim Univ. (Germany) [7956A-16]

4:45 pm: **Novel solutions for thin film layer deposition of organic materials** (*Invited Paper*), Juergen Kreis, AIXTRON AG (Germany). [7956A-17]

5:10 pm: **Recent progress of flexible AMOLED displays** (*Invited Paper*), Huiqing Pang, Kamala Rajan, Jeff A. Silvernail, Prashant Mandlik, Ruiqing Ma, Michael G. Hack, Julie J. Brown, Universal Display Corp. (USA) [7956A-18]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Advances in Display Technologies

Conference Chairs: **Liang-Chy Chien**, Kent State Univ.; **Sin-Doo Lee**, Seoul National Univ. (Korea, Republic of); **Ming Hsien Wu**, Hamamatsu Corp.

Program Committee: **Byoung Ho Lee**, Seoul National Univ. (Korea, Republic of); **Ryo Sakurai**, Bridgestone Corp. (Japan); **Robert A. Sprague**, SiPix Imaging Inc.; **Pochi Yeh**, Univ. of California, Santa Barbara

Thursday 27 January

SESSION 1

Room: 238 (Mezzanine) Thurs. 8:00 to 10:10 am

Fast-Switching and Novel Displays

Session Chair: **Liang-Chy Chien**, Kent State Univ.

8:00 am: **Optical isotropic phases towards display application** (*Invited Paper*), Fumito Araoka, Hideo Takezoe, Tokyo Institute of Technology (Japan) [7956B-20]

8:30 am: **Advanced surface treatment technology for improving the characteristics of the liquid crystal display** (*Invited Paper*), Chang-Jae Yu, Soo In Jo, You-Jin Lee, Yeon-Kyu Moon, Hanyang Univ. (Korea, Republic of) [7956B-21]

9:00 am: **Fast switching technologies for a nematic liquid crystal cell** (*Invited Paper*), Tae-Hoon Yoon, Ki-Han Kim, Dong Han Song, Jae-Chang Kim, Pusan National Univ. (Korea, Republic of) [7956B-22]

9:30 am: **High-speed displays with low operation voltage using pixel confinement of a deformed helix ferroelectric liquid crystal in the vertically aligned geometry**, Jun-Hee Na, Jong-Ho Hong, Sin-Doo Lee, Seoul National Univ. (Korea, Republic of) [7956B-23]

9:50 am: **New display mode using waveguide and LC based light shutter**, Joon Young Yang, LG Display (Korea, Republic of); Jung Ho Park, Korea Univ. (Korea, Republic of) [7956B-24]

Coffee Break 10:10 to 10:40 am

SESSION 2

Room: 238 (Mezzanine) Thurs. 10:40 pm to 12:10 am

3D Displays

Session Chair: **Ming Hsien Wu**, Hamamatsu Corp.

10:40 pm: **Fast response Fresnel liquid crystal lens for 2D/3D autostereoscopic display** (*Invited Paper*), Yi-Pai Huang, Chih-Wei Chen, Yi-Ching Huang, National Chiao Tung Univ. (Taiwan) [7956B-25]

11:10 pm: **Accommodation response measurement according to angular resolution density in three-dimensional display**, Youngmin Kim, Keehoon Hong, Seoul National Univ. (Korea, Republic of); Jongshin Kim, Hee Kyung Yang, Jeong-Min Hwang, Seoul National Univ. Bundang Hospital (Korea, Republic of); Byoung Ho Lee, Seoul National Univ. (Korea, Republic of) [7956B-26]

11:30 pm: **Development of high-frame-rate LED panel and its applications for 3D stereoscopic display**, Hirotsugu Yamamoto, Masakage Tsutsumi, Ryota Yamamoto, Kazutaka Kajimoto, Shiro Suyama, Univ. of Tokushima (Japan) [7956B-27]

11:50 pm: **View image error analysis based on focal mode and virtual mode in three-dimensional display using lenses**, Youngmin Kim, Jiwoon Yeom, Jae-Hyun Jung, Jisoo Hong, Byoung Ho Lee, Seoul National Univ. (Korea, Republic of) [7956B-28]

Lunch/Exhibition Break 12:10 to 1:40 pm

SESSION 3

Room: 238 (Mezzanine) Thurs. 1:40 to 4:40 pm

Display Materials, Components, and Systems

Session Chair: **Yi-Pai Huang**, National Chiao Tung Univ. (Taiwan)

1:40 pm: **High-resolution plasmonic color filters with polarization selectivity and electrical conductivity** (*Invited Paper*), L. Jay Guo, Univ. of Michigan (USA) [7956B-29]

2:10 pm: **Gray scale realization in bistable chiral splay nematic liquid crystal device** (*Invited Paper*), Chul Gyu Jhun, Hoseo Univ. (Korea, Republic of); Ken Chen, Ningbo Univ. (China); Yan Jin, Zhe Hong, Seung-Hwan Han, Yong Zhang, Ye Won Seo, Ginah Park, Soon-Bum Kwon, Sung-Sik Shin, Hoseo Univ. (Korea, Republic of); Joong Ha Lee, Tae-Hoon Yoon, Jae-Chang Kim, Pusan National Univ. (Korea, Republic of); Suk Moon Chung, ROK Naval Academy (Korea, Republic of) [7956B-34]

2:40 pm: **A new technique for speckle noise reduction of laser projection displays using waveplates**, Tomoaki Yoshimi, Kenta Chihaya, Wakao Sasaki, Doshisha Univ. (Japan); Hiroki Matsubara, Atsuya Hirano, Kenji Nagashima, Funai Electric Co., Ltd. (Japan) [7956B-31]

Coffee Break 3:00 to 3:30 pm

3:30 pm: **Reactive liquid crystal materials for optically anisotropic patterned retarders** (*Invited Paper*), Owain Parri, G. Smith, Richard Harding, Karl Skjonnemand, Merck Chemicals Ltd. (United Kingdom); Hyun-Jin Yoon, Merck Advanced Technologies Ltd. (Korea, Republic of); Joe Sargent, Iain Gardiner, Merck Chemicals Ltd. (United Kingdom) [7956B-35]

4:00 pm: **Effect of lamination on the high cyclic bending fatigue of copper thin films on flexible substrate**, Khalid Alzoubi, Susan Lu, Bahgat G. Sammakia, Mark D. Poliks, Binghamton Univ. (USA) [7956B-32]

4:20 pm: **CMOS dot matrix microdisplay**, Petrus J. Venter, Univ. of Pretoria (South Africa) and INSiAVA (Pty) Ltd. (South Africa); Alfons W. Bogalecki, INSiAVA (Pty) Ltd. (South Africa); Monuko du Plessis, Univ. of Pretoria (South Africa) and INSiAVA (Pty) Ltd. (South Africa); Marius E. Goosen, INSiAVA (Pty) Ltd. (South Africa); Ilse J. Nell, Univ. of Pretoria (South Africa) and INSiAVA (Pty) Ltd. (South Africa); Pieter Rademeyer, INSiAVA (Pty) Ltd. (South Africa) [7956B-33]

Courses of Related Interest

SC011 Design of Efficient Illumination Systems (Cassarly) Monday, 1:30 to 5:30 pm

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Practical Holography XXV: Materials and Applications

Conference Chair: **Hans I. Bjelkhagen**, Glyndwr Univ. (United Kingdom) and Technium OpTIC (United Kingdom)

Program Committee: **V. Michael Bove, Jr.**, MIT Media Lab.; **Gerald L. Heidt**, Wasatch Photonics, Inc.; **Toshio Honda**, Chiba Univ. (Japan); **Fujio Iwata**, Toppan Printing Co., Ltd. (Japan); **Tung H. Jeong**, Lake Forest College; **Gaylord E. Moss**, MossOptics; **Albert O. Okorogu**, The Aerospace Corp.; **Nadya O. Reingand**, CeLight, Inc.; **Martin J. Richardson**, De Montfort Univ. (United Kingdom); **Chris Slinger**, QinetiQ Ltd. (United Kingdom); **Fred D. Unterseher**, Columbia Career Ctr.; **Ichirou Yamaguchi**, RIKEN (Japan); **Toyohiko Yatagai**, Utsunomiya Univ. (Japan)

Sunday 23 January

SESSION 1

Room: 110 (Exhibit Level) Sun. 8:30 to 10:00 am

Digital, Electronic, and Computer Generated Holography I

Session Chair: **V. Michael Bove, Jr.**, MIT Media Lab.

8:30 am: **Diffraction specific coherent panoramagrams of real scenes** (*Invited Paper*), James Barabas, Daniel E. Smalley, V. Michael Bove, Jr., MIT Media Lab. (USA) [7957-01]

9:00 am: **Holographic stereogram using 25 cameras in dense arrangement**, Kenji Yamamoto, Ryutarō Oi, Takanori Senoh, Yasuyuki Ichihashi, Taiichiro Kurita, National Institute of Information and Communications Technology (Japan) [7957-02]

9:20 am: **Compression of digital hologram for three-dimensional object using wavelet-bandelet transform**, Bang T. Le, Quang Duc Pham, Zulfiqar Ali, Nam Kim, Jae-Hyeung Park, Chungbuk National Univ. (Korea, Republic of) [7957-03]

9:40 am: **Accelerating digital holographic de-convolution microscopy using CUDA's nested concurrency**, Zulfiqar Ali, Mei-lan Piao, Jae-Hyeung Park, Nam Kim, Chungbuk National Univ. (Korea, Republic of) [7957-04]

Coffee Break 10:00 to 10:30 am

SESSION 2

Room: 110 (Exhibit Level) Sun. 10:30 am to 12:10 pm

Digital, Electronic, and Computer Generated Holography II

Session Chair: **V. Michael Bove, Jr.**, MIT Media Lab.

10:30 am: **Calculation method for CGH considering smooth shading with polygon models**, Kazuhiro Yamaguchi, Tsubasa Ichikawa, Yuji Sakamoto, Hokkaido Univ. (Japan) [7957-05]

10:50 am: **A method of calculating reflectance distributions for CGH with FDTD using the structure of actual surfaces**, Tsubasa Ichikawa, Yuji Sakamoto, Agus Subagyo, Kazuhisa Sueoka, Hokkaido Univ. (Japan) [7957-06]

11:10 am: **Instantaneous measurement of surface shape with high accuracy by one-shot digital holography**, Yoshihide Iwayama, Univ. of Hyogo (Japan) [7957-07]

11:30 am: **Wide viewing-zone-angle full-color electronic holography system using very high resolution liquid crystal display panels**, Takanori Senoh, Kenji Yamamoto, Tomoyuki Mishina, Yasuyuki Ichihashi, Ryutarō Oi, Taiichiro Kurita, National Institute of Information and Communications Technology (Japan) [7957-08]

11:50 am: **DIY digital holography**, Stanislovas J. Zacharovas, Andrej Nikolskij, Jevgenij Kuchin, Geola Digital uab (Lithuania) [7957-09]

Lunch Break 12:10 to 1:20 pm

SESSION 3

Room: 110 (Exhibit Level) Sun. 1:20 to 3:30 pm

Display Holography

Session Chair: **Hiroshi Yoshikawa**, Nihon Univ. (Japan)

1:20 pm: **Color holography for museums: bringing the artifacts back to the people** (*Invited Paper*), Hans I. Bjelkhagen, Ardie Osanlou, Glyndwr Univ. (United Kingdom) [7957-10]

1:50 pm: **Artistic expression in the development of new technology for three-dimensional imaging**, Sandra Oliveira, Martin J. Richardson, Maria Isabel M. Azevedo, De Montfort Univ. (United Kingdom) [7957-11]

2:10 pm: **Changing thoughts: a series of digital art holograms**, Maria Isabel Azevedo, Escola Univ. das Artes de Coimbra (Portugal) and De Montfort Univ. (United Kingdom); Martin J. Richardson, De Montfort Univ. (United Kingdom) [7957-12]

2:30 pm: **3D holographic portraits: presence and absence**, Rosa M. Oliveria, Univ. de Aveiro (Portugal); Luís Miguel Bernardo, Univ. do Porto (Portugal) [7957-13]

2:50 pm: **Speckle reduction in holography using a time-multiplexing technique**, Masahito Yokouchi, Takayuki Kurihara, Yasuhiro Takaki, Tokyo Univ. of Agriculture and Technology (Japan) [7957-14]

3:10 pm: **Quantitative quality measure based on light wave distribution to access 3D display**, Yuji Sakamoto, Hokkaido Univ. (Japan); Fumio Okuyama, Suzuka Univ. of Medical Science (Japan) [7957-15]

Coffee Break 3:30 to 4:00 pm

SESSION 4

Room: 110 (Exhibit Level) Sun. 4:00 to 5:30 pm

Recording Materials and Processing

Session Chair: **Hans I. Bjelkhagen**, Technium OpTIC (United Kingdom) and Glyndwr Univ. (United Kingdom)

4:00 pm: **Holographic recording aspects of high resolution Bayfol® HX photopolymer** (*Invited Paper*), Friedrich K. Bruder, Horst Berneth, Thomas Fäcke, Rainer Hagen, Dennis Hönel, Bayer MaterialScience AG (Germany); David Jurbergs, Bayer MaterialScience LLC (USA); Thomas Roelle, Marc-Stephan Weiser, Bayer MaterialScience AG (Germany) [7957-16]

4:30 pm: **Optimizing diffraction efficiency for reflection holograms with HARMAN holographic emulsions while maintaining narrow band reconstruction**, Steven L. Smith, De Montfort Univ. (United Kingdom); Karen N. Harvey, HARMAN Technology, Ltd. (United Kingdom); Martin J. Richardson, De Montfort Univ. (United Kingdom) [7957-17]

4:50 pm: **Optimizing diffraction efficiency for transmission holographic optical elements with Harman holographic materials**, Steven L. Smith, De Montfort Univ. (United Kingdom); Karen N. Harvey, HARMAN Technology, Ltd. (United Kingdom); Martin J. Richardson, De Montfort Univ. (United Kingdom) [7957-18]

5:10 pm: **Photorefractive amplification at high frequencies**, Russell M. Kurtz, Weixing Lu, Judy Piranian, RAN Science & Technology, LLC. (USA); Albert O. Okorogu, The Aerospace Corp. (USA) [7957-20]

Monday 24 January

SESSION 5

Room: 110 (Exhibit Level) Mon. 8:30 to 10:00 am

Scientific Holography, Applications, and Experimental Techniques I

Session Chair: Gerald L. Heidt, Wasatch Photonics, Inc.

8:30 am: **Review of selected technological applications of DCG-holograms** (*Invited Paper*), Christo G. Stojanoff, Holotec GmbH (Germany) [7957-21]

9:00 am: **Nanophotonic hierarchical hologram: hierarchical information processing and nanometric data retrieval based on nanophotonics**, Naoya Tate, The Univ. of Tokyo (Japan); Makoto Naruse, National Institute of Information and Communications Technology (Japan); Takashi Yatsui, Tadashi Kawazoe, The Univ. of Tokyo (Japan); Morihisa Hoga, Yasuyuki Ohyagi, Tokuhiko Fukuyama, Yoko Sekine, Mitsuru Kitamura, Dai Nippon Printing Co., Ltd. (Japan); Motoichi Ohtsu, The Univ. of Tokyo (Japan) [7957-22]

9:20 am: **Phase shifting holographic interferometer for precise alignment measurements in packaging applications**, Vladimir V. Nikulin, Rahul M. Khandekar, Vijit Bedi, Binghamton Univ. (USA) [7957-23]

9:40 am: **Polarization-holographic diffraction element-based real-time imaging Stokes spectropolarimetry**, George A. Kakauridze, Barbara N. Kilosanidze, Institute of Cybernetics (Georgia) [7957-28]

Coffee Break 10:00 to 10:30 am

SESSION 6

Room: 110 (Exhibit Level) Mon. 10:30 am to 12:10 pm

Scientific Holography, Applications, and Experimental Techniques II

Session Chair: Gerald L. Heidt, Wasatch Photonics, Inc.

10:30 am: **Holographic data storage system toward high recording density**, Norihiko Ishii, Tetsuhiko Muroi, Nobuhiro Kinoshita, Hiroshi Kikuchi, Koji Kamijo, Naoki Shimidzu, NHK Science & Technical Research Labs. (Japan) . . [7957-25]

10:50 am: **Volume polarization holography for optical data storage**, Daisuke Barada, Utsunomiya Univ. (Japan) and National Institute of Advanced Industrial Science and Technology (Japan); Yohsuke Kawagoe, Hiroki Sekiguchi, Utsunomiya Univ. (Japan); Takashi Fukuda, National Institute of Advanced Industrial Science and Technology (Japan); Shigeo Kawata, Toyohiko Yatagai, Utsunomiya Univ. (Japan) [7957-26]

11:10 am: **Application of synthesized wave fronts for interferometric shape and deformation measurement**, János Kornis, Richárd Séfel, Budapest Univ. of Technology and Economics (Hungary) [7957-27]

11:30 am: **Improvement of sensitivity and bandwidth of dynamic holography in photorefractive quantum wells**, Adam S. Drewery, Ping Yu, Univ. of Missouri-Columbia (USA) [7957-24]

11:50 am: **Dynamic energy transfer in a polarization hologram at low intensity of working beams**, George A. Kakauridze, Barbara N. Kilosanidze, Institute of Cybernetics (Georgia) [7957-49]

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: Liang-Chy Chien, Kent State Univ. (USA); Klaus P. Streubel, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks**, Liang-Chy Chien, Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display Application**, Chang-Dong Kim, LG Display R&D Ctr. (Republic of Korea)

8:50 am: **Nanoscopy with Focused Light**, Stefan W. Hell, Max-Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier**, Eli Yablonovitch, Univ. of California, Berkeley (USA)

See page 24 for details.

Technical Event

InterContinental Hotel, Ballroom B . . . Tues. 7:30 to 9:00 pm

Holography

Session Chair: Hans I. Bjelkhagen, Glyndwr Univ. and Technium OptIC (United Kingdom)

The Holography Technical Group is involved with the whole record of research, engineering, recording materials, and applications of holography. The main fields of interest are display holograms, commercial and artistic, holographic optical elements (HOEs), holographic interferometry and holographic non-destructive testing (HNNT), computer-generated holography (CGH), electro and digital holography, holographic microscopy, and holographic data storage (HDS). This meeting will focus on recent developments and directions, in particular, in regard to new materials, color display holography, digital holography, CGHs and HOEs.

Wednesday 26 January

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Light induced anisotropy and gyrotropy in the media on the basis of azo indicators, Valentina G. Shaverdova, Svetlana S. Petrova, Anna L. Purtseladze, Lado Tarasashvili, Nino Obolashvili, Institute of Cybernetics (Georgia) [7957-29]

Behavior of MTF parameter from corn honey holographic material at 473nm and 530nm, Reyna Velazquez-Xique, Arturo Olivares-Pérez, Israel Fuentes-Tapia, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) [7957-30]

Albumin holograms, Manuel Jorge Ordóñez-Padilla, Arturo Olivares-Pérez, R. Vega-Criollo, Luís R. Berriel-Valdos, Israel Fuentes-Tapia, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) [7957-31]

Compact reflection-type holographic recording system with high angle multiplexing, Mayumi Kanayasu, Kensuke Akiyeda, Tomohiro Otori, Takehumi

OPTO

Conference 7957

Yamada, Manabu Yamamoto, Tokyo Univ. of Science (Japan) [7957-32]

Correction method of wavefront aberration on signal quality in holographic memory, Eri Kimura, Akihito Nakajima, Kensuke Akieda, Tomohiro Ohori, Kiyoto Katakura, Manabu Yamamoto, Tokyo Univ. of Science (Japan). [7957-33]

The electromagnetic wave diffraction from a pyramidal horn antenna in the microwave band, Makoto Ohki, Koki Sato, Shogo Kozaki, Shonan Institute of Technology (Japan) [7957-34]

Optimization of half-tone technology for diffractive microlens fabrication, Victor P. Korolkov, Novosibirsk State Univ. (Russian Federation); Ruslan K. Nasryov, Alexander R. Sametov, Sergey Suhii, Institute of Automation and Electrometry (Russian Federation) [7957-35]

Improvement of camera arrangement in computer-generated holograms synthesized from multi-view images, Noriyuki Hayashi, Yuji Sakamoto, Yasuhiro Honda, Hokkaido Univ. (Japan) [7957-36]

Fast calculation method for CGHs by using spherical pre-calculated object light, Kouhei Hosoyachi, Yuji Sakamoto, Hokkaido Univ. (Japan) [7957-37]

Consideration of improvement of electro-holographic stereogram, Koki Sato, Masataka Tozuka, Shonan Institute of Technology (Japan); Kunihiko Takano, Tokyo Metropolitan College of Industrial Technology (Japan); Makoto Ohki, Shonan Institute of Technology (Japan) [7957-38]

Photoanisotropy in polarization-sensitive media on the basis of polar water-soluble components, Irakli Chaganava, George A. Kakauridze, Barbara N. Kilosanidze, Institute of Cybernetics (Georgia) [7957-39]

Holograms with fluorescent benzyl, Valentin Dorantes-Garcia, Arturo Olivares-Pérez, Manuel Jorge Ordóñez-Padilla, Israel Fuentes-Tapia, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico). [7957-40]

Three-dimensional optical recording by retardagraphy, Yohsuke Kawagoe, Daisuke Barada, Hiroki Sekiguchi, Utsunomiya Univ. (Japan); Takashi Fukuda, National Institute of Advanced Industrial Science and Technology (Japan); Toyohiko Yatagai, Utsunomiya Univ. (Japan) [7957-41]

Terahertz holographic interferometry, Andrei A. Gorodetsky, Victor G. Bespalov, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [7957-42]

CUDA based holographic modeling software, Andrei A. Gorodetsky, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [7957-43]

Computer-generated “Alcova” hologram to display floating image with wide viewing angle, Takeshi Yamaguchi, Hiroyuki Ozawa, Hiroshi Yoshikawa, Nihon Univ. (Japan) [7957-44]

New techniques for wave-field rendering of polygon-based high-definition CGHs, Hirohito Nishi, Kentaro Higashi, Yasuaki Arima, Kyoji Matsushima, Sumio Nakahara, Kansai Univ. (Japan) [7957-45]

Memory size reduction of the novel look-up table method using symmetry of Fresnel zone plate, Seung-Cheol Kim, Do-Woo Kwon, Eun-Soo Kim, Kwangwoon Univ. (Korea, Republic of). [7957-46]

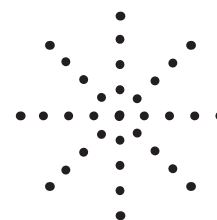
Hardware implementation of N-LUT method using field programmable gate array technology, Seung-Cheol Kim, Do-Woo Kwon, Eun-Soo Kim, Kwangwoon Univ. (Korea, Republic of). [7957-47]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.



Sensors

SPIE Digital Library

Find the answer
SPIDigitalLibrary.org

NOTE: Room Changes

Tuesday-Thursday 25-27 January 2011 • Proceedings of SPIE Vol. 7958

Broadband Access Communication Technologies V

Conference Chairs: **Benjamin Dingel**, Nasfine Photonics, Inc.; **Raj Jain**, Washington Univ. in St. Louis; **Katsutoshi Tsukamoto**, Osaka Univ. (Japan)

Program Committee: **Arjan Duresi**, Indiana Univ.-Purdue Univ. Indianapolis; **David W. Faulkner**, British Telecom Research Labs. (United Kingdom); **Mahbub Hassan**, The Univ. of New South Wales (Australia); **Mohsen Kavehrad**, The Pennsylvania State Univ.; **Rangaraj Madabhushi**, Madabhushi Consultants, LLC; **Nicholas Madamopoulos**, The City College of New York; **Dalma Novak**, Pharad, LLC; **Jean-Charles Point**, JCP-Consult (France); **Ken-ichi Sato**, Nagoya Univ. (Japan); **Peter Van Daele**, Univ. Gent (Belgium); **Jeroen S. Wellen**, Alcatel-Lucent (Netherlands)

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA); **Klaus P. Streubel**, OSRAM GmbH (Germany)

- 8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**, Kent State Univ. (USA)
 - 8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)
 - 8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim**, LG Display R&D Ctr. (Republic of Korea)
 - 8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell**, Max-Planck-Institute for Biophysical Chemistry (Germany)
 - 9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**, Univ. of California, Berkeley (USA)
- See page 24 for details.

Coffee Break 10:10 to 10:30 am

Optical Communications Plenary Session

Room: 206 (Mezzanine) Tues. 10:30 am to 12:30 pm

Session Chairs: **Benjamin Dingel**, Nasfine Photonics, Inc.; **Werner Weiershausen**, Deutsche Telekom AG (Germany)

- 10:30 am: **Advances in coherent detection algorithms (Invited Paper)**, Jens C. Rasmussen, Takeshi Hoshida, Takahito Tanimura, Hisao Nakashima, Shoichiro Oda, Fujitsu Labs. (Japan); Zhenning Tao, Lei Li, Fujitsu Research and Development Center Co., Ltd. (China) [7960-01]
- 11:00 am: **Recent progress in coherent 100G module technology for long haul DWDM applications (Invited Paper)**, Edem Ibragimov, Theodore J. Schmidt, Opnext, Inc. (USA) [7960-02]
- 11:30 am: **Photonic devices for next-generation broadband fiber access networks (Invited Paper)**, Leonid G. Kazovsky, She-Hwa Yen, Shing-Wa Wong, Stanford Univ. (USA) [7958-01]
- 12:00 pm: **Higher-order modulation formats for spectral-efficient high-speed metro systems (Invited Paper)**, Ronald Freund, M. Nölle, Matthias Seimetz, Jonas Hilt, Johannes K. Fischer, Reinhold Ludwig, Colja Schubert, Heinz-Gunter Bach, Karl-Otto Velthaus, Martin Schell, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) [7959-01]

Lunch/Exhibition Break 12:30 to 2:00 pm

SESSION 1

Room: 206 (Mezzanine) Tues. 2:00 to 5:30 pm

OFDM for Access, Metro and Coherent Communications

Joint Session between Conferences 7959 and 7960

- Session Chairs: **Atul K. Srivastava**, OneTerabit; **Guifang Li**, CREOL, The College of Optics and Photonics, Univ. of Central Florida
- 2:00 pm: **Real-time coherent OFDM transmission (Invited Paper)**, Noriaki Kaneda, Timo Pfau, Alcatel-Lucent Bell Labs. (USA); Qi Yang, Wuhan Research Institute of Posts and Telecommunications (China); Young-Kai Chen, Alcatel-Lucent Bell Labs. (USA) [7960-03]
 - 2:30 pm: **Four-dimensional coded optical OFDM for ultra-high-speed metro networks (Invited Paper)**, Ivan B. Djordjevic, The Univ. of Arizona (USA) [7959-02]
 - 3:00 pm: **Low cost direct modulation and coherent detection optical OFDM for metro applications**, Nir Sheffi, Dan Sadot, Ben-Gurion Univ. of the Negev (Israel) [7960-04]
 - Coffee Break 3:20 to 3:50 pm
 - 3:50 pm: **Single-carrier versus sub-carrier bandwidth considerations for coherent optical systems (Invited Paper)**, John D. McNicol, Infinera Canada (Canada); Vinayak Dangui, Infinera Corp. (USA); Han Sun, David J. Krause, Kuang-Tsan Wu, Infinera Canada (Canada); Matthew L. Mitchell, David F. Welch, Infinera Corp. (USA) [7960-05]
 - 4:20 pm: **Optimum signal constellations for high-speed optical metro networks and beyond**, Jianyong Zhang, Beijing Jiaotong Univ. (China); Ivan B. Djordjevic, The Univ. of Arizona (USA) [7959-03]
 - 4:40 pm: **Potential of OFDM for next generation optical access (Invited Paper)**, Daniel Fritzsche, EICT GmbH (Germany); Erik Weis, Dirk Breuer, Deutsche Telekom AG (Germany) [7959-04]
 - 5:10 pm: **High order modulation format optical OFDM for access applications**, Dayou Qian, Ting Wang, NEC Labs. America, Inc. (USA) [7960-06]

Wednesday 26 January

SESSION 2

Room: 206 (Mezzanine) Wed. 8:00 to 10:40 am

Component Technologies for Access, Metro and Coherent Communications

Joint Session with Conferences 7959 and 7960

- Session Chairs: **Dieter Stefan Jäger**, Univ. Duisburg-Essen (Germany); **Werner Weiershausen**, Deutsche Telekom AG (Germany)
- 8:00 am: **Coherent optical component technologies for WDM transmission systems (Invited Paper)**, Shinji Mino, Koichi Murata, Takashi Saida, Ikuo Ogawa, NTT Photonics Labs. (Japan) [7960-07]
 - 8:30 am: **Enabling technologies for 100G coherent optical communication (Invited Paper)**, Bo Zhang, Yannick K. Lize, Opnext, Inc. (USA) [7960-08]
 - 9:00 am: **Developing accurate simulations for high-speed fiber links**, Steven M. Searcy, Andrew J. Stark, Thomas F. Detwiler, Yu-Ting Hsueh, Georgia Institute of Technology (USA); Sorin Tibuleac, ADVA Optical Networking North America, Inc. (USA); Gee-Kung Chang, Stephen E. Ralph, Georgia Institute of Technology (USA) [7960-09]

OPTO

Conference 7958 · NOTE: Room Changes

9:20 am: **Micro-resonator devices and optical broadband access application** (*Invited Paper*), Alan Willner, Lin Zhang, Jeng-Yuan Yang, The Univ. of Southern California (USA) [7958-02]

9:50 am: **Inherent RF linearized bandwidth broadening capability of an ultra-linear optical modulator**, Benjamin Dingel, Nasfine Photonics, Inc. (USA); Andru J. Prescod, Corning Inc. (USA); Nicholas Madamopoulos, The City College of New York (USA) [7958-03]

10:10 am: **Novel multicolor photodetectors for short- and long-distance optical communication** (*Invited Paper*), Achyut K. Dutta, Robert Olah, Genki Mizuno, Banpil Photonics, Inc. (USA); Nibir K. Dhar, Defense Advanced Research Projects Agency (USA) [7959-05]

Coffee Break 10:40 to 11:00 am

SESSION 3

Room: 202/204 (Mezzanine) Wed. 11:00 am to 12:20 pm

Next Generation Technologies

Session Chairs: **Katsutoshi Tsukamoto**, Osaka Univ. (Japan); **Raj Jain**, Washington Univ. in St. Louis

Note Room Change

11:00 am: **Recent progress in coherent optical communication technologies** (*Invited Paper*), Akihide Sano, NTT Network Innovation Labs. (Japan). [7958-04]

11:30 am: **From Stokes measurements to PDF post-processing**, Jean-Joseph Max, Sylvain O'Reilly, ITF Labs./Avensys Tech (Canada) [7958-05]

11:50 am: **4G wireless networks: advances and research areas** (*Invited Paper*), Muthiah Venkatachalam, Intel Corp. (USA). [7958-06]

Lunch/Exhibition Break 12:20 to 1:30 pm

SESSION 4

Room: 206 (Mezzanine) Wed. 1:30 to 3:40 pm

Advanced PON for Access and Metro

Joint Session with Conference 7959

Session Chairs: **Raj Jain**, Washington Univ. in St. Louis; **Benjamin Dingel**, Nasfine Photonics, Inc.

1:30 pm: **Advances in fiber access networks development: efficient resource allocation and cost effective protection** (*Invited Paper*), Jiajia Chen, Lena Wosinska, Royal Institute of Technology (Sweden) [7958-07]

2:00 pm: **New concept for a regenerative amplifier for passive optical networks** (*Invited Paper*), Ari Tervonen, Marco Mattila, Luxdyne, Ltd. (Finland) and Aalto Univ. (Finland); Werner Weiershausen, Luxdyne, Ltd. (Finland); Tuomo von Lerber, Luxdyne, Ltd. (Finland) and Darmstadt Univ. of Technology (Germany); Earl R. Parsons, Hacene Chaouch, College of Optical Sciences, The Univ. of Arizona (USA); Franko Kueppers, College of Optical Sciences, The Univ. of Arizona (USA) and Darmstadt Univ. of Technology (Germany); Seppo K. Honkanen, Aalto Univ. School of Science and Technology (Finland) . . [7959-09]

2:30 pm: **Crosstalk analysis of an extended reach hybrid tree-ring PON architecture**, Sasanthi C. Peiris, The City Univ. of New York (USA); Dwight Richards, Neophytos Antoniadis, College of Staten Island (USA); Nicholas Madamopoulos, The City College of New York (USA) [7958-08]

2:50 pm: **A novel hybrid three-band transport system based on a DFB LD with multi-wavelength output characteristic** (*Invited Paper*), Hai-Han Lu, Peng-Chun Peng, Hsiang-Chun Peng, Chung-Yi Li, Heng-Sheng Su, National Taipei Univ. of Technology (Taiwan) [7958-09]

3:20 pm: **Unified cost effective next-generation passive optical network and IEEE 802.16m network architecture**, Shahab Hussain, Syed R. Zaidi, Hasan Erkan, The City College of New York (USA); Ajaz Sana, Bronx Community College (USA) [7958-10]

Coffee Break 3:40 to 4:00 pm

SESSION 5

Room: 202/204 (Mezzanine) Wed. 4:00 to 5:50 pm

CATV and RoF

Session Chairs: **Katsutoshi Tsukamoto**, Osaka Univ. (Japan); **Benjamin Dingel**, Nasfine Photonics, Inc.

Note Room Change

4:00 pm: **Convergence of broadcasting and communications utilizing CATV network** (*Invited Paper*), Kazuo Kumamoto, Hikaru Hoshino, Koji Yasukawa, Osaka Institute of Technology (Japan); Takeshi Higashino, Katsutoshi Tsukamoto, Shozo Komaki, Osaka Univ. (Japan); Keizo Inagaki, National Institute of Information and Communications Technology (Japan). . . . [7958-11]

4:30 pm: **Performance analysis of IM/DD radio-on-fiber link for transmitting multicarrier RF signals**, Takeshi Higashino, Satoru Okumura, Katsutoshi Tsukamoto, Shozo Komaki, Osaka Univ. (Japan); Kazuo Kumamoto, Koji Yasukawa, Osaka Institute of Technology (Japan); Keizo Inagaki, National Institute of Information and Communications Technology (Japan). . . . [7958-12]

4:50 pm: **Modulation of relaxation oscillation frequency of a DFB laser by using direct detection**, Alejandro García Juárez, Univ. de Sonora (Mexico); Antonio Baylón-Fuentes, Pablo Hernández-Nava, Ignacio E. Zaldívar-Huerta, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Jorge Rodríguez-Asomoza, Univ. de las Américas Puebla (Mexico); Gustavo Aguayo-Rodríguez, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Rocio R. Gómez-Colín, Univ. de Sonora (Mexico) [7958-13]

5:10 pm: **Development of broadband optical frequency resource over 8.4-THz in 1.0- μ m waveband for photonic transport systems**, Naokatsu Yamamoto, National Institute of Information and Communications Technology (Japan); Yu Omigawa, Yuta Kinoshita, Aoyama Gakuin Univ. (Japan); Atsushi Kannno, Kouichi Akahane, Tetsuya Kawanishi, National Institute of Information and Communications Technology (Japan); Hideyuki Sotobayashi, Aoyama Gakuin Univ. (Japan) [7958-14]

5:30 pm: **Computer modeling and design analysis of a bit rate discrimination circuit based dual-rate burst mode receiver**, Sriharsha Kota Pavan, Jigesh K. Patel, Enrico Ghillino, RSoft Design Group, Inc. (USA); Dwight Richards, College of Staten Island (USA) [7958-19]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Next generation wireless technology WiMAX and its integration with EPON, Syed R. Zaidi, Shahab Hussain, Hasan Erkan, The City College of New York (USA); Ajaz Sana, Bronx Community College (USA); Aparicio Carranza, New York City College of Technology (USA). [7958-20]

Techno-economic feasibility studies for solar-powered passive optical network, Karin M. Ennsner, S. Mangeni, Stefano Taccheo, Swansea Univ. (United Kingdom); Slavisa Aleksic, Vienna Univ. of Technology (Austria) [7958-21]

Thursday 27 January

SESSION 6

Room: 206 (Mezzanine) Thurs. 8:00 to 10:20 am

Optical Networks

Joint Session with Conferences 7959 and 7960

Session Chair: Werner Weiershausen,
Deutsche Telekom AG (Germany)

Note Room Change

- 8:00 am: **WSS technology for the next generation ROADM networks**
(Invited Paper), Gil Cohen, Krishna Bala, Oclaro, Inc. (USA) [7959-15]
- 8:30 am: **Spectrum variable colorless, directionless and contentionless multi-degree ROADM node**, Philip N. Ji, NEC Labs. America, Inc. (USA); Yoshiaki Aono, NEC Corp. (Japan); Ting Wang, NEC Labs. America, Inc. (USA) [7959-16]
- 8:50 am: **PCE-based scalable dynamic path control for large-scale photonic networks**, Soichiro Araki, NEC Corp. (Japan); Kohei Shimada, Hiroshi Hasegawa, Ken-ichi Sato, Nagoya Univ. (Japan); Yohei Iizawa, Shinya Ishida, Itaru Nishioka, NEC Corp. (Japan) [7959-17]
- 9:10 am: **Colorless and directionless multi-degree reconfigurable optical add/drop multiplexers for 100G network application** *(Invited Paper)*, Ting Wang, Philip N. Ji, NEC Labs. America, Inc. (USA); Yoshiaki Aono, NEC Corp. (Japan) [7960-24]
- 9:40 am: **Ultra-wide tuning range of reconfigurable optical add-drop multiplexer using photorefractive polymer**, Yuta Wakayama, Atsushi Okamoto, Akihisa Tomita, Hokkaido Univ. (Japan); Kunihiro Sato, Hokkai-Gakuen Univ. (Japan) [7958-15]
- 10:00 am: **Linear formulation to avoid adjacent channel interference in LTD of optical networks**, Karcus Day Rosario Assis, Federal Univ. do Recôncavo da Bahia (Brazil); Alex F. Santana, Univ. Estadual do Sudoeste da Bahia (Brazil); Marcio Savasini, Univ. Estadual de Campinas (Brazil) [7959-18]
- Coffee Break 10:20 to 10:50 am

SESSION 7

Room: 202/204 (Mezzanine) Thurs. 10:50 am to 12:10 pm

Optical Wireless Access

Session Chairs: Katsutoshi Tsukamoto, Osaka Univ. (Japan);
Benjamin Dingel, Nasfine Photonics, Inc.

Note Room Change

- 10:50 am: **Broadband ubiquitous femto-cell network with MIMO distributed antenna system over WDM-PON** *(Invited Paper)*, Katsumi Iwatsuki, Takayoshi Tashiro, Kazutaka Hara, Tomohiro Taniguchi, Jun-Ichi Kani, Naoto Yoshimoto, NTT Corp. (Japan); Kenji Miyamoto, Tatsuya Nishiumi, Takeshi Higashino, Katsutoshi Tsukamoto, Shozo Komaki, Osaka Univ. (Japan) [7958-16]
- 11:20 am: **All-optical demultiplexer based on dynamic multiple holograms for optical MIMO processing and mode division multiplexing**, Takuya Oda, Atsushi Okamoto, Daiki Soma, Akihisa Tomita, Yuta Wakayama, Hokkaido Univ. (Japan) [7958-17]
- 11:40 am: **Optical wireless networked-systems: applications to aircrafts** *(Invited Paper)*, Mohsen Kavehrad, Jarir Fadlullah, The Pennsylvania State Univ. (USA) [7958-18]

Courses of Related Interest

- SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm
- SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

Don't miss the free Photonics West Exhibition

See new products and top companies at the most important event for the photonics and laser industry

25-27 January 2011

- Tuesday · 10:00 am to 5:00 pm
- Wednesday · 10:00 am to 5:00 pm
- Thursday · 10:00 am to 4:00 pm

Optical Metro Networks and Short-Haul Systems III

Conference Chairs: **Werner Weiershausen**, Deutsche Telekom AG (Germany); **Benjamin Dingel**, Nasfine Photonics, Inc.; **Achyut Kumar Dutta**, Banpil Photonics, Inc.; **Atul K. Srivastava**, OneTerabit

Program Committee: **Ronald Freund**, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); **Akimasa Kaneko**, NEL America, Inc.; **Franco Küppers**, College of Optical Sciences, The Univ. of Arizona; **Ralph Leppla**, Deutsche Telekom AG (Germany); **Ernst-Dieter Schmidt**, Nokia Siemens Networks (Germany); **Sascha Vorbeck**, Deutsche Telekom AG (Germany); **Winston I. Way**, Vello Systems

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA); **Klaus P. Streubel**, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**, Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim**, LG Display R&D Ctr. (Republic of Korea)

8:50 am: **Nanoscapy with Focused Light, Stefan W. Hell**, Max-Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

Optical Communications Plenary Session

Room: 206 (Mezzanine) Tues. 10:30 am to 12:30 pm

Session Chairs: **Benjamin Dingel**, Nasfine Photonics, Inc.; **Werner Weiershausen**, Deutsche Telekom AG (Germany)

10:30 am: **Advances in coherent detection algorithms (Invited Paper)**, Jens C. Rasmussen, Takeshi Hoshida, Takahito Tanimura, Hisao Nakashima, Shoichiro Oda, Fujitsu Labs. (Japan); Zhenning Tao, Lei Li, Fujitsu Research and Development Center Co., Ltd. (China) [7960-01]

11:00 am: **Recent progress in coherent 100G module technology for long haul DWDM applications (Invited Paper)**, Edem Ibragimov, Theodore J. Schmidt, Opnext, Inc. (USA) [7960-02]

11:30 am: **Photonic devices for next-generation broadband fiber access networks (Invited Paper)**, Leonid G. Kazovsky, She-Hwa Yen, Shing-Wa Wong, Stanford Univ. (USA) [7958-01]

12:00 pm: **Higher-order modulation formats for spectral-efficient high-speed metro systems (Invited Paper)**, Ronald Freund, M. Nölle, Matthias Seimetz, Jonas Hilt, Johannes K. Fischer, Reinhold Ludwig, Colja Schubert, Heinz-Gunter Bach, Karl-Otto Velthaus, Martin Schell, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) [7959-01]

Lunch/Exhibition Break 12:30 to 2:00 pm

SESSION 1

Room: 206 (Mezzanine) Tues. 2:00 to 5:30 pm

OFDM for Access, Metro and Coherent Communications

Joint Session between Conferences 7959 and 7960

Session Chairs: **Atul K. Srivastava**, OneTerabit; **Guifang Li**, CREOL, The College of Optics and Photonics, Univ. of Central Florida

2:00 pm: **Real-time coherent OFDM transmission (Invited Paper)**, Noriaki Kaneda, Timo Pfau, Alcatel-Lucent Bell Labs. (USA); Qi Yang, Wuhan Research Institute of Posts and Telecommunications (China); Young-Kai Chen, Alcatel-Lucent Bell Labs. (USA) [7960-03]

2:30 pm: **Four-dimensional coded optical OFDM for ultra-high-speed metro networks (Invited Paper)**, Ivan B. Djordjevic, The Univ. of Arizona (USA) [7959-02]

3:00 pm: **Low cost direct modulation and coherent detection optical OFDM for metro applications**, Nir Sheffi, Dan Sadot, Ben-Gurion Univ. of the Negev (Israel) [7960-04]

Coffee Break 3:20 to 3:50 pm

3:50 pm: **Single-carrier versus sub-carrier bandwidth considerations for coherent optical systems (Invited Paper)**, John D. McNicol, Infinera Canada (Canada); Vinayak Dangui, Infinera Corp. (USA); Han Sun, David J. Krause, Kuang-Tsan Wu, Infinera Canada (Canada); Matthew L. Mitchell, David F. Welch, Infinera Corp. (USA) [7960-05]

4:20 pm: **Optimum signal constellations for high-speed optical metro networks and beyond**, Jianyong Zhang, Beijing Jiaotong Univ. (China); Ivan B. Djordjevic, The Univ. of Arizona (USA) [7959-03]

4:40 pm: **Potential of OFDM for next generation optical access (Invited Paper)**, Daniel Fritzsche, EICT GmbH (Germany); Erik Weis, Dirk Breuer, Deutsche Telekom AG (Germany) [7959-04]

5:10 pm: **High order modulation format optical OFDM for access applications**, Dayou Qian, Ting Wang, NEC Labs. America, Inc. (USA) [7960-06]

Wednesday 26 January

SESSION 2

Room: 206 (Mezzanine) Wed. 8:00 to 10:40 am

Component Technologies for Access, Metro and Coherent Communications

Joint Session with Conferences 7958 and 7960

Session Chairs: **Dieter Stefan Jäger**, Univ. Duisburg-Essen (Germany); **Werner Weiershausen**, Deutsche Telekom AG (Germany)

8:00 am: **Coherent optical component technologies for WDM transmission systems (Invited Paper)**, Shinji Mino, Koichi Murata, Takashi Saida, Ikuo Ogawa, NTT Photonics Labs. (Japan) [7960-07]

8:30 am: **Enabling technologies for 100G coherent optical communication (Invited Paper)**, Bo Zhang, Yannick K. Lize, Opnext, Inc. (USA) [7960-08]

9:00 am: **Developing accurate simulations for high-speed fiber links**, Steven M. Searcy, Andrew J. Stark, Thomas F. Detwiler, Yu-Ting Hsueh, Georgia Institute of Technology (USA); Sorin Tibuleac, ADVA Optical Networking North America, Inc. (USA); Gee-Kung Chang, Stephen E. Ralph, Georgia Institute of Technology (USA) [7960-09]

9:20 am: **Micro-resonator devices and optical broadband access application (Invited Paper)**, Alan Willner, Lin Zhang, Jeng-Yuan Yang, The Univ. of Southern California (USA) [7958-02]

9:50 am: **Inherent RF linearized bandwidth broadening capability of an ultra-linear optical modulator**, Benjamin Dingel, Nasfine Photonics, Inc. (USA); Andru J. Prescod, Corning Inc. (USA); Nicholas Madamopoulos, The City College of New York (USA) [7958-03]

10:10 am: **Novel multicolor photodetectors for short- and long-distance optical communication** (*Invited Paper*), Achyut K. Dutta, Robert Olah, Genki Mizuno, Banpil Photonics, Inc. (USA); Nibir K. Dhar, Defense Advanced Research Projects Agency (USA) [7959-05]

Coffee Break 10:40 to 11:00 pm

SESSION 3

Room: 206 (Mezzanine) Wed. 11:00 am to 12:20 pm

Advanced Components and Sub-Systems

Session Chair: Achyut K. Dutta, Banpil Photonics, Inc.

11:00 am: **Bidirectional data transmission over multimode fiber using integrated transceiver chips** (*Invited Paper*), Rainer Michalzik, Alexander Kern, Martin Stach, Fernando Rinaldi, Dietmar Wahl, Univ. Ulm (Germany) . [7959-06]

11:30 am: **Tuneable VCSEL aiming for the application in interconnects and short haul systems** (*Invited Paper*), Christian Gierl, Karolina Zogal, Sandro Jatta, Hooman A. Davani, Technische Univ. Darmstadt (Germany); Franko Küppers, Technische Univ. Darmstadt (USA); Peter Meissner, Technische Univ. Darmstadt (Germany); Tobias Gründl, Christian Grasse, Markus-Christian Amann, Walter Schottky Institut (Germany); Aidan J. Daly, Brian Corbett, Tyndall National Institute (Ireland); Benjamin W. Kögel, Åsa Haglund, Johan Gustavsson, Petter Westbergh, Anders Larsson, Chalmers Univ. of Technology (Sweden); Pierluigi Debernardi, Istituto di Elettronica e di Ingegneria dell'Informazione e delle Telecomunicazioni (Italy); Markus Ortsiefer, Vertilas GmbH (Germany) [7959-07]

12:00 pm: **Inexpensive 3dB coupler for POF communication by injection-molding production**, Matthias Haupt, Ulrich H. P. Fischer, Hochschule Harz (Germany) [7959-08]

Lunch/Exhibition Break 12:20 to 1:30 pm

SESSION 4

Room: 206 (Mezzanine) Wed. 1:30 to 3:40 pm

Advanced PON for Access and Metro

Joint Session with Conference 7958

Session Chairs: Raj Jain, Washington Univ. in St. Louis; Benjamin Dingel, Nasfine Photonics, Inc.

1:30 pm: **Advances in fiber access networks development: efficient resource allocation and cost effective protection** (*Invited Paper*), Jiajia Chen, Lena Wosinska, Royal Institute of Technology (Sweden) [7958-07]

2:00 pm: **New concept for a regenerative amplifier for passive optical networks** (*Invited Paper*), Ari Tervonen, Marco Mattila, Luxdyne, Ltd. (Finland) and Aalto Univ. (Finland); Werner Weiershausen, Luxdyne, Ltd. (Finland); Tuomo von Lerber, Luxdyne, Ltd. (Finland) and Darmstadt Univ. of Technology (Germany); Earl R. Parsons, Hacene Chaouch, College of Optical Sciences, The Univ. of Arizona (USA); Franko Kueppers, College of Optical Sciences, The Univ. of Arizona (USA) and Darmstadt Univ. of Technology (Germany); Seppo K. Honkanen, Aalto Univ. School of Science and Technology (Finland) . . [7959-09]

2:30 pm: **Crosstalk analysis of an extended reach hybrid tree-ring PON architecture**, Sasanthi C. Peiris, The City Univ. of New York (USA); Dwight Richards, Neophytos Antoniadis, College of Staten Island (USA); Nicholas Madamopoulos, The City College of New York (USA) [7958-08]

2:50 pm: **A novel hybrid three-band transport system based on a DFB LD with multi-wavelength output characteristic** (*Invited Paper*), Hai-Han Lu, Peng-Chun Peng, Hsiang-Chun Peng, Chung-Yi Li, Heng-Sheng Su, National Taipei Univ. of Technology (Taiwan) [7958-09]

3:20 pm: **Unified cost effective next-generation passive optical network and IEEE 802.16m network architecture**, Shahab Hussain, Syed R. Zaidi, Hasan Erkan, The City College of New York (USA); Ajaz Sana, Bronx Community College (USA) [7958-10]

Coffee Break 3:40 to 4:00 pm

SESSION 5

Room: 206 (Mezzanine) Wed. 4:00 to 5:50 pm
High Capacity Transmission

Session Chair: Atul K. Srivastava, OneTerabit

4:00 pm: **Field trials of 100G and beyond: an operator's point of view** (*Invited Paper*), Sascha Vorbeck, Malte Schneiders, Werner Weiershausen, Heinz Mayer, Achim Schippel, Paul Wagner, A. Ehrhardt, Ralf-Peter Braun, Dirk Breuer, U. Drafz, Deutsche Telekom AG (Germany); Daniel Fritzsche, EICT GmbH (Germany) [7959-10]

4:30 pm: **Scaling 100G QPSK links for reliable network development**, Andrew J. Stark, Steven Searcy, Yu-Ting Hsueh, Tom Detwiler, Georgia Institute of Technology (USA); Sorin Tibuleac, Mark Filer, ADVA Optical Networking North America, Inc. (USA); Gee-Kung Chang, Stephen Ralph, Georgia Institute of Technology (USA) [7959-11]

4:50 pm: **Chromatic dispersion analysis and partially compensation for tunable liquid crystal interleaver**, Shadi A. Alboon, Yarmouk Univ. (Jordan); Alaeddin S. Abu-Abed, Univ. of Central Oklahoma (USA); Ahmad N. AL-Omari, Yarmouk Univ. (Jordan) [7959-12]

5:10 pm: **Electrical PMD equalization methods for intensity modulated optical polarization multiplex transmission systems**, Daniel Goelz, Felix Pohl, Peter Meissner, Technische Univ. Darmstadt (Germany) [7959-13]

5:30 pm: **DPSK receiver-sensitivity enhancement using an SOA in front of the receiver**, Ehab Awad, Nile Univ. (Egypt) [7959-14]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

A novel approach to smart grid technology for electrical power transmission lines by a self-organized optical network node based on optical bistability, Soichiro Nakanishi, Wakao Sasaki, Doshisha Univ. (Japan) [7959-22]

Thursday 27 January

SESSION 6

Room: 206 (Mezzanine) Thurs. 8:00 to 10:20 am

Optical Networks I

Joint Session with Conferences 7958 and 7960

Session Chair: **Werner Weiershausen**,
Deutsche Telekom AG (Germany)

8:00 am: **WSS technology for the next generation ROADM networks** (*Invited Paper*), Gil Cohen, Krishna Bala, Oclaro, Inc. (USA) [7959-15]

8:30 am: **Spectrum variable colorless, directionless and contentionless multi-degree ROADM node**, Philip N. Ji, NEC Labs. America, Inc. (USA); Yoshiaki Aono, NEC Corp. (Japan); Ting Wang, NEC Labs. America, Inc. (USA) [7959-16]

8:50 am: **PCE-based scalable dynamic path control for large-scale photonic networks**, Soichiro Araki, NEC Corp. (Japan); Kohei Shimada, Hiroshi Hasegawa, Ken-ichi Sato, Nagoya Univ. (Japan); Yohei Iizawa, Shinya Ishida, Itaru Nishioka, NEC Corp. (Japan) [7959-17]

9:10 am: **Colorless and directionless multi-degree reconfigurable optical add/drop multiplexers for 100G network application** (*Invited Paper*), Ting Wang, Philip N. Ji, NEC Labs. America, Inc. (USA); Yoshiaki Aono, NEC Corp. (Japan) [7960-24]

9:40 am: **Ultra-wide tuning range of reconfigurable optical add-drop multiplexer using photorefractive polymer**, Yuta Wakayama, Atsushi Okamoto, Akihisa Tomita, Hokkaido Univ. (Japan); Kunihiro Sato, Hokkai-Gakuen Univ. (Japan) [7958-15]

10:00 am: **Linear formulation to avoid adjacent channel interference in LTD of optical networks**, Karcus Day Rosario Assis, Federal Univ. do Recôncavo da Bahia (Brazil); Alex F. Santana, Univ. Estadual do Sudoeste da Bahia (Brazil); Marcio Savasini, Univ. Estadual de Campinas (Brazil) [7959-18]

Coffee Break 10:20 to 10:50 am

SESSION 7

Room: 206 (Mezzanine) Thurs. 10:50 am to 1:10 pm

Optical Networks II

Session Chair: **Werner Weiershausen**,
Deutsche Telekom AG (Germany)

10:50 am: **Efficient elastic optical path network for transmission beyond 100G** (*Invited Paper*), Bartłomiej Kozicki, Hidehiko Takara, Kazushige Yonenaga, Masahiko Jinno, NTT Corp. (Japan) [7959-19]

11:20 am: **Multi-layer photonics modeling framework for the design, analysis, and optimization of devices, links, and networks** (*Invited Paper*), André Richter, Hadrien Louchet, Cristina Arellano, Igor Koltchanov, Jim Farina, VPIsystems GmbH (Germany) [7959-20]

11:50 am: **Dynamic routing, wavelength assignment, and spectrum allocation in transparent flexible optical WDM networks**, Ankitkumar N. Patel, Philip N. Ji, NEC Labs. America, Inc. (USA); Jason P. Jue, The Univ. of Texas at Dallas (USA); Ting Wang, NEC Labs. America, Inc. (USA) . . . [7959-21]

12:10 pm: **Network transformations through packet optical convergence** (*Invited Paper*), Hans-Juergen Schmidtke, Juniper Networks, Inc. (USA) [7959-24]

12:40 pm: **Novel fibers for next generation parametric devices** (*Invited Paper*), Hugo L. Fragnito, Jose Amilton Mores, Jr., Univ. Estadual de Campinas (Brazil); Lucas Heitzmann Gabrielli, Cornell Univ. (USA); Hugo E. Hernandez-Figueroa, Univ. Estadual de Campinas (Brazil) [7959-25]

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

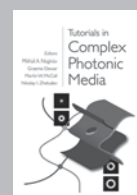
SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

OPTO*

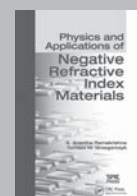


Nanotechnology: A Crash Course
by Raúl J. Martín-Palma
and Akhlesh Lakhtakia
Vol. TT86



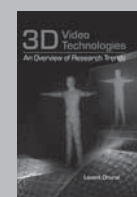
Tutorials in Complex Photonic Media

Editors: Mikhail A. Noginov,
Graeme Dewar, Martin W. McCall,
and Nikolay I. Zheludev
Vol. PM194



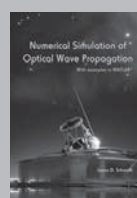
Physics and Applications of Negative Refractive Index Materials

by S. Anantha Ramakrishna and
Tomasz M. Grzegorzczak
Vol. PM186



3D Video Technologies: An Overview of Research Trends

by Levent Onural
Vol. PM196



Numerical Simulation of Optical Wave Propagation with Examples in MATLAB™

by Jason D. Schmidt
Vol. PM199

spie.org/publications

Coherent Optical Communication: Components, Subsystems, and Systems

Conference Chairs: **Guifang Li**, CREOL, The College of Optics and Photonics, Univ. of Central Florida; **Dieter Stefan Jäger**, Univ. Duisburg-Essen (Germany)

Program Committee: **Young-Kai Chen**, Alcatel-Lucent Bell Labs.; **Benjamin Dingel**, Nasfine Photonics, Inc.; **Jin Hong**, Opnext, Inc.; **Sander L. Jansen**, Nokia Siemens Networks (Germany); **Alan C. Nilsson**, Infinera Corp.; **Ioannis Roudas**, Univ. of Patras (Greece); **Akihide Sano**, NTT Network Innovation Labs. (Japan); **Atul K. Srivastava**, OneTerabit

Tuesday 25 January

OPTO Plenary Session

Room: 134 (Exhibit Level) Tues. 8:00 to 10:10 am

Session Chairs: **Liang-Chy Chien**, Kent State Univ. (USA); **Klaus P. Streubel**, OSRAM GmbH (Germany)

8:00 am: **Welcome and Opening Remarks, Liang-Chy Chien**, Kent State Univ. (USA)

8:05 am: **Announcement of the Best Green Photonics Paper Awards in OPTO, Stephen J. Eglash**, Precourt Institute for Energy, Stanford Univ. (USA)

8:10 am: **Technology Challenge in E-Paper to Flexible Display Application, Chang-Dong Kim**, LG Display R&D Ctr. (Republic of Korea)

8:50 am: **Nanoscopy with Focused Light, Stefan W. Hell**, Max-Planck-Institute for Biophysical Chemistry (Germany)

9:30 am: **Metal Optics: The New Frontier, Eli Yablonovitch**, Univ. of California, Berkeley (USA)

See page 24 for details.

Coffee Break 10:10 to 10:30 am

Optical Communications Plenary Session

Room: 206 (Mezzanine) Tues. 10:30 am to 12:30 pm

Session Chairs: **Benjamin Dingel**, Nasfine Photonics, Inc.; **Werner Weiershausen**, Deutsche Telekom AG (Germany)

10:30 am: **Advances in coherent detection algorithms (Invited Paper)**, Jens C. Rasmussen, Takeshi Hoshida, Takahito Tanimura, Hisao Nakashima, Shoichiro Oda, Fujitsu Labs. (Japan); Zhenning Tao, Lei Li, Fujitsu Research and Development Center Co., Ltd. (China) [7960-01]

11:00 am: **Recent progress in coherent 100G module technology for long haul DWDM applications (Invited Paper)**, Edem Ibragimov, Theodore J. Schmidt, Opnext, Inc. (USA) [7960-02]

11:30 am: **Photonic devices for next-generation broadband fiber access networks (Invited Paper)**, Leonid G. Kazovsky, She-Hwa Yen, Shing-Wa Wong, Stanford Univ. (USA) [7958-01]

12:00 pm: **Higher-order modulation formats for spectral-efficient high-speed metro systems (Invited Paper)**, Ronald Freund, M. Nölle, Matthias Seimetz, Jonas Hilt, Johannes K. Fischer, Reinhold Ludwig, Colja Schubert, Heinz-Gunter Bach, Karl-Otto Velthaus, Martin Schell, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) [7959-01]

Lunch/Exhibition Break 12:30 to 2:00 pm

Courses of Related Interest

SC747 Semiconductor Optoelectronic Device Fundamentals (Linden) Monday, 8:30 am to 5:30 pm

SC977 Fundamentals of Laser Beam Profile Measurements (Rypma) Tuesday, 1:30 to 5:30 pm

See course materials desk located in the SPIE Registration Area.

SESSION 1

Room: 206 (Mezzanine) Tues. 2:00 to 5:30 pm

OFDM for Access, Metro and Coherent Communications

Joint Session between Conferences 7959 and 7960

Session Chairs: **Atul K. Srivastava**, OneTerabit; **Guifang Li**, CREOL, The College of Optics and Photonics, Univ. of Central Florida

2:00 pm: **Real-time coherent OFDM transmission (Invited Paper)**, Noriaki Kaneda, Timo Pfau, Alcatel-Lucent Bell Labs. (USA); Qi Yang, Wuhan Research Institute of Posts and Telecommunications (China); Young-Kai Chen, Alcatel-Lucent Bell Labs. (USA) [7960-03]

2:30 pm: **Four-dimensional coded optical OFDM for ultra-high-speed metro networks (Invited Paper)**, Ivan B. Djordjevic, The Univ. of Arizona (USA) [7959-02]

3:00 pm: **Low cost direct modulation and coherent detection optical OFDM for metro applications**, Nir Sheffi, Dan Sadot, Ben-Gurion Univ. of the Negev (Israel) [7960-04]

Coffee Break 3:20 to 3:50 pm

3:50 pm: **Single-carrier versus sub-carrier bandwidth considerations for coherent optical systems (Invited Paper)**, John D. McNicol, Infinera Canada (Canada); Vinayak Dangui, Infinera Corp. (USA); Han Sun, David J. Krause, Kuang-Tsan Wu, Infinera Canada (Canada); Matthew L. Mitchell, David F. Welch, Infinera Corp. (USA) [7960-05]

4:20 pm: **Optimum signal constellations for high-speed optical metro networks and beyond**, Jianyong Zhang, Beijing Jiaotong Univ. (China); Ivan B. Djordjevic, The Univ. of Arizona (USA) [7959-03]

4:40 pm: **Potential of OFDM for next generation optical access (Invited Paper)**, Daniel Fritzsche, EICT GmbH (Germany); Erik Weis, Dirk Breuer, Deutsche Telekom AG (Germany) [7959-04]

5:10 pm: **High order modulation format optical OFDM for access applications**, Dayou Qian, Ting Wang, NEC Labs. America, Inc. (USA) [7960-06]

Wednesday 26 January

SESSION 2

Room: 206 (Mezzanine) Wed. 8:00 to 10:40 am

Component Technologies for Access, Metro and Coherent Communications

Joint Session with Conferences 7958 and 7959

Session Chairs: **Dieter Stefan Jäger**, Univ. Duisburg-Essen (Germany); **Werner Weiershausen**, Deutsche Telekom AG (Germany)

8:00 am: **Coherent optical component technologies for WDM transmission systems (Invited Paper)**, Shinji Mino, Koichi Murata, Takashi Saida, Ikuo Ogawa, NTT Photonics Labs. (Japan) [7960-07]

8:30 am: **Enabling technologies for 100G coherent optical communication (Invited Paper)**, Bo Zhang, Yannick K. Lize, Opnext, Inc. (USA) [7960-08]

9:00 am: **Developing accurate simulations for high-speed fiber links**, Steven M. Searcy, Andrew J. Stark, Thomas F. Detwiler, Yu-Ting Hsueh, Georgia Institute of Technology (USA); Sorin Tibuleac, ADVA Optical Networking North America, Inc. (USA); Gee-Kung Chang, Stephen E. Ralph, Georgia Institute of Technology (USA) [7960-09]

Conference 7960 • Note Room Changes

9:20 am: **Micro-resonator devices and optical broadband access application** (*Invited Paper*), Alan Willner, Lin Zhang, Jeng-Yuan Yang, The Univ. of Southern California (USA) [7958-02]

9:50 am: **Inherent RF linearized bandwidth broadening capability of an ultra-linear optical modulator**, Benjamin Dingel, Nasfene Photonics, Inc. (USA); Andru J. Prescod, Corning Inc. (USA); Nicholas Madamopoulos, The City College of New York (USA) [7958-03]

10:10 am: **Novel multicolor photodetectors for short- and long-distance optical communication** (*Invited Paper*), Achyut K. Dutta, Robert Olah, Genki Mizuno, Banpil Photonics, Inc. (USA); Nibir K. Dhar, Defense Advanced Research Projects Agency (USA) [7959-05]

Coffee Break 10:40 to 11:00 am

SESSION 3

Room: 256 (Mezzanine). Wed. 11:00 am to 12:30 pm

Coding and Algorithms

Session Chair: Reinhold Noé, Univ. Paderborn (Germany)

Note Room Change

11:00 am: **Rate-adaptive modulation and coding for optical fiber transmission systems** (*Invited Paper*), Gwang-Hyun Gho, Joseph M. Kahn, Stanford Univ. (USA) [7960-10]

11:30 am: **A rate-adaptive LDPC decoder on FPGA for high-speed optical transport networks**, Murat Arabaci, Ivan B. Djordjevic, The Univ. of Arizona (USA) [7960-11]

11:50 am: **Asynchronously sampled blind source separation for coherent optical links**, Thomas F. Detwiler, Andrew J. Stark, Steven M. Searcy, Georgia Institute of Technology (USA); E. Bert Basch, Verizon Labs., Inc. (USA); Stephen E. Ralph, Georgia Institute of Technology (USA) [7960-12]

12:10 pm: **Polarization demultiplexing using independent component analysis**, Xiaobo Xie, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Xiang Zhou, AT&T Labs. Research (USA); Guifang Li, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) [7960-13]

Lunch/Exhibition Break 12:30 to 1:30 pm

SESSION 4

Room: 256 (Mezzanine). Wed. 1:30 to 3:00 pm

Compensation of Impairments

Session Chair: Alan Eli Willner, The Univ. of Southern California

1:30 pm: **Interchannel nonlinear impairment compensation by advanced split-step method** (*Invited Paper*), Fatih Yaman, Eduardo Mateo, Ting Wang, NEC Labs. America, Inc. (USA); Guifang Li, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA) [7960-14]

2:00 pm: **Comparison of 8 Tb/s optical transport systems using different modulation formats**, Han Sun, Infinera Canada (Canada); Vinayak Dangui, Infinera Corp. (USA); David J. Krause, Infinera Canada (Canada); Matthew L. Mitchell, Infinera Corp. (USA); Kuang-Tsan Wu, Infinera Canada (Canada); David F. Welch, Infinera Corp. (USA) [7960-15]

2:20 pm: **Analysis and mitigation of Mach-Zehnder modulator nonlinearity in coherent optical OFDM system in the presence of high peak power**, Yanir London, Dan Sadot, Ben-Gurion Univ. of the Negev (Israel) [7960-17]

2:40 pm: **Avoiding fiber nonlinearities by choice of modulation format**, Thomas F. Detwiler, Steven M. Searcy, Andrew J. Stark, Georgia Institute of Technology (USA); Bert E. Basch, Verizon Labs., Inc. (USA); Stephen E. Ralph, Georgia Institute of Technology (USA) [7960-18]

Coffee Break 3:00 to 3:30 pm

SESSION 5

Room: 256 (Mezzanine). Wed. 3:30 to 5:30 pm

High-Order Modulation Formats

Session Chair: Ronald Freund, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany)

3:30 pm: **The need for speed: 100 Gb/s and its utility beyond fiber efficiency** (*Invited Paper*), Reg Wilcox, Huawei Technologies Co., Ltd. (China) . . [7960-19]

4:00 pm: **High-order QAM transmission for the future optical transport network beyond 100Gb/s** (*Invited Paper*), Takayuki Kobayashi, NTT Network Innovation Labs. (Japan) [7960-20]

4:30 pm: **Advances in coherent optical modems and 16-QAM transmission with feedforward carrier recovery** (*Invited Paper*), Reinhold Noé, Sebastian Hoffmann, C. Wördehoff, A. Al-Bermani, Mohamed El-Darawy, Univ. Paderborn (Germany) [7960-21]

5:00 pm: **Spectrally efficient polymer optical fiber transmission** (*Invited Paper*), Sebastian Randel, Alcatel-Lucent Bell Labs. (USA); Christian-Alexander Bunge, Hochschule für Telekommunikation Leipzig (Germany) [7960-23]

POSTERS-Wednesday

Room: 103/104 (Exhibit Level) Wed. 6:00 to 7:30 pm

Conference attendees are invited to attend the OPTO poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 370.

Polymeric optical waveguide polarization beam splitters incorporating low loss birefringent polymers, Jun-Whee Kim, Nam-Seon Son, Min-Cheol Oh, Pusan National Univ. (Korea, Republic of); Jun-Kyu Seo, Jong-Hwi Lee, Young-Ouk Noh, Hyung-Jong Lee, ChemOptics Inc. (Korea, Republic of) . . . [7960-25]

Photonic generation of RF multiple carriers using a mode-locked laser and a single photodiode, Paolo Ghelfi, Consorzio Nazionale Interuniversitario per le Telecomunicazioni (Italy); Giovanni Serafino, Francesco Fresi, Scuola Superiore Sant'Anna (Italy); Guillermo Villanueva, Pere Perez-Millan, Jose L. Cruz Munoz, Univ. de València (Spain); Fabrizio Berizzi, Univ. di Pisa (Italy); Antonella Bogonia, Consorzio Nazionale Interuniversitario per le Telecomunicazioni (Italy) [7960-27]

Fiber-coupled superconducting nanowire single photon detector for quantum key distribution, Labao Zhang, Zhao-Qing Yuan, Lin Kang, Jian Chen, Peiheng Wu, Chunhai Cao, Nanjing Univ. (China) [7960-28]

Coherent state statistics from time-resolved photon counting, Anil Prabhakar, Harish Ravishanker, Indian Institute of Technology Madras (India) [7960-29]

Thursday 27 January

SESSION 6

Room: 206 (Mezzanine). Thurs. 8:00 to 10:20 am

Optical Networks

Joint Session with Conference 7958 and 7959

Session Chair: Werner Weiershausen, Deutsche Telekom AG (Germany)

8:00 am: **WSS technology for the next generation ROADM networks** (*Invited Paper*), Gil Cohen, Krishna Bala, Oclaro, Inc. (USA) [7959-15]

8:30 am: **Spectrum variable colorless, directionless and contentionless multi-degree ROADM node**, Philip N. Ji, NEC Labs. America, Inc. (USA); Yoshiaki Aono, NEC Corp. (Japan); Ting Wang, NEC Labs. America, Inc. (USA) [7959-16]

8:50 am: **PCE-based scalable dynamic path control for large-scale photonic networks**, Soichiro Araki, NEC Corp. (Japan); Kohei Shimada, Hiroshi Hasegawa, Ken-ichi Sato, Nagoya Univ. (Japan); Yohei Iizawa, Shinya Ishida, Itaru Nishioka, NEC Corp. (Japan) [7959-17]

9:10 am: **Colorless and directionless multi-degree reconfigurable optical add/drop multiplexers for 100G network application** (*Invited Paper*), Ting Wang, Philip N. Ji, NEC Labs. America, Inc. (USA); Yoshiaki Aono, NEC Corp. (Japan) [7960-24]

9:40 am: **Ultra-wide tuning range of reconfigurable optical add-drop multiplexer using photorefractive polymer**, Yuta Wakayama, Atsushi Okamoto, Akihisa Tomita, Hokkaido Univ. (Japan); Kunihiro Sato, Hokkai-Gakuen Univ. (Japan) [7958-15]

10:00 am: **Linear formulation to avoid adjacent channel interference in LTD of optical networks**, Karcus Day Rosario Assis, Federal Univ. do Recôncavo da Bahia (Brazil); Alex F. Santana, Univ. Estadual do Sudoeste da Bahia (Brazil); Marcio Savasini, Univ. Estadual de Campinas (Brazil) [7959-18]

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

A

A, Mohan Babu [7940-19]S5
Aalders, Maurice C. [7889-83]S12,
7890 ProgComm, 7890 S8 SessChr,
[7892-06]S1, [7895-21]S4
Aalto, Timo [7941-28]S7, [7943-30]S9
Aaltonen, Juha P. [7928-08]S3
Aamar, Ousama M. [7883C-163]S1
Aamer, Khaled [7903-34]S6
Aans, Jan Bonne [7883C-164]S5
Aaron, Holly L. 7903 SPS1 SessChr
Aarts, Ronald M. [7894-17]S3
Aartsma, Thijs J. [7905-43]SPS1
Abakumova, Tatyana [7901-19]S4
Abdelrahman, Ahmed M. [7937-73]
SPS4, [7937-74]SPS4
Abdisolaam, Salim [7905-42]SPS1,
[7905-46]SPS1
Abdollahpour, Daryoush [7925-23]S6
Abell, Chris [7905-45]SPS1
Abell, Joshua [7953-38]S10
Abeytunge, Sanjeewa [7890-23]S5
Abi Haidar, Darine [7893-09]S2
Abid, Mohamed [7940-58]S8
Abiko, Yoshimitsu [7887-05]S1
Abraham, Thomas [7903-12]S2
Abramski, Krzysztof M. [7914-68]
SPS3
Abran, Maxime [7899-95]SPS2
Abrantes, Ana M. [7910-09]S2
Abu-Abed, Alaeddin S. [7955-23]S7,
[7959-12]S5
Abu-Samak, M. [7940-27]S7
Abushkin, Ivan A. [7883A-16]S3
Abu-Yousif, Adnan O. [7886-06]S1,
[7886-07]S2, [7886-08]S2, [7910-01]
S1
Accanto, Nicolo [7937-04]S1
Accard, Alain [7933-11]S3
Acerbi, Fabio [7933-61]S14, [7934-21]
S5, [7945-95]S17, [7945-99]S17
Achaoui, Younes [7946-40]S10
Acharya, Bharat R. [7955-19]S6
Achilefu, Samuel [7895-11]S3, 7896
ProgComm, [7896-51]S11, [7896-
69]S14, [7899-19]S3, 7910 Chr,
7910 S1 SessChr, [7910-38]S8,
[7910-44]S9, [7910-66]S3
Achtenhagen, Martin 7953 ProgComm,
7953 S13 SessChr
Aciole, Joubert M. [7887-29]SPS1
Ackemann, Thorsten [7952-10]S3
Ackert, Jason [7943-07]S3
Acosta, Victor M. [7948-31]S8
Adachi, Chihaya [7947-32]SPS4
Adachi, Muneyuki [7917-08]S3
Adalsteinsson, Orn 7900 S3 SessChr,
[7900-08]S3
Adam, Jean-Luc 7934 ProgComm
Adam, Randall L. [7903-09]S1
Adamiec, Pawel [7953-34]S9
Adams, Alfred R. [7939-13]S13
Adams, Jessica [7933-26]S6
Adams, Kristen E. [7890-50]SPS1,
[7902-52]S11
Adams, Michael J. [7952-22]S6
Adams, Robert W. [7953-40]S10
Adams, Winnifred [7902-63]SPS2
Adato, Ronen [7943-01]S1, [7946-60]
S14
Adcock, Aaron B. [7916-24]S5
Adelhelm, Christel [7921-23]S6, [7921-
24]S6
Adhikari, Pratik [7906A-03]S1
Adibi, Ali TrackChr, [7896-106]SPS1,
[7903-48]S7, [7934-10]S3, 7946
Chr, 7946 S10 SessChr, 7946 S1
SessChr, [7946-39]S9, [7946-41]
S10, [7946-51]S12

Adie, Steven G. [7889-59]S9
Adkins, Brian [7923-22]S6
Adler, Desmond C. [7893-04]S1
Adler, Florian [7917-44]S10
Adler-Storhiz, Karen [7883C-183]
S6
Adolf, Alain [7916-34]SPS3, [7916-
35]SPS3
Adriaenssens, Tom [7889-23]S4
Aeschlimann, Martin [7937-21]S5
Affouda, Chaffra A. [7945-72]S12
Afonso, Carmen N. 7922
ProgComm
Afshar, Maziar [7903-54]S8, [7908-
20]S4, [7920-43]SPS3, [7921-19]
S5
Afzal, Sohaib [7953-13]S3
Afzelius, Mikael [7948-42]S10
Agarwal, Anuradha M. [7945-86]
S15
Agarwal, Ashish [7899-57]S9,
[7899-75]S11
Aggarwal, Ishwar [7914-24]S6,
[7946-35]S8
Aglyamov, Salavat R. [7899-17]S3
Agrawal, Anant 7906B ProgComm,
[7906B-41]S3
Agrawal, Brij [7924-21]S4, [7931-
01]S6, [7931-01]S1, [7931-01]S5
Agriba, Pavel D. [7910-23]S5
Aguayo-Rodríguez, Gustavo [7958-
13]S5
Aguirre, Andres [7896-96]SPS1,
[7896-97]SPS1, [7899-07]
S1, [7899-29]S5, [7899-36]S6,
[7899-63]S9, [7899-138]SPS2
Aharonovich, Igor [7948-45]S11
Ahearne, Mark [7898-07]S1
Ahluwalia, Balpreet S. [7902-20]
S5, [7950-23]S6
Ahmad, Adeel [7889-26]S4, [7910-
04]S1
Ahmadi, Ehsaneh D. [7946-07]S2
Ahmadi, Elahe [7946-67]SPS4
Ahmar, Hani E. [7934-45]SPS4
Ahmed, Harith B. [7943-16]S5
Ahmed, Osman S. [7938-04]S1
Ahn, Daehwan [7920-09]S2, [7920-
13]S3
Ahn, Doyeol [7939-73]SPS4
Ahn, Hyeoung [7937-33]S8, [7945-
36]S5
Ahn, Jin-chul [7883C-68]S3, [7887-
12]S3
Ahn, MyoungKi [7904-54]SPS2
Ahn, Sungmo [7942-17]S7
Ahn, Yeh-Chan [7893-30]S6
Ahnepohi, Florian [7918-29]S5
Ahsan, Md. S. [7925-34]S5, [7925-
34]S9
Ahuja, Shelly [7897-62]SPS2
Ai, Irene [7918-04]S1
Aichele, Thomas [7943-37]S12
Aidam, Rolf [7953-58]S14
Aiello, Andrea [7950-14]S4
Aifer, Edward H. [7945-72]S12
Aikens, David M. SC700 Inst,
SC1011 Inst, SC1017 Inst
Aimez, Vincent [7929-19]S5
Airey, Robert J. [7953-02]S1
Ait-Ameur, Kamel [7913-03]S1,
[7913-50]SPS3
Aitchison, Stewart [7908-22]S4,
[7911-12]S3
Aizenberg, Joanna [7927-02]S1,
[7927-04]S1, [7946-19]S5
Ajeti, Visar [7903-10]S2
Akahane, Kouichi [7933-43]S10,
[7958-14]S5
Akasaki, Isamu [7939-63]SPS4,
[7939-67]SPS4

SPIE Membership



A long-term investment that pays off

3-Year and Lifetime Memberships

1-year- \$105 | 3-year- \$297 | Lifetime- \$995

Join or renew your SPIE Membership and receive
10 SPIE Digital Library downloads, and
1 complimentary online course.

- ▶ Networking and access to information
- ▶ Discounts on events, courses, and publications
- ▶ Career advancement and peer recognition
- ▶ Complimentary online SPIE journal

Make SPIE your resource.
Join or renew online today.

spie.org/membership

customerservice@spie.org

+1 360 676 3290

Fax: +1 360 647 1445



Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Akbulut, Mehmetcan [7914-06]S2, [7923-12]S4
- Akers, Walter J.** [7896-51]S11, [7899-19]S3, [7910-38]S8, [7910-66]S3
- Akhlagh Moayed, Alireza** [7885-04]S1, [7885-48]S9, [7889-19]S3
- Akhmediev, Nail [7917-31]S8
- Akhmetshin, Ural G. [7934-43]SPS4
- Akiba, Akira [7928-11]S3
- Akiba, Masahiro [7889-105]SPS2
- Akieda, Kensuke** [7957-32]SPS4, [7957-33]SPS4
- Akimoto, Katsuhiko [7939-31]S5
- Akins, Brian A. [7909-20]S6
- Akiyama, Takuya [7902-30]S6
- Akkilic, Namik [7905-43]SPS1
- Akkin, Taner [7883E-110]S4
- Akl, Tony J.** [7906A-04]S1
- Akozbeq, Neset [7941-37]S8
- Aksu, Serap** [7943-01]S1, [7946-60]S14
- Aksyuk, Vladimir A. [7927-33]S8
- Akula, James D. [7885-08]S2, [7885-42]S8
- Al Abdi, Rabah M.** [7896-55]S12
- Al Saleh, Mohammed [7951-05]S1
- Al Salhi, Mohamad [7895-10]S3, [7895-35]SPS2, [7896-104]SPS1
- Al-Aabed, Hazem A.** [7899-149]SPS2
- Alahmed, Zeyad A. [7914-54]S14
- Alam, Mansoor [7914-62]S15
- Alam, Md. Mahbub [7945-78]S13
- Alam, Shaif-ul [7914-23]S6
- Alameh, Kamal E. [7937-73]SPS4, [7937-74]SPS4
- Alayo Chavez, Marco I. [7935-47]SPS4, [7940-42]S11, [7940-51]SPS4
- Albanese, Alessio [7883D-93]S6
- Al-Bermani, A. [7960-21]S5
- Albert, Emmanuelle S. [7883G-137]S2
- Albert, Ferdinand [7947-01]S1
- Alboon, Shadi A. [7955-23]S7, [7959-12]S5
- Albrecht, Alexander R.** [7919-03]S1
- Aldredge, Ralph C. [7883D-78]S2, [7883D-85]S4
- Aldrich, Melissa B. [7890-50]SPS1, [7902-52]S11
- Alegria, Kimberly R. [7918-13]S3
- Aleksic, Slavisa [7958-21]SPS4
- Alemu, Andenet [7933-14]S4, [7933-15]S4, [7933-27]S6, [7933-88]SPS4
- Alencar, Márcio A. R. C. [7934-12]S3
- Alerstam, Erik [7896-34]S7
- Alex, Aneesh P.** [7883A-14]S3, [7889-41]S7, [7890-29]S6
- Alexandrakis, George [7883G-136]S1, [7896-06]S1, [7905-42]SPS1
- Alexandrou, Antigoni 7909 ProgComm
- Alexandrov, Alexander G. [7913-08]S2
- Alexandrov, Veselin [7912-30]S8
- Alexandrov, Yuriy [7883A-09]S2, [7903-80]S11, [7904-61]SPS2
- Alexeev, Ilya [7925-40]S8, [7925-40]S12
- Alexson, Dimitri [7947-31]SPS4
- Alfano, Robert R. 7895 Chr, [7895-11]S3, [7895-17]S3, [7895-20]S4, [7895-33]SPS2, 7896 Chr, [7934-45]SPS4, [7950-16]S4, [7950-18]S5, [7950-26]S7, [7950-33]SPS4
- Alfano, Scott A. [7895-33]SPS2
- Alfeeli, Bassam** [7934-58]SPS4
- Algar, W. Russ** [7909-11]S4, [7909-32]S9
- Al-Hendy, Ayman [7890-45]S8
- Ali, Murtaza** [7889-90]SPS2
- Ali, Zulfiqar [7957-03]S1, [7957-04]S1
- Alibhai, Dominic R. [7902-31]S7, [7904-61]SPS2
- Alkeskjold, Thomas T. [7914-61]S15, [7914-64]S16, [7914-67]S16, [7914-84]SPS3
- Allain, Jean-Marc [7902-51]S11
- Allen, David W.** [7891-28]S7, [7891-30]S7, [7906B-40]S4, [7932-04]S1
- Allen, Martin 7940 S11 SessChr, 7940 S12 SessChr, [7940-40]S10
- Allen, Thomas J. [7899-66]S10
- Allenstein, Frank [7934-41]SPS4
- Alley, Michael** WS667 Inst, WS668 Inst
- Allier, Cédric P. [7906A-07]S2
- Allione, Marco [7935-37]S9
- Allocco, Dominic [7883D-88]S5
- Allsopp, Duncan W. E. [7945-77]S13
- Almeida Ortega, Tiago** [7912-70]SPS3
- Almutairi, Adah [7910-48]S5
- AL-Omari, Ahmad N.** [7959-12]S5
- Alonso, Miguel A. [7950-02]S1
- Alonso-Ortega, Cesar [7904-50]S10
- Alouini, Medhi [7945-10]S2, [7949-48]S3
- Alqasemi, Umar S.** [7896-96]SPS1, [7896-97]SPS1, [7899-138]SPS2
- Alrubaiee, Mohammad [7892-15]S3
- Al-Saadi, Aws [7913-42]S5, [7943-28]S8, [7943-40]S12
- Al-Saleh, Mohammad [7934-08]S2
- AlSalhi, Mohamad [7935-12]S3, [7935-11]S3
- Althuler, Gregory B.** [7883A-35]SPS1, 7884 ProgComm, [7884-29]SPS1
- Altug, Hatice [7888-22]S1, [7888-22]S3, [7911-30]S6, [7943-01]S1, [7946-60]S14
- Alu, Andrea** 7946 S5 SessChr, [7946-27]S7
- Alvarado-Gil, Juan J. [7883F-133]S3
- Alvarez, Jesús [7916-27]S6
- Alvarez Tamayo, Ricardo I. [7914-77]SPS3
- Alvarez-Elizondo, Martha B.** [7897-08]S2
- Alvarez-Puebla, Ramon A. [7909-36]S10
- Alves, Eduardo [7940-24]S6
- Alves, Frauke [7910-37]S8
- Alves, Sarah [7955-08]S4
- Alvi, Bilal A. [7894-09]S2
- Aly, Hussein [7920-04]S1
- Alzoubi, Khalid [7956B-32]S3
- Amaechi, Bennett T. [7883F-129]S2, [7884-09]S4
- Amako, Jun 7921 CoChr, 7921 S4 SessChr, [7921-21]S5
- Amann, Markus-Christian [7945-09]S2, [7952-12]S4, [7953-40]S10, [7959-07]S3
- Amano, Hiroshi 7933 ProgComm, 7939 ProgComm, 7939 S8 SessChr, [7939-17]S15, [7939-63]SPS4
- Amans, D. [7940-55]S12
- Amanti, Maria [7945-15]S3, [7953-24]S6
- Amaral, Marcello M. [7889-117]SPS2, [7907-41]S6
- Amata, Hadi [7941-05]S1
- Amat-Roldan, Ivan [7903-15]S2
- Ambacher, Oliver [7931-10]S4
- Ambekar Ramachandra Rao, Raghu [7903-17]S2
- Ambrosone, Alfredo [7909-10]S3
- Ameer-Beg, Simon M. [7903-81]S11, [7903-88]SPS1
- Amilton Mores, Jose [7959-25]S7
- Amini, Jason [7948-15]S4
- Amiri, Megdouda [7910-42]S9
- Amirian, James H. [7899-01]S1, [7899-02]S1
- Amrani, Ofer [7941-14]S3
- Ams, Martin [7925-19]S5
- Amthor, Franklin [7883G-139]S1, [7907-35]S5
- Amyot, Franck [7896-72]S15
- An, Ho Myoung [7954-48]SPS4
- An, Lin** [7889-40]S6, [7889-101]SPS2, [7898-11]S2, [7898-18]S3, [7898-28]S5, [7898-41]SPS2
- An, Ran [7883F-127]S2
- An, Ran [7898-04]S1, [7907-13]S2
- An, Shinmo [7942-29]SPS4
- Ana, Patricia A. [7883F-132]S3
- Anand, Chokkalingam [7935-20]S5
- Anand, Sanjay [7886-19]S5
- Anashchenko, Albina V. [7887-30]SPS1
- Anastasio, Mark A.** 7899 ProgComm, 7899 S10 SessChr, [7899-65]S10, [7899-67]S10, [7899-135]SPS2, [7899-140]SPS2
- Anda, Yoshiharu [7939-29]S4
- Anders, Juanita 7887 Chr, 7887 S2 SessChr, [7887-17]S4
- Anders, Matthias [7953-40]S10
- Andersen, Dan E.** [7885-23]S4
- Andersen, Peter E.** 7889 ProgComm, 7889 S10 SessChr, [7889-62]S9, [7889-115]SPS2, [7912-33]S9
- Anderson, Erik H. [7937-41]S9
- Anderson, Monte D. [7949-29]S6
- Anderson, R. Rox** SympChair, [7883C-65]S7
- Andersson-Engels, Stefan** 7895 ProgComm, [7895-16]S3, [7896-34]S7, [7896-67]S14, [7896-105]SPS1, [7909-13]S12
- Andilla, Jordi** [7902-43]S9
- Ando, Jun [7911-23]S5
- Ando, Takahiro** [7883G-135]S1
- Ando, Toshiyuki [7923-18]S5
- Andrade Correia, Neander [7887-14]S3
- Andraud, Chantal** 7935 ProgComm, 7935 S3 SessChr, [7935-26]S7
- Andreeff, Michael [7897-34]S7
- Andreev, Valeriy G. [7899-159]SPS2
- Andrews, Aaron M. [7947-21]S6
- Andrews, David L.** [7917-55]S12, 7950 Chr, 7950 S1 SessChr, [7950-06]S2, [7950-19]S5
- Andrews, Jonathan R.** [7923-27]S7, [7931-04]S2, [7931-11]S5
- Andrews, Larry C.** SC188 Inst, 7924 ProgComm
- Andrews, Mark P. [7946-62]S14, [7955-16]S5, [7955-27]S8
- Andrews, Michael K. [7898-12]S2, [7898-13]S2
- Andrisano, Vincenza 7902 ProgComm
- Angelidou, Myria [7911-37]S8
- Anheier, Norman C. 7934 ProgComm
- Ania-Castanon, Juan D. [7914-112]SPS3
- Anis, Hanan [7903-45]S7
- Anis, Yasser H. [7902-58]S13, [7929-26]S6
- Anischenko, Vadim S. 7898 ProgComm
- Anisimov, Petr M. [7948-13]S3
- Anjum, Fraz [7927-08]S2
- Ankri, Rinat [7897-71]S6
- Anne, Marie-Laure [7894-38]S7, [7894-40]S8
- Ansari, Rafat R.** 7885 ProgComm, 7885 S3 SessChr, 7906A ProgComm
- Anthony, John E. [7935-15]S4
- Anti, Michele [7933-61]S14, [7934-21]S5
- Antkowiak, Maciej K. [7925-10]S3
- Antonelli, Maria Rosaria [7895-14]S3
- Antoniades, Neophytos [7958-08]S4, [7958-08]S4
- Anu, Anu [7935-30]S8
- Anusha, P. T. [7935-44]SPS4
- Anvari, Bahman** [7910-27]S5, [7910-45]S10
- Anvari, Mehran [7883F-127]S2
- Anwar, A. F. Mehdi** [7940-56]S8
- Ao, Xianyu [7913-35]S7
- Aoki, Jun [7902-74]SPS2
- Aono, Yoshiaki [7959-16]S6, [7959-16]S6, [7959-16]S6, [7960-24]S6, [7960-24]S6, [7960-24]S6
- Apicella, Elisa [7905-48]SPS1
- Apolonski, Alexander A. [7914-54]S14
- Apostolopoulos, Vasilis [7919-26]S5, [7919-36]S8, [7919-38]S8
- Applegate, Brian E.** [7883C-67]S7, [7883D-74]S2, [7889-108]SPS2, [7899-27]S4
- Apuzzo, Aniello [7943-26]S8, [7943-27]S8
- Aquino, Daniel [7904-52]S10, [7905-24]S6
- Arab, Abbas [7946-67]SPS4
- Arabaci, Murat [7960-11]S3
- Arafin, Shamsul** [7945-09]S2, [7952-12]S4
- Arai, Hideaki [7933-58]S13
- Arai, Shigehisa [7953-06]S2
- Arai, Tomofumi [7914-19]S5
- Arai, Toshiaki [7934-19]S5
- Arai, Tsunenori** [7883D-91]S6, [7883D-92]S6, [7897-29]S6
- Arakawa, Yasuhiko 7933 Chr, [7947-04]S2, 7953 ProgComm
- Araki, R. [7939-51]S9
- Araki, Soichiro [7959-17]S6, [7959-17]S6, [7959-17]S6
- Araki, Tsutomu [7903-46]S7, [7903-86]SPS1
- Araoka, Fumito [7935-09]S3, [7956B-20]S1
- Aras, Mehmet [7942-16]S7
- Arathorn, David W. [7885-11]S2
- Arbab, M. Hassan** [7890-25]S5
- Arbejt, Jeffrey M. [7899-104]SPS2
- Arcanjo da Silva, Elias A. [7902-08]S2, [7912-90]SPS3
- Arce-Diego, José Luis** [7886-15]S3, [7906A-22]SPS2
- Archibald, Steven J. [7910-40]S9
- Ardeshipour, Yasaman [7896-97]SPS1
- Ardeshipour, Yasaman** [7899-07]S1
- Arellano, Cristina [7933-29]S7, [7959-20]S7
- Arfire, Cristian [7904-05]S1
- Argut, Ilona [7939-41]S7
- Arianpour, Ashkan [7885-35]S7
- Arias, Ana Claudia [7956A-02]S1
- Arias, Julia** [7952-11]S3
- Arif, Khalid [7908-02]S1
- Arima, Yasuaki [7957-45]SPS4
- Arima, Yasunori [7925-44]SPS3
- Arimoto, Yoshinori** [7923-24]S7
- Armani, Andrea M.** [7888-02]S1, [7913-29]S7
- Armas Alvarado, Maria E. [7935-47]SPS4
- Armstead, William M. [7896-85]SPS1
- Armstrong, Andrew [7954-27]S8
- Armstrong, Darrell J. 7917 ProgComm, 7917 S7 SessChr
- Armstrong, David P. [7903-20]S3
- Arnaud, Laurent [7941-16]S4, [7946-82]SPS4
- Arndt-Jovin, Donna J. [7932-15]S4
- Arney, Arnesen 7930 ProgComm

Arnold, Craig B. 7920 ProgComm, 7920 S5 SessChr, [7920-12]S3, 7921 S1 SessChr, [7921-22]S6, 7925 ProgComm, 7925 S9 SessChr

Arnold, William H. MeetingVIP

Arnon, Shlomi [7924-12]S3

Arnone, David F. [7953-54]S14

Arockiasamy, Philominal [7917-59]SPS3

Arrasmith, Chris L. [7890-42]S8

Arridge, Simon R. [7896-28]S6, [7896-65]S13, [7896-92]SPS1, [7899-64]S10

Arsenea, O. [7908-41]S3

Arslanova, Dinara [7897-52]S11, [7901-19]S4

Artal, Pablo [7885-38]S8

Artar, Alp [7911-30]S6, [7943-01]S1, [7946-60]S14

Artigas-García, David [7903-15]S2,

[7903-93]SPS1, [7903-99]SPS1, [7904-50]S10

Arum, Yosefine [7883B-45]S2, [7910-24]S5

Aruna, Prakasarao [7895-15]S3, [7895-22]S4

Arunachalam, Kavitha [7901-30]S6

Arzumanov, Grant [7896-23]S5

As, Donat J. [7937-36]S8

Asakawa, Koji [7927-35]S8

Asao, Yasufumi [7899-87]SPS2, [7899-91]SPS2, [7899-92]SPS2

Ascari, Luca [7883D-84]S4, [7896-36]S8

Aschke, Lutz 7913 CoChr, 7913 S3 SessChr, [7913-10]S3, [7913-13]S3, [7916-18]S4, [7918-19]S4

Asghari, Mehdi [7944-02]S1, [7944-10]S3

Ashida, Hiroshi [7883G-135]S1, [7897-65]SPS2, [7902-30]S6

Ashili, Shashanka P. [7902-58]S13, [7929-26]S6

Ashitate, Yoshitomo [7896-26]S6

Ashkenasi, David [7920-33]S9

Ashkenazi, Shai [7899-49]S8

Asif, M. [7894-09]S2

Asimau, Rustam [7897-59]SPS2

Asimov, Mustafa M. [7897-59]SPS2

Askari, Murtaza [7946-39]S9

Aslan, Joseph E. [7907-30]S5

Asmelash, Bethel [7910-33]S7

Asmolova, Olga V. [7937-54]S12

Aspuru-Guzik, Alán [7911-07]S1

Asryan, Levon V. [7947-07]S2

Assefa, Solomon [7943-31]S9

Ast, Cindy [7909-03]S1

Astar, William S. [7942-11]S5

Astratov, Vasily N. [7913-39]S8, [7913-45]S9

Astrova, Ekaterina [7943-14]S4, [7943-53]SPS4

Asunskis, Daniel J. [7935-24]S6

Ataman, Caglar [7930-29]S7, [7930-35]S8

Atanasov, Petar A. [7925-11]S3

Atature, Mete [7948-35]S8

Atemie, Andrew D. [7897-21]S4

Athanassiou, Athanassia [7935-37]S9

Atia, Walid [7889-52]S8

Atlas, Michael [7898-23]S4

Attias, Andre-Jean [7935-14]S4

Atwater, Harry A. [7922-09]S3, [7933-01]S1, [7941-33]S8

Aube, Benoit [7903-67]S9

Aubin, Carl-Eric [7883F-122]S1

Aubry, Jean-François [7899-133]SPS2

Aubry, Nicolas [7912-53]S13

Audoin, Bertrand [7899-32]S5, [7937-15]S4

Audouard, Eric [7920-18]S5, [7920-18]S9, [7920-19]S5, [7920-19]S9, [7920-29]S9, [7925-26]S6

Augst, Steven J. [7914-49]S13

Auguste, Jean-Louis [7934-24]S6

Augusto, Taize M. [7903-108]SPS1

Auksorius, Egidijus [7903-82]S11

Austin, Robert H. MeetingVIP, [7929-203]S

Austwick, Martin [7886-18]S4

Auth, Thorsten [7902-54]S12

Auyeung, Raymond A. [7921-02]S1

Avadisian, Miriam [7905-39]SPS1

Averna, Tiffany [7896-41]S9

Aveyard, Jenny [7908-25]S4

Aviles-Espinosa, Rodrigo A. [7903-99]SPS1, [7904-50]S10

Avramescu, Adrian [7953-15]S4

Avramopoulos, Hercules [7945-40]S6

Avramov-Zamurovic, Svetlana [7924-08]S2

Avrutin, Vitaliy [7939-09]S12, [7939-68]SPS4, [7939-87]SPS4, [7939-94]S14

Awad, Ehab [7959-14]S5

Awad, Hani A. [7883F-124]S1

Awasthi, Kamlesh [7896-62]S13

Awasthi, Samir [7903-07]S1

Awazu, Kunio [7884-20]S6, [7897-67]SPS2, [7902-65]SPS2, [7902-74]SPS2, [7917-22]S6

Awschalom, David D. [7948-27]S7

Awwal, Abdul A. S. 7916 Chr, [7916-25]S5

Axelman, Joyce [7883C-174]S4

Axelrod, Jeff [7910-57]S12

Axisa, Fabrice [7929-25]S6

Ay, Feridun [7942-25]S8

Ayache, Nicholas 7892 ProgComm

Ayala, Oscar D. [7906B-35]S3

Aydin, Ahmet T. [7890-07]S2

Aygun, Seymen [7939-22]S2

Azad, Abul K. [7937-10]S3

Azar, Fred S. 7892 Chr, 7892 S1

SessChr, 7892 S3 SessChr

Azarbadegan, Alireza [7929-16]S4

Azarian, Adrian [7914-31]S7, [7914-52]S13

Azarnoush, Hamed [7883D-90]S5,

[7897-07]S2

Azarov, A. Y. [7945-85]S15

Azechi, Hiroshi 7916 Chr, [7916-13]S3

Azevedo, Eduardo [7912-90]SPS3

Azevedo, Maria Isabel M. [7957-11]S3, [7957-12]S3

Azevedo, Stephen G. 7916 ProgComm

Azhar, Saeed [7894-09]S2

Azucena, Oscar A. [7931-19]S6,

[7931-21]S6

Azyazov, Valeriy N. [7915-04]S1

Azzeer, Abdallah M. [7914-54]S14

B

Baac, Hyoung Won [7899-83]S12,

[7899-102]SPS2, [7899-146]SPS2, [7899-151]SPS2

Baade, Alex [7885-26]S5, [7885-28]S5

Baarstad, Ivar [7891-29]S7

Baba, Justin S. [7890-09]S2, 7906A

S1 SessChr, [7906A-04]S1

Baba, Kazutaka [7933-70]SPS4

Baba, Naoshi [7950-15]S4

Baba, Toshihiko 7933 ProgComm,

[7943-10]S4, [7949-01]S1

Babiker, Mohamed [7950-06]S2

Babin, Sergey A. [7914-111]SPS3,

[7914-112]SPS3

Babinec, Thomas M. [7946-09]S3

Bach, Heinz-Gunter [7959-01]S, [7959-01]S, [7959-01]S, [7941-10]S3

Bachelier, Guillaume [7905-05]S1,

[7935-32]S8, [7946-61]S14

Bacher, Gerd 7954 ProgComm, 7954

S7 SessChr, [7954-29]S8

Bachmann, Adrian H. [7889-99]SPS2

Bachmann, Friedrich G. 7918

ProgComm, 7921 ProgComm, 7921

S5 SessChr

Backman, Vadim [7890-28]S5, [7891-19]S5, [7895-30]S6, [7895-36]SPS2,

[7897-70]SPS2, 7907 Chr, 7907 S1 SessChr, [7907-02]S1, [7907-23]S4,

[7907-24]S4, [7907-29]S5

Baddeley, Robin N. B. [7886-18]S4

Badea, Cristian [7892-32]SPS1,

[7896-68]S14

Badikov, Dmitri V. [7912-87]SPS3

Badikov, Valerii V. [7912-87]SPS3

Bado, Philippe [7925-45]S8, [7925-45]

S12

Badolato, Antonio [7948-35]S8

Bae, JinJu [7935-48]SPS4

Bae, Joonwoo [7948-18]S4

Bae, Youngwoo [7883A-22]S4

Baehr-Jones, Tom W. [7917-46]S11

Baek, Jong Hyeob [7939-71]SPS4,

7945 S13 SessChr, [7945-38]S6,

7939 ProgComm, 7945 ProgComm,

[7945-49]S8

SPIE Online Courses

A great way to fulfill your training needs

At Your Pace · On Your Schedule · At Your Desk

spie.org/onlinecourses

- Full video of instructor
- Synchronized PowerPoint slides
- Quizzes to test retention
- Earn CEU Credits
- No added travel time and expense

Members receive One Free Online course annually (Select courses only)



Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Baek, Seung-Kuk [7883E-101]S2
Baer, Nicolai [7923-22]S6
Baer, Stephen C. [7903-59]S8
Baets, Roel G. [7913-51]S9, [7942-12]S5
Baez Medina, Hector [7940-51]SPS4
Bagga, K. [7922-24]SPS3
Bagnaninchi, Pierre-Olivier 7898
ProgComm, [7898-07]S1, [7898-32]S5
Bagnato, Vanderlei S. [7886-36]SPS1, [7886-39]SPS1, [7886-42]SPS1, [7887-22]SPS1
Bahgat Shehata, Andrea [7895-12]S3, [7945-95]S17, [7945-99]S17
Bahir, Gad [7939-48]S9
Bahk, Chan Woong [7883C-68]S3
Bahmani, Baharak [7910-27]S5, [7910-45]S10
Bahram, Abdullah [7905-14]S3, [7905-39]SPS1
Bai, Chendong [7918-05]S1, [7918-32]S5, [7953-49]S13
Bai, Jing [7886-25]S6
Bai, John G. [7918-05]S1, [7953-49]S13
Bai, Yanbo [7945-12]S2
Bai, Yingxin [7912-06]S2
Baier, Johannes [7919-18]S4
Baig, Sarfaraz [7927-24]S5, [7935-36]S9
Bailey, Christopher G. [7933-38]S8
Bailey, Christopher A. [7955-24]S8
Bailey, Ryan C. [7888-01]S1
Baili, Ghaya [7945-10]S2
Bain, Lauren E. [7953-39]S10
Baird, Christopher S. [7938-07]S2
Baiju, Neha [7938-20]S1
Baker, Ian [7901-40]S9
Baker, James E. [7888-21]S1, [7888-21]S3
Baker, Kevin [7896-121]SPS1
Bakhsh, Turki A. [7884-11]S5
Bakir, Muhammad [7928-02]S1
Bakr, Mohamed H. [7933-30]S7, [7938-04]S1
Baks, Christian [7944-17]S5
Bakunov, Michael I. [7917-18]S5
Bala, Krishna [7959-15]S6, [7959-15]S6, [7959-15]S6
Balakrishnan, Ashok [7941-01]S1
Balakrishnan, Ganesh [7919-03]S1, [7919-16]S4
Balalaeva, Irina V. [7886-30]S7
Balashanmugam, N. [7926-22]S3
Balcou, Philippe [7912-75]SPS3
Balda, Rolindes [7934-08]S2, [7951-05]S1
Baldacchini, Tommaso [7903-31]S5
Baldeck, Prince L. [7935-28]S7
Baldini, Francesco [7890-03]S1, [7890-55]SPS1, [7941-40]S9
Baldoni, Gary [7912-88]SPS3
Baldycheva, Anna [7943-13]S4, [7943-14]S4
Bale, Denise H. [7913-42]S5
Balembouis, François [7912-38]S10, [7912-38]S9, [7912-53]S13
Balibar, Sebastian [7945-01]S
Balicki, Marcia A. [7890-33]S6
Ball, Naveen K. [7903-02]S, [7910-21]S4
Ballato, John M. 7914 ProgComm, 7914 S16 SessChr
Ballesta, Jérôme [7902-43]S9, [7916-20]S4
Balslev-Clausen, David [7945-03]S1
Balsley, David [7918-32]S5
Balzer, Jan [7937-27]S6
Bamber, Jeff C. [7899-139]SPS2
Bambot, Shabbir B. [7896-121]SPS1
Ban, Han Y. [7896-24]S5, [7896-41]S9, [7896-50]S11, [7896-103]SPS1
Banachowicz, Bartosz [7954-10]S3
Banakh, Victor A. [7924-05]S1
Banakis, Renee [7883G-161]S3
Banas, Andrew R. [7950-22]S6, [7950-24]S6
Bandara, Sumith [7945-70]S12
Bandyopadhyay, N. [7945-12]S2
Banerjee, Ayan [7907-06]S1, [7911-38]S8
Banerjee, Bhaskar [7895-19]S4
Banerjee, Sreetama [7943-04]S2
Bang, Jiwon [7909-24]S7
Banovac, Filip [7901-06]S2
Bansaku, Isao [7899-108]SPS2, [7899-111]SPS2
Bante-Guerra, Jose [7883F-133]S3
Bao, Gang [7910-30]S6
Bao, Ling [7918-01]S1, [7918-05]S1, [7918-32]S5, [7953-45]S12, [7953-49]S13
Bao, Qiaoliang [7914-53]S14
Baptista, Pedro V. [7909-19]S6
Bar, Emmanuel [7916-35]SPS3
Bär, Cyril [7912-22]S7
Bär, Sebastian [7905-10]S2
Barabas, James [7957-01]S1
Barada, Daisuke [7957-26]S6, [7957-41]SPS4
Baraghiss, Edward [7883E-117]S6
Baranov, Alexei N. 7945 ProgComm, 7945 S2 SessChr
Baranov, Igor Y. [7915-14]S3
Baranov, Stepan A. [7890-30]S6
Barat, Ken [7916-04]S1
Barbano, Emerson C. [7917-28]S7
Barbarin, Yohan [7903-99]SPS1, [7919-15]S4, [7919-17]S4, [7919-18]S4, [7919-25]S5, [7919-32]S7, [7919-33]S7, 7933 S12 SessChr
Barbastathis, George [7891-11]S4
Barber, Paul R. [7903-74]S10
Barberi-Heyob, Muriel [7886-35]SPS1
Barbier, Denis [7941-13]S3
Barbieri, Nicholas [7950-11]S3
Barbieri, Stefano [7937-24]S6, [7945-06]S1, [7945-11]S2, [7953-26]S7
Barbillon, Grégory [7911-55]S7
Barbosa Pinheiro, Antonio L. [7887-14]S3, [7887-27]SPS1, [7887-28]SPS1, [7887-15]S3, [7887-29]SPS1, [7887-31]SPS1, [7887-32]SPS1
Barbour, Randall L. [7896-55]S12
Barcikowski, Stephan [7921-102]S
Barclay, Paul E. [7948-25]S7, [7948-39]S9, [7948-40]S9
Bardati, Fernando [7901-30]S6
Bardella, Paolo [7953-12]S3
Bardin, Fabrice [7883G-137]S2
Bardorf, Andreas [7912-26]S7
Baregheh, Mandana [7914-111]SPS3
Barette, Rudy [7932-09]S2
Baretton, Gustavo [7897-26]S5
Bargheer, Matias [7937-40]S9
Bargigia, Ilaria [7895-12]S3, [7896-01]S1, [7896-57]S12
Bargo, Paulo R. [7883A-15]S3, [7883A-27]S5
Bari, M. [7917-13]S4
Barker, Donald [7928-12]S3
Barman, Ishan [7890-46]S8, [7890-48]S8, [7892-11]S2, [7897-22]S5, [7897-23]S5, [7904-14]S3, [7906A-21]SPS2
Barnes, K. [7883C-156]S5, [7883C-157]S5, [7901-34]S7, [7901-37]S8, [7901-39]S8
Barnhart, Michael D. [7897-56]SPS2
Barnhofer, Ulrich [7956A-01]S1
Barnum, Thomas [7936-17]S5
Barolet, Daniel [7887-18]S4
Barquinha, Pedro [7940-39]S10
Barriaga, E. Simon [7885-64]SPS2
Barros, Raquel [7940-39]S10
Barroso, Margarida [7892-17]S4
Barry, Scott [7885-31]S6
Barsalou, Norman [7899-35]S5, [7899-59]S9
Bartalini, Saverio [7945-04]S1
Bartczak, Dorota [7909-18]S6
Bartels, Kenneth E. [7883B-189]S1, [7892-24]SPS1, [7895-06]S1, [7895-18]S4
Bartels, Randy A. [7903-06]S1, [7904-13]S3
Bartelt, Hartmut [7934-24]S6, [7946-34]S8
Barth, Michael [7943-37]S12, [7946-50]S12
Bartnitzek, Thomas [7893-11]S3
Barton, David [7953-33]S9
Barton, Jennifer K. MeetingVIP, 7890 ProgComm, 7890 S6 SessChr, [7890-32]S6, [7904-07]S2
Bartsch, Ivonne [7883C-184]S7
Barty, Christopher P. J. 7916 CoChr, [7916-06]S2
Barve, Ajit V. [7895-69]S12
Barzda, Virginijus [7903-11]S2, [7904-37]S8, [7910-56]S12, [7946-48]S11
Basan, Fabiola [7914-73]SPS3
Basch, Bert E. [7960-18]S4, [7960-12]S3
Baselt, Tobias [7914-73]SPS3
Basha, Mohamed A. [7930-31]S8
Bashkansky, Mark [7949-34]S7, [7949-42]S8
Bashkatov, Alexey N. [7883A-35]SPS1, [7884-29]SPS1, [7885-57]SPS2, [7898-33]S5
Basiev, Tasoltan [7894-05]S1, [7912-87]SPS3
Basilion, James P. [7910-53]S12
Basiri, Ali [7885-69]SPS2, [7897-24]S5
Baski, Alison A. 7939 ProgComm, [7939-23]S2
Baskov, Andrey V. [7897-51]S11
Baskov, Vladimir A. [7897-51]S11
Basnet, Prem [7955-17]S6
Bassett, Kevin P. [7946-20]S5
Bassi, Andrea [7895-12]S3, [7896-28]S6, [7925-06]S2
Bastard, Gerald [7937-07]S2
Bastard, Lionel [7941-07]S2
Bastek, Barbara [7939-46]S8
Basu, Santanu 7912 ProgComm, 7912 S4 SessChr
Basu, Srinjan [7903-89]SPS1
Bates, David [7899-84]S12
Bates, Rebecca [7897-64]SPS2
Bathe, Wolfgang [7905-34]S8
Batlle, Juan [7885-23]S4
Bätting, Rainer K. [7918-17]S3
Batts, Shelley [7883C-167]S3
Bau, Da-Tian [7902-17]S4
Baudalet, Matthieu [7950-11]S3
Bauer, Adam Q. [7899-134]SPS2, [7910-66]S3
Bauer, Adam [7945-14]S3
Bauer, Brigitte [7897-37]S8, [7903-98]SPS1
Bauer, Thorsten [7925-32]S5, [7925-32]S9
Bauer-Marschallinger, Johannes [7899-110]SPS2
Baughner, Paige J. [7886-29]S7
Baum, Olga I. [7897-51]S11
Baumann, Bernhard [7885-16]S3, [7885-31]S6, [7885-43]S9, [7885-46]S9, [7889-02]S1, [7889-34]S5
Baumann, Esther [7917-42]S10
Baumann, Heinz [7886-49]SPS1
Baumberg, Jeremy J. [7927-01]S1
Baumert, Thomas [7920-24]S8, [7920-24]S12
Baumgart, Judith [7925-14]S4, [7925-17]S4
Bäumler, Wolfgang [7901-37]S8
Baus, Matthias [7943-17]S5, [7945-40]S6
Bautista, Jerry R. 7944 ProgComm
Bautista, Merrick [7890-50]SPS1, [7902-52]S11
Bawendi, Mouni G. 7909 ProgComm
Baxter, Glenn [7891-24]S6
Bayat, Dara [7930-29]S7
Bayer, Andreas [7918-33]S5
Bayer, Carolyn L. [7910-18]S4
Baykal, Yahya K. 7924 ProgComm, [7924-05]S1
Baylón-Fuentes, Antonio [7958-13]S5
Bayraktaroglu, Burhan [7940-02]S1
Bayram, Can [7945-48]S7
Bayramian, Andy J. [7912-57]S14, 7916 ProgComm, 7916 S2 SessChr, [7916-10]S3, [7916-30]S7
Beamis, John F. [7893-32]S6
Bean, David [7883A-23]S5
Beard, Paul C. [7889-41]S7, 7899 ProgComm, 7899 S4 SessChr, [7899-40]S6, [7899-50]S8, [7899-55]S8, [7899-66]S10
Beattie, Bradley J. [7902-70]SPS2
Beau, Vincent [7916-35]SPS3
Beaudette, Kathy [7883F-122]S1
Beaudoin, Grégoire [7945-07]S11
Beaulieu, Sophie [7885-36]S7
Beaune, Gregory [7909-44]S13
Beausoleil, Raymond G. [7942-03]S9, [7942-03]S2, [7943-46]S8, [7943-46]S14, [7946-12]S3, [7948-25]S7, [7948-39]S9, [7948-40]S9
Bec, Jean-Michel [7883G-137]S2
Bec, Julien [7883D-78]S2, [7883D-85]S4, [7890-15]S3
Becher-Rosa, Cristiane [7887-28]SPS1
Bechet, Denise [7886-35]SPS1
Beck, Markus [7929-30]S7
Beck, Mattias [7945-15]S3, [7953-20]S5, [7953-24]S6
Beck, Michael T. [7883B-51]S3, [7883B-53]S4
Beck, Nicolas [7916-17]S4
Beck, Rainer J. [7913-12]S3
Beck, Torsten [7888-09]S1, [7913-33]S7
Becken, Keith [7917-72]SPS3
Becker, Holger SC1014 Inst, 7888 ProgComm, 7929 Chr, PanelModerator, 7929 S7 SessChr, 7929 S2 SessChr, [7929-01]S1, [7929-01]S3, [7929-10]S3, [7929-21]S5, PanelModerator
Becker, Michael F. 7932 ProgComm, 7932 S2 SessChr, [7932-07]S2
Becker, Rita [7914-17]S4
Becker, Wolfgang 7903 ProgComm, [7903-68]S10
Beckert, Erik [7893-11]S3, [7926-08]S3, [7929-21]S5
Bedard, Noah [7892-05]S1
Bedford, Robert G. [7919-05]S1, [7919-08]S2, [7945-08]S2
Bedi, Vijit [7923-25]S7, [7957-23]S5
Bednar, Bohumil 7910 ProgComm
Bednarz, Michael [7902-05]S1
Beecher, Stephen [7929-22]S5
Beekman, Jeroen [7955-09]S4
Been, Stefan [7897-32]S7, [7901-36]S8
Beer, R. Dirk [7885-35]S7

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Beer, Sebastian [7906B-38]S4
 Beere, Harvey E. [7919-36]S8, [7919-38]S8
 Beg, Mirza F. [7889-110]SPS2
Begin, Steve [7903-36]S6
 Behbehani, Khosrow [7896-06]S1, [7898-25]S4
 Behnke, Thomas [7905-50]SPS1, [7910-37]S8
 Behr, Bradford B. [7890-39]S7, [7890-56]SPS1, [7907-17]S3
 Behrooz, Ali [7896-106]SPS1
Beier, Brooke D. [7888-12]S2
 Beier, Hope T. [7903-51]S7
 Beigang, Rene [7945-32]S5
 Beijersbergen, Marco [7950-13]S4
 Beil, Kolja [7912-07]S3
 Beitia, José [7920-19]S5, [7920-19]S9
 Belahsene, Sofiane [7945-14]S3
 Belarouci, Ali [7941-27]S7
 Belder, Detlev [7929-21]S5
 Belenky, Gregory [7945-22]S4, [7953-37]S10, [7953-60]S15
Belfield, Kevin D. [7910-41]S9
 Belforte, David A. [7914-45]S11
 Belikov, Andrey V. [7883A-35]SPS1
Belisle, Jonathan M. [7902-29]S6
 Belkin, Michael 7885 ProgComm, [7885-74]S7
 Belkin, Mikhail A. 7953 S6 SessChr, [7953-29]S7, [7953-40]S10
 Bell, Jake [7918-32]S5
 Bellec, Matthieu [7925-21]S5, [7925-22]S5
 Bellet-Amalric, Edith [7945-51]S8
 Bellisai, Simone [7942-20]S7
 Bellouard, Yves [7925-45]S8, [7925-45]S12, [7925-47]S8, [7925-49]S8
Belmonte, Aniceto [7923-26]S7
 Belozero, Liubov [7897-52]S11
 Belthangady, Chinmay [7949-35]S7
Belyanin, Alexey A. 7953 Chr, [7953-29]S7, [7953-44]S11
 Ben Arous, Juliette [7889-58]S9
 Ben Bakir, Badhise [7942-23]S8
Benabid, Fetah A. 7946 S9 SessChr, [7946-32]S8, 7949 S2 SessChr, [7949-05]S1
 Benalcazar, Wladimir A. [7903-49]S7
 Benali, Abdelali [7895-14]S3
 Ben-Aroya, Ido [7949-31]S6
 Benassarou, Aassif [7904-30]S6
 Benavides, Gabriel F. [7915-01]S1
 Benboujja, Fouzi [7893-20]S4
 Benchabane, Sarah [7946-42]S10
 Bendahmane, Mounir [7902-06]S2
 Ben-David, Moshe [7894-47]S6
 Bendett, Mark P. [7883G-142]S2
 Bendoyim, Igor [7933-77]SPS4
 Bendsoe, Niels [7895-16]S3, [7895-25]S5
 Benech, Pierre [7941-13]S3, [7941-16]S4
 Benetti, Carolina [7883F-132]S3
 Benetti, Marco [7912-26]S7
 Benichou, Emmanuel [7905-05]S1, [7935-32]S8, [7946-61]S14
 Benight, Stephanie J. [7913-42]S5
 Bennai, Baya [7914-31]S7, [7914-52]S13
 Bennett, Anthony J. [7947-06]S2, [7948-46]S11
 Bennett, Corey V. [7923-06]S1
Bennett, David B. [7938-20]S1
 Bennett, Kelly [7890-45]S8
 Benredjem, Djamel [7916-01]S1
 Benson, Oliver [7943-37]S12, [7946-50]S12
 Benson, Trevor M. [7912-52]S13
Bentley, Julie SC935 Inst
 Bently, David L. [7890-32]S6
 Ben-Yakar, Adela [7883C-175]S4, [7903-57]S8, [7925-09]S3, [7925-12]S3, [7925-16]S4
Benyattou, Taha [7941-27]S7
 Bera, Sudarsan [7912-89]SPS3
 Berchtold, Christian [7902-61]SPS2
 Berdowski, Jan [7933-69]SPS4
 Berendt, Martin O. [7914-96]SPS3
 Berer, Thomas [7899-110]SPS2
 Beresnev, Leonid A. [7914-47]S12, [7914-108]SPS3
 Berezin, Mikhail 7910 ProgComm, 7910 S10 SessChr, 7910 S5 SessChr, [7910-38]S8, [7910-66]S3
 Berg, Garrett [7952-07]S2
 Berg, Joel [7884-02]S1
 Berg, Kristian [7883C-153]S5
 Bergbauer, Werner [7933-39]S9
 Bergenek, Krister [7954-39]S10
Berger, Andrew J. [7883F-124]S1, [7888-11]S2, [7888-12]S2, [7907-34]S5
 Berger, Christoph [7939-46]S8
 Berger, Clair [7937-07]S2
 Berger, Perrine [7949-10]S2, [7949-48]S3
 Berger, Vincent [7945-33]S5
 Bergethon, Peter R. [7896-08]S2
 Bergkvist, Magnus [7886-41]SPS1
 Bergman, Keren [7942-21]S8
 Bergman, Peder [7939-20]S2
 Bergmann, Thorsten [7892-30]SPS1, [7906B-38]S4
 Bergner, Norbert [7903-41]S6
 Bergoënd, Isabelle [7904-05]S1
 Bergstrom, Paul [7941-02]S1
 Beri, Stefano [7933-94]SPS4
 Berier, Frédéric [7930-06]S2
 Berini, Pierre [7937-44]S10, 7941 ProgComm, 7941 S8 SessChr
 Berizzi, Fabrizio [7960-27]SPS4
 Berk, Yuri [7918-31]S5
 Berkhout, Gregorius [7950-13]S4
 Berland, Keith M. 7903 ProgComm
 Berman, Gennady P. [7924-15]S3, [7926-01]S1
 Bernard, Sophie [7926-14]S4
 Bernardo, Luis Miguel [7957-13]S3
 Berneschi, Simone [7941-31]S7
 Bernet, Stefan [7903-52]S7, [7950-04]S2
 Berneth, Horst [7957-16]S4
 Bernhardt, Birgitta [7914-54]S14
 Berning, Sebastian [7905-36]S8
 Bernini, Romeo [7943-08]S3
 Bernock, Laura [7883C-157]S5
 Bernot, David M. [7920-31]S9
 Berret, J.-F. [7909-17]S6, [7909-50]SPS2
 Berrettini, Gianluca [7896-36]S8, [7948-23]S5
 Berriel-Valdos, Luis R. [7957-31]SPS4
 Berry, Christopher W. [7937-14]S3
 Berry, Dominic W. [7948-10]S3
 Berry, Michael [7885-22]S4
 Berry, Patrick A. [7912-51]S12
 Berthold, Michael [7884-32]SPS1
 Bertram, Dietrich [7954-32]S9
 Bertram, Frank [7939-05]S1, [7939-41]S7, [7939-46]S8, [7939-68]SPS4, [7954-20]S6
 Bertz, Andreas [7928-11]S3
 Berwick, Kevin [7943-14]S4
 Besecker, Jason [7885-10]S2, [7885-54]S10
Besnard, Pascal [7933-11]S3
 Bespalov, Victor G. [7907-45]SPS2, [7957-42]SPS4
 Besse, Marc [7931-07]S3
 Besser, Heino [7921-06]S2
 Best, Catherine [7902-54]S12
 Best, Sara L. [7932-01]S1
 Betts, Gary E. [7936-08]S3
 Betz, Markus 7937 CoChr, 7937 S15 SessChr, 7937 S2 SessChr, 7937 S9 SessChr, [7937-01]S1, [7937-31]S7, [7937-43]S10
 Betzig, Eric [7931-18]S6
 Beuerman, Erich B. [7935-27]S7
 Beurskens, Robert [7899-03]S1
 Beushausen, Volker [7929-21]S5
 Beuthan, Jurgen [7890-20]S4
 Bewley, Marco [7885-26]S5, [7885-28]S5, [7889-13]S3
 Beveratos, Alexios [7945-92]S16
 Bewley, William W. [7953-38]S10, [7953-39]S10
 Beyer, Andreas [7939-79]SPS4
Bezares, Francisco J. [7946-44]S11, [7948-07]S2
 Bezerra, Hiram G. [7889-22]S4
 Bhagat, Ali Asgar S. [7902-26]S6
 Bhagavatula, Venkata A. [7917-72]SPS3
Bhalerao, Manas [7885-70]SPS2
Bharathwaj, A. N. [7954-19]S5
 Bhardwaj, Ashish [7936-15]S4
Bhargava, Rohit [7889-61]S9
 Bhattacharjee, Shubhadeep [7896-107]SPS1
 Bhattacharya, A. [7940-44]S12
Bhattacharya, Enakshi 7928 ProgComm
 Bhattacharya, Pallab K. 7947 ProgComm
 Bhattacharya, Shanti [7894-27]S5
 Bhattachar, Vijayashree S. [7883C-180]S6, [7883C-183]S6
 Bhayana, Brijesh [7886-06]S1
 Bhunia, Sourav K. [7896-74]S15
 Bhuyan, Manoj K. [7921-18]S5
 Bi, Lei [7941-04]S1
 Bi, Xiaohong [7891-05]S1
 Biagioni, Paolo [7922-11]S3
 Bianchini, Paolo [7903-101]SPS1
 Bianucci, Pablo [7943-47]S8, [7943-47]S14
 Bickel, Nathan [7953-67]SPS4
 Bidyk, Serge [7941-01]S1
 Biedermann, Benjamin R. [7889-01]S1, [7889-32]S5, [7889-49]S8, [7914-16]S4, [7914-97]SPS3
 Biedron, Slavomir [7883C-178]S3
 Biegert, Jens [7917-20]S6
 Bieker, Stefan [7902-34]S7
Biel, Merrill A. [7883C-172]S4, 7886 S4 SessChr, [7886-16]S4
 Bielecki, Christiane [7903-41]S6
 Bieler, Mark [7937-29]S7, [7937-30]S7
 Biener, Gabriel [7904-45]S9, [7908-21]S4
 Bienfang, Joshua C. [7945-98]S17
Bienstman, Peter [7942-24]S8
 Bieren, Paul PanelMember, PanelMember, PanelMember
 Biesenbach, Jens [7918-13]S3, [7918-23]S4, [7918-28]S5, [7918-29]S5
Bifano, Thomas [7930-20]S6, [7930-20]S1, [7930-20]S5, 7931 Chr, 7931 S3 SessChr, 7931 S4 SessChr, [7931-12]S5, [7931-17]S6
 Bigbow, Elmir N. [7886-44]SPS1
 Bigelow, Nicholas P. 7950 ProgComm
Bigio, Irving J. [7883C-163]S1, 7907 ProgComm, 7907 S4 SessChr, [7907-21]S4, [7907-28]S4
 Bigot, Jean-Yves [7937-58]S13
 Bijeon, Jean-Louis [7911-28]S6
 Bilan-Tracey, Corina [7899-84]S12
 Biller, Philipp [7902-11]S3
 Bilyy, Oleksandr I. [7891-08]S3, [7902-60]SPS2
 Bimberg, Dieter [7947-18]S5, [7952-16]S5, [7952-18]S5
 Binder, Rolf H. 7951 ProgComm, [7951-08]S2
 Binding, Jonas R. H. [7889-58]S9, [7931-15]S6
 Bini, Jason M. [7890-13]S3
 Bintig, Willem [7925-14]S4
 Bintz, Louis J. [7953-49]S13
 Birch, David J. S. [7910-51]S11
 Birchall, James C. [7883A-14]S3
 Birk, John [7903-10]S2
 Birkelund, Yngve [7901-30]S6
 Birnbaum, Andrew [7921-02]S1
 Birnbaum, Kevin M. [7923-11]S3, [7923-19]S5, [7923-28]S8
 Birngruber, Reginald [7885-26]S5, [7885-27]S5, [7885-28]S5, [7889-13]S3
Birtill, David C. [7899-139]SPS2
 Bisailon, Charles-Etienne [7883D-80]S3, [7883D-81]S3, [7883D-90]S5, [7889-94]SPS2, [7897-07]S2, [7906B-28]S1
 Bischof, John C. [7901-09]S3, [7901-11]S3
Bishara, Waheb [7891-18]S5, [7904-42]S9
 Bishop, Alan R. [7926-01]S1
 Bishop, Austin P. [7889-10]S2
 Bishop, Shelly [7900-06]S2
 Bisker, Gili [7911-19]S4, [7911-20]S4
 Bismuto, Alfredo [7953-20]S5
 Bisra, Gurpal [7929-15]S4
Biss, David P. [7885-08]S2, [7885-40]S8, [7885-42]S8
 Bista, Rajan K. [7889-61]S9, [7907-03]S1, [7908-07]S1
 Biswal, Nrusingh C. [7892-36]SPS1, [7896-59]S12, [7896-63]S13, [7899-63]S9
 Biswas, Abhijit [7923-11]S3
 Biteen, Julie S. [7905-23]S6
Bizheva, Kostadinka K. [7885-04]S1, [7885-48]S9, [7885-73]SPS2, [7889-19]S3, [7889-68]S10, [7889-120]SPS2
Bjelkhaugen, Hans I. 7957 Chr, 7957 S4 SessChr, [7957-10]S3
 Black, Kvar C. L. [7889-79]S12
 Blackledge, William C. [7896-73]S15
Blackmon, Richard [7883B-44]S2
 Blaize, Sylvain [7941-13]S3, [7941-16]S4, [7943-26]S8, [7943-27]S8, [7946-57]S13, [7946-82]SPS4
 Blanchard, Romain [7953-57]S14
 Blanc-Mignon, Marie-Françoise [7941-05]S1
 Blanco, Leonardo [7904-36]S8
 Blanco-Canosa, Juan B. [7909-26]S8, [7909-39]S11
 Blanden, Adam [7886-07]S2
 Blank, Molly [7884-02]S1
 Blankenbach, Karlheinz 7956A Chr, 7956A S1 SessChr, [7956A-08]S2, [7956A-16]S5
 Blaschke, Sabine [7890-20]S4
 Blaser, Georg [7905-45]SPS1
Blatter, Cedric [7889-48]S7, [7889-115]SPS2
 Blau, Pinhas 7917 ProgComm, 7917 S6 SessChr
 Blau, Werner J. 7935 ProgComm
Blazej, Josef [7923-15]S4, [7924-09]S2
 Blazquez, Samantha [7902-33]S7
Bledt, C. M. [7894-42]S8
 Bléger, David [7935-14]S4
 Blevins, Nikolas H. [7883C-167]S3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Bliokh, Konstantin Y. [7950-02]S1
 Bloch, Jacqueline [7945-92]S16
 Blokhin, Sergey S. [7952-16]S5
 Blokhin, Sergey A. [7952-18]S5
 Blomqvist, Mats [7912-43]S11, [7914-93]SPS3
 Blomster, Ola I. [7912-43]S11
 Blondel, Walter C. P. M. [7893-39]S8
 Bloss, Herbert [7923-25]S7
 Blum, Christian [7905-09]S2
 Blume, Florian [7889-78]S12, [7889-119]SPS2, [7906B-33]S3
 Blume, Gunnar [7917-03]S5, [7917-03]S1, [7918-36]SPS3
 Blumenkranz, Mark S. [7885-23]S4
 Blumenthal, Daniel J. [7943-29]S9
 Blumstengel, Sylke [7933-07]S2
 Boag, Amir [7945-54]S11
Boas, David A. 7892 ProgComm, [7892-02]S1, [7892-04]S1, 7896 ProgComm, [7896-54]S11
Boccara, Claude A. [7889-58]S9, [7890-37]S7, [7893-36]S8, [7895-08]S2, 7899 ProgComm, 7899 S7 SessChr, [7899-133]SPS2, [7931-15]S6
Bock, Martin [7925-42]SPS3, [7950-08]S3
 Bock, Przemek [7928-19]S6, [7928-19]S1, [7928-19]S5, [7941-39]S9, [7943-15]S5
 Bock, Ruediger [7885-43]S9
 Bockova, Marketa [7911-34]S7
 Bocsi, Jozsef [7902-37]S8, [7902-56]S12
 Bodnar, Nathan [7912-31]S9
 Bodrov, Sergey B. [7917-18]S5
 Boehm, Gerhard [7945-09]S2
 Boeneman, Kelly [7909-26]S8, [7909-39]S11
 Boetti, Nadia [7914-103]SPS3
 Bogalecki, Alfons W. [7944-32]S9, [7944-32]S2, [7956B-33]S3
 Bogoni, Antonella [7934-14]S3, [7948-23]S5
 Bogonia, Antonella [7960-27]SPS4
 Böhler, Christof [7883A-21]S4
Bohn, Matthew J. [7912-51]S12, [7912-62]S14
 Boivin, David E. [7914-74]SPS3
 Bokor, Corina [7913-48]SPS3, [7913-49]SPS3
 Bolink, Hendrik [7954-31]S9
 Bolotin, Igor L. [7935-24]S6
Boltasseva, A. [7946-24]S6
 Bolwien, Carsten [7903-87]SPS1
 Bolz, Matthias [7885-46]S9
 Bolze, Frederic [7903-117]SPS1
 Bolzoni, Luca [7890-03]S1
Bommarredi, Rami R. [7951-17]SPS4
 Bon, Pierre [7904-23]S5
 Bonanno, David [7924-10]S2
 Bonanno, Regina E. 7916 ProgComm
 Bond, Essex J. [7916-24]S5
Bondarenko, Olesya [7942-09]S4
 Bonesi, Marco [7885-51]S10, [7889-30]S5, [7889-32]S5, [7889-64]S10, [7889-115]SPS2
 Bonin, Tim [7883E-111]S4, [7889-05]S1, [7889-13]S3, [7889-60]S9
 Bonn, Mischa 7937 ProgComm
 Bonnafous, Samuel [7934-33]SPS4
 Bonnefont, Sophie [7945-16]S3
 Bonneville, Christophe [7941-13]S3
 Bonse, Jörn [7925-26]S6
 Boonchun, Adisak [7940-23]S6
Booth, Martin J. [7927-16]S4, [7931-16]S6
 Boppart, Marni D. [7902-04]S1
Boppart, Stephen A. 7889 ProgComm, 7889 S4 SessChr, [7889-26]S4, [7889-59]S9, [7889-77]S12, [7889-90]SPS2, 7890 ProgComm, 7890 S7 SessChr, [7890-35]S7, 7897 ProgComm, [7902-04]S1, [7903-49]S7, 7907 ProgComm, [7907-32]S5, [7910-03]S1, [7910-04]S1, B0304XX ProgComm
 Borchshenko, Igor [7897-51]S11
 Borck, Sebastian [7905-34]S8
 Borden, Michael [7916-16]S4
 Bordenave, Edouard [7916-35]SPS3
 Borejdo, Julian [7905-04]S1, [7905-48]SPS1
Boreman, Glenn D. 7936 ProgComm
 Boretzky, Adam [7897-38]S8
 Boriskina, Svetlana V. [7888-25]S1, [7888-25]S3
 Borjemscaia, Natalia [7948-24]S6
Börner, Richard [7905-11]S2
 Bornholdt, Carsten [7953-14]S3
 Borondics, Ferenc [7937-64]S14
Boroson, Don M. 7923 ProgComm, 7923 S6 SessChr, 7923 S7 SessChr, [7923-01]S1
 Borrelli, Michael [7883C-157]S5
 Borri, Paola [7903-50]S7, [7911-33]S7, [7937-03]S1, [7937-04]S1
 Borri, Simone [7945-04]S1
 Börsch, Michael [7902-19]S5, [7903-77]S11, [7905-18]S4
 Borst, Guus [7928-20]S6, [7928-20]S1, [7928-20]S5
 Bortolozzo, Umberto [7949-39]S8
 Bos, Philip J. [7944-27]S7, [7944-34]SPS4
 Bösing, Manuel [7954-32]S9
Bosman, Erwin [7944-13]S4
 Boss, Gerry R. [7896-73]S15
Bosschaart, Nienke [7889-83]S12, [7889-84]S12, [7895-21]S4
 Bosshard, Christian A. [7918-17]S3, [7918-25]S4
 Bossy, Emmanuel [7899-43]SPS2, [7899-133]SPS2
 Bösweather, Pascal [7914-73]SPS3
 Botelho, Maria Filomena [7910-09]S2
 Botez, Dan 7953 ProgComm, 7953 S10 SessChr, [7953-22]S5
 Botha, Lourens R. [7925-30]S7
 Böttcher, Ingrid [7885-44]S9
 Böttge, Christoph [7937-66]S15
Botvinick, Elliot L. [7897-08]S2
 Boucart, Julien [7953-48]S12
 Bouchard, Jean-Pierre [7906B-29]S2, [7906B-37]S4
 Bouchard, Matthew [7883G-146]S1
 Bouchier, Aude [7936-10]S3
 Bouchitté, Guy [7939-34]S5
 Bouchoule, Sophie [7919-31]S7
 Boudoux, Caroline [7883E-117]S6, [7883F-122]S1, [7893-20]S4, [7893-21]S4
 Boukenter, Aziz [7914-98]SPS3
Boulais, Étienne [7925-14]S4, [7925-15]S4
 Boulet, Benoit [7883D-90]S5, [7897-07]S2
 Boulos, Patrick R. [7885-36]S7
 Bouma, Brett E. [7883D-73]S1, [7883D-75]S2, [7883D-76]S2, [7883D-77]S2, [7883D-82]S3, [7883D-88]S5, [7889-21]S4, [7889-24]S4, [7893-03]S1, [7893-17]S4, [7893-18]S4, [7893-19]S4, [7893-22]S4, [7893-25]S5, [7893-31]S6, [7893-32]S6, [7893-33]S6, [7906A-09]S2
 Bounouar, Samir [7945-91]S16
 Bouquet-Geerardyn, Wim [7908-42]S1
 Bour, David [7939-10]S13, 7953 ProgComm
 Bourderionnet, Jérôme [7949-10]S2, [7949-48]S3
 Bourdieu, Laurent [7889-58]S9, [7931-15]S6
 Bourdon, Pierre [7914-31]S7, [7914-52]S13
 Bourgenot, Cyril [7904-38]S8
Bourg-Heckly, Genevieve [7893-09]S2, [7893-39]S8
 Bourhis, Kevin [7925-21]S5, [7925-22]S5
 Bourouina, Tarik [7930-32]S8
 Bourquin, Yannik [7929-18]S5
 Bousi, Evgenia [7889-118]SPS2
 Bousquet, Bruno [7915-16]S3, [7925-21]S5, [7925-22]S5
 Boussard-Plédel, C. [7894-40]S8
 Boussey, Jumana [7941-13]S3
 Boutet, Jérôme [7895-23]S4, [7896-38]S8
 Bouwens, Arno [7889-57]S9, [7904-17]S4
 Bove, Philippe [7940-52]SPS4
Bove, V. Michael 7957 ProgComm, 7957 S1 SessChr, 7957 S2 SessChr, [7957-01]S1
Bowers, John E. [7936-15]S4, [7943-29]S9, [7943-46]S8, [7943-46]S14
 Bowlan, Pamela R. [7914-38]S7, [7950-10]S3
Bowman, Steven R. 7951 ProgComm, [7951-07]S2, [7951-14]S4
 Bown, Stephen G. [7883C-153]S5, [7886-18]S4
 Boyce, Brett R. [7897-15]S3
 Boyd, A. [7954-17]S5
 Boyd, Ian W. 7920 ProgComm
 Boyd, Jonathan [7883C-159]S7
Boyd, Robert W. [7948-20]S5, [7949-44]S9
 Boyd, Shelley [7885-48]S9
Boydén, Edward S. MeetingVIP
Boye, Robert R. [7941-41]S9
 Boyer de la Giroday, Antoine [7947-06]S2
Bozhevolnyi, Sergey I. [7945-40]S6
 Bozkurt, Murat [7947-26]S7
 Brachtel, Elena F. [7893-18]S4
 Bradbury, Andrew M. [7905-22]S5
 Bradley, Jonathan D. B. [7917-54]S12, [7940-41]S11, [7941-03]S1
 Bradshaw, David S. [7917-55]S12
 Bradu, Adrian [7889-69]S11, [7889-85]SPS2, [7889-88]SPS2, [7889-100]SPS2
 Brady, Tye [7928-18]S5
Braeckmans, Kevin [7908-42]S1
 Bragagna, Thomas [7883A-21]S4, [7912-50]S12
Braggin, Jennifer [7926-14]S4
Braginets, Eugene V. [7927-47]SPS3
 Braglia, Andrea [7914-103]SPS3, [7914-104]SPS3
 Brakenhoff, G. J. 7904 ProgComm, 7904 S8 SessChr
 Bramati, Alberto [7947-08]S3
 Brambilla, Marco [7892-18]S4
 Brancaloneo, Lorenzo [7897-42]S8, [7897-69]SPS2
 Brand, Randall E. [7889-61]S9, [7907-03]S1
 Brandes, Amit [7954-18]S5
 Brandi, Fernando [7922-24]SPS3, [7927-08]S2
 Brandstetter, Martin [7945-02]S1
 Brantsch, Marco [7883E-97]S1
 Brantsch, Marco [7902-11]S3
 Brasseur, Jason K. [7912-62]S14
 Bräuer, Andreas [7930-08]S2, [7930-09]S2
 Braun, Alexander [7921-28]S7, [7921-28]S11
 Braun, Andreas [7884-04]S2, [7884-05]S2, [7884-18]S6, [7884-32]SPS1
 Braun, Paul V. 7920 ProgComm, [7946-20]S5
 Braun, Ralf-Peter [7959-10]S5
 Breault-Turcot, Julien [7911-10]S2
Brecht, Hans-Peter F. [7899-08]S2, [7899-48]S8, [7899-157]SPS2
 Brede, Olivier [7884-04]S2, [7884-18]S6, [7884-32]SPS1
 Breese, Mark B. [7943-21]S7
 Brehm, Robert [7910-37]S8
 Breivik, Magnus [7933-37]S8
 Brenci, Massimo [7941-40]S9
 Brenner, Igal 7908 ProgComm
 Brenner, Karl-Heinz [7944-12]S3
Brenner, Matthew [7893-27]S5, [7893-30]S6, [7893-37]S8, [7896-73]S15, [7896-112]SPS1
 Brentnall, Teresa A. [7907-03]S1
 Bretenaker, Fabien [7945-10]S2, [7949-48]S3
 Brett, Michael [7946-69]SPS4
 Brethauer, Frauke [7922-15]S4
 Breuer, Dirk [7959-04]S1, [7959-04]S1, [7959-10]S5
 Breunig, Georg [7883A-09]S2, [7903-80]S11, [7883A-37]SPS1, [7903-42]S6
 Brevet, Pierre-François [7905-05]S1, [7935-32]S8, [7946-61]S14
 Brewer, Molly A. [7890-32]S6, [7892-36]SPS1, [7899-07]S1, [7903-10]S2
 Brezna, Wolfgang [7947-21]S6
 Briand, Martin [7914-03]S1
 Brida, Daniele [7917-11]S4, [7937-60]S13
Brideau, Craig [7903-45]S7
 Brightup, Steven [7912-92]S15
 Brinker, C. Jeffrey 7947 ProgComm
Brinkmann, Ralf 7885 ProgComm, 7885 S4 SessChr, [7885-26]S5, [7885-27]S5, [7885-28]S5, [7889-13]S3
 Briot, Olivier 7945 ProgComm, 7945 S13 SessChr
 Broadbent, Curtis [7945-90]S16
 Broaddus, Daniel H. [7940-48]SPS4
 Brock, James L. [7896-60]S13, [7896-109]SPS1
 Brodner, Melanie [7918-33]S5
 Brodschelm, Andreas [7904-50]S10
 Broekgaarden, Mans [7902-02]S1
 Broeng, Jes 7914 ProgComm, 7914 S11 SessChr, [7914-61]S15, [7914-67]S16, [7914-84]SPS3
 Broer, Dirk J. 7955 ProgComm
 Brokl, David [7894-23]S4
Brolo, Alexandre G. [7929-23]S6
 Bromley, Stefan T. [7940-06]S2
Brongersma, Mark L. [7946-03]S1, [7948-39]S9
 Bronner, Wolfgang [7953-58]S14
 Brooks, Dana H. [7892-31]SPS1, [7904-25]S5, [7904-44]S9
 Brooks, Suzanne [7929-07]S2
 Broome, Ann-Marie [7910-53]S12
 Broome, James [7890-18]S4
 Broquin, Jean E. 7941 Chr, 7941 S1 SessChr, [7941-05]S1, [7941-07]S2
 Brossard, Frederic [7933-66]S12, [7933-66]S15
 Brow, Richard K. [7925-25]S6
 Brown, Aaron [7918-01]S1
 Brown, Alice [7903-82]S11
 Brown, Charles G. [7916-24]S5
 Brown, Christopher M. [7893-10]S2

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Brown, David M.** [7914-12]S3
Brown, Dean P. [7946-29]S7
 Brown, Edward M. [7890-18]S4
 Brown, Elliott R. [7938-01]S1, [7938-20]S1
Brown, Gail J. 7945 CoChr, 7945 S12 SessChr, [7945-68]S12
 Brown, Graeme [7929-22]S5
 Brown, J. Quincy [7890-11]S2
 Brown, Julie J. [7956A-18]S5
 Brown, Kirk C. [7915-06]S2
 Brown, Margaret K. [7930-12]S3
 Brown, Steven W. [7914-02]S1
 Brown, Thomas G. 7904 Chr, 7904 S9 SessChr
 Brownlee, John [7904-06]S2, [7904-07]S2, [7904-62]SPS2
 Brox, Olaf [7953-50]S13
Bruch, Reinhard F. [7908-07]S1
 Bruchmann, Claudia [7926-08]S3
 Bruck, Roman [7943-17]S5
 Brückner, Andreas [7930-08]S2, [7930-09]S2
 Brückner, Claudia [7889-73]S11
 Brückner, Sven [7946-34]S8
 Bruder, Friedrich K. [7957-16]S4
 Brueck, Rainer [7926-12]S4
 Brueckner-Foit, Angelika [7920-24]S8, [7920-24]S12
 Bruederl, Georg [7953-15]S4
 Bruehl, Ruediger [7896-02]S1
 Bruening, Ulrich [7944-20]S5
 Brugués, Jan [7897-04]S1
 Brunel, Marc [7913-03]S1
Brunner, Joanna [7899-55]S8
 Brunner, Felix [7912-26]S7
 Brunner, Reinhard [7918-17]S3
 Bruns, Michael [7921-23]S6, [7921-24]S6
 Bruns, Peter [7913-09]S3
Bruns, Thomas [7902-61]SPS2
 Brunton, Gordon [7916-25]S5
 Brusberg, Lars [7944-05]S2, [7944-11]S3
 Brusolino, Nicola [7883A-33]S6
 Bruyant, Aurélien [7941-16]S4, [7943-26]S8, [7943-27]S8, [7946-57]S13, [7946-82]SPS4
 Bruzelius, Anders [7894-16]S3
 Bryant, Doug [7944-27]S7
 Bryant, Garnett W. [7946-16]S4, [7947-27]S7
 Brydegaard, Mikkel [7895-16]S3
Bu, Shuhui [7899-87]SPS2
 Bubeck, Christoph 7935 ProgComm
 Bubnov, Mikhail M. [7914-75]SPS3
 Buchanan, Margaret [7945-34]S5, [7945-56]S9
 Buchvarov, Ivan [7912-30]S8
 Bückers, Christina [7939-79]SPS4
 Bückers, Johanna [7905-36]S8
 Buckley, Erin M. [7896-03]S1, [7896-10]S2, [7896-41]S9
 Buckley, Sonia [7946-10]S3
 Budansky, Yury [7895-20]S4
 Budker, Dmitry 7948 ProgComm, [7948-31]S8
 Bueeler, Michael [7885-21]S4
 Buehler, Andreas [7899-39]S6, [7899-123]SPS2
 Bueno, Luciano [7912-90]SPS3, [7954-36]S10
 Buermen, Miran [7884-13]S5
 Buettner, Alexander [7912-01]S1
 Buffaz, Amandine [7945-33]S5
 Bugge, Frank [7953-50]S13
 Buisset, Christophe [7928-17]S5
Bukowska, Danuta [7883E-109]S4, [7885-14]S3, [7889-38]S6
 Buller, Gerald S. [7945-97]S17
 Bullington, Amber L. [7916-30]S7
 Bulu, Irfan [7941-44]SPS4, [7946-11]S3, [7948-09]S2
Buma, Takashi [7899-150]SPS2, [7938-05]S1
 Bunge, Christian-Alexander [7960-23]S5
Bunning, Timothy J. [7955-24]S8
 Bunting, Charles F. [7883B-189]S1, [7892-24]SPS1, [7895-18]S4, [7896-90]SPS1, [7899-115]SPS2
 Buorgoyne, Bryan [7914-33]S8, [7914-99]SPS3
 Burcheri, Adriano [7895-08]S2
Burdetta, Everette C. 7901 S5 SessChr, [7901-06]S2, [7901-26]S5, [7901-31]S7
 Bureau, Bruno [7894-38]S7, [7894-40]S8
 Burg, Jan Michael [7892-30]SPS1, [7906B-38]S4
Burge, James H. SC1019 Inst
 Burger, Sven 7933 S2 SessChr, [7933-21]S5, [7933-28]S7, [7941-15]S4
Burgess, Ian B. [7927-02]S1
 Burgholzer, Peter [7899-110]SPS2
 Burgin, Julien [7937-16]S4
 Burgoyne, Bryan [7889-56]S8, [7903-36]S6
 Burgwyn Fuchs, Beth [7887-08]S2
 Burianek, Dennis A. [7923-01]S1
 Burke, Aaron R. [7935-27]S7
 Burkhardt, Anke [7889-08]S2
 Burkhardt, Thomas [7893-11]S3
 Burkhart, Scott 7916 ProgComm
 Burnett, Arthur L. [7883B-39]S1, [7883B-46]S2, [7883G-162]S3
 Burney, Curtis W. [7897-19]S4
Burns, James A. 7883C ProgComm, 7883C S5 SessChr, [7883C-65]S7
 Burnside, Jamie W. [7923-20]S6
 Burock, Susen [7896-47]S10
 Burov, Ekaterina [7914-74]SPS3
Burris, Ray [7923-04]S1
 Bursac, Nenad [7904-04]S1
 Bursukova, Maria A. [7950-12]S3
 Busch, David R. [7896-24]S5, [7896-41]S9, [7896-50]S11, [7896-103]SPS1
 Busch, Theresa M. [7886-13]S3, [7886-26]S6
 Buschmann, Volker [7903-76]S11, [7905-35]S8
 Bushuev, Nikolay A. [7887-30]SPS1
 Buss, Jan H. [7937-36]S8
 Busse, Lynda [7946-35]S8
 Bussieres, Felix [7948-42]S10
 Bustard, Chad A. [7941-41]S9
 Butet, Jeremy [7905-05]S1, [7946-61]S14
 Büth, Heiko [7894-28]S5
 Butkus, Mantas [7919-29]S6
 Butler, John A. [7896-42]S9, [7896-44]S9, [7896-45]S9
 Butlin, Nathaniel G. [7909-27]S8
 Button, Chris [7953-48]S12
 Butun, Serkan [7911-53]SPS1
 Buyens, Kevin [7908-42]S1
Buyuktanir, Ebru A. [7955-22]S7
 Bydlon, Torre M. [7890-11]S2
 Byeon, Kyeong-Jae [7939-19]S15, [7939-33]S5
 Byer, Mark W. [7905-31]S7
 Byer, Robert L. [7917-43]S10
 Bykov, Alexander [7899-159]SPS2
 Byun, Kyung Min [7894-31]S6
 Canedy, Chadwick L. [7945-72]S12, [7953-38]S10
 Canioni, Lionel [7912-58]S14, [7915-16]S3, [7917-12]S4, [7917-47]S11, [7925-20]S5, [7925-21]S5, [7925-22]S5
 Cannata, Jonathan M. [7883D-83]S4
Cannistra, Aaron T. [7927-34]S8
 Canonica, Michael D. [7930-21]S6, [7930-21]S1, [7930-21]S5
Canpolat, Murat [7890-07]S2
 Canters, Gerard W. [7905-43]SPS1
 Canto, Marcia I. [7890-16]S3
Canva, Michael T. [7902-51]S11, 7911 S3 SessChr, [7911-55]S7
 Cao, Chuanshun [7918-04]S1
 Cao, Chunhai [7960-28]SPS4
 Capala, Jacek [7910-35]S8
Capasso, Federico MeetingVIP, [7941-44]SPS4, 7953 ProgComm, [7953-25]S6, [7953-44]S11, [7953-55]S14, [7953-57]S14
 Capolino, Filippo [7946-66]S15
Cappon, Derek [7890-14]S3
 Capps, Arlie G. [7885-11]S2
 Caprara, Andrea [7919-09]S2
 Capua, Amir [7953-13]S3
 Carbajal, Esteban F. [7890-30]S6
Cardenas, Nelson [7897-54]S11, [7902-27]S6, [7904-08]S2, [7906A-23]SPS2, [7950-07]S2
Cardimona, David A. 7945 ProgComm, 7945 S10 SessChr, [7945-57]S9
 Cardinal, Thierry [7925-21]S5, [7925-22]S5
 Cardoso, José A. [7887-15]S3
 Careglio, D. [7934-09]S2
Carey, James E. 7925 ProgComm
 Carhart, Gary W. [7914-47]S12, [7914-108]SPS3
 Carlie, Nathan [7945-86]S15
 Carlin, Jean-Francois [7939-21]S2
 Carling, David [7904-34]S7, [7904-35]S7
 Carlson, Christine A. [7905-08]S2, [7908-03]S1
 Carmelo, Alexander [7937-48]S11
 Carminati, Rémi [7945-76]S13
 Carneiro, Sylvia [7955-08]S4
 Carnell, Dawn [7883C-153]S5
 Carney, Scott [7889-59]S9, [7903-49]S7
 Caron, Charles-André [7925-15]S4
 Caron, Jean-Sol [7930-23]S6
 Caron, Serge [7894-06]S1
 Carp, Stefan A. [7892-04]S1, [7896-54]S11
 Carpenter, Ben [7937-07]S5
 Carpenter, Philip M. [7896-45]S9
 Carranza, Aparicio [7958-20]SPS4
 Carrington, Peter J. [7945-21]S4
Carroll, David L. 7915 ProgComm, 7915 S3 SessChr, [7915-01]S1, [7915-10]S2
 Carroll, James D. 7887 S4 SessChr, [7887-01]S1, [7887-04]S1
 Carson, Andrew [7899-57]S9
Carson, Jeffery [7894-24]S4, [7896-76]S16, [7897-30]S6, [7897-61]SPS2, [7899-149]SPS2, [7899-65]S10, [7908-18]S3, [7911-40]S8, [7911-41]S8, [7925-03]S1
 Carson, Paul L. [7899-06]S1
 Carson, T. [7912-11]S3
 Carswell, Stewart [7919-26]S5
 Carter, Adrian L. G. [7914-18]S5, [7914-32]S8

C

- Cable, Alex E. [7885-31]S6, [7889-02]S1
 Cabral Correia Lins, Emery C. [7886-42]SPS1, [7887-22]SPS1
Cabrini, Stefano 7927 ProgComm
 Cacciaccaro Lincoln, Victor A. [7885-55]SPS2, [7885-56]SPS2, [7890-52]SPS1
 Cade, Nic [7910-40]S9
 Cadeddu, Jeffrey A. [7932-01]S1
 Cadier, Benoit [7914-98]SPS3
 Cadoret, Kevin [7914-31]S7
 Caffey, David [7953-54]S14
 Caffini, Matteo [7896-01]S1
 Cahill, Laurence W. 7943 ProgComm
 Cai, Hong [7913-38]S8
 Cai, Hong [7942-13]S5
 Cai, Jason [7918-30]S5
 Cai, Jason [7953-33]S9
 Cai, Wei [7892-15]S3
 Cai, Xin [7884-30]SPS1, [7899-12]S2, [7899-77]S12, [7899-89]SPS2, [7899-116]SPS2
 Cai, Yangjian 7924 ProgComm, [7924-01]S1
 Cai, Yuanxue [7949-40]S8
 Caiado de Castro Neto, Jarbas C. [7912-70]SPS3
 Cailler, Aurélie [7905-16]S4
 Caird, John A. [7916-30]S7
Calabro, Katherine [7907-28]S4
 Calander, Nils [7911-48]SPS1
 Calarco, Raffaella [7939-02]S1
 Calderon, Joseph [7921-31]S2
 Caldwell, Brittany [7883A-13]S3
 Caldwell, Joshua [7946-44]S11
 Calfon, Marcella A. [7892-31]SPS1
 Calimano, Andrei [7919-02]S1
 Caliva, Brian [7918-04]S1
 Calkins, Brice [7948-22]S5
 Callahan, John J. [7883A-23]S5
 Callender, Claire L. [7934-29]S7
 Calligaro, Michel [7953-09]S2, [7953-46]S12
 Callis, Patrik R. [7910-13]S3
 Callsen, Gordon [7939-22]S2, [7940-04]S1
 Calvez, Stephane [7919-01]S1
 Calvo Nogueira, Gesse E. [7898-35]SPS2
 Camara, Terezinha J. [7902-08]S2
 Camata, Renato P. [7912-54]S13
 Cameron, Brent D. 7906A S3 SessChr, [7906A-11]S3, [7906A-13]S3, [7911-13]S3, [7911-14]S3
 Cammi, Corrado [7905-02]S1
Camp, Charles H. [7903-48]S7
 Campagnola, Paul J. 7903 S1 SessChr, [7903-10]S2
Campbell, Benjamin R. [7920-31]S9
 Campbell, Gordon [7906B-28]S1
 Campbell, Melanie C. W. [7885-08]S2
 Campbell, Stuart [7912-43]S11
Campione, Salvatore [7946-66]S15
Campo, Eva M. 7929 ProgComm
 Campo, Manuel [7954-33]S9
 Campolmi, Piero [7883A-31]S6
 Campos, Emilio [7885-13]S3
 Campos, Julien [7945-16]S3
 Campos Acosta, Joaquin [7917-27]S7, [7933-74]SPS4
 Camy, Patrice [7912-29]S8, [7912-61]S14
 Canat, Guillaume [7914-31]S7, [7914-52]S13
 Canciamilla, Antonio [7943-18]S6
 Cancio Pastor, Pablo [7945-04]S1
 Caneau, Catherine G. [7953-71]S11

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Carter, Gary M. [7942-11]S5
Carter, John L. [7903-31]S5
Carthy, Jon [7903-12]S2
Cartwright, Alexander N. 7908
Chr, 7908 S1 SessChr, 7908 S2
SessChr, [7908-14]S2
Carvalho, Fabiola B. [7887-15]S3,
[7887-29]SPS1
Carvalho, Fernandes F. [7903-108]
SPS1
Casas Bedoya, Alvaro [7949-03]S1
Casini, Roberto [7945-31]S5
Caspers, Jan N. [7937-43]S10
Casperson, Lee W. [7913-35]S7
Cassanjes, Fabia C. [7934-12]S3
Cassarly, William J. SC011 Inst
Cassim, Shiraz M. [7901-09]S3, [7901-
40]S9
Castelletto, Stefania [7948-45]S11
Castiglia, Antonino [7939-21]S2
Castracane, James 7929 S4 SessChr,
[7929-03]S2, [7929-35]S3
Castro, Jose M. [7904-06]S2, [7904-
07]S2, [7904-62]SPS2
Castro-Chavez, Fernando [7898-05]S1
Castro-Ramos, Jorge [7883A-36]SPS1,
[7906A-20]SPS2, [7906B-27]S1
Cattini, Stefano [7884-21]SPS1
Causa, Federica [7945-77]S13
Cavallini, Anna [7939-02]S1
Cavani, Olivier [7914-74]SPS3
Cayce, Jonathan M. [7883E-112]S5,
[7883G-146]S1, [7891-05]S1
Cayron, Charles [7953-09]S2
Cazottes, Paul [7920-19]S5, [7920-19]
S9
Cech, Miroslav [7912-73]SPS3
Cella Zanacchi, Francesca [7903-102]
SPS1
Cellek, Oray O. [7933-36]S8
Celli, Jonathan P. 7886 S3 SessChr,
[7886-06]S1, [7886-07]S2, [7886-08]
S2
Cellini, Mauro [7885-13]S3
Cengel, Keith A. [7886-20]S5, [7886-
26]S6
cenko, Andrew T. [7890-39]S7,
[7890-56]SPS1, [7904-15]S4, [7907-
17]S3
Cense, Barry [7885-19]S3, [7885-32]
S6, [7885-50]S10, [7885-52]S10,
[7885-53]S10, [7885-54]S10, [7889-
03]S1, [7889-47]S7, [7931-05]S2
Centi, Sonia [7910-47]S10, [7911-46]
SPS1
Ceponkus, Justinas [7902-69]SPS2
Cerbai, Elisabetta [7903-66]S9
Cerbantez, Roxana [7911-31]S6
Cerchiario, Giselle [7897-28]S6
Cermak, Peter [7945-07]S11
Ceroici, Chris [7937-70]SPS4
Ceruleo, Giulio [7917-11]S4, [7937-60]
S13, [7937-65]S14
Cerussi, Albert E. [7891-02]S1, [7896-
42]S9, [7896-44]S9, [7896-45]S9,
[7896-49]S10
Cerutti, Laurent [7945-07]S11, [7945-
17]S3, [7945-58]S10
Cervera, Arif [7945-55]S9
Cetin, Cyril E. [7943-01]S1
Cha, Jae-Won [7903-103]SPS1
Cha, Seongwoo [7916-08]S2
Chabassier, Genevieve M. 7916
ProgComm
Chabbert, Christian [7883G-137]S2
Chabot, Vincent [7929-19]S5
Chabrier, Renee [7896-35]S8
Chae, Dong Ju [7954-25]S7, [7954-47]
SPS4
Chae, Jeming [7883C-174]S4
Chaganava, Irakli [7957-39]SPS4
Chak, Amitabh [7889-25]S4
Chakhalian, Jacques [7940-29]S7
Chakif, M'Barek [7921-102]S
Chakrabarti, Subhananda [7940-05]S2,
[7940-47]SPS4, [7943-04]S2
Chakravarty, Swapnait [7941-20]S5,
[7944-35]SPS4
Chalasan, Tara [7941-26]S6
Chalasinaka-Macukow, Katarzyna
MeetingVIP
Chalcraft, Alexander [7933-66]S12,
[7933-66]S15
Chaltikyan, Vigen O. [7917-19]S5
Chalus, Olivier [7917-20]S6
Chamanzar, Maysamreza [7946-51]
S12
Chambers, Jonathon A. [7891-13]S4
Chamorrovkii, Yuri K. [7914-69]SPS3
Champion, Audrey [7925-49]S8
Chamson-Reig, Astrid [7896-76]S16
Chan, Chi-Yu [7938-18]S4
Chan, Chun W. I. [7953-23]S6
Chan, Chung-Yu [7911-42]SPS1
Chan, James W. [7902-23]S5, [7903-
07]S1
Chan, Kenneth H. [7884-10]S4, [7884-
24]SPS1, [7884-27]SPS1, [7884-28]
SPS1
Chan, Kinpui [7889-105]SPS2
Chan, Vincent W. 7923 ProgComm
Chan, Wai Kin [7940-10]S3
Chan, Wen-Hsiung [7909-28]S8
Chan, Yi-Jen [7939-49]S9
Chance, Britton 7892 ProgComm
Chandler, John E. [7891-03]S1
Chandler, Lin L. [7903-64]S9
Chanelière, Thierry [7948-04]S1, [7948-
06]S2
Chaney, Eric J. [7889-26]S4, [7890-35]
S7, [7902-04]S1, [7910-04]S1
Chaney, Raymond [7933-49]S11
Chang, Aaron [7905-04]S1
Chang, Chang [7886-20]S5
Chang, Cheng-Chung [7895-19]S4
Chang, Cheng-Yu [7937-35]S8
Chang, Chia Min [7920-45]SPS3
Chang, Chia-Hua [7933-22]S5, [7933-
95]SPS4
Chang, Chia-Yun [7935-13]S3
Chang, Chich-Neng [7910-08]S2
Chang, Chih-Fu [7937-35]S8
Chang, Chiou-Tuz [7894-19]S4
Chang, Curie [7897-70]SPS2
Chang, Daniel H. [7918-06]S1
Chang, David O. [7885-02]S1
Chang, Ernest W. [7883C-64]S4,
[7889-72]S11, [7889-74]S11
Chang, Feng-Yu [7933-22]S5
Chang, Gee-Kung [7959-11]S5, [7960-
09]S2, [7960-09]S2, [7960-09]S2
Chang, Guoqing 7937 S13 SessChr,
[7937-57]S12
Chang, Han-Chieh [7927-46]SPS3
Chang, Hung-Chun [7938-11]S3
Chang, Jih-Yuan [7933-42]S9, [7933-
81]SPS4, [7954-49]SPS4
Chang, Junn-Liang [7900-03]S1
Chang, Jyh-Yeong [7899-106]SPS2
Chang, Kuo-Hua [7939-54]SPS4,
[7939-77]SPS4
Chang, Kwang [7884-28]SPS1
Chang, Liann-Be [7934-50]SPS4
Chang, Nai-Wen [7902-17]S4
Chang, Robert C. [7891-28]S7, [7891-
33]SPS1, [7906B-41]S3
Chang, Shih-Hui [7911-39]S8, [7933-
90]SPS4
Chang, Shih-Pang [7939-70]SPS4,
[7954-07]S2
Chang, Shouu-Jinn 7939 ProgComm
Chang, Shu-Hsuan [7939-76]SPS4
Chang, Shwu-Jen [7897-47]S10
Chang, So-Young [7887-12]S3
Chang, Sung K. [7910-49]S10
Chang, Ta-Chau [7902-53]S11, [7903-
92]SPS1
Chang, Tsung-Yao [7902-09]S3, [7911-
30]S6
Chang, Vivide T. [7891-09]S3
Chang, Walter H. 7909 S7 SessChr,
[7909-28]S8
Chang, Wei-Lun [7933-95]SPS4
Chang, Wen-Ming [7939-53]SPS4,
[7940-31]S8, [7945-50]S8
Chang, Wonkeun [7914-22]S6
Chang, Yi-Ting [7910-08]S2
Chang, Yu-Chia [7939-47]S8
Chang, Yun-Chong [7911-39]S8,
[7927-27]S6
Chang, Zenghu [7937-68]S15
Chann, Bien [7918-41]S5
Chanseau, Christel [7899-32]S5
Chanteloup, Jean-Christophe F. 7916
ProgComm
Chao, Chih-Kang [7939-92]SPS4
Chao, Jiun-Jie [7947-33]S4
Chaouh, Hacene [7959-09]S4,
[7959-09]S4
Chapman, Glenn H. [7897-31]S6,
[7897-68]SPS2, [7927-45]SPS3
Chapman, J. N. [7940-17]S4, [7942-15]
S6
Chapman, Michael H. [7886-18]S4
Charalambous, Ismini [7889-118]SPS2
Charette, Paul G. [7929-19]S5
Charipar, Nicholas A. [7921-02]S1
Charland, Daniel [7884-15]S5
Charles, William O. [7953-40]S10,
[7953-42]S11
Charlet, Bertrand [7941-07]S2
Charlton, Martin D. B. [7912-91]SPS3,
[7934-59]SPS4, [7954-43]S11
Charon, Sebastien [7903-117]SPS1
Charra, Fabrice 7935 ProgComm,
[7935-14]S4
Chatterjee, Arpita [7929-05]S2
Chatterjee, Sangam [7933-50]S11,
[7937-30]S7, [7937-66]S15, [7939-
79]SPS4
Chau, Fook Siong [7930-07]S2, [7930-
26]S6
Chauchard, Fabien [7896-17]S4
Chaudhari, Chitrarekha B. [7934-39]
SPS4
Chaudhary, Govind [7899-65]S10
Chaudhary, Rakesh [7908-12]S2
Chaudhary, Ujwal [7883E-115]S5,
[7883E-121]SPS1
Chaudhry, Bill [7904-10]S3
Chauhan, Vikrant [7917-30]S7, [7950-
10]S3
Chauveau, Jean-Michel [7940-30]S8
Chavantes, Maria C. [7906B-39]S4
Chavez, Sarah [7899-51]S8
Chavez-Pirson, Arturo [7917-16]S5,
[7951-08]S2
Chavoutier, Marie [7912-58]S14
Cheang, Chak-Fong [7946-56]S13
Cheben, Pavel [7888-04]S1, [7928-19]
S6, [7928-19]S1, [7928-19]S5, 7941
ProgComm, 7941 S7 SessChr,
[7941-39]S9, [7943-15]S5
Cheema, Muhammad I. [7888-07]S1
Chembo, Yanne K. [7913-28]S6,
[7936-11]S3
Chen, Aaron [7896-96]SPS1
Chen, Alan [7936-08]S3
Chen, Antao [7890-25]S5, 7938
ProgComm, 7938 S3 SessChr
Chen, Benjamin K. [7905-47]SPS1
Chen, Bin [7886-10]S2
Chen, Bo Han [7920-45]SPS3
Chen, Brenda [7883G-146]S1
Chen, Chao Hsing [7939-07]S12
Chen, Cheng-Ju [7934-49]SPS4
Chen, Cheng-Yu [7939-92]SPS4
Chen, Chenlong [7954-22]S6
Chen, Chia-Chun [7909-07]S2
Chen, Chih-Ping [7900-03]S1
Chen, Chih-Wei [7956B-25]S2
Chen, Chih-Yen [7939-53]SPS4, [7940-
31]S8, [7945-50]S8, [7954-06]S2
Chen, Chii-Chang [7941-29]S7
Chen, Chung-Ming [7883E-114]S5,
[7896-102]SPS1
Chen, Chun-Yu [7895-05]S1
Chen, Danni [7908-13]S2
Chen, Da-ren [7913-37]S8
Chen, David J. [7905-42]SPS1
Chen, Debbie K. [7896-08]S2
Chen, Diana C. [7931-21]S6
Chen, Dora [7894-26]S5
Chen, Duo [7901-08]S2, [7901-25]S5
Chen, Fan [7891-24]S6
Chen, Fang-Ming [7935-42]SPS4
Chen, Fangyi [7889-107]SPS2
Chen, Guanxi [7945-62]S10
Chen, Haiping M. [7943-03]S1
Chen, Haiqing [7941-18]S4
Chen, Haiyan [7910-26]S5
Chen, Haiyu [7899-88]SPS2
Chen, Hao-Zai [7938-11]S3, [7938-18]
S4
Chen, Huang-Ming P. [7955-12]S5
Chen, Hui [7913-38]S8
Chen, Hung-Pin [7946-70]SPS4
Chen, HungYing [7949-22]S5, [7939-
06]S12, [7939-81]SPS4, [7939-84]
SPS4, [7946-73]SPS4
Chen, J. [7945-09]S2
Chen, Janglin 7956A ProgComm
Chen, Jeffrey R. [7912-02]S1
Chen, Jen-De [7933-42]S9
Chen, Jerry L. [7903-103]SPS1
Chen, Jerry C. [7917-36]S9
Chen, Jiajia [7958-07]S4, [7958-07]S4
Chen, Jian [7938-13]S3, [7960-28]
SPS4
Chen, Jianfeng [7945-22]S4, [7953-37]
S10, [7953-60]S15
Chen, Jianxin [7953-40]S10, [7953-42]
S11
Chen, Jianxin [7953-72]S15
Chen, Jin [7892-13]S3, [7892-17]S4
Chen, Jui-Hao [7899-141]SPS2
Chen, Kangkang [7914-23]S6
Chen, Ken [7956B-34]S3
Chen, Kevin P. [7921-14]S4
Chen, Kevin J. [7939-25]S3
Chen, Kevin [7946-79]SPS4
Chen, Ko Hua [7885-02]S1
Chen, Kuei-Ming [7939-38]S6
Chen, Li-Chyong 7939 ProgComm
Chen, Li-Jin [7937-57]S12
Chen, Lu [7909-32]S9
Chen, Maggie Ying [7936-03]S1
Chen, Nanguang [7891-15]S4, [7904-
11]S3, [7911-21]S4
Chen, Peng-Sheng [7883D-70]S1
Chen, Pin-Yuan [7899-72]S11
Chen, Po-Hsiung [7891-25]S6, [7894-
19]S4
Chen, Ray T. 7936 ProgComm, [7936-
03]S1, [7936-06]S2, [7936-16]S4,
[7941-20]S5, 7942 S2 SessChr,
[7943-22]S7, [7943-33]S10, 7944
Chr, 7944 S9 SessChr, [7944-14]
S4, [7944-33]SPS4, [7944-35]
SPS4, [7944-36]SPS4, [7944-37]S5,
[7944-41]S5
Chen, Ruimin [7899-12]S2, [7899-28]
S4

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Chen, Shean-Jen** [7885-62]SPS2, [7895-09]S2, [7902-21]S5, [7910-08]S2, [7927-17]S4, [7946-56]S13
- Chen, Shu-Han [7947-19]S5
- Chen, Si [7897-37]S8
- Chen, Siming C. [7953-02]S1
- Chen, Songsheng [7912-06]S2
- Chen, Sung-Liang [7899-83]S12, [7899-102]SPS2, [7899-151]SPS2, [7941-23]S6
- Chen, Szu-Yu [7883A-02]S1, [7883D-10]S2, [7903-08]S1, [7903-16]S2
- Chen, Te-Hsuen [7897-47]S10
- Chen, Tong [7908-24]S4
- Chen, Tong-Sheng [7900-18]SPS2, [7900-19]SPS2
- Chen, Wei R.** 7898 ProgComm
- Chen, Wei [7898-34]SPS2
- Chen, Wei R.** 7900 Chr, 7900 S2 SessChr, 7900 S4 SessChr, [7900-05]S2, [7900-06]S2, [7900-07]S2, [7900-08]S3, [7900-09]S3, [7900-10]S3, [7900-12]S4, [7900-13]S4
- Chen, Wei [7900-16]SPS2
- Chen, Wei R.** [7900-16]SPS2
- Chen, Weibin [7936-14]S4
- Chen, Wei-Liang** [7885-62]SPS2, [7897-47]S10, [7903-05]S1, [7903-62]S9
- Chen, Wei-Wen [7902-53]S11, [7903-92]SPS1
- Chen, Wenliang [7906A-16]SPS2
- Chen, Winnie [7944-24]S6
- Chen, Xiaodong [7900-12]S4
- Chen, Xin [7901-08]S2
- Chen, Xin [7901-23]S5
- Chen, Xin [7901-25]S5
- Chen, Xing [7953-62]S15, [7953-63]S15, [7953-69]SPS4, [7953-70]SPS4
- Chen, Xinyi [7940-10]S3
- Chen, Yang-Fang [7895-09]S2, [7903-05]S1
- Chen, Yaohui [7937-08]S2
- Chen, Yi-Chun [7936-09]S3
- Chen, Yijiang [7923-28]S8
- Chen, Ying-Chih [7899-76]S12
- Chen, Yiqiao [7945-71]S12
- Chen, Yong-Ping [7889-42]S7, [7910-25]S5, [7910-60]SPS2, [7911-29]S6
- Chen, Youming [7912-02]S1, [7923-12]S4, [7924-17]S3
- Chen, Young-Kai 7960 ProgComm, [7960-03]S1, [7960-03]S1
- Chen, You-Yin [7899-106]SPS2
- Chen, Yu** 7892 ProgComm, 7892 S2 SessChr, [7898-15]S2
- Chen, Yu [7910-51]S11
- Chen, Yu-Bin [7934-30]S7
- Chen, Yueli [7883F-131]S3
- Chen, Yung-Jui 7942 ProgComm, [7942-10]S4
- Chen, Yung-Sheng [7939-53]SPS4, [7945-50]S8
- Chen, Yung-Tsan [7890-57]SPS1, [7891-20]S5, [7954-12]S3
- Chen, Yun-Sheng [7899-17]S3, [7899-18]S3, [7899-60]S9, [7899-61]S9, [7899-74]S11, [7899-119]SPS2, [7910-18]S4, [7910-20]S4
- Chen, Yu-Shing [7903-105]SPS1
- Chen, Yu-Ta** [7893-14]S3, [7902-17]S4
- Chen, Yu-Tong [7939-76]SPS4
- Chen, Zhihao [7894-01]S1
- Chen, Zhongping** [7883C-159]S7, [7883C-165]S2, [7883C-188]S2, [7883E-108]S4, 7889 ProgComm, [7889-18]S3, [7889-43]S7, [7889-45]S7, [7889-96]SPS2, [7892-09]S2, [7893-27]S5, [7893-30]S6, [7893-43]SPS2, [7898-22]S3, [7903-95]SPS1
- Cheng, Bowen [7939-10]S13
- Cheng, Fang-Hsuan [7891-20]S5, [7954-12]S3
- Cheng, Futao [7955-21]S7
- Cheng, Haynes P. H.** [7912-33]S9
- Cheng, Hengju [7952-01]S1
- Cheng, J.C.-H. [7889-27]S4
- Cheng, Jane [7918-30]S5
- Cheng, Ji-Xin 7903 S6 SessChr, [7903-26]S4, [7903-33]S5, [7903-90]SPS1
- Cheng, Kar-Mun [7929-29]S7
- Cheng, Liwei [7953-40]S10, [7953-59]S15, [7953-62]S15, [7953-69]SPS4, [7953-70]SPS4
- Cheng, Patrick [7901-06]S2
- Cheng, Peter [7918-30]S5
- Cheng, Rongen [7897-31]S6, [7897-68]SPS2
- Cheng, Tsung-Lin [7926-18]SPS3
- Cheng, Wei Yu [7889-27]S4
- Cheng, Yao-You [7899-103]SPS2
- Cheng, Yuang-Tung [7935-51]SPS4
- Cheng, Yuh-Jen [7939-65]SPS4
- Cheng, Yu-Hsi [7894-15]S3, [7908-19]S3
- Cheprakov, Andrei V. [7910-32]S7
- Cherkezyan, Lusik [7897-70]SPS2, [7907-24]S4
- Chernikov, Alexej** [7937-66]S15, [7933-50]S11
- Chernobrod, Boris M. [7926-01]S1
- Chernomordik, Victor V. [7896-72]S15, [7910-35]S8
- Cherry, Simon R. [7892-16]S4, [7902-15]S4
- Cherukuri, Harish [7883B-48]S3
- Chervenak, James [7928-25]SPS3
- Chesnokov, Igor A. [7887-30]SPS1
- Cheung, Eric [7914-28]S7
- Cheung, Eunice L. [7883C-167]S3
- Cheung, Ka Yi K. [7917-32]S8
- Cheung, Karen C. [7929-15]S4
- Cheung, Maurice [7908-23]S4
- Chevalier, Nicolas [7946-57]S13
- Chew, Xiong-Yeu [7930-26]S6
- Chhajed, Sameer [7954-16]S4
- Chhetri, Raghav K.** [7889-66]S10, [7911-18]S4
- Chi, Ting-Ta** [7883C-59]S7, [7889-28]S4, [7889-113]SPS2, [7889-114]SPS2, [7909-15]S5, [7911-16]S4, [7937-45]S10
- Chia, Jeffrey [7924-20]S4
- Chia, Thomas H. [7903-84]S11
- Chiamvimonvat, Nipavan [7903-07]S1
- Chiang, Chun-Pin [7883C-59]S7, [7889-28]S4, [7890-57]SPS1, [7891-20]S5, [7900-03]S1
- Chiang, Gary [7897-68]SPS2
- Chiang, Hai-Pang [7920-45]SPS3
- Chiang, Huihua K. [7885-02]S1
- Chiang, Yueh-Sheng [7909-06]S2
- Chiao, Jung-Chih** 7926 Chr, 7926 S3 SessChr
- Chiao, Mu 7926 ProgComm
- Chiarello, Fabio [7945-31]S5
- Chiavaioli, Francesco [7941-40]S9
- Chibbli, Hicham [7909-51]S2
- Chichibu, Shigefusa F. [7937-34]S8, [7939-31]S5
- Chichkov, Nikolai B. [7914-86]SPS3
- Chiel, Hillel J. [7883D-94]S6, [7883G-138]S2, [7883G-147]S2, [7883G-148]S3
- Chien, Cheng-Hao [7902-53]S11, [7903-92]SPS1
- Chien, Liang-Chy TrackChr, SympChair, 7955 Chr, 7955 S SessChr, 7955 S1 SessChr, [7955-15]S5, 7956A CoChr, 7956B Chr, 7956B S1 SessChr
- Chien, TeYu 7940 S9 SessChr, 7940 S10 SessChr, [7940-29]S7
- Chien, Yi-Hsin [7910-08]S2
- Chies, Thierry [7916-35]SPS3
- Chifman, Lev M. [7904-15]S4, [7907-17]S3
- Chigrinov, Vladimir G. 7955 ProgComm
- Chihaya, Kenta [7956B-31]S3
- Childs, David T. [7953-02]S1, [7953-64]SPS4, [7953-65]SPS4, [7919-20]S4
- Chill, Nicholas [7901-03]S1
- Chilla, Juan L. [7919-07]S2
- Chimier, Benoît [7920-02]S1, [7937-19]S5
- Chin, Aland K.** [7918-14]S3, [7918-20]S4
- Chin, Richard H. [7918-14]S3, [7918-20]S4
- Chin, Sang-Hoon [7949-10]S2
- Chindaudom, Pongpan [7911-05]S1
- Chinen, Lori [7886-12]S3
- Chinna Balareddy, Karthik [7888-23]S1, [7888-23]S3
- Chiou, Arthur E. T.** [7891-25]S6
- Chiou, Jin-Chern [7902-17]S4
- Chiragh, Furqan L. [7914-10]S3
- Chitchian, Shahab** [7883B-39]S1
- Chitnis, Parag V.** [7899-76]S12
- Chityala, Srujan R. [7883E-118]S6
- Chiu, Chang-Fang [7902-17]S4
- Chiu, Ching-Hsueh [7939-69]SPS4, [7939-70]SPS4
- Chiu, Hua-Kung [7941-29]S7
- Chiu, MengYih [7933-22]S5
- Chiu, Stephanie J. [7885-47]S9
- Chiu, Yi-Wen [7935-13]S3
- Chival, Yuri** [7921-11]S3
- Chizhik, Alexey I. [7905-10]S2
- Chizhik, Anna M. [7905-10]S2
- Chizhov, Sergey A. [7912-80]SPS3
- Cho, Jae Du [7890-40]S7
- Cho, Jaehee [7954-05]S2, [7954-14]S4, [7954-16]S4
- Cho, Joong-Yeon [7939-19]S15, [7939-33]S5
- Cho, Mu Hee [7944-30]S1, [7944-30]S8
- Cho, Namhyun [7892-29]SPS1
- Cho, Seongmoon [7898-33]S5, [7906A-15]S3, [7906A-19]SPS2
- Cho, Sungchan [7939-66]SPS4
- Cho, YeongHee [7955-28]SPS4
- Cho, Yong-Hee** [7953-29]S7
- Cho, Yong-Hoon** [7945-81]S14
- Choa, Fow-Sen [7953-40]S10, [7953-59]S15, [7953-62]S15, [7953-63]S15, [7953-69]SPS4, [7953-70]SPS4
- Chodavarapu, Vamsy P.** 7908 ProgComm, [7908-23]S4, [7955-27]S8
- Choe, Regine [7886-26]S6, [7896-24]S5, [7896-41]S9, [7896-48]S10, [7896-50]S11
- Choi, Benjamin B. [7883B-55]S4, [7883B-56]S4
- Choi, Bernard** 7883A Chr, 7883A S2 SessChr, [7883A-07]S2, [7897-50]S10, 7907 ProgComm, 7907 S2 SessChr
- Choi, Byung-Seok [7945-13]S3
- Choi, Chanhun [7890-34]S6
- Choi, Chulhee [7897-09]S2, [7897-39]S8
- Choi, Dong-Hak [7885-30]S6, [7889-70]S11
- Choi, Dukhyun [7945-80]S14
- Choi, E-Joon [7955-32]S6
- Choi, Eui Yul [7929-34]SPS3
- Choi, Eun-Seo [7889-87]SPS2, [7894-30]S5
- Choi, Heejin [7903-56]S8
- Choi, Hong-Seok [7913-29]S7
- Choi, Hyunyoung [7937-64]S14
- Choi, Jae-Young [7945-80]S14
- Choi, Jiyeon** [7925-20]S5
- Choi, John M. [7903-21]S3
- Choi, Jong-Ryul** [7904-60]SPS2, [7941-46]SPS4
- Choi, Joshua Y. [7885-47]S9
- Choi, Jung-Hun [7945-38]S6
- Choi, Kuiwon [7908-04]S1
- Choi, Myunghwan [7897-09]S2, [7897-39]S8
- Choi, SangHoon [7926-16]SPS3
- Choi, Seong Soo** [7911-43]SPS1
- Choi, Suk [7954-13]S4
- Choi, SungMin [7906A-24]SPS2
- Choi, Sung-Wook [7899-77]S12
- Choi, Tae-Youl [7897-21]S4, [7911-48]SPS1, [7934-60]SPS4
- Choi, Won Jun [7945-91]S16
- Choi, Wonshik [7904-27]S6, [7904-28]S6, [7904-41]S8
- Choi, Woo June [7904-56]SPS2
- Choi, Young-Wan [7933-80]SPS4, [7941-45]SPS4, [7946-74]SPS4
- Chollet, Céline [7899-32]S5
- Chong, Andy [7917-26]S7
- Chong, Changho [7889-53]S8
- Chong, Kwang [7914-43]S10
- Chong, Shau Poh [7904-11]S3
- Choo-Smith, Lin-P'ing [7884-08]S4, [7884-15]S5
- Choquette, Kent D.** 7952 ProgComm, 7952 S6 SessChr, [7952-09]S3, [7952-17]S5
- Chorvat, Dusan [7903-75]S11
- Chorvatova, Alzbeta** 7903 S10 SessChr, [7903-75]S11
- Chou, C. H. [7889-27]S4
- Chou, Chen-Kuan [7897-47]S10
- Chou, Chien [7896-39]SPS1, [7934-50]SPS4, [7934-51]SPS4
- Chou, Chih H. [7883E-102]S2
- Chou, Han-Yi [7889-114]SPS2
- Chou, Lei-Chun [7926-19]SPS3
- Chou, Mitch M. C. 7954 ProgComm, 7954 S8 SessChr, [7954-22]S6
- Chou, Wu-Ching [7937-51]S11
- Chou, Yu-Hsiang [7886-45]SPS1
- Choudhury, Debabani 7926 ProgComm
- Choudhury, Debaditya** [7929-22]S5
- Choudhury, Niloy [7889-107]SPS2
- Chow, Weng W. 7933 ProgComm, [7933-45]S10, [7937-06]S2, [7937-48]S11, [7954-08]S2
- Choy, Jennifer T. [7946-09]S3
- Choye, Ray** [7883A-20]S4
- Choyke, Peter L. [7910-07]S2
- Christey, Douglas B. 7920 ProgComm
- Christen, Jürgen** [7939-05]S1, [7939-41]S7, [7939-46]S8, [7939-68]SPS4, [7954-20]S6
- Christensen, Kim [7916-16]S4
- Christensen, Peter B. [7890-39]S7, [7890-56]SPS1, [7904-15]S4
- Christensen, Scott [7912-35]S9, [7951-07]S2
- Christiansen, Mads B.** [7913-33]S7
- Christodoulides, Demetrios [7950-11]S3
- Christol, Philippe [7945-55]S9
- Chrostowski, Lukas [7929-15]S4
- Chu, Anthony [7883A-09]S2, [7903-80]S11
- Chu, Chen [7952-04]S1
- Chu, Cheng Hung [7920-45]SPS3
- Chu, David [7886-21]S5

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Chu, Junhao** MeetingVIP
Chu, Kengyeh [7907-10]S2
Chu, Melissa [7883A-15]S3, [7883A-27]S5
Chu, Sai-Tak [7945-37]S5
Chu, Sheng [7940-32]S8
Chu, Shi-Wei [7903-16]S2, [7903-115]SPS1
Chu, Shu-Chun 7950 ProgComm
Chu, Woo-Sung [7935-49]SPS4, [7941-43]SPS4
Chua, Christopher L. 7939 S14
SessChr, 7939 S15 SessChr, [7939-10]S13, [7939-18]S15
Chuang, Chih-Li [7939-52]S9
Chuang, Ching-Cheng [7883B-41]S1, [7883E-114]S5, [7884-06]S2, [7884-22]SPS1, [7890-22]S4, [7896-102]SPS1
Chuang, Frank [7890-04]S1, [7902-38]S8
Chuang, Ming-Lung [7890-22]S4
Chuang, Shun Lien 7933 ProgComm
Chui, Toco [7885-08]S2
Chujio, Makoto [7906A-25]SPS2
Chun, Wanhee [7904-55]SPS2
Chung, Aaron L. [7919-26]S5, [7919-36]S8, [7919-38]S8
Chung, Daehun [7926-21]SPS3, [7929-33]SPS3
Chung, Hun-Jae [7954-14]S4
Chung, Pei-Hua [7902-31]S7, [7903-72]S10
Chung, So Hyun [7886-26]S6, [7896-24]S5, [7896-41]S9, [7896-48]S10, [7896-50]S11
Chung, Soojeong [7884-33]SPS1
Chung, Suk Moon [7956B-34]S3
Churkin, Dmitriy V. [7914-112]SPS3, [7917-69]SPS3
Chuttani, Ram [7907-26]S4
Chuu, Chih-Sung [7949-35]S7
Chyi, Jen-Inn 7939 Chr, 7939 S3
SessChr, [7939-90]SPS4, [7939-92]SPS4
Chyla, Michal [7916-09]S2
Ciapponi, Alessandra [7912-04]S2
Cibella, Sara [7945-31]S5
Cibiel, Gilles [7936-10]S3
Cicchi, Riccardo [7883A-31]S6, [7883A-33]S6
Cicerone, Marcus T. [7903-34]S6, [7937-63]S14
Cich, Michael J. [7953-27]S7
Cilip, Christopher [7883B-46]S2, [7883B-47]S3, [7883B-48]S3
Cimalla, Peter [7889-08]S2, [7889-11]S2, [7889-39]S6, [7893-38]S8
Cinbis, Can [7896-74]S15
Cinchetti, Mirko [7937-21]S5
Cinel, Neval A. [7911-53]SPS1
Cingolani, Roberto [7935-37]S9
Cingoz, Arman [7917-44]S10
Cisek, Richard [7903-11]S2, [7904-37]S8, [7910-56]S12, [7946-48]S11
Ciudin, Rodica [7935-46]SPS4
Claffey, Kevin P. [7896-63]S13
Clair, Maurice [7921-29]S7, [7921-29]S11
Clapp, Aaron R. [7909-01]S1
Clark, C. D. [7897-19]S4
Clark, David [7908-27]S4
Clarke, Edmund M. [7953-02]S1
Clarke, Matthew L. [7891-28]S7, [7891-30]S7, [7891-33]SPS1, [7909-13]S4
Clarke, Patrick J. [7945-97]S17
Clarkin, James P. 7894 ProgComm, 7894 S6 SessChr
Clarkson, W. Andrew 7912 Chr, 7912 S5 SessChr, 7912 S7 SessChr, [7914-05]S2, 7917 S1 SessChr
Claudon, Julien [7933-67]S12, [7933-67]S15
Clausen, Christoph [7948-42]S10
Clausi, David A. [7889-120]SPS2
Claussen, Neil [7912-57]S14
Claverol-Tinture, Enric [7903-113]SPS1
Cleary, Kevin R. [7901-06]S2
Clegg, Nancy J. [7883G-136]S1
Clement, Tracy S. [7948-22]S5
Clews, Peggy J. [7927-25]S6
Clift, Martin J. D. [7909-08]S3
Cloitre, Thierry [7888-06]S1
Clough, Benjamin W. [7917-15]S5, [7938-03]S1
Clough, Geraldine F. [7891-12]S4
Co, Anne [7920-16]S4
Coad, James E. 7901 ProgComm, 7901 S4 SessChr, 7901 S SessChr, [7901-01]S1, [7901-03]S1, [7901-33]S7, [7901-35]S7
Coburn, Jeannine [7883C-174]S4
Cochran, Frank V. [7883E-104]S3, [7910-12]S3
Cockburn, John W. [7953-41]S11
Cocquelin, Benjamin [7914-25]S6
Coda, Sergio [7893-07]S2, [7895-16]S3
Coddington, Ian [7917-42]S10
Coffey, James [7939-11]S13
Coggar, Victoria [7905-27]S7
Cogswell, Carol J. 7904 Chr, 7904 S1 SessChr, [7904-48]S9
Cohen, Brian A. [7886-41]SPS1
Cohen, Gil [7959-15]S6, [7959-15]S6, [7959-15]S6
Cohen, Jacob [7917-30]S7, [7950-10]S3
Cohen, Shalom [7918-03]S1, [7918-31]S5
Coldren, Larry A. 7942 ProgComm
Cole, Brian J. [7912-34]S9, [7912-76]SPS3
Cole, Jacqueline H. [7897-45]S9
Coleman, Matthew A. [7905-17]S4
Coleman, Steven M. [7912-05]S2
Coles, Harry J. 7955 ProgComm, 7955 S3 SessChr, [7955-11]S4
Coles, Matt M. [7917-55]S12
Coll, Jean-Luc [7892-18]S4, [7910-29]S6
Collart Dutilleul, Pierre-Yves [7908-16]S3
Collazo, Ramon [7939-22]S2, [7939-24]S2
Collier, John [7916-14]S3
Collin, Stéphane S. [7945-39]S6
Collins, Jack [7910-11]S3
Collins, Robert J. [7945-97]S17
Colombe, Yves [7948-15]S4
Colombier, Jean-Philippe [7920-19]S5, [7920-19]S9, [7920-29]S9
Colombo, L. [7949-37]S7
Colt, Henri G. [7883C-60]S1, [7893-37]S8
Colyer, Ryan A. [7905-01]S1
Commin, Paul [7953-41]S11
Compain, Eric [7916-22]S5
Conan, Jean-Marc [7885-65]SPS2
Conchello, Jose-Angel 7904 Chr, 7904 S10 SessChr
Conde, João [7909-19]S6
Conde, Olga M. [7907-25]S4
Condeelis, John S. [7929-03]S2, [7929-35]S3
Condon, Nicholas J. [7951-07]S2, [7951-14]S4
Cong, Wenxiang [7896-120]SPS1
Conibeer, Gavin J. [7933-17]S4
Conjeaud, H. [7909-50]SPS2
Conjusteau, André [7897-34]S7, [7899-35]S5, [7899-48]S8
Conner, Donald [7934-58]SPS4
Connor, John H. [7888-16]S2
Connors, Daniel P. [7883A-11]S2
Connors, Megan [7906B-41]S3
Conrad, Holger [7930-28]S7
Consoli, Antonio [7952-11]S3
Constandinou, Timothy G. [7943-42]S13
Contag, Christopher H. [7883E-104]S3, 7895 ProgComm, 7902 ProgComm, [7910-12]S3, [7930-04]S1, [7930-04]S7
Contini, Davide [7883D-84]S4, [7896-01]S1, [7896-11]S3, [7896-34]S7, [7896-36]S8
Cook, Jason R. [7901-10]S3
Cook, Nathaniel C. [7909-20]S6
Coolen, Anthony [7903-74]S10
Coomans, Werner [7933-94]SPS4
Cooper, Jonathan M. [7929-18]S5
Cooper, Michele T. [7886-49]SPS1
Cooper, Thomas M. [7935-27]S7
Coosemans, Mark [7889-23]S4
Copeland, Drew A. [7912-14]S4, [7912-86]SPS3
Copner, Nigel J. [7912-72]SPS3, [7917-58]SPS3, [7933-41]S9, [7933-49]S11, [7949-06]S2
Coppini, Raffaele [7903-66]S9
Corbett, Brian [7959-07]S3
Corkum, Paul B. [7925-46]S7
Cormack, Robert H. [7904-48]S9
Cornelissen, Steven [7930-20]S6, [7930-20]S1, [7930-20]S5
Cornelius, Lynn A. [7899-152]SPS2
Corradini, Roberto [7894-20]S4
Correa-Duarte, Miguel A. [7909-40]S12
Corry, Peter [7901-08]S2, [7901-25]S5
Coscelli, Enrico [7914-61]S15, [7914-67]S16
Cosci, Alessandro [7883A-31]S6, [7883A-33]S6
Cosentino, Armando [7946-45]S11
Cosi, Franco [7941-31]S7
Coskun, Ahmet F. [7902-42]S9, [7904-42]S9, [7904-45]S9, [7908-21]S4
Costa, Ermande [7902-08]S2, [7954-36]S10
Costa, Joannes [7944-10]S3, [7944-24]S6
Costa, Marco A. [7889-22]S4
Costa, Mardoqueu M. [7886-36]SPS1
Costa, Rui [7883G-140]S1
Costa Lino, Maira D. M. [7887-15]S3
Costantino, Santiago [7902-29]S6, 7920 ProgComm
Cote, Daniel [7903-36]S6, [7903-67]S9
Coté, Gerard L. 7906A Chr, 7906A S3 SessChr, [7906A-04]S1, [7906A-10]S3, [7906A-12]S3
Cotte, Yann [7904-26]S6
Couffin, Anne Claude [7886-35]SPS1
Couleaud, Pierre [7886-35]SPS1
Coulman, Siôn [7883A-14]S3
Coupland, Ben [7905-23]S6
Couchinoux, Roger [7916-35]SPS3
Courjaud, Antoine [7912-29]S8, [7912-61]S14
Courmoyer, Alain [7914-03]S1
Courtial, Johannes [7950-13]S4
Courvoisier, Francois [7921-18]S5
Coutard, Jean-Guillaume [7892-18]S4
Cova, Sergio D. [7905-01]S1, [7945-100]S17
Covington, Aaron M. [7908-07]S1
Cowan, Vincent M. [7945-66]S11
Cowan, William D. 7931 ProgComm
Cox, Benjamin T. [7899-64]S10, [7899-107]SPS2, [7899-145]SPS2
Cox, Charles H. 7936 ProgComm
Cox, Guy C. 7903 ProgComm
Coxson, Harvey O. [7893-28]S5
Coyle, D. Barry [7912-85]SPS3
Craig, Alan E. 7948 ProgComm
Craig, Richard [7939-47]S8
Craighead, Harold MeetingVIP, MeetingVIP
Crane, Nicole J. 7895 S4 SessChr, [7895-24]S5
Crawford, Gregory P. 7955 ProgComm
Crawford, Mary [7954-08]S2, [7954-16]S4
Creath, Katherine [7904-22]S5
Cress, Cory D. [7933-04]S1, [7933-24]S6, [7933-26]S6
Crisp, Michael J. [7933-48]S11
Cristea, Paul Dan A. [7908-41]S3
Crochet, Jared [7937-65]S14
Cronin, Edward [7896-40]S9
Cronin, Stephen [7945-43]S6
Crosson, Eric R. [7945-03]S1
Croteau, Andre [7894-06]S1
Crotti, Caroline [7925-08]S2
Crouse, David T. [7933-77]SPS4
Crow, Matthew J. [7911-07]S6
Crowe, Iain F. [7947-28]S7
Crowe, John A. [7891-12]S4, [7897-44]S9, [7899-47]S7
Crowley, Mark T. [7933-37]S8
Crozat, Paul [7938-06]S1
Crozier, Kenneth B. 7946 S13
SessChr, [7946-49]S12, [7950-30]S8
Crump, Paul A. [7953-50]S13
Crutchley, Benjamin G. [7939-13]S13
Cruz Munoz, Jose L. [7960-27]SPS4
Cruz-Cabrera, Alvaro A. [7941-41]S9
Cruz-Campa, Jose L. [7927-25]S6
Cubeddu, Rinaldo [7883D-84]S4, [7895-12]S3, [7896-01]S1, [7896-11]S3, [7896-57]S12, [7925-06]S2
Cuccia, David J. [7883A-24]S5, [7883A-29]S6, [7891-07]S3, [7892-01]S1, [7896-26]S6, [7896-29]S6, [7907-11]S2
Cucho, Aurelien [7940-55]S12
Cucinotta, Annamaria [7894-20]S4, [7914-61]S15, [7914-67]S16
Cui, Guohong [7883G-140]S1
Cui, Huizhong [7899-131]SPS2
Cui, Meng [7899-46]S7
Cui, Sisi [7910-26]S5
Cui, Wanxing [7907-35]S5
Cui, Xiquan [7885-63]SPS2, [7911-32]S7
Cuisinier, Frédéric J. G. [7888-06]S1, [7908-16]S3
Culbertson, William [7885-23]S4
Culha, Mustafa [7911-01]S1
Culjat, Martin O. [7938-20]S1
Culver, Joseph P. [7883E-116]S5, [7883E-119]S6, [7896-05]S1, [7896-51]S11, [7896-69]S14, [7896-83]SPS1, 7898 ProgComm, [7899-134]SPS2, [7910-44]S9, [7910-66]S3
Cumming, Ben [7927-16]S4
Cummins, Brian M. [7906A-10]S3
Cunha, Adam M. [7901-23]S5
Cunha, Patricia [7902-08]S2
Cunningham, John E. 7944 ProgComm, 7944 S1 SessChr, [7944-01]S1, [7944-04]S1, [7944-10]S3, [7944-24]S6
Cunningham, Vincent B. [7899-156]SPS2, [7901-12]S3
Curatolo, Andrea [7889-119]SPS2, [7890-38]S7, [7893-29]S6
Curl, Robert F. [7945-24]S4
Curran, Tom [7937-54]S12
Curry, William [7883E-106]S3

Curtis, Allison [7907-28]S4
 Custillon, Guillaume [7941-16]S4
 Cvecek, Kristian [7920-05]S2
 Czarnomski, Mariusz [7923-22]S6
 Czarnota, Gregory J. [7907-37]S6,
 [7907-40]S6
 Czernecki, Robert [7953-17]S4
 Czeszanowski, Tomasz [7919-02]S1

D

da Costa, Ernande B. [7912-90]SPS3
 da Silva, Andréa [7912-90]SPS3,
 [7954-36]S10
 da Silva Martinho, Herculano [7890-44]
 S8, [7897-28]S6
 Daaboul, George [7888-16]S2
 Dadap, Jerry I. [7942-11]S5
 Dadgar, Armin [7939-46]S8
 Dage, Daryl [7905-26]S5
 Dagenais, Mario 7942 ProgComm
 D'Aguzzo, Marco [7894-07]S2
 Dahal, Pasma [7894-37]S7
 Dahan, Maxime 7909 ProgComm
 Dahhan, Imad [7919-18]S4
 Dahlgren, Robert P. 7934 ProgComm
 Dähnert, Ingo [7902-56]S12
 Dai, HaiTao [7955-20]S7
 Dai, Jianming [7917-15]S5
 Dai, Ping [7897-40]S8, [7902-12]S3
 Dai, Qi [7954-16]S4
Dainty, Christopher [7885-41]S8,
 7931 ProgComm
 Dajani, Iyad A. [7914-08]S2, [7914-10]
 S3, [7917-68]SPS3
 Dal Negro, Luca [7888-25]S1, [7888-
 25]S3, 7946 S14 SessChr, [7946-
 54]S13
 Dalacu, Dan [7947-03]S1, [7947-17]S4
 Dale, Benjamin [7905-47]SPS1
 Daley, Raymond [7932-11]S3
 Dalla Mora, Alberto [7895-12]S3,
 [7896-11]S3, [7896-34]S7, [7934-21]
 S5, [7945-95]S17, [7945-99]S17
 Dallari, William [7935-37]S9
 Dallman, Margaret J. [7904-19]S4
 Dallmann, Hans-Georg [7930-01]S1,
 [7930-01]S7
 Dallner, Matthias [7945-14]S3
 Dalton, Dylan [7917-49]S11
Dalton, Larry R. [7913-42]S5, [7935-
 01]S1, 7936 ProgComm
Daly, Aidan J. [7959-07]S3
Daly, John G. SC015 Inst
 Datzell, Danielle R. [7901-18]S4
 Dam, Jeppe S. [7917-38]S9, [7917-39]
 S9
Damania, Dhwanil [7897-70]SPS2,
 [7907-23]S4, [7907-24]S4
 Dambon, Olaf [7927-21]S5
 Dambre, Joni [7942-24]S8
 D'Amours, Frédéric [7883D-80]S3,
 [7883D-87]S5, [7884-08]S4
Danckaert, Jan [7933-94]SPS4
 D'Andrea, Cosimo [7896-28]S6, [7925-
 06]S2
 Dandy, David S. [7888-05]S1
 Dang, Gerard [7927-06]S2
 Dang, Le Si [7945-91]S16
 Dangu, Vinayak [7960-05]S1, [7960-
 05]S1, [7960-16]S4
 Daniel, Jurgen H. 7956A ProgComm,
 7956A S2 SessChr, [7956A-02]S1
 Danielli, Geoff J. [7919-26]S5
 Danielli, Amos [7899-122]SPS2
 Danielyan, Hakob [7917-04]S5, [7917-
 04]S1
 Dannberg, Peter [7930-08]S2, [7930-
 09]S2

Danner, Aaron J. [7943-43]S13
 Dantus, Marcos M. [7903-120]SPS1
 Danz, Norbert [7954-34]S9
 Daoud, J. [7898-32]S5
 Daoudi, Khalid [7899-30]S5
 Dapkus, P. Daniel 7942 ProgComm
Darafsheh, Arash [7913-39]S8, [7913-
 45]S9
 Darbar, Arun A. [7887-21]S4
 Darbar, Rita [7887-21]S4
 Darbarsyah, Budiman [7889-59]S9
Darling, Cynthia L. [7884-10]S4,
 [7884-24]SPS1, [7884-26]SPS1,
 [7884-33]SPS1
 Darlix, Jean-Luc [7903-83]S11
Darne, Chinmay D. [7890-50]SPS1,
 [7896-37]S8
 Darwiesh, Mohamed [7920-04]S1
 Daryoush, Afshin S. [7902-72]SPS2
 Das, Aparna [7939-58]SPS4
Das, Bhargab [7904-02]S1
 Das, G. [7922-24]SPS3
 Das, Suhit [7918-04]S1
 Das, Susanta K. [7925-42]SPS3,
 [7950-08]S3
 Dasari, Ramachandra R. MeetingVIP,
 [7890-46]S8, [7890-48]S8, [7892-11]
 S2, PanelModerator, [7895-900]S,
 [7897-22]S5, [7897-23]S5, [7904-27]
 S6, [7904-28]S6, [7904-41]S8,
 [7906A-21]SPS2, [7906B-36]S3
 Dasheva, Petya [7945-25]S4
 Datta, Prasanta K. [7912-89]SPS3,
 [7934-14]S3
 Dauderstädt, Ulrike A. [7930-34]S8
 Daunais, Thomas [7941-02]S1
 D'Auria, Sabato [7905-48]SPS1
 Dausinger, Friedrich [7912-09]S3
 Davani, Hooman A. [7959-07]S3
 David, Guillaume [7899-09]S2
 David, Stuart [7954-38]S10
 Davidson, Nir [7949-33]S7
 Davies, Alexander G. [7953-25]S6,
 [7937-24]S6
 Davies, Matthew A. [7927-20]S5
 Davila, Viviana [7883C-186]S3, [7889-
 102]SPS2
 Davis, Andrew A. [7925-13]S3
 Davis, Bret H. [7910-13]S3
 Davis, Daniel M. [7903-82]S11
 Davis, Kyle L. [7910-25]S5, [7910-60]
 SPS2, [7911-29]S6
 Davis, Scott C. [7886-24]S6, [7892-19]
 S4, [7892-21]S4, [7896-58]S12
Davis, Steven J. 7915 Chr, [7915-02]
 S1, [7915-03]S1, [7915-07]S2
Davis, Wyatt O. 7930 ProgComm
 Dawson, David C. [7953-49]S13
Dawson, Jay W. 7914 Chr, 7914 S14
 SessChr
 Dawson, Jeremy M. [7888-03]S1
 Dawson, Martin D. 7919 ProgComm,
 [7919-01]S1
 Dawson, Philip E. [7909-26]S8, [7909-
 39]S11
 Day, Michael [7915-01]S1
 Day, Robert E. [7889-78]S12
Day, Tim [7945-24]S4, [7953-54]S14
 Day Rosario Assis, Karcus [7959-18]
 S6, [7959-18]S6, [7959-18]S6
 Dayal, Rajeev [7896-71]S15
 Dayton, Amanda L. [7890-12]S2,
 [7898-03]S1, [7904-24]S5
 de Almeida Brito, Fabiola [7900-14]S4
De Beule, Pieter A. [7895-16]S3,
 [7932-15]S4
de Boer, Johannes F. [7883C-65]
 S7, [7885-45]S9, 7889 ProgComm,
 7889 S5 SessChr, [7893-13]S3
 de Boorder, Tjeerd [7883C-62]S3
 de Bruin, Daniel Martijn M. [7902-02]

S1, [7906B-30]S2
 de Ceglia, Domenico [7941-37]S8,
 [7946-76]SPS4
De Clercq, Ludwig E. [7925-30]S7
 de Dios Fernandez, Cristina [7933-60]
 S13
 De Dobbelaere, Peter M. MeetingVIP
 de Grandpré, Christian [7906B-28]S1
De Greve, Kristiaan [7948-29]S7
 de Groot, Mattijs [7893-13]S3
 de Heer, Walt [7937-07]S2
 De Koninck, Paul [7903-67]S9
 de la Fuente, Jesus M. 7909
 ProgComm, [7909-31]S9, [7909-42]
 S12
 de la Mare, Martin I. [7945-21]S4
De La Rosa, Elder [7911-31]S6,
 [7940-14]S3, [7940-43]S11
De La Rue, Richard M. [7943-07]S3
 de Lange Davies, Catharina [7903-119]
 SPS1
de Leon, Erich E. [7904-06]S2, [7904-
 07]S2, [7904-62]SPS2
 De Leon, Israel [7937-44]S10
 De Luca, Valeria [7901-30]S6
 De Martino, Antonello [7895-14]S3
 De Montigny, Etienne [7893-21]S4
 de Natale, Paolo [7945-04]S1
 de Oliveira Barreto, Emiliano [7900-14]
 S4
 de Poly, Bertrand [7895-08]S2
 de Riedmatten, Hugues [7948-42]S10
 de Rocquigny, Hugues [7903-83]S11
 de Roode, Rowland [7883E-113]S5,
 [7890-26]S5, [7895-26]S5
 de Rooij, Nico [7930-14]S3, [7930-21]
 S6, [7930-21]S1, [7930-21]S5,
 [7930-29]S7, [7930-32]S8, [7930-35]
 S8
 De Smedt, Stefaan C. [7908-42]S1
De Taoboda, Luis H. [7887-19]S4
 de Vaulchier, Louis-Anne [7945-33]S5
 De Vittorio, Massimo [7947-08]S3
 De Vos, Filip [7908-42]S1
 de Vries, Anthony H. B. [7932-15]S4
 de Vries, Tjibbe [7913-51]S9
de Vylder, Jonas [7902-57]S12
 DeAngelo, Bianca [7896-23]S5
 Debasel, Swain [7935-44]SPS4
 Debergue, Patricia [7897-07]S2
 Debernardi, Pierluigi [7959-07]S3
Debons, Didier G. [7904-30]S6
 Deboureau, Mathieu [7895-23]S4,
 [7896-38]S8
 Debreczeny, Martin P. [7897-64]SPS2,
 [7910-33]S7
 DeCerce, Joseph [7896-98]SPS1
 Deckert, Volker 7911 S4 SessChr,
 [7911-06]S1
 Decobert, Jean [7919-31]S7
 Deev, Andrei [7945-05]S1
 DeFusco, Patricia [7896-40]S9
 Degirmenci, Fatih [7941-44]SPS4
 Degreif, Kai A. [7945-25]S4
Dehaes, Mathieu [7892-02]S1
 Dehghani, Hamid [7892-12]S3, [7896-
 17]S4, [7896-83]SPS1, [7896-88]
 SPS1
 Dehn, Claudia [7884-04]S2, [7884-05]
 S2
 Dehoux, Thomas [7899-32]S5
 Dei, Luigi [7911-22]S5
 Deichsel, Eckard [7918-18]S4, [7918-
 22]S4
 Del Bianco, Samuele [7896-21]S5
 Del Gallego, Lauren C. [7897-43]S9
 del Pino, Pablo [7909-42]S12
 Dela Cruz, Johanna M. [7903-18]S3
 Dela Cruz, Mart [7907-23]S4
 Delacour, Cecile [7943-26]S8

Delage, Andre [7943-15]S5, [7888-04]
 S1
 Delagnes, Jean-Christophe [7917-12]
 S4, [7917-13]S4, [7917-47]S11
 Delaigue, Martin [7912-29]S8
 Delaunay, Jean-Jacques [7904-58]
 SPS2, 7940 S3 SessChr, 7940 S4
 SessChr, [7940-13]S4, [7941-24]S6
 Deleglise, S. [7951-11]S3
 Delehanty, James B. [7909-39]S11
 DeLeve, Laurie [7905-27]S7
 Delga, A. [7945-33]S5
 Delgado, Mauricio R. [7883G-136]S1
 Delgado, Stephanie [7885-34]S7
 Delgado Atencio, José Alberto [7883A-
 36]SPS1, [7897-27]S5, [7906A-20]
 SPS2, [7906B-27]S1
 Delima, Franz [7947-12]S3
Deliolanis, Nikolaos C. [7894-22]S4,
 [7899-123]SPS2
 Della Frera, Adriano [7895-12]S3,
 [7945-95]S17, [7945-99]S17
 Delmas, Thomas [7886-35]SPS1
 Delmonte, Tiina [7894-34]S6
 Deloison, Florent [7925-08]S2
 Demeester, Jo [7908-42]S1
 Demers, Jennifer-Lynn H. [7892-39]
 SPS1
 DeMichele, Angela [7896-41]S9
 Demir, Abdullah [7952-23]S6
 Demir, H. V. [7945-38]S6
 Demir, Hilmi V. [7933-06]S2, [7945-84]
 S15, [7954-35]S10
 Demiris, Thanos M. [7929-11]S3
Demmler, Marcel [7934-41]SPS4
 Demos, Stavros G. 7895 CoChr, 7895
 S1 SessChr, 7895 S2 SessChr,
 [7895-02]S1, [7896-72]S15
 Dempewolf, Anja [7939-05]S1
 Demuth, James [7916-03]S1, [7916-05]
 S1
 DenBaars, Steven P. MeetingVIP,
 [7939-47]S8
 Deng, Cheri X. [7899-136]SPS2
 Deng, Wei [7909-34]S10
 Denis, Vincent [7916-22]S5
 Denisov, Alexander N. [7914-87]SPS3
 Denk, Winfried [7931-15]S6
 Denkceken, Tuba [7890-07]S2
 Denney, Paul E. MeetingVIP
Dennis, Allison M. [7909-22]S7,
 [7909-41]S13, [7910-30]S6
 Dennis, Mark R. 7950 S4 SessChr,
 [7950-17]S5, [7950-28]S7
 Dennis, Michael L. [7914-12]S3, [7914-
 62]S15
 Denoed, Adrien [7912-56]S13
Denomme, Ryan C. [7927-11]S3
 Denmore, Adam [7888-04]S1, [7941-
 39]S9, [7943-15]S5
Denstedt, Martin [7891-31]S7
Denton, Michael L. [7897-19]S4,
 [7897-21]S4
 Deorukhkar, Amit [7908-06]S1
 Deotear, Parag [7941-44]SPS4, [7946-
 38]S9
 DePaoli Lacaerda, Silvia H. [7909-13]
 S4
 Deparis, Christiane [7940-30]S8
 Depeursinge, Christian D. [7903-14]S2,
 [7904-05]S1, [7904-26]S6
 Deppe, Dennis G. 7947 ProgComm,
 [7952-23]S6
 Derely, Loic [7908-16]S3
Dereniak, Eustace L. MeetingVIP
 Dereux, Alain [7945-40]S6
 Deri, Robert J. [7916-10]S3, [7916-30]
 S7
 Dery, Hanan [7943-38]S12
 Deryagin, Anton G. [7919-19]S4

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Desbiens, Louis [7914-03]S1, [7914-71]SPS3
- Descamps, Dominique [7912-58]S14
- Deshayes, Yannick [7925-22]S5
- DeShazer, L. G.** [7894-43]S8
- Desiatov, Boris [7943-23]S7, [7949-28]S5
- Desjardins, Adrien E. [7907-44]SPS2
- Deslandes, Pierre [7914-34]S8
- Desmet, Walter [7889-23]S4
- Desmoulin, Sebastien [7914-39]S10
- Desperito, Elise [7896-55]S12
- DesRoches, Brandon J. [7894-26]S5, [7908-11]S2
- Detchprohm, Theeradetch [7954-21]S6
- Detlaff, Hank [7933-23]S5
- Detre, John A. [7896-03]S1, [7896-84]SPS1
- Detwiler, Thomas F.** [7960-09]S2, [7960-09]S2, [7960-09]S2, [7960-12]S3, [7960-18]S4, [7959-11]S5
- Deutsch, Christian [7948-15]S4
- Deveaud-Pledran, Benoit [7937-72]S15
- Devito, Mark A. [7918-01]S1, [7918-05]S1, [7918-32]S5, [7953-45]S12, [7953-49]S13
- DeVries, Lawrence K. [7928-26]SPS3
- DeWolf, Timothy S. [7899-137]SPS2, [7899-153]SPS2
- Dexheimer, John MeetingVIP
- Dey, Subhra P. [7912-89]SPS3
- Dhalla, Al-Hafeez Z.** [7889-36]S6, [7889-63]S10
- Dhar, Nibir K.** [7945-103]SPS4, [7959-05]S2, [7959-05]S2, [7959-05]S2
- Dhawan, Anuj [7911-55]S7, [7911-56]S8
- Dherbecourt, Jean-Baptiste [7912-56]S13
- Dhillon, Sukhdeep S. [7937-24]S6, [7945-11]S2
- Dhinaa, A. N. [7935-33]S8
- Dholakia, Kishan** [7925-10]S3, 7950 ProgComm, 7950 S8 SessChr, [7950-25]S7
- D'hooge, Jan [7889-23]S4
- Di Bernardino, Marco [7902-97]S
- Di Carlo, Aldo 7933 ProgComm
- Di Fabrizio, E. [7922-24]SPS3
- Di Gaspare, Alessandra [7945-31]S5
- Di Lieto, Alberto [7951-04]S1
- Di Maio, Yoan** [7920-19]S5, [7920-19]S9
- Di Nicola, Jean-Michel G. 7916 ProgComm, 7916 S1 SessChr, [7916-26]S6, [7916-35]SPS3
- Di Ninni, Paola [7906B-32]S2
- Di Teodoro, Fabio** 7914 ProgComm, [7914-28]S7, [7914-30]S10, [7914-30]S9
- Diagaradjane, Parmeswaran [7908-06]S1, [7910-06]S1
- Dianov, Evgeniy M. [7914-87]SPS3
- Dias, Frederic [7917-31]S8
- Dias Vieira, Nilson [7889-117]SPS2
- Diaspro, Alberto** 7903 ProgComm, 7903 S9 SessChr, [7903-101]SPS1, [7903-102]SPS1, [7922-24]SPS3, [7927-08]S2, [7935-37]S9
- Diaz-Ayil, Gilberto [7896-80]SPS1
- Dickensheets, David L.** [7890-42]S8, 7893 ProgComm, 7930 ProgComm, [7930-02]S1, [7930-02]S7, [7930-03]S1, [7930-03]S7
- Dickey, Trevor C. [7890-25]S5
- Dickinson, Gabriel [7890-50]SPS1, [7902-52]S11
- Dickinson, J. Thomas** 7920 ProgComm, 7920 S2 SessChr, [7920-01]S1, 7922 ProgComm
- Dickson, Mary E. [7889-09]S2
- Didier, Pascal [7903-83]S11
- Didierjean, Julien [7912-38]S10, [7912-38]S9, [7912-53]S13
- Diebele, Ilze** [7883A-38]SPS1
- Diebold, Eric D. [7911-17]S4
- Diebold, Gerald J. 7899 ProgComm
- Diederich, Chris J. 7901 ProgComm, PanelModerator, [7901-06]S2, [7901-23]S5, [7901-26]S5, [7901-31]S7, [7901-38]S5
- Diego-Vallejo, David [7920-33]S9
- Diehl, Laurent [7953-44]S11, [7953-55]S14, [7953-57]S14
- Diels, Jean-Claude M. 7913 ProgComm
- Dierickx, Christine C. [7883A-35]SPS1
- Dierker, Christian [7902-01]S1
- Dierolf, Volkmar [7939-04]S1
- Diest, Kenneth [7946-31]S7
- Dietrich, Eva [7885-18]S3
- Dietzek, Benjamin [7883E-103]S3, [7895-25]S5, [7903-41]S6
- diFlorio-Alexander, Roberta M. [7896-46]S10
- Diggs, Darnell E. 7935 ProgComm
- Digonnet, Michel J. F. SC984 Inst, 7934 Chr, [7913-40]S8, [7949-13]S3
- Dikmelik, Yamac** [7953-43]S11
- Dillon, Thomas E.** [7936-18]S5
- Dima, Alex [7899-69]S10
- DiMaio, J. M. [7890-24]S5
- Dimakov, Sergey A. [7913-19]S4
- DiMarzio, Charles A.** [7890-13]S3, 7899 ProgComm, [7903-65]S9, 7904 ProgComm, 7904 S5 SessChr, 7904 S6 SessChr, [7904-16]S4, [7904-25]S5, [7904-40]S8, [7904-43]S9
- Dimitrakopoulos, G. P. [7939-58]SPS4
- Dimitrijevic, Jelena [7903-100]SPS1
- Dimitrijevisch, Dan [7897-43]S9
- Dimofte, Andreea [7886-20]S5
- DiNezza, Michael [7933-23]S5
- Ding, Chaoliang [7924-06]S1
- Ding, Ding [7933-18]S4, [7933-23]S5, [7953-04]S1
- Ding, Edwin [7914-56]S14, [7933-55]S12, [7933-73]SPS4
- Ding, Huafeng [7889-77]S12, [7890-06]S1, [7902-48]S10, [7907-32]S5
- Ding, Jianfu [7934-29]S7
- Ding, Jianwu [7914-32]S8
- Ding, Liang [7942-13]S5
- Ding, Shi-You [7905-26]S5
- Ding, Yujie J. 7937 ProgComm, 7937 S5 SessChr, [7937-53]S12
- Dingari, Narahara Chari** [7890-46]S8, [7890-48]S8, [7892-11]S2, [7897-22]S5, [7897-23]S5, [7904-14]S3, [7906A-21]SPS2
- Dingel, Benjamin TrackChr, 7958 Chr, 7958 S4 SessChr, 7958 S SessChr, 7958 S5 SessChr, 7958 S7 SessChr, [7958-03]S2, [7958-03]S2, [7958-03]S2, 7959 Chr, 7959 S SessChr, 7959 S4 SessChr, 7960 ProgComm, 7960 S SessChr
- Dinten, Jean-Marc [7892-18]S4, [7895-23]S4, [7896-25]S5, [7896-38]S8, [7896-64]S13, [7906A-07]S2
- Dinu, Raluca** [7936-06]S2
- Dionne, Jennifer A. 7946 S15 SessChr, [7946-58]S14
- Diop, Mamadou [7896-13]S3, [7896-14]S3, [7896-94]SPS1
- Diraddo, Robert [7897-07]S2
- DiRita, Victor [7905-23]S6
- Dispenza, Massimiliano [7941-31]S7
- Divliansky, Ivan B. [7914-51]S13, [7915-17]S3
- Divok?, Martin [7916-09]S2
- Dixit, Sham N. [7916-26]S6
- Djebbour, Z. [7940-58]S8, [7942-15]S6
- Djellali, N. [7945-40]S6
- Djordjevic, Ivan B. [7923-05]S1, [7944-29]S1, [7944-29]S8, [7948-38]S9, [7959-02]S1, [7959-02]S1, [7959-03]S1, [7959-03]S1, [7960-11]S3
- Djurisic, Aleksandra B.** 7940 S8 SessChr, [7940-10]S3
- Dlugosch, Brian [7954-17]S5
- Do, Dukho [7904-55]SPS2
- Do, Hyun-Soo [7935-49]SPS4
- Doany, Fuad E. [7944-17]S5
- Dobroiu, Serban [7908-25]S4
- Doeuvre, Loic [7908-42]S1
- Dogubo, Kabir [7952-07]S2
- Doh, Junsang [7903-116]S3
- Doherty, Stephen D.** [7938-17]S4
- Doi, Kohel [7933-87]SPS4
- Dolfi, Daniel [7945-10]S2, [7949-48]S3
- Dolkemeyer, Jan [7912-23]S7
- Dolmashkin, Aleksey [7898-46]SPS2
- Dolotov, Leonid E. [7883A-35]SPS1
- Domachuk, Peter** [7949-03]S1
- Domke, Johannes [7893-06]S2
- Dommann, Alex PanelMember, [7928-10]S3, PanelMember, PanelMember, PanelMember
- Domkos, Peter [7951-10]S3
- Don, Yaroslav [7918-34]S5
- Donati, Silvano 7933 ProgComm
- Donatini, Fabrice [7945-91]S16
- Dong, Chen-Yuan** [7885-62]SPS2, [7895-09]S2, [7897-47]S10, 7903 ProgComm, 7903 S2 SessChr, [7903-05]S1, [7903-62]S9
- Dong, Jing** [7896-30]S7, [7896-79]S16, [7898-40]S2
- Dong, Ke [7902-39]S8
- Dong, Lei [7945-18]S3, [7945-28]S4
- Dong, Liang [7914-40]S10
- Dong, Po [7944-02]S1, [7944-03]S1
- Dong, Weimin [7918-05]S1, [7918-32]S5, [7953-45]S12
- Donkor, David [7908-11]S2
- Donley, Dennis 7903 ProgComm
- Donnelly, Chester [7932-01]S1
- Donner, Rene [7885-46]S9
- Donner, Sabine** [7883C-184]S7
- Dorantes-Garcia, Valentin [7957-40]SPS4
- D'Orazio, Antonella [7946-76]SPS4
- Dörfel, Falk [7914-39]S10
- Dorfman, Konstantin E. [7948-05]S2
- Doria, Gonçalo [7909-19]S6
- Döring, Christoph [7953-61]S15
- Döring, Sven** [7925-24]S6, [7925-39]S11, [7925-39]S7
- Doronin, Alex [7907-08]S1
- Doroshenko, Maxim** [7894-05]S1, [7912-87]SPS3
- Doroski, Michael L. [7897-13]S3, [7897-14]S3, [7897-15]S3
- Dorsch, Friedhelm** SympChair
- Dorshow, Richard B.** [7886-12]S3, [7897-64]SPS2, 7910 ProgComm, 7910 S7 SessChr, [7910-33]S7
- dos Santos, Liliam R. [7906B-39]S4
- dos Santos, Moisés O. [7903-104]SPS1
- dos Santos, Nathalia V. [7897-28]S6
- dos Santos Aciole, Gilbert T. [7887-14]S3, [7887-29]SPS1
- Dospinović, Alexandru [7904-06]S2
- Dostálová, Tatjana 7884 ProgComm, [7884-03]S1
- Doster, Jay [7912-45]S11
- Dostovalov, Alexandr** [7914-111]SPS3
- Doty, James H. [7945-18]S3, [7945-27]S4
- Dou, Xinyuan [7944-14]S4, [7944-36]SPS4
- Doualan, Jean-Louis [7912-29]S8, [7912-61]S14
- Douay, Marc [7914-35]S8
- Doubenskaia, Maria [7921-10]S3, [7921-11]S3
- Dougherty, William M.** [7905-37]S8
- Doughman, Yang-Qiu [7883D-94]S6, [7883G-138]S2
- Douglass, Michael R.** 7932 Chr, 7932 S1 SessChr
- Douillard, Ludovic [7935-14]S4
- Douplik, Alexandre** [7890-08]S2
- Dousse, Adrien [7945-92]S16
- Dowling, Jonathan P. 7948 ProgComm, 7948 S5 SessChr, 7948 S6 SessChr, [7948-13]S3
- Doyennette, Laetitia [7945-33]S5
- Doylend, Jonathan K. [7943-07]S3
- Drachenberg, Derrek R. [7914-51]S13, [7915-17]S3
- Drachev, V. P. [7946-24]S6
- Draf, U. [7959-10]S5
- Dragavon, Joe [7902-33]S7, [7910-42]S9
- Drechsel, Philipp [7939-05]S1
- Drese, Klaus S. [7929-11]S3
- Drewbrook, Connie E. [7926-21]SPS3
- Drewery, Adam S.** [7957-24]S6
- Drexler, Wolfgang** [7883A-14]S3, 7885 ProgComm, 7885 S6 SessChr, 7885 S9 SessChr, [7885-33]S6, [7885-44]S9, 7889 ProgComm, 7889 S3 SessChr, [7889-06]S1, [7889-07]S2, [7889-41]S7, [7890-29]S6, [7892-10]S2, [7897-49]S10
- Driad, Rachid [7953-58]S14
- Dries, J. Christopher 7934 Chr
- Driessen, Alfred [7942-25]S8
- Driscoll, Jeffrey B. [7942-11]S5
- Driscoll, Mark [7883F-122]S1
- Drmosh, Q. A. [7940-38]S10
- Drobizhev, Mikhail [7910-13]S3, [7910-55]S12, [7935-27]S7
- Drolet, Mathieu [7914-03]S1, [7914-71]SPS3
- Drouet, Vincent [7916-34]SPS3
- Drouhin, Henri-Jean M.** [7940-17]S4
- Drowley, Cliff [7954-10]S3
- Drozdzowicz-Tomsia, Krystyna [7909-34]S10
- Drummond, Nicola [7898-32]S5
- Druon, Frédéric [7912-27]S8, [7912-29]S8, [7912-61]S14
- Dzraic, Paul S. 7956A ProgComm, 7956A S3 SessChr
- Du, Jihua [7918-30]S5
- Du, Keming** [7912-24]S7, [7912-32]S9, [7921-25]S6
- Du Plessis, Anton [7925-30]S7
- du Plessis, Monuko** [7944-32]S9, [7944-32]S2, [7956B-33]S3
- Duan, Guang-Hua [7933-11]S3
- Duan, Jinsong [7946-75]SPS4
- Duan, Lian** [7889-65]S10
- Duan, Ning [7942-13]S5
- Duan, Tao [7920-03]S1
- Dubertrand, Jerome [7916-17]S4
- Dubey, Nikhil [7933-13]S3
- Dubinskii, Mark 7914 ProgComm, 7914 S2 SessChr, [7914-26]S6, [7934-05]S2
- Dubois, Benoit [7896-80]SPS1
- Dubois, Christophe [7889-23]S4
- Dubois, Guilhem [7948-15]S4
- Duboisset, Julien [7905-05]S1
- Dubov, Mykhaylo [7914-111]SPS3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Dubowski, Jan J.** [7911-36]S7, 7920 ProgComm, [7920-11]S3, 7922 Chr, 7922 S2 SessChr, [7922-16]S4
- Dubrovskiy, Valeriy A. [7898-46]SPS2
- Duc, Huynh Thanh [7937-29]S7
- Ducci, Sara [7945-93]S16
- Ducharme, Alfred D. SC156 Inst
- Duchateau, Guillaume [7937-20]S5
- Ducouso, Mathieu [7899-32]S5
- Ducros, Nicolas [7896-28]S6
- Dudelev, Vladislav V. [7919-19]S4
- Dudley, John M.** [7917-31]S8, [7917-35]S8, [7921-18]S5
- Duelk, Marcus [7889-98]SPS2, [7889-99]SPS2
- Duerr, Ulrich [7920-06]S2
- Duesterberg, Richard [7918-30]S5
- Dufour, Marc L. [7883D-80]S3, [7883D-81]S3, [7883D-87]S5, [7884-08]S4, [7889-94]SPS2
- Dugan, Mark A. [7925-45]S8, [7925-45]S12
- Dujardin, Christophe [7940-55]S12
- Duke, Austin R.** [7883D-94]S6, [7883G-138]S2, [7883G-147]S2, [7883G-148]S3
- Duker, Jay S. [7885-16]S3, [7885-31]S6, [7885-43]S9, [7889-02]S1
- Dumas, Michel [7883G-137]S2
- Dumitrescu, Eugen [7926-13]S4
- Dumitrescu, Mihail M. [7933-93]SPS4, [7953-10]S2, [7953-12]S3
- Dummer, Matthew M. [7883G-142]S2, [7952-07]S2
- Dumont, Guy D. [7890-21]S4
- Duncan, Donald D.** 7898 Chr, 7898 S2 SessChr, [7898-03]S1, [7898-10]S2, [7898-14]S2, [7898-17]S3, [7904-24]S5, [7907-12]S2
- Dündar, Mehmet A.** [7946-46]S11
- Dunger, Thoralf [7934-41]SPS4
- Duning, Madeline [7955-24]S8
- Dunlop, Brett [7883F-127]S2
- Dunne, A. Mike 7916 Chr, 7916 S3 SessChr
- Dunsby, Christopher W.** [7883A-09]S2, [7893-07]S2, [7895-16]S3, [7899-143]SPS2, [7903-80]S11, [7903-82]S11, [7904-31]S7, [7904-34]S7, [7904-35]S7, [7904-61]SPS2
- Duong, Steven [7884-30]SPS1
- Duparré, Michael R. [7914-63]S15, [7914-85]SPS3, [7914-88]SPS3
- Duperre, Joseph A.** [7923-27]S7, [7924-10]S2
- Dupeyron, Gerard [7883G-137]S2
- Dupont, Erwan [7932-14]S3
- Dupont-Therrien, Olivier** [7903-67]S9
- Dupuis, Russell D. [7953-57]S14, [7954-13]S4
- Durán Sánchez, Manuel [7914-77]SPS3
- Durand, Olivier [7940-21]S5
- Durbin, Steven M. [7940-40]S10
- Durduran, Turgut [7896-10]S2, [7896-41]S9
- Durette, Jean-Francois [7885-36]S7
- Durgam, Sushmitha [7903-17]S2
- Durkin, Amanda F. [7891-02]S1, [7896-42]S9, [7896-44]S9, [7896-45]S9
- Durkin, Anthony J.** 7883A ProgComm, 7883A S6 SessChr, [7883A-24]S5, [7883A-29]S6, 7891 ProgComm, 7891 S3 SessChr, [7896-26]S6, [7896-29]S6, [7907-11]S2
- Durr, Nicholas J.** [7903-57]S8
- Durresi, Arjan 7958 ProgComm
- Durrieu, Marie-Christine [7899-32]S5
- Duston, Dwight [7944-27]S7, [7944-34]SPS4
- Dutt, Birendra R. [7933-92]SPS4
- Dutt, Gurudev 7948 ProgComm
- Dutta, Achyut K.** 7959 Chr, 7959 S3 SessChr, [7959-05]S2, [7959-05]S2, [7959-05]S2
- Dutta, Somenath [7912-89]SPS3
- Dutta Majumdar, Jyotsna [7921-04]S1
- Dutterer, Brian [7927-20]S5
- Duval, Aurélien [7911-55]S7
- Duval, Fabrice F. C. [7926-14]S4
- Duvet, Ludovic [7932-09]S2
- Dy, Jennifer G. [7904-44]S9
- Dyakov, Sergey A.** [7943-53]SPS4
- Dykes, James M. [7927-45]SPS3
- Dynes, James F. [7948-21]S5
- Dyson, Mary** [7887-03]S1, 7900 S2 SessChr, [7900-04]S2
- Dziedzina, Marcus [7913-42]S5
- Dzierzega, Krzysztof [7915-16]S3

E

- Eames, Ian [7929-16]S4
- Earman, Allen M.** 7944 ProgComm
- Eaton, Frank D. 7924 ProgComm
- Ebbers, Andre [7954-29]S8
- Ebbers, Christopher** 7916 ProgComm
- Eberhardt, Ramona [7893-11]S3, [7914-109]SPS3, 7921 ProgComm, [7925-24]S6, [7926-08]S3
- Eberhardt, Wolfgang [7946-50]S12
- Eberli, Daniel [7883B-54]S4
- Ebermann, Martin [7930-18]S4
- Ebert, Frank [7914-73]SPS3
- Ebert, Robby [7926-05]S2
- Ebil, Ozgenc [7943-12]S4
- Ebrahim-Zadeh, Majid 7917 ProgComm, [7917-20]S6
- Ebrardt, Jacques 7916 CoChr
- Eckstein, Hans-Christoph** [7927-36]S8, [7953-53]S13
- Ecton, Philip [7934-60]SPS4
- Edamatsu, Keiichi 7933 ProgComm
- Edelstein, Daniel [7897-24]S5
- Eder, Gerhard [7889-34]S5
- Edmund, Robert M.** MeetingVIP
- Edson, Clark [7888-24]S1, [7888-24]S3
- Edward, Kert [7903-58]S8
- Edwards, Chris [7916-14]S3
- Edwards, Christopher A. [7952-13]S4
- Edwards, Gareth T. [7953-07]S2
- Edwards, Perry S.** [7903-53]S7
- Ee, Yik-Khoo [7954-28]S8, [7954-42]S11
- Eftekhar, Ali A. [7896-106]SPS1, [7903-48]S7
- Eggebrecht, Adam T. [7883E-119]S6, [7896-05]S1, [7896-51]S11, [7896-83]SPS1
- Eggleton, Benjamin J. [7949-03]S1
- Eglash, Steve J.** SympChair
- Egner, Alexander [7904-52]S10, [7905-24]S6
- Ehler, Martin [7896-72]S15
- Ehlers, Justis P. [7889-14]S3
- Ehrenreich, Thomas [7951-07]S2
- Ehrhardt, A. [7959-10]S5
- Ehrhardt, Martin [7921-07]S2, [7921-28]S7, [7921-28]S11
- Ehrlichman, Yossef** [7941-14]S3
- Eiamchai, Pitak [7911-05]S1
- Eichel, Justin A. [7889-120]SPS2
- Eichenholz, Jason M.** 7895 ProgComm
- Eichfelder, Marcus [7919-10]S3
- Eichhorn, Marc 7912 ProgComm, 7912 S14 SessChr, [7912-44]S11
- Eichler, Christoph [7953-15]S4
- Eichler, Hans J. [7943-28]S8, [7943-40]S12, 7913 ProgComm, [7913-42]S5, [7920-33]S9
- Eickhoff, Martin H. [7937-66]S15
- Eidam, Tino [7914-27]S6, [7914-42]S10, [7914-54]S14, [7914-89]SPS3, [7925-31]S7
- Eigenwillig, Christoph M. [7889-01]S1, [7889-32]S5, [7889-49]S8, [7914-16]S4, [7914-97]SPS3
- Einfeldt, Sven [7939-18]S15
- Eisenstein, Gadi [7949-26]S5, [7949-31]S6, [7953-11]S3, [7953-12]S3, [7953-13]S3
- Eisermann, Christian [7930-24]S6
- Eisermann, Sebastian [7940-07]S2
- Eisert, Dominik [7954-39]S10
- Eitan, Michal [7945-82]S14
- Eizak, Garrett A.** [7953-66]SPS4
- Ek, S. [7949-14]S3
- Ekins-Daukes, Ned J. [7933-26]S6
- Ekins-Daukes, Nicholas J. 7933 ProgComm
- Ekuni, Shingo [7947-05]S2
- El Hallani, Soufiane [7893-42]SPS2, [7902-75]SPS2
- El Kharbotly, Ahmed M.** [7883C-58]S4
- El Mrabet, Yamina [7885-68]SPS2
- El Tayeb, Tarek [7883C-58]S4
- Elagin, Vadim V. [7910-23]S5
- Elahi, Sakib F.** [7893-05]S1
- El-Amour, Salim [7887-19]S4
- Elamurugu, Elangovan [7940-39]S10
- Elangovan, Kirubha [7922-17]S4
- Eldada, Louay A.** 7942 Chr, 7942 S4 SessChr, 7942 S5 SessChr, 7942 S1 SessChr, [7942-14]S6, 7944 S8 SessChr
- El-dahdah, Nayla [7933-49]S11
- Eldaiki, Omar [7946-71]SPS4
- El-Darawy, Mohamed [7960-21]S5
- Elezziabi, Abdulkhakem Y. 7937 CoChr, 7937 S7 SessChr, 7937 S12 SessChr, [7937-11]S3, [7937-13]S3, [7937-46]S10, [7937-70]SPS4
- Elgass, Kirstin [7902-34]S7, [7902-59]S13, [7905-41]SPS1
- El-Ghandour, Hatem [7920-04]S1
- El-Ghoroury, Hussein [7939-52]S9
- El-Ghoussein, Fadi [7892-41]SPS1, [7896-66]S14, [7896-88]SPS1
- Elgin, Laura E. [7923-07]S2
- Elic, Rob [7946-38]S9
- Eliceiri, Kevin W. 7903 ProgComm, [7903-10]S2
- Eliseev, Yury [7887-30]SPS1
- Elisseeff, Jennifer [7883C-174]S4
- El-Kady, Ihab [7946-08]S2
- Elkin, Nikolay N. [7914-79]SPS3
- Elkins, Robin K.** [7912-82]SPS3
- Elliott, Jonathan T.** [7896-13]S3, [7896-94]SPS1
- Elliott, William R. [7899-35]S5, [7899-59]S9
- Ellis, Darrel L. [7883A-13]S3, [7891-05]S1
- El-Naggar, Adel K. 7883C ProgComm, 7883C S6 SessChr, [7883C-179]S6, [7883C-187]S1
- Eloy, Jean-Christophe 7930 ProgComm
- Elrington, Stefan A. [7886-07]S2, [7886-08]S2
- El-Sharkawy, Yasser H. [7897-55]SPS2
- El-Sherif, Ashraf F. [7920-04]S1
- Elsmere, Stephen P. [7919-37]S8
- Elson, Daniel S.** [7893-07]S2, [7899-143]SPS2, [7907-14]S2
- Elster, Eric A. [7895-24]S5
- El-Taher, Atalla E. [7914-112]SPS3
- Ema, Kazuhiro [7937-37]S8, [7946-81]SPS4
- Emelianov, Stanislav Y.** 7899 ProgComm, 7899 S1 SessChr, [7899-01]S1, [7899-02]S1, [7899-17]S3, [7899-18]S3, [7899-60]S9, [7899-61]S9, [7899-71]S11, [7899-73]S11, [7899-74]S11, [7899-119]SPS2, [7899-120]S11, [7910-18]S4, [7910-20]S4, [7910-43]S9, [7910-46]S10
- Emica, Bruno [7885-65]SPS2
- Emigh, Brent** [7883F-127]S2
- Enderlein, Jörg 7905 Chr, 7905 S4 SessChr, 7905 S5 SessChr, [7905-06]S2
- Endo, Hideto [7941-25]S6
- Enejder, Annika M. 7903 S7 SessChr, [7903-24]S4
- Enfield, Joey G. [7898-20]S3, [7898-31]S5
- Enggheta, Nader** MeetingVIP, [7946-23]S6
- Engin, Doruk [7914-06]S2, [7923-12]S4
- Englert, Lars [7920-24]S8, [7920-24]S12
- Englund, Dirk R. [7913-23]S5
- Ennser, Karin M. [7934-09]S2, [7934-57]SPS4, [7958-21]SPS4
- Entine, Gerald [7892-19]S4
- Eom, Joo Beom [7933-82]SPS4
- Eom, Sanghee [7883A-22]S4
- Eom, Tae-Joong [7889-87]SPS2, [7894-35]SP1
- Ephrat, Pinhas** [7899-84]S12
- Eppich, Bernd [7918-11]S2, [7953-52]S13
- Eppich, Henry [7918-14]S3, [7918-20]S4
- Epstein, Richard 7951 Chr, [7951-02]S1
- Epstein, Ryan [7919-04]S1
- Era, Masanao [7935-03]S1, [7935-23]S6
- Erb, Jochen [7945-19]S3
- Erb, M. Kelley [7896-08]S2
- Erbert, Goetz [7917-03]S5, [7917-03]S1, [7912-37]S10, [7912-37]S9, [7917-02]S5, [7917-02]S1, [7917-07]S3, [7918-11]S2, [7918-26]S5, [7918-36]SPS3, [7937-27]S6, [7953-34]S9, [7953-36]S9, [7953-47]S12, [7953-50]S13, [7953-52]S13
- Erdmann, Rainer** [7903-76]S11, [7903-106]SPS1, 7903 Chr, 7905 S SessChr, 7905 S1 SessChr, 7905 S8 SessChr, 7905 S SessChr, [7905-03]S1, [7905-35]S8, [7917-06]S3
- Eres, Gyula [7922-22]SPS3, [7922-23]SPS3
- Ergenoglu, Mehmet Ü. [7897-06]S1
- Ergin, Aysegul [7907-21]S4
- Ergin, Tolga [7946-25]S6
- Erickson, David [7888-19]S1, [7888-19]S3, [7913-36]S8
- Erickson, Sarah** [7896-53]S11, [7896-98]SPS1
- Ericson, Marica B.** [7897-37]S8, [7903-78]S11, [7903-98]SPS1
- Ericson, Milton N. [7906A-04]S1
- Erkan, Hasan [7958-10]S4, [7958-10]S4, [7958-20]SPS4
- Erkintalo, Miro [7917-31]S8, [7917-35]S8
- Erlandson, Alvin C. [7916-30]S7
- Erlig, Hernan [7918-06]S1
- Erlinger, Anthony F. [7888-13]S2, [7906A-05]S2

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Ermilov, Sergey A. [7899-08]S2, [7899-35]S5, [7899-48]S8, [7899-67]S10, [7899-157]SPS2
- Erneux, Thomas [7933-57]S13
- Erngrund, M. [7885-20]S4
- Ernst, Mathias [7912-01]S1
- Ernst, Stefan [7902-19]S5, [7903-77]S11, [7905-18]S4
- Erpelding, Todd N. [7899-09]S2, [7899-19]S3, [7899-31]S5, [7899-114]SPS2, [7899-116]SPS2, [7899-117]SPS2
- Ertmer, Wolfgang A. 7950 ProgComm
- Erwes, Julia [7929-11]S3
- Eryuu, Osamu [7939-62]SPS4
- Eschenbaum, Carsten [7913-33]S7
- Escobedo, Carlos [7929-23]S6
- Escuti, Michael J.** [7934-31]S7
- Esen, Cemal [7921-102]S
- Esenaliev, Rinat O. 7899 ProgComm, 7899 S2 SessChr, [7899-10]S2, [7899-11]S2, [7899-15]S3, [7899-159]SPS2, [7899-160]SPS2
- Esman, Ronald 7936 ProgComm
- Esmonde-White, Francis W.** [7883F-125]S1
- Esposito, Giuseppe [7883D-93]S6
- Esquivias, Ignacio [7952-11]S3, [7953-46]S12
- Essaian, Stepan [7917-04]S5, [7917-04]S1
- Estephan, Elias [7888-06]S1
- Estève, Jérôme [7948-15]S4
- Estévez, Mari Carmen [7911-09]S2
- Estlack, Larry E. [7897-21]S4, [7897-41]S8, [7897-56]SPS2
- Etheridge, Michael [7901-11]S3
- Etienne, Michael [7950-18]S5
- Etoh, Takeharu G.** [7934-19]S5
- Eum, Hyejin [7898-33]S5, [7906A-15]S3, [7906A-19]SPS2
- Euser, Tijmen G. [7950-21]S5
- Eustaquio, Trisha [7910-22]S5
- Eustis, Tyler J. [7952-02]S1
- Evangelisti, Florestano [7945-31]S5
- Evans, Allan J.** [7945-60]S10
- Evans, Christopher C.** [7917-54]S12, [7940-41]S11, [7941-03]S1
- Evans, Conor L.** 7886 S2 SessChr, [7886-06]S1, [7886-08]S2, [7886-32]SPS1
- Evans, Gary A. 7953 S12 SessChr
- Evans, Gregory [7883A-29]S6
- Evans, Keith R. [7939-27]S3
- Evans, Stefan [7950-16]S4, [7950-33]SPS4
- Everett, William N. [7883C-175]S4
- Eversole, Daniel S. [7925-09]S3
- Exner, Horst [7926-05]S2
- Eyal, Avishay [7899-79]S12, [7949-09]S2
- Eyink, Kurt G. 7947 Chr
- Eyyuboglu, Halil T. [7924-05]S1
- F**
- Faber, Dirk J.** [7889-83]S12, [7889-84]S12, [7902-02]S1, [7906B-30]S2, [7907-04]S1
- Fabritius, Tapio [7889-111]SPS2
- Fabron, Christophe [7932-09]S2
- Fäcke, Thomas [7957-16]S4
- Fadeeva, Elena [7883C-178]S3
- Fadullah, Jarir** [7958-18]S7
- Fagan, Jeffrey A. [7937-63]S14
- Fainman, Yeshaiahu** 7936 ProgComm, 7942 ProgComm, [7942-09]S4, [7943-03]S1
- Fair, Geoff E. [7912-66]S15
- Faist, Jerome [7945-15]S3, [7953-20]S5, [7953-24]S6
- Fakas, Georgios [7930-24]S6
- Falciai, Riccardo [7941-40]S9
- Fallah, Alireza [7884-07]S3
- Fallahi, Mahmoud [7919-05]S1, [7919-08]S2, 7945 ProgComm, 7945 S11 SessChr, [7945-08]S2
- Falt, Stefan B. [7948-35]S8
- Fält, Pauli [7885-32]S6
- Fan, Chih-Tai [7899-103]SPS2
- Fan, Guanghan [7934-44]SPS4
- Fan, Jenyu [7953-56]S14, [7953-42]S11
- Fan, Jonathan A. [7953-25]S6
- Fan, Li [7918-04]S1
- Fan, Qian [7939-52]S9, [7939-60]SPS4
- Fan, Shanhui** 7933 ProgComm, [7933-19]S5, [7933-44]S10, 7946 ProgComm, 7946 S3 SessChr, [7946-14]S4, 7949 ProgComm, [7949-13]S3, [7949-17]S4
- Fan, Wei [7916-19]S4
- Fan, Xi-Wu [7940-46]S12
- Fan, Xudong 7888 ProgComm, [7888-23]S1, [7888-23]S3, 7941 ProgComm, 7941 S5 SessChr
- Fan, Ying [7891-32]SPS1
- Fang, Can [7894-23]S4
- Fang, David Z. [7888-18]S2
- Fang, Fang [7940-10]S3
- Fang, Ji [7908-31]SPS2
- Fang, Liang [7939-11]S13
- Fang, Nicholas X. [7946-65]S15, [7946-78]SPS4
- Fang, Qianqian 7892 S1 SessChr, [7892-04]S1, [7896-54]S11
- Fang, Qing [7942-13]S5
- Fang, Qiyin [7883F-127]S2, [7940-14]S3
- Fanjul-Vélez, Félix** [7886-15]S3, [7906A-22]SPS2
- Fanning, Geoff [7918-32]S5
- Fantini, Sergio** MeetingVIP, 7892 ProgComm, 7896 ProgComm, [7896-07]S2, [7896-08]S2, [7896-15]S3, [7896-22]S5, [7896-52]S11
- Farahani, Keyvan 7892 ProgComm
- Farahi, Salma** [7899-43]SPS2, [7899-86]S7
- Faraon, Andrei [7942-03]S9, [7942-03]S2, [7948-25]S7, [7948-39]S9, [7948-40]S9
- Fardel, Romain [7920-12]S3
- Fardi, Hamid Z. [7933-75]SPS4
- Farhat, Golnaz [7907-37]S6, [7907-40]S6
- Faria e Sousa, Sidney J. [7885-55]SPS2, [7885-56]SPS2, [7890-52]SPS1
- Farina, Andrea [7883D-84]S4, [7895-12]S3, [7896-01]S1, [7896-57]S12
- Farina, Jim [7959-20]S7
- Farsiu, Sina [7885-03]S1
- Farkas, Csaba [7883C-185]S7
- Farkas, Daniel L. TrackChr, [7886-21]S5, 7902 Chr, 7902 S1 SessChr, 7902 S2 SessChr, 7902 S3 SessChr, 7902 S4 SessChr, [7902-13]S3
- Farley, Carlton W. [7951-17]SPS4
- Farley, Kevin F. [7914-62]S15
- Farnum, Edward D. [7933-53]S12
- Farr, William H. 7923 S5 SessChr, [7923-11]S3, [7923-19]S5
- Farrar, Matthew J. [7925-13]S3
- Farrell, Thomas J. [7886-14]S3, [7890-14]S3
- Farrer, Ian [7919-36]S8, [7919-38]S8, [7933-64]S12, [7933-64]S15, [7947-06]S2, [7948-46]S11
- Farrokhi, Hamid [7926-06]S2
- Farsiu, Sina [7885-47]S9
- Fassbender, Wilhelm [7918-13]S3
- Fatemi, Fredrik K. [7949-34]S7
- Fateye, Babasola A. [7886-10]S2
- Fatome, Julien [7917-31]S8
- Fattal, David [7942-03]S9, [7942-03]S2, [7946-12]S3
- Faucher, Mathieu [7914-94]SPS3
- Fauchet, Philippe M.** 7888 Chr, [7888-08]S1, [7888-18]S2, [7888-20]S1, [7888-20]S3, [7888-21]S1, [7888-21]S3, 7908 ProgComm, 7943 ProgComm, 7943 S12 SessChr, 7943 S13 SessChr
- Faulkner, David W. 7958 ProgComm
- Faust, Wolfgang [7928-11]S3
- Favazza, Christopher P.** [7899-12]S2, [7899-23]S4, [7899-31]S5, [7899-152]SPS2
- Favero, Ivan [7945-93]S16
- Favetta, Bruna [7903-108]SPS1
- Favilla, Christopher G. [7896-03]S1, [7896-84]SPS1
- Fearon, Eric R. [7893-02]S1
- Featherstone, John D. 7884 ProgComm, [7884-15]S5
- Fedder, Gary K. [7901-28]S6
- Fedder, Helmut [7948-33]S8
- Fedelil, Jean-Marc [7943-26]S8, [7943-41]S13, [7942-23]S8
- Fedorov, Vladimir V.** [7912-49]S12, [7912-51]S12, [7912-54]S13, [7912-55]S13, [7912-83]SPS3
- Fedorova, Ksenia A. [7890-53]SPS1
- Fedoruk, Michail [7914-113]SPS3
- Fedtke, Cathleen** [7885-34]S7
- Feeler, Ryan [7912-45]S11, [7916-07]S2, [7918-07]S1, [7918-15]S3
- Fehre, Jens [7897-26]S5
- Fehse, Robin [7918-28]S5
- Feili, Dara [7903-54]S8, [7908-20]S4, [7920-43]SPS3, [7921-19]S5
- Feinberg, Stephen E. [7897-45]S9
- Feise, David [7917-03]S5, [7917-03]S1, [7918-36]SPS3
- Fejer, Martin M. [7949-17]S4
- Felbacq, Didier [7939-34]S5
- Felberer, Franz [7885-05]S1
- Feld, Michael S. [7890-46]S8, [7890-48]S8, [7892-11]S2, [7897-22]S5, [7897-23]S5, [7904-27]S6, [7904-28]S6, [7904-41]S8, [7906A-21]SPS2
- Feldesh, Ran [7943-35]S11
- Feldman, Marc D. [7883D-72]S1
- Feldman, Michael D. [7896-48]S10
- Feldmann, Jochen 7909 S10 SessChr, [7909-14]S5
- Feldtmann, Thomas [7937-66]S15
- Felekyan, Suren [7905-12]S3
- Feliz, Rafael [7885-23]S4
- Feller, Brian P. [7945-57]S9
- Felsenstein, Jerome M. [7883A-11]S2
- Feng, Dazeng [7944-02]S1
- Feng, Florina [7883A-17]S4
- Feng, Shaoqi [7913-38]S8
- Feng, Shih-Wei** [7954-12]S3
- Feng, Yuanming [7886-23]S6, [7902-39]S8, [7907-33]S5
- Feng, Ze [7955-21]S7
- Feng, Zheng-Wen [7952-04]S1
- Féral, Christophe [7916-35]SPS3
- Fercana, George [7928-25]SPS3
- Fercher, Adolf F.** [7889-73]S11
- Fereidouni, Farzad [7902-44]S9
- Ferensovich, Yaroslav P. [7891-08]S3
- Ferguson, Halie [7900-06]S2
- Ferguson, Robert D.** [7885-08]S2, [7885-40]S8, [7885-42]S8, [7895-04]S1, [7896-09]S2, [7904-21]S5
- Fergusson, James R.** [7885-33]S6
- Ferina, Robert [7918-32]S5
- Fermann, Martin E.** SC744 Inst, [7917-44]S10
- Fernandes, Gustavo E. [7945-103]SPS4
- Fernandes, Roger G. [7934-12]S3
- Fernandes Pereira, Mauro** 7945 S6 SessChr
- Fernandez, Bautista R. [7931-09]S4, [7931-21]S6
- Fernandez, David [7947-26]S7
- Fernandez, F. Anibal [7955-09]S4
- Fernandez, I. M. [7928-19]S6, [7928-19]S1, [7928-19]S5
- Fernandez, Joaquin** [7934-08]S2, [7951-05]S1
- Fernández, Enrique J. [7885-38]S8
- Fernández, Joaquín** 7951 S2 SessChr
- Ferradal, Silvina L. [7883E-116]S5, [7896-05]S1
- Ferrand, Jérôme [7941-16]S4
- Ferrantini, Cecilia [7903-66]S9
- Ferrão de Paiva Martins, Rodrigo** 7940 ProgComm
- Ferrari, Carlo [7943-18]S6
- Ferrari, Marco 7896 ProgComm
- Ferrario, Angela [7886-05]S1
- Ferreira, Daniela [7905-25]S6
- Ferreira, Juliana [7886-39]SPS1
- Ferreira, Robson [7937-07]S2
- Ferreira Morais, Michel [7887-15]S3
- Ferrel, Gabriela L. [7900-08]S3
- Ferrie, Mélanie [7937-15]S4
- Ferrier, Alban [7948-06]S2
- Ferrier, Cyrille [7883E-113]S5
- Festy, Frederic [7902-55]S12, [7903-88]SPS1
- Fève, Jean-Philippe [7912-62]S14, 7914 ProgComm, 7914 S4 SessChr
- Fey, Dietmar [7942-02]S1, [7942-02]S8
- Fibrich, Martin [7884-03]S1, [7912-69]SPS3
- Fiddy, Michael A.** [7946-30]S7
- Fidler, Ales [7884-13]S5
- Fiebich, Martin** [7892-30]SPS1, [7906B-38]S4
- Fiebig, Christian [7917-03]S5, [7917-03]S1, [7918-11]S2, [7918-26]S5
- Fieguth, Paul W. [7889-120]SPS2
- Fields, Renny A. [7923-03]S1
- Fiers, Martin [7942-24]S8
- Fife, Caroline E. [7890-19]S4, [7890-50]SPS1, [7902-52]S11
- Figueiredo, Vitor [7940-39]S10
- Figueroa, Daniel [7900-09]S3, [7900-10]S3
- Fihn, Mark 7956A ProgComm
- Filer, Mark [7959-11]S5
- Filip, Stefan [7945-19]S3
- Filippidis, Giorgos [7903-99]SPS1
- Filippov, Valery [7914-69]SPS3
- Fill, Ernst E. [7914-54]S14, [7925-31]S7
- Fillardet, Thierry [7918-28]S5
- Filloux, Pascal G. [7945-11]S2, [7945-93]S16
- Fine, Ilya [7898-09]S2
- Finer, Yoav [7883F-129]S2
- Fingler, Jeff P. [7885-17]S3, [7889-16]S3
- Fink, Thomas [7912-21]S6, [7912-21]S2
- Finkelstein, Dianne M. [7886-08]S2
- Finkelstein, L. D. [7940-27]S7
- Finlay, Jarod C. [7886-20]S5, [7886-22]S6, [7886-26]S6, [7886-47]SPS1
- Finlayson, Chris E. [7927-01]S1
- Finlayson, Ewan D. [7943-32]S10
- Finley, Eric [7929-29]S7
- Finley, Jonathan J. [7947-02]S1
- Finot, Christophe [7917-31]S8
- Fior, Raffaella [7929-04]S2

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Fiorentino, Marco [7942-03]S9, [7942-03]S2, [7943-46]S8, [7943-46]S14, [7946-12]S3
- Fiorini-Debuisschert, Céline [7935-14]S4
- Firstenberg, O. [7949-33]S7
- Fischer, Alec M. [7954-13]S4
- Fischer, David G.** [7898-03]S1, [7904-24]S5
- Fischer, Joachim [7921-01]S1, [7927-07]S2
- Fischer, Johannes K. [7959-01]S, [7959-01]S, [7959-01]S
- Fischer, Julian [7888-09]S1
- Fischer, Marc O. [7945-14]S3
- Fischer, Martin C. [7903-25]S4
- Fischer, Robert E.** SC003 Inst
- Fischer, Ulrich H. P. [7959-08]S3
- Fishbein, Michael C. [7883D-83]S4, [7883D-86]S4
- Fisher, Robert A. SC206 Inst
- Fishman, Andrew J. [7883C-168]S3
- Fitch, Rick M. [7886-12]S3, [7897-64]SPS2, [7910-33]S7
- Fitzgerald, Denise [7923-16]S5
- Fitzmaurice, Maryann** [7906B-36]S3
- Fixler, Dror** [7897-71]S6, [7905-30]SPS1
- Flagello, Donis G.** MeetingVIP
- Flagg, Edward B. [7948-24]S6, [7948-43]S10
- Flament, Marco [7918-13]S3
- Flamm, Daniel [7914-63]S15, [7914-85]SPS3, [7914-88]SPS3
- Flämmich, Michael [7954-34]S9
- Flanders, Dale [7889-52]S8, [7889-55]S8
- Fleishman, Boaz [7945-42]S6
- Fleming, Christine P. [7883D-75]S2, [7883D-76]S2, [7893-41]S8
- Fleming, Timothy [7899-51]S8
- Fletcher, Luke B.** [7925-25]S6
- Flexman, Molly L.** [7896-43]S9, [7896-55]S12, [7896-91]SPS1
- Flohner, Frank [7914-39]S10
- Florea, Catalin [7946-35]S8
- Flores-Gil, Aaron [7883A-36]SPS1, [7906A-20]SPS2
- Florjanczyk, Mirek [7928-19]S6, [7928-19]S1, [7928-19]S5
- Flueckiger, Jonas [7929-15]S4
- Flügge, Jens [7904-58]SPS2
- Foerster, Mario [7930-01]S1, [7930-01]S7
- Foglietti, Vittorio [7945-31]S5
- Földes-Papp, Zeno [7905-04]S1
- Foltynowicz, Robert [7917-70]SPS3
- Fomina, Yulia V. [7884-31]SPS1
- Fong, Alexandre Y.** [7932-18]S4
- Fong, Batty A. [7895-33]SPS2
- Fong, Christopher J. [7896-55]S12
- Fong, Jonathan T.** 7932 ProgComm, 7932 S2 SessChr
- Fonseca, Eduardo J. S.** [7900-14]S4
- Font, Carlos O.** [7923-27]S7, [7924-10]S2
- Fontana, Carla R. [7887-22]SPS1
- Foran, Brendan [7953-03]S1
- Forbes, Andrew** 7913 ProgComm, 7913 S4 SessChr, [7913-03]S1, [7913-50]SPS3
- Forbes, David** [7933-04]S1, [7933-38]S8
- Forbes, Natalie [7911-24]S5
- Forbrich, Alex [7899-52]S8
- Forchel, Alfred W. B. 7947 ProgComm, [7945-14]S3, [7945-19]S3, [7947-01]S1, [7948-29]S7
- Ford, Joseph E. [7885-35]S7
- Ford, Timothy [7907-10]S2
- Fore, Samantha [7903-76]S11, [7903-106]SPS1, [7905-03]S1, [7905-35]S8
- Forghani, Kamran [7954-24]S7
- Fomahl, Udo [7918-19]S4, [7918-37]SPS3
- Forouhar, Siamak [7945-22]S4, [7945-29]S4, [7953-60]S15
- Forrer, Martin** [7918-25]S4
- Forster, Lucas A. [7920-31]S9
- Förstner, Jens [7937-29]S7
- Fort, Alain F. 7935 ProgComm
- Fortunato, Elvira [7940-25]S6, [7940-39]S10
- Foster, Ellen [7886-26]S6
- Foster, F. Stuart [7899-84]S12
- Foster, Ryan L. [7940-54]SPS4
- Foty, Daniel [7943-19]S6
- Fouckhardt, Henning [7947-20]S5, [7953-61]S15
- Fouks, Boris I. [7945-41]S6
- Foulad, Allen I. [7883C-188]S2
- Fournier, Jean-Marc R.** 7950 ProgComm
- Fouron, Jean-Luc [7912-02]S1, [7924-17]S3
- Foussekis, Michael A. [7939-23]S2
- Fox, Mark [7946-07]S2
- Fragnito, Hugo L. [7959-25]S7
- Frampton, Robert [7934-20]S5
- Franceschini, Maria Angela [7892-02]S1
- Francis, Robert P. [7932-05]S1
- Franco, Nuno [7940-24]S6
- Frangioni, John V. [7896-26]S6
- Frank, Albert [7930-25]S6
- Frank, Ian** [7946-38]S9
- Franke, Alexander [7918-18]S4
- Franke, Bülent A. [7913-42]S5, [7943-28]S8, [7943-40]S12
- Franke, Gesa [7889-05]S1, [7889-60]S9
- Franke, Justin [7914-43]S10
- Franke, Marco [7912-15]S4
- Frankowski, Gottfried J. [7932-12]S3
- Frans, Bill [7944-24]S6
- Franson, James D. 7948 ProgComm
- Franz, K. J. [7945-22]S4
- Fraser, Gerald T.** 7906B ProgComm
- Fraser, James M. [7925-38]S11, [7925-38]S7
- Fraser, Scott E. [7885-17]S3, [7889-16]S3, [7889-17]S3, 7903 ProgComm, [7903-21]S3
- Fratini, Albert [7935-27]S7
- Fraval, Nicolas [7930-06]S2
- Frazee, Tracy E. [7896-46]S10
- Frede, Maik [7914-36]S10, [7914-36]S9, [7914-76]SPS3
- Frederick, Blaise B. [7896-04]S1
- Fredriksson, Ingemar [7906A-01]S1
- Freearde, Timothy G. M. [7951-10]S3
- Freeland, John W. [7940-29]S7
- Freeman, Mark R. [7929-29]S7
- Freeman, Mark O. [7930-13]S3
- Freese, Wiebke [7927-36]S8
- Frei, Bruno [7920-39]S7, [7920-39]S11
- Freidler, Inbal [7945-82]S14
- Freisem, Sabine [7952-23]S6
- Freitag, Christian [7920-34]S10
- Freitag, Ingo [7912-39]S10, [7912-39]S9
- French, Paul M. W.** [7883A-09]S2, [7893-07]S2, [7895-16]S3, [7896-65]S13, 7903 ProgComm, [7903-80]S11, [7903-82]S11, [7904-19]S4, [7904-34]S7, [7904-35]S7, [7904-61]SPS2
- Frentzen, Matthias [7884-04]S2, [7884-05]S2, [7884-18]S6, [7884-32]SPS1
- Frenz, Martin** 7899 ProgComm
- Fresi, Francesco [7960-27]SPS4
- Freskos, John N. [7910-33]S7
- Freudiger, Christian W. 7903 SPS1
- SessChr, [7903-23]S4, [7903-29]S5, [7903-38]S6, [7903-89]SPS1
- Freund, Ronald 7959 ProgComm, [7959-01]S, [7959-01]S, [7959-01]S, 7960 S5 SessChr
- Freundlich, Alex [7933-27]S6, 7933 Chr, 7933 S6 SessChr, [7933-14]S4, [7933-15]S4, [7933-86]SPS4, [7933-88]SPS4, [7947-22]S6
- Frey, Margaret W. [7955-22]S7
- Frey, Wolfgang [7899-17]S3, [7899-18]S3, [7899-74]S11
- Freyer, James P. [7902-40]S8
- Freysz, Eric [7914-34]S8
- Frez, C. [7945-22]S4, [7953-60]S15
- Fricke, Jörg [7953-36]S9
- Fricke, Sébastien [7913-06]S2
- Fridberger, Anders [7889-107]SPS2
- Fried, Daniel** 7884 Chr, 7884 S1
- SessChr, 7884 S2 SessChr, 7884 S3 SessChr, 7884 S4 SessChr, [7884-10]S4, [7884-24]SPS1, [7884-26]SPS1, [7884-27]SPS1, [7884-28]SPS1, [7884-33]SPS1
- Fried, Glenn A. [7903-17]S2
- Fried, Nathaniel M.** 7883B
- ProgComm, 7883B S3 SessChr, [7883B-39]S1, [7883B-44]S2, [7883B-46]S2, [7883B-47]S3, [7883B-48]S3, [7883G-162]S3, [7914-01]S1
- Friedberg, Joseph S. [7886-20]S5, [7886-26]S6
- Friedl, Jochen [7945-19]S3
- Friedland, Igor [7954-18]S5
- Friedman, Neil [7885-23]S4
- Friedman, Ran [7901-37]S8
- Friedmann, Patrick [7918-10]S2
- Friedrich, Michal [7884-02]S1
- Friend, Cynthia M. [7920-16]S4
- Friess, Benedikt [7948-29]S7
- Friskén, Steve [7891-24]S6
- Fritz, Andreas [7885-27]S5
- Fritz, Joelle [7903-83]S11
- Fritzschke, Daniel [7959-04]S1, [7959-04]S1, [7959-10]S5
- Frochot, Céline [7886-35]SPS1
- Froening, Holger [7944-20]S5
- Fromager, Mickaël [7913-50]SPS3
- Fromzel, Viktor [7914-26]S6
- Fruetztenicht, Johannes [7925-35]S5, [7925-35]S9
- Fruehauf, Norbert** 7956A ProgComm
- Fruhwhir, Gilbert O. [7903-81]S11, [7910-40]S9
- Frunker, Eugene** [7925-46]S7
- Fu, Dan [7904-27]S6, [7904-41]S8
- Fu, Henry [7890-10]S2
- Fu, Kai-Mei C. [7948-25]S7, [7948-39]S9, [7948-40]S9
- Fu, Lan [7942-18]S7
- Fu, Min [7931-21]S6
- Fu, P. H. [7927-46]SPS3
- Fu, Rongguo [7912-71]SPS3
- Fu, Shaojun [7912-32]S9
- Fu, Xian-Song [7934-44]SPS4
- Fu, Xing-Xing [7933-68]SPS4
- Fu, Yongji [7897-58]SPS2
- Fu, Yu** [7928-07]S3
- Fuchs, Frank [7945-25]S4, [7953-58]S14
- Fuchs, Gregory D. [7948-27]S7
- Fuchs, Jochen [7913-33]S7
- Fuchs, Peter [7945-19]S3
- Fuendling, Sönke [7933-39]S9
- Fuentes-Tapia, Israel [7957-30]SPS4, [7957-31]SPS4, [7957-40]SPS4
- Fuh, Andy Y.** 7955 ProgComm, 7955 S4 SessChr, [7955-05]S2
- Fujieda, Ichiro** [7935-16]S4
- Fujii, Akihiko [7955-03]S1
- Fujii, Eiichi [7921-21]S5
- Fujii, Kenichi [7902-74]SPS2
- Fujii, Masamitsu [7911-02]S1
- Fujii, Takahiro [7939-63]SPS4
- Fujimaki, Munehisa [7914-19]S5
- Fujimori, Taku [7939-82]SPS4
- Fujimoto, Akira [7927-35]S8
- Fujimoto, James G.** SympChair, SC312 Inst, [7885-16]S3, [7885-31]S6, [7885-43]S9, 7889 Chr, 7889 S1
- SessChr, [7889-02]S1, [7889-44]S7, [7893-04]S1
- Fujimoto, Yasushi [7912-20]S6, [7912-20]S2, [7912-79]SPS3, [7934-03]S1
- Fujimura, Kayoko [7934-40]SPS4
- Fujioka, Hiroshi 7939 ProgComm, 7939 S11 SessChr, [7939-55]SPS4
- Fujioka, Hisashi [7883D-94]S6, [7883G-138]S2
- Fujioka, Kana [7934-03]S1
- Fujita, Junichiro [7942-22]S8
- Fujita, Katsumasa [7902-03]S1, [7904-51]S10, [7911-23]S5
- Fujita, Masanori [7899-108]SPS2, [7899-111]SPS2
- Fujita, Tomohiro [7923-23]S6
- Fujiura, Kazuo [7889-54]S8
- Fujiwara, Hideki [7913-34]S7
- Fujiwara, Izumi [7897-57]SPS2, [7907-20]S4
- Fujiwara, Masazumi [7913-43]S9, [7948-16]S4
- Fujiwara, Takumi [7934-01]S1
- Fujiyama, Yasuharu [7939-63]SPS4
- Fukuda, Mitsuo [7911-02]S1
- Fukuda, Naoaki [7917-63]SPS3
- Fukuda, Shinichi [7885-49]S10
- Fukuda, Takashi [7957-26]S6, [7957-41]SPS4
- Fukui, Soh [7954-45]SPS4
- Fukuma, Yasufumi [7889-105]SPS2
- Fukumi, Kohei [7934-22]S6
- Fukumoto, Kotaro [7883D-91]S6
- Fukunaga, Kazuya [7937-37]S8
- Fukushima, Shuichiro [7903-86]SPS1
- Fukutani, Kazuhiko [7899-87]SPS2, [7899-91]SPS2, [7899-92]SPS2
- Fukuyama, Tokuhiko [7957-22]S5
- Fulkerson, Edward S. [7916-10]S3
- Fuller, Chuck T. [7953-27]S7
- Fuller, Wesley [7902-71]SPS2
- Fulton, Anne B. [7885-08]S2
- Fulton, Crystal [7884-15]S5
- Funakoshi, Hisatoshi [7944-15]S4
- Fung, Kin Hung [7946-65]S15, [7946-78]SPS4
- Funk, Richard [7889-08]S2
- Funke, Arik R. [7899-133]SPS2
- Funke, Dominic A. [7939-79]SPS4
- Furdyna, Jacek K. [7933-18]S4
- Furfaro, Luca [7921-18]S5
- Furitsch, Michael [7919-13]S3
- Furniss, David [7912-52]S13
- Furukawa, Hiroyuki [7885-30]S6
- Furukawa, Rei A.** [7935-10]S3
- Fushiki, Shinji [7909-38]S11
- Fusi, Franco [7910-47]S10, [7911-46]SPS1
- Füssel, Susanne [7897-26]S5
- Futaki, Shiroh [7935-35]S9
- Futia, Gregory [7904-13]S3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

G

- Gaber, Noha A. [7927-28]S6
Gabrielyan, Gevorg [7917-04]S5, [7917-04]S1
Gadermaier, Christoph [7937-60]S13
Gaeta, Alexander L. [7940-48]SPS4
Gagliardi, Robert M. [7923-06]S1
Gaiotto, Tiziano [7905-22]S5
Gaj, Jan A. 7937 ProgComm, 7937 S10 SessChr
Galambos, Ludwig [7885-37]S7
Galanzha, Ekaterina I. [7899-58]S9
Galameau, Jean-Rene [7907-28]S4
Galameau, Pierre 7913 ProgComm
Galbally-Kinney, Kristin L. [7915-07]S2
Gale, Bruce K. 7929 ProgComm
Galeckas, A. [7945-85]S15
Galen, Karen P. [7886-12]S3, [7897-64]SPS2, [7910-33]S7
Galiani, Silvia [7903-10]SPS1
Galimard, A. [7909-50]SPS2
Gallagher, Kevin A. [7883D-88]S5, [7889-24]S4, [7893-03]S1, [7893-32]S6
Gallego, Daniel C. [7899-156]SPS2
Galli, Iacopo [7945-04]S1
Galljamov, Eduard [7883B-52]S4
Galstian, Tigran [7955-16]S5
Galvanuskas, Almantas 7914 ProgComm, [7914-29]S7, [7914-60]S15
Galve, Roger [7941-42]S9
Galvez, Enrique J. 7950 CoChr
Gambhir, Sanjiv S. [7899-154]SPS2
Gamelin, John [7896-97]SPS1
Gandjbakhche, Amir H. 7895 ProgComm, 7896 ProgComm, [7896-72]S15, [7902-72]SPS2, [7910-35]S8, [7910-38]S8
Ganesan, Singaravelu [7895-15]S3, [7895-22]S4
Gangopadhyay, Palash [7935-31]S8
Ganguly, Arindam [7897-45]S9
Gannot, Israel 7894 Chr, 7894 SP1 SessChr, [7894-47]S6, 7895 ProgComm
Gao, Bruce Z. [7889-71]S11, [7893-35]S1, [7893-35]S7, [7903-13]S2
Gao, Feng [7890-51]SPS1, [7891-32]SPS1, [7892-25]SPS1, [7892-27]SPS1, [7896-87]SPS1, [7896-95]SPS1, [7896-101]SPS1, [7896-108]SPS1, [7896-111]SPS1
Gao, Haiyong [7939-72]SPS4
Gao, Hao [7896-120]SPS1
Gao, Jie [7942-16]S7
Gao, Liang [7890-41]S8
Gao, Maiobin [7952-01]S1
Gao, Puxian 7940 S11 SessChr, 7940 S12 SessChr
Gao, Puxian [7940-45]S12
Gao, Shang [7943-48]SPS4, [7943-49]SPS4
Gao, Simon S. [7889-108]SPS2
Gao, Tingjuan [7905-17]S4, [7905-25]S6
Gao, Weihua [7885-10]S2, [7885-52]S10, [7885-53]S10, [7885-54]S10
Gao, Wen [7883C-183]S6
Gao, Xiaohu [7899-62]S9
Gao, Yang [7921-12]S3, [7921-13]S3
Gapontsev, Denis V. 7914 ProgComm, 7914 S10 SessChr
Garbos, Martin K. [7950-21]S5
Garcia, Alain [7912-58]S14
Garcia, John M. [7943-29]S9
Garcia Carrascosa, Laura [7911-09]S2
García Juárez, Alejandro [7958-13]S5
García Pomar, Juan Luis [7945-32]S5
García Rissmann, Aurea [7885-68]SPS2
García Tijero, Jose Manuel [7953-46]S12
García-Acosta, Nathalia [7890-49]SPS1
García-Adeva, Angel J. [7951-05]S1
García-Blanco, Sonia 7928 Chr, 7930 ProgComm, [7930-23]S6, 7928 S1 SessChr, 7928 S6 SessChr, 7930 S5 SessChr, 7931 S1 SessChr, [7942-25]S8
García-Revilla, Sara [7951-05]S1
García-Urbe, Alejandro [7895-19]S4
Gardecki, Joseph A. [7883D-73]S1, [7883D-75]S2, [7883D-76]S2, [7906A-09]S2
Gardes, Frédéric Y. [7943-07]S3, [7943-32]S10, [7943-41]S13, [7943-44]S13, [7943-54]S11
Gardiner, Damian J. [7955-11]S4
Gardiner, Iain [7956B-35]S3
Gardner, Patrick J. [7934-20]S5
Gareau, Daniel S. [7895-07]S2, [7898-28]S5
Gargesha, Madhusudhana [7883D-89]S5, [7889-10]S2
Garnache, Arnaud [7919-12]S8, [7945-07]S11, [7945-10]S2
Garner, Michelle [7910-25]S5
Garner, Sean M. [7956A-02]S1
Garnier-Thibaud, V. [7909-50]SPS2
Garoz, David [7916-27]S6
Garrelie, Florence [7920-29]S9
Garrett, Gregory A. [7939-42]S7
Garrod, Toby [7933-16]S4
Garrod, Toby [7953-33]S9
Gärtner, Claudia SC532 Inst. [7929-01]S1, [7929-01]S3, [7929-10]S3, [7929-11]S3
Gärtner, Maria [7889-11]S2, [7893-38]S8
Garza Rivera, Anel [7930-10]S2
Gaskill, Jack D. SC017 Inst
Gaspar, Daniel J. [7939-11]S13
Gass, Volker PanelMember, PanelMember, PanelMember, PanelMember
Gasselhuber, Astrid [7901-14]S4
Gassenq, A. [7945-17]S3
Gaston, Kimberly R. [7910-33]S7
Gates, Steven C. [7930-02]S1, [7930-02]S7
Gattass, Rafael [7914-24]S6
Gattoni-Celli, Sebastiano [7887-19]S4
Gault, Melanie A. [7883G-147]S2, [7883G-148]S3
Gaustad, Adam [7893-02]S1
Gautam, Nutan [7945-66]S11
Gauthier, Daniel J. [7917-34]S8, 7949 ProgComm, [7949-08]S2, [7949-44]S9
Gauthier, Robert C. [7943-11]S4, [7943-20]S6, [7946-15]S4
Gauthier-Lafaye, Olivier [7945-16]S3
Gautier, Simon [7940-17]S4, [7940-58]S8, [7942-15]S6
Gauvreau, Bertrand [7914-91]SPS3, [7914-94]SPS3
Gavartin, E. [7951-11]S3
Gavel, Donald T. 7931 ProgComm, [7931-02]S2
Gawith, Corin B. E. [7912-72]SPS3
Gayen, Swapam K. [7892-15]S3
Gayet, Brice [7895-14]S3
Gazizov, I. L. [7945-53]S8
Gbur, Gregory 7924 ProgComm, [7924-02]S1, [7924-03]S1
Ge, Chunfeng [7936-22]S5
Ge, Jiajia [7897-64]SPS2
Ge, Yuncheng 7900 ProgComm
Gebavi, Hrvoje [7934-07]S2
Gebert, Andreas [7903-100]SPS1
Gee, Earl J. [7940-54]SPS4
Gee, Shirley [7908-26]S4
Gehlbach, Peter [7894-18]S3
Gehlhoff, Wolfgang [7939-86]S7
Gehm, Michael E. [7938-16]S4
Gehner, Andreas 7931 ProgComm
Gehr, Peter [7909-08]S3
Gehr, Roger [7948-15]S4
Geib, Kent M. 7952 ProgComm, 7952 S4 SessChr, [7952-20]S6, [7952-21]S6
Geimer, Shireen D. [7901-22]S5
Geisler, Claudia [7904-52]S10, [7905-24]S6
Geissler, Daniel [7909-12]S4, [7909-27]S8
Gelens, Lendert [7933-94]SPS4
Gelikonov, Grigory V. [7889-76]S11, [7889-121]SPS2
Gelikonov, Valentin M. [7889-76]S11, [7889-121]SPS2
Gelinck, Gerwin H. [7956A-05]S1
Gellermann, Werner 7906A ProgComm
Gellie, Pierre [7953-26]S7
Geluk, Erik-Jan [7913-51]S9
Gendreau, Patrick [7916-35]SPS3
Genevaux, Olivier [7896-35]S8
Geng, Jason [7932-10]S3
Genina, Elina A. [7883A-35]SPS1, [7884-29]SPS1, [7885-57]SPS2, [7898-33]S5
Genning, Tatyana [7897-52]S11, [7901-19]S4
Genovese, A. [7922-24]SPS3
Gensch, Thomas [7903-71]S10
Gentric, Philippe [7956A-11]S3
Genty, Goery [7917-31]S8, [7917-35]S8
Geohegan, David B. 7922 Chr, 7922 S1 SessChr, [7922-03]S1, [7922-22]SPS3, [7922-23]SPS3
Georgakoudi, Irene 7897 ProgComm, BO304XX ProgComm
George, Steven C. [7893-30]S6, [7897-08]S2, [7897-50]S10
George, Thomas F. [7883F-128]S2
Georges, Patrick [7912-27]S8, [7912-29]S8, [7912-38]S10, [7912-38]S9, [7912-53]S13, [7912-61]S14
Georges, Thierry [7912-19]S6, [7912-19]S2
Georgiou, Savas K. [7925-23]S6
Geradts, Joseph [7890-11]S2
Gérard, Jean-Michel [7933-67]S12, [7933-67]S15
Gerardot, Brian D. [7948-34]S8
Gerasimenko, Andriy [7894-05]S1, [7912-87]SPS3
Gerega, Anna [7896-81]SPS1
Gerelli, Emmanuel [7941-27]S7
Gergely, Csilla [7888-06]S1, [7908-16]S3
Gerhard, Christoph [7921-17]S4
Gerhardt, Nils C. [7939-79]SPS4, [7952-10]S3
Gerhardt, Reinald [7942-22]S8
Gerhold, Michael D. 7940 ProgComm
Gerich, Carola [7897-26]S5
Gerngross, Tillman U. [7901-42]S9
Gerrits, Thomas [7948-22]S5
Gerritsen, Hans C. [7902-44]S9, 7903 ProgComm, [7903-60]S8, [7903-114]SPS1
Gerry, Christopher C. [7948-12]S3
Gersonde, Ingo [7891-10]S3
Gertsch, Andreas G. [7899-139]SPS2
Gessner, Thomas [7928-11]S3, [7930-18]S4, [7945-102]SPS4
Getman, Vasyil B. [7891-08]S3
Gettman, Matthew T. 7883B ProgComm
Ghadage, Vijay H. [7897-17]S4
Ghadiri, Reza [7921-102]S
Ghafoori, A. Paiman [7892-32]SPS1
Gharraati Jahromi, Shadab [7905-43]SPS1
Ghasemkhani, Mohammadreza [7951-18]SPS4
Ghata, Narugopal [7883D-78]S2, [7883D-85]S4
Ghazaryan, Ara [7895-09]S2, [7903-62]S9
Ghazaryan, Robert K. [7886-40]SPS1
Gheith, Mostafa E. [7884-16]S6
Gheifi, Paolo [7960-27]SPS4
Ghibaud, Elise [7941-05]S1
Ghijzen, Michael T. [7892-40]SPS1
Ghillino, Enrico [7958-19]S5
Ghini, Giacomo [7890-03]S1, [7890-55]SPS1
Ghioni, Massimo [7905-02]S1, [7945-100]S17
Ghiringhelli, Fabio [7914-39]S10
Gho, Gwang-Hyun [7960-10]S3
Ghoniemy, Samy S. A. [7915-18]SPS3
Ghosh, Anjan K. [7923-08]S2, [7945-83]S14
Ghosh, Brahma [7910-32]S7
Ghosh, Chuni L. [7912-36]S9, [7952-15]S4
Ghosh, Nirmalya [7907-06]S1, [7907-27]S4, [7911-38]S8
Ghosh, Sayantan [7907-27]S4
Ghosh, Sreya [7904-47]S9
Ghosn, Mohamad G. [7898-05]S1
Ghukasyan, Vladimir 7903 SPS1 SessChr
Giacalone, Matteo [7896-36]S8
Giacomelli, Michael G. [7896-33]S7, [7907-38]S6
Giambastiani, Giuliano [7911-22]S5
Giannetti, Ambra [7890-03]S1, [7890-55]SPS1, [7941-40]S9
Giannoulis, G. [7945-40]S6
Giardiello, Francis [7897-24]S5
Gibbs-Strauss, Summer L. [7892-23]S4
Gibson, Brant [7948-45]S11
Gidlund, Magnus A. [7955-08]S4
Gierl, Christian [7959-07]S3
Giese, Thorsten [7930-24]S6
Giesen, Adolf 7912 ProgComm, [7912-12]S4
Giessen, Harald W. 7946 S7 SessChr, [7946-26]S6
Gigan, Sylvain [7889-58]S9, [7931-15]S6
Gil, Bernard 7939 S7 SessChr, [7939-34]S5
Gil, Lionel [7949-37]S7
Gilbert, Bruno [7930-23]S6
Gilbert, Gerald N. [7948-11]S3
Gilbert, Ryan [7897-48]S10
Gilbreath, Charmaine [7923-27]S7, [7924-10]S2, 7923 ProgComm, 7924 ProgComm
Gilead, Sharon [7899-79]S12
Giles, Robert H. [7883A-19]S4, 7938 ProgComm, 7938 S4 SessChr, [7938-02]S1, [7938-07]S2
Gilks, Blake [7902-75]SPS2
Gill, Cally A. [7891-12]S4
Gill, Ruby K. [7902-15]S4
Gillanders, William E. [7899-51]S8
Gillard, Richard [7952-14]S4
Gilleland, Cody [7902-09]S3
Gillenwater, Ann M. 7883C S6 SessChr, [7883C-158]S1, [7883C-180]S6, [7883C-183]S6, [7883C-187]S1

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Gillette, Martha [7898-06]S1
 Gillis, Marc-Antoine [7883E-117]S6
 Gill-Sharp, Kelly L. [7899-144]SPS2, [7901-41]S9
Gilly, Jürgen [7918-10]S2
 Giltner, David MeetingVIP
 Giorgetta, Fabrizio R. [7917-42]S10
Gioux, Sylvain [7896-26]S6
 Giovane, Laura [7952-04]S1
 Giovine, Ennio [7945-31]S5
 Gippius, Nikolai A. [7943-53]SPS4
 Girard, Sylvain [7914-98]SPS3
 Giri, Neeraj Kumar [7940-19]S5
 Girkin, John M. [7904-10]S3, [7904-38]S8, [7929-28]S7, [7931-14]S6
 Giryk, Volodymyr [7927-47]SPS3
 Gisin, Nicolas [7948-42]S10
 Giske, Arnold [7905-32]S8
 Gittler, Elvira [7930-18]S4
 Giuliani, John L. [7916-31]S7
 Giusfredi, Giovanni [7945-04]S1
 Giustini, Andrew J. [7901-09]S3, [7901-10]S3, [7901-13]S3, [7901-43]S9, [7901-44]S9
 Gizzi, Corrado [7885-13]S3
 Gkigkitzits, Ioannis [7886-23]S6
Gladish, James C. [7907-30]S5
 Gladkova, Natalia [7884-31]SPS1
 Glanc, Marie [7885-65]SPS2, [7904-36]S8
 Glancy, Scott [7948-22]S5
 Glatstein, Eli [7886-13]S3, [7886-26]S6
 Glatz, Juergen [7899-123]SPS2
 Glaza, Patricia MeetingVIP
 Glebov, Alexei L. 7944 Chr, 7944 S2 SessChr, 7944 S3 SessChr
Glebov, Leonid B. [7914-51]S13, [7915-17]S3, [7925-20]S5, 7934 ProgComm
 Glembocki, Orest [7946-44]S11, [7947-31]SPS4
 Glenn, Harry T. [7885-22]S4
 Glenn, John D. [7918-41]S5
Glesener, John W. 7934 Chr
 Gleyze, Jean-François [7916-17]S4
 Glick, Yaakov [7914-13]S4
Glickman, Randolph D. 7897 ProgComm, 7897 S8 SessChr, [7899-35]S5, [7899-59]S9, [7899-128]SPS2
 Gligor, Alina [7913-48]SPS3
 Gligorjevic, Bojana [7929-03]S2, [7929-35]S3
 Glittenberg, Carl [7889-41]S7
Glowacki, Eric D. [7935-17]S4
Glückstad, Jesper 7950 CoChr, 7950 S2 SessChr, [7950-22]S6, [7950-24]S6
 Glukhova, Olga E. [7910-52]S11, [7911-26]S5
Gmachl, Claire F. 7953 ProgComm, 7953 S5 SessChr, [7953-40]S10, [7953-42]S11, [7953-72]S15
Gmitro, Arthur F. 7893 ProgComm, 7893 S3 SessChr, [7893-15]S3, [7893-40]S8, [7902-14]S4
 Gnanakaran, Gnana S. [7905-22]S5
 Go, Rowel [7953-55]S14
 Godard, Antoine [7912-56]S13, [7917-24]S6
 Godavarty, Anuradha [7883E-115]S5, [7883E-121]SPS1, [7896-53]S11, [7896-98]SPS1
 Godbout, Nicolas [7893-20]S4, [7914-33]S8
Goddard, Lynford [7952-13]S4
 Goderie, Thadé P. M. [7883D-79]S3
 Goeldner, Maurice [7903-117]SPS1
Goelz, Daniel [7959-13]S5
 Goette, Nadine [7920-24]S8, [7920-24]S12
 Goetz, Manfred [7918-16]S3
 Goetze, Bernhard [7905-34]S8
 Goetzinger, Stephan J. [7948-41]S10
 Goff, Donna [7896-10]S2
Gökden, Burc [7945-12]S2
 Goksör, Mattias [7903-78]S11
 Golab, Karolina [7902-37]S8
 Golan, Lior [7893-16]S4, [7906A-02]S1, [7911-20]S4
 Golant, Konstantin [7914-69]SPS3
Goldberg, Brian D. [7889-55]S8
 Goldberg, Lew [7912-34]S9, [7912-76]SPS3
 Golden, Alexander [7924-10]S2
 Golding, Ido [7902-05]S1
 Goldner, Philippe [7948-04]S1, [7948-06]S2
 Goldschmidt, Benjamin S. [7899-124]SPS2
 Goldsman, Neil [7945-103]SPS4
 Goldsmith, Jeffrey [7907-26]S4
 Goldstein, Jonathan T. [7912-55]S13
 Goldstein, Steven A. [7883F-125]S1
 Goldys, Ewa M. [7883B-57]SPS1, 7902 ProgComm, [7909-16]S5, [7909-34]S10
 Goll, Bernhard [7944-31]S9, [7944-31]S2
 Golling, Matthias C. [7912-22]S7, [7919-15]S4, [7919-18]S4, [7919-25]S5, [7919-32]S7
 Gollnick, Sandra O. 7900 ProgComm
 Goltsov, Alexander [7918-24]S4
 Golubev, Vladimir S. [7897-51]S11
 Gomer, Charles J. [7886-05]S1
 Gomes, Andrew J. [7890-28]S5
 Gomes, Joao F. [7928-15]S4
 Gomez, Eliot [7935-06]S2
 Gómez, Sergio L. [7955-08]S4
 Gómmez-Colin, Rocio R. [7958-13]S5
 Gomez-Iglesias, Alvaro [7953-15]S4
 Gonçalves, Cristina [7910-09]S2
 Gonçalves, Gonçalo [7940-39]S10
 Gonçalves Marques, Jose [7940-24]S6
 Goncharuk, Andrew I. [7950-09]S3
 Gondal, Mohammed A. 7940 S5 SessChr, 7940 S7 SessChr, 7940 S6 SessChr, [7940-38]S10
 Gong, Bing [7901-42]S9
 Gong, Qiliang [7898-38]SPS2
 Gong, Shaorun [7890-51]SPS1
 Gong, Tim [7883G-142]S2
 Gonnnet, Cédric [7914-74]SPS3
 Gono, Kazuhiro 7891 ProgComm, 7891 S5 SessChr
Gonschior, Cornell P. [7894-36]S7, [7894-37]S7
 Gonthiez, Thierry [7941-13]S3
 Gonzales, Ernie [7899-05]S1
 Gonzalez, Ana Lilia [7911-31]S6
 Gonzalez, David [7947-26]S7
 Gonzalez, Jean [7896-53]S11, [7896-98]SPS1
 Gonzalez, Leonel P. [7917-52]S12
 Gonzalez, Maria [7933-24]S6, [7933-26]S6, [7945-72]S12
 Gonzalez, Timothy [7946-62]S14, [7955-16]S5
 Gonzalez Izquierdo, Bruno [7933-59]S13
 González-Arrabal, Raquel [7916-27]S6
 Gonzalez-Gonzalez, Emilio [7930-04]S1, [7930-04]S7
 González-Herráez, Miguel [7949-45]S9
 Gonzalo, Arce [7932-17]S4
 Goodrich, Glenn P. [7906A-03]S1
 Goodwin, Bradford S. [7899-144]SPS2, [7901-41]S9
 Goodwin, Paul C. [7905-37]S8
 Goodwin, Peter M. [7905-22]S5, [7905-29]S7
 Goodwin, Richard L. [7889-71]S11, [7893-35]S1, [7893-35]S7
 Goorsky, Mark S. [7912-92]S15
 Goosen, Marius E. [7944-32]S9, [7944-32]S2, [7956B-33]S3
 Gorczyca, Izabella [7939-32]S5
Gorczyńska, Iwona M. [7885-14]S3, [7889-67]S10
Gordon, Reuven [7922-13]S4, [7929-23]S6
Gordon, Thomas E. [7914-43]S10
 Gorelikov, Ivan [7899-127]SPS2
Horodetsky, Andrei A. [7907-45]SPS2, [7957-42]SPS4, [7957-43]SPS4
 Gorodetsky, Michael L. [7913-24]S5
 Gorshkov, Vyacheslav N. [7924-15]S3
Gortych, Joseph E. WS1010 Inst
 Gorzelanny, Christian [7883A-26]S5
 Goshu, Abesalom [7935-21]S5
 Gosselaar, Peter [7883E-113]S5
 Goswami, Ankur [7926-22]S3
 Gosztola, David [7937-16]S4
 Goto, Ryuichiro [7914-15]S4
 Gotschke, Tobias [7939-02]S1
 Götte, Jörg B. [7950-28]S7
 Gottesman, Rachel E. [7901-43]S9
 Gottschall, Thomas [7914-27]S6
 Götzinger, Erich [7885-05]S1, [7885-46]S9, [7885-51]S10, [7889-29]S5, [7889-30]S5, [7889-32]S5, [7889-34]S5, [7889-64]S10
 Goulamhousen, Nadir [7893-21]S4
 Goular, Didier [7914-31]S7
 Gourevitch, Alex [7954-10]S3
 Gourley, Paul L. 7908 ProgComm
 Gouveia-Neto, Artur S. [7902-08]S2, [7912-90]SPS3, [7954-36]S10
 Gov, Nir S. [7902-54]S12
 Govindan, Vishnupriya [7899-49]S8
 Govindaraj, Kanagaraj [7895-10]S3
 Govorkov, A. V. [7945-53]S8
 Goyal, Amit [7922-03]S1
 Goyal, Anish K. [7953-57]S14
 Goyette, Thomas M. [7883A-19]S4, [7938-02]S1
 Goykhman, Ilya [7943-23]S7, [7949-28]S5
 Grabar, Alexander A. [7899-86]S7, [7923-23]S6, [7944-15]S4
 Grabherr, Martin 7952 ProgComm, 7952 S3 SessChr
 Grabolle, Markus [7910-37]S8
 Grabtchak, Serge [7894-13]S2
 Gradecak, Silvija [7920-44]SPS3
 Gradinaru, Claudiu C. [7905-14]S3, [7905-39]SPS1
 Gradkowski, Kamil [7937-05]S2
 Graef, Russell [7888-16]S2
 Graf, Benedikt W. [7889-59]S9, [7889-77]S12, [7902-04]S1
 Graf, Thomas 7913 ProgComm, [7920-34]S10, [7925-35]S5, [7925-35]S9
 Grafton, Meggie G. [7888-26]S1, [7888-26]S3, [7929-09]S3
 Graham, Paul [7925-28]S7
 Graham, Roger A. [7896-52]S11
 Grammann, Jan [7930-28]S7
 Grailiot, Hervé [7916-35]SPS3
 Grajcar, Branislav [7889-73]S11
 Gramotnev, Dmitri K. [7911-02]S1
 Grande, Marco [7946-76]SPS4
 Grandjean, Nicolas 7939 ProgComm, [7939-21]S2
 Granelli, Joseph [7902-50]S11
 Grange, Thomas [7937-07]S2
 Grant, David M. [7904-35]S7
 Grant, Gerald [7883E-100]S2
 Grant, Patricia E. [7892-02]S1
 Graser, Rainer [7884-01]S1
 Grasse, Christian [7953-40]S10, [7959-07]S3
 Grasshoff, Thomas [7930-15]S4, [7930-28]S7
 Grassi, Emmanuel [7932-09]S2
 Grasso, Daniel M. [7952-09]S3
 Grattan, Ken [7941-34]S8, [7943-16]S5
 Gravier, Julien J. [7910-29]S6
 Gray, Bonnie L. [7926-09]S3, [7926-21]SPS3, 7929 CoChr, 7929 S3 SessChr, [7929-13]S4, [7929-14]S4, [7929-33]SPS3
 Gray, Harry B. [7886-21]S5, [7902-13]S3
 Grazú Bonavía, María Valeria 7909 S2 SessChr, [7909-31]S9
 Grebel, Haim [7922-10]S3
 Grecco, Clovis [7886-39]SPS1
 Gredin, Patrick [7912-64]S15
 Green, Hadiyah-Nicole [7910-10]S2
 Green, William M. J. [7942-11]S5
 Greenberg, Joel H. [7896-03]S1, [7896-84]SPS1
 Greentree, Andrew [7948-45]S11
 Gregersen, Niels [7933-67]S12, [7933-67]S15
 Gregg, Jeff G. [7914-43]S10
 Gregory, Kenton W. 7883D Chr, 7883D S6 SessChr
 Gregory, Mark [7923-03]S1
Grein, Christoph H. [7945-59]S10
 Grein, Markus [7921-06]S2
 Grein, Matthew E. [7923-17]S5
 Greiner, Christoph M. 7941 CoChr, 7941 S9 SessChr
Greivenkamp, John E. MeetingVIP, SC690 Inst
Grek, Boris [7942-22]S8
 Griebner, Uwe 7919 S7 SessChr, [7919-35]S8
 Griepentrog, Michael [7917-51]S12
 Grier, David G. 7950 ProgComm
 Griffin, Kevin S. [7916-40]SPS3
 Griffin, Robert [7883C-156]S5, [7901-34]S7, [7901-37]S8, [7901-39]S8
 Griffiths, Gary L. [7910-38]S8
 Griggio, Paola [7894-07]S2
Grigoriopoulos, Costas P. [7920-15]S4, 7922 ProgComm, [7922-01]S1, [7922-04]S1, [7925-05]S2
Grillet, Christian [7949-03]S1
Grillot, Frederic [7933-13]S3
 Grimm, Bernd [7913-42]S5
 Grimm, Stephan [7914-66]S16
 Grimshaw, Mike [7918-01]S1, [7918-05]S1, [7918-32]S5, [7953-45]S12
 Grine, Albert D. [7953-27]S7
Grist, Samantha M. [7929-15]S4
 Griswold, Karl E. [7901-42]S9
 Grobnc, Dan [7934-13]S3
 Grodzinski, Piotr 7908 ProgComm
 Grolman, Wilko [7883C-62]S3
 Grolin, Etienne [7929-19]S5
 Gronenborn, Stephan [7952-06]S2
 Gronland, Tor-Arne PanelMember, [7928-16]S5, PanelMember, PanelMember, PanelMember
 Grönninger, Günther [7918-28]S5
 Grosnick, Dirk [7896-47]S10
 Gross, Michael C. [7914-62]S15
 Gross, Oliver [7883B-54]S4
 Gross, Simon [7883A-21]S4
 Gross, Zeev [7886-21]S5, [7902-13]S3
 Grosse, Philippe [7943-26]S8
 Großmann, Nicolas [7937-21]S5
 Grossmann, Sylvain [7918-17]S3
 Grossmann, Tobias [7888-09]S1, [7913-33]S7
 Grosso, G. [7937-72]S15
Grote, James G. TrackChr, MeetingVIP, 7935 ProgComm, [7935-06]S2

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Grounds, Miranda D. [7889-12]S2
Grover, Ginni [7904-47]S9
Grubb, Robert L. [7899-117]SPS2
Gruber, Jonas [7935-47]SPS4
Gruber, Josiah D. [7886-37]SPS1
Gruetzmacher, Detlev [7939-02]S1
Grulkowski, Ireneusz [7883E-109]S4,
[7885-14]S3, [7889-38]S6, [7889-67]
S10
Grün, Hubert [7899-110]SPS2
Grund, David W. [7953-01]S1
Grundfest, Warren S. 7890 Chr,
[7938-20]S1
Gründl, Tobias [7959-07]S3
Grundt, Jessica E. [7897-13]S3, [7897-
14]S3, [7897-15]S3
Grunwald, Rüdiger [7925-42]SPS3,
7950 ProgComm, [7950-08]S3
Gruppen, Matthew [7933-52]S12
Grütz, Andre [7894-29]S5
Gryczynski, Ignacy [7905-04]S1,
[7905-48]SPS1, [7905-49]SPS1
Gryczynski, Zygmunt K. 7905 Chr,
7905 S2 SessChr, 7905 S SessChr,
7905 S7 SessChr, [7905-04]S1,
[7905-48]SPS1, [7905-49]SPS1,
[7911-48]SPS1
Gu, Bo 7920 Chr, 7920 S1 SessChr,
7920 S3 SessChr, 7921 ProgComm
Gu, Ling [7883G-145]S3, [7885-70]
SPS2, [7897-05]S1, [7897-10]S2,
[7897-33]S7, [7908-17]S3, [7925-02]
S1
Gu, Min 7903 ProgComm, [7927-16]
S4, 7934 ProgComm, [7942-06]S3
Gu, Shi [7883D-89]S5, [7883D-94]S6,
[7883G-138]S2
Gu, Tingyi [7942-16]S7
Gu, Xun 7925 ProgComm, 7925 S8
SessChr, [7925-31]S7
Gu, Yalong [7924-02]S1, [7924-03]S1
Gu, Yueqing 7910 ProgComm, 7910
S2 SessChr, [7910-16]S4, [7910-26]
S5
Guan, Baolu [7952-24]S6
Guan, Guangying [7898-43]SPS2
Guan, Xingguo [7918-05]S1, [7953-45]
S12
Guan, Yu [7897-12]S3
Guardalben, Mark J. [7916-15]S3
Guardascione, A. [7909-43]SPS2
Gudibande, Rajatash [7902-68]SPS2
Guenin, Bruce [7944-01]S1
Guenther, James K. 7952 Chr, 7952 S5
SessChr, [7952-08]S3
Guerrin, Nicolas [7918-30]S5
Guerra, Maria [7900-08]S3
Guerreiro, Paulo T. [7914-95]S1
Guerrieri, Fabrizio [7905-01]S1, [7942-
20]S7
Gug, Sylvestre [7903-117]SPS1
Gugel, Hilmar F. [7905-32]S8
Guha, Shekhar [7917-52]S12
Guihen, E. [7898-29]S5
Guillemet, T. [7921-12]S3
Guillemoles, Jean-Francois F. [7933-
03]S1
Guillermin, M. [7920-29]S9
Guillet, Yannick [7937-15]S4
Guilloid, Renie [7890-50]SPS1
Guillon, Herve [7934-33]SPS4
Guina, Mircea [7919-04]S1, [7941-28]
S7
Guisinger, Nathan P. [7940-29]S7
Guizal, Brahim [7939-34]S5
Guldbrand, Stina [7903-78]S11, [7903-
98]SPS1
Gulden, Karlheinz H. 7952 ProgComm
Guldiken, Rasim O. [7929-31]SPS3
Guldemann, Benedikt PanelMember,
PanelMember, [7930-29]S7, [7930-
36]S6, [7930-36]S1, [7930-36]S5,
PanelMember, PanelMember
Guleypoglu, Erdem [7899-154]SPS2
Gulinatti, Angelo [7905-02]S1, [7945-
100]S17
Gulsen, Gultekin 7892 ProgComm,
7892 S4 SessChr, [7892-20]S4,
[7892-37]SPS1, [7892-38]SPS1,
[7892-40]SPS1, [7902-80]SPS2
Gülsoy, Murat [7884-19]S6, [7897-06]
S1, [7901-20]S4, [7902-10]S3
Gulvady, Ranjit [7902-51]S11
Gunadi, Sonny [7899-98]SPS2
Gunapala, Sarath D. [7945-63]S11,
[7945-67]S11
Gunn, L. Cary 7943 ProgComm
Gunnarsson, Linda [7897-37]S8
Gunning, Patrick T. [7905-39]SPS1
Gunn-Moore, Frank J. [7925-10]S3
Günter, Peter P. 7917 ProgComm,
7917 S5 SessChr
Guo, Baiming [7952-15]S4
Guo, Chunlei 7937 S11 SessChr,
[7937-22]S5
Guo, Dingkai [7953-62]S15, [7953-69]
SPS4, [7953-70]SPS4
Guo, H. [7945-33]S5
Guo, Han-Wen [7903-110]SPS1
Guo, James [7918-30]S5
Guo, Jin [7900-11]S4
Guo, Junpeng [7911-15]S3
Guo, Kevin [7910-38]S8
Guo, L. Jay [7899-83]S12, [7899-102]
SPS2, [7899-146]SPS2, [7899-151]
SPS2, [7927-12]S3, [7933-79]SPS4,
[7941-23]S6, [7946-72]SPS4, 7947
ProgComm, [7956B-29]S3
Guo, Lianyu [7907-26]S4, [7945-88]
S15
Guo, Min [7928-07]S3
Guo, Qiongyu [7883C-174]S4
Guo, Xia [7952-24]S6
Guo, XiaoTao [7940-18]S5
Guo, Yunbo [7888-23]S1, [7888-23]
S3, [7899-83]S12
Guo, Zijian [7899-09]S2, [7899-23]S4,
[7899-31]S5, [7899-36]S6, [7899-
116]SPS2, [7899-117]SPS2
Gupta, Praveena [7897-38]S8
Gupta, Rajiv [7901-07]S2
Gupta, S. K. [7940-05]S2, [7940-47]
SPS4
Gupta, Sagar [7899-125]SPS2
Gupta, Shantanu [7912-02]S1, [7914-
06]S2, [7923-12]S4, [7924-17]S3
Gupta, Sharad [7910-27]S5, [7910-45]
S10
Gupta, Vipin P. [7927-25]S6
Gur, Aviram [7905-30]SPS1
Gurden, Hiram [7902-06]S2
Gurfinkel, Yuri I. 7906A ProgComm
Gurjar, Rajan S. [7892-19]S4, [7908-29]
S4, [7912-88]SPS3
Guryanov, Aleksey N. [7914-75]SPS3
Gustafsson, Mats G. L. 7904
ProgComm, 7904 S7 SessChr
Gustavsson, Johan [7952-19]S5,
[7959-07]S3
Gutbrod, Raphael [7905-10]S2
Güther, Reiner [7917-02]S5, [7917-02]
S1
Gutierrez, Anibal [7883E-115]S5
Gutt, Richard [7954-24]S7
Guyot-Sionnest, Philippe [7937-16]S4
Guzman, Alvaro [7947-26]S7
Gweon, Dae-Gab [7904-54]SPS2,
[7904-55]SPS2
Gwilliam, Russell M. [7943-35]S11,
[7947-28]S7
Gwo, S. [7937-35]S8
- Gwo, Shangir [7937-33]S8, 7939 S13
SessChr, [7946-73]SPS4, [7939-06]
S12, [7939-81]SPS4, [7939-84]
SPS4, [7945-36]S5, [7949-22]S5
Gyongyosi, Laszlo [7948-26]S6
Gyulkhandanyan, Aram G. [7886-40]
SPS1
Gyulkhandanyan, Grigor V. [7886-34]
SPS1, [7886-40]SPS1
Gyulkhandanyan, Lusine Z. [7886-40]
SPS1
-
- ## H
- Ha, Jinyong [7883D-82]S3
Ha, Na Young [7955-30]SPS4
Ha, S. K. [7945-91]S16
Ha, Seunghan [7899-57]S9
Haamann, Daniel [7883C-178]S3
Haas, Beth [7905-23]S6
Haas, Gilbert J. [7913-05]S2, [7913-11]
S3
Haase, Otto W. 7955 ProgComm
Haavardsholm, Trym V. [7891-31]S7
Habermeier, Hanns-Ulrich 7940
ProgComm
Hack, Michael G. [7956A-18]S5
Haden, Jim [7918-01]S1, [7953-45]
S12, [7953-49]S13
Hader, Jörg [7919-22]S5, [7933-50]
S11, [7954-15]S4
Hadfield, Robert H. [7945-97]S17
Hadjar, Yassine [7941-16]S4
Hadjigeorgiou, Katerina [7890-47]S8,
[7911-03]S1
Hädrich, Steffen 7914 ProgComm,
[7914-27]S6
Haeblerle, Henry [7910-12]S3
Haeblerle, Olivier [7904-58]SPS2
Hæggeström, Edward [7928-08]S3
Haemmerich, Dieter [7901-14]S4
Haering, Sigfried [7925-09]S3, [7925-
16]S4
Hafez, Amr [7930-17]S4
Hägele, Daniel [7937-36]S8
Hagen, Axel J. [7896-47]S10
Hagen, Clemens [7884-17]S6
Hagen, Nathan A. [7892-05]S1
Hagen, Rainer [7957-16]S4
Hagen-Eggert, Martin [7889-05]S1,
[7889-60]S9, [7889-82]S12, [7907-
42]S6
Hagge, Juergen [7930-24]S6
Haghany, Hosain [7891-02]S1
Haglund, Åsa [7952-19]S5, [7959-07]
S3
Haglund, Richard F. 7920
ProgComm, 7922 ProgComm
Hahn, Eun-Joo [7917-60]SPS3
Hahn, Kai [7926-12]S4
Hahn, Stephen M. [7886-20]S5
Haïdar, Riad [7945-75]S13
Hainberger, Rainer [7943-17]S5
Haines, Andrew I. [7927-01]S1
Hains, Christopher P. [7919-03]S1
Haisen, Ta [7905-03]S1
Haj-Hosseini, Neda [7883E-98]S1
Hajjaboli, Farshid [7946-62]S14
Hajian, Arsen R. [7890-39]S7, [7890-
56]SPS1, [7894-26]S5, [7904-15]S4,
[7907-17]S3, [7908-11]S2
Hajnal, Jo V. [7896-65]S13
Hakuta, Kohzo [7913-44]S9, 7949
ProgComm, [7949-11]S3
Halder, Nilanjan [7943-04]S2
Halidi, Nadia [7889-57]S9
Halimeh, Jad C. [7946-25]S6
Halir, Robert [7888-04]S1, [7941-39]
S9, [7943-15]S5
- Hall, Daniel B. [7888-24]S1, [7888-24]
S3
Hall, Michael [7883E-115]S5, [7883E-
121]SPS1
Hall, Thomas [7913-15]S4
Hall, Trevor [7941-39]S9
Hallacoglu, Bertan [7896-07]S2
Haller, Merrick C. 7924 ProgComm
Haloui, Hatim [7920-30]S9
Halsall, Matthew P. [7947-28]S7
Halter, Ryan J. [7901-29]S6
Hamada, Shimpei [7946-06]S2, [7946-
18]S4
Hamann, Bernd [7885-11]S2
Hamann, Franziska [7910-37]S8
Hamblin, Michael R. 7887 Chr, 7887
S1 SessChr, [7887-06]S2, [7887-08]
S2, [7887-10]S2, 7900 ProgComm,
7900 S1 SessChr, [7900-02]S1
Hamdoon, Zaid [7883C-151]S7,
[7883C-152]S7, [7883C-153]S5,
[7883C-154]S8, [7883C-155]S8
Hamel, Christian [7883G-137]S2
Hamid, Hakim [7945-29]S4
Hamilton, Charles E. [7918-32]S5
Hamilton, Craig [7903-99]SPS1, [7919-
33]S7
Hamilton, Eric [7883C-157]S5
Hamm, Joachim [7949-24]S5
Hammer, Daniel X. 7885 ProgComm,
7885 S8 SessChr, [7885-08]S2,
[7885-40]S8, [7885-42]S8, [7885-04]
S1, [7896-09]S2, [7904-21]S5
Hamming-Vrieze, O. [7883C-164]S5
Hammock, Bruce [7908-26]S4
Hampp, Norbert A. [7885-71]SPS2
Hamra, Patricia [7908-32]SPS2
Hamza, Ahmed M. [7890-54]SPS1
Hamza, Aya M. [7890-54]SPS1
Hamza, Bashar [7888-03]S1
Hamza, Mostafa [7890-54]SPS1
Hamza, Yahya M. [7890-54]SPS1
Hamzavi, Iltefat 7883A ProgComm,
7883A S5 SessChr
Han, Arum [7892-26]SPS1
Han, Dehui [7955-34]S7
Han, Il Ki [7945-91]S16
Han, Jason J. [7905-29]S7
Han, Jin-Hee [7908-26]S4
Han, Jung 7945 ProgComm, 7945
S10 SessChr
Han, Ming-Yong 7909 S11 SessChr,
[7909-04]S1
Han, Sanghyun [7939-66]SPS4
Han, Sangyeob [7890-34]S6, [7892-29]
SPS1
Han, Seung-Hwan [7956B-34]S3
Han, Wonseok [7945-13]S3
Han, Young-Geun [7894-44]S8, [7934-
26]S6, [7934-28]S7, [7934-34]SPS4,
[7934-35]SPS4
Hanáček, František [7923-14]S4
Hanada, Sanshiro [7909-09]S3
Hanada, Tatsuyuki [7923-10]S3, [7923-
18]S5
Hanada, Yasutaka [7920-42]SPS3,
[7920-50]SPS3, [7929-20]S5
Hance, Dalton [7886-26]S6, [7896-10]
S2
Hand, Duncan P. [7894-34]S6, [7913-
12]S3, 7921 ProgComm
Handel, Peter H. [7939-30]S4, [7939-
64]SPS4, [7939-88]SPS4
Hands, Philip J. W. [7955-11]S4
Hanein, Yael [7945-82]S14
Hänell, Jens [7921-29]S7, [7921-29]S11
Hangauer, A. [7945-09]S2
Hanke, Tobias [7903-30]S5
Hankla, Brian J. [7915-11]S3
Hanley, Luke [7935-24]S6
Hanley, Neil [7929-07]S2

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Hanlon, Eugene [7907-26]S4, [7945-88]S15
- Hanna, Jun-ichi 7955 ProgComm, [7955-02]S1
- Hannah, Alexander** [7899-71]S11
- Hannah, Mark [7954-39]S10
- Hänsch, Theodor W. [7914-54]S14, [7948-15]S4
- Hansen, Anja** [7885-25]S5
- Hansen, Kim Per [7914-80]SPS3
- Hanson, Ronald [7948-30]S8
- Hanson, Willard** [7897-54]S11
- Hansotte, Eric J.** [7932-06]S2
- Hao, Xin [7916-33]S7
- Hao, Zhenyu [7933-11]S3
- Hara, Kazutaka [7958-16]S7
- Harada, Masaki [7917-08]S3
- Harada, Yoshinori [7897-40]S8, [7902-12]S3
- Haraguchi, Eisuke [7923-18]S5
- Harbert, Corey A. [7897-35]S7
- Harding, Kevin G.** WS609 Inst
- Harding, Richard [7956B-35]S3
- Hargadon, Andrew B. MeetingVIP
- Harhira, Aissa [7885-36]S7
- Harima, Hiroshi [7939-59]SPS4
- Haring, Kimmo [7941-28]S7
- Harinipriya, S. [7940-57]S12
- Hariri, Ilnaz [7884-11]S5
- Hariri, Sepideh** [7885-48]S9, [7889-19]S3
- Harjanne, Mikko [7941-28]S7, [7943-30]S9
- Harke, Benjamin [7927-08]S2
- Harker, A. [7914-39]S10
- Harlaar, Niels J. [7899-04]S1
- Harmand, Jean-Christophe [7919-31]S7
- Harmelin, Alon [7898-19]S3
- Harms, Fabrice [7895-08]S2
- Harnois, David [7914-83]SPS3
- Harper, Paul [7914-112]SPS3
- Harrington, J. A.** [7894-42]S8, [7894-43]S8
- Harrington, Jim 7894 S1 SessChr, [7894-47]S6
- Harris, Brent T. [7883E-96]S1, [7883E-99]S1
- Harris, David M. 7884 ProgComm
- Harris, James S. [7944-03]S1, [7949-17]S4
- Harris, Mitchell [7952-02]S1
- Harris, R. Luke** [7883F-123]S1
- Harris, Stephen E. [7949-35]S7
- Harrison, Christopher K.** 7928 ProgComm
- Harrison, Richard K.** [7925-12]S3, [7925-16]S4
- Harrison, Tyler** [7899-16]S3, [7899-132]SPS2, [7899-137]SPS2, [7899-147]SPS2, [7899-148]SPS2, [7899-153]SPS2
- Hart, A. John [7899-151]SPS2
- Harter, Donald J.** SympChair
- Härter, Daniel [7932-13]S3
- Harth, Florian [7912-37]S10, [7912-37]S9
- Harti, Ingmar [7917-44]S10
- Hartmann, David [7954-31]S9
- Hartmann, Peter** MeetingVIP
- Hartmann, Peter [7914-73]SPS3
- Hartov, Alexander [7886-24]S6
- Hartzell, Allyson 7928 ProgComm
- Haruna, Masamitsu [7889-106]SPS2
- Harvey, Karen N. [7957-17]S4, [7957-18]S4
- Harwood, Adrian [7897-49]S10
- Hasan, Tayyaba 7886 CoChr, 7886 S1 SessChr, [7886-02]S1, [7886-06]S1, [7886-07]S2, [7886-08]S2, [7886-09]S2, [7886-18]S4, [7886-27]S7, [7886-37]SPS1, [7910-01]S1, [7910-49]S10
- Hasan, Zameer U.** TrackChr, 7948 Chr, 7948 S7 SessChr, 7948 S2 SessChr, [7948-01]S1, [7948-07]S2, 7951 ProgComm, [7951-13]S4
- Hasegawa, Hiroshi [7959-17]S6, [7959-17]S6, [7959-17]S6
- Hasegawa, Kazuo [7934-48]SPS4
- Hasegawa, Satoshi [7920-28]S8, [7920-28]S12, [7925-07]S2
- Hasegawa, Yoshinori [7889-95]SPS2
- Hashimoto, Mamoru** [7903-46]S7, [7903-86]SPS1
- Hashimoto, Masafumi [7937-37]S8
- Hashimoto, Tomohiro [7920-46]SPS3
- Hassan, K. [7945-40]S6
- Hassan, Mahbub 7958 ProgComm
- Hassan, Moinuddin [7896-72]S15, [7910-35]S8
- Hassanpour, Mahlega [7883E-119]S6
- Hassebrook, Laurence** [7932-11]S3
- Hasselbeck, Michael [7951-12]S3
- Hastie, Jennifer E. [7919-01]S1
- Hatami, Fariba [7913-23]S5
- Hatami, Nisa [7883D-86]S4
- Hatano, Ben [7897-66]SPS2
- Hathaway, Mark W.** [7889-88]SPS2
- Hatheway, Alson E. SC781 Inst
- Hattasan, Nannicha [7945-58]S10
- Hatton, Benjamin D. [7927-02]S1, [7946-19]S5
- Haueisen, Jens [7889-73]S11
- Haugen, Harold K. [7883F-127]S2
- Haupt, Matthias** [7959-08]S3
- Haupt, Oliver [7921-30]S7, [7921-30]S11
- Haupt, Sebastian [7919-13]S3
- Haus, Joseph W.** [7914-106]SPS3
- Hauser, Mario [7888-09]S1, [7913-33]S7
- Hausken, Tom MeetingVIP
- Hausmann, Birgit M. [7946-09]S3
- Hausmann, Katharina [7914-76]SPS3, [7914-86]SPS3
- Havrilla, David L. [7912-16]S4
- Hawkeye, Matthew [7946-69]SPS4
- Hawkins, Aaron R. 7927 ProgComm, [7949-30]S6
- Hawkins, Bobby [7952-08]S3
- Hawthorne, Robert A. [7952-08]S3
- Hay, Randall S. [7912-66]S15
- Hay, William** [7903-44]S7
- Hayasaki, Yoshio** 7920 ProgComm, [7920-28]S8, [7920-28]S12, [7925-07]S2
- Hayashi, Noriyuki [7957-36]SPS4
- Hayashi, Shin'ichiro [7897-12]S3
- Hayashi, Tomoyuki [7883D-92]S6
- Hayashida, Tetsuya [7934-19]S5
- Hayau, Jean-François [7933-11]S3
- Hayenga, Jon W. [7904-20]S4
- Hayes-Gill, Barrie R. [7891-12]S4, [7897-44]S9, [7899-47]S7
- Haylock, Thomas M.** [7904-15]S4, [7907-17]S3
- Haynam, Christopher A. 7916 ProgComm, [7916-16]S4, [7916-26]S6
- Haynes, Nicholas [7912-47]S12
- Haynes, Sharina [7947-12]S3
- Hayrapetyan, Karen [7908-02]S1
- Häyrynen, Teppo [7933-65]S12, [7933-65]S15
- Hays, Alan D. [7912-34]S9
- Hayward, Joseph E. [7883F-127]S2, [7890-14]S3
- Hazama, Hisanao [7902-74]SPS2, [7917-22]S6
- Hazeghi, Aryan [7946-68]SPS4
- Hazelwood, Vikki [7890-13]S3
- Haziot, A. [7945-01]S
- Hazu, Kouji [7937-34]S8
- He, Bin [7906A-18]SPS2
- He, Chieh-Lun [7939-84]SPS4
- He, Diwei [7891-12]S4, [7899-47]S7
- He, Jian-Jun** [7943-06]S3, [7943-34]S11
- He, Jinping [7912-78]SPS3, [7912-81]SPS3
- He, Jr-Hau [7927-46]SPS3
- He, Lina [7913-37]S8
- He, Min [7931-07]S3
- He, Sailing** [7946-46]S11
- He, Wei [7905-17]S4
- He, Xiangnan [7921-12]S3
- He, Yiping [7953-33]S9
- Headley, Clifford 7914 ProgComm, 7914 S3 SessChr
- Headley, William R. [7943-25]S8
- Heaney, John [7901-29]S6
- Heaven, Michael C. 7915 Chr, [7915-04]S1, [7915-09]S2, [7915-13]S3
- Hebden, Jeremy C.** 7896 ProgComm, [7896-32]S8
- Hebeisen, Monika [7902-97]S
- Hecht, Bert [7926-04]S2
- Heck, John [7927-30]S7
- Heck, Martijn J. R. [7943-29]S9
- Heckenberg, Norman R. [7950-34]S4
- Heckl, Oliver H. [7912-22]S7
- Hedstrom, Grady [7896-10]S2
- Heebner, John E. 7916 ProgComm, [7916-16]S4, [7916-25]S5
- Hefermehl, Lukas John [7883B-54]S4
- Hegeler, Frank [7916-31]S7
- Hehl, Gregor [7903-35]S6
- Heidari, Andrew E. [7893-27]S5
- Heidari, Babak 7927 ProgComm
- Heidari, Esmaeil [7883E-108]S4
- Heideman, René G. [7928-20]S6, [7928-20]S1, [7928-20]S5
- Heidrich, Helmut 7941 ProgComm
- Heidt, Gerald L. 7957 ProgComm, 7957 S5 SessChr, 7957 S6 SessChr
- Heijblom, Michelle [7906B-34]S3
- Heikenfeld, Jason C.** [7929-12]S4, 7930 ProgComm, 7930 S8 SessChr, [7956A-07]S2
- Heikkilä, Oskari** [7933-40]S9
- Heikkinen, Ville** [7928-08]S3
- Heilemann, Mike [7905-35]S8
- Heindel, Tobias [7947-01]S1
- Heine, Angela [7896-02]S1
- Heine, Frank F. [7923-03]S1
- Heinemann, Dag** [7925-14]S4, [7925-18]S4
- Heinemann, Stefan W.** 7918 ProgComm, 7918 S5 SessChr, [7918-21]S4
- Heiniger, Adam** [7888-20]S1, [7888-20]S3
- Heinisch, Josef [7926-13]S4
- Heinmiller, Andrew [7899-84]S12
- Heinrich, Arne [7883A-21]S4, [7884-17]S6, [7912-50]S12
- Heinrich, Wolfgang [7953-47]S12
- Heinz, Tony F.** 7922 ProgComm
- Heinzen, Daniel J. [7932-07]S2
- Heise, Bettina** [7889-34]S5
- Heise, Gerhard [7925-33]S5, [7925-33]S9
- Heissler, Stefan [7921-23]S6, [7921-24]S6
- Heist, Peter [7918-22]S4
- Heisterkamp, Alexander** [7883C-184]S7, [7897-03]S1, [7911-17]S4, 7925 Chr, 7925 S3 SessChr, 7925 S7 SessChr, [7925-14]S4, [7925-18]S4
- Heitzmann Gabrielli, Lucas [7959-25]S7
- Held, Marie** [7902-25]S6
- Hell, Stefan W. MeetingVIP, [7895-01]S, 7903 ProgComm, [7904-52]S10, [7905-24]S6, [7905-36]S8, [7905-100]S, [7948-32]S8
- Hellen, Adam [7883F-129]S2
- Hellesø, Olav G. [7950-23]S6, [7902-20]S5
- Hellmann, G. P. [7927-01]S1
- Hellwig, Christian [7925-33]S5, [7925-33]S9
- Helm, Manfred [7937-07]S2
- Helm, P. Johannes** [7903-107]SPS1
- Helmbrecht, Michael A.** [7931-07]S3
- Helmy, Amr S. [7941-38]S8
- Helvajjan, Henry TrackChr, PanelMember
- Hemmati, Hamid** 7923 Chr, 7923 S1 SessChr, [7923-11]S3, [7923-28]S8
- Hemmer, Michaël** [7912-31]S9
- Hemmer, Philip R.** 7948 Chr, 7948 S3 SessChr, [7948-02]S1, 7949 Chr, [7949-12]S3, [7949-27]S5
- Hemmingsson, Carl [7939-20]S2
- Hempel, Thomas [7939-05]S1, [7939-41]S7
- Hendargo, Hansford C. [7889-36]S6
- Henderson, Angus V. 7912 S6 SessChr, 7917 ProgComm, 7917 S2 SessChr
- Henderson, Barbara W. [7886-49]SPS1
- Henderson, Deborah J. [7904-10]S3
- Henderson, Marcus H. [7890-36]S7
- Hendow, Sami T.** [7914-95]S1
- Hendrik, Jaehme [7952-10]S3
- Hendriks, Benno H. W. [7907-44]SPS2
- Hendrikse, Jan [7890-39]S7, [7890-56]SPS1, [7894-26]S5, [7904-15]S4, [7907-17]S3, [7908-11]S2
- Hendry, Euan [7937-12]S3
- Henesian, Mark A. [7916-30]S7
- Hengesbach, Stefan [7918-09]S2
- Henneberger, Fritz 7933 Chr
- Hennessy, Ricky J. [7892-26]SPS1
- Hennig, Georg [7883E-107]S3
- Hennig, Guido 7920 Chr, 7920 S1 SessChr, 7920 S3 SessChr
- Hennig, Petra [7918-27]S5
- Henning, Albert K. SympComm, 7928 ProgComm, 7929 ProgComm
- Hennings, Leah [7901-34]S7, [7901-37]S8
- Henry, Leanne J. [7914-09]S3
- Henry, Olivier [7916-35]SPS3
- Hens, Zeger [7937-04]S1
- Henzen, Alex 7956A ProgComm, 7956A S5 SessChr, [7956A-10]S3
- Her, Tsinghua [7913-35]S7
- Herbani, Yuliaty [7922-08]S2, [7922-19]SPS3
- Herbsommer, Juan A. [7933-32]S7, [7939-37]S6
- Herbst, Johannes [7945-19]S3
- Herbst, Ludolf [7920-37]S10
- Hercchak, Steven [7908-24]S4
- Herczfeld, Peter R. 7936 ProgComm, [7936-15]S4
- Herda, Robert [7914-80]SPS3
- Herde, Ashley E. [7885-10]S2
- Herman, Brian A. 7903 ProgComm
- Herman, Peter R.** SympChair
- Herman, Warren N. 7936 ProgComm, [7936-07]S2
- Hermann, Boris [7889-06]S1, [7889-07]S2, [7889-41]S7
- Hermanns, Thomas [7883B-54]S4
- Hermannstaedter, Claus [7933-43]S10
- Hermier, Jean-Pierre [7947-08]S3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Hermosa, Nathaniel P. [7950-14]S4
Hernandez, Sonia L. [7896-43]S9
Hernandez, Vincent J. [7923-06]S1
Hernandez-Figueroa, Hugo E. [7959-25]S7
Hernández-Nava, Pablo [7958-13]S5
Hernandez-Palacios, Julio E. [7891-29]S7
Héroux, Jean Benoit [7944-09]S3
Herrmann, Jens [7933-50]S11
Hershman, Dawn [7896-55]S12
Hertel, Tobias [7937-65]S14
Herten, Dirk-Peter [7905-03]S1
Hertsch, Susanne [7918-23]S4
Hervé, Lionel [7892-18]S4, [7895-23]S4, [7896-25]S5, [7896-38]S8, [7896-64]S13
Herzig, Hans Peter [7941-49]S9, [7946-45]S11
Herzog, Eva [7899-04]S1, [7899-38]S6, [7899-39]S6
Hess, Ortwin 7949 ProgComm, [7949-24]S5
Hessenius, Chris [7919-05]S1, [7919-08]S2, [7945-08]S2
Hessler, Thomas [7902-97]S
Heuer, Axel M. [7913-07]S2, [7953-51]S13
Heuken, Michael 7954 ProgComm, 7954 S6 SessChr, [7954-17]S5, [7954-32]S9
Heussner, Nico [7912-59]S14
Heverhagen, Johannes T. [7892-30]SPS1
Hewak, Daniel [7934-06]SPS4
Hewko, Mark [7883D-7]S1, [7883D-80]S3, [7883D-87]S5, [7884-08]S4, [7884-15]S5, [7903-40]S6
Hextrum, Shannon K. [7886-09]S2
Heymer, Andrea [7897-46]S9
Hibbs-Brenner, Mary [7883G-142]S2, [7952-07]S2
Hibst, Raimund [7884-01]S1
Hickmann, Jandir M. [7900-14]S4, [7934-12]S3
Hicks, Adam J. [7895-04]S1, [7915-02]S1, [7915-03]S1
Hidai, Hirofumi [7925-05]S2
Hidenori, Iwata [7943-50]SPS4
Hiebert, Wayne K. [7929-29]S7
Hielscher, Andreas H. [7890-20]S4, 7896 ProgComm, [7896-18]S4, [7896-43]S9, [7896-55]S12, [7896-71]S15, [7896-91]SPS1
Hienand, Geoffroy [7906A-07]S2
Hiero, Adrian [7940-30]S8, [7947-26]S7
Hierzberger, Peter [7889-34]S5
Higashi, Kentaro [7957-45]SPS4
Higashihata, Mitsuhiro [7922-02]S1, [7940-12]S3
Higashino, Takeshi [7958-11]S5, [7958-12]S5, [7958-16]S7
Higashiya, Atsushi [7937-55]S12
Higgins, Brendon L. [7948-10]S3
Hilbert, Michael [7905-34]S8
Hilbich, Daniel D. [7926-21]SPS3, [7929-14]S4
Hild, Konstanze [7953-04]S1
Hildebrandt, Niko 7909 ProgComm, [7909-03]S1, [7909-12]S4, [7909-27]S8
Hilger, Ingrid [7910-37]S8
Hill, Brian [7891-02]S1
Hill, Cory J. [7945-63]S11, [7945-67]S11
Hill, Diana [7909-03]S1
Hillebrands, Jan-Luuk [7899-04]S1
Hillel, Alexander T. [7883C-174]S4
Hiller, Karla [7930-18]S4
Hillman, Elizabeth M. C. [7883G-146]S1
Hillman, Timothy R. [7889-119]SPS2, [7904-41]S8
Hillmann, Dierck [7889-60]S9, [7889-82]S12, [7907-42]S6
Hillrichs, Georg [7894-36]S7, [7894-37]S7
Hiltsz, Laurent 7916 ProgComm
Hiit, Jonas [7959-01]S, [7959-01]S, [7959-01]S
Hiltz, Jonathan [7946-62]S14
Himmel, Michael E. [7905-26]S5
Himmelreich, John [7917-72]SPS3
Hines, John W. [7929-27]S7
Hira, Kazutaka [7944-15]S4
Hiraga, Takashi [7935-35]S9
Hiraiwa, Koji [7952-03]S1
Hiramatsu, Kazumasa [7939-59]SPS4, [7939-62]SPS4
Hirano, Atsuya [7956B-31]S3
Hirano, Nobuyuki [7917-62]SPS3, [7917-63]SPS3
Hirano, Yoshihito [7923-18]S5
Hirao, Kazuyuki [7920-38]S10, [7950-24]S6
Hirasawa, Takeshi [7899-105]SPS2, [7899-108]SPS2, [7899-111]SPS2
Hirata, Kazuya [7921-20]S5
Hiroaki, Adachi [7937-18]S4
Hiromoto, Takuya [7920-10]S3, [7920-41]SPS3
Hiro-Oka, Hideaki [7885-30]S6, [7889-70]S11
Hirose, Futoshi [7885-39]S8
Hirschberg, Henry [7883C-173]S5, 7883E Chr, 7883E S SessChr, 7883E S1 SessChr, 7883E S6 SessChr, [7883E-101]S2, [7883E-102]S2
Hir?, Petr [7912-73]SPS3
Hirson, Desmond [7899-84]S12
Hirst, Evan R. [7898-12]S2, [7898-13]S2
Hirth, Thomas [7903-87]SPS1
Hitt, Mary [7899-52]S8
Hitzemann, Ole [7939-86]S7
Hitzenberger, Christoph K. [7885-05]S1, [7885-46]S9, [7885-51]S10, 7889 ProgComm, 7889 S11 SessChr, [7889-29]S5, [7889-30]S5, [7889-32]S5, [7889-34]S5, [7889-64]S10, [7889-115]SPS2, [7896-72]S15
Hlawatsch, Nadine [7929-01]S1, [7929-01]S3
Hnatush, Svitlana O. [7902-60]SPS2
Ho, Arthur 7885 Chr, 7885 S SessChr, 7885 S SessChr, [7885-34]S7
Ho, Ho-Pui A. [7911-11]S2
Ho, I-Chen [7917-15]S5
Ho, Jia-Show [7935-51]SPS4
Ho, Jun-Hui [7896-30]S7, [7896-79]S16, [7898-40]S2
Ho, Jyh-Jier [7935-51]SPS4
Ho, Kai-Ming [7954-48]SPS4
Ho, Ron [7944-10]S3
Ho, Seng-Tiong [7934-27]S6
Ho, Shu-Te [7933-78]SPS4
Ho, W. Lyn [7898-29]S5
Ho, Wen-Jeng [7934-49]SPS4
Ho, Yi-Ching [7884-06]S2, [7884-22]SPS1
Ho, Yi-Yun [7897-47]S10
Hoang, Minh-Anh [7945-62]S10
Hoang Thi, Khuyen [7935-30]S8
Hobbs, Douglas [7946-35]S8
Hochberg, Michael MeetingVIP, [7917-46]S11, [7927-03]S1, 7936 ProgComm, [7936-05]S2
Hode, Lars [7887-02]S1
Hode, Tomas L. M. [7887-02]S1, 7900 ProgComm, 7900 S3 SessChr, [7900-05]S2, [7900-08]S3, [7900-09]S3, [7900-10]S3
Hodges, Aaron L. [7918-32]S5
Hodges, Jonathan S. [7913-23]S5
Hodgkinson, Jane [7952-14]S4
Hodgson, Norman SC752 Inst, 7912 Chr, 7912 S10 SessChr, [7912-18]S6, [7912-18]S2, 7914 S9 SessChr, 7919 ProgComm, 7919 S3 SessChr
Hoebbers, F. [7883C-164]S5
Hoefler, Aline [7889-08]S2
Hoefler, Thomas [7919-13]S3
Hoelzer, Philipp [7914-22]S6
Hofer, Bernd [7883A-14]S3, [7885-33]S6, [7885-44]S9, [7889-06]S1, [7889-41]S7, [7892-10]S2, [7897-49]S10
Hofer, David [7935-15]S4
Höfer, Marco [7912-25]S7
Hoffman, Randy L. [7956A-03]S1
Hoffman, Samuel M. [7931-12]S5
Hoffmann, Axel [7939-22]S2, [7939-40]S7, [7939-86]S7, 7940 ProgComm, [7940-04]S1, 7947 ProgComm
Hoffmann, Claudia [7892-10]S2
Hoffmann, Dirk [7947-20]S5, [7953-61]S15
Hoffmann, Hans-Dieter 7912 ProgComm, 7912 S3 SessChr, [7912-25]S7, [7912-28]S8, [7912-60]S14, [7918-09]S2
Hoffmann, Katrin [7905-50]SPS1, [7910-37]S8
Hoffmann, Marc [7939-22]S2
Hoffmann, Martin [7919-18]S4, [7919-25]S5, [7919-33]S7
Hoffmann, Martin [7931-10]S4
Hoffmann, Sebastian [7960-21]S5
Hoffmann, Thomas [7953-47]S12
Hoffmann, Uwe [7954-33]S9
Höfling, Sven [7945-14]S3, [7945-19]S3, [7947-01]S1, [7948-29]S7
Hofman, Erik [7902-44]S9
Hofmann, Holger F. [7948-10]S3, [7948-16]S4
Hofmann, M. [7940-07]S2
Hofmann, Martin R. [7937-27]S6, [7939-79]SPS4, [7952-10]S3
Hofmann, Ulrich G. [7883E-11]S4
Hofmann, Ulrich [7930-24]S6
Hofmann, Werner [7952-16]S5, [7952-18]S5
Hoga, Morihisa [7957-22]S5
Hogan, William [7952-07]S2
Hogg, Richard A. [7889-91]SPS2, [7919-20]S4, [7953-02]S1, [7953-64]SPS4, [7953-65]SPS4
Hogset, Anders [7883C-153]S5
Hojjatoleslami, Seyyed A. [7904-39]S8
Hojo, Tatsuya [7897-40]S8
Holc, Katarzyna [7953-17]S4
Holden, Brien [7885-34]S7
Holl, Mark R. [7902-58]S13, [7929-26]S6
Hollenberg, Lloyd [7948-45]S11
Hollingsworth, Jennifer A. 7909 ProgComm, [7909-22]S7, [7909-41]S13
Hollmann, Joseph L. [7904-43]S9
Holmes, Andrew S. 7920 ProgComm
Holmes, Christina [7898-32]S5
Holmes, Mark J. [7937-38]S8
Holt, Robert [7892-41]SPS1
Holwitt, Eric A. [7897-41]S8
Holyoak, G. Reed [7883B-189]S1, [7892-24]SPS1, [7895-18]S4
Holzapfel, Gerhard [7903-119]SPS1
Holzer, Marco [7912-08]S3, [7912-16]S4
Holzer, Michael S. [7932-01]S1
Homan, Kimberly A. [7899-18]S3, [7899-61]S9, [7899-71]S11, [7899-73]S11, [7899-74]S11, [7910-18]S4, [7910-20]S4
Homburg, Oliver [7918-37]SPS3
Homer, Marc J. [7896-52]S11
Hommel, Detlef 7939 ProgComm
Homola, Jiri 7888 ProgComm, [7888-15]S2, 7911 S8 SessChr, [7911-34]S7
Homyk, A. [7946-01]S1
Hon, Schang-Jing [7939-07]S12
Honcharuk, Svitlana [7927-47]SPS3
Honda, Norihiro [7897-67]SPS2, [7902-65]SPS2
Honda, Toshio 7957 ProgComm
Honda, Toshiyuki [7925-11]S3
Honda, Yasuhiro [7957-36]SPS4
Honda, Yohio [7939-17]S15, [7939-69]SPS4
Honea, Eric C. 7914 CoChr, 7914 S12 SessChr, 7914 S SessChr
Hönel, Dennis [7957-16]S4
Honeysett, Jack E. P. [7899-44]S7
Hong, Chao-Sin [7926-20]SPS3
Hong, Chi-Chang [7937-33]S8
Hong, Jin 7960 ProgComm
Hong, Jisoo [7956B-28]S2
Hong, Jong-Ho [7955-29]SPS4, [7956B-23]S1
Hong, K. B. [7947-24]S6
Hong, Keehoon [7956B-26]S2
Hong, Kihyon [7935-07]S2
Hong, Minghui 7921 ProgComm
Hong, Seungui [7945-13]S3
Hong, Soon Gweon [7911-43]SPS1
Hong, Sung-Hoon [7939-75]SPS4
Hong, Tao [7914-72]SPS3
Hong, Yu-Liang [7937-33]S8
Hong, Zhe [7956B-34]S3
Honkanen, Seppo K. [7914-70]SPS3, [7914-81]SPS3, 7934 ProgComm, [7934-11]S3, [7959-09]S4, [7959-09]S4
Hönninger, Clemens [7914-55]S14, [7925-27]S7
Honsberg, Christiana B. [7933-25]S6
Hood, Andrew D. [7945-60]S10
Hoopes, P. Jack [7886-27]S7, [7892-23]S4, 7901 ProgComm, 7901 S7 SessChr, [7901-09]S3, [7901-10]S3, [7901-13]S3, [7901-40]S9, [7901-42]S9, [7901-43]S9, [7901-44]S9
Hoover, Erich E. [7902-28]S6, [7904-09]S2
Hopfer, Friedhelm [7952-04]S1
Hopkins, F. Kenneth 7935 ProgComm
Hopman, Sybille 7919 ProgComm
Hopper, Colin [7883C-150]S3, [7883C-151]S7, [7883C-152]S7, [7883C-153]S5, [7883C-154]S8, [7883C-155]S8
Hopps, Nick [7916-11]S3
Horak, Peter [7951-10]S3
Horenstein, Mark N. [7930-20]S6, [7930-20]S1, [7930-20]S5
Hori, Tetsuro [7955-03]S1
Horikawa, Kazuki [7910-14]S4
Horley, Ray J. [7914-39]S10
Hornbeck, Larry J. SympComm
Home, Christopher K. [7937-69]SPS4
Hornegger, Joachim [7885-16]S3, [7885-31]S6, [7885-43]S9, [7889-02]S1, [7889-44]S7
Hornen, Heike [7905-12]S3
Hornig, Ray-Hua [7954-41]S11
Hornung, Benjamin [7925-40]S8, [7925-40]S12
Horprathum, Mati [7911-05]S1
Horres, Charles R. [7883C-180]S6
Horst, Folkert [7942-25]S8
Horwitz, James S. TrackChr
Hoseinkhani, Sajjad [7937-65]S14
Hoshida, Takeshi [7960-01]S, [7960-01]S, [7960-01]S

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Hoshino, Akiyoshi [7909-09]S3, [7909-38]S11
- Hoshino, Hikaru [7958-11]S5
- Hosoda, Takashi [7945-22]S4, [7953-37]S10, [7953-60]S15
- Hosono, Hideo [7940-37]S9
- Hosoyachi, Kouhei [7957-37]SPS4
- Hossain, Nadir [7953-04]S1, [7953-31]S8, [7953-31]S14
- Hosseini, Amir** [7943-22]S7, [7943-33]S10, [7944-14]S4, [7944-33]SPS4
- Hossein-Javaheri, Nima [7892-08]S2
- Höth, Julian [7929-11]S3
- Hou, Shaohua [7896-95]SPS1
- Hou, Wenbo [7945-43]S6
- Houbertz, Ruth** [7926-04]S2, [7927-13]S3, 7944 S6 SessChr, 7944 ProgComm
- Houdre, Romuald [7945-15]S3
- Houizot, P. [7894-40]S8
- Houkal, Jeff [7902-58]S13, [7929-26]S6
- Hoult, Anthony P. [7920-07]S2
- Houston, Jessica P. [7902-40]S8
- Hovhannisyán, David L. [7917-19]S5
- Hovhannisyán, Gevorg D. [7917-19]S5
- Hovhannisyán, Vladimir A. [7895-09]S2
- Hoving, Willem** 7921 CoChr, 7921 S3 SessChr, 7944 ProgComm
- Howard, Joseph M.** MeetingVIP
- Howell, John C. [7945-90]S16, 7949 ProgComm, 7949 S7 SessChr, [7949-32]S6
- Howitz, Steffen [7929-21]S5
- Howland, Gregory A. [7945-90]S16
- Hoy, Christopher L.** [7883C-175]S4
- Hoy, Sunday [7890-50]SPS1
- Hoyer, Patricia B. [7890-32]S6
- Hsiang, David J. [7883A-24]S5, [7896-42]S9, [7896-44]S9, [7896-45]S9
- Hsiao, Tsai-Chu [7899-103]SPS2
- Hsieh, Chieh [7940-31]S8, [7954-06]S2
- Hsieh, Chien-Tai [7903-105]SPS1
- Hsieh, Mei-Li [7946-22]S5
- Hsieh, Min-Hsun [7939-07]S12
- Hsieh, Wen-Jen [7955-12]S5
- Hsieh, Yao-Fang** [7902-17]S4
- Hsieh, Yao-Sheng [7883B-41]S1, [7883E-114]S5, [7884-06]S2, [7884-22]SPS1, [7890-22]S4, [7896-102]SPS1
- Hsing, Mitchell** [7892-20]S4, [7892-38]SPS1
- Hsu, Eugene [7883F-127]S2
- Hsu, Hsiang-Han** [7944-16]S4
- Hsu, I-Chow [7901-23]S5
- Hsu, Ivy Y. [7900-03]S1
- Hsu, Kuei-Chu [7927-38]SPS3, [7941-29]S7
- Hsu, Min-Hsiang [7933-95]SPS4
- Hsu, Po-Hung [7899-72]S11
- Hsu, Shu-Han [7903-110]SPS1
- Hsu, Ta-Cheng [7939-07]S12
- Hsu, Wei-Ting [7935-13]S3
- Hsu, Wen-Ming [7909-06]S2
- Hsu, Ying-Chia [7939-38]S6
- Hsueh, Chiu-Mei [7885-62]SPS2
- Hsueh, Yu-Ting [7959-11]S5, [7960-09]S2, [7960-09]S2, [7960-09]S2
- Hu, Changhong [7889-43]S7
- Hu, Juejun** [7941-04]S1, [7945-86]S15
- Hu, Junjie [7953-08]S2
- Hu, Qing [7953-23]S6
- Hu, Sijung** [7891-13]S4
- Hu, Song** [7899-05]S1, [7899-21]S4, [7899-31]S5, [7899-89]SPS2, [7899-104]SPS2, [7899-112]SPS2, [7899-152]SPS2
- Hu, Xin-Hua [7886-23]S6, [7902-39]S8, [7907-33]S5
- Hu, Youfang [7943-25]S8, [7943-32]S10, [7943-54]S11
- Hu, Zhilin [7889-25]S4
- Huang, Benlih [7918-30]S5
- Huang, Chao [7899-67]S10
- Huang, Chen-Han** [7911-49]SPS1, [7911-50]SPS1, [7911-51]SPS1, [7927-18]S4, [7946-80]SPS4
- Huang, Chia-Chi [7894-33]S6
- Huang, Chi-Hsiu [7897-47]S10
- Huang, Chong [7941-18]S4
- Huang, Danhong [7945-57]S9
- Huang, Dao Chao [7910-54]S12
- Huang, David M.** MeetingVIP, [7885-16]S3, [7885-31]S6
- Huang, David [7889-02]S1
- Huang, David M.** [7889-15]S3, [7889-104]SPS2
- Huang, Ding-Wei [7894-15]S3, [7908-19]S3
- Huang, Feng-Wen [7939-54]SPS4
- Huang, Fu-Lien [7903-105]SPS1
- Huang, Gensheng [7939-37]S6, [7954-42]S11
- Huang, Hsin-Yi [7903-105]SPS1
- Huang, Hua [7918-32]S5, [7953-45]S12
- Huang, Jeng-Jie [7940-31]S8, [7945-50]S8
- Huang, Jianyu [7954-27]S8
- Huang, Jianzhong [7896-43]S9
- Huang, Jia-Sheng [7953-08]S2
- Huang, Lei [7887-07]S2
- Huang, Lingyun [7899-56]S8
- Huang, Min [7911-30]S6, [7943-01]S1, [7946-60]S14
- Huang, Min-Shun [7939-54]SPS4
- Huang, Naiyan [7883A-04]S1
- Huang, Qin [7893-04]S1
- Huang, Robin K.** [7918-41]S5
- Huang, San-Yi** [7955-05]S2
- Huang, Sheng-Chieh [7926-19]SPS3
- Huang, Ting-Wei [7902-17]S4
- Huang, Victor [7899-152]SPS2
- Huang, Weijun [7894-03]S1
- Huang, Wei-Ping [7934-25]S6
- Huang, Xiaojun [7916-33]S7
- Huang, Y. [7953-03]S1
- Huang, Yen-Chieh [7917-05]S6, [7917-05]S2, [7917-17]S5
- Huang, Yi-Ching [7956B-25]S2
- Huang, Yi-Hsiang [7935-42]SPS4
- Huang, Yin [7941-35]S8
- Huang, Yingying [7887-06]S2
- Huang, Yi-Pai 7956B S3 SessChr, [7956B-25]S2
- Huang, Yi-You [7897-47]S10
- Huang, Yong [7883E-105]S3, [7894-08]S2
- Huang, Yong [7953-57]S14
- Huang, Yong-Zhen** [7913-30]S7
- Huang, Yujian [7943-08]S3
- Huang, Z. Rena** 7954 ProgComm
- Huang, Zheng 7900 ProgComm
- Huang, Zheng [7916-33]S7
- Huang, Zhen-li [7905-28]S7
- Huang, Zhihong [7898-30]S5, [7898-43]SPS2
- Huang, Zhiwei** [7890-43]S8, [7903-47]S7, [7903-63]S9
- Huang, Ziyán** [7914-105]SPS3
- Huant, Serge [7940-55]S12
- Hubbard, Seth M. [7933-04]S1, [7933-38]S8
- Hubbs, John E.** 7945 ProgComm, 7945 S11 SessChr
- Hubenthal, Frank [7922-12]S3
- Huber, Guenter [7912-07]S3, [7912-22]S7
- Huber, Heinz P. [7925-33]S5, [7925-33]S9
- Huber, Robert A.** [7889-01]S1, [7889-32]S5, [7889-48]S7, [7889-49]S8, [7914-16]S4, [7914-97]SPS3
- Huber, Rupert [7917-11]S4, 7937 ProgComm, 7937 S2 SessChr
- Hübner, Christian G. [7905-11]S2
- Huck, Malte F. [7929-30]S7
- Huck, Volker [7883A-26]S5
- Huelsbusch, Thomas [7912-01]S1
- Huelsewede, Ralf [7918-27]S5
- Huff, Joseph [7905-15]S4
- Huffaker, Diana L. [7937-05]S2, 7947 Chr, [7947-14]S4, [7947-15]S4, [7947-23]S6
- Huggenberger, Alexander [7947-01]S1
- Hugger, Stefan [7945-25]S4, [7953-58]S14
- Huggett, Matthew T. [7886-18]S4
- Hughes, Christopher [7897-50]S10
- Hughes, David** [7923-25]S7, 7948 ProgComm
- Hughes, Lawrence C. [7953-71]S11
- Hughes, Mark A. [7934-06]SPS4, [7934-48]SPS4
- Hughes, Thomas E. [7910-13]S3, [7910-55]S12
- Hugi, Andreas [7953-20]S5
- Hugonnot, Emmanuel** [7914-35]S8
- Hugues, Maxime [7953-64]SPS4
- Huh, Jae-Hoon [7933-43]S10
- Huignard, Jean-Pierre [7899-86]S7, 7945 ProgComm, 7945 S4 SessChr, [7949-39]S8
- Hulbert, John F. [7949-30]S6
- Hulko, Oksana [7947-28]S7
- Hult, Dane [7914-09]S3
- Humar, Matjaz [7955-07]S3
- Humbert, Georges J. [7934-24]S6
- Humbert, Laure [7925-17]S4
- Hung, Hsin-I** [7886-11]S2
- Hung, Ming-Tsung [7954-41]S11
- Hung, Shih-Chang [7901-28]S6
- Hung, Wen-Chi** [7927-43]SPS3, [7947-29]SPS4
- Hung, Yu-Chueh [7935-13]S3
- Hunger, David [7948-15]S4
- Hungerford, Graham [7903-64]S9
- Hunt, Heather K. [7888-02]S1
- Hunt, Jeffrey H.** [7934-20]S5
- Hüntner, Martin** [7927-21]S5
- Hunter, Steve [7916-16]S4
- Hunziker, Urs W. [7920-08]S2
- Huo, Li** [7889-42]S7, [7889-46]S7, [7889-50]S8
- Huo, Yijie** [7949-17]S4
- Hurd, Katie [7949-30]S6
- Hurtado, Antonio [7952-22]S6
- Hurwitz, Mark D. [7901-21]S5
- Huser, Thomas R. [7902-20]S5, [7905-17]S4, [7905-25]S6, [7905-27]S7, [7905-47]SPS1
- Husko, Chad A. [7942-16]S7
- Hussain, Farrukh [7883D-87]S5
- Hussain, Shahab** [7958-10]S4, [7958-10]S4, [7958-20]SPS4
- Huston, Alan L. [7909-26]S8
- Hutchings, Natalie [7885-04]S1, [7885-73]SPS2
- Huthmacher, Klaus [7953-61]S15
- Hüttmann, Gereon** [7883C-177]S2, [7883E-111]S4, [7889-05]S1, [7889-13]S3, [7889-60]S9, [7889-82]S12, [7903-100]SPS1, [7907-42]S6
- Huybrechts, Koen [7913-51]S9
- Huyet, Guillaume** [7937-05]S2, [7947-15]S4
- Huynh, Nam Trung [7897-44]S9, [7899-47]S7
- Hwang, Chi-Sun [7940-39]S10
- Hwang, David J. [7922-04]S1, [7925-05]S2
- Hwang, Grace M. [7888-16]S2
- Hwang, Jaesuk [7948-41]S10
- Hwang, Jae-Youn [7886-21]S5, [7902-13]S3
- Hwang, Jeeseong** 7891 ProgComm, 7891 S7 SessChr, [7891-28]S7, [7891-30]S7, [7891-33]SPS1, [7906B-40]S4, [7906B-41]S3, [7909-13]S4, [7932-04]S1
- Hwang, Jeong-Ki 7952 ProgComm, [7952-04]S1
- Hwang, Jeong-Min [7956B-26]S2
- Hwang, Jeoung-Yeon [7955-15]S5
- Hwang, Kyungwook [7943-52]SPS4
- Hwang, Margaret [7883C-168]S3
- Hwang, Nam [7945-49]S8
- Hwang, Sung Min [7954-47]SPS4, [7945-38]S6
- Hwang, Yu Jer [7902-50]S11
- Hwu, R. Jennifer 7938 ProgComm, 7938 S4 SessChr
-
- Iannaccone, Sandro [7896-36]S8
- Ibarra-Escamilla, Baldemar** [7914-77]SPS3, [7914-106]SPS3, 7917 ProgComm, 7917 S8 SessChr, [7917-33]S8
- Ibey, Bennett L. [7883G-144]S3, [7897-13]S3, [7897-14]S3, [7897-15]S3, [7901-15]S4, [7901-18]S4, [7908-28]S4
- Ibragimov, Edem [7960-02]S, [7960-02]S, [7960-02]S
- Ibrahim, Hesham [7883C-58]S4
- Ibrahim, Mohamed [7885-69]SPS2, [7898-17]S3
- Ibrahim, Shehu M. [7905-45]SPS1
- Ibsen, Morten [7914-05]S2
- Ichihashi, Yasuyuki [7957-02]S1, [7957-08]S2
- Ichii, Kentaro [7914-19]S5
- Ichikawa, Tsubasa [7957-05]S2, [7957-06]S2
- Ida, Sotaro [7947-05]S2
- Ida, Soutarou [7933-43]S10
- Ildi, Mourad [7913-06]S2
- Idrussi, Yasuhiro [7947-05]S2
- Ifimia, Nicusor V.** [7885-08]S2, [7885-40]S8, [7885-42]S8, [7895-04]S1, [7896-09]S2, [7904-21]S5
- Igarashi, Akihito [7885-30]S6
- Iglesias, Wilder G. [7955-17]S6
- Iho, Aarni T. [7914-70]SPS3
- Iida, Makoto [7920-50]SPS3
- Iijima, Hitoshi [7933-43]S10
- Iijima, Takahiro [7934-37]SPS4
- Iino, Hiroaki [7955-02]S1
- Iino, Ryota [7905-18]S4
- Iizawa, Yohei [7959-17]S6, [7959-17]S6, [7959-17]S6
- Ikedo, Kazuhiro [7937-28]S6
- Ikedo, Koichi [7928-11]S3
- Ikedo, Masao [7953-18]S4
- Ikedo, Renzo [7889-70]S11
- Ikedo, Takumi [7913-34]S7
- Ikonic, Zoran [7943-45]S13
- Ichenko, Vladimir S. 7913 Chr, 7913 S5 SessChr, [7913-25]S6
- Ilev, Ilko K.** 7894 ProgComm, [7894-44]S8, 7922 ProgComm
- Ilgner, Justus F. R.** 7883C Chr, 7883C S2 SessChr, [7883C-178]S3, [7883C-185]S7
- Ilias, Samir [7930-23]S6
- Ilic, Rob [7917-46]S11
- Iliev, Hristo L.** [7912-30]S8
- Illas, Francisc [7940-06]S2
- Illek, Stefan [7919-13]S3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Illing, Gerd** [7891-10]S3, [7920-33]S9
Ilmonieni, Risto [7896-12]S3
Iluz, Zeev [7945-82]S14
Im, Changkyun [7883E-120]SPS1
Im, Jisun [7940-20]S5
Imade, Mamoru [7939-01]S1, [7939-82]SPS4
Imai, Suguru [7952-03]S1
Imai, Tadayuki [7889-54]S8
Imaizumi, Katsuichi [7902-12]S3
Imgrunt, Waleri [7913-10]S3
Immucci, Andrea N. [7925-03]S1
Imre, Sandor [7948-26]S6
Inagaki, Keizo [7958-11]S5, [7958-12]S5
Inder, David C. [7953-48]S12
Ingham, Jonathan D. [7933-48]S11
Ingle, Ninad [7897-10]S2, [7902-18]S5, [7904-08]S2, [7908-17]S3, [7922-07]S2, [7925-04]S1, [7927-44]SPS3, [7950-05]S2
Ingram, Justin [7947-10]S3
Inoue, Yuta [7946-81]SPS4
Inoue, Daisuke [7923-09]S2
Inoue, Narumi [7920-48]SPS3, [7920-49]SPS3
Inoue, Norihiro [7917-63]SPS3
Inoue, Shigeru [7939-55]SPS4
Inoue, Shuichiro [7945-94]S16
Inoue, Tsuyoshi [7937-18]S4
Inoue, Yayoi [7897-57]SPS2
Intartaglia, Romuald [7922-24]SPS3
Intes, Xavier 7892 Chr, 7892 S4 SessChr, 7892 S2 SessChr, [7892-13]S3, [7892-17]S4
Inubushi, Yuichi [7937-55]S12
Ionin, Andrey A. [7915-12]S3
Ioppolo, Tindaro [7913-46]S9
Irby, Pierce [7883B-44]S2
Isabelle, Martin 7886 S7 SessChr
Isabelle, Martin E. [7886-27]S7
Isaenko, Ludmila I. [7917-56]S12, [7917-64]SPS3
Isaeva, Olga G. [7900-20]SPS2
Isakoff, Steven J. [7896-54]S11
Isamoto, Keiji [7889-53]S8
Isarie, Claudiu I. [7913-48]SPS3, [7913-49]SPS3, [7935-46]SPS4
Isarie, Ilie V. [7913-48]SPS3, [7913-49]SPS3, [7935-46]SPS4
Isele, Robert [7956A-09]S3
Isenberg, Gerard [7889-25]S4
Ishibashi, Shigeo [7889-54]S8
Ishibashi, Shoji [7939-31]S5
Ishida, Kazutoshi [7955-28]SPS4
Ishida, Masahiro [7939-29]S4
Ishida, Shinya [7959-17]S6, [7959-17]S6, [7959-17]S6
Ishida, Shutaro [7889-92]SPS2, [7889-95]SPS2, [7893-34]S6
Ishigure, Takaaki [7944-16]S4, [7944-23]S6
Ishihara, Miya [7883D-95]SPS1, 7897 ProgComm, 7897 S11 SessChr, 7898 ProgComm, [7899-105]SPS2, [7899-108]SPS2, [7899-111]SPS2, [7907-22]S4, BO304XX ProgComm
Ishihara, Ryoichi [7956A-04]S1
Ishii, Katsunori [7884-20]S6, [7897-67]SPS2, [7902-65]SPS2
Ishii, Kotaro [7889-33]S5
Ishii, Norihiko [7957-25]S6
Ishii, Osamu [7912-20]S6, [7912-20]S2, [7912-79]SPS3
Ishikawa, Ikuko S. [7929-20]S5
Ishikawa, Takuya [7952-03]S1
Ishikawa, Tetsuya [7937-55]S12
Ishizawa, Shunsuke [7939-51]S9
Isikman, Serhan O. [7890-05]S1, [7891-18]S5
Ismail, Mohammed [7898-07]S1
Isomäki, Antti [7889-62]S9
Irsar, Amber [7894-09]S2
Issaei, Ali [7892-08]S2
Issier, Vincent M. [7914-43]S10
Isu, Toshiro [7937-52]S12
Itina, Tatiana E. [7920-02]S1
Ito, Arisa [7883D-91]S6, [7883D-92]S6, [7897-29]S6
Ito, Hiroshi [7934-48]SPS4
Itoh, Kazuyoshi [7889-92]SPS2, [7889-95]SPS2, [7893-34]S6
Itoh, Kyoko [7909-38]S11
Itoh, Yoshifumi [7895-16]S3
Itsuno, Anne [7945-59]S10
Ittermann, Bernd [7896-02]S1
Itu, Sorin [7913-48]SPS3, [7913-49]SPS3
Itzkan, Irving [7907-26]S4, [7945-88]S15
Itzler, Mark A. 7945 ProgComm, 7945 S16 SessChr
Ivanenko, Mikhail M. [7913-10]S3, [7913-13]S3
Ivanov, Alexey N. [7901-17]S4
Ivanov, Sergey V. [7939-39]S7
Ives, Neil [7918-02]S1
Ivkov, Robert [7901-09]S3
Ivonin, Igor [7918-24]S4
Iwai, Katsumasa [7894-05]S1, [7894-14]S2
Iwai, Kazufumi [7920-49]SPS3
Iwamoto, Satoshi [7947-04]S2
Iwanaga, Masanobu [7946-52]S12
Iwata, Fujio 7957 ProgComm
Iwata, Kayoko [7897-57]SPS2
Iwatsuki, Katsumi [7958-16]S7
Iwaya, Motoaki [7939-63]SPS4, [7939-67]SPS4
Iwayama, Yoshihide [7957-07]S2
Iyer, Krishna [7927-11]S3
Iyer, Rajiv [7898-06]S1
Izzatt, Joseph A. [7885-03]S1, [7885-47]S9, 7889 Chr, 7889 S2 SessChr, [7889-14]S3, [7889-36]S6, [7889-63]S10, [7895-29]S6
Izdebski, Frauke [7945-97]S17
Izdebski, Krzysztof [7883C-69]S2
Izuhara, Tomoyuki [7942-22]S8
Izumi, Kenji [7897-45]S9
Izyumska, Natalia [7939-94]S14
Izyumskaya, Natalia [7939-68]SPS4, [7939-87]SPS4, [7954-20]S6
- J**
- Jackson, Eric M. [7945-72]S12
Jackson, Jeremy J. [7922-23]SPS3
Jackson, Neil [7932-01]S1
Jackson, Sophie [7905-45]SPS1
Jackson, Stuart D. [7914-15]S4, [7914-21]S6
Jackson, Warren B. [7956A-03]S1
Jacob, Jonah H. [7918-14]S3, [7918-20]S4
Jacob, Z. [7946-24]S6
Jacobs, James W. [7889-116]SPS2
Jacobs, Kenneth [7902-39]S8
Jacobs, Verne L. [7949-47]S9
Jacobsen, Svein K. [7901-30]S6
Jacquemet, Mathieu [7914-83]SPS3
Jacques, Steven L. TrackChr, SC029 Inst, [7883A-08]S2, [7886-29]S7, [7897-58]SPS2, 7899 ProgComm, 7907 ProgComm, [7907-05]S1, [7907-30]S5, [7907-36]S6
Jacquot, Maxime [7921-18]S5
Jadczak, Christopher [7883A-20]S4
Jadhav, Vivek S. [7950-32]S8
Jaeck, Julien [7945-75]S13
Jaeger, Michael [7899-139]SPS2
Jaeggi, Beat [7920-08]S2
Jaffer Ali, B. M. [7950-32]S8
Jaffer, Farouc A. [7883D-77]S2, [7892-31]SPS1, [7894-22]S4
Jaffiol, Rodolphe [7905-16]S4, [7908-01]S1
Jaffray, David A. [7894-06]S1
Jagadish, Chennupati 7942 ProgComm, [7942-18]S7
Jäger, Dieter S. 7958 S2 SessChr, 7959 S2 SessChr, 7960 Chr, 7960 S2 SessChr
Jagtap, Jaidip M. [7902-67]SPS2, [7907-27]S4, [7907-43]SPS2
Jahan, Nahid A. [7933-43]S10
Jahanshahi, Amir [7929-25]S6
Jahnes, Christopher [7944-17]S5
Jahnke, Frank 7933 S13 SessChr, [7933-33]S8
Jahnke, Till N. [7937-17]S4
Jahns, Jürgen [7942-02]S1, [7942-02]S8, 7944 ProgComm
Jaillon, Franck [7889-103]SPS2
Jain, Raj 7958 Chr, 7958 S3 SessChr, 7958 S4 SessChr, 7959 S4 SessChr
Jakka, Suresh Kumar [7940-19]S5, [7940-50]SPS4
Jakli, Antal I. [7955-17]S6
Jakobsson, Ola [7909-13]S12
Jakovels, Dainis [7883A-38]SPS1
Jakubczak, Krzysztof [7916-09]S2
Jamaiah, B.C. [7940-19]S5
James, Ralph B. MeetingVIP
James, Richard W. [7955-09]S4
Jamon, Damien [7941-05]S1
Janes, Joachim [7930-24]S6
Jang, Chung-Ying [7939-70]SPS4
Jang, Deoksuk [7920-09]S2, [7920-13]S3
Jang, Dong-Hyun [7939-83]SPS4
Jang, Ji-Hyang [7935-25]SPS4, [7941-43]SPS4
Jang, Kiwan [7940-50]SPS4
Jang, Lee-Woon [7945-38]S6
Jang, Min [7953-40]S10
Jang, Min Sung [7903-116]S3
Jang, Myoung Ho [7903-116]S3
Jang, Woo-Yong [7945-69]S12
Jang, Young [7949-12]S3, [7949-15]S4
Jang, Yudong [7947-25]S7
Jang, Yuseong [7939-83]SPS4
Jankevicius, Feliksas [7902-69]SPS2
Jankov, Mirko [7885-21]S4
Jankovic, Ladislav [7899-09]S2, [7899-19]S3, [7899-31]S5, [7899-114]SPS2, [7899-116]SPS2, [7899-117]SPS2
Jansen, E. Duco [7883D-94]S6, [7883E-112]S5, 7883G Chr, 7883G S1 SessChr, [7883G-138]S2, [7883G-141]S2, [7883G-146]S1, [7883G-147]S2, [7883G-148]S3, [7891-05]S1, 7897 Chr, 7897 S1 SessChr
Jansen, Florian [7914-11]S3, [7914-42]S10, [7914-92]SPS3
Jansen, Krista [7899-03]S1
Jansen, Rolf H. [7954-32]S9
Jansen, Sander L. 7960 ProgComm
Janyani, Vijay [7927-41]SPS3
Janz, Siegfried [7888-04]S1, [7928-19]S6, [7928-19]S1, [7928-19]S5, [7941-39]S9, 7943 ProgComm, 7943 S7 SessChr, 7943 S8 SessChr, [7943-15]S5
Jaouën, Yves [7914-31]S7, [7914-52]S13
Jarasiunas, Kestutis [7937-67]S15
Jarczynski, Manfred [7916-18]S4, [7918-37]SPS3
Jarjour, Anas [7937-38]S8
Jarmola, Andrey [7948-31]S8
Jarrahi, Mona [7937-14]S3
Jasnot, F.-R. [7945-33]S5
Jassim, Omar W. [7899-152]SPS2
Jatta, Sandro [7959-07]S3
Jau, Hung-Chang [7955-05]S2
Jauregui, Cesar [7914-42]S10, [7914-92]SPS3, [7914-07]S2, [7914-11]S3, [7914-50]SPS3, [7914-89]SPS3
Javidi, Bahram MeetingVIP, SC979 Inst, [7904-29]S6
Jawaid, Ali M. [7935-24]S6
Jaworowicz, Katarzyna [7945-55]S9
Jay, Amrita [7883C-151]S7, [7883C-152]S7
Jayasimhadri, M. [7940-50]SPS4
Jeannesson, Pierre [7905-16]S4
Jechow, Andreas [7913-07]S2, [7948-19]S4
Jedrzejczyk, Daniel [7917-02]S5, [7917-02]S1, [7917-03]S5, [7917-03]S1
Jelezko, Fedor 7948 ProgComm, [7948-33]S8
Jelinek, Michal [7884-03]S1, [7912-73]SPS3, [7912-87]SPS3
Jelinková, Helena [7884-03]S1, [7894-05]S1, 7912 ProgComm, 7912 S13 SessChr, 7912 S9 SessChr, [7912-69]SPS3, [7912-74]SPS3, [7912-87]SPS3
Jelzow, Alexander [7896-01]S1, [7896-02]S1, [7896-11]S3, [7896-92]SPS1
Jen, Alex K. Y. 7935 ProgComm, 7935 S2 SessChr, [7935-02]S1, [7936-07]S2
Jeng, Wei-De [7893-14]S3
Jenkins, Michael W. [7883D-89]S5, [7883D-94]S6, [7883G-138]S2, [7883G-148]S3, [7889-10]S2
Jenkins, Patrick [7902-40]S8
Jenkins, Peter A. [7887-02]S1
Jenkins, Phillip P. [7933-26]S6
Jenkins, Richard M. [7943-32]S10
Jennings, Dominique [7902-14]S4
Jensen, Bioern [7930-24]S6
Jensen, Dan [7952-05]S2
Jensen, Kristin [7902-63]SPS2
Jensen, Ole B. [7912-33]S9, [7918-38]SPS3
Jeon, Dae-Woo [7945-38]S6
Jeon, Heonsu [7939-91]SPS4, [7942-17]S7, [7943-52]SPS4, [7946-17]S4, 7954 Chr
Jeon, Hojeong [7925-05]S2
Jeon, Joon Woo [7939-80]SPS4, [7939-78]SPS4
Jeon, Ju-Won [7945-38]S6
Jeon, Mansik [7890-35]S7
Jeon, Min Yong [7894-35]SPS1
Jeon, Seong-Ran [7939-91]SPS4, [7945-38]S6, [7954-25]S7
Jeon, Woo-Jin [7917-60]SPS3
Jeong, Bosu [7903-116]S3
Jeong, Hyeonsu [7955-18]S6, [7955-31]SPS4
Jeong, Hyosang [7892-29]SPS1
Jeong, Hyun-Woo [7898-42]SPS2
Jeong, Kwan [7898-04]S1, [7907-13]S2
Jeong, Myung-Yong [7889-51]S8, [7889-75]S11, [7890-40]S7
Jeong, Pyeongsu [7903-96]SPS1
Jeong, Sanghwa [7909-23]S7, [7909-24]S7, [7909-25]S7
Jeong, Tak [7939-71]SPS4
Jeong, TUNG H. 7957 ProgComm
Jeong, Weon Guk [7947-25]S7
Jeong, Yoonchan 7914 ProgComm, 7914 S5 SessChr

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Jeoung, Sae Chae [7925-36]S6, [7925-36]S10
- Jerjes, Waseem K. 7883C ProgComm, 7883C S4 SessChr, 7883C S8 SessChr, [7883C-150]S3, [7883C-151]S7, [7883C-152]S7, [7883C-153]S5, [7883C-154]S8, [7883C-155]S8
- Jesacher, Alexander [7903-52]S7, [7927-16]S4, [7931-16]S6
- Jespersen, Kim G.** [7912-41]S11
- Jessop, Morris [7901-33]S7
- Jessop, Paul E.** [7943-07]S3
- Jetschke, Sylvia [7914-39]S10
- Jetter, Michael [7919-10]S3
- Jetzfellner, Thomas [7899-69]S10
- Jeyasingh, Ebenezar [7895-17]S3
- Jhabvala, Christine A.** 7945 ProgComm, 7945 S12 SessChr
- Jhin, Jungkeun [7939-66]SPS4
- Jhun, Chul Gyu [7956B-34]S3
- Ji, Chen [7952-04]S1
- Ji, Lailin [7916-28]S6
- Ji, Mi-Hee [7954-13]S4
- Ji, Na [7931-18]S6
- Ji, Philip N. [7959-16]S6, [7959-16]S6, [7959-21]S7, [7960-24]S6, [7960-24]S6, [7960-24]S6
- Jia, Congxian** [7899-56]S8, [7899-62]S9
- Jia, Yali [7889-37]S6, [7898-02]S1, [7898-18]S3, [7898-36]SPS2, [7898-41]SPS2
- Jiang, D. F. [7935-08]S2, [7943-39]S12
- Jiang, Dongbin [7916-33]S7
- Jiang, Guangqiang [7921-31]S2
- Jiang, Hongrui 7888 ProgComm
- Jiang, Huabei** [7883F-130]S2
- Jiang, I-Min [7927-43]SPS3, [7947-29]SPS4
- Jiang, James Y. [7889-02]S1
- Jiang, Jia [7934-29]S7
- Jiang, Jingyang [7898-36]SPS2
- Jiang, Jingying 7898 ProgComm, [7898-34]SPS2, [7898-38]SPS2
- Jiang, Kai [7890-51]SPS1
- Jiang, Lan 7921 ProgComm
- Jiang, Minshan [7889-04]S1
- Jiang, Shubin** 7934 Chr
- Jiang, Shihong [7896-32]S8
- Jiang, Shudong [7892-03]S1, [7896-46]S10, [7896-58]S12
- Jiang, Wen-Han 7931 ProgComm
- Jiang, Yan** [7899-52]S8, [7899-147]SPS2, [7899-148]SPS2
- Jiang, Youen [7916-21]S4
- Jiang, Yuanyuan [7895-06]S1
- Jiao, Jianzhong** SC958 Inst
- Jiao, Meizi [7955-13]S5, [7956A-14]S4
- Jiao, Shuliang** [7889-04]S1, [7899-13]S2, [7899-25]S4, [7899-80]S12
- Jiao, Yan** [7886-18]S4
- Jichlinski, Patrice** 7883B ProgComm, 7883B S2 SessChr
- Jie, Lian [7943-48]SPS4, [7943-49]SPS4
- Jimenez, Ralph [7902-28]S6, [7904-09]S2
- Jin, An [7896-110]SPS1
- Jin, Dayong [7909-34]S10
- Jin, Lei [7943-06]S3
- Jin, Michael H. C. 7935 ProgComm
- Jin, Moonsoo [7925-13]S3
- Jin, Shirong R. [7953-04]S1, [7953-31]S8, [7953-31]S14
- Jin, Xiaofan [7894-26]S5
- Jin, Xiaomin** [7933-68]SPS4
- Jin, Xin [7883G-140]S1
- Jin, Yan [7956B-34]S3
- Jin, Yongdong [7899-62]S9
- Jing, Feng [7916-33]S7
- Jing, Joe [7889-43]S7
- Jinno, Masahiko [7959-19]S7
- Jitsuno, Takahisa** [7916-13]S3
- Jo, Janggun** [7899-142]SPS2
- Jo, Javier A. [7883C-67]S7, [7883D-74]S2
- Jo, Soo In [7956B-21]S1
- Joel, Andrew [7952-19]S5
- Johansen, Jeppe [7914-93]SPS3
- Johansson, Ann [7883E-107]S3
- John, Renu [7889-26]S4, [7889-77]S12, [7889-90]SPS2, [7910-04]S1
- Johnson, Anthony M.** [7937-25]S6
- Johnson, Bart [7889-52]S8, [7889-55]S8
- Johnson, Brad [7918-30]S5
- Johnson, Brett [7948-45]S11
- Johnson, Craig M.** [7933-17]S4
- Johnson, Eric G.** [7912-46]S12, [7919-11]S3, [7927-05]S2, [7927-19]S5, [7927-34]S8, [7950-11]S3
- Johnson, G. Allan [7892-32]SPS1, [7896-68]S14
- Johnson, Klein [7883G-142]S2, [7952-07]S2
- Johnson, Michael A. [7916-26]S6
- Johnson, Noble M. [7929-30]S7, [7939-10]S13, [7939-18]S15
- Johnson, Peter [7899-40]S6
- Johnson, Roger H. [7902-58]S13, [7929-26]S6
- Johnson, Scott [7945-65]S11
- Johnson, Shane R.** [7953-04]S1
- Johnson, Steven G. SC608 Inst
- Johnson, Thomas E. [7897-18]S4
- Johnston, Keith P. [7883D-72]S1, [7899-60]S9, [7906B-35]S3, [7910-46]S10
- Johung, Tessa [7896-43]S9
- Jolivet, Véronique [7914-31]S7, [7914-52]S13
- Jollivet Salvin, Clemence [7924-20]S4
- Joly, Nicolas Y. [7914-22]S6
- Jomard, François [7942-15]S6
- Jonathan, Enock [7898-20]S3, [7898-21]S3, [7898-31]S5, [7898-47]SPS2
- Jones, Alan L. [7929-09]S3
- Jones, Jason [7934-60]SPS4
- Jones, Mario R. [7940-54]SPS4
- Jones, Richard [7943-35]S11
- Jones, Steven M. [7885-09]S2
- Jonin, Christian [7905-05]S1, [7935-32]S8, [7946-61]S14
- Jonnal, Ravi S. [7885-10]S2, [7885-52]S10, [7885-53]S10, [7885-54]S10
- Jonson, Mats [7933-51]S11
- Joos, Karen M.** 7885 ProgComm, 7885 S3 SessChr
- Jordison, Stefan [7887-02]S1
- Jose, Iven [7896-107]SPS1
- Jose, Jithin [7899-129]SPS2, [7899-130]SPS2
- Joseph, Cecil S.** [7883A-19]S4
- Joshi, Abhijeet** [7912-47]S12
- Joshi, Bishnu [7893-02]S1
- Joshi, Pratixa P. [7899-01]S1, [7899-02]S1
- Joshi, Ravi P. [7897-16]S4
- Joshi, Shailendra** [7907-21]S4
- Josserand, Véronique [7892-18]S4
- Joung, Boyoung [7883D-70]S1
- Jovanovic, Nemanja [7914-15]S4
- Jovin, Thomas M. 7909 ProgComm, [7932-15]S4
- Joye, Philippe [7908-42]S1
- Ju, Jin-Woo [7945-38]S6
- Ju, Myeong Jin [7892-28]SPS1
- Juan, Yu-Shan [7933-72]SPS4, [7936-09]S3
- Juang, Titania [7901-23]S5
- Juang, Ying-Zong [7926-18]SPS3
- Jubera, Véronique [7912-58]S14
- Juday, Reid [7954-13]S4
- Jue, Jason P. [7959-21]S7
- Juhász, Tibor** [7925-41]SPS3
- Juhász, Ronny [7913-42]S5
- Jukam, Nathan [7937-24]S6, [7945-11]S2
- Julien, François [7939-48]S9, [7945-51]S8
- Julien, Xavier B. [7916-35]SPS3
- Jun, Sang Beom [7883G-140]S1
- Jun, Young Chul [7948-39]S9
- Jung, Byungjo [7883A-05]S1, [7883A-22]S4, [7884-12]S5
- Jung, Hee-Tae [7955-18]S6, [7955-31]SPS4
- Jung, Hee-Young [7890-34]S6
- Jung, Jae-Hyun [7956B-28]S2
- Jung, Jaemyeong [7905-22]S5
- Jung, Mathieu [7929-11]S3
- Jung, Sungwook [7911-25]S5
- Jung, Unsang [7892-29]SPS1
- Jung, Woo-Gwang 7945 ProgComm, 7945 S7 SessChr, [7945-78]S13
- Jung, Woonggyu [7890-35]S7
- Jung, Yeongri [7889-35]S6, [7898-41]SPS2, [7899-155]SPS2
- Jungbluth, Bernd** [7912-21]S6, [7912-21]S2
- Junge, Christian [7913-22]S5
- Junger, Stephan [7946-47]S11
- Junggeburch, Tobias [7914-80]SPS3
- Junghans, Jeremy [7916-07]S2, [7918-07]S1
- Junghanss, Christian [7925-18]S4
- Junginger, Friederike [7917-11]S4
- Juodkazis, Saulius** 7927 ProgComm, [7927-15]S4
- Jurbergs, David [7957-16]S4
- Jurgis, Andrejs [7935-38]SPS4
- Just, Florian [7914-66]S13
- Just, Tino** [7883C-177]S2
- Jutzi, Fabio** [7930-14]S3
- Juzeliunas, Gediminas [7950-20]S5

K

- Kabanov, Viktor V. [7937-60]S13
- Kabas Sarp, Ayse S.** [7884-19]S6
- Kabir, Md. H. [7915-13]S3
- Kabuss, Julia [7937-48]S11
- Kachi, Tetsu [7939-28]S4
- Kacprzak, Michal [7896-81]SPS1, [7896-93]SPS1
- Kadigrobov, Anatoly M. [7933-51]S11
- Kadlec, Christelle [7917-13]S4
- Kadlec, Filip [7917-13]S4
- Kadwani, Pankaj** [7914-57]S14, [7924-20]S4
- Kaeli, David R. [7904-16]S4
- Kaenders, Wilhelm G.** [7904-50]S10
- Kaertner, Franz** [7937-57]S12
- Kagami, Manabu [7923-09]S2
- Kahle, Hermann [7919-10]S3
- Kahlen, Franz-Josef [7926-07]S2
- Kahn, Joseph M. [7923-26]S7, [7949-35]S7, [7960-10]S3
- Kaindl, Robert A. 7937 ProgComm, [7937-64]S14
- Kainerstorfer, Jana M. [7896-72]S15
- Kaino, Toshikuni 7935 Chr, 7935 S6 SessChr, [7944-06]S2
- Kaji, Tatsumi [7883D-95]SPS1
- Kaji, Yuichi [7885-49]S10
- Kajihara, Takuro [7883D-91]S6, [7897-29]S6
- Kajimoto, Kazutaka [7956B-27]S2
- Kajzar, François 7935 Chr, 7935 S8 SessChr, [7935-04]S1
- Kakarantzas, George [7914-78]SPS3
- Kakauridze, George A. [7957-28]S5, [7957-39]SPS4, [7957-49]S6
- Kakiuchida, Hiroshi [7934-15]S4
- Kaku, Masanori [7915-15]S3
- Kakuda, M. [7945-44]S7
- Kalantar, Dan H. [7916-26]S6
- Kalathimekkad, Sandeep** [7944-13]S4
- Kalavrouziotis, Dimitrios [7945-40]S6
- Kalchenko, Vyacheslav [7898-19]S3
- Kalff, Rolf [7883E-103]S3, [7903-41]S6
- Kalisch, Holger [7954-32]S9
- Kalisky, Yehoshua Y.** 7917 CoChr, 7917 S3 SessChr
- Kalkanjev, Todor K. [7950-12]S3
- Kalkbrenner, Thomas [7905-34]S8
- Kalkman, Jeroen [7889-84]S12
- Käll, Mikael [7897-37]S8
- Kallur, Ajay [7935-21]S5
- Kaloyeros, Alain E. [7886-41]SPS1
- Kait, Heinz [7888-09]S1, [7913-33]S7
- Kam, Alicia [7947-17]S4
- Kamalski, Digna [7883C-62]S3
- Kamijo, Koji [7957-25]S6
- Kamimura, Junpei [7937-37]S8
- Kamins, Ted I. [7885-37]S7, [7944-03]S1
- Kaminska, Bozena** [7894-24]S4, [7896-76]S16, [7897-30]S6, [7897-31]S6, [7897-61]SPS2, [7908-18]S3, [7911-40]S8, [7911-41]S8
- Kaminsky, Alexander [7898-09]S2
- Kamiya, Shinichi [7952-03]S1
- Kamiyama, Satoshi** [7939-63]SPS4, [7939-67]SPS4, 7954 ProgComm, 7954 S11 SessChr
- Kamp, Martin [7947-01]S1, [7948-29]S7, [7953-12]S3
- Kampfrath, Tobias [7917-11]S4
- Kamysz, Wojciech [7902-37]S8
- Kan, Chih-Wen** [7907-18]S3
- Kan, Hirofumi [7939-43]S8
- Kanai, Yoshikazu [7927-40]SPS3
- Kanaras, Antonios G. [7909-18]S6
- Kanawade, Rajesh V.** [7890-08]S2
- Kanayasu, Mayumi [7957-32]SPS4
- Kandaswamy, Prem K. [7945-51]S8, [7939-48]S9
- Kandel, Jessica J. [7896-43]S9
- Kane, Jave [7916-03]S1, [7916-05]S1
- Kaneda, Noriaki [7960-03]S1, [7960-03]S1
- Kaneda, Yushi [7919-03]S1, [7933-50]S11
- Kaneko, Akimasa 7959 ProgComm
- Kanemitsu, Yoshihiko [7937-59]S13
- Kang, Byoungho [7908-34]SPS2, [7926-17]SPS3, [7935-48]SPS4
- Kang, Dongkyun** [7893-17]S4, [7893-18]S4, [7893-19]S4, [7893-22]S4
- Kang, Dongyeon [7883A-05]S1
- Kang, Hobin [7884-10]S4, [7884-26]SPS1
- Kang, Hoonsoo [7937-73]SPS4, [7937-74]SPS4
- Kang, HyeonGon [7891-33]SPS1, [7909-13]S4
- Kang, Hyun Wook** 7883B Chr, 7883B S1 SessChr, [7883B-49]S3, [7883B-50]S3, [7883B-51]S3, [7883B-55]S4, [7883B-56]S4
- Kang, Jeon Woong [7890-46]S8, [7890-48]S8, [7892-11]S2, [7897-22]S5, [7897-23]S5, [7906A-21]SPS2
- Kang, Jin Ung** [7883E-105]S3, [7890-33]S6, 7894 ProgComm, 7894 S3 SessChr, [7894-08]S2, [7894-18]S3, [7904-18]S4, [7904-46]S9
- Kang, Lin [7938-13]S3, [7960-28]SPS4
- Kang, Mijeong [7908-08]S1

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Kang, Myung-Gyu [7933-79]SPS4
Kang, SeungYeon [7927-14]S4
Kang, Shinwon [7908-34]SPS2, [7926-17]SPS3, [7935-48]SPS4
Kang, Uk-Song [7912-80]SPS3
Kang, Wei [7889-25]S4, [7893-41]S8
Kang, Xiang-Ning [7933-68]SPS4
Kani, Jun-Ichi [7958-16]S7
Kannath, Arun [7952-14]S4
Kannengiesser, Christian [7912-42]S11
Kannno, Atsushi [7958-14]S5
Kanskar, Manoj [7953-33]S9
Kanzaki, Koichi 7956A ProgComm
Kanzelmeyer, Sebastian [7914-36]S10, [7914-36]S9
Kao, Chris [7883E-112]S5
Kao, Wen-Chung [7902-17]S4
Kapon, Eli E. 7919 ProgComm, [7919-02]S1
Kapostinsh, J. [7883A-38]SPS1
Kappler, Jürgen [7945-19]S3
Kapsokalyvas, Dimitrios [7883A-31]S6, [7883A-33]S6
Kapteyn, Henry C. [7937-41]S9
Kapulainen, Markku [7941-28]S7, [7943-30]S9
Kar, Ajoy K. [7929-22]S5
Karabut, Maria [7884-31]SPS1
Karagol, Cosar [7890-07]S2
Karakullukcu, Baris [7883C-164]S5
Karapetrova, Evguenia [7940-44]S12
Kardynal, Beata [7954-30]SPS4
Karimeddini, Mozafareddin [7892-36]SPS1
Karinen, Jukka [7933-93]SPS4, [7953-10]S2, [7953-12]S3
Karl, Matthias [7943-17]S5
Karlsen, Scott R. [7918-01]S1
Karlsson, Hanna [7896-70]S15
Karni, Yoram [7918-03]S1, [7918-31]S5, [7918-34]S5
Karnowski, Karol [7883E-109]S4
Karouta, Fouad [7946-46]S11
Karpouk, Andrei B. [7899-119]SPS2
Karpman, Maurice S. 7928 ProgComm
Karpov, Sergey Y. 7939 S12 SessChr, [7939-14]S14
Karwa, Amolkumar [7886-12]S3
Kasaragoda, Deepa K. [7889-31]S5, [7889-86]SPS2
Kash, Jeffrey A. [7944-17]S5
Kashyap, Raman [7885-36]S7, [7917-48]S11, [7951-15]S4
Kasner, Scott E. [7896-03]S1
Kaspar, Roger L. [7930-04]S1, [7930-04]S7
Kaspar, Sebastian [7919-06]S2
Kaspari, Christian [7918-36]SPS3
Kasprzak, Jacek 7937 ProgComm
Kassamakov, Ivan [7928-08]S3
Kastanos, Evdokia [7890-47]S8, [7911-03]S1
Kasten, Matthias [7952-09]S3
Kaster, Jan [7914-54]S14, [7925-31]S7
Kasu, Ramachandran [7922-17]S4
Kasukawa, Akihiko [7952-03]S1
Kaszemeikat, Tristan [7920-33]S9
Katagiri, Takashi [7894-25]S5, [7894-32]S6
Katakura, Kiyoto [7957-33]SPS4
Katan-Muller, Matilda [7904-35]S7
Katayama, R. [7945-44]S7, [7945-45]S7
Katayama, Ryuji [7945-47]S7
Kato, Ilka T. [7887-08]S2, [7887-10]S2
Kato, Kazutoshi [7889-54]S8
Kato, Shingo [7909-38]S11
Katori, Hidetoshi [7945-44]S7
Katrasnik, Jaka [7891-27]S7
Kats, Mikhail A. [7953-25]S6
Katto, Masahito [7915-15]S3
Katz, Aubrey J. [7893-17]S4
Katz, David F. [7890-36]S7
Katzen, Federico [7905-17]S4
Katzir, Abraham 7894 S8 SessChr
Kaufel, Gudrun [7953-32]S8, [7953-32]S14
Kaufman, Peter A. [7896-46]S10
Kaufmann, Christian [7928-11]S3
Kaufmann, Ken MeetingVIP
Kaufmann, Michaela [7897-46]S9
Kauppinen, Risto A. [7892-23]S4
Kaushal, Nitin [7911-38]S8
Kaushik, Sumanth [7917-36]S9
Kavalenka, Maryna N. [7888-18]S2
Kavehrad, Mohsen 7958 ProgComm, [7958-18]S7
Kavuri, Venkaiah C. [7896-77]S16
Kawabe, Tsutomu [7889-95]SPS2, [7893-34]S6
Kawagoe, Yohsuke [7957-26]S6, [7957-41]SPS4
Kawaguchi, Hitoshi [7937-28]S6
Kawaguchi, Tatsuhiko [7935-16]S4
Kawai, Hiroyuki [7934-48]SPS4
Kawakami, Yoichi 7939 ProgComm
Kawakita, Yasumasa [7952-03]S1
Kawanishi, Tetsuya [7958-14]S5
Kawano, Hiroyuki [7929-20]S5
Kawano, Kenji [7947-32]SPS4
Kawano, Shogo [7904-51]S10
Kawasaki, Masashi 7940 ProgComm, [7940-48]SPS4
Kawasaki, Tetsuji [7916-13]S3
Kawase, Kodo [7897-12]S3
Kawashima, Hayato [7925-43]SPS3
Kawata, Satoshi [7902-03]S1, 7903 ProgComm, [7904-51]S10, [7911-23]S5
Kawata, Shigeo [7957-26]S6
Kawauchi, Satoko [7883D-95]SPS1, [7897-65]SPS2, [7907-22]S4
Kawazoe, Tadashi [7957-22]S5
Kayaert, Peter [7889-23]S4
Kavis, Cemil [7939-88]SPS4, [7939-89]SPS4
Kaylor, Brant [7930-02]S1, [7930-02]S7
Kazan, Michel [7946-57]S13, [7946-82]SPS4
Kazemzadeh, Farnoud [7904-15]S4, [7907-17]S3
Kazimierczuk, Tomasz [7937-49]S11
Kazovsky, Leonid G. [7958-01]S, [7958-01]S, [7958-01]S
Ke, Haixin [7899-117]SPS2
Keaton, Gregory [7905-31]S7
Kebort, Don [7939-47]S8
Kedrov, A. Yu. [7913-04]S1
Keeler, Gordon A. [7952-20]S6
Keely, Patricia J. [7903-10]S2
Kehagias, Th. [7939-58]SPS4
Kehayas, Efstratios [7941-11]S3
Kehne, David [7916-31]S7
Keiper, Bernd [7921-29]S7, [7921-29]S11
Kekesi, Renata [7941-05]S1
Kelbauskas, Laimonas [7902-58]S13, [7929-26]S6
Kelemen, Márc T. [7918-10]S2
Keller, Kristin A. [7912-66]S15
Keller, Matthew D. 7883G S2 SessChr, [7883G-142]S2, [7891-05]S1
Keller, Stefan [7954-33]S9
Keller, Ursula [7903-99]SPS1, 7912 ProgComm, [7912-22]S7, [7918-26]S5, 7919 Chr, 7919 S1 SessChr, [7919-15]S4, [7919-18]S4, [7919-25]S5, [7919-32]S7, [7919-33]S7
Kellnberger, Stephan [7899-121]SPS2
Kelly, Edward [7897-18]S4
Kelly, Kristen M. [7883A-07]S2, [7883A-24]S5
Kellsall, Robert W. [7943-45]S13
Kelso, John [7954-39]S10
Kemme, Shanaly A. 7927 ProgComm, [7941-41]S9
Kempfle, Anna [7883A-38]SPS1
Kemper, Björn [7902-01]S1, [7904-03]S1
Kempf, Carl [7931-07]S3
Kenda, Andreas [7930-15]S4, [7930-25]S6
Kendall, Catherine [7890-29]S6
Kennedy, Brendan F. [7889-78]S12, [7889-119]SPS2, [7906B-33]S3
Kennedy, Gordon T. [7893-07]S2, [7895-16]S3, [7904-34]S7, [7904-35]S7
Kennedy, Ian M. [7908-26]S4, [7910-17]S4
Kennedy, Keith W. [7918-01]S1, [7918-12]S2
Kennedy, Kenneth [7953-02]S1, [7953-41]S11, [7953-64]SPS4
Kennedy, Stephanie A. [7890-11]S2
Keo, Sam A. [7945-63]S11, [7945-67]S11
Kerimo, Josef [7903-65]S9
Kern, Alexander [7959-06]S3
Kerr, Shaun M. [7899-24]S4, [7899-118]SPS2
Kerttula, Juho [7914-69]SPS3
Kessler, Pascal [7903-117]SPS1
Kessel, David H. 7886 Chr, 7886 S1 SessChr, [7886-01]S1
Kessler, Waitraud [7902-11]S3
Kessler, William J. [7915-07]S2
Ketelhut, Steffi [7904-03]S1
Kettner, Benjamin [7933-46]S10
Kewes, Günther [7943-37]S12
Key, Jaehong [7908-04]S1
Keymel, Kenneth [7886-49]SPS1
Keyser, Kent T. [7883G-139]S1
Khademhosseini, Bahar [7904-45]S9, [7908-21]S4
Khadka, Sabin [7883E-118]S6, [7896-82]SPS1
Khadiour, Aghiad [7919-31]S7
Khairi, Ahmad B. [7901-28]S6
Khalbuss, Walid E. [7907-03]S1
Khalifin, Viktor [7952-15]S4
Khalid, Ibanouf [7935-12]S3
Khalil, Diaa [7927-28]S6, [7930-17]S4
Khalil, Michael [7896-71]S15, [7896-91]SPS1
Khalilov, Valery K. [7894-48]S3
Khan, Asif M. [7954-23]S7
Khan, Bilal [7883G-136]S1, [7896-06]S1
Khan, Enamul H. [7920-01]S1
Khan, Mohammad J. [7917-36]S9
Khan, Mughees [7941-44]SPS4
Khandekar, Rahul M. [7957-23]S5
Khanikaev, Alexander [7946-59]S14
Khanna, Amit [7934-11]S3
Khanna, Suraj P. [7937-24]S6, [7945-56]S9, [7953-25]S6, [7953-26]S7
Kharkwal, Gitika B. [7887-06]S2
Kharlamov, Boris M. [7914-43]S10, [7914-110]SPS3
Khaydarov, John [7917-04]S5, [7917-04]S1
Kheif, Abdelkrim 7946 ProgComm, 7946 S11 SessChr, [7946-40]S10, [7946-42]S10
Khitrov, Victor [7914-62]S15
Khizhnyak, Anatoliy I. [7912-84]SPS3, [7914-100]SPS3, [7917-66]SPS3, [7924-13]S3
Khlebtsov, Boris N. [7911-46]SPS1
Khlebtsov, Nikolai G. [7911-46]SPS1
Khojasteh, Mehrnough [7902-77]SPS2
Khokhlova, Tatiana D. [7899-159]SPS2
Khorasani, Sina [7946-64]S15, [7946-67]SPS4, [7946-68]SPS4
Khorasaninejad, Mohammadreza [7910-19]S4, [7947-16]S4
Khorchani, Jennifer D. [7899-144]SPS2, [7901-41]S9
Khosla, Ajit [7926-09]S3, [7926-21]SPS3, [7929-13]S4, [7929-14]S4, [7929-33]SPS3
Khurgin, Jacob B. 7949 ProgComm, [7949-43]S9, 7951 ProgComm, 7951 S3 SessChr, [7951-06]S2, [7953-43]S11
Khuri-Yakub, Butrus T. [7899-154]SPS2
Khawaja, Adil [7902-72]SPS2
Kiang, Yean-Woei [7889-113]SPS2, [7889-114]SPS2, [7909-15]S5, [7911-16]S4, [7937-45]S10, [7939-53]SPS4, [7945-50]S8, [7954-06]S2
Kibler, Bertrand [7917-31]S8
Kieffer, Jean-Claude [7937-19]S5
Kielpiński, David [7948-19]S4
Kien, Fam L. [7913-44]S9, [7949-11]S3
Kienle, Alwin [7884-01]S1, [7896-92]SPS1
Kiesel, Peter [7929-30]S7
Kiessling, Ralf 7893 ProgComm
Kiessling, Willis [7896-85]SPS1
Kieu, Khanh Q. [7903-32]S5
Kikuchi, Akihiko [7937-37]S8, [7939-51]S9, [7946-81]SPS4
Kikuchi, Hiroshi [7957-25]S6
Kikuchi, Hirotsugu 7955 ProgComm
Kikuchi, Makoto [7883D-95]SPS1, [7897-65]SPS2, [7899-105]SPS2, [7899-108]SPS2, [7899-111]SPS2, [7907-22]S4
Kildishev, A. V. [7946-24]S6
Kiljan, Torsten [7902-71]SPS2
Killian, Doreen [7925-18]S4
Killin, Tom [7891-24]S6
Killinger, Dennis [7924-20]S4
Kilosanidze, Barbara N. [7957-28]S5, [7957-39]SPS4, [7957-49]S6
Kilpatrick, James M. [7914-100]SPS3
Kim, Anthony [7883E-96]S1, [7883E-97]S1, [7886-24]S6
Kim, Beop-Min [7883E-120]SPS1, [7898-42]SPS2
Kim, Bong Kyu [7890-40]S7
Kim, Bong-Soo [7911-48]SPS1
Kim, Byeongwan [7935-20]S5
Kim, Chang-Dong MeetingVIP
Kim, Chang-Seok [7889-51]S8, [7889-75]S11, [7890-40]S7
Kim, Changwhan [7926-16]SPS3
Kim, Chul Soo [7953-38]S10
Kim, Chulhong [7899-09]S2, [7899-19]S3, [7899-21]S4, [7899-77]S12, [7899-114]SPS2, [7948-02]S1
Kim, Chulmin [7889-87]SPS2
Kim, Chun-Kwang [7908-30]SPS2
Kim, Dae-Hwan [7933-76]SPS4
Kim, Daekeun [7903-56]S8
Kim, DaeYu [7885-09]S2, [7889-16]S3
Kim, Dai Sik [7911-43]SPS1, 7937 ProgComm
Kim, Dami [7898-33]S5, [7906A-15]S3, [7906A-19]SPS2
Kim, Do Hyung [7892-28]SPS1
Kim, Do-Hyun [7894-44]S8, [7894-46]S4, [7899-97]SPS2
Kim, Dong Ho [7954-25]S7, [7954-37]S10, [7954-47]SPS4, [7954-48]SPS4
Kim, Dong Wook [7942-26]SPS4
Kim, Dong Yoon [7954-25]S7, [7954-47]SPS4

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Kim, Donghyun** [7902-47]S10, [7904-60]SPS2, [7905-44]SPS1, [7941-46]SPS4
- Kim, Dongsik [7920-09]S2, [7920-13]S3
- Kim, Dong-uk [7939-91]SPS4, [7946-17]S4
- Kim, Doo-Gun [7941-45]SPS4
- Kim, Do-Won [7943-24]S7
- Kim, Dug-Young** [7902-62]SPS2, [7902-64]SPS2
- Kim, Eunji [7884-12]S5
- Kim, Eunkyung** 7935 ProgComm, [7935-20]S5, [7935-43]SPS4, [7935-45]SPS4
- Kim, Eun-Soo [7957-46]SPS4, [7957-47]SPS4
- Kim, Geunyoung [7928-03]S1
- Kim, Guang-Hoon [7912-80]SPS3
- Kim, Gun-Duk [7934-18]S4
- Kim, Gyungock [7943-24]S7
- Kim, Hae Yeon [7892-28]SPS1
- Kim, Haeng-In [7923-13]S4
- Kim, Hak-Rin [7926-17]SPS3
- Kim, Han Sung [7883A-22]S4
- Kim, Han-Jun [7956A-03]S1
- Kim, Hee-Jin [7945-13]S4
- Kim, Hee-Joo [7908-26]S4
- Kim, Heungsook [7921-02]S1
- Kim, Hong Seung** [7933-80]SPS4, [7941-45]SPS4, [7946-74]SPS4
- Kim, Hoon Sup [7889-87]SPS2
- Kim, Hyeong-Seok [7939-19]S15
- Kim, Hyochul [7937-02]S1
- Kim, Hyun Jun [7912-66]S15
- Kim, Hyun-Joo [7934-26]S6
- Kim, Hyun-Keol [7890-20]S4, [7896-18]S4, [7896-43]S9, [7896-71]S15, [7896-91]SPS1
- Kim, Hyunsung [7939-12]S13
- Kim, In-Kyong [7896-71]S15
- Kim, J. S. [7945-91]S16
- Kim, J. [7947-25]S7
- Kim, J.-W. [7940-44]S12
- Kim, Jae Gwan [7896-49]S10, [7896-73]S15, [7896-112]SPS1
- Kim, Jae-Chang** [7956A-15]S4, [7956B-22]S1, [7956B-34]S3
- Kim, Jang-Joo** 7935 ProgComm, 7935 S4 SessChr, [7935-05]S2
- Kim, Jason [7883C-159]S7
- Kim, Jeehyun [7889-112]SPS2, [7890-34]S6, [7890-35]S7, [7892-29]SPS1, [7910-24]S5
- Kim, Jeomoh [7954-13]S4
- Kim, Jeonghun [7935-20]S5
- Kim, Ji Hun [7908-24]S4
- Kim, Ji Won [7914-05]S2
- Kim, Jin Won [7883D-77]S2
- Kim, Jinsik** [7927-31]S7
- Kim, Jinsoo [7945-13]S3
- Kim, Jin-Woo [7899-58]S9
- Kim, Jong Dae [7929-32]SPS3, [7929-34]SPS3
- Kim, Jong Kyu 7954 ProgComm, 7954 S2 SessChr, [7954-14]S4
- Kim, Jonghun [7943-24]S7
- Kim, Jongshin [7956B-26]S2
- Kim, Jongwon [7929-32]SPS3, [7929-34]SPS3
- Kim, Ju Wan [7904-56]SPS2
- Kim, Junghyun [7955-31]SPS4
- Kim, Jungsub [7945-73]S12
- Kim, Jung-Suk [7898-42]SPS2
- Kim, Jun-Whee [7935-25]SPS4, [7935-49]SPS4, [7941-43]SPS4, [7960-25]SPS4
- Kim, J-Y [7946-24]S6
- Kim, Kang [7899-57]S9
- Kim, Kangwook [7909-23]S7, [7909-24]S7, [7909-25]S7
- Kim, Ki Hean [7883C-65]S7, [7903-116]S3
- Kim, Ki-Han** [7956A-15]S4, [7956B-22]S1
- Kim, Kisoo** [7935-07]S2
- Kim, Kwangmeyung [7908-04]S1
- Kim, Kyong-Hon [7942-26]SPS4, [7942-29]SPS4
- Kim, Kyoung-Bo [7935-07]S2
- Kim, Kyujin [7908-34]SPS2, [7926-17]SPS3, [7935-48]SPS4
- Kim, Kyujung [7902-47]S10, [7905-44]SPS1, [7941-46]SPS4
- Kim, Kyung-Jo [7935-49]SPS4, [7941-43]SPS4
- Kim, Meeri N. [7896-03]S1, [7896-10]S2, [7896-41]S9, [7896-84]SPS1, [7896-85]SPS1
- Kim, Mijin [7953-38]S10
- Kim, Min W.** [7934-53]SPS4
- Kim, Min-Ho [7954-16]S4
- Kim, Moosub [7898-33]S5, [7906A-15]S3, [7906A-19]SPS2
- Kim, Myung K.** [7904-09]S2, [7908-05]S1, [7908-27]S4
- Kim, Myun-Sik [7941-49]S9
- Kim, Nakjoong 7935 ProgComm
- Kim, Nam** [7957-03]S1, [7957-04]S1
- Kim, Nam Seong 7921 ProgComm
- Kim, Namje [7947-25]S7
- Kim, Okgeun [7908-34]SPS2
- Kim, Philseok [7927-04]S1
- Kim, Sang-Mook [7945-49]S8
- Kim, Sang-Woo [7945-80]S14
- Kim, Sehwan [7935-45]SPS4
- Kim, Seung-Cheol [7957-46]SPS4, [7957-47]SPS4
- Kim, Seung-Hwan [7942-26]SPS4
- Kim, Seungsoo [7899-61]S9, [7899-74]S11
- Kim, Shinae** [7894-31]S6
- Kim, Sora 7930 S4 SessChr
- Kim, Su Jin [7954-25]S7, [7954-37]S10, [7954-47]SPS4, [7954-48]SPS4
- Kim, Sujin [7945-73]S12
- Kim, Sung June [7894-31]S6
- Kim, Sunghwan [7939-91]SPS4, [7942-17]S7
- Kim, Sungjee [7909-23]S7, [7909-24]S7, [7909-25]S7, [7911-25]S5
- Kim, Sungjun** [7935-07]S2
- Kim, Tae Geun [7954-25]S7, [7954-37]S10, [7954-47]SPS4, [7954-48]SPS4
- Kim, Tae-Joong [7904-54]SPS2
- Kim, Tae-Yeob [7935-07]S2
- Kim, Wi-Han [7906A-24]SPS2
- Kim, Woosung [7913-37]S8
- Kim, Yeong Gyu [7925-34]S5, [7925-34]S9
- Kim, Yeong-Sik [7917-60]SPS3
- Kim, Yong-Su [7948-18]S4
- Kim, Yoon-Ho [7948-18]S4
- Kim, YoungDuk [7904-54]SPS2
- Kim, Youngjae [7889-56]S8, [7914-33]S8, [7914-99]SPS3
- Kim, Youngmin** [7956B-26]S2, [7956B-28]S2
- Kim, Yuna [7935-43]SPS4, [7935-45]SPS4
- Kim, Yunho [7955-18]S6, [7955-31]SPS4
- Kim, Yuri [7892-28]SPS1, [7904-57]SPS2
- Kimerling, Lionel C.** [7941-04]S1, [7945-86]S15, [7953-30]S8, [7953-30]S14
- Kimoto, Tsunenobu [7926-03]S1, [7926-11]S3
- Kimpel, Frank [7912-02]S1, [7923-12]S4, [7924-17]S3
- Kimura, Eri [7957-33]SPS4
- Kimura, Hiroaki [7937-55]S12
- Kimura, Kouhei [7925-07]S2
- Kimura, Shigeya [7939-85]SPS4
- Kimura, Takehiro [7883D-91]S6
- Kimura, Takeshi [7945-47]S7
- Kindt, Jared T. [7888-01]S1
- Kindt, Joel D. [7902-71]SPS2
- Kindy, Mark S. [7887-19]S4
- King, Jamie [7916-42]SPS3
- King, Travis J. [7906A-04]S1
- King, Vernon [7912-76]SPS3
- Kingry, Luke C. [7888-05]S1
- Kino, Gordon M. [7883E-104]S3, [7930-04]S1, [7930-04]S7
- Kinoshita, Nobuhiro [7957-25]S6
- Kinoshita, Yuta [7958-14]S5
- Kinsky, Michael [7899-11]S2, [7899-15]S3
- Kintaka, Kenji [7942-01]S1, [7942-01]S8
- Kiontke, Sven R.** [7934-41]SPS4
- Kioschis, Petra [7902-11]S3
- Kippenberg, Tobias [7913-26]S6, [7951-11]S3
- Kipshidze, Gela [7945-22]S4, [7953-37]S10, [7953-60]S15
- Kira, Mackillo [7937-66]S15
- Kirby, Edmund I. [7949-24]S5
- Kirch, Jeremy [7953-03]S1
- Kirchhof, Johannes [7914-39]S10, [7934-24]S6
- Kirejev, Vladimir [7903-98]SPS1
- Kirfel, Gregor [7884-32]SPS1
- Kirichuk, Vyacheslav F. [7901-17]S4
- Kirilina, Evgeniya [7896-02]S1
- Kiriya, Tatyana S. [7901-17]S4
- Kirk, Andrew G. [7888-07]S1, [7908-23]S4, [7943-47]S8, [7943-47]S14, [7955-27]S8
- Kirk, Rodney W. [7890-58]SPS1, [7893-29]S6
- Kirkpatrick, Douglas A. MeetingVIP
- Kirkpatrick, Sean J.** 7897 ProgComm, 7897 S9 SessChr, [7897-48]S10, 7898 ProgComm, [7898-10]S2, [7898-14]S2, [7907-12]S2, BO304XX Chr
- Kirsch, David [7892-32]SPS1
- Kirshenbaum, Mark R. [7894-41]S8
- Kirste, Lutz [7945-61]S10, [7954-24]S7
- Kirste, Ronny** [7939-22]S2, [7939-40]S7, [7940-04]S1
- Kiseleva, Elena [7884-31]SPS1
- Kishino, Katsumi [7937-37]S8, [7939-51]S9, [7946-81]SPS4
- Kisin, Michael V. [7939-09]S12
- Kisker, David W. [7902-71]SPS2
- Kiss, Robert [7929-22]S5
- Kissel, Heiko [7918-23]S4
- Kita, Tomohiro [7940-48]SPS4, [7940-49]SPS4
- Kitada, Takahiro [7937-52]S12
- Kitagaki, Manabu [7899-108]SPS2, [7899-111]SPS2
- Kitagawa, Ryota [7927-35]S8
- Kitamura, Hikaru [7937-55]S12
- Kitamura, Kazuya [7934-19]S5
- Kitamura, Mitsuru [7957-22]S5
- Kitamura, Naoyuki [7934-22]S6
- Kitamura, Takashi 7956A ProgComm, 7956A S4 SessChr, [7956A-13]S3
- Kitano, Tsukasa [7939-67]SPS4
- Kitaoaka, Yasuo [7939-01]S1, [7939-82]SPS4
- Kitatsujii, Masashi [7889-95]SPS2, [7893-34]S6
- Kitayabu, Akiko [7902-65]SPS2
- Kito, Chihiro [7934-23]S6
- Kittel, Sonja M. 7921 ProgComm
- Kityk, Ivan V. [7933-69]SPS4
- Kitzerow, Heinz-Siegfried 7955 ProgComm
- Kiuchi, Takahiro [7885-49]S10
- Klaessens, John H.** [7883E-113]S5, [7890-26]S5, [7895-26]S5, [7897-32]S7, [7901-36]S8
- Klamm, Tobias [7905-20]S5, [7905-21]S5
- Klang, Pavel [7947-21]S6
- Klaus, Michael [7953-33]S9
- Klee, Doris [7883C-178]S3
- Kleen, Jonathan K. [7883E-99]S1
- Klehr, Andreas [7912-37]S10, [7912-37]S9, [7937-27]S6, [7953-47]S12
- Klein, Karl-Friedrich** 7894 ProgComm, 7894 S4 SessChr, [7894-36]S7, [7894-37]S7, [7894-48]S3
- Klein, Markus** 7954 ProgComm
- Klein, Thomas** [7889-01]S1, [7889-49]S8, [7914-16]S4, [7914-97]SPS3
- Klemetsen, Oystein [7901-30]S6
- Klemm, Richard [7929-01]S1, [7929-01]S3, [7929-10]S3, [7929-11]S3
- Klenerman, David [7905-45]SPS1
- Klenke, Arno [7914-48]S12
- Kleppe, Ingo [7905-34]S8
- Kletetschka, Gunther [7928-25]SPS3
- Kleven, Kjersti [7952-02]S1
- Kley, Ernst-Bernhard 7927 ProgComm, [7927-36]S8
- Klimentov, S. I. [7913-19]S4
- Klimov, Igor [7912-26]S7
- Klimt, Bernhard H. [7920-30]S9
- Kliner, Andrea [7914-43]S10
- Kliner, Dahv A. V.** 7912 S10 SessChr, 7914 ProgComm, 7914 S6 SessChr, 7914 S9 SessChr, [7914-43]S10
- Kling, Rainer 7921 ProgComm, [7925-37]S6, [7925-37]S10
- Klinkhammer, Sönke** [7912-59]S14, [7913-33]S7
- Klocke, Fritz [7927-21]S5
- Klopp, Peter [7919-35]S8
- Klos, Thomas [7953-33]S9
- Klose, Alexander D.** [7896-61]S13, [7902-70]SPS2
- Klose, Christian D. [7890-20]S4
- Kloster, Michael [7904-49]S10, [7932-16]S4
- Klotzbach, Udo 7921 ProgComm
- Klotzbücher, Thomas 7921 ProgComm
- Klotzkin, David J. [7953-08]S2
- Klubben, William S. [7886-27]S7
- Kluczynski, Pawel [7945-23]S4
- Klug, Ulrich** [7925-37]S6, [7925-37]S10
- Klumel, Genadi [7918-03]S1, [7918-31]S5
- Klyen, Blake R.** [7889-12]S2, [7907-36]S6
- Knapczyk, Maciej T. [7918-14]S3, [7918-20]S4
- Knapp, Deborah [7908-04]S1
- Knappe, Ralf [7912-25]S7, [7912-37]S10, [7912-37]S9
- Knauer, Arne [7939-18]S15
- Kneissl, Michael 7939 ProgComm, [7939-18]S15, 7953 ProgComm, 7953 S4 SessChr
- Knels, Lilla [7889-11]S2, [7893-26]S5, [7893-38]S8
- Kner, Peter A.** [7931-20]S6
- Knigavko, Anton N. [7917-41]S9, [7949-25]S5
- Knigge, Steffen [7953-50]S13
- Knight, Ian [7912-72]SPS3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Knight, Jonathan C. [7894-34]S6
Knight, Michael [7897-14]S3, [7897-63]SPS2
Knights, Andrew P. 7943 ProgComm, 7943 S4 SessChr, 7943 S2 SessChr, [7943-07]S3, [7947-28]S7
Knill, Emanuel [7948-22]S5
Knize, Randall J. [7915-05]S2
Knobbe, Jens [7930-01]S1, [7930-01]S7
Knöbber, Fabian [7931-10]S4
Knoll, Thorsten [7894-28]S5
Knollenberg, Clifford [7939-10]S13
Knorr, Andreas [7937-48]S11, [7937-62]S14
Knorr, Florian [7902-32]S7
Knudsen, Bodo E. 7883B Chr, 7883B S2 SessChr
Knutti, James W. SympComm
Ko, Alex C. T. [7883D-71]S1, [7903-40]S6
Ko, Changyong [7883A-22]S4
Ko, Jamyuen [7952-01]S1
Ko, Kaspar D. [7946-78]SPS4
Ko, Seung Hwan [7922-01]S1
Ko, Tsun-Kai [7939-07]S12
Ko, Woo Jin [7883B-55]S4, [7883B-56]S4
Ko, Yeong Hwan [7940-08]S3
Kobat, Demirhan [7895-32]SPS2
Kobayashi, Hiroaki [7883G-135]S1
Kobayashi, Hisataka 7910 ProgComm, 7910 S3 SessChr, [7910-02]S1, [7910-07]S2
Kobayashi, Junya 7935 ProgComm
Kobayashi, Katsuhiko 7885 ProgComm, 7885 S2 SessChr
Kobayashi, Masanao [7914-43]S10
Kobayashi, Shuichi [7899-91]SPS2
Kobayashi, Shunsuke 7955 ProgComm
Kobayashi, Takayuki [7960-20]S5
Kobayashi, Tsuyoshi [7933-58]S13
Kobayashi, Yohei [7902-65]SPS2
Kobelke, Jens [7914-66]S16, [7925-06]S2, [7934-24]S6, [7946-34]S8
Koberling, Felix [7903-76]S11, [7903-106]SPS1, 7905 S3 SessChr, 7905 S6 SessChr, [7905-03]S1, [7905-35]S8
Kobler, James B. [7883C-64]S4, [7883C-175]S4, [7889-72]S11
Kobrin, Paul H. [7945-60]S10
Kocaman, Serdar [7942-16]S7
Kocaoglu, Ormer P. [7885-10]S2, [7885-52]S10, [7885-53]S10, [7885-54]S10
Koch, Alexander W. [7894-22]S4
Koch, Edmund [7889-08]S2, [7889-11]S2, [7889-39]S6, [7893-24]S5, [7893-26]S5, [7893-38]S8
Koch, Eric [7902-69]SPS2
Koch, Martin [7933-50]S11, [7937-66]S15
Koch, Peter [7889-05]S1, [7889-60]S9, [7889-82]S12, [7907-42]S6
Koch, Steffen [7903-87]SPS1
Koch, Stephan W. [7919-23]S5, 7933 ProgComm, 7933 S11 SessChr, [7933-50]S11, [7937-66]S15, [7939-79]SPS4, [7953-15]S4, [7954-15]S4
Koch, Volker M. [7889-89]SPS2
Kochiev, David [7883B-52]S4
Kochubey, Vyacheslav I. [7898-33]S5, [7898-37]SPS2
Koda, Rintaro [7953-18]S4
Kodach, Vitali M. [7889-84]S12
Kodama, Ryosuke [7937-55]S12
Kodet, Jan [7923-15]S4
Kodymová, Jarmila 7915 ProgComm
Koechlin, Charlie 7945 S14 SessChr, [7945-75]S13
Koehler, Klaus [7919-06]S2
Koelper, Christopher [7933-39]S9
Koenig, Anne [7892-18]S4
Koenig, Harald [7918-28]S5
Koenig, Jens 7920 S6 SessChr, 7925 S10 SessChr, [7925-32]S5, [7925-32]S9
Koenig, Karsten MeetingVIP, [7883A-09]S2, [7883A-12]S3, [7883A-26]S5, [7883A-37]SPS1, [7889-62]S9, 7903 Chr, 7903 S11 SessChr, [7903-03]S, [7903-42]S6, [7903-54]S8, [7903-55]S8, [7903-80]S11, [7908-20]S4
Koenig, Michael [7954-33]S9
Koenning, Tobias P. [7918-08]S2, [7918-13]S3
Koenraad, Paul M. [7947-26]S7
Koeht, Johannes [7945-14]S3, [7945-19]S3
Koffler, Kathrin [7937-21]S5
Kögel, Benjamin [7952-19]S5
Kögel, Benjamin W. [7959-07]S3
Koh, Andrew [7911-17]S4
Koh, Dalkwon [7883E-120]SPS1
Koh, Jinsu [7883E-120]SPS1
Koh, Shinji [7937-28]S6
Kohata, Hiroki [7923-10]S3
Kohl, Andreas [7918-28]S5
Kohlenberg, Elicia M. [7883D-71]S1, [7903-40]S6
Kohler, Robert [7921-23]S6, [7921-24]S6
Köhler, Bernd [7918-23]S4, [7918-29]S5
Köhler, Klaus [7954-24]S7
Köhler, Stefan [7929-21]S5
Kohli, Kapil K. [7937-30]S7
Kohli, Kirpal [7929-33]SPS3
Kohn, Rudolph N. [7932-07]S2
Koichi, Abe [7940-49]SPS4
Koide, Yasuo [7940-13]S4
Koike, Yasuhiro 7935 Chr, 7935 S5 SessChr, [7955-14]S5
Koinzer, Stefan [7885-26]S5, [7885-28]S5
Kok, Joke H. [7895-21]S4
Kolbe, Tim [7939-18]S15
Kolbitsch, Christoph [7885-15]S3
Koleske, Daniel D. [7954-16]S4
Kolesnikova, Anna S. [7910-52]S11, [7911-26]S5
Koleva, Vera [7952-02]S1
Kolin, Nikolay G. [7945-53]S8
Koliou, Michael C. [7899-34]S5, [7899-41]S6, [7899-94]SPS2, [7899-127]SPS2, [7907-37]S6, [7907-40]S6
Koljenovic, Senada [7883D-79]S3
Kolleck, Christian [7912-01]S1
Kollias, Nikiforos 7883A Chr, 7883A S3 SessChr, [7883A-15]S3, [7883A-27]S5
Kolodziejski, Noah J. [7908-29]S4
Kolste, Kolbein [7883E-97]S1
Koltchanov, Igor [7933-29]S7, [7959-20]S7
Komaki, Shozo [7958-11]S5, [7958-12]S5, [7958-16]S7
Komar, Vitaliy K. [7912-87]SPS3, [7894-05]S1
Komashko, Aleksey M. [7915-08]S2
Komatsu, Masanobu [7910-41]S9
Kominou, Ph. [7939-58]SPS4
Konak, Tetyana [7912-83]SPS3
Konda, Vani [7897-70]SPS2
Kondo, Kengo [7899-87]SPS2
Kondo, Toshiyuki [7939-67]SPS4
Kondo, Yuuki [7935-16]S4
Kondratiev, Nikita M. [7913-24]S5
Konecky, Soren D. [7896-27]S6, [7896-50]S11, [7896-103]SPS1, [7907-11]S2
Konen, Ian M. [7915-02]S1, [7915-03]S1
Kong, Chae-Ryon [7890-46]S8, [7890-48]S8, [7892-11]S2, [7897-22]S5, [7897-23]S5, [7906A-21]SPS2
Kong, DuanHua [7941-09]S2
Kong, Fanting [7899-76]S12
Kong, Hong Jin 7916 S7 SessChr, [7916-08]S2
Kong, Linghua [7906A-08]S2, [7927-37]S8
Kong, Lingjie [7903-28]S5
Kong, Siu-Kai [7911-11]S2
König, Karsten [7920-26]S8, [7920-26]S12, [7920-43]SPS3, [7921-19]S5
König, Marcelle [7903-76]S11, [7905-03]S1
Koning, Joseph M. [7916-05]S1
Konishi, Yusuke [7939-82]SPS4
Kono, Shunsuke [7953-18]S4
Konopleva, Marina [7897-34]S7
Konrad, Jan [7925-33]S5, [7925-33]S9
Konrad, Peter [7883E-112]S5
Konstantaki, Maria [7894-20]S4
Kontogeorgos, Andreas [7927-01]S1
Koo, Bryan [7902-09]S3
Koo, Chiwan [7892-26]SPS1
Koo, Jasung [7883B-45]S2, [7889-112]SPS2
Koonce, Nathan [7883C-156]S5
Koo, David [7903-21]S3
Kopans, Daniel B. [7892-04]S1
Koptev, Andrey V. [7915-14]S3
Kopylov, Oleksii [7954-30]SPS4
Koranda, Petr [7884-03]S1, [7912-87]SPS3
Korbelik, Mladen [7883A-04]S1, 7900 ProgComm, 7900 S1 SessChr, [7900-01]S1
Kornis, János [7957-27]S6
Korobov, Vladimir [7954-10]S3
Korolkov, Victor P. [7957-35]SPS4
Koropatkin, Nicole [7905-23]S6
Korotkov, Roman Y. [7939-11]S13
Korotkova, Olga 7924 Chr, 7924 S1 SessChr, 7924 S2 SessChr, 7924 S3 SessChr, 7924 S4 SessChr, [7924-04]S1, [7924-08]S2, [7924-22]S4
Korpjärvi, Ville-Markus [7919-04]S1
Kosaka, Hideo [7948-44]S11
Koshelov, A. [7918-24]S4
Kosilkina, Ilya [7913-42]S5
Kossacki, Piotr [7937-07]S2
Kostelc, James G. [7910-33]S7
Kosterev, Anatoliy A. [7945-18]S3, [7945-20]S3, [7945-27]S4, [7945-28]S4
Kostuk, Raymond K. [7904-06]S2, [7904-07]S2, [7904-62]SPS2
Kostyukovich, Katerina [7927-47]SPS3
Kostyukovich, Sergiy A. [7927-47]SPS3
Kota Pavan, Sriharsha [7958-19]S5
Koteeswaran, Dornadula [7895-15]S3, [7895-22]S4
Kothapalli, Sri-Rajasekhar [7899-154]SPS2, [7917-53]S12, [7948-03]S1
Kotov, Leonid [7914-75]SPS3
Kotov, Nicholas A. [7899-57]S9, [7899-75]S11
Kotsar, Y. [7945-51]S8, [7939-48]S9
Kotsymbas, Halyna I. [7891-08]S3
Kotsymbas, Ihor Y. [7891-08]S3
Koudelka, Petr [7923-14]S4, [7934-54]SPS4
Koukourakis, Nektarios [7939-79]SPS4
Koulik, Andrey [7912-80]SPS3
Koullick, Ed 7883B ProgComm, 7883B S3 SessChr, [7883B-51]S3, [7883B-53]S4
Kouno, T. [7939-51]S9
Koutn?, Tomás [7912-74]SPS3
Kovalenko, Andriy [7946-69]SPS4
Kovalev, Alexander [7933-62]S14
Kovalev, Anatoly A. [7912-68]SPS3
Kovanis, Vassilios I. [7933-09]S3, [7933-52]S12, 7933 ProgComm, 7933 S4 SessChr
Kovtun, Roman M. [7954-46]SPS4
Kowalczyk, Laura [7925-08]S2
Kowalczyk, Andrzej A. [7883E-109]S4, [7885-14]S3, [7889-38]S6, [7889-67]S10
Kowalski, Gregory J. [7929-17]S4
Kowerko, Danny [7905-11]S2
Koyama, Fumio 7952 ProgComm
Koymen, Ali R. [7897-33]S7, [7908-12]S2, [7922-07]S2
Kozak, Dmitry A. [7930-19]S4
Kozak, Marcin M. [7914-39]S10
Kozaki, Shogo [7957-34]SPS4
Kozek, Krystina [7911-18]S4
Kozicki, Bartlomiej [7959-19]S7
Kozłowska, Anna [7934-46]SPS4
Kozłowski, David [7923-03]S1
Kracht, Dietmar [7912-01]S1, [7914-36]S10, [7914-36]S9, [7914-76]SPS3, [7914-86]SPS3
Krafft, Christoph [7895-25]S5, [7903-41]S6
Krainak, Michael A. 7923 ProgComm, 7923 S4 SessChr
Krakowski, Michel [7953-09]S2, [7953-13]S3, [7953-46]S12
Kral, Lukas [7924-09]S2
Krämer, Benedikt [7903-76]S11, [7903-106]SPS1
Krames, Michael R. [7939-47]S8, 7954 ProgComm, 7954 S5 SessChr
Krammer, Peter [7883A-21]S4
Kramper, Gerhard M. [7905-34]S8
Kränkel, Christian [7912-07]S3, [7912-22]S7
Krapf, Lisa [7903-100]SPS1
Krasnaberski, Alexei [7913-13]S3
Kraus, Martin F. [7885-16]S3, [7885-31]S6, [7885-43]S9, [7889-02]S1, [7889-44]S7
Kraus, Martin [7925-35]S5, [7925-35]S9
Krause, Christine [7952-01]S1
Krause, David J. [7960-05]S1, [7960-05]S1, [7960-16]S4
Krause, Stefan [7905-11]S2
Krause, Volker K. [7914-66]S16, 7918 ProgComm, 7918 S3 SessChr
Krauss, Günther [7903-30]S5
Krausz, Ferenc [7914-54]S14, [7925-31]S7
Krawinkel, Judith [7925-14]S4, [7925-18]S4
Krebs, Olivier [7945-92]S16
Kreher, David [7935-14]S4
Krein, Douglas M. [7935-27]S7
Kreis, Juergen [7956A-17]S5
Kreissl, Jochen [7953-14]S3
Krejl, Martin [7912-50]S12
Krellmann, Mathias [7930-34]S8
Krestnikov, Igor L. [7917-01]S5, [7917-01]S1, [7919-33]S7
Krey, Stefan [7926-13]S4
Krichel, Nils J. [7945-97]S17
Krier, Tony [7945-21]S4
Kriesel, J. M. [7894-42]S8
Kriezis, Emmanouil E. [7945-40]S6
Krishna, Sanjay 7926 ProgComm,

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- [7937-06]S2, [7945-65]S11, [7945-66]S11, [7945-69]S12, [7951-03]S1
 Krishnamachari, Vishnu Vardhan [7903-44]S7
Krishnamoorthi, Harish [7891-05]S1
 Krishnamoorthi, Ashok V. MeetingVIP, [7944-01]S1, [7944-04]S1, [7944-10]S3, [7944-24]S6
 Krishnamurthy, Pradeep Kumar [7948-48]SPS4
 Krishnan, Sunil [7908-06]S1, [7910-06]S1
 Krishnaswamy, Venkataraman [7886-24]S6, [7886-27]S7, [7896-56]S12, [7896-58]S12, [7907-19]S3, [7907-25]S4
 Krisna, Ankit [7926-22]S3
Kristensen, Anders [7913-33]S7
 Krogstad, Anne Lene [7883A-06]S1
 Kroisamer, Julia-Sophie [7885-05]S1
 Krol, Denise M. 7925 ProgComm, [7925-25]S6
 Kroll, Jeremy J. [7916-26]S6
 Kroll, Stefan [7949-27]S5, [7948-02]S1
 Krost, Alois J. [7939-46]S8
 Krstajic, Nikola [7889-91]SPS2
 Krucker, Thomas [7907-28]S4
 Krueger, Arnd K. 7903 ProgComm
Krueger, Ronald R. [7885-25]S5
 Krueger, Stefanie [7884-04]S2, [7884-05]S2
Kruger, Robert A. 7899 ProgComm
 Krüger, Alexander [7883C-184]S7
 Kruglik, Sergei [7893-09]S2
 Kruizinga, Pieter [7899-74]S11
 Kruk, Patricia [7929-31]SPS3
 Krull, Ulrich J. 7909 S8 SessChr, [7909-11]S4, [7909-32]S9
 Krumholz, Arie [7899-51]S8, [7899-116]SPS2, [7899-122]SPS2
 Krupka, Oksana [7935-04]S1
 Kruschwitz, Brian E. 7916 Chr, 7916 S4 SessChr
 Krusor, Brent S. [7956A-02]S1
 Krysa, Andrew B. [7919-01]S1, [7946-07]S2, [7953-41]S11
 Krzewina, Leo G. [7904-09]S2, [7908-05]S1
 Ksэндзов, Alexander [7945-22]S4
Ku, Pei-Cheng [7934-53]SPS4
 Ku, Yunhee [7898-33]S5, [7906A-15]S3, [7906A-19]SPS2
 Kubacki, Frank [7916-18]S4
 Kubby, Joel [7930-19]S4, 7931 Chr, 7931 S5 SessChr, 7931 S6 SessChr, [7931-01]S6, [7931-01]S1, [7931-01]S5, [7931-09]S4, [7931-19]S6, [7931-21]S6, 7943 Chr
 Kubecek, Václav [7912-73]SPS3
 Kübler, Wolfgang M. [7893-24]S5
 Kubo, Kazuki [7922-02]S1, [7940-12]S3
 Kubo, Masaki [7935-35]S9
 Kubodera, Shoichi [7915-15]S3
 Kubota, Atusi [7889-70]S11
 Kuboya, Shigeyuki 7945 ProgComm, 7945 S2 SessChr, [7945-44]S7, [7945-45]S7
 Kuchin, Jevgenij [7957-09]S2
 Kuchinskii, Vladimir I. [7919-19]S4
 Kuchta, Daniel M. [7944-17]S5
 Kuczynski, John [7895-19]S4
 Kudlick, Wieslaw A. [7905-17]S4
 Kudlicki, A. [7929-27]S7
 Kudryashov, Alexis V. 7913 Chr, 7913 S2 SessChr, [7913-08]S2, [7913-18]S4, 7931 ProgComm
 Kudryashov, Sergej I. [7915-12]S3
Kuebler, Stephen M. 7927 ProgComm
 Kuech, Thomas F. [7890-10]S2, [7953-03]S1
 Kuehnelt, Michael [7919-13]S3
Kueppers, Franko [7959-09]S4, [7959-09]S4
Kuetemeyer, Kai [7897-03]S1
 Kuhlow, Berndt [7943-28]S8
 Kuhn, Liisa T. [7896-63]S13
 Kuhn, Peter [7907-30]S5
 Kühnemuth, Ralf [7905-12]S3
 Kuimova, Marina K. [7903-72]S10
 Kuiper, Stein [7930-05]S2
 Kuis, Robinson A. [7937-25]S6
 Kuittinen, Markku [7927-22]S5, [7927-39]SPS3, [7927-41]SPS3
 Kuksenkov, Dmitri V. [7917-71]S3
 Kulcsar, Caroline [7885-68]SPS2
 Kulkarni, Abhijeet A. [7894-27]S5
 Kulkarni, Gauri R. [7897-17]S4, [7950-32]S8
Kullberg, Richard C. 7928 ProgComm
Kumagai, Hiroshi [7917-09]S3, [7917-14]S4, [7917-61]SPS3, [7917-62]SPS3, [7917-63]SPS3, 7922 ProgComm, [7922-20]SPS3, [7927-26]S6
 Kumagaya, Taisuke [7937-55]S12
 Kumamoto, Kazuo [7958-11]S5, [7958-12]S5
 Kumano, Hidekazu [7947-05]S2
 Kumar, Anil [7946-65]S15, [7946-78]SPS4
 Kumar, Pankaj [7897-43]S9
 Kumar, Pradeep [7948-47]S11
Kumar, Rajesh [7913-51]S9
 Kumar, Rana [7910-33]S7
 Kumar, Sandeep [7955-01]S1
 Kumar, Sunil [7904-31]S7, [7904-35]S7, [7904-61]SPS2
 Kumar, Sushil [7953-22]S5, [7953-23]S6
 Kumari, Priyadarshini [7908-22]S4
 Kumavor, Patrick D. [7892-36]SPS1, [7896-97]SPS1, [7899-29]S5, [7899-158]SPS2
 Kumeda, Akio [7922-02]S1, [7940-12]S3
 Kumlér, Jay MeetingVIP
 Kümmell, Tilmar [7954-29]S8
 Kumon, Ronald E. [7899-136]SPS2
 Kumru, Semih S. [7897-35]S7
 Kunert, Bernardette [7933-50]S11, [7939-79]SPS4, [7953-31]S8, [7953-31]S14, [7953-32]S8, [7953-32]S14
 Kung, Chun-Ta [7903-105]SPS1
 Kunio, Mie [7883D-92]S6
 Kuntaegowdanahalli, Sathyakumar S. [7902-26]S6
 Kunugita, Hideyuki [7937-37]S8
 Kunz, Dieter [7954-04]S1
 Kunzer, Michael [7954-24]S7
Kuo, Anthony N. [7885-03]S1, [7885-47]S9
 Kuo, Chih-Wei [7937-35]S8
 Kuo, Chun-Hung [7903-31]S5
 Kuo, Hao-Chung 7939 ProgComm, [7939-65]SPS4, [7939-69]SPS4, [7939-70]SPS4, [7954-07]S2
 Kuo, Mao-Kuen [7947-24]S6
 Kuo, Shiihyang [7897-45]S9
Kuo, Wen-Chuan [7889-27]S4
 Kuo, Wen-Shuo [7910-08]S2
 Kuo, Yen Kuang [7954-49]SPS4, [7933-42]S9, [7933-81]SPS4, [7935-42]SPS4, [7939-76]SPS4
Küppers, Franko 7959 ProgComm, [7959-07]S3
 Kuppig, Stephan [7905-34]S8
 Kurabayashi, Katsuo [7893-12]S3
 Kurachi, Cristina [7886-36]SPS1, [7886-39]SPS1, [7886-42]SPS1, [7887-22]SPS1
 Kuramoto, Masaru [7953-18]S4
 Kuranov, Roman V. [7906B-35]S3
 Kurashige, Makio [7955-28]SPS4
 Kurashov, Vitaliy [7927-47]SPS3
 Kurczveil, Geza [7943-29]S9
 Kurihara, Takayuki [7957-14]S3
 Kurimura, Sunao [7912-30]S8, [7917-08]S3
 Kurita, Taiichiro [7957-02]S1, [7957-08]S2
 Kurkov, Andrey S. [7897-52]S11
 Kurmaev, E. Z. [7940-27]S7
 Kuroda, M. [7945-45]S7
Kurokawa, Kazuhiro [7885-50]S10, [7889-03]S1, [7889-47]S7, [7931-05]S2
 Kuromori, Toshiki [7913-47]SPS3
 Kurosaki, Ryoza [7920-47]SPS3
Kurth, Steffen [7928-11]S3, [7930-18]S4
 Kurtz, Ronald M. [7925-41]SPS3
Kurtz, Russell M. [7957-20]S4
 Kurugol, Sila [7904-44]S9
Kurzweg, Timothy P. [7907-01]S1
Kutty, Maya N. [7945-65]S11
Kutz, Jose Nathan [7914-56]S14, [7914-58]S14, [7933-53]S12, [7933-55]S12, [7933-73]SPS4, [7941-12]S3
 Kuwabara, Masakazu [7939-43]S8
 Kuwabara, Mitsuo [7889-106]SPS2
 Kuwahara, Yousuke [7939-63]SPS4
 Ku'zel, Petr [7917-13]S4
 Kuzhiumparambil, Unnikrishnan [7883B-57]SPS1
Kuzin, Evgeny A. [7914-77]SPS3, [7917-33]S8
 Kuzmich, Alex M. [7949-36]S7
Kuzmina, Iona [7883A-38]SPS1
 Kuznetsov, Andrej Y. [7945-85]S15
 Kuznetsov, Andrey [7914-29]S7
 Kuznetsov, Mark [7889-52]S8
 Kuznetsov, V. A. [7913-04]S1
Kuzyk, Mark G. [7935-19]S5
 Kveder, Miha [7934-33]SPS4
 Kvit, A. V. [7939-87]SPS4, [7939-94]S14
 Kwak, Joon Seop 7945 S15 SessChr, [7945-79]S14
 Kwan, Judy [7885-34]S7
 Kwark, Young [7944-17]S5
 Kwok, Chi-Hang [7953-46]S12
 Kwon, Dong-Jun [7928-26]SPS3
 Kwon, Do-Woo [7957-46]SPS4, [7957-47]SPS4
 Kwon, Ho Ki [7939-73]SPS4
 Kwon, Ick Chan [7908-04]S1
 Kwon, Oh-Jang [7934-28]S7, [7934-34]SPS4
 Kwon, Ohseung [7956A-03]S1
 Kwon, Soon-Bum [7956B-34]S3
 Kwon, Sunkuk [7910-39]S8
 Kwon, Taewoo [7908-08]S1
 Kwon, Young Jik [7883E-101]S2
Kwong, David N. [7943-33]S10, [7944-33]SPS4
 Kwong, Dim-Lee [7942-13]S5
 Kyono, Hiroyuki [7889-22]S4
 Kyriakides, Alexandros [7890-47]S8, [7911-03]S1
- L**
- L. Ferreira, Maria de Fátima [7887-27]SPS1, [7887-28]SPS1
 La Riviere, Patrick J. [7899-96]SPS2
 Laakso, Antti I. [7933-93]SPS4, [7953-10]S2, [7953-12]S3
 L'Abbate, Antonio [7883D-84]S4, [7896-36]S8
 LaBrake, Dwayne L. 7927 ProgComm
Lachaine, Rémi [7925-14]S4, [7925-15]S4
 Lachinova, Svetlana L. [7914-47]S12, [7924-14]S3
 Lacko, Andras G. [7905-49]SPS1
 Lacks, Daniel J. [7955-17]S6
 Lacombe, Francois 7893 ProgComm, [7893-07]S2
 Lacourt, Pierre-Ambroise [7921-18]S5
 LaCroix, Jeffrey T. [7890-36]S7
 Ladd, Thaddeus D. [7948-29]S7
 Lademann, Jürgen M. 7898 ProgComm, [7898-27]S5, 7906A ProgComm
 Laegsgaard, Jesper [7914-84]SPS3, [7914-93]SPS3
 Laehemann, Jonas [7933-39]S9
Lago, Laure [7914-35]S8
 Lagoda, Gwen A. [7883B-39]S1, [7883B-46]S2, [7883G-162]S3
 Lagoudakis, Pavlos G. 7933 S5 SessChr, [7933-05]S2
 Lahourcade, Lise [7939-58]SPS4
 Lai, Chih-Hsien [7938-11]S3
 Lai, Kun-Yu A. [7927-46]SPS3
 Lai, Weicheng [7944-35]SPS4, [7941-20]S5
 Lai, Wei-Chih [7939-54]SPS4, [7939-77]SPS4
 Lai, You-Liang [7926-19]SPS3
 Laieva, Aurelie [7895-23]S4, [7896-38]S8
 Laikhtman, Boris [7898-08]S1
 Laine, Romain [7896-65]S13, [7904-34]S7, [7904-35]S7
Lakhtakia, Akhlesh 7927 ProgComm
 Lakowicz, Joseph R. 7903 ProgComm, 7911 Chr, 7911 S5 SessChr, 7911 S6 SessChr
 Lakshmana, Sudheendra [7908-26]S4, [7910-17]S4
Lai, Amit MeetingVIP, [7930-20]S
 Lalanne, Elaine [7937-25]S6
 Lalapeta, Rama Moorthy [7940-19]S5, [7940-50]SPS4
 LaLumondiere, Stephen [7918-02]S1, [7933-16]S4
 Lam, Matthew [7883D-83]S4
Lam, Stephen 7893 ProgComm, 7893 S8 SessChr, [7893-23]S5, [7893-28]S5
 Lam, Sylvia [7902-75]SPS2
 Laignère, Laurent [7937-20]S5
 Lamarque, Frederic [7932-14]S3
 Lamb, Jonathan R. [7904-19]S4
Lambrecht, Armin 7945 ProgComm, 7945 S1 SessChr, [7945-19]S3
 Lambrecht, Walter R. L. 7940 S5 SessChr, 7940 S6 SessChr, 7940 S7 SessChr, [7940-23]S6
Lamela, Horacio [7933-60]S13, [7933-59]S13
 Lammer, Jan [7885-46]S9
 Lamontagne, Boris [7888-04]S1, [7928-19]S6, [7928-19]S1, [7928-19]S5, [7941-39]S9, [7943-15]S5
 Lamory, Barbara [7885-07]S2, [7885-41]S8, [7885-68]SPS2
Lamouche, Guy [7883D-80]S3, [7883D-81]S3, [7883D-87]S5, [7883D-90]S5, [7884-08]S4, [7889-56]S8, [7889-68]S10, [7889-94]SPS2, [7897-07]S2, [7906B-28]S1
 Lampe, André [7905-21]S5
 Lamprecht, Tobias [7942-25]S8
 Lan, Yu-Pin [7896-39]SPS1
 Landau, Mayor [7945-57]S9
 Landgraf, Ferdinand [7927-13]S3
 Landgraf, Heike [7954-33]S9
 Landis, Elizabeth C. [7920-16]S4

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Landman, Mattijs [7895-26]S5
Landru, Nicolas [7912-19]S6, [7912-19]S2
Landulfo, Eduardo [7907-41]S6
Landwehr, Stefanie [7903-44]S7
Lane, Pierre M. [7883C-66]S8, [7893-23]S5, [7893-28]S5, [7893-42]SPS2, [7895-13]S3, [7902-75]SPS2
Lang, Dieter [7954-01]S1
Lang, Keith D. F. [7918-14]S3, [7918-20]S4
Lang, Klaus-Dieter [7928-04]S2
Lang, Tino [7912-01]S1
Langbein, Wolfgang [7903-50]S7, [7911-33]S7, [7937-03]S1, [7937-04]S1
Lange, Nicolas [7926-08]S3
Lange, Robert 7923 ProgComm, 7923 S2 SessChr, [7923-02]S1
Langenhansen, Patrik [7926-13]S4
Langer, Gregor [7944-07]S2
Langford, Steve C. [7920-01]S1
Langner, Andreas [7914-66]S16
Langs, Georg [7885-18]S3
Lani, Sébastien [7930-29]S7, [7930-35]S8
Lankne, Eva [7883C-177]S2
Lanning, Rodney [7916-10]S3
Lanternier, Catherine [7916-22]S5
Lanzani, Guglielmo [7937-65]S14
Lanzara, Alessandra [7937-64]S14
Lanzoni, Patrick [7930-21]S6, [7930-21]S1, [7930-21]S5, [7932-09]S2
Lao, Yan-Feng [7945-56]S9
Lapinski, Feliks [7918-04]S1
Lapointe, Jean [7888-04]S1, [7941-39]S9, [7943-15]S5, [7947-03]S1, [7947-17]S4
Lapointe, Jerome [7885-36]S7
Lappa, Alexander V. [7883A-16]S3, [7886-44]SPS1
Laranjo, Mafalda [7910-09]S2
Large, Maryanne C. J. 7946 ProgComm
Larger, Laurent [7933-57]S13, [7936-11]S3
Largiadier, Stephanie [7902-97]S
Largo, Remo [7883B-54]S4
Larin, Kirill V. 7885 ProgComm, 7885 S6 SessChr, [7885-06]S1, [7885-67]SPS2, [7889-09]S2, [7889-81]S12, [7890-30]S6, 7898 Chr, 7898 S5 SessChr, [7898-05]S1
Larina, Irina V. [7889-09]S2
Larionov, Mikhail A. [7912-09]S3
LaRocca, Francesco [7885-03]S1, [7885-47]S9
Larouche, Carl [7930-23]S6
Larroque, Christian [7888-06]S1
Larrue, Alexandre [7945-16]S3
Larsen, Eivind L. P. [7883A-06]S1
Larsen, Henning E. [7889-62]S9
Larson, Bjorg A. [7890-23]S5
Larson, Noble [7889-52]S8
Larsson, Anders [7952-19]S5, [7959-07]S3
Larsson, Marcus [7896-70]S15, [7906A-01]S1
Lashkari, Bahman [7883F-134]S3
Laskin, Alexander V. [7913-20]S4
Laskin, Vadim [7913-20]S4
Lasser, Theo [7889-57]S9, [7904-17]S4
Lassonde, Philippe [7937-19]S5
Latal, Jan [7934-54]SPS4, [7923-14]S4
Latham, W. P. [7912-11]S3
Latka, Ines [7895-25]S5
Latkowski, Jeffery F. 7916 ProgComm, [7916-03]S1, [7916-05]S1
Latrive, Anne [7890-37]S7, [7893-36]S8, [7895-08]S2
Latta, Daniel [7929-11]S3
Lau, Kei May 7954 ProgComm, 7954 S3 SessChr
Lau, Lana [7910-57]S12
Laude, Vincent [7946-42]S10
Lauer, Christian [7918-28]S5
Laufer, A. [7940-07]S2
Laufer, Jan G. [7889-41]S7, [7899-40]S6, [7899-107]SPS2
Laughney, Ashley M. [7907-19]S3, [7907-25]S4
Laurain, Alexandre [7945-07]S11
Laurell, C. [7885-20]S4
Laurell, Thomas [7909-13]S12
Laurent, Arnaud [7914-98]SPS3
Laurent, Sabine [7945-06]S1
Laurila, Marko [7914-84]SPS3
Lauritsen, Kristian [7917-06]S3
Lauro, Romain [7948-04]S1
Laustsen, B. T. [7894-43]S8
Lautenschläger, Stefan [7940-04]S1, [7940-07]S2
Lauwers, Gregory Y. [7889-24]S4, [7893-03]S1, [7893-17]S4
Lavagnino, Zeno [7903-102]SPS1
Lavery, Leah [7956A-02]S1
Lavery, Linda L. [7899-57]S9
Lavery, Martin [7950-13]S4
Lavey, Brent J. [7897-56]SPS2
Lavik, Kari [7910-53]S12
Law, A. [7943-16]S5
Law, Matt [7933-36]S8
Lazon de la Jara, Percy [7885-34]S7
Lazzarino, Marco [7929-04]S2
Lazzeri, Emma [7948-23]S5
Le, Bang T. [7957-03]S1
Le, Du [7891-14]S4
Le, Kelvin [7900-10]S3
Le, Tuan [7912-41]S11
Le Coarer, Etienne [7941-13]S3
Le Couteur, David [7905-27]S7
Le Déroff, Laurent [7916-35]SPS3
Le Foulgoc, Karine [7930-23]S6
Le Garrec, Bruno [7916-14]S3
Le Gouët, Jean-Louis [7948-04]S1, [7948-06]S2
Leach, Jacob H. [7939-27]S3, [7939-61]SPS4, [7939-72]SPS4, [7939-88]SPS4
Leach, Jeffrey [7912-76]SPS3
Leach, Richard R. [7916-25]S5, [7916-41]SPS3
Leahy, Martin J. 7898 Chr, 7898 S3 SessChr, PanelModerator, [7898-20]S3, [7898-21]S3, [7898-29]S5, [7898-31]S5, [7898-47]SPS2
Leake, Devin [7930-04]S1, [7930-04]S7
Lear, Kevin L. [7888-05]S1, [7890-01]S1, [7902-71]SPS2, [7941-21]S5, 7952 ProgComm
Leary, James F. [7888-26]S1, [7888-26]S3, 7902 CoChr, [7902-36]S8, [7908-04]S1, [7910-22]S5, [7929-09]S3
Leautaud, Veronica [7883C-180]S6
Lebail, Guy [7912-19]S6, [7912-19]S2
Lebed, Evgeniy [7889-110]SPS2
LeBlanc, Herve P. [7953-71]S11
LeBlanc, Joshua [7923-22]S6
Leblond, Frederic 7883E ProgComm, 7883E S3 SessChr, [7883E-96]S1, [7883E-97]S1, [7886-24]S6, 7892 S3 SessChr, [7892-39]SPS1, [7892-41]SPS1, [7896-17]S4, [7896-66]S14, [7896-88]SPS1
Lebovitz, Evan [7883E-97]S1
Lebovka, Nikolay I. [7950-09]S3
Lebrun, Jean-Jaques [7925-17]S4
Lebugle, Maxime [7925-27]S7
Lecarpentier, Gerald L. [7899-06]S1
Lechuga, Laura M. 7888 ProgComm, [7888-10]S2, 7911 S2 SessChr, [7911-09]S2, [7941-19]S5, 7943 ProgComm
Leclair, Sébastien [7906B-37]S4
Lecomte, Michel [7953-09]S2, [7953-46]S12
Lecordier, Ludovic [7896-25]S5
Ledbetter, Micah P. [7948-31]S8
Ledderhof, Christopher J. [7934-29]S7
Ledentsov, Nikolai N. [7952-18]S5, 7933 ProgComm, [7933-48]S11
Ledoux, G. [7940-55]S12
Ledoux-Rak, Isabelle N. 7935 ProgComm, [7935-30]S8
Ledwosinska, Elizabeth [7938-09]S2
Lee, Anthony [7893-23]S5, [7893-28]S5
Lee, Benjamin G. [7944-17]S5
Lee, Beomsuk [7936-06]S2, [7936-16]S4, [7944-35]SPS4
Lee, Bernard T. [7896-26]S6
Lee, Byeong-Ha [7892-28]SPS1, [7904-56]SPS2, [7904-57]SPS2, [7933-82]SPS4
Lee, Byoung Chang [7894-35]SP1
Lee, Byoung Ho 7956B ProgComm, [7956B-26]S2, [7956B-28]S2
Lee, Byunghak [7903-116]S3
Lee, Byung-Teak [7940-28]S7
Lee, Cameron M. [7891-03]S1
Lee, Changho [7890-34]S6, [7892-29]SPS1
Lee, Charles Y. C. 7935 ProgComm, [7935-34]S9
Lee, Cheng-Kuang [7883C-59]S7, [7889-28]S4, [7889-113]SPS2, [7889-114]SPS2, [7909-15]S5, [7911-16]S4, [7937-45]S10
Lee, Chen-Ting [7901-16]S4
Lee, Cheoluk W. [7945-13]S3
Lee, Chia-Yen [7896-102]SPS1
Lee, Chia-Yun [7889-114]SPS2
Lee, Chul Sung [7884-10]S4
Lee, Daehong [7920-15]S4, [7922-01]S1
Lee, David [7885-48]S9, [7885-73]SPS2, [7889-120]SPS2
Lee, Dong Seon [7892-28]SPS1
Lee, Dong Yoeul [7935-07]S2
Lee, Donghan [7947-25]S7
Lee, Dongjoo [7917-30]S7
Lee, El-Hang [7935-50]SPS4, 7942 Chr, 7942 S3 SessChr, 7942 S7 SessChr, [7942-08]S4, [7942-26]SPS4, [7942-28]SPS4, [7942-29]SPS4, [7942-30]SPS4
Lee, Eun Gu [7947-25]S7
Lee, Frank [7939-52]S9
Lee, Gi-Da [7886-45]SPS1
Lee, Hansuek [7908-24]S4
Lee, Hao [7953-39]S10
Lee, Hee Kwan [7940-08]S3
Lee, Heedong [7912-66]S15
Lee, Heon [7939-19]S15, [7939-33]S5, [7939-75]SPS4
Lee, Ho [7906A-24]SPS2, [7926-16]SPS3
Lee, Hong-Mao [7939-06]S12, [7939-84]SPS4
Lee, Hong-Shik [7923-13]S4
Lee, Hsiang-Chieh [7893-04]S1
Lee, Hsinyu [7909-06]S2
Lee, Hsuan-Shu [7897-47]S10, [7903-62]S9
Lee, Huai-Chuan [7912-48]S12, [7917-21]S6
Lee, Hwang 7948 Chr, 7948 S4 SessChr, 7948 S11 SessChr
Lee, Hwidon [7889-51]S8
Lee, Hyeran [7910-44]S9
Lee, Hyuk-jae [7914-82]SPS3
Lee, Hyun Joo [7883E-120]SPS1
Lee, Hyung Seok [7890-40]S7
Lee, Hyung-Jong [7960-25]SPS4
Lee, Hyungkeun [7928-22]SPS3
Lee, Hyun-Shik [7942-30]SPS4
Lee, Ilhwan [7935-07]S2
Lee, In-Hwan 7945 ProgComm, 7945 S5 SessChr, [7945-38]S6, [7945-49]S8, [7945-53]S8
Lee, J. M. [7947-25]S7
Lee, Jaesoong [7939-09]S12, [7939-72]SPS4
Lee, Jaeyel [7945-73]S12
Lee, Jangwoon [7923-27]S5, [7896-73]S15, [7896-112]SPS1
Lee, Jeng-Woei [7900-03]S1
Lee, Jennifer [7902-07]S2
Lee, Jennifer [7903-29]S5
Lee, Jeong Sik [7939-73]SPS4
Lee, Jeongkwon [7939-91]SPS4, [7942-17]S7, [7946-17]S4
Lee, Jeong-Rae [7935-25]SPS4
Lee, Ji Youn [7891-33]SPS1
Lee, Ji-Hoon [7955-32]S6
Lee, Jin [7907-39]S6
Lee, Jinfeng [7912-78]SPS3, [7912-81]SPS3
Lee, Jinhong [7945-13]S3
Lee, Jin-Moo [7899-05]S1
Lee, Jisun [7955-31]SPS4
Lee, Jiyong [7902-62]SPS2
Lee, John [7907-38]S6
Lee, Jong Hwan [7896-43]S9
Lee, Jong-Ha [7890-49]SPS1
Lee, Jonghwan [7894-31]S6
Lee, Jong-Hwi [7960-25]SPS4
Lee, Jong-Lam [7935-07]S2, [7939-15]S14, [7939-74]SPS4
Lee, Jong-Moo [7942-26]SPS4
Lee, Joong Ha [7956B-34]S3
Lee, Ju-Han [7889-51]S8
Lee, Jun Yeong [7943-24]S7
Lee, Jung Il [7945-91]S16
Lee, Karam [7935-50]SPS4
Lee, Kee-Keun 7928 ProgComm, [7928-03]S1, [7928-06]S2, [7928-22]SPS3, [7928-23]SPS3
Lee, Keun Young [7945-80]S14
Lee, Ki-Dong [7933-39]S9
Lee, Kijoon [7896-30]S7, [7896-79]S16, [7898-40]S2
Lee, Kong Weng [7918-30]S5
Lee, Kuang-Li [7946-70]SPS4
Lee, Kwang-Sup 7935 ProgComm, 7935 S7 SessChr, [7935-22]S6
Lee, Kye-Sung [7891-22]S6, [7891-23]S6
Lee, Kyu-Back [7898-42]SPS2
Lee, Kyungmin [7911-48]SPS1, [7934-60]SPS4
Lee, Lap Man [7902-46]S10, [7904-33]S7
Lee, Li-Tzu [7894-19]S4
Lee, Luke P. [7911-43]SPS1
Lee, Man Seop [7925-34]S5, [7925-34]S9
Lee, Mark [7953-27]S7
Lee, Michael S. [7939-52]S9
Lee, Mike C. [7945-63]S11
Lee, Ming-Lun [7939-54]SPS4, [7939-77]SPS4
Lee, Oscar K. [7903-110]SPS1
Lee, Patrick [7885-04]S1, [7885-73]SPS2, [7889-19]S3
Lee, Peggy [7884-02]S1
Lee, Sang Jin [7892-28]SPS1
Lee, Sang Youl [7939-80]SPS4
Lee, Sang-Shin [7923-13]S4, [7934-18]S4
Lee, SangWon [7926-17]SPS3, [7935-48]SPS4

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Lee, Sang-Won [7889-45]S7, [7893-27]S5, [7893-30]S6, [7893-37]S8
- Lee, Sangyeol** [7885-10]S2, [7885-52]S10, [7885-53]S10, [7885-54]S10
- Lee, Seong Hwan [7955-30]SPS4
- Lee, Seong-Hwan [7939-19]S15, [7939-33]S5
- Lee, Seonkyung [7915-02]S1, [7915-03]S1
- Lee, Seoung Hun [7942-26]SPS4
- Lee, Seung Ah [7902-46]S10, [7906A-06]S2
- Lee, Seung Hee 7955 ProgComm
- Lee, Seung Suk [7894-30]S5
- Lee, Seungduk [7883E-120]SPS1
- Lee, Seung-Gol** [7935-50]SPS4, [7942-28]SPS4, [7942-29]SPS4, [7942-30]SPS4
- Lee, Seung-Jae [7945-38]S6
- Lee, Seungrag [7902-62]SPS2
- Lee, Seung-Yeol [7890-34]S6
- Lee, Shinyoung [7913-41]S9
- Lee, Shyh-Yuan [7884-06]S2, [7884-22]SPS1
- Lee, Sieun [7889-110]SPS2
- Lee, Sin-Doo** [7955-29]SPS4, 7956B Chr, [7956B-23]S1
- Lee, Stephanie [7883C-163]S1
- Lee, Sylvanus Y.** [7888-25]S1, [7888-25]S3
- Lee, Tae-Kyeong** [7933-80]SPS4, [7946-74]SPS4, [7941-45]SPS4
- Lee, Taewoo [7955-10]S4
- Lee, Tae-Woo [7933-96]SPS4, [7944-30]S1, [7944-30]S8
- Lee, Ting-Yim [7896-13]S3, [7896-14]S3
- Lee, Wah-Keat [7883C-168]S3
- Lee, Wan-Gyu [7934-18]S4
- Lee, Wei-I [7939-38]S6
- Lee, Wen-Jeng [7883D-10]S, [7903-105]SPS1
- Lee, William J. [7935-51]SPS4
- Lee, Wonju** [7902-47]S10, [7905-44]SPS1
- Lee, Y. C. [7928-01]S1
- Lee, Yeung-Lak [7889-87]SPS2
- Lee, Yi-Hsien [7899-141]SPS2
- Lee, Yong-Hee [7941-36]S8, 7947 ProgComm
- Lee, Yong-Tak [7937-74]SPS4
- Lee, Yoo Seung [7934-18]S4
- Lee, You-Jin [7956B-21]S1
- Lee, Young [7903-34]S6, [7937-63]S14
- Lee, Yun-Shik 7917 ProgComm
- Lee, Yu-Rim [7945-78]S13
- Leeb, Walter R. [7944-07]S2
- Leedy, Kevin D. [7940-02]S1
- Leem, Jung Woo [7940-08]S3
- Leers, Michael [7918-16]S3
- Leeuwis, Henk [7928-20]S6, [7928-20]S1, [7928-20]S5
- Lefaudeaux, Nicolas [7916-20]S4
- Lefebvre, Jacques [7922-05]S1
- Lefebvre, Michel [7912-56]S13, [7917-24]S6
- Lefort, Claire [7893-09]S2
- Lefrancois, Simon [7903-28]S5, [7914-56]S14, [7914-60]S15
- Légaré, François [7937-19]S5
- Legeais, Jean-Marc [7925-08]S2
- LeGendre, Andrew P. [7931-12]S5
- Leger, James R.** 7913 ProgComm
- Leger, Jean-François [7889-58]S9, [7931-15]S6
- Léger, Y. [7937-72]S15
- Lehmer, Robert H. [7916-31]S7
- Lei, Chun 7952 Chr, 7952 S1 SessChr, [7952-05]S2
- Lei, Jonathan [7912-34]S9
- Lei, Lei [7910-31]S6
- Lei, Ting [7913-38]S8
- Leibeling, Gilbert [7926-02]S1
- Leibfried, Dietrich [7948-15]S4
- Leibholtz, Stephen [7927-19]S5
- Leich, Martin [7914-66]S16
- Leick, Lasse [7914-61]S15, [7914-67]S16
- Leidich, Stefan [7928-11]S3
- Leif, Robert C.** 7902 Chr, 7902 S8 SessChr, 7902 S9 SessChr, 7902 S10 SessChr, 7902 S11 SessChr, [7902-41]S8
- Leif, Stephanie H. [7902-41]S8
- Leijten, Frans [7883E-113]S5
- Leindecker, Nicholas C. [7917-43]S10
- Leinonen, Tomi [7919-04]S1, [7953-10]S2
- Leinse, Arne [7928-20]S6, [7928-20]S1, [7928-20]S5
- Leisching, Patrick [7914-80]SPS3
- Leisher, Paul O.** [7918-01]S1, [7918-05]S1, 7953 S9 SessChr, [7953-49]S13
- Leiss-Holzinger, Elisabeth [7889-34]S5
- Leitel, Robert [7926-08]S3, [7930-08]S2, [7930-09]S2
- Leitenstorfer, Alfred [7903-30]S5, [7917-11]S4
- Leitgeb, Rainer A.** [7885-15]S3, [7885-18]S3, 7889 ProgComm, [7889-29]S5, [7889-30]S5, [7889-48]S7, [7889-115]SPS2
- Leitz, Karl-Heinz [7925-40]S8, [7925-40]S12
- LeLarge, François [7933-11]S3
- Lemaitte, Paul [7883A-03]S1, [7898-17]S3
- Lemaitre, Aristide [7945-92]S16, [7945-93]S16
- Lemasters, John [7886-11]S2
- Lemberg, Vladimir G. [7883A-20]S4, [7897-02]S1
- Lembessis, Vassilis E. [7950-06]S2
- Leménager, G. [7947-08]S3
- Lemieux, Dany [7914-03]S1
- Lemij, Hans G. [7885-45]S9
- Lemire-Renaud, Simon [7893-20]S4
- Lemke, Frank [7944-20]S5
- Lemmer, Uli** [7912-59]S14, [7913-33]S7
- Lempereur, Simon [7914-74]SPS3
- Lenardic, Borut [7934-33]SPS4
- Lendl, Bernhard** [7945-02]S1
- Leong, Yongzheng [7936-07]S2
- Leng, Yuxin [7916-37]SPS3
- Lennox, Bruce [7946-62]S14
- Lessen, Kars-Michel H. 7956A ProgComm
- Lentine, Anthony L. [7943-09]S3
- Lenz, Martin O. [7903-82]S11
- Lenz Cesar, Carlos [7903-09]S1, [7903-104]SPS1, [7903-108]SPS1, [7950-21]S5
- Lenzetti, Ivo [7885-24]S5, [7885-58]SPS2
- Leo, Giuseppe [7945-93]S16
- Leonardo, Manuel J. [7905-31]S7
- Leoni, Roberto [7945-31]S5
- Leontyev, Viktor A. [7946-69]SPS4
- Leopold, Steffen [7931-10]S4
- Lepage, Dominic** [7911-36]S7, [7922-16]S4
- Lepage, Jean-Francois [7930-23]S6
- Leppla, Ralph 7959 ProgComm
- Leproux, Anais [7891-02]S1
- Lermer, Matthias [7947-01]S1
- Lermer, Teresa [7953-15]S4, [7953-19]S4
- Lerondel, Gilles [7943-26]S8, [7943-27]S8, [7941-16]S4, [7946-82]SPS4
- Lesage, Frédéric [7883E-117]S6, [7899-95]SPS2
- Lesoine, John [7891-33]SPS1
- Lester, Luke F. [7933-09]S3, [7933-37]S8, [7933-52]S12, 7947 ProgComm
- Leszczynski, Michal [7953-17]S4
- Letartre, Xavier [7941-27]S7, [7946-06]S2
- Letfullin, Renat R.** [7883F-128]S2
- Letoublon, Antoine [7940-21]S5
- Lettow, Robert [7948-41]S10
- Leung, Benjamin Y. [7925-38]S11, [7925-38]S7
- Leung, David** [7943-16]S5
- Leung, Huimin [7930-07]S2
- Leung, Terence S.** [7896-32]S8, [7899-44]S7, [7899-98]SPS2
- Lev, Benjamin L. [7948-15]S4
- Lev, Dina C. [7890-30]S6
- Levchenko, Alexey O. [7915-12]S3
- Levchenko, Andrey E. [7914-87]SPS3
- Levecq, Xavier [7885-07]S2, [7885-41]S8, [7885-65]SPS2, [7902-43]S9, [7916-20]S4
- Levendag, P. C. [7883C-164]S5
- Levene, Michael J.** [7903-84]S11
- Levesque, Daniel [7889-68]S10
- Levi, Moshe [7918-34]S5
- Levi, Ofer SC461 Inst, SC309 Inst
- Levin, Leonard A. [7902-29]S6
- Levin, Robert E. [7954-02]S1
- Levine, Alaina G.** MeetingVIP, WS1008 Inst, WS1018 Inst
- Levine, Alex [7898-06]S1, [7910-31]S6
- Levitt, James A. [7902-31]S7, [7903-72]S10
- Levy, Joe L. [7918-07]S1
- Levy, Uriel** 7927 ProgComm, [7943-23]S7, 7949 S6 SessChr, [7949-28]S5
- Lewander, Märta [7894-16]S3
- Lewicki, Rafal** [7945-20]S3, [7945-24]S4
- Lewis, Aaron [7908-32]SPS2, [7927-42]SPS3, [7945-42]S6
- Lewis, Benjamin [7918-21]S4
- Lewis, Chaya [7908-32]SPS2
- Lexau, Jon [7944-10]S3
- Lezec, Henri J. [7927-33]S8
- L'huillier, Johannes A. [7912-37]S10, [7912-37]S9
- Li, Ang [7929-13]S4
- Li, Baolei [7903-25]S4
- Li, Ben [7939-47]S8
- Li, Binghui [7940-46]S12
- Li, Bo [7893-35]S1, [7893-35]S7
- Li, Changhui [7899-37]S6, [7899-134]SPS2
- Li, Changqing [7902-15]S4
- Li, Chao [7906B-33]S3
- Li, Chia-Yeh [7951-12]S3
- Li, Chi-Kang [7939-93]SPS4
- Li, Chu-An [7954-22]S6
- Li, Chuang [7916-37]SPS3
- Li, Chung-Yi [7958-09]S4, [7958-09]S4
- Li, Chunhui [7898-30]S5
- Li, Daijun [7912-24]S7, [7912-32]S9
- Li, Dong** [7890-17]S3, [7903-37]S6
- Li, Feng [7943-47]S8, [7943-47]S14
- Li, Feng-Chieh [7903-62]S9
- Li, Fuhai [7890-41]S8
- Li, Fuquan [7916-33]S7
- Li, Gouliang [7944-01]S1
- Li, Guifang** 7958 S1 SessChr, 7959 S1 SessChr, 7960 Chr, 7960 S1 SessChr, [7960-13]S3, [7960-14]S4
- Li, Guoliang [7944-04]S1, [7944-10]S3, [7944-24]S6
- Li, Guoqiang** [7904-53]S10
- Li, Hai** [7899-138]SPS2
- Li, Haifeng** [7903-53]S7
- Li, Haitao [7905-40]SPS1
- Li, Hao [7888-23]S1, [7888-23]S3
- Li, Haowen** [7903-120]SPS1
- Li, Hui [7899-88]SPS2
- Li, Hui [7900-17]SPS2
- Li, Huiping [7891-24]S6
- Li, Jiaheng** [7934-27]S6
- Li, Jiao [7892-25]SPS1, [7896-101]SPS1, [7896-108]SPS1
- Li, Jiasong [7911-29]S6
- Li, Jinchai [7954-07]S2
- Li, Jingjing** [7946-12]S3
- Li, Jing-Jing** [7933-18]S4, [7933-23]S5
- Li, Kang [7912-72]SPS3, [7917-58]SPS3, [7933-41]S9
- Li, Lei [7960-01]S, [7960-01]S, [7960-01]S
- Li, Li** [7884-30]SPS1, [7899-26]S4, [7899-28]S4, [7899-116]SPS2
- Li, Lianhe [7945-56]S9, [7953-25]S6
- Li, Lin [7896-86]SPS1, [7898-25]S4
- Li, Lin [7913-37]S8
- Li, Liwei** [7944-27]S7
- Li, Luozhou [7913-23]S5
- Li, Mary** [7928-25]SPS3
- Li, Meng-Lin** [7899-72]S11, [7899-103]SPS2, [7899-106]SPS2
- Li, Ming [7920-17]S4
- Li, Mingyu [7943-06]S3
- Li, Mingyuan [7952-10]S3
- Li, Nelson [7952-05]S2, [7953-08]S2
- Li, Pai-Chi** 7899 ProgComm, 7899 S11 SessChr, [7899-54]S8, [7899-78]S12, [7899-141]SPS2
- Li, Pengke [7943-38]S12
- Li, Qian [7914-58]S14
- Li, Qiming [7954-27]S8
- Li, Qing [7937-41]S9
- Li, Qiran [7939-48]S9
- Li, Qun [7934-20]S5
- Li, Rosamaria W. C. [7935-47]SPS4
- Li, Rui [7899-143]SPS2
- Li, Ruxin 7916 CoChr, [7916-36]SPS3, [7916-37]SPS3
- Li, Shenping [7917-71]S3
- Li, Shibo [7900-12]S4
- Li, Shunfeng [7933-39]S9
- Li, Tsung-Hsien [7897-47]S10
- Li, Wei** [7894-28]S5
- Li, Wen-Tyng [7886-43]SPS1, [7897-53]S11
- Li, Xiang [7889-43]S7, [7893-43]SPS2, [7899-158]SPS2
- Li, Xiang [7916-21]S4
- Li, Xiangping [7942-06]S3
- Li, Xiankai [7883D-72]S1
- Li, Xiao-Hang** [7954-28]S8, [7954-42]S11
- Li, Xiaosong [7900-05]S2, [7900-06]S2, [7900-08]S3, [7900-09]S3, [7900-10]S3
- Li, Xiaoying [7955-21]S7
- Li, Xing [7939-09]S12, [7939-27]S3, [7939-87]SPS4, [7939-88]SPS4, [7939-89]SPS4, [7939-94]S14
- Li, Xingde** 7889 ProgComm, 7889 S7 SessChr, [7889-42]S7, [7889-46]S7, [7889-50]S8, [7890-16]S3, [7903-39]S6, [7910-25]S5, [7910-60]SPS2, [7911-29]S6
- Li, Xinghua** [7920-32]S9
- Li, Xiuling [7946-20]S5
- Li, Xu [7889-79]S12
- Li, Xuechun [7916-19]S4, [7916-21]S4
- Li, Xun** [7933-30]S7, [7938-04]S1
- Li, Yan** [7933-37]S8, [7933-52]S12
- Li, Yan** [7956A-14]S4
- Li, Yanbo [7940-13]S4
- Li, Yeifi 7936 ProgComm
- Li, Yi-Chao** [7883G-139]S1, [7907-35]S5
- Li, Yi-Cheng [7927-17]S4

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Li, Yifei [7936-15]S4
Li, Ying [7942-16]S7
Li, Yuhua [7900-12]S4
Li, Yunhui [7888-04]S1
Li, Zheng [7900-12]S4
Li, Zhen-Yu [7939-69]SPS4, [7939-70]SPS4, [7954-07]S2
Li, Zhi [7896-60]S13
Li, Zhifang [7899-88]SPS2
Li, Zhiqiu [7896-58]S12
Li, Zhongli [7926-06]S2
Liang, Baolai [7937-05]S2, [7947-15]S4
Liang, Di [7943-46]S8, [7943-46]S14
Liang, Jiaming [7896-85]SPS1
Liang, Jinyang [7932-07]S2
Liang, Julian [7891-32]SPS1
Liang, Kexian [7910-66]S3
Liang, Rongguang 7891 Chr, 7891 S5 SessChr, SC868 Inst
Liang, Shinn-Jye [7890-22]S4
Liang, Song [7941-09]S2
Liang, Xiaoyan [7912-78]SPS3, [7912-81]SPS3, [7916-36]SPS3
Liang, Xing [7889-77]S12, [7907-32]S5
Liao, Ai-Ho [7899-141]SPS2
Liao, Che-Hao [7939-53]SPS4, [7940-31]S8, [7945-50]S8, [7954-06]S2
Liao, Chen-Zi [7939-90]SPS4
Liao, Chien-Sheng [7903-16]S2, [7903-115]SPS1
Liao, Hsin-Hao [7926-18]SPS3
Liao, Joseph C. [7902-63]SPS2
Liao, Kuo-Chih [7886-45]SPS1
Liao, Lun-De [7899-106]SPS2
Liao, Meisong [7934-23]S6, [7934-38]SPS4, [7934-39]SPS4
Liao, Meiyong [7940-13]S4
Liao, Rui [7924-16]S3
Liao, Shirong [7944-03]S1, [7944-24]S6
Liao, Steve M. [7883E-116]S5
Liao, Wei-Tasi [7939-69]SPS4
Liao, Yi-Hua [7883A-02]S1, [7883D-10]S, [7903-08]S1
Liao, Yi-Huan [7933-56]S12
Liau, Zong-Long [7917-36]S9
Liaw, Lih-Huei L. [7884-30]SPS1
Lieberman, Anatoly A. [7933-62]S14
Libertino, Sebania 7943 ProgComm
Librant, Zdzislaw [7934-46]SPS4
Licht, Daniel J. [7896-10]S2
Licht, Martin [7908-20]S4
Lichtenstein, Norbert [7912-50]S12, [7918-17]S3, [7918-25]S4, [7953-35]S9, [7953-48]S12
Lichtner, Mark [7953-52]S13
Licona-Moran, Brenda I. G. [7906B-27]S1
Liddle, James A. [7927-33]S8
Lidzey, David G. 7933 S3 SessChr, [7933-08]S2
Lieberman, Robert A. MeetingVIP
Liebermann, Jens [7889-73]S11
Liebert, Adam [7896-01]S1, [7896-81]SPS1, [7896-89]SPS1, [7896-92]SPS1, [7896-93]SPS1, [7898-24]S4
Liebich, Sven [7939-79]SPS4, [7953-31]S8, [7953-31]S14, [7953-32]S8, [7953-32]S14
Liebman, Judy A. [7916-24]S5
Liem, Andreas [7914-39]S10
Liemert, Andre [7896-92]SPS1
Lien, Chien-Hsiang [7935-13]S3
Liermann, Erik [7918-16]S3
Liero, Armin [7953-47]S12
Liesching, Birgitta [7921-06]S2
Lieu, Deborah K. [7903-07]S1
Lifante, Gines [7941-26]S6
Liggett, Luther A. [7910-53]S12
Ligler, Frances S. MeetingVIP, MeetingVIP, 7888 ProgComm
LiKamWa, Patrick [7953-67]SPS4
Likar, Bo'tjan [7884-13]S5, [7891-26]S7, [7891-27]S7
Likhachev, Mikhail [7914-75]SPS3
Lilledahl, Magnus B. [7903-119]SPS1
Lim, Andy E. [7942-13]S5
Lim, Daniel V. 7888 ProgComm
Lim, Daryl [7907-10]S2
Lim, Hae-Ryong [7933-82]SPS4
Lim, Hui Ting [7914-105]SPS3
Lim, Hyang-Tag [7948-18]S4
Lim, Hyunji [7883A-10]S2
Lim, Jin Bum [7940-28]S7
Lim, Ju Young [7945-91]S16
Lim, Seung-Chan [7923-13]S4
Lim, Sophia [7886-05]S1
Lim, Swee H. [7933-23]S5
Lim, Yiheng [7883A-25]S5, [7885-49]S10, [7889-65]S10, [7931-05]S2
Limbach, Friederich [7939-02]S1
Limmer, Steffen [7942-02]S1, [7942-02]S8
Limnonthakul, Puenisara [7911-05]S1
Limpert, Jens [7912-39]S10, [7912-39]S9, [7914-07]S2, [7914-11]S3, [7914-27]S6, [7914-37]S10, [7914-37]S9, [7914-42]S10, [7914-48]S12, [7914-50]SPS3, [7914-54]S14, [7914-89]SPS3, [7914-92]SPS3, [7925-31]S7
Lin, Andrew [7947-14]S4
Lin, Bevin [7895-02]S1
Lin, Chang-Yi [7933-37]S8
Lin, Charles P. 7902 ProgComm, [7931-17]S6
Lin, Chen-Fu [7926-18]SPS3
Lin, Cheng-An [7909-28]S8
Lin, Cheng-Hung [7940-31]S8, [7945-50]S8
Lin, Chenxi [7933-20]S5
Lin, Cheyun [7936-06]S2, [7941-20]S5, [7944-14]S4, [7944-41]S5, [7944-35]SPS4
Lin, Chih-Ching [7883B-41]S1
Lin, Chin-an [7927-46]SPS3
Lin, Ching [7894-08]S2
Lin, Ching-Fuh [7947-33]S4
Lin, Chin-Teng [7899-106]SPS2
Lin, Da-Wei [7939-69]SPS4, [7954-07]S2
Lin, Dejiao [7914-23]S6
Lin, Fan-Yi [7933-54]S12, [7933-56]S12, [7933-72]SPS4, [7936-09]S3
Lin, Franck [7910-38]S8
Lin, Guan-Hung [7909-06]S2
Lin, Guan-Jhong [7927-46]SPS3
Lin, Hong-yu [7954-11]S3
Lin, Hon-Way [7939-06]S12, [7939-81]SPS4
Lin, Hsien-Yu [7939-90]SPS4
Lin, Hsing-Ying [7911-49]SPS1, [7911-50]SPS1, [7911-51]SPS1, [7927-18]S4, [7946-80]SPS4
Lin, HungHsin [7933-54]S12
Lin, Jian [7903-47]S7, [7903-63]S9
Lin, Jui-Teng [7885-60]SPS2, [7885-66]SPS2, [7894-15]S3, [7908-19]S3, [7909-06]S2, [7910-15]S4, [7911-08]S2
Lin, Li Chih [7919-20]S4
Lin, Meng-Hsien [7949-22]S5
Lin, Shawn-Yu 7946 Chr, [7946-22]S5, [7946-53]S12
Lin, Shien-Fong [7883D-70]S1
Lin, Shih-Yen [7947-19]S5
Lin, Shiyun [7950-30]S8
Lin, Sung-Jan [7903-62]S9
Lin, Ting-Yu [7935-13]S3
Lin, Tsung-Hsien [7955-04]S2, [7955-05]S2
Lin, Wei-Hsun [7947-19]S5
Lin, Wenhua [7942-22]S8
Lin, Xiaohui [7944-14]S4, [7944-36]SPS4
Lin, Yan-Cheng [7937-51]S11
Lin, Yaomin [7921-31]S2
Lin, Yen-Hou [7917-17]S5
Lin, Yen-Yin [7917-05]S6, [7917-05]S2, [7917-17]S5
Lin, Yongbin [7911-15]S3, [7955-23]S7
Lin, Yong-Jun [7902-17]S4
Lin, Yuankun [7946-79]SPS4
Lin, Yu-Cheng 7929 ProgComm
Lin, Yu-Chuan [7955-12]S5
Lin, Yuehe 7929 ProgComm, [7929-06]S2
Lin, Yuting [7892-20]S4, [7892-37]SPS1, [7892-38]SPS1, [7892-40]SPS1
Lin, Yu-Ting [7920-40]S7, [7920-40]S11, [7920-44]SPS3
Lin, Zhi-Ru [7903-62]S9
Lin, Ziduo [7904-31]S7
Lin, Zi-Jing [7896-77]S16, [7896-82]SPS1, [7896-86]SPS1
Lin, Zunqi 7916 ProgComm, [7916-29]S6
Lindberg, Hans H. [7919-13]S3
Lindberg, Sven [7894-16]S3
Linden, Kurt J. SC747 Inst, 7918 ProgComm, 7918 S2 SessChr, 7954 ProgComm, 7954 S10 SessChr
Linder, Norbert 7933 ProgComm, 7954 CoChr
Lindgren, David [7939-20]S2
Lindla, Florian [7954-32]S9
Lindle, J. Ryan [7953-38]S10
Lindner, Florian [7934-24]S6
Lindquist, Robert G. [7911-15]S3, [7955-23]S7
Lineberger, Jennifer L. [7927-20]S5
Lineberry, Bobby [7945-103]SPS4
Linfield, Edmund H. [7937-24]S6, [7945-56]S9, [7953-25]S6, [7953-26]S7
Ling, Alex [7948-24]S6, [7948-43]S10
Ling, Shih-Chun [7939-69]SPS4
Ling, Tao [7899-102]SPS2, [7899-146]SPS2, [7899-151]SPS2, [7941-23]S6
Linke, Felix [7948-15]S4
Linke, Sebastian [7914-39]S10
Linkov, Alexander [7954-39]S10
Linn, Sean [7954-43]S11
Linskey, Mark E. [7883E-108]S4
Liopo, Anton [7897-34]S7, [7899-35]S5, [7899-157]SPS2
Liou, Bo-Ting [7935-42]SPS4
Liow, Tsung-Yang [7942-13]S5
Lipatov, Denis [7914-75]SPS3
Lippert, Thomas K. 7922 ProgComm
Lipski, Frank [7939-41]S7
Lipson, Michal F. [7949-19]S4
Lischka, Klaus [7937-36]S8
Lisetski, Longin N. [7950-09]S3
Lisinetskii, Viktor [7943-40]S12
Lisjak, Darja [7934-33]SPS4
Lissotschenko, Vitaly N. [7913-10]S3, [7913-13]S3
Lita, Adriana E. [7948-22]S5
Litorja, Maritoni [7891-28]S7, [7891-30]S7, [7906B-40]S4, [7932-04]S1
Litovsky, Silvio H. [7899-02]S1
Little, Brent [7945-37]S5
Littlejohn, David [7929-28]S7
Littleton, Bradley [7903-88]SPS1
Litzkendorf, Doris [7934-24]S6
Liu, Baochang [7886-14]S3
Liu, Baoxu [7905-39]SPS1
Liu, Binning [7941-18]S4
Liu, C. [7945-77]S13
Liu, Cheng-Hui [7895-17]S3, [7895-33]SPS2
Liu, Chi-Chun [7953-03]S1
Liu, Chi-Hung [7914-29]S7, [7914-60]S15
Liu, Chung-Ji [7900-03]S1
Liu, Feng [7934-20]S5
Liu, Gang L. [7946-78]SPS4
Liu, Gangjun [7883C-165]S2, [7883C-188]S2, [7889-18]S3, [7892-09]S2, [7898-22]S3, [7903-95]SPS1
Liu, Guangyu [7939-04]S1, [7939-37]S6, [7954-42]S11
Liu, Haichun [7896-67]S14, [7896-105]SPS1, [7909-13]S12
Liu, Hanli [7883B-42]S1, [7883E-118]S6, [7883G-136]S1, [7896-06]S1, [7896-77]S16, [7896-78]S16, [7896-82]SPS1, [7896-86]SPS1, [7898-25]S4, [7910-34]S7
Liu, Hao-Li [7899-72]S11
Liu, Hong 7898 ProgComm, [7900-05]S2, [7900-09]S3, [7900-10]S3, [7900-12]S4
Liu, Honghai [7903-13]S2
Liu, Honglin [7899-42]S7, [7899-45]S7, [7948-03]S1
Liu, Hsia-Wei [7909-06]S2
Liu, Hsueh-Hsing [7939-90]SPS4
Liu, Hui-Chun [7945-33]S5, [7945-34]S5, [7945-56]S9, 7953 ProgComm
Liu, Huiyong [7939-87]SPS4, [7939-94]S14
Liu, Hu-Y [7955-04]S2
Liu, Jen-Jane [7902-63]SPS2
Liu, Jheng-Jie [7934-49]SPS4
Liu, Jian [7914-102]SPS3
Liu, Jian [7940-29]S7
Liu, Jiang [7914-47]S12, [7914-108]SPS3
Liu, Jianlin [7940-32]S8
Liu, Jihong [7934-25]S6
Liu, Jing [7888-23]S1, [7888-23]S3
Liu, Jingbo [7937-09]S3
Liu, Jingle [7917-15]S5, [7938-03]S1
Liu, John K. [7945-67]S11
Liu, Jonathan J. [7885-16]S3, [7885-31]S6, [7889-02]S1, [7889-44]S7
Liu, Jonathan T. C. [7883E-104]S3, [7910-12]S3
Liu, Jui-Hsiang [7955-05]S2
Liu, Kou-Chen [7934-51]SPS4
Liu, Kuang-Ting [7900-03]S1
Liu, Lei [7883G-139]S1
Liu, Lei [7900-17]SPS2
Liu, Linbo [7883D-73]S1, [7893-33]S6
Liu, Ling [7914-47]S12
Liu, Liping [7899-76]S12
Liu, Liren [7937-71]SPS4
Liu, Liu [7913-51]S9
Liu, Mengyang [7899-150]SPS2
Liu, Minghua [7935-32]S8
Liu, Mingzhao [7937-16]S4
Liu, Neng [7920-11]S3
Liu, Ning [7892-38]SPS1
Liu, Ning [7929-29]S7
Liu, Peter Q. [7917-03]S5, [7917-03]S1
Liu, Po Hsuan [7885-02]S1
Liu, Qing Y. [7888-04]S1
Liu, Rong [7906A-16]SPS2, [7906A-18]SPS2
Liu, Rui [7902-23]S5
Liu, Sheng [7907-25]S6
Liu, Shujian [7939-09]S12, [7939-68]SPS4, [7939-87]SPS4
Liu, Shu-Yen [7939-77]SPS4
Liu, Tan [7899-82]S12
Liu, Tung-Kai [7927-43]SPS3, [7947-29]SPS4
Liu, Tze-An [7938-11]S3, [7938-18]S4
Liu, Tzu-Ming [7903-105]SPS1

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Liu, Wen 7927 ProgComm, [7927-32] S7
- Liu, Xiaohang [7952-23]S6
- Liu, Xiaoping [7942-11]S5
- Liu, Xinbing** 7921 ProgComm
- Liu, Xinyu [7933-18]S4
- Liu, Xuan** [7890-33]S6, [7904-46]S9
- Liu, Yang** [7889-61]S9, [7894-23]S4, [7907-03]S1
- Liu, Yang [7910-66]S3
- Liu, Yang [7917-46]S11
- Liu, Yanjun [7955-20]S7
- Liu, Yaoming [7935-24]S6
- Liu, Yen-Shuo** [7940-35]S9
- Liu, Yuan** [7899-113]SPS2
- Liu, Yueming [7896-86]SPS1
- Liu, Yuhuai [7945-47]S7
- Liu, Yuxin [7888-03]S1
- Liu, Zhaojun [7912-67]SPS3
- Liu, Zhifu [7934-27]S6
- Liu, Zhiwen** [7903-53]S7
- Liu, Zhongyao [7893-06]S2, [7893-12] S3
- Liu, Zuwei [7945-43]S6
- Live, Ludovic S.** [7911-10]S2
- Livingood, Ryan [7901-33]S7
- Livingston, Edward [7932-01]S1, [7932-02]S1, [7932-03]S1
- Livshits, D. A. [7919-33]S7
- Lize, Yannick K. [7960-08]S2, [7960-08]S2, [7960-08]S2
- Lizotte, Todd E.** [7894-39]S7, [7913-14]S3
- Llopis, Olivier [7936-10]S3
- Lloyd, Seth 7948 ProgComm
- Lo, David Y. [7907-03]S1
- Lo, Justin Y.** [7890-10]S2
- Lo, Ming-Hua [7939-65]SPS4
- Lo, Patrick G. Q. [7942-13]S5
- Lo, Wen [7885-62]SPS2, [7895-09]S2
- Lo, Yu-Lung [7934-30]S7
- Lobanov, Sergei [7917-56]S12, [7917-64]SPS3
- Lobo Ribeiro, Antonio B.** [7889-100] SPS2
- Locharoenrat, Kitsakorn [7896-62]S13
- Löchel, Bernd [7946-50]S12
- Lockau, Daniel [7933-21]S5
- Locke, Michael [7923-22]S6
- Lockhart, Robert [7928-09]S3
- Lodahl, Peter [7947-01]S1
- Loeber, Thomas H. [7947-20]S5
- Loebler, Marian [7883C-178]S3
- Loesch, Rainer [7953-58]S14
- Loeschner, Udo [7926-05]S2
- Loesel, Robert [7883C-178]S3
- Loewke, Nathan O. [7883E-104]S3
- Logan, Dylan [7943-07]S3
- Loh, Kian Ping [7914-53]S14
- Lohani, Sweyta [7885-64]SPS2
- Lohmann, Ulrich [7942-02]S1, [7942-02]S8
- Löhmannsröben, Hans-Gerd [7909-03] S1, [7909-12]S4, [7909-27]S8
- Löhring, Jens [7912-60]S14
- Loiacono, Renzo [7943-35]S11
- Loiko, Yurii V. [7950-12]S3
- Lake, Trond [7891-29]S7
- Lombard, Laurent [7914-31]S7, [7914-52]S13
- Loncar, Marko** 7927 Chr, 7927 S7 SessChr, [7927-02]S1, [7941-44] SPS4, 7946 S4 SessChr, [7946-09] S3, [7946-11]S3, [7946-38]S9, [7948-09]S2
- London, P. [7949-33]S7
- London, Yanir [7960-17]S4
- Long, Aiqun [7912-67]SPS3
- Long, Romain [7948-15]S4
- Long, Ruiqi [7906A-04]S1
- Look, David C. 7940 Chr, 7940 S2 SessChr, 7940 S1 SessChr, [7940-02]S1
- Loosen, Peter [7952-06]S2
- Loosmore, Gwendolen [7916-03]S1, [7916-05]S1
- Lopez, Carlos [7888-16]S2
- Lopez, Leoncio D. [7952-09]S3
- López Hernández, Francisco J. [7952-11]S3
- López-Escobar, María [7886-15]S3
- Lopez-Luke, Tzarara [7911-31]S6, [7940-43]S11
- Lopinski, Gregory [7888-04]S1
- Loréal, O. [7894-40]S8
- Lorensen, Dirk** [7891-17]S5
- Lorenz, Katharina 7940 S9 SessChr, 7940 S10 SessChr, [7940-24]S6
- Lorke, Michael 7933 S14 SessChr, [7933-35]S8
- Losev, Sergey N. [7919-19]S4
- Losonczy, Attila [7903-117]SPS1
- Loth, Marsha A. [7935-15]S4
- Lott, James A. [7933-48]S11, 7947 ProgComm, 7952 ProgComm, 7952 S2 SessChr, [7952-16]S5, [7952-18] S5
- Lotti, Jacopo [7903-66]S9
- Lotti, Torello [7883A-31]S6, [7883A-33]S6
- Lou, Pei-Jen [7883C-63]S1
- Lou, Xia [7906B-33]S3
- Louchet, Hadrien [7959-20]S7
- Loucher-Chauvet, Anne [7948-04]S1
- Louderback, Duane A. [7952-02]S1
- Loudin, James [7885-37]S7
- Louradour, Frédéric [7893-09]S2
- Lousteau, Joris [7914-103]SPS3, [7934-07]S2
- Lovat, Laurence B. [7886-18]S4
- Love, Gordon D. [7904-10]S3, [7904-38]S8
- Love, J. Christopher [7929-02]S2
- Lovhaugen, Pål** [7902-20]S5, [7950-23]S6
- Lovinger, David M. [7883G-140]S1
- Lovsky, Yulia [7927-42]SPS3
- Lowndes, Shannely [7883E-98]S1
- Loza-Alvarez, Pablo [7902-24]S5, [7903-15]S2, [7903-93]SPS1, [7903-99]SPS1, [7904-50]S10, [7941-42] S9
- Lozes-Dupuy, Françoise [7945-16]S3
- Lu, Chao-Yang [7948-35]S8
- Lu, Chih-Chiang [7935-51]SPS4
- Lu, Chih-Feng [7954-06]S2
- Lu, Chih-Wei [7884-06]S2, [7884-22] SPS1
- Lu, Chung Hao [7920-45]SPS3
- Lu, Fake [7903-47]S7, [7903-63]S9
- Lu, Hai-Han** [7958-09]S4, [7958-09]S4
- Lu, Hui [7883G-148]S3
- Lu, Huihong [7899-137]SPS2
- Lu, JaYu [7938-11]S3, [7938-18]S4
- Lu, Jin-Wei [7954-22]S6
- Lu, Jun Q. [7886-23]S6, [7902-39]S8, [7907-33]S5
- Lu, Lu** [7944-34]SPS4
- Lu, Pengfei [7940-18]S5
- Lu, Richard [7953-33]S9
- Lu, Shin-Ying [7955-15]S5
- Lu, Susan [7956B-32]S3
- Lu, Tao [7908-24]S4
- Lu, Tien-Chang** [7939-69]SPS4, [7939-70]SPS4, [7954-07]S2
- Lu, Wei [7914-06]S2, [7923-12]S4
- Lu, Weixing [7957-20]S4
- Lu, Xiaofei [7917-15]S5
- Lu, Xiaoming [7916-36]SPS3
- Lu, Yang** [7931-12]S5
- Lu, Yicheng** 7940 ProgComm
- Lu, Ying-Ying [7900-18]SPS2
- Lu, Yongfeng** [7908-29]S4, 7920 S11 SessChr, 7920 S2 SessChr, [7920-14]S4, 7921 Chr, 7921 S7 SessChr, [7921-12]S3, [7921-13]S3
- Lu, Yujie [7891-04]S1, [7892-14]S3, [7896-19]S4, [7896-37]S8
- Lu, Yu-Jung [7939-06]S12, [7939-81] SPS4
- Lu, Zenghai H. [7889-31]S5, [7889-86] SPS2
- Lu, Zhaolin** [7933-84]SPS4, [7938-08] S2, [7946-71]SPS4
- Lubatschowski, Holger** [7885-25] S5, [7897-03]S1, 7925 ProgComm, 7925 S2 SessChr
- Lubow, Jay [7886-21]S5
- Lucas, J.** [7894-40]S8, 7934 ProgComm
- Lucas, Laurent [7904-30]S6
- Lucas, Pierre** 7894 ProgComm, 7894 S2 SessChr, [7894-38]S7
- Lucas, T. [7912-11]S3
- Lucas-Leclin, Gaëlle [7918-38]SPS3
- Luchansky, Matthew S. [7888-01]S1
- Luchowski, Rafal [7905-04]S1, [7905-48]SPS1, [7905-49]SPS1, [7911-48] SPS1
- Luconi, Lapo [7911-22]S5
- Ludewig, Peter [7953-31]S8, [7953-31] S14
- Lüdge, Kathy [7933-34]S8
- Ludwig, Reinhold [7959-01]S, [7959-01]S, [7959-01]S
- Lue, Niyom** [7885-42]S8, [7892-11]S2
- Luedtke, David [7903-17]S2
- Lüer, Larry [7937-65]S14
- Luft, Susanne [7885-28]S5
- Luger, Thomas A. [7883A-26]S5
- Lugo, Juan [7914-43]S10
- Lührmann, Markus [7912-37]S10, [7912-37]S9
- Lui, Harvey [7883A-04]S1, [7883A-17] S4
- Lukashev, Alexei** [7883B-52]S4
- Lukasiewicz, Tadeusz [7934-46]SPS4
- Luke, Geoffrey P.** [7899-18]S3, [7899-61]S9, [7910-20]S4
- Lukes, Sarah J.** [7930-03]S1, [7930-03]S7
- Lukin, Mikhail D. [7913-23]S5
- Lukin, Vladimir P.** 7924 ProgComm
- Lula, Brian** MeetingVIP
- Lumb, M. P. [7933-02]S1
- Luna, Marian [7886-05]S1
- Luna Castellanos, Abraham [7917-40] S9, [7934-42]SPS4, [7934-52]SPS4
- Lunde, Carl T. [7923-03]S1
- Lundqvist, Stefan H. [7945-23]S4
- Lunn, John A. [7900-08]S3
- Lunnemann, P. [7949-14]S3
- Luo, Dan [7934-17]S4, [7955-20]S7
- Luo, Jingdong [7936-07]S2
- Luo, Jun [7937-38]S8
- Luo, Pengfei [7890-41]S8
- Luo, Qingming** 7898 ProgComm, [7900-21]SPS2, [7905-28]S7
- Luo, Wenlin [7952-05]S2
- Luo, Xianshu [7913-38]S8
- Luo, Ying [7944-04]S1, [7944-10]S3, [7944-24]S6
- Luo, Yonghua [7905-26]S5
- Luo, Yuan** [7891-11]S4
- Lutgen, Stephan [7953-15]S4, [7953-19]S4
- Luttmann, Michel 7916 S5 SessChr, [7916-22]S5, [7916-34]SPS3
- Lutz, Yves [7903-117]SPS1
- Lützelshwab, Markus [7918-17]S3
- Lutzenberger, Jeffrey B. [7930-02]S1, [7930-02]S7
- Lützw, Peter [7945-87]S15
- Luu, Johnny [7914-43]S10, [7914-110] SPS3
- Luxmoore, Isaac J. [7946-07]S2
- Luzinov, Igor [7945-86]S15
- Lv, Guorong [7906A-18]SPS2
- Ly, Diana [7929-27]S7
- Lyakh, Arkadiy A. [7953-55]S14
- Lyapina, Elena P. [7887-30]SPS1
- Lyberis, Andreas [7912-64]S15
- Lychagov, Vladislav V.** [7884-25] SPS1, [7898-33]S5
- Lykke, Keith R.** [7914-02]S1
- Lynch, Jonathan [7951-13]S4
- Lynn, Christopher M. [7917-71]S3
- Lynn, N. Scott [7888-05]S1
- Lyon, Alex R. [7904-31]S7
- Lyubimov, Vladimir V. [7913-19]S4
- Lyubovitsky, Julia G. [7902-50]S11
- Lyytikäinen, Jari [7919-02]S1

M

- Ma, Guobin [7910-54]S12
- Ma, Hae Jun [7894-30]S5
- Ma, Jing J. [7883F-131]S3
- Ma, Leo L. [7906B-35]S3
- Ma, Lixin [7890-31]S6
- Ma, Rubin [7888-04]S1, [7941-39]S9, [7943-15]S5
- Ma, Ruiqing [7956A-18]S5
- Ma, Te-Jen [7899-154]SPS2
- Ma, Wenjuan [7892-27]SPS1
- Maack, Martin D. [7914-93]SPS3
- Maas, Amanda L. [7886-13]S3
- Maassdorf, Andre [7953-50]S13
- Mabuchi, Hideo 7948 S10 SessChr, [7948-36]S9
- Macario, Julien [7942-07]S3
- MacAulay, Calum E. [7883C-66]S8, [7893-23]S5, [7893-28]S5, [7893-42] SPS2, [7895-13]S3, [7902-75]SPS2, [7902-77]SPS2
- Maccagnani, Piera [7945-100]S17
- Maccarini, Paolo F.** [7901-30]S6
- MacCraith, Brian D. 7908 ProgComm
- Macdonald, Callum [7898-45]SPS2
- Macdonald, Rainer** [7896-01]S1, [7896-02]S1, [7896-11]S3, [7896-47] S10
- Mace, Charles R. [7888-17]S2
- MacFarlane, Duncan L. [7883G-136]S1
- MacGowan, Brian J. 7916 ProgComm, [7916-26]S6
- Mach, Katherine E. [7902-63]SPS2
- Machhadani, Houssaine [7945-51]S8
- Machida, Manabu [7896-103]SPS1
- Machow, Doug [7889-85]SPS2
- Machtoub, Lina** [7890-02]S1
- Maciejko, Roman [7883F-122]S1
- Macintosh, Bruce A.** [7931-03]S2
- Mackanos, Mark A.** [7883G-141]S2, [7890-42]S8, [7891-05]S1
- Mackenzie, Jacob I.** 7912 ProgComm, 7912 S15 SessChr
- Mackenzie, Paul J. [7889-110]SPS2
- Mackenzie, Roger [7888-04]S1
- MacLennan, Gregory [7893-41]S8
- Macleod, H. Angus** SC321 Inst
- MacLeod, Ken T. [7904-31]S7
- Madabhushi, Rangaraj 7958 ProgComm
- Madamopoulos, Nicholas 7958 ProgComm, [7958-03]S2, [7958-03] S2, [7958-03]S2, [7958-08]S4, [7958-08]S4

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Madani-Grasset, Frederic [7925-47]S8
Madden, Timothy J. 7915 ProgComm
Maddo, Julien [7937-24]S6, [7945-11]S2
Madhukar, Pankaj [7897-62]SPS2
Madl, Monika [7947-21]S6
Madou, Marc J. SympComm
Madras, Giridhar [7926-22]S3
Madsen, Steen J. 7883E Chr, 7883E S2 SessChr, 7883E S5 SessChr, [7883E-10]S2, [7883E-102]S2
Maeda, Etsuo [7941-24]S6
Maeda, Narihiko 7939 ProgComm
Maeda, Saki [7902-66]SPS2
Maeda, Shingo [7917-09]S3, [7917-14]S4, [7917-61]SPS3
Maeder, Ulf [7892-30]SPS1, [7906B-38]S4
Maehara, Shinya [7933-87]SPS4
Magalhães, Ana C. [7906B-39]S4
Maggiolino, Stefano [7929-04]S2
Magi, Eric [7949-03]S1
Magnain, Caroline V. [7898-23]S4
Magrini, Taciana D. [7897-28]S6
Maguen, Ezra I. 7885 ProgComm, 7885 S5 SessChr, 7885 S1 SessChr, [7885-22]S4
Mah, Emisoan 7935 ProgComm
Mahadevan-Jansen, Anita TrackChr, [7883A-13]S3, [7883E-112]S5, 7883G Chr, 7883G S3 SessChr, [7883G-141]S2, [7883G-146]S1, 7890 Chr, [7890-18]S4, [7890-42]S8, [7890-45]S8, [7891-05]S1
Mahajan, Roop L. [7901-27]S6
Mahalik, Saroj K. [7891-22]S6
Mahalov, Alex S. 7924 ProgComm
Mahato, Krishna K. [7887-16]S4
Mahdi, Shaimaa [7943-28]S8, [7943-40]S12
Maher, Jason R. [7883F-124]S1
Maher, Mary Ann 7926 Chr, 7926 S1 SessChr, 7926 S2 SessChr
Mahjouri Samani, Masoud [7920-14]S4, [7921-13]S3
Mahnke, Peter [7912-04]S2
Mahnkopf, Sven [7952-02]S1
Mahon, Ronan J. [7938-15]S4
Mahon, Sari B. [7893-27]S5, [7893-30]S6, [7896-73]S15, [7896-112]SPS1
Mai, Alexander [7930-34]S8
Mai, Zhiming [7886-02]S1, [7910-01]S1, [7910-49]S10
Maier, Robert R. J. [7894-34]S6
Maier, Stefan A. 7909 S5 SessChr, [7909-33]S10
Maigyte, Lina [7927-15]S4
Maijert, Julien [7945-65]S11
Maine, Sylvain B. [7945-75]S13
Maira, Giulio [7883D-93]S6
Mait, Joseph N. 7936 ProgComm, [7936-20]S5
Maitland, Duncan J. 7897 ProgComm, 7897 S2 SessChr
Maitland, Kristen C. D. [7892-26]SPS1
Majer, Niels [7933-34]S8
Major, Zoltan [7889-34]S5
Majumdar, Arka [7946-10]S3
Makarov, Nikolay S. [7910-13]S3, [7910-55]S12, [7935-27]S7
Makhlouf, Houssine [7893-40]S8
Makishi, Patricia [7884-11]S5
Makita, Shuichi [7883A-25]S5, [7885-19]S3, [7885-50]S10, [7889-03]S1, [7889-47]S7, [7889-66]S10, [7889-103]SPS2, [7889-111]SPS2, [7913-05]S2
Makitsubo, Hironobu [7934-47]SPS4
Makkabi, Borokh [7938-20]S1
Makowski, Alex [7891-05]S1
Malcolm, Graeme [7903-99]SPS1, [7919-33]S7
Malek, Reza S. [7883B-51]S3
Maleki, Lute [7913-25]S6
Maleki, Teimour [7929-09]S3
Malek-Madani, Reza [7924-08]S2
Malic, Ermin [7937-62]S14
Malik, Bilal H. [7906A-12]S3
Malindretos, Jörg [7939-86]S7
Malinin, Alexei A. [7934-43]SPS4
Malinin, Anton [7898-46]SPS2
Malkova, Natalia [7946-16]S4, [7947-27]S7
Mallas, Georgios [7892-31]SPS1
Mallidi, Srivalleesha [7910-01]S1
Malloy, Kevin J. [7919-03]S1, [7951-12]S3
Malowicki, John [7923-25]S7
Malphrus, Jonathan D. [7883E-112]S5, [7883G-141]S2
Manabe, Noriyoshi [7909-38]S11
Mancuso, J. Jacob [7883D-72]S1
Mandal, Arjun [7940-05]S2, [7940-47]SPS4
Mandellis, Andreas 7883F Chr, 7883F S1 SessChr, 7883F S3 SessChr, [7883F-129]S2, [7883F-134]S3, [7884-09]S4, 7899 ProgComm, [7899-33]S5
Mandella, Michael J. [7883E-104]S3, [7930-04]S1, [7930-04]S7
Mandlik, Prashant [7956A-18]S5
Manek-Hönninger, Inka B. [7912-58]S14
Mang, Ou-Yang [7893-14]S3, [7902-17]S4
Mangeney, Juliette [7938-06]S1
Mangeni, S. [7958-21]SPS4
Mangum, Michael [7932-02]S1
Maniewski, Roman [7896-93]SPS1, [7898-24]S4
Manivannan, Sellaperumal [7941-22]S5
Manjunath, Varsha [7885-43]S9
Mann, Elizabeth K. [7955-17]S6
Manna, Liberato 7909 S13 SessChr, [7909-02]S1
Manning, Hugh B. [7895-16]S3, [7904-34]S7
Manns, Fabrice 7885 Chr, 7885 S SessChr, 7885 S SessChr, [7885-29]S6
Manohar, Srirang [7899-126]SPS2, [7899-129]SPS2, [7899-130]SPS2, [7906B-34]S3
Manquest, Christophe [7937-24]S6, [7953-26]S7
Mans, Torsten G. [7912-23]S7, [7912-28]S8
Manseta, Khushali [7902-72]SPS2
Mansurova, Svetlana [7917-27]S7
Mansuryan, Tigran [7893-09]S2
Mantulin, William W. [7891-02]S1, 7906B ProgComm
Manuel, Cyrus [7883C-171]S4
Manz, Christian [7919-06]S2
Manzur, Tariq [7940-56]S8
Mao, Xuesong [7923-09]S2
Mappes, Timo [7888-09]S1, [7912-59]S14, [7913-33]S7
Maraghechi, Pouya [7937-13]S3
Marakasov, Dmitry [7924-05]S1
Marandi, Alireza [7917-43]S10
Marangoni, Marco [7917-11]S4
Marani, Roberto [7946-76]SPS4
Marc, Isabelle [7883G-137]S2
Marcadet, Xavier [7945-11]S2
Marcano, Aristides [7947-12]S3
Marcellino, George R. [7885-23]S4
Marcelo, Cynthia L. [7897-45]S9
Marchand, Laurent [7932-09]S2
Marchelli, Rosangela [7894-20]S4
Marchesano, Valentina [7909-10]S3
Marchev, Georgi [7917-51]S12, [7917-56]S12
Marciano, Tal [7925-08]S2
Marco, M. Pilar [7941-42]S9
Marcu, Laura MeetingVIP, 7883D Chr, 7883D S4 SessChr, [7883D-78]S2, [7883D-83]S4, [7883D-85]S4, [7883D-86]S4, 7890 ProgComm, 7890 S5 SessChr, [7890-15]S3
Marder, Seth R. 7935 ProgComm
Marent, Andreas [7947-18]S5
Margenthaler, Julie A. [7899-19]S3
Marginean, Ion [7913-49]SPS3
Margineanu, Anca [7904-35]S7, [7904-61]SPS2
Marguet, Didier D. [7904-23]S5
Mariampillai, Adrian [7907-37]S6
Marie, Xavier [7937-47]S11
Marion, Samuel L. [7890-32]S6
Marjanovic, Marina [7889-26]S4, [7902-04]S1
Markey, Mia K. [7907-18]S3
Markham, M. [7948-25]S7
Marko, Igor P. [7939-13]S13
Markos, Christos [7914-78]SPS3
Markov, Vladimir B. [7912-84]SPS3, [7914-100]SPS3, [7917-66]SPS3, [7924-13]S3
Markovic, Bojan [7942-19]S7
Markushin, Yuri [7947-12]S3
Markwald, Roger R. [7889-71]S11, [7893-35]S1, [7893-35]S7
Marona, Lucja [7953-17]S4
Marquet, Pierre [7903-14]S2
Marr, David W. [7902-28]S6, [7904-09]S2
Marrocco, Valeria [7946-76]SPS4
Mars, Jérôme I. [7896-64]S13
Marschall, Sebastian [7889-115]SPS2
Marshall, Graham [7914-15]S4, [7927-16]S4
Marshall, Kenneth L. [7935-17]S4
Marshall, Milton V. [7890-19]S4, [7890-50]SPS1, [7902-52]S11
Marshall, Will A. [7905-15]S4
Marso, Michel [7945-35]S5
Martell, Bret [7885-64]SPS2
Martelli, Fabrizio [7896-21]S5, [7896-22]S5, [7896-92]SPS1, [7906B-32]S2
Martens, Eric [7905-23]S6
Marthaler, Daniel E. [7946-31]S7
Marti, Erwin A. [7940-41]S11, [7941-03]S1
Martial, Igor [7912-38]S10, [7912-38]S9, [7912-53]S13
Martin, Andreas [7914-37]S10, [7914-37]S9
Martin, Claire [7902-06]S2
Martin, Jérôme [7911-28]S6
Martin, Jörg [7945-102]SPS4
Martin, Marta [7888-06]S1
Martin, Matthieu [7938-06]S1
Martin, Michael C. [7937-64]S14
Martin, Michael G. [7953-33]S9
Martin, Richard D. [7936-18]S5
Martina, Zell [7902-59]S13
Martinelli, Mario [7943-18]S6
Martinelli, Ramon U. [7953-39]S10
Martinez, Alan [7912-49]S12
Martinez, Aldo [7885-34]S7
Martinez, Arnaud [7916-35]SPS3
Martinez, Daniel [7896-48]S10
Martinez, Manuel [7905-31]S7
Martinez, Mikael D. [7913-17]S4
Martinez, Sergio [7896-53]S11, [7896-98]SPS1
Martinez, Ty [7923-27]S7, [7931-04]S2, [7931-11]S5
Martinez-Corral, Manuel SC979 Inst, [7904-29]S6
Martinez-Cuenca, Raul [7904-29]S6
Martini, Joerg [7929-30]S7
Martins, Rodrigo [7940-25]S6, [7940-39]S10
Martins Figueiredo Neto, Antonio 7955 ProgComm, 7955 S8 SessChr, [7955-08]S4
Martinsen, Robert J. 7918 ProgComm, 7918 S1 SessChr, [7918-01]S1, [7918-05]S1, [7953-45]S12, [7953-49]S13
Marti-Panameño, Erwin A. [7917-54]S12
Martiradonna, Luigi [7947-08]S3
Martirosyan, Artsun S. [7917-19]S5
Martucci, Alessandro [7941-06]S2
Martyshkin, Dmitri V. [7910-10]S2, [7912-49]S12, [7912-54]S13, [7912-55]S13
Maruyama, Hirotaka [7934-19]S5
Maruyama, Mihoko [7937-18]S4
Marwah, Rajat [7912-01]S1
Marx, Ulrich [7897-46]S9
Marzan, Timothy A. [7910-33]S7
Masaki, Shin-ichiro [7934-02]S1
Masciotti, James M. [7896-55]S12
Masenelli, Bruno [7940-55]S12
Maser, Daniel L. [7915-07]S2
Mashal, Lilia A. [7933-94]SPS4
Mashanovich, Goran Z. 7943 ProgComm, [7943-25]S8, [7943-32]S10, [7943-35]S11, [7943-54]S11
Mashiatulla, Maleeha [7898-05]S1
Mashimo, Hiroshi 7893 ProgComm, [7893-04]S1
Mashkovich, Eugene [7917-18]S5
Masia, Francesco [7911-33]S7, [7937-04]S1
Masihzadeh, Omid [7903-06]S1
Masilamani, Vadivel 7895 S5 SessChr, [7895-10]S3, [7895-35]SPS2, [7896-104]SPS1, [7935-11]S3, [7935-12]S3
Maslov, Alexey V. 7933 S7 SessChr, [7933-97]S11
Maslov, Konstantin [7899-05]S1, [7899-12]S2, [7899-19]S3, [7899-20]S4, [7899-21]S4, [7899-22]S4, [7899-23]S4, [7899-26]S4, [7899-28]S4, [7899-53]S8, [7899-104]SPS2, [7899-112]SPS2
Massard, Thierry 7916 ProgComm
Massi, Daniela [7883A-31]S6, [7883A-33]S6
Masson, Jean-François 7911 S7 SessChr, [7911-10]S2
Mastanduno, Michael A. [7892-03]S1, [7896-46]S10
Maston, Michael [7927-19]S5
Masuda, Katsuyoshi [7902-74]SPS2
Masunaga, Kumi [7927-35]S8
Maswadi, Safer M. [7899-35]S5, [7899-59]S9, [7899-128]SPS2
Matcher, Stephen J. [7889-31]S5, [7889-86]SPS2, [7889-91]SPS2, [7889-116]SPS2
Mateasik, Anton [7903-75]S11
Mateo, Eduardo [7960-14]S4
Mathejczyk, Julia [7910-37]S8
Mather, Melissa L. [7897-44]S9, [7899-47]S7
Mathevet, Fabrice [7935-14]S4
Mathew, Manoj [7902-24]S5
Mathews, Marlon S. 7883E ProgComm, 7883E S4 SessChr, [7883E-108]S4
Mathews, Scott [7921-02]S1
Mathieson, Keith [7885-37]S7

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Matic, Agnella I.** [7883G-160]S3, [7883G-161]S3
 Mاتيoli, Elison 7946 S8 SessChr, [7946-37]S9
 Matis, Maja [7910-57]S12
 Matone, JoAnn [7916-25]S5
 Matovu, Charles [7896-23]S5
 Matsik, Steven G. [7945-56]S9
Matsko, Andrey B. 7913 ProgComm, 7913 S7 SessChr, [7913-25]S6
 Matsun, Jyl [7905-23]S6
 Matsubara, Hiroki [7956B-31]S3
 Matsubara, Hiroyuki [7923-09]S2
 Matsuda, Osamu [7946-43]S10
 Matsukawa, Hiroya [7917-62]SPS3, [7917-63]SPS3
 Matsumoto, Yoshihiko [7933-58]S13
 Matsumoto, Yoshihisa [7897-66]SPS2
 Matsumura, Hiroyoshi [7937-18]S4
 Matsumura, Masahiro [7913-47]SPS3
 Matsumura, Naokazu [7903-86]SPS1
Matsuoka, Takashi [7945-47]S7
 Matsuoka, Tomoyo [7950-24]S6
Matsushima, Kyoji [7957-45]SPS4
 Matsushima, Miyoko [7889-95]SPS2, [7893-34]S6
Matsuhisa, Tomoaki 7921 ProgComm
 Matsushita, Yoshitaro [7897-66]SPS2
 Matsuura, Naomi [7899-127]SPS2
Matsuura, Yuji 7894 ProgComm, 7894 S5 SessChr, [7894-14]S2, [7894-25]S5, [7894-32]S6, [7894-45]S8
 Matsuzaki, Kosuke [7940-37]S9
 Matteau-Pelletier, Carl [7899-95]SPS2
 Matteini, Paolo [7883D-93]S6, [7885-24]S5, [7885-58]SPS2, [7910-47]S10, [7911-22]S5, [7911-46]SPS1
 Mattered, Lucia [7909-10]S3
 Matteucci, Marco [7925-47]S8
Matthews, Dennis L. [7895-02]S1, [7902-23]S5, [7903-07]S1
Matthews, Thomas E. [7903-61]S8
 Matthias, Nadine [7899-01]S1, [7899-02]S1
 Matthiesen, Clemens [7948-35]S8
 Mattila, Marco [7959-09]S4, [7959-09]S4
 Mattosinho Ferraz, Ruy C. [7887-22]SPS1
 Mattoussi, Hedi 7909 ProgComm
 Matulionis, Arvydas [7939-09]S12, [7939-61]SPS4
 Matz, Gerald [7889-06]S1
 Maucclair, Cyril [7925-26]S6
 Maulini, Richard [7953-55]S14
 Maurino, Veronica G. [7902-59]S13
 Maus, Erik A. [7890-19]S4, [7890-50]SPS1, [7902-52]S11
 Mawst, Luke J. [7933-16]S4, 7953 ProgComm, 7953 S2 SessChr, [7953-03]S1, [7953-22]S5
 Max, Jean-Joseph [7914-94]SPS3, [7958-05]S3
 Maximenko, Serguei I. [7933-24]S6, [7945-72]S12
 Maximov, Jewgenij [7917-40]S9, [7934-52]SPS4
 Maxwell, Gisele [7917-49]S11
 May, Steve J. [7940-44]S12
 Mayandi, Sivaguru [7903-17]S2
 Mayer, Bernhard [7917-11]S4
 Mayer, Heinz [7959-10]S5
 Mayer, Markus A. [7885-43]S9
 Maytin, Edward V. 7886 S4 SessChr, [7886-19]S5, [7886-37]SPS1
 Maze, Jeronimo R. [7948-32]S8
 Mazhar, Amaan [7892-05]S1, [7896-26]S6, [7907-11]S2
 Mazouchi, Amir [7905-14]S3
 Mazumder, Jyotirmoy 7920 ProgComm
- Mazur, Eric** MeetingVIP, [7897-04]S1, [7911-17]S4, [7917-54]S12, 7920 ProgComm, [7920-16]S4, [7920-40]S7, [7920-40]S11, [7920-44]SPS3, 7925 ProgComm, [7927-14]S4, [7934-45]SPS4, [7940-41]S11, [7941-03]S1
 Mazur, Marina [7893-33]S6
 Mazurenka, Mikhail [7896-01]S1, [7896-11]S3
 Mazzetta, Jason A. [7934-55]SPS4
 Mazzotti, Davide [7945-04]S1
 McAlpine, Jessica [7902-75]SPS2
 McAuley, Ian [7938-15]S4
 McBean, Katie E. [7940-03]S1
 McBride, Amber [7909-20]S6
 McCabe, Eithne M. [7911-52]SPS1
 McCallum, Jeff [7948-45]S11
 McCammon, Susan [7903-58]S8
 McCarthy, Aongus [7945-97]S17
 McCarthy, Jason R. [7903-77]S2
 McCarthy, Joseph [7950-18]S5
 McCarthy, Thomas [7887-19]S4
 McCarty, Owen J. T. [7907-30]S5
 McClintock, Ryan P. 7945 ProgComm, [7945-48]S7, [7945-54]S8
 McCourt, Peter [7902-20]S5, [7905-27]S7
McDermott, William E. 7915 ProgComm
McDonald, Michael A. [7910-50]S11
 McDonald, Stephen M. 7903 ProgComm
 McElfresh, David [7952-09]S3
 McElhinney, Mark [7918-04]S1
McEwen, Gerald D. [7902-35]S10
 McGee, Sasha [7906B-36]S3
 McGinnes, M. [7929-27]S7
 McGinty, James A. [7896-65]S13, [7904-19]S4, [7904-35]S7, [7904-61]SPS2
 McGrouther, D. [7940-17]S4, [7942-15]S6
McInerney, John [7919-21]S4
 McIntosh, Bruce [7914-06]S2, [7924-17]S3
 McIntyre, Edward [7883A-23]S5
 McKeirman, Kelci L. [7895-06]S1
 McKenzie, Gordon P. [7883C-15]S7, [7883C-152]S7
 McLaughlin, Robert A. SC981 Inst, [7889-78]S12, [7890-38]S7, [7890-58]SPS1, [7891-17]S5, [7893-29]S6, [7906B-33]S3, [7907-36]S6
McLean, Daniel G. [7935-27]S7
 McLean, David I. [7883A-17]S4
 McLeod, John [7940-27]S7
 McLeod, Robert R. 7927 ProgComm, 7927 S6 SessChr
 McLoskey, David [7903-64]S9
 McMahon, Peter L. [7948-29]S7
 McManus, Bruce [7903-12]S2
 McManus, Jeff [7883G-148]S3
 McMicken, Brady [7897-15]S3, [7897-69]SPS2
 McMillan, James F. [7942-16]S7
 McMillan, Kathleen [7883A-32]S6, [7897-20]S4, [7901-32]S7, [7901-35]S7
 McMillan, William [7890-14]S3
 McMullen, Jesse D. [7903-18]S3
McNabb, Ryan P. [7885-03]S1, [7889-36]S6
McNamara, Paul M. [7898-21]S3
McNerney, Gregory P. [7905-25]S6, [7905-27]S7, [7905-47]SPS1
 McNicol, John D. [7960-05]S1, [7960-05]S1
 McShane, Michael J. 7906A ProgComm, [7906A-04]S1
- McWilliams, Annette [7893-23]S5, [7893-28]S5
Meade, Jeff T. [7890-39]S7, [7890-56]SPS1, [7904-15]S4, [7907-17]S3
 Meadway, Alexander [7889-88]SPS2, [7904-39]S8
 Meaney, Paul M. [7901-22]S5
 Mechet, Pauline [7913-51]S9
 Medhat, Mostafa [7930-17]S4
 Medina, Miguel A. [7934-55]SPS4
 Medina-Kauwe, Laili K. [7886-21]S5, [7902-13]S3
 Medintz, Igor L. 7908 ProgComm, [7909-26]S8, [7909-39]S11
Medri, Kristian E. [7943-11]S4, [7943-20]S6
 Medvedkov, Oleg I. [7914-75]SPS3
 Meeks, John C. [7905-25]S6
Meemon, Panomsak [7891-23]S6
Meglinski, Igor 7898 ProgComm, [7898-19]S3, [7898-45]SPS2, [7907-08]S1
 Mehl, Oliver [7914-66]S16, [7921-32]SPS3
 Mehralzad, Aydan [7898-05]S1
 Mehrotra, Akhil [7933-14]S4, [7933-86]SPS4, [7933-88]SPS4
 Mehta, Hardik [7910-27]S5
Mehta, Kaipesh B. [7911-21]S4
 Mehta, Rita S. [7896-42]S9, [7896-44]S9, [7896-45]S9
Meier, Christoph [7889-89]SPS2, [7889-98]SPS2
 Meier, Sebastian [7954-31]S9
Meier, Torsten 7937 ProgComm, 7937 S8 SessChr, [7937-29]S7
 Meighan, Peter C. [7898-49]SPS2
 Meimon, Serge C. [7885-65]SPS2
 Meinig, Marco [7930-18]S4
 Meinschien, Jens [7894-29]S5, [7913-09]S3, [7918-19]S4, [7918-33]S5
 Meir, Avraham [7914-13]S4
 Meisburger, William D. [7932-06]S2
 Meissner, Helmuth E. [7912-48]S12, [7917-21]S6
 Meissner, Kenith E. 7906A ProgComm
 Meissner, Peter [7959-07]S3, [7959-13]S5
 Meissner, Sven [7889-11]S2, [7893-24]S5, [7893-26]S5, [7893-38]S8
 Meister, Jean-Jacques [7889-57]S9
 Meister, Stefan [7913-42]S5, [7943-28]S8, [7943-40]S12
 Meixner, Alfred J. [7905-09]S2, [7905-10]S2, [7905-41]SPS1, [7937-23]S5
 Mekis, Attila [7944-01]S1, [7944-04]S1
 Melancon, Petri [7953-12]S3
 Meldrum, Deirdre [7902-58]S13, [7929-26]S6
 Melendez, Jose [7890-24]S5
 Melgaard, Seth D. [7951-04]S1
 Melikechi, Noureddine [7947-12]S3
 Melinger, Joseph S. [7909-26]S8
 Melinon, Patrice [7940-55]S12
Melkonian, Jean-Michel [7912-56]S13
 Melloni, Andrea 7941 ProgComm, [7943-18]S6
 Melman, Jonathan H. [7954-38]S10
Melnikov, Andrey G. [7898-37]SPS2
 Melnikov, Gennady V. [7898-37]SPS2
 Melnikov, Igor V. [7917-41]S9, [7949-25]S5, [7949-46]S9
Melnikov, Vasily [7943-13]S4
 Melo, Miguel [7914-96]SPS3
 Meloni, Gianluca [7948-23]S5
 Melville, C. David [7891-03]S1
 Melvin, Tracy [7929-07]S2
 Mely, Yves [7903-83]S11
 Mena, Bouzid [7902-78]SPS2, [7908-09]S1
- Menaa, Farid** [7902-78]SPS2, [7908-09]S1
 Menabuoni, Luca [7885-24]S5, [7885-58]SPS2
Mendez, Alexis SC981 Inst
Mendez, Antonio J. [7923-06]S1
 Mendis, Rajind [7937-09]S3
 Mendonça, Cleber R. [7917-28]S7
 Mendys, Agata [7915-16]S3
 Meneghesso, Gaudenzio [7939-44]S8
Meneghini, Matteo [7939-44]S8
 Meng, Chengbo [7887-25]SPS1
 Menon Perinchery, Sandeep [7883B-57]SPS1
 Mentink, Rosaline [7895-21]S4
 Menzel, Ralf [7913-07]S2, [7953-51]S13
 Menzel, Stefan 7953 S15 SessChr, [7953-57]S14
 Merano, Michele [7950-14]S4
 Merchan, Fernando [7944-12]S3
 Merchant, Soroush [7900-01]S1
 Mereuta, Alexandru [7919-02]S1
 Merisier, Delson [7891-09]S3
 Mermillod-Blondin, Alexandre [7925-26]S6
 Mermut, Ozzy [7894-06]S1, [7906B-29]S2, [7906B-37]S4
 Merrer, Pierre-Henri [7936-10]S3
 Mertens, Jan [7937-30]S7
 Mertens, Michael [7893-24]S5
 Mertz, Jerome [7907-10]S2
 Merza, Saeed [7902-58]S13, [7929-26]S6
 Mesquita, Rickson C. [7896-03]S1, [7896-10]S2, [7896-84]SPS1, [7896-85]SPS1
 Mess, Christian [7883A-26]S5
 Messenger, Scott R. [7933-24]S6
 Messerschmidt, Bernhard [7893-11]S3
 Messersmith, Phillips B. [7889-79]S12
 Messenger, Daniel [7883E-115]S5
 Metaxas, Dimitris N. 7892 ProgComm
 Metcalfe, Grace D. [7939-42]S7
 Metkus, Kristin [7921-02]S1
 Metz, Konradin [7903-09]S1
 Metzner, Sebastian [7939-41]S7, [7954-20]S6
Meunier, Michel 7920 ProgComm, [7925-14]S4, [7925-15]S4, [7925-17]S4
 Meyer, Bruno K. 7940 S1 SessChr, 7940 S2 SessChr, [7940-04]S1, [7940-07]S2
Meyer, Jerry R. 7945 ProgComm, 7945 S3 SessChr, [7945-72]S12, 7953 ProgComm, 7953 S11 SessChr, [7953-22]S5, [7953-38]S10, [7953-39]S10
 Meyer, Julia [7930-09]S2
 Meyer, Michael G. [7904-20]S4
 Meyer, Rolf [7923-03]S1
 Meyer, Tobias [7883E-103]S3, [7903-41]S6
Meyers, Mark M. [7902-81]S4
 Mezentsev, Vladimir K. [7914-111]SPS3
 Mezosi, Gabor [7933-94]SPS4
Mi, Zetian [7943-47]S8, [7943-47]S14
 Miao, Qin [7940-20]S4
 Miao, Zhengyu [7930-30]S7
 Michaelis, Dirk [7954-34]S9
Michaelsen, Kelly E. [7896-46]S10, [7896-56]S12
 Michalak, Gregory J. [7906A-03]S1
 Michalet, Xavier [7905-01]S1
 Michalik, Pavel [7884-03]S1
 Michalowski, Andreas 7920 S7 SessChr, 7920 S9 SessChr, [7920-34]S10, 7925 S11 SessChr, [7925-35]S5, [7925-35]S9

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Michalzik, Rainer [7959-06]S3
Michel, Anne-Marie [7917-24]S6
Michel, Gregory [7950-16]S4
Michel, Jurgen SC817 Inst
Michel, Maurice Stephane [7883B-54]S4
Michel, Nicolas [7953-46]S12
Michel, Peter [7937-07]S2
Michels, René [7907-07]S1
Michler, Peter [7919-10]S3
Michon, Adrien [7945-07]S11
Middlebrook, Christopher T. [7941-02]S1, [7944-08]S2
Midorikawa, Katsumi [7920-42]SPS3, [7920-50]SPS3, [7929-20]S5
Mielke, Matthias [7926-12]S4
Mielke, Michael M. 7925 ProgComm
Mies, Carolyn [7896-41]S9
Migan-?Dubois, A. [7940-58]S8
Migdall, Alan [7945-98]S17, [7948-22]S5, [7948-24]S6, [7948-43]S10
Miglo, Alexander [7952-15]S4
Mihailov, Stephen J. [7934-13]S3
Mihailovic, Dragan [7937-60]S13
Mihoubi, Zakaria [7919-26]S5, [7919-36]S8, [7919-37]S8, [7919-38]S8
Mikawa, Takashi 7944 ProgComm
Mikhailov, Alexei S. [7913-09]S3, [7913-10]S3, [7913-13]S3, [7918-33]S5
Mikhrin, Sergey S. [7919-33]S7
Mikhrin, Vladimir [7941-28]S7
Miklyaev, Yuri V. [7913-09]S3, [7913-10]S3, [7913-13]S3
Mikryukov, Aleksey [7933-62]S14
Mikula, Vilem [7928-25]SPS3
Milanese, Daniel [7914-103]SPS3, [7934-07]S2
Milanovic, Veljko [7930-27]S7
Milazzotto, Marcella P. [7897-28]S6
Mildner, Jutta [7920-24]S8, [7920-24]S12
Milej, Daniel [7896-81]SPS1
Milesi, Frédéric [7943-41]S13
Milione, Giovanni [7895-27]S5, [7950-16]S4, [7950-18]S5, [7950-26]S7, [7950-33]SPS4
Milkie, Daniel [7931-18]S6
Millar, Timothy M. [7909-18]S6
Miller, Aaron J. [7948-22]S5
Miller, Benjamin L. 7888 Chr, [7888-08]S1, [7888-17]S2, [7888-21]S1, [7888-21]S3
Miller, David R. [7898-33]S5, [7906A-15]S3, [7906A-19]SPS2
Miller, David A. B. [7944-03]S1
Miller, Don 7885 S2 SessChr, 7885 S9 SessChr
Miller, Donald T. SC932 Inst, 7885 ProgComm, [7885-10]S2, [7885-52]S10, [7885-53]S10, [7885-54]S10
Miller, Dwayne R. J. [7937-39]S9
Miller, Kent L. 7951 S1 SessChr
Miller, Michael [7919-18]S4, [7952-06]S2
Miller, Phil [7916-16]S4
Miller, Preston [7930-20]S6, [7930-20]S1, [7930-20]S5
Miller, Robert A. [7926-14]S4
Miller, Sharon J. [7893-02]S1, [7893-05]S1
Millet, Larry [7898-06]S1
Millot, Guy [7917-31]S8
Milner, Thomas E. [7883A-10]S2, [7883B-43]S2, [7883D-72]S1, [7906B-35]S3, 7925 ProgComm
Milosevic, Milan M. [7943-25]S8
Milstein, Yonat [7894-47]S6
Mima, Kinioki 7916 ProgComm
Min, Changjun [7941-35]S8
Min, Eun Jung [7892-28]SPS1, [7904-57]SPS2, [7933-82]SPS4
Min, Gihyeon [7904-56]SPS2
Min, Wei [7903-23]S4, [7903-89]SPS1
Minai, Limor [7893-16]S4, [7906A-02]S1, [7911-19]S4, [7911-20]S4
Minamikawa, Takeo [7903-46]S7, [7903-86]SPS1
Minato, Kotaro [7902-66]SPS2
Mincu, Nicolae [7910-54]S12
Minenko, Sergey S. [7950-09]S3
Mingaleev, Sergei F. [7933-29]S7
Mino, Shinji [7960-07]S2, [7960-07]S2, [7960-07]S2
Mino-Kenderson, Mari [7893-17]S4, [7893-32]S6
Mints, Paula J. MeetingVIP
Mir, Mustafa A. H. [7890-06]S1, [7902-05]S1
Mir, Saad [7932-01]S1
Miranda, S. M. C. [7940-24]S6
Mirin, Richard P. [7948-22]S5
Mirotznik, Mark S. 7936 ProgComm
Mirov, Mike B. [7912-51]S12
Mirov, Sergey B. [7910-10]S2, [7912-49]S12, [7912-51]S12, [7912-54]S13, [7912-55]S13, [7912-83]SPS3
Mirza, Iftekhar [7932-17]S4
Mishchenko, Lidiya [7946-19]S5
Mishina, Tomoyuki [7957-08]S2
Mishra, Anand [7954-19]S5
Mishra, Ashok K. [7910-28]S6
Mishra, Lokanath [7934-14]S3
Mishra, Yogeshwar N. [7925-04]S1, [7927-44]SPS3, [7950-07]S2
Misoguti, Lino [7917-28]S7
Misra, Veena [7939-88]SPS4
Missinne, Jeroen [7944-13]S4
Mita, Makoto [7934-47]SPS4
Mita, Seiji [7939-24]S2
Mitchell, Gregory S. [7902-15]S4
Mitchell, James G. [7944-10]S3
Mitchell, M. [7920-14]S4, [7921-13]S3
Mitchell, Matthew L. [7960-05]S1, [7960-05]S1, [7960-16]S4
Mitra, Thomas [7913-09]S3, [7916-18]S4, [7918-33]S5, [7918-37]SPS3
Mitsunaga, Makoto [7910-07]S2
Mittag, Anja [7902-56]S12
Mittleman, Daniel M. [7937-09]S3
Mitus, Antoni C. 7935 ProgComm, [7935-04]S1
Miura, Kiyotaka [7920-38]S10
Miura, Masahiro [7885-19]S3, [7885-49]S10, [7889-33]S5, [7889-103]SPS2, [7889-111]SPS2
Miyagawa, Reina [7939-59]SPS4
Miyagi, Mitsunobu [7884-03]S1, [7894-05]S1, [7894-14]S2
Miyajima, Takao [7953-18]S4
Miyake, Hideto 7939 ProgComm, [7939-59]SPS4, [7939-62]SPS4
Miyake, Yasuo [7955-03]S1
Miyamoto, Isamu [7920-05]S2
Miyamoto, Kenji [7958-16]S7
Miyana, Noriaki 7916 ProgComm, [7916-13]S3, [7920-10]S3, [7920-41]SPS3
Miyaniishi, Tomoya [7920-25]S8, [7920-25]S12, [7922-14]S4, [7925-11]S3
Miyaoi, Kenichi [7909-09]S3
Miyashita, Motoharu [7918-35]SPS3
Miyata, Kentaro [7917-51]S12
Miyata, Seizo [7935-18]S5
Miyawaki, Atsushi [7929-20]S5
Miyawaki, Mamoru [7933-97]S11
Miyazaki, Hideki T. [7913-44]S9
Miyoshi, Naoya [7939-82]SPS4
Miyoshi, Shunichiro [7883D-91]S6
Mizeikis, Vyngantas 7927 S2 SessChr, [7927-15]S4
Mizrahi, Amit [7942-09]S4
Mizuno, Genki [7959-05]S2, [7959-05]S2, [7959-05]S2
Mizuno, Kento [7934-02]S1
Mizuno, Shintaro [7934-02]S1, [7934-48]SPS4
Mizuyama, Yosuke 7927 ProgComm
Mnaymneh, Khaled [7947-03]S1
Mo, Weirong [7886-38]SPS1, [7886-49]SPS1
Mo, Yuanhao [7911-15]S3
Mo, Yudong [7934-60]SPS4
Moalem, Anas [7920-06]S2
Möbius, Hildegard [7956A-16]S5
Mocek, Tomá? [7916-09]S2
Mochizuki, Akihiro 7955 ProgComm
Mochizuki, Hiroyuki [7935-41]SPS4
Modell, Mark [7907-26]S4
Moebius, Michael [7927-14]S4
Moeendarbary, Emadaldin [7929-16]S4
Moench, Holger [7919-18]S4, [7952-06]S2
Moerk, Jesper [7937-08]S2, 7949 S1 SessChr, [7949-14]S3, 7953 ProgComm
Moerner, William E. [7950-23]S6, [7910-57]S12
Moewes, A. [7940-27]S7
Moezardalan, Kooroosh [7903-10]S2
Moffatt, Douglas J. [7903-112]SPS1
Moges, Helina [7887-17]S4
Moghimi, Mohammad J. [7930-02]S1, [7930-02]S7
Mohamed, Adel [7915-18]SPS3
Mohamed, Mohamad [7898-05]S1
Mohammadi, Saeed [7946-41]S10
Mohammed, Abdul Majid [7953-02]S1, [7953-64]SPS4
Mohanty, Samarendra K. [7883G-145]S3, [7885-70]SPS2, [7897-05]S1, [7897-10]S2, [7897-33]S7, [7897-54]S11, [7902-18]S5, [7902-27]S6, [7902-73]SPS2, [7904-08]S2, [7906A-23]SPS2, [7908-12]S2, [7908-17]S3, [7922-07]S2, [7925-02]S1, [7925-04]S1, [7927-44]SPS3, [7950-05]S2, [7950-07]S2
Mohapatra, Monalisa [7910-28]S6
Mohideen, Umar [7926-01]S1
Mohn, Stefan [7939-40]S7
Mohney, Suzanne E. [7945-79]S14
Mohrdiek, Stefan [7953-35]S9
Möhrl, Martin [7953-14]S3
Moiseev, Alexander A. [7889-121]SPS2
Mokhov, Sergiy [7915-17]S3
Mokina, Irina [7934-20]S5
Mokkapat, Sudha [7942-18]S7
Molander, William A. [7916-26]S6
Molavi, Behnam [7890-21]S4
Molchanov, Pavlo A. [7937-54]S12
Molday, Laurie L. [7892-08]S2
Molday, Robert S. [7892-08]S2
Molebny, Vasyi V. [7885-72]SPS2
Molenaar, Robert [7899-30]S5
Molina-Fernandez, Inigo [7888-04]S1, [7941-39]S9, [7943-15]S5
Molinari, Michael [7940-17]S4, [7942-15]S6
Molina-Terriza, Gabriel 7950 S5 SessChr, [7950-01]S1
Mollet, Oriane [7940-55]S12
Moloney, Jerom V. [7954-15]S4, 7919 ProgComm, 7919 S5 SessChr, [7919-03]S1, [7919-05]S1, [7919-08]S2, [7919-28]S6, [7933-50]S11, [7945-08]S2
Momo, Kazuma [7920-10]S3, [7920-41]SPS3
Mompert, Jordi [7950-12]S3
Monahan, Jennifer L. [7935-27]S7
Monat, Christelle [7949-03]S1
Monbet, V. [7894-40]S8
Moncorgé, Richard [7912-29]S8, [7912-61]S14
Mondal, Shyamal [7912-89]SPS3
Mondry, Mark J. [7939-47]S8
Monemar, Bo [7939-20]S2
Moneron, Gael [7905-36]S8
Mönckönen, Kari [7927-22]S5, [7927-39]SPS3
Monmayrant, Antoine [7945-16]S3
Monneret, Serge [7904-23]S5
Monobe, Hirosato [7955-03]S1
Monro, Kiyomi [7905-31]S7
Monroy, Eva [7939-48]S9, [7939-58]SPS4, [7945-51]S8
Montant, Sébastien [7912-75]SPS3
Montcuquet, Anne-Sophie [7896-64]S13
Monteiro, Andrea M. [7955-08]S4
Monteiro, Teresa [7940-17]S4, [7940-24]S6
Montejo, Julio D. [7890-20]S4
Montejo, Ludguier D. [7890-20]S4, [7896-18]S4
Montemezzani, Germano [7899-86]S7
Montes, Miguel [7947-26]S7
Montiel i Ponsoda, Joan J. [7914-81]SPS3
Montrosset, Ivo [7953-12]S3
Monux, Alejandro [7941-39]S9
Monz, Stefan [7956A-16]S5
Moody, John D. [7916-26]S6
Mookherjee, Shayan 7913 ProgComm, 7913 S9 SessChr, [7949-20]S4
Moon, Dae Young [7939-57]SPS4
Moon, Hyo Won [7949-31]S6
Moon, Sucbei [7883C-159]S7, [7883C-165]S2, [7889-45]S7, [7903-95]SPS1
Moon, Yeon-Kyu [7956B-21]S1
Moon, Yong-Tae 7939 ProgComm, [7939-73]SPS4
Moore, Anna V. [7910-32]S7
Moore, Gerald T. [7914-08]S2
Moore, James C. [7940-54]SPS4
Moore, Richard H. [7892-04]S1
Moorhouse, Colin J. [7920-36]S10
Morales, Alma R. [7910-41]S9
Morales, Beatriz [7897-27]S5
Morales Teraoka, Edgar Yoshio [7940-48]SPS4, [7940-49]SPS4
Moran, Jeffrey [7883C-157]S5
Morand, Alain [7941-13]S3, [7941-16]S4
Morandotti, Roberto [7945-37]S5
Morath, Corinne [7903-14]S2
Morath, Chris P. [7945-57]S9, [7945-66]S11
More, Karen [7922-23]SPS3
Morea, Giuseppe [7946-76]SPS4
Moreau, Julien [7902-51]S11, [7911-55]S7
Moreels, Iwan [7937-04]S1
Morehead, James J. [7914-43]S10, [7914-107]SPS3, [7914-110]SPS3
Moreira, Andre [7883C-61]S1
Moreira, Wendel L. [7950-21]S5
Moreno, Laura E. [7883G-160]S3
Moreno Zarate, Pedro [7917-27]S7, [7933-74]SPS4
Morgan, James E. [7889-07]S2
Morgan, Stephen P. 7891 ProgComm, 7891 S6 SessChr, [7891-12]S4, 7897 ProgComm, 7897 S10 SessChr, [7897-44]S9, [7899-47]S7, BO304XX ProgComm
Morgner, Frank [7909-27]S8
Morgner, Uwe [7892-10]S2, [7914-86]SPS3
Morphain, Christian [7940-30]S8

- Mori, Midori [7939-67]SPS4
 Mori, Yusuke [7937-18]S4, [7939-01]S1, [7939-82]SPS4
 Morichetti, Francesco [7943-18]S6
 Morier-Genoud, Francois [7937-72]S15
 Morikawa, Shin [7944-23]S6
 Morimoto, Kiyoshi [7920-17]S4
 Morimoto, Shunsuke [7937-55]S12
 Morin, Franck [7914-55]S14, [7925-27]S7
 Morin, Pierre [7946-57]S13
 Morini, Cristiano [7883A-31]S6
 Morioka, Brandon [7919-39]S8
 Morisaki, Yoshitake [7894-32]S6
 Morita, Ken [7937-52]S12
 Morita, Ryuji [7950-15]S4
 Moritz, Stefan [7918-10]S2
 Moriyama, Lilian T. [7886-39]SPS1, [7886-42]SPS1
 Morjani, Hamid [7905-16]S4
 Mork, Jesper [7933-35]S8, [7933-67]S12, [7933-67]S15
 Morkoç, Hadis 7939 Chr, 7939 S1
 SessChr, [7939-09]S12, [7939-20]S2, [7939-23]S2, [7939-27]S3, [7939-30]S4, [7939-60]SPS4, [7939-61]SPS4, [7939-64]SPS4, [7939-68]SPS4, [7939-72]SPS4, [7939-87]SPS4, [7939-88]SPS4, [7939-89]SPS4, [7939-94]S14, [7954-20]S6
 Morl, Klaus W. [7925-06]S2
 Mörl, Ludwig [7943-30]S9
 Morley, Simon [7883C-150]S3
 Moros, Eduardo G. [7901-08]S2, [7901-25]S5, [7901-34]S7, [7901-39]S8, [7901-45]S8
 Morris, Christopher M. [7937-02]S1
Morris, Michael D. 7883F S2
 SessChr, [7883F-125]S1, [7892-39]SPS1, [7897-45]S9
 Morris, Richard F. [7899-06]S1
 Morris, Sidney A. [7940-54]SPS4
 Morris, Stephen M. [7955-11]S4
 Morris, Timothy MeetingVIP
 Morrisett, Joel [7898-05]S1
 Morse, Theodore F. [7883D-77]S2
 Mortezaei, Ashkan [7883B-54]S4
Morthier, Geert [7913-51]S9
Mortier, Michel S. [7912-64]S15
 Mortimer, Kevin D. [7925-38]S11, [7925-38]S7
 Morvan, Loic [7945-10]S2
 Moscatelli, Frank [7896-50]S11
 Moser, Philip [7952-16]S5, [7952-18]S5
 Moskalev, Igor S. [7912-51]S12, [7912-54]S13
 Moskaluk, Sergey [7933-62]S14, [7912-68]SPS3
 Mosley, Jeff [7899-125]SPS2
Moss, David J. [7942-04]S9, [7942-04]S2, [7945-37]S5
 Moss, Gaylord E. 7957 ProgComm
Moss, Steven C. [7918-02]S1, [7933-16]S4
 Mosse, Charles A. [7883C-150]S3, [7883C-153]S5, [7883C-154]S8, [7883C-155]S8
 Mostaço-Guidolin, Leila B. [7883D-71]S1, [7903-40]S6
 Mostafa, Yosry [7883C-58]S4
 Mota, Alessandro D. [7912-70]SPS3
 Motaghiannezam, Reza [7889-17]S3
Motamedi, M. Edward SympComm
 Motamedi, Massoud [7897-38]S8
 Motekaitis, Deividas [7925-14]S4, [7925-18]S4
 Motokoshi, Shinji [7916-13]S3
 Mottay, Eric [7912-29]S8, [7914-55]S14, 7925 ProgComm, [7925-27]S7
 Motte, J. F. [7940-55]S12
 Moudakir, Tarik [7940-17]S4, [7940-58]S8, [7942-15]S6
Moulton, Peter F. 7914 ProgComm
 Moumanis, Khalid [7920-11]S3
 Mounaix, Patrick [7917-12]S4, [7917-13]S4, [7938-06]S1
 Mounier, Eric [7930-11]S3
 Moura, Diógenes S. [7912-90]SPS3
 Mourad, Pierre D. [7890-25]S5
 Mousavi, S. Hossein [7946-59]S14
 Moustakas, Theodore D. [7945-52]S8
 Mowbray, David J. [7937-05]S2
 Moya-Cessa, Hector M. [7917-25]S6
 Moza, Rohin [7890-24]S5
 Mozharov, Sergey [7929-28]S7
Mozumder, Meghdoot [7902-67]SPS2, [7902-68]SPS2, [7907-43]SPS2
 Mrochen, Michael C. [7885-21]S4
 Mroz, Pawel A. [7883A-18]S4, [7900-02]S1
Mu, Jianwei [7934-25]S6
 Mu, Xiaodong [7912-48]S12, [7917-21]S6
Mudanyali, Onur [7888-13]S2, [7890-05]S1, [7891-18]S5
 Mueller, Dirk [7920-30]S9
 Mueller, Gerhard A. [7890-20]S4
 Mueller, Mathias S. [7894-22]S4
 Mueller, Scott [7891-19]S5
 Muellner, Paul [7943-17]S5
Muendel, Martin H. [7914-43]S10, [7914-107]SPS3, [7914-110]SPS3
 Mugnaini, Marco [7941-40]S9
 Mugnier, Alain [7914-83]SPS3
 Mugnier, Laurent [7904-36]S8
 Mühlig, Christian [7914-66]S16
 Mühlig, Stefan [7941-49]S9
Mujagic, Elvis [7953-72]S15
Mujat, Mircea [7885-08]S2, [7885-40]S8, [7885-42]S8, [7895-04]S1, [7896-09]S2, [7904-21]S5
 Mukai, David S. [7893-27]S5, [7896-73]S15, [7896-112]SPS1
 Mukai, Takashi 7939 ProgComm
 Mukherjee, Amaradri [7904-12]S3
 Mukherjee, Jayanta [7933-63]S14
 Mukherjee, Sovanlal [7899-115]SPS2
 Mukherjee, Tamal 7926 ProgComm
 Muller, Andreas [7948-24]S6, [7948-43]S10
 Müller, Alexander [7883B-54]S4
 Müller, Claas [7932-13]S3
Müller, Heike H. [7889-13]S3
 Müller, Jens [7953-15]S4, [7953-19]S4
 Müller, Jürgen [7912-50]S12, [7953-48]S12
 Müller, Martin [7918-28]S5
 Müller, Norbert [7920-33]S9
 Mulvaney, Paul 7909 ProgComm
 Mumolo, Jason [7945-63]S11, [7945-67]S11
Munoz, Philip A. [7911-07]S1
 Munro, Ian H. [7883A-09]S2, [7903-80]S11, [7904-61]SPS2
 Müntener, Michael [7883B-54]S4
 Muraev, Alexander [7884-31]SPS1
 Murai, Kensuke [7935-41]SPS4
 Murai, Ryota [7937-18]S4
 Murakami, Hidetosi [7916-13]S3
 Murakami, Kenzi 7893 ProgComm
 Murakami, Naoshi [7950-15]S4
 Murakami, Satoshi [7937-18]S4
 Murakami, Yoshihisa [7927-40]SPS3, [7934-37]SPS4
 Murakami, Yoshinori [7903-86]SPS1
 Murali, K. [7935-33]S8
 Muramatsu, Ken-ichi [7917-08]S3
 Murari, Kartikeya [7889-50]S8
 Murata, Koichi [7960-07]S2, [7960-07]S2, [7960-07]S2
 Murata, Masaki [7922-20]SPS3, [7927-26]S6
 Murdza, Randal A. [7889-52]S8
 Murgu, Septimiu D. [7883C-60]S1, [7893-37]S8
 Muriano, Alejandro [7941-42]S9
 Murnane, Margaret M. [7937-41]S9
 Muroi, Tetsuhiko [7957-25]S6
 Murphy, Daniel V. [7923-01]S1
 Murphy, J. Anthony [7938-15]S4, 7938 ProgComm
 Murphy, Thomas E. [7936-21]S5
 Murray, Ray [7953-02]S1
 Murray, Ted [7904-61]SPS2
Murrell, David [7933-37]S8
 Murthy, Avinash [7899-60]S9, [7910-46]S10
 Murthy, Niren [7910-05]S1
 Murty, Naresh [7890-14]S3
 Murua Escobar, Hugo [7925-18]S4
Murugkar, Sangeeta [7903-45]S7
Muschaweck, Julius A. [7954-09]S3
 Musévic, Igor [7955-07]S3
 Musgraves, J. David [7945-86]S15
 Musikhin, Sergey [7904-37]S8
 Musk, Bob [7912-72]SPS3
 Muskens, Otto L. [7909-18]S6
 Musso, Arnaud [7914-35]S8
Mustafeez, Waqas [7907-15]S4
 Mutanen, Jarkko [7927-22]S5, [7927-39]SPS3
 Muthuvelu, K. [7895-15]S3
 Mutig, Alex [7952-16]S5
 Mutyal, Nikhil N. [7895-36]SPS2, [7907-02]S1, [7907-29]S5
 Muzikansky, Alona [7886-08]S2
 Myara, Mikhael [7945-07]S11
 Myatt, Christopher 7888 ProgComm
Mycek, Mary-Ann 7890 ProgComm, 7890 S3 SessChr
Myers, Lawrence E. [7914-43]S10, [7914-110]SPS3
 Myers, Matthew C. [7916-31]S7
 Myers, Richard [7892-19]S4
Myers, Stephen [7923-27]S7, [7945-65]S11, [7945-66]S11
Mylylyä, Risto A. [7889-111]SPS2, 7906A ProgComm
 Mylonakis, Eleftherios [7887-08]S2
Myoung, NoSoung [7912-49]S12

N

- Na, Changsu [7890-34]S6
 Na, Jun-Hee [7955-29]SPS4, [7956B-23]S1
 Nachabe, Rami [7907-44]SPS2
 Naciri, O. [7940-58]S8
Nadeau, Jay L. 7909 ProgComm, [7909-51]S2
 Nadeau, Marie-Christine [7912-75]SPS3
 Naderi, Nader A. [7933-09]S3, [7933-52]S12
Nadiamykh, Oleg [7903-60]S8, [7903-114]SPS1
 Nadkarni, Seemantini K. [7883D-73]S1
Nadort, Annemarie [7907-04]S1
 Nadtochenko, Victor A. [7910-23]S5
 Nadtochiy, Alexey M. [7952-16]S5, [7952-18]S5
 Nadvoreskiy, Vyacheslav V. [7899-08]S2, [7899-67]S10
 Nag, Okhill K. [7903-96]SPS1, [7908-08]S1
 Nagai, Takeharu [7910-14]S4
 Nagano, Tetsuo [7910-59]SPS2
 Naganuma, Kazunori [7889-54]S8
 Nagao, Hirofumi [7902-74]SPS2
 Nagar, Saurabh [7940-05]S2, [7940-47]SPS4
 Nagashima, Kenji [7956B-31]S3
 Nagasono, Mitsuru [7937-55]S12
 Nagaya, Wataru [7915-15]S3
 Nago, Hajime [7939-85]SPS4
 Nagulapally, Deepthi [7897-16]S4
Nagy, Andrea M. [7903-30]S5
 Nahas, Zayna [7883C-174]S4
 Nähle, Lars [7945-14]S3
Nahm, Kie-Bong [7929-34]SPS3
Naidoo, Darryl [7913-03]S1, [7913-50]SPS3
 Naidu, Deepal [7953-05]S1
 Naik, Arti [7886-12]S3
Naik, G. [7946-24]S6
 Nain, Jhen-Liang [7935-51]SPS4
 Naito, Keisuke [7894-45]S8
 Naito, Yasuhide [7902-74]SPS2
 Naivar, Mark S. [7902-40]S8
 Najafizadeh, Laleh [7896-72]S15, [7902-72]SPS2
Naji, Majid [7903-45]S7
Najiminaini, Mohamadreza [7894-24]S4, [7897-61]SPS2, [7908-18]S3, [7911-40]S8, [7911-41]S8
 Nakagawa, Noriaki [7883A-25]S5
 Nakagawa, Shigeru [7944-09]S3
 Nakaguchi, Shinya [7897-57]SPS2, [7907-20]S4
Nakahara, Sumio [7957-45]SPS4
 Nakai, Kanji [7883D-95]SPS1
 Nakai, Takenao [7933-70]SPS4
 Nakajima, Akihito [7957-33]SPS4
 Nakajima, Hideaki [7947-05]S2
 Nakajima, Kiyomi [7913-44]S9
Nakamura, Daisuke [7922-02]S1, [7940-12]S3
 Nakamura, K. [7945-44]S7
 Nakamura, Shuji [7939-47]S8
 Nakamura, Takahiro [7922-08]S2, [7922-19]SPS3
 Nakamura, Tomohiko [7945-44]S7
 Nakanishi, Jun [7912-79]SPS3
 Nakanishi, Motoi [7885-30]S6
 Nakanishi, Soichiro [7959-22]SPS4
 Nakanishi, Tsutomu [7927-35]S8
 Nakashima, Hisao [7960-01]S, [7960-01]S, [7960-01]S
 Nakashima, Kiyoko [7885-07]S2
 Nakata, Manabu [7947-32]SPS4
 Nakata, Yoshiki [7916-13]S3, 7920 S4
 SessChr, [7920-10]S3, [7920-41]SPS3
 Nakayama, Koichiro [7917-63]SPS3
Nakielska, Magdalena [7934-46]SPS4
 Nakkach, Mohamed [7911-55]S7
 Nalcioğlu, Orhan [7892-20]S4, [7892-37]SPS1, [7892-38]SPS1, [7892-40]SPS1, [7902-80]SPS2
 Nam, Chang Ho [7941-48]SPS4
 Nam, HyoSeok [7903-116]S3
Nam, Juttaek [7911-25]S5
 Nam, Minwoo [7928-03]S1
 Nam, Ok-Hyun 7939 ProgComm
 Nam, Sae Woo [7948-22]S5
Nam, Seung Yun [7899-120]S11, [7910-43]S9
 Nam, Tae Yang [7954-37]S10
 Namassivayane, Kejalakshmy [7943-16]S5
namati, Eman [7883D-77]S2, [7889-21]S4, [7893-25]S5, [7893-31]S6, [7906A-09]S2
 Namekata, Naoto [7945-94]S16
 Namkung, Jun [7911-15]S3
 Nanishi, Yasushi 7939 Chr, 7939 S2 SessChr, 7939 S10 SessChr, [7939-03]S1
 Nanjo, Takuya [7897-67]SPS2
 Nanke, Ralf [7897-26]S5
Napartovich, Anatoly P. [7914-79]SPS3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Napier, James [7904-49]S10, [7932-16]S4
- Naqbi, Mujahid [7902-71]SPS2
- Narayanan, Shree [7934-58]SPS4
- Nardin, Gael [7937-72]S15
- Narimanov, E. E.** [7946-24]S6
- Narum, Paul [7949-44]S9
- Naruse, Makoto [7957-22]S5
- Naser, Mohamed A. [7896-20]S5
- Nashima, Shigeki [7917-14]S4, [7917-61]SPS3
- Nasiri Avanaki, Mohammad Reza** [7904-39]S8
- Nasu, Hiroyuki [7934-48]SPS4
- Nasyrov, Ruslan K.** [7957-35]SPS4
- Natarajan, Lalgudi V.** [7955-24]S8
- Natoli, Jean-Yves [7937-20]S5
- Naulleau, Patrick P. 7927 ProgComm
- Naumov, Sergey [7912-25]S7
- Naumova, Ekaterina V. [7898-37]SPS2
- Navab, Nassir 7892 ProgComm
- Navarro, Fabrice P.** [7886-35]SPS1, [7896-64]S13
- Navarro, Hector** [7904-29]S6
- Nawashiro, Hiroshi [7883G-135]S1, [7897-65]SPS2, [7897-66]SPS2, [7907-22]S4
- Nayak, Kali P. [7913-44]S9, [7949-11]S3
- Naydenov, Boris [7948-33]S8
- Naylor, Mark F. 7900 ProgComm
- Nazarikin, Alexander [7914-22]S6
- Nazimov, Alexey [7898-39]SPS2
- Neagu, Liviu P. [7889-69]S11, [7889-100]SPS2
- Neale, Steven L. [7929-18]S5
- Nealey, Paul F. [7953-03]S1
- Nebel, Achim [7912-37]S10, [7912-37]S9
- Nedeljkovic, Milos [7943-25]S8
- Nedivi, Ely [7903-103]SPS1
- Nedyalkov, Nikolay N. [7925-11]S3
- Nee, Soe-Mie F. [7891-25]S6
- Nee, Tsu-Wei** [7891-25]S6
- Needleman, Daniel J. [7897-04]S1
- Needles, Andrew [7899-84]S12
- Neel, Victor A. [7883A-18]S4, [7883A-19]S4
- Neels, Antonia [7928-10]S3
- Neev, Joseph 7925 Chr, 7925 S1 SessChr
- Nehal, Kishwer S. [7890-13]S3, [7895-07]S2
- Neil, Mark A. [7883A-09]S2, [7893-07]S2, [7895-16]S3, [7903-80]S11, [7903-82]S11, [7904-34]S7, [7904-35]S7, [7904-61]SPS2
- Neill, Daniel [7891-24]S6
- Nejzchleb, Karel [7912-69]SPS3, [7912-74]SPS3
- Nell, Ilse J. [7944-32]S9, [7944-32]S2, [7956B-33]S3
- Nelson, Alan C. [7904-20]S4
- Nelson, Edward L. [7896-49]S10
- Nelson, Erik C. [7946-20]S5
- Nelson, Keith A. [7937-41]S9
- Nelson, Robert L. 7935 Chr, 7935 S1 SessChr, 7936 Chr, 7936 S5 SessChr, [7936-14]S4, 7941 ProgComm
- Nelson, Stuart [7883A-07]S2
- Nemec, Hynek [7917-13]S4
- Nemec, Michal** [7884-03]S1, [7894-05]S1, [7912-87]SPS3
- Nemes, Toderita [7913-49]SPS3, [7935-46]SPS4
- Nemov, Sergey A. [7917-27]S7
- Nemova, Galina A. [7951-15]S4
- Nemukhin, Alexander V. [7910-11]S3
- Nenstiel, Christian [7939-22]S2
- Neogi, Arup [7911-48]SPS1
- Neri, Alessandra [7914-103]SPS3, [7914-104]SPS3
- Neshataeva, Ekaterina [7954-29]S8
- Nesin, Vasyil V. [7883G-144]S3
- Netesova, Nadezhda P. [7933-89]SPS4
- Netoff, Theoden [7883E-110]S4
- Netz, Uwe J. [7890-20]S4
- Neu, Jens [7945-32]S5
- Neu, Walter [7899-160]SPS2, [7904-49]S10, [7932-16]S4
- Neuenschwander, Beat 7920 ProgComm, 7920 S8 SessChr, [7920-08]S2, 7925 S12 SessChr
- Neugebauer, Silvio [7939-41]S7
- Neumann, Jörg [7912-01]S1, [7914-36]S10, [7914-36]S9, [7914-76]SPS3, [7914-86]SPS3
- Neumann, Norbert** [7930-18]S4
- Neumann, Philipp [7948-33]S8
- Neumann, Thomas [7904-20]S4
- Neumann, William L. [7910-33]S7
- Neumeyr, Christian [7945-09]S2
- Neuner, Burton** [7946-59]S14
- Neuschwander, Sabine [7937-21]S5
- Neves, A. J. [7940-17]S4
- Neves, António A. R. [7950-21]S5
- Neveu, Sophie [7941-05]S1
- Newbury, Nathan R. [7917-42]S10
- Newell, T. [7912-11]S3
- Newman, Scott R.** [7943-11]S4, [7946-15]S4
- Newton, Mariko J. [7886-29]S7
- Newton, Mark A. 7916 ProgComm
- Neyts, Kristiaan [7955-09]S4
- Nezhad, Maziar P. [7942-09]S4
- Ng, Alan M. C. [7940-10]S3
- Ng, Eldon** [7896-76]S16, [7897-30]S6, [7897-61]SPS2
- Ng, Siu Pang** [7911-11]S2
- Ng, Soon Huat [7894-01]S1
- Ng, Tony C. [7903-81]S11, [7910-40]S9
- Ng, Tse Nga [7956A-02]S1
- Ng, Tze Yang** [7914-105]SPS3
- Ng, Wei-Ren [7938-16]S4
- Ngezahayo, Anaclet [7925-14]S4
- Ngo, Ha-Duong [7928-04]S2
- Ngo, Trong-Hieu [7933-96]SPS4
- Nguyen, An [7934-14]S3
- Nguyen, Binh-Minh** [7945-62]S10
- Nguyen, Dan T. [7951-08]S2
- Nguyen, Freddy T. [7910-04]S1
- Nguyen, Hau B. [7905-22]S5
- Nguyen, Hoang C. [7891-12]S4
- Nguyen, Huu Nghia [7934-30]S7
- Nguyen, Jean [7945-63]S11, [7945-67]S11
- Nguyen, Jennifer H. [7883C-183]S6
- Nguyen, John Quan** [7883A-24]S5
- Nguyen, Kelvin [7914-43]S10
- Nguyen, Kim-Ly [7911-10]S2
- Nguyen, Kytai T. [7910-34]S7
- Nguyen, Quan Dong [7885-69]SPS2, [7898-17]S3
- Nguyen-Huynh, Anh T. [7883C-186]S3, [7889-102]SPS2
- Ni, X. [7946-24]S6
- Ni, Xianfeng [7939-09]S12, [7939-20]S2, [7939-23]S2, [7939-27]S3, [7939-68]SPS4, [7939-72]SPS4, [7939-87]SPS4, [7954-20]S6
- Ni, Xiaohui [7895-33]SPS2
- Nian, Shan-Chi [7941-29]S7
- Niccum, Blake [7890-50]SPS1, [7902-52]S11
- Nichols, Alexander J. [7886-06]S1
- Nichols, Maureen [7886-12]S3
- Nickel, Sebastian [7913-22]S5
- Nicolau, Dan V.** TrackChr, 7902 Chr, 7902 S5 SessChr, 7902 S6 SessChr, 7902 S7 SessChr, 7902 S12 SessChr, 7902 S13 SessChr, [7902-25]S6, 7908 Chr, 7908 S3 SessChr, 7908 S4 SessChr, [7908-25]S4, [7908-41]S3
- Nicolescu, Elena** [7934-31]S7
- Nicol, Christine A. [7933-64]S12, [7933-64]S15, [7947-06]S2, [7948-46]S11
- Nicoud, Jean-François [7903-117]SPS1
- Nie, Shuming 7909 ProgComm
- Nie, Zhaojun** [7890-14]S3
- Niece, Mark [7914-44]S11
- Niedre, Mark J.** [7896-60]S13, [7896-109]SPS1, [7902-79]SPS2
- Niedrig, Roman [7921-32]SPS3
- Nielsen, Tim 7892 ProgComm
- Nielsens, Torben R. [7933-35]S8, [7933-67]S12, [7933-67]S15, [7949-14]S3
- Nielson, Gregory N. [7927-25]S6
- Niemasz, Jasmin [7945-61]S10
- Niemeyer, Verena [7883A-26]S5
- Niemiinen, Anna-Liisa [7886-11]S2
- Niemiinen, Timo A. [7950-34]S4
- Nienhaus, Gerd U. [7913-33]S7
- Nienhuis, Gerard 7950 ProgComm
- Niessl, D. [7929-27]S7
- Niessing, Michael [7896-02]S1
- Nieva, Patricia M. [7927-11]S3
- Nieves, Gonzalo [7883D-79]S3
- Niino, Hiroyuki 7920 Chr, 7920 S10 SessChr, 7920 S4 SessChr, [7920-47]SPS3
- Nioka, Hirohiko [7903-46]S7, [7903-86]SPS1
- Nikitin, Sergey M.** [7899-14]S3, [7899-85]SPS2
- Nikkinen, Jari [7917-01]S5, [7917-01]S9
- Nikodem, Michal P. [7914-68]SPS3
- Nikol, Hans 7954 ProgComm
- Nikolaeva, Gulnara Yu. [7903-35]S6
- Nikolic, Konstantin [7943-42]S13
- Nikolov, Anguel [7933-92]SPS4
- Nikolskij, Andrej [7957-09]S2
- Nikulin, Vladimir V. [7923-25]S7, [7957-23]S5
- Nilsen, Lill Tove Norvang [7883A-06]S1
- Nilsson, Alan C. 7960 ProgComm
- Nilsson, Gert E.** 7906A ProgComm
- Nilsson, Johan SC748 Inst
- Ning, Cun-Zheng 7933 ProgComm
- Nippa, David W. [7936-17]S5
- Nishi, Hirohito [7957-45]SPS4
- Nishi, Masayuki [7950-24]S6
- Nishida, Takehiro [7918-35]SPS3
- Nishii, Junji [7934-22]S6
- Nishimaki, Kaori [7923-23]S6
- Nishimura, Goro [7896-62]S13
- Nishimura, Nozomi** [7925-13]S3
- Nishioka, Itaru [7959-17]S6, [7959-17]S6, [7959-17]S6
- Nishioka, Norman S. [7889-24]S4, 7893 ProgComm, [7893-03]S1, [7893-17]S4
- Nishiumi, Tatsuya [7958-16]S7
- Nishiura, Shotaro [7934-03]S1
- Nishiyama, Nobuhiko [7953-06]S2
- Nishizawa, Norihiko** [7889-92]SPS2, [7889-95]SPS2, [7893-34]S6
- Nitiss, Edgars** [7935-39]SPS4
- Nitta, Yosuke [7944-23]S6
- Niu, Carolyn [7883E-97]S1
- Niu, Haijing [7896-06]S1, [7896-82]SPS1, [7896-86]SPS1, [7898-25]S4
- Niu, Hanben [7903-13]S2
- Nixon, Iain [7883C-61]S1
- No, Keun-Sik [7891-02]S1
- Noack, Frank [7917-51]S12
- Noble, Peter B. [7893-29]S6
- Noda, Susumu 7946 ProgComm
- Nodop, Dirk [7912-39]S10, [7912-39]S9, [7914-11]S3, [7914-37]S10, [7914-37]S9, [7914-50]SPS3
- Noé, Reinhold 7960 S3 SessChr, [7960-21]S5
- Noell, Wilfried** PanelModerator, 7928 S4 SessChr, 7930 ProgComm, PanelModerator, [7930-14]S3, [7930-21]S6, [7930-21]S1, [7930-21]S5, [7930-22]S6, [7930-29]S7, [7930-32]S8, [7930-35]S8, PanelModerator, PanelModerator
- Noeske, Axel [7918-13]S3
- Noh, Young-Ouk [7960-25]SPS4
- Noiseux, Isabelle [7906B-29]S2, [7906B-37]S4
- Noji, Hiroyuki [7905-18]S4
- Nojima, Yoshihiko [7920-48]SPS3
- Nojiri, Hidetoshi [7920-48]SPS3, [7920-49]SPS3
- Nolan, Daniel A. [7950-18]S5
- Nold, Johannes [7914-22]S6
- Nolde, Jill A. [7945-72]S12
- Nolte, Jim [7946-35]S8
- Nölle, M. [7959-01]S, [7959-01]S, [7959-01]S
- Nolte, David D. [7898-04]S1, [7907-13]S2, [7908-02]S1, [7908-40]S3
- Nolte, Stefan SC743 Inst, [7914-17]S4, 7925 Chr, 7925 S5 SessChr, [7925-24]S6, [7925-39]S11, [7925-39]S7, [7925-48]S8
- Nomura, Masahiro [7947-04]S2
- Nomura, Takuya [7939-62]SPS4
- Nonnemacher, Dustin [7918-04]S1
- Noojin, Gary D. [7897-19]S4, [7897-21]S4, [7897-35]S7, [7897-41]S8, [7903-51]S7
- Noojin, Isaac [7897-35]S7
- Noordegraaf, Danny** [7914-93]SPS3
- Noordmans, Herke J. [7883E-113]S5, [7890-26]S5, [7895-26]S5
- Noponen, Tommi [7896-12]S3
- Nordh, L. [7885-20]S4
- Nordon, Alison [7929-28]S7
- Nordquist, Christopher D. [7953-27]S7
- Nordquist, Robert E. [7900-05]S2, [7900-06]S2, [7900-08]S3, [7900-09]S3, [7900-10]S3
- Nordstiem, Lars [7903-24]S4
- Nordstrom, Robert J. 7906B Chr, [7906B-26]S1
- Norimatsu, Takayoshi 7916 ProgComm
- Norris, Theodore B. [7899-83]S12
- Norton, Benjamin G. [7948-19]S4
- Norwood, Robert A.** [7934-16]S4, 7935 ProgComm, 7936 ProgComm, [7936-01]S1
- Nothdurft, Ralph E. [7896-51]S11, [7896-69]S14, [7899-134]SPS2, [7910-44]S9
- Notomi, Masaya 7946 ProgComm, [7946-36]S9
- Nötzel, Richard [7946-46]S11
- Nouzi, Farouk [7896-35]S8, [7896-80]SPS1
- Nouvong, Aksone [7883A-01]S1, [7896-75]S16
- Novak, Dalma 7958 ProgComm
- Novikau, Yauheni [7905-34]S8
- Novikov, Pavel [7898-48]SPS2
- Novikova, Tatiana [7895-14]S3
- Nowack, Markus [7928-11]S3
- Nowatzky, Andreas G. 7902 ProgComm
- Nowozin, Tobias [7947-18]S5
- Nozato, Koji [7885-39]S8

- Nseyo, Unyime O.** 7883B ProgComm, 7883B S4 SessChr
- Ntziachristos, Vasilis 7892 ProgComm, [7892-31]SPS1, [7894-22]S4, 7899 ProgComm, 7899 S9 SessChr, [7899-04]S1, [7899-38]S6, [7899-39]S6, [7899-69]S10, [7899-93]SPS2, [7899-99]SPS2, [7899-100]SPS2, [7899-109]SPS2, [7899-121]SPS2, [7899-123]SPS2
- Numajiri, Yasuyuki [7885-39]S8
- Nunes dos Santos, Jean [7887-14]S3, [7887-27]SPS1, [7887-28]SPS1, [7887-29]SPS1, [7887-31]SPS1, [7887-32]SPS1
- Nunez, Annie [7896-53]S11
- Nunoue, Shinya [7939-85]SPS4
- Nuntawong, Noppadon [7911-05]S1
- Nunzi, Jean-Michel** 7935 ProgComm
- Nunzi Conti, Gualtiero** 7941 Chr, 7941 S2 SessChr, [7941-31]S7, [7925-06]S2
- Nussbaumer, Bernhard [7884-17]S6
- Nüsse, Nils C. [7946-50]S12
- Nuttall, Alfred L. [7883C-186]S3, [7889-102]SPS2, [7889-107]SPS2
- Nuzzo, Valeria [7897-04]S1, [7911-17]S4
- Nydén, Magnus [7903-24]S4
- Nyga, Sebastian [7912-21]S6, [7912-21]S2
- Nyunt, Maung T.** [7905-27]S7
-
- O, Beom-Hoan [7935-50]SPS4, [7942-28]SPS4, [7942-29]SPS4, [7942-30]SPS4
- O. Ramos, André L.** [7906B-39]S4
- Oakes, David B. [7915-02]S1
- Obara, Go [7925-11]S3, [7954-45]SPS4
- Obara, Minoru** [7883G-135]S1, [7920-25]S8, [7920-25]S12, [7922-14]S4, [7925-11]S3, [7946-06]S2, [7946-18]S4, [7954-45]SPS4
- Obenschain, Stephen P. [7916-31]S7
- Ober, Raimund J.** 7904 ProgComm, 7904 S4 SessChr
- Obolashvili, Nino [7957-29]SPS4
- O'Brien, Christine M. [7899-125]SPS2
- O'Brien, Jeremy L. [7948-16]S4
- O'Brien, Peter J. [7883F-123]S1
- Ocepek, David [7903-31]S5
- Ochalski, Tomasz J. [7937-05]S2, [7947-15]S4
- O'Connell, Marie-Louise [7898-21]S3, [7898-29]S5
- O'Connor, Shawn [7951-07]S2, [7951-14]S4
- O'Connor, W. [7898-29]S5
- Oda, Shoichiro [7960-01]S, [7960-01]S, [7960-01]S
- Oda, Takuya [7958-17]S7
- Oden, Patrick I.** 7932 Chr, 7932 S4 SessChr
- O'Donnell, Matthew** 7899 ProgComm, 7899 S8 SessChr, [7899-56]S8, [7899-62]S9, [7899-68]S10
- Odrozola, Helena [7953-46]S12
- O'Duill, Sean [7949-26]S5
- Oehler, Andreas E. H. [7919-32]S7
- Oehme, Bernd [7884-04]S2, [7884-05]S2
- Offrein, Bert-Jan MeetingVIP, [7942-25]S8, 7944 ProgComm, 7944 S5 SessChr
- Ofner, Joachim [7885-46]S9
- Ogawa, Ikuo [7960-07]S2, [7960-07]S2, [7960-07]S2
- Ogawa, Takayo [7917-22]S6
- Ogawa, Tetsuya [7918-35]SPS3
- Ogawa-Ochiai, Keiko [7907-20]S4
- Oghalai, John S. [7889-108]SPS2
- Ogudo, Kingsley A. [7943-19]S6
- Oh, Chulwoo [7890-05]S1
- Oh, Daekon [7945-13]S3
- Oh, Geum-Yoon** [7933-80]SPS4, [7941-45]SPS4, [7946-74]SPS4
- Oh, Haekwan [7928-03]S1, [7928-06]S2, [7928-22]SPS3
- Oh, Hyunho [7898-33]S5, [7906A-15]S3, [7906A-19]SPS2
- Oh, Jeankun [7898-33]S5, [7906A-15]S3, [7906A-19]SPS2
- Oh, Jinwoo [7889-112]SPS2
- Oh, Junghwan [7883B-45]S2, [7889-112]SPS2, [7910-24]S5
- Oh, Min-Cheol [7935-25]SPS4, [7935-49]SPS4, [7941-43]SPS4, [7960-25]SPS4
- Oh, Se Baek [7891-11]S4
- Oh, William [7889-21]S4
- Oh, Youngjin [7902-47]S10, [7941-46]SPS4
- Oh, Yunok [7889-112]SPS2
- O'Hara, Julia A. [7886-09]S2, [7886-27]S7, [7886-37]SPS1, [7892-21]S4, [7892-23]S4
- Ohashi, Haruhiko [7937-55]S12
- Ohbayashi, Kohji [7884-14]S5, [7885-30]S6, [7889-70]S11
- Ohdaira, Yasuo [7933-87]SPS4
- Ohira, Tatsuya** [7917-09]S3, [7917-14]S4, [7917-61]SPS3
- Ohishi, Yasutake 7934 ProgComm, [7934-02]S1, [7934-06]SPS4, [7934-23]S6, [7934-38]SPS4, [7934-39]SPS4, [7934-48]SPS4
- Ohkawa, Masashi** [7933-58]S13, [7933-87]SPS4, [7941-25]S6
- Ohki, Makoto** [7957-34]SPS4, [7957-38]SPS4
- Ohlinger, Kris [7946-79]SPS4
- Ohmi, Masato [7889-106]SPS2
- Ohno, Tutomu [7889-70]S11
- Oho, Tomohiro [7957-32]SPS4, [7957-33]SPS4
- Ohshima, Hiroyoshi [7889-95]SPS2, [7893-34]S6
- Ohta, Jitsuo [7939-55]SPS4
- Ohta, Takefumi [7889-95]SPS2, [7893-34]S6
- Ohtsu, Motoichi [7957-22]S5
- Ohtsuki, Tomi [7946-81]SPS4
- Ohyagi, Yasuyuki [7955-28]SPS4, [7957-22]S5
- Oi, Ryutaru [7957-02]S1, [7957-08]S2
- Ojima, Nobutoshi [7897-57]SPS2
- Ok, Jong Girl [7899-151]SPS2
- Oka, Kazuhiko** [7950-15]S4
- Oka, Michio 7912 ProgComm
- Oka, Toshiyuki [7939-85]SPS4
- Okada, Masaya** [7902-03]S1
- Okada, Tatsuo** [7922-02]S1, 7940 ProgComm, 7940 S4 SessChr, 7940 S3 SessChr, [7940-12]S3
- Okagbare, Paul I. [7883F-125]S1
- Okamoto, Atsushi [7923-23]S6, [7944-15]S4, [7958-15]S6, [7958-15]S6, [7958-15]S6, [7958-17]S7
- Okamoto, Ryo [7948-16]S4
- Okandan, Murat [7927-25]S6
- Okawa, Shinpei [7896-62]S13
- Okazaki, Kota [7922-02]S1, [7922-21]SPS3, [7940-12]S3
- Oketokoun, Rafiou [7896-26]S6
- Okhai, Timothy [7930-32]S8
- Okhotnikov, Oleg G. [7914-69]SPS3, [7917-01]S5, [7917-01]S1, [7917-65]SPS3, 7919 ProgComm, 7919 S2 SessChr, [7919-02]S1, [7919-30]S7
- Oki, Tomoyuki [7953-18]S4
- Okita, Yoshinari [7894-25]S5
- Okorogu, Albert O. 7957 ProgComm, [7957-20]S4
- Okoshi, Masayuki [7920-48]SPS3, [7920-49]SPS3
- Oksanen, Jani [7933-40]S9, [7933-65]S12, [7933-65]S15, [7951-16]S4
- Okumura, Kenta [7939-62]SPS4
- Okumura, Satoru [7958-12]S5
- Okumura, Tadashi [7953-06]S2
- Okur, Serdal [7939-09]S12
- Okura, Takehiro [7935-16]S4
- Okuyama, Fumio [7957-15]S3
- Olafsen, Linda J. [7953-39]S10
- Olah, Robert [7959-05]S2, [7959-05]S2, [7959-05]S2
- Olarte, Omar E.** [7902-24]S5
- Oldenburg, Amy L.** [7889-66]S10, [7911-18]S4
- Oldham, Kenn [7893-06]S2, [7893-12]S3
- Oliveres-Amaya, Roberto [7911-07]S1
- Olivares-Pérez, Arturo** [7957-30]SPS4, [7957-31]SPS4, [7957-40]SPS4
- Oliva-Uc, Jorge Roberto** [7940-14]S3
- Olive, D. Michael** 7910 ProgComm, 7910 S8 SessChr
- Oliveira, Priscila C.** [7887-31]SPS1, [7887-32]SPS1
- Oliveira, Sandra [7957-11]S3
- Oliveira-Filho, Ronaldo [7902-08]S2
- Oliveiros, Bárbara [7910-09]S2
- Oliver, Jeffrey W. [7897-35]S7, [7897-38]S8
- Oliver, Kyle W. [7930-02]S1, [7930-02]S7
- Oliveria, Rosa M. [7957-13]S3
- Olivero, Massimo [7914-103]SPS3, [7914-104]SPS3
- Oliver, Scot S.** [7885-09]S2, 7931 Chr, 7931 S2 SessChr
- Olowinsky, Alexander M. [7921-05]S2
- Olson, Don [7953-33]S9
- Olson, Jerry [7951-12]S3
- O'Mahony, Conor [7883A-14]S3
- Omelchenko, Alexander V. [7897-51]S11
- Omenetto, Fiorenzo G.** [7888-25]S1, [7888-25]S3
- Omigawa, Yu [7958-14]S5
- Omran, Haitham [7930-17]S4
- Onabe, Kentaro 7945 S8 SessChr, [7945-44]S7, [7945-45]S7
- O'Neal, D. Patrick [7906A-03]S1
- O'Neal, Patrick D.** 7906A S1 SessChr
- Onen, Onursal [7929-31]SPS3
- Ong, Hock-Chun [7911-42]SPS1
- Onofrio, Roberto 7951 ProgComm
- Onsea, Kevin [7889-23]S4
- Onuma, Takeyoshi [7937-34]S8
- Oosaka, Takuya [7905-18]S4
- Ootake, Hiroshi [7934-19]S5
- Openhaim, Yaakov [7918-31]S5
- Opitz, Joerg L.** [7897-26]S5
- Oprean, Constantin [7913-48]SPS3, [7913-49]SPS3, [7935-46]SPS4
- Oraevsky, Alexander A.** MeetingVIP, [7897-34]S7, 7899 Chr, 7899 S SessChr, 7899 S12 SessChr, 7899 S SessChr, [7899-08]S2, [7899-35]S5, [7899-48]S8, [7899-67]S10, [7899-140]SPS2, [7899-157]SPS2
- Oralkan, Ömer [7899-154]SPS2
- Orchard, Jonathan R. [7919-20]S4
- Ordóñez-Padilla, Manuel Jorge [7957-31]SPS4, [7957-40]SPS4
- O'Reilly, Eoin P. [7937-05]S2
- O'Reilly, Sylvain [7914-91]SPS3, [7958-05]S3
- Orenstein, Meir [7949-23]S5
- Orghici, Rozalia [7945-87]S15
- Orieux, Adeline [7945-93]S16
- Orlic, Susanna** 7935 ProgComm
- Orlita, Milan [7937-07]S2
- Orlova, Anna G. [7886-30]S7
- Oro, Anthony [7930-04]S1, [7930-04]S7
- Orquiza de Carvalho, Daniel [7935-47]SPS4, [7940-42]S11
- Orsal, Gaëlle [7940-17]S4, [7940-58]S8
- Ortega-Moñux, Alejandro [7928-19]S6, [7928-19]S1, [7928-19]S5
- Ortega-Quijano, Noé [7886-15]S3, [7906A-22]SPS2
- Orthaus, Sandra [7903-76]S11
- Ortiz-Lima, Carlos M. [7906A-20]SPS2
- Ortloff, Dirk [7926-12]S4
- Ortmann, Uwe [7903-76]S11
- Ortolani, Michele [7945-31]S5
- Ortsiefer, Markus [7945-09]S2, [7959-07]S3
- Orwa, Julius [7948-45]S11
- Osako, Yasu 7921 ProgComm
- Osanlou, Ardie [7957-10]S3
- Oschmann, Jacobus M.** MeetingVIP
- Osellame, Roberto 7921 ProgComm
- Osgood, Richard M. 7942 ProgComm, 7942 S6 SessChr, [7942-11]S5
- O'Shea, Danny [7913-22]S5
- Oshika, Tetsuro [7885-49]S10, [7889-33]S5
- Oshima, Takuya [7941-25]S6
- Osinski, Marek** 7909 Chr, 7909 S1 SessChr, [7909-20]S6, 7933 ProgComm, 7933 S15 SessChr, [7933-12]S3, 7948 S12 SessChr
- Ospov, Vladimir A. [7900-20]SPS2
- Osmancik, Pavel [7902-56]S12
- Osouf, Jocelyne [7906B-37]S4, [7930-23]S6
- Ostatochnikov, Vladimir [7897-52]S11, [7901-19]S4
- Ostendorf, Andreas** MeetingVIP, 7921 ProgComm, [7921-27]S4, [7921-102]S
- Ostendorf, Ralf [7953-32]S8, [7953-32]S14, [7953-58]S14
- Ostroverkhova, Oksana [7935-15]S4
- Ostrovskaya, Elena A. [7950-02]S1
- O'Sullivan, Ciara K. 7929 S6 SessChr, [7929-08]S3, [7929-11]S3
- O'Sullivan, Créidhe M. M. 7938 Chr
- Ota, Yasutomo [7947-04]S2
- Otani, Naoki [7897-66]SPS2
- Otani, Yukitoshi** [7906A-25]SPS2
- Otte, Marinus A. [7911-09]S2
- Ottersen, Ole P. [7903-107]SPS1
- Otto, Andreas [7925-40]S8, [7925-40]S12
- Otto, Dirk [7920-24]S8, [7920-24]S12
- Otto, Thomas [7945-102]SPS4
- Otugen, M. Volkan** [7913-46]S9
- Ou, Shih-Hao [7934-49]SPS4
- Oudar, Jean-Louis [7919-31]S7
- Ouquard, Youcef [7914-98]SPS3
- Ougazzaden, Abdallah [7940-17]S4, [7940-57]S12, [7940-58]S8, [7942-15]S6
- Oustinov, Dimitri [7937-24]S6, [7945-11]S2
- Ouzounov, Dimitre [7903-28]S5
- Ovanessian, Zaven [7886-24]S6
- Owens, Nathan [7943-25]S8
- Ownby, Charlotte L. [7892-24]SPS1, [7895-18]S4
- Owsik, Jan A. [7912-68]SPS3, [7933-69]SPS4

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

Ozaki, Masanori 7955 ProgComm, [7955-03]S1
Ozanich, Richard M. [7929-06]S2
Ozawa, Akira [7914-54]S14
Ozawa, Hiroyuki [7957-44]SPS4
Ozbay, Ekmele [7911-53]SPS1, 7946 ProgComm, 7946 S6 SessChr, [7946-28]S7
Ozcan, Aydogan [7888-13]S2, [7890-05]S1, [7891-18]S5, [7902-42]S9, [7904-42]S9, [7904-45]S9, [7906A-05]S2, [7908-21]S4, 7934 ProgComm
Ozdemir, Sahin K. [7913-37]S8
Ozen, Metin 7926 ProgComm
Ozga, Katarzyna [7933-69]SPS4
Özgür, Ümit [7939-09]S12, [7939-27]S3, [7939-68]SPS4, [7939-72]SPS4, [7939-87]SPS4, [7939-88]SPS4, [7939-89]SPS4, [7939-94]S14
Oztoprak, Cetin [7888-13]S2, [7891-18]S5

P

P. Oliveira-Sampaio, Susana C. [7887-27]SPS1, [7887-28]SPS1
Paa, Wolfgang [7912-15]S4
Pace, Phillip E. [7941-48]SPS4
Pache, Christophe [7889-57]S9, [7904-17]S4
Pachter, Ruth [7946-75]SPS4
Pacifici, Domenico 7946 ProgComm
Padgen, Michael R. [7929-03]S2, [7929-35]S3
Padgett, Miles J. 7950 ProgComm, 7950 S3 SessChr, [7950-13]S4
Padilla, Frederic R. [7899-06]S1
Padmaperuma, Asanga B. [7939-11]S13
Paek, J. S. [7947-25]S7
Paetz, Daniel [7931-10]S4
Paetzl, Rainer [7920-37]S10
Pagba, Cynthia V. [7902-32]S7
Page, Leland [7899-128]SPS2
Pages, Stéphane [7903-67]S9
Pain, Frederic [7902-06]S2
Paiva, Clifford A. [7924-18]S4
Paiva, Maria S. [7912-70]SPS3
Pakhomov, Andrei G. [7883G-144]S3, [7901-15]S4, [7901-18]S4, [7908-28]S4
Pakhomova, Olga [7901-15]S4
Pal, Parama [7893-22]S4
Pal, Sudeshna [7888-08]S1
Palacios, Tomas [7939-26]S3
Palani, Anand I. [7920-21]S6, [7920-21]S10
Palanisamy, Nithiyantham [7885-13]S3
Palanisamy, P. K. [7922-17]S4, [7935-33]S8
Palanker, Daniel V. 7885 ProgComm, 7885 S7 SessChr, [7885-23]S4, [7885-37]S7
Palchan, Mils [7927-42]SPS3
Palero, Jonathan A. [7903-93]SPS1
Palesse, Stephen [7914-28]S7
Palima, Darwin [7950-22]S6, [7950-24]S6
Paliwal, Akshat [7886-37]SPS1
Palka, Norbert [7938-19]SPS4
Palla, Andrew D. [7915-01]S1, [7915-10]S2
Pallikkuth, Sandeep [7905-19]S5
Pallmann, Wolfgang P. [7919-18]S4, [7919-25]S5, [7919-32]S7, [7919-33]S7
Palmer, Frank [7883C-61]S1

Palmer, Tyler [7894-13]S2
Pålsson, Magnus [7912-43]S11
Paltauf, Günther 7899 ProgComm, 7899 S5 SessChr
Palte, Gesa [7883E-107]S3
Pan, Chun-Ting [7954-41]S11
Pan, Ci-Ling 7955 ProgComm, [7955-25]S8
Pan, Heng [7922-01]S1
Pan, Jun [7949-17]S4
Pan, Liuzhan [7924-06]S1
Pan, Xiaochuan [7899-140]SPS2
Pan, Yubai [7934-04]S1
Panajotov, Krassimir 7952 ProgComm
Pance, Isaac J. [7890-42]S8
Pande, Paritosh [7883C-67]S7, [7883D-74]S2
Pandey, Rajiv [7918-08]S2
Pandey, Ravindra K. [7886-03]S1
Pang, Huiqing [7956A-18]S5
Pang, Lin [7943-03]S1
Pang, Shuo [7902-46]S10, [7904-33]S7
Pangalos, Maria [7925-14]S4
Paniccia, Mario J. 7943 ProgComm, 7943 S14 SessChr, 7953 ProgComm, 7953 S8 SessChr
Panigrahi, Prasanta K. [7902-68]SPS2, [7907-27]S4
Pannipitiya, Asanka [7941-47]SPS4
Pantzas, K. [7942-15]S6
Panyutin, Vladimir L. [7917-51]S12
Panzeri, Francesco [7905-02]S1, [7945-100]S17
Papadopoulos, Dimitris N. [7912-29]S8, [7912-61]S14
Papaioannou, S. [7945-40]S6
Papautsky, Ian [7902-26]S6, 7929 ProgComm, 7929 S5 SessChr, [7929-05]S2, [7929-12]S4
Papazoglou, Dimitris G. [7925-23]S6
Papon, Gautier [7925-20]S5, [7925-21]S5, [7925-22]S5
Pappas, Stephen P. [7948-11]S3
Pappert, Steve A. 7913 ProgComm
Paproski, Robert J. [7899-52]S8
Paques, Michel [7885-07]S2
Parak, Wolfgang J. 7909 Chr, 7909 S SessChr, [7909-03]S1, [7909-29]S8, [7909-35]S10
Paramesh, Jeyanandh [7901-28]S6
Parameswaran, Ash M. [7929-33]SPS3
Paranjape, Amit S. [7906B-35]S3
Paras, Constantine [7890-18]S4, [7890-42]S8, [7891-05]S1
Paratala, Bhavna [7899-89]SPS2
Pardo, Carlos [7902-09]S3
Pardo, Fabrice [7945-39]S6
Parekh, Sapun H. [7903-34]S6, [7937-63]S14
Parel, Jean-Marie A. 7885 ProgComm, 7885 S7 SessChr, [7885-29]S6
Parent, Stefan [7883F-122]S1
Pargmann, Carsten [7913-15]S4
Paria, B. C. [7890-45]S8
Parillaud, Olivier [7953-09]S2, [7953-13]S3, [7953-46]S12
Park, Chang-Hyun [7923-13]S4
Park, Chang-Soo [7902-62]SPS2
Park, Cheol-Woo [7906A-24]SPS2
Park, Dong Hun [7936-07]S2
Park, Georgina 7932 ProgComm, 7932 S3 SessChr
Park, Ginhah [7956B-34]S3
Park, Hee K. [7922-01]S1
Park, Hongkun [7913-23]S5
Park, Hui-Joon [7899-146]SPS2, [7933-79]SPS4
Park, Hunjeong [7883A-05]S1
Park, Hyo-Hoon [7933-96]SPS4, 7944 ProgComm, 7944 S4 SessChr, [7944-30]S1, [7944-30]S8

Park, Hyoungwon [7939-19]S15, [7939-33]S5
Park, Hyundai [7943-29]S9
Park, J. B. [7921-12]S3
Park, Jae Seok [7889-75]S11
Park, Jaegyoo [7947-25]S7
Park, Jae-Hyeung [7957-03]S1, [7957-04]S1
Park, Jang Ho [7940-28]S7
Park, Jesung [7883C-67]S7, [7883D-74]S2
Park, Jinsub [7939-57]SPS4, [7945-73]S12
Park, Jishook [7948-07]S2
Park, Jong-Hyuk [7933-82]SPS4
Park, Joo Hyung [7953-03]S1
Park, Joong Seo [7939-73]SPS4
Park, Joonyhuck [7909-23]S7, [7909-25]S7
Park, Joung-Man [7928-26]SPS3
Park, Jung Ho [7956B-24]S1, [7927-31]S7
Park, Kwan Seob [7933-82]SPS4
Park, Kyu Chang [7941-22]S5
Park, Kyung-Woo [7926-17]SPS3
Park, Min Joo [7945-79]S14
Park, Myoung Jin [7911-43]SPS1
Park, Nam Kyoo [7911-43]SPS1
Park, Sang-Hee K. [7940-39]S10
Park, Sang-Oh [7934-28]S7
Park, Sangwoo [7916-08]S2
Park, Se-Geun [7935-50]SPS4, [7942-28]SPS4, [7942-29]SPS4, [7942-30]SPS4
Park, Sehun [7945-73]S12
Park, Seong Han [7939-78]SPS4
Park, Seong Jun [7933-82]SPS4
Park, Seong-Han [7939-80]SPS4
Park, Seoung-Hwan [7939-73]SPS4
Park, Seung Min [7911-43]SPS1
Park, Sunghyun [7939-57]SPS4
Park, Yeonsang [7943-52]SPS4
Park, Yong Jin [7886-06]S1, [7886-32]SPS1
Park, Yong-Hwa 7930 ProgComm, 7930 S3 SessChr
Park, Yongjo [7954-16]S4
Park, YongKeun [7902-54]S12, [7904-41]S8
Park, Yongwoo [7945-37]S5
Park, Young S. [7937-38]S8
Park, Youngrong [7909-24]S7
Park, YounJung [7926-16]SPS3
Parker, Greg J. [7912-91]SPS3, [7934-59]SPS4
Parker, James E. [7897-15]S3, [7897-42]S8, [7897-69]SPS2
Parker, Nicholas P. [7897-44]S9, [7899-47]S7
Parker, Suzanne [7893-33]S6
Parkkeychuk, Anastasya [7885-57]SPS2
Parlapalli, Renuka [7889-90]SPS2
Parra, Macarena P. [7929-27]S7
Parra, Sonia [7903-84]S11
Parri, Owain [7956B-35]S3
Parry, Jonathan P. [7913-12]S3
Parsons, Earl R. [7959-09]S4, [7959-09]S4
Parsy, Francois [7917-54]S12, [7940-41]S11, [7941-03]S1
Parthasarathy, Triplicane A. [7912-66]S15
Paschke, Katrin [7917-02]S5, [7917-02]S1, [7917-03]S5, [7917-03]S1, [7917-07]S3, [7918-11]S2, [7918-26]S5, [7918-36]SPS3
Paschotta, Ruediger SC931 Inst, SC860 Inst, SC818 Inst
Pasenow, Bernhard [7953-15]S4
Paskov, Nicholas P. [7939-20]S2

Paskova, Tanya [7939-20]S2, [7939-27]S3
Pasquazi, Alessia [7945-37]S5
Passaro, Davide [7914-61]S15, [7914-67]S16
Passow, Thorsten [7954-24]S7
Pastor, Jean François [7916-34]SPS3
Pastouret, Alain [7914-74]SPS3
Patalay, Rakesh [7883A-09]S2, [7895-16]S3, [7903-80]S11
Patane, Amalia [7945-21]S4
Patel, Ankit H. [7885-08]S2, [7885-40]S8, [7885-42]S8
Patel, Ankitkumar N. [7959-21]S7
Patel, Chandra Kumar N. [7953-55]S14
Patel, Jigesh K. [7958-19]S5
Patel, Mehul [7916-05]S1
Patel, Nimit L. [7883B-42]S1, [7910-34]S7
Patel, Nishant B. [7933-37]S8
Patel, Raj B. [7947-06]S2, [7948-46]S11
Patel, Ronak [7910-34]S7
Patel, Sarin [7883A-29]S6
Patel, Snehal [7883C-61]S1
Patel, Yogesh G. [7904-40]S8
Paterson, Lynn [7929-22]S5
Pathak, Dinesh [7920-20]S6, [7920-20]S10
Pathak, Saurav [7896-24]S5, [7896-41]S9, [7896-48]S10, [7896-50]S11
Pati, Gour S. 7949 ProgComm, 7949 S8 SessChr, [7949-34]S7
Patil, Chetan A. [7883A-13]S3, [7890-42]S8, [7891-05]S1
Patonay, Gabor 7910 ProgComm, 7910 S9 SessChr
Patriarche, Gilles [7912-64]S15, [7940-58]S8
Patrick, Heather J. [7914-02]S1
Patten, Florence W. [7904-20]S4
Patterson, Michael S. [7886-14]S3, [7890-14]S3, [7896-20]S5
Patterson, Michelle [7899-41]S6
Patterson, Ralph W. 7916 ProgComm
Patterson, Steven [7896-73]S15
Patthanasettakul, Viyapol [7911-05]S1
Patzelt, Alexa [7898-27]S5
Pau, Hans W. [7883C-177]S2
Paul, Oliver [7945-32]S5
Pauli, Jutta [7910-37]S8
Paulsen, Keith D. [7883E-96]S1, [7883E-97]S1, [7883E-99]S1, [7886-24]S6, [7892-03]S1, [7892-21]S4, [7896-46]S10, [7896-56]S12, [7896-58]S12, [7901-22]S5, [7907-19]S3, [7907-25]S4
Paulus, Gerhard G. [7925-46]S7
Pavani, K. [7940-50]SPS4
Pavarelli, Nicola [7937-05]S2, [7947-15]S4
Pavaskar, Prathamesh [7945-43]S6
Pavlik, Christopher [7896-63]S13, [7899-63]S9
Pavlov, Alexey N. [7898-39]SPS2
Pavlov, Mikhail [7921-11]S3
Pavone, Francesco S. [7883A-31]S6, [7883A-33]S6, 7903 S3 SessChr, [7903-04]S1, [7903-66]S9
Pawlik, Grzegorz [7935-04]S1
Pawlowski, Enno [7912-21]S6, [7912-21]S2
Pawluczyk, Olga [7894-26]S5
Pawluczyk, Romuald [7894-26]S5
Paxton, Alan H. 7913 Chr, [7913-01]S1
Payne, Don M. [7923-27]S7, [7931-04]S2, [7931-11]S5
Payne, J. Donald [7899-144]SPS2, [7901-41]S9
Payne, Jason A. [7897-13]S3, [7897-

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- 14]S3, [7897-63]SPS2
 Payne, Richard S. SympComm
 Payusov, Alexey [7952-16]S5
 Pazos, Valérie [7897-07]S2, [7906B-28]S1
 Peake, Gregory M. [7952-20]S6, [7952-21]S6
 Péalat, Michel [7916-22]S5, [7917-24]S6
 Pearce, John A. 7901 ProgComm, 7901 S6 SessChr, [7901-09]S3, [7901-10]S3
 Pearce, Stuart J. [7912-91]SPS3, [7934-59]SPS4
 Pearl, Shaul [7914-13]S4
 Pearson, Lee [7914-05]S2
 Pearson, Matt [7941-01]S1
 Pearton, Marc [7883A-14]S3
Pearton, Stephen J. [7945-53]S8
 Pease, Leonard F. [7909-13]S4
 Peccianti, Marco [7945-37]S5
 Pedersen, Christian [7912-33]S9, [7917-38]S9, [7917-39]S9
 Pedley, Barbara [7899-40]S6
 Pedreira Ramalho, Luciana M. [7887-15]S3
 Peev, Eltimir [7904-49]S10, [7932-16]S4
Pegoraro, Adrian F. [7883D-71]S1, [7903-40]S6, [7903-112]SPS1
Pehlke, Carolyn [7903-10]S2
Peiris, Sasanthi C. [7958-08]S4, [7958-08]S4
 Peixoto Ferro, Daniela [7903-09]S1
 Pekarek, Selina [7918-26]S5
 Pelaz, Beatriz [7909-42]S12
 Pelegati, Vitor B. [7903-09]S1, [7903-104]SPS1, [7903-108]SPS1
 Peliavanov, Ivan M. [7899-14]S3, [7899-85]SPS2
 Pellegrina, Alain [7912-61]S14
 Pellegrino, Teresa [7909-34]S12
 Pellerin, Stéphane [7915-16]S3
 Pelli, Stefano [7941-31]S7
 Pells, Steve [7929-22]S5
 Pelouard, Jean-Luc [7945-39]S6, [7945-75]S13
 Pelton, Matthew A. [7937-16]S4
 Peltz, Leora [7934-20]S5
Pence, Isaac J. [7883A-13]S3, [7891-05]S1
 Peng, Henry 7920 ProgComm
Peng, Hsiang-Chun [7958-09]S4, [7958-09]S4
 Peng, Jin-Long [7938-11]S3, [7938-18]S4
 Peng, Leilei L. [7904-32]S7, [7905-13]S3
 Peng, Paul [7911-07]S1, [7911-17]S4
 Peng, Peng-Chun [7958-09]S4, [7958-09]S4
 Peng, Steven [7883B-49]S3, [7883B-50]S3, [7883B-51]S3
 Peng, Xiang [7903-13]S2
 Peng, Yu-Yuan [7927-27]S6
 Peng, Zheng [7942-03]S9, [7942-03]S2
 Penty, Richard V. [7933-48]S11, 7953 ProgComm, 7953 S3 SessChr, [7953-46]S12
Pereira, Mauro F. 7945 ProgComm, [7945-30]S4
 Pereira, Stephen P. 7886 S5 SessChr, [7886-02]S1, [7886-18]S4, [7886-27]S7
 Péré-Laperne, Nicolas 7945 ProgComm, 7945 S5 SessChr, [7945-39]S6, [7945-75]S13
Perelman, Lev T. 7907 ProgComm, 7907 S3 SessChr, [7907-26]S4, [7945-88]S15
Perera, A. G. Unil [7945-56]S9
 Peres, Marco [7940-17]S4, [7940-24]S6
 Peretti, Romain [7946-06]S2
 Perevedentsev, Alex [7919-36]S8
 Perez, Jean-Philippe [7945-07]S11
 Perez, Jose [7934-60]SPS4
 Perez, Pablo [7933-10]S3
 Perez-Millan, Pere [7960-27]SPS4
Periasamy, Ammasi TrackChr, 7903 Chr, 7903 S SessChr, 7903 S SessChr, 7908 ProgComm
 Perlado, J. Manuel [7916-27]S6
 Perlin, Piotr [7953-17]S4
 Perrin, Nicolas M. [7929-07]S2
 Pernu?, Franjo [7884-13]S5, [7891-26]S7, [7891-27]S7
 Perova, Tatiana S. [7943-13]S4, [7943-14]S4, [7943-53]SPS4
Perram, Glen P. [7915-06]S2, [7924-19]S4, [7949-29]S6
 Perren, Matthew [7933-63]S14
 Perrin, Arnaud [7916-17]S4
 Perrone, Guido [7914-103]SPS3, [7914-104]SPS3
 Persoons, André P. 7935 S9 SessChr, [7935-31]S8
 Pervak, Vladimir [7914-54]S14
 Peschel, Thomas [7914-39]S10, [7925-24]S6
 Pesquera, Luis [7933-10]S3, [7952-22]S6
 Pessa, Markus [7953-10]S2
 Pestov, Dmitry [7903-120]SPS1
 Peter, Sébastien [7902-34]S7, [7905-09]S2, [7905-41]SPS1
 Petermann, K. [7912-07]S3, [7912-22]S7
Peters, David W. [7941-41]S9
 Peters, Rigo [7912-22]S7
 Petersen, Alan B. [7917-49]S11
 Petersen, Eliot B. [7917-16]S5
 Petersen, Paul M. [7912-33]S9, [7918-38]SPS3
 Peterson, Gary [7890-23]S5
 Peterson, Lindsay M. [7883D-89]S5
 Peterson, P. [7912-11]S3
 Peterson, Rita D. 7917 ProgComm, 7917 S12 SessChr
 Petit, Stéphane [7912-75]SPS3
 Petrescu, Valentin D. [7913-48]SPS3, [7935-46]SPS4
 Petrova, Jitka [7905-17]S4
 Petroff, Pierre M. [7937-02]S1
 Petros, Mulugeta [7912-06]S2
Petrov, Nikolai V. [7907-45]SPS2
 Petrov, Valentin P. [7912-30]S8, [7917-51]S12, [7917-56]S12, [7917-64]SPS3
 Petrov, Yuriy Y. [7899-10]S2, [7899-11]S2, [7899-15]S3, [7899-159]SPS2, [7899-160]SPS2
 Petrova, Irina Y. [7899-10]S2, [7899-11]S2, [7899-15]S3, [7899-159]SPS2, [7899-160]SPS2
 Petrova, Svetlana S. [7957-29]SPS4
 Petryk, Alicia A. [7901-09]S3, [7901-13]S3, [7901-43]S9, [7901-44]S9
 Petsch, Tino [7921-29]S7, [7921-29]S11
 Petschke, Adam [7899-96]SPS2
 Pettersson, Anders [7896-70]S15
 Petttyjohn, Erin 7951 S4 SessChr, [7951-01]S1
 Petzold, Silke [7939-46]S8
Peyghambarian, Nasser [7903-32]S5, [7917-16]S5, [7934-07]S2
 Peyrin, Françoise [7896-25]S5
Peyrot, Donald A. [7893-09]S2, [7925-08]S2
 Pezze, Luca [7948-14]S3
 Pfannl, Rolf [7903-38]S6
 Pfau, Timo [7960-03]S1, [7960-03]S1
Pfefer, Joshua 7891 CoChr, 7891 S1 SessChr, [7891-14]S4, [7906B-41]S3
 Pfeiffer, Hans-Ulrich [7912-72]SPS3, [7953-35]S9
 Pfeiffer, Nick [7897-31]S6
 Pfeiffer, Walter 7937 ProgComm, 7937 S7 SessChr
Pflaum, Christoph [7913-02]S1
 Pflöging, Wilhelm 7921 Chr, 7921 S6 SessChr, [7921-23]S6, [7921-24]S6
 Pflügl, Christian J. [7953-55]S14, [7953-57]S14
 Pfuch, Andreas [7925-42]SPS3
 Pham, Daniel [7936-03]S1, [7944-14]S4
 Pham, Michael D. [7883G-140]S1
 Pham, Quang Duc [7957-03]S1
Phani, Arindam [7926-22]S3
 Philips, Wilfried R. [7902-57]S12
 Phillip, Jacob [7917-59]SPS3
 Phillips, Jamie D. [7945-59]S10
Phillips, Katherine C. [7917-54]S12, [7920-16]S4, [7940-41]S11, [7941-03]S1
Phillips, Kevin G. [7883A-08]S2, [7907-05]S1, [7907-30]S5
 Phillips, Matthew R. [7939-22]S2, [7940-03]S1
 Phillips, Ronald L. SC188 Inst, 7924 ProgComm
 Phipps, Jennifer E. [7883D-83]S4, [7883D-86]S4
 Phua, Poh Boon [7917-23]S6, [7918-39]SPS3, [7928-07]S3
Piao, Daqing [7883B-189]S1, [7892-12]S3, [7892-24]SPS1, [7895-06]S1, [7895-18]S4, [7896-31]S7, [7896-90]SPS1, [7899-115]SPS2
 Piao, Mei-lan [7957-04]S1
 Piasta, Doreen [7945-102]SPS4
 Picard, Francis [7930-23]S6
 Piccini, M. [7929-27]S7
 Piche, Marilyse [7910-54]S12
 Pichler, Alexander [7912-44]S11
 Pichugin, Sergey Y. [7915-04]S1
Pickrell, Gary [7934-58]SPS4
 Pickwell-MacPherson, Emma [7897-11]S3
 Pienaar, Rudolph [7892-02]S1
 Pierangelo, Angelo [7895-14]S3
 Pierce, David M. [7903-119]SPS1
 Pierce, Mark C. [7883C-187]S1
 Pierer, Jörg [7918-17]S3
 Pjero, Michele [7896-15]S3
 Pierron, Olivier N. 7928 ProgComm
 Pierot, Simonette [7914-25]S6
 Pierz, Klaus [7937-29]S7
 Pierzchalski, Arkadiusz [7902-37]S8, [7902-56]S12
Piestun, Rafael [7904-47]S9
 Pietka, Barbara [7937-72]S15
 Pietzonka, Ines [7919-13]S3
 Pifferi, Antonio [7883D-84]S4, [7895-12]S3, [7896-01]S1, [7896-11]S3, [7896-34]S7, [7896-57]S12
 Pignatelli, Francesca [7935-37]S9
 Pikov, Victor [7883G-143]S3
 Piletic, Ivan [7903-61]S8
 Piliarik, Marek [7911-34]S7
 Pillai, Rajesh S. [7891-17]S5
 Pilli, Suman [7885-09]S2
Pilon, Laurent [7883A-01]S1, [7896-75]S16
 Pina, Pilar [7909-31]S9
 Pineiro, Marta [7910-09]S2
 Ping, Shao [7916-29]S6
 Ping, Song [7943-48]SPS4, [7943-49]SPS4
 Pinguet, Thierry [7944-01]S1, [7944-04]S1, [7944-10]S3
 Pinheiro Soares, Luiz G. [7887-14]S3
Pini, Roberto [7883D-93]S6, 7885 ProgComm, 7885 S4 SessChr, [7885-24]S5, [7885-58]SPS2, [7910-47]S10, [7911-22]S5, [7911-46]SPS1
 Pinnisch, M. [7940-07]S2
 Piprek, Joachim 7933 ProgComm, 7933 S9 SessChr, 7939 CoChr, 7939 S4 SessChr, [7939-08]S12
 Piqué, Alberto SympChair, 7920 ProgComm, [7921-02]S1
 Pيرانian, Judy [7957-20]S4
 Piras, Daniele [7906B-34]S3
Pircher, Michael [7885-05]S1, [7885-46]S9, [7885-51]S10, [7889-30]S5, [7889-32]S5, [7889-34]S5, [7889-64]S10, [7889-115]SPS2
Pires de Sousa, Marcelo V. [7906B-39]S4
 Pirezadeh, Homa [7883B-49]S3
 Pisanello, F. [7947-08]S3
 Pishbin, Nafiseh [7933-77]SPS4
 Pishko, Michael V. [7906A-10]S3
Pissadakis, Stavros [7894-20]S4
 Pitchumani, Mahesh 7927 ProgComm, 7927 S8 SessChr
 Pitigala, P. K. Duleepa D. P. [7945-56]S9
 Pitilakis, A. [7945-40]S6
 Pitris, Constantinos [7889-118]SPS2, [7890-47]S8, [7911-03]S1, [7911-37]S8
 Piwczak, Bernhard P. [7914-46]S11
 Piyawattanametha, Wibool 7893 ProgComm, 7893 S7 SessChr, 7930 Chr, 7930 S6 SessChr, 7930 S1 SessChr, [7930-04]S1, [7930-04]S7
 Plaian, Andrei [7894-07]S2
 Plain, Jérôme [7908-01]S1, [7911-28]S6
Plamann, Karsten [7925-08]S2
 Planat-Chrétien, Anne [7892-18]S4
 Plant, David V. [7942-05]S3, [7943-47]S8, [7943-47]S14
 Platt, Andrew D. [7935-15]S4
 Plattner, Luca [7889-99]SPS2
 Plawinski, Laurent [7908-42]S1
 Pleros, Nikos [7945-40]S6
 Pleskow, Douglas [7907-26]S4
 Pletschen, Wilfried [7953-32]S8, [7953-32]S14, [7954-24]S7
 Plis, Elena [7945-65]S11
 Pliska, Tomas [7953-35]S9
 Plochocka, Paulina [7937-07]S2
 Plössl, Andreas [7919-13]S3
 Plumb, Emily P. [7885-08]S2, [7915-02]S1, [7915-03]S1
 Plumley, John B. [7909-20]S6
 Plum, Tammy C. [7927-25]S6
 Png, Ching Eng J. [7943-43]S13
 Poberezhskiy, Ilya [7918-06]S1
 Poblenz, Christiane [7939-47]S8
 Pochet, Michael C. [7933-09]S3
 Pockock, Ginger M. [7897-38]S8
Podhajsky, Ronald J. [7901-27]S6
 Podivilov, Evgenii V. [7914-112]SPS3, [7917-69]SPS3
 Podlipensky, Alexander V. [7946-33]S8
Podniesinski, Dariusz [7934-46]SPS4
Podoleanu, Adrian G. 7889 ProgComm, 7889 S9 SessChr, [7889-69]S11, [7889-85]SPS2, [7889-88]SPS2, [7889-100]SPS2, [7904-39]S8
 Poggies, Corrado [7903-66]S9
 Poghosyan, Armen [7917-04]S5, [7917-04]S1

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Pogue, Brian W. [7886-02]S1, [7886-08]S2, [7886-09]S2, [7886-18]S4, [7886-24]S6, [7886-27]S7, [7886-37]SPS1, 7892 ProgComm, [7892-03]S1, [7892-19]S4, [7892-21]S4, [7892-23]S4, [7892-39]SPS1, [7892-41]SPS1, 7896 ProgComm, [7896-16]S4, [7896-17]S4, [7896-46]S10, [7896-56]S12, [7896-58]S12, [7896-66]S14, [7896-88]SPS1, 7906B ProgComm, 7907 ProgComm, [7907-19]S3, [7907-25]S4, [7910-01]S1
- Pogurmirskiy, Maxim [7936-11]S3
- Poh, Catherine F. [7883C-66]S8, [7895-13]S3
- Pohner, Vincent [7906A-07]S2
- Pohl, Felix [7959-13]S5
- Point, Jean-Charles 7958 ProgComm
- Poirier, Gaël Y. [7934-12]S3
- Poizat, Jean-Philippe [7945-91]S16
- Pokrzywka, Bartłomiej [7915-16]S3
- Poland, Simon P. [7903-81]S11
- Polenta, Laura [7939-02]S1
- Poli, Federica [7914-61]S15, [7914-67]S16
- Poliks, Mark D. [7956B-32]S3
- Polla, Dennis L. [7940-56]S8, [7954-50]S8
- Polli, Dario [7937-60]S13
- Pöllinger, Alexander [7896-47]S10
- Pöllinger, Michael [7913-22]S5
- Pollnau, Markus [7942-25]S8
- Pollock, Raphael [7890-30]S6
- Polly, Stephen [7933-04]S1
- Polo, Ester [7909-31]S9
- Polster, Tobias [7931-10]S4
- Polyakov, Alexander Y. [7945-53]S8
- Polyakov, Sergey V. [7948-24]S6, [7948-43]S10
- Pomplun, Jan [7933-28]S7, [7941-15]S4
- Pomrenke, Gernot S. 7936 ProgComm
- Ponce, Fernando [7954-13]S4, [7954-51]S4
- Ponevchinsky, Vladislav V. [7950-09]S3
- Ponik, Suzanne M. [7903-10]S2
- Pons Aglio, Alicia [7933-74]SPS4
- Poole, Philip J. [7943-47]S8, [7943-47]S14, 7947 ProgComm, [7947-03]S1, [7947-17]S4
- Poole, Simon [7891-24]S6
- Pooley, Matthew [7947-06]S2
- Poon, Andrew W.** 7913 ProgComm, 7913 S6 SessChr, [7913-38]S8, 7943 ProgComm, 7943 S9 SessChr
- Pop, Adriana [7935-46]SPS4
- Popelka, Gerald R. [7883C-167]S3
- Popescu, Florian T. [7913-48]SPS3
- Popescu, Gabriel** [7889-77]S12, [7890-06]S1, [7895-31]S6, [7898-06]S1, [7902-05]S1, [7902-48]S10, [7902-54]S12, [7907-16]S3, [7907-32]S5, [7910-31]S6
- Poplack, Steven P. [7896-46]S10
- Poplawsky, Jonathan D. [7939-04]S1
- Popov, Kaloyan A.** [7907-01]S1
- Popp, Jens [7926-12]S4
- Popp, Jürgen** [7883E-103]S3, [7895-25]S5, [7903-41]S6
- Poprawe, Reinhart [7912-28]S8
- Poreddy, Amruta R.** [7886-12]S3, [7910-33]S7
- Porro, Giampiero [7890-03]S1
- Porter, Nathan [7937-07]S2
- Portnov, Sergey A. [7898-33]S5
- Porzi, Claudio [7934-14]S3
- Post, Edith [7888-04]S1, [7943-15]S5
- Potcoava, Mariana C. [7902-28]S6, [7904-09]S2, [7908-05]S1
- Potemski, Marek [7937-07]S2
- Poti, Luca [7883D-84]S4, [7896-36]S8, [7934-14]S3, [7948-23]S5
- Potier, Jonathan [7913-06]S2
- Potma, Eric O.** 7903 S5 SessChr, [7903-27]S4
- Pototschnig, Martin [7948-41]S10
- Potsaid, Benjamin M. [7885-16]S3, [7885-31]S6, [7885-43]S9, [7889-02]S1, [7889-44]S7
- Pottiez, Olivier [7914-77]SPS3, [7917-33]S8
- Poulet, Patrick** [7896-35]S8, [7896-80]SPS1
- Poulios, Demetrios [7912-85]SPS3
- Pouliot, Jean [7901-23]S5
- Poulsen, Henrik N. [7943-29]S9
- Pourrezaei, Kambiz** [7902-72]SPS2
- Poutous, Menelaos K.** [7912-46]S12, 7927 S4 SessChr, [7927-19]S5, [7927-34]S8
- Pova?ay, Boris [7883A-14]S3, [7885-33]S6, [7885-44]S9, [7889-06]S1, [7889-41]S7, [7890-29]S6, [7892-10]S2, [7897-49]S10
- Povey, Malcolm J. W. [7897-44]S9, [7899-47]S7
- Povinelli, Michelle L.** 7913 ProgComm, 7913 S8 SessChr, [7933-20]S5, [7949-17]S4
- Powers, Peter E.** [7914-106]SPS3, 7917 ProgComm, 7917 S9 SessChr
- Poyet, Cédric [7883B-54]S4
- Poyneer, Lisa A. [7931-03]S2
- Pozina, Galia R. [7939-20]S2
- Prabhakar, Anil [7894-27]S5, [7948-28]S6, [7948-48]SPS4, [7960-29]SPS4
- Prabhu, Vijendra** [7887-16]S4
- Pradhan, Asima [7902-67]SPS2, [7902-68]SPS2, [7907-27]S4, [7907-43]SPS2
- Pradhan, Prabhakar** [7907-24]S4
- Pradhan, Prachi [7952-15]S4
- Pradilla, Gustavo [7883E-105]S3
- Prahl, Scott A. [7890-12]S2, [7898-03]S1, [7904-24]S5, 7906B ProgComm
- Prak, Albert [7928-20]S6, [7928-20]S1, [7928-20]S5
- Prakash, Punit [7901-23]S5, [7901-26]S5, [7901-38]S5
- Prasad, Narasimha S. 7912 ProgComm, [7912-03]S1, [7912-05]S2, [7912-65]S15
- Prasad, Paras N.** TrackChr, MeetingVIP, SC463 Inst, [7903-01]S, 7908 ProgComm
- Prasankumar, Rohit P. [7937-06]S2, [7954-27]S8
- Prasertsuk, Kiattiwut [7945-47]S7
- Prasuhn, Duane E. [7909-26]S8
- Prat, Michel [7916-34]SPS3
- Prates, Renato A. [7887-08]S2, [7887-10]S2
- Prather, Dennis W.** 7927 ProgComm, [7932-17]S4, 7936 Chr, 7936 S4 SessChr, [7936-18]S5, [7942-07]S3, [7943-12]S4, 7946 ProgComm, [7953-01]S1, [7953-66]SPS4
- Prause, Carsten [7912-25]S7
- Pravdin, Alexander B. [7898-37]SPS2
- Praver, Steven [7948-45]S11
- Preble, Edward A. [7939-27]S3
- Prelle, Christine [7932-14]S3
- Premaratne, Malin [7941-47]SPS4
- Prerapa, Surya [7896-92]SPS1
- Prescod, Andru J. [7958-03]S2, [7958-03]S2, [7958-03]S2
- Press, David L. [7948-29]S7
- Preza, Chrysanthe** [7898-15]S2, 7904 ProgComm, 7904 S3 SessChr, [7904-12]S3, [7904-47]S9, [7904-94]S4
- Price, Michael [7886-01]S1
- Price, Roger E. [7899-144]SPS2, [7901-41]S9
- Priehs, Marc [7912-01]S1
- Prieto, Pedro M. [7885-38]S8
- Primpikar, Milind PanelMember, [7928-21]S6, [7928-21]S1, [7928-21]S5, PanelMember, PanelMember, PanelMember
- Privalov, Valeriy A. [7883A-16]S3, [7886-44]SPS1
- Priyadarshi, Shekhar [7937-29]S7
- Prochazka, Ivan [7923-15]S4, [7924-09]S2
- Prokes, Sharka M. [7947-31]SPS4
- Pröll, Johannes [7921-23]S6, [7921-24]S6
- Prost, Amaury [7899-133]SPS2
- Protzenko, Dimitry E. [7883C-170]S7, [7901-04]S1
- Prough, Donald S. [7899-10]S2, [7899-11]S2, [7899-15]S3, [7899-159]SPS2, [7899-160]SPS2
- Proust, Julien [7911-28]S6
- Provias, John [7890-14]S3
- Pryde, Geoff J. [7948-10]S3
- Pryor, Brian [7887-17]S4
- Przibilla, Sabine [7902-01]S1
- Przibilla, Sabine [7904-03]S1
- Przybyla, Beata [7901-34]S7
- Przybylski, Marius 7921 ProgComm, [7921-23]S6, [7921-24]S6
- Psaila, Nicholas D. [7929-22]S5
- Psalitis, Demetri** [7903-53]S7
- Psilodimitrakopoulos, Sotiris** [7902-24]S5, [7903-15]S2
- Ptasinski, Joanna N. [7943-03]S1
- Ptaszynski, Lars [7885-26]S5, [7885-27]S5, [7885-28]S5, [7889-13]S3
- Pu, Jixiong 7924 ProgComm, [7924-11]S2
- Pu, Yang** 7895 S6 SessChr, [7895-11]S3, [7895-17]S3, [7895-20]S4
- Puca, Alfredo [7883D-93]S6
- Pucetaite, Milda [7902-69]SPS2
- Pudlas, Marieke [7903-87]SPS1
- Puesche, R. [7954-17]S5
- Pung, Aaron J.** [7912-46]S12
- Pupeza, Ioachim [7914-54]S14, [7925-31]S7
- Puretzky, Alex A. 7922 S4 SessChr, [7922-03]S1, [7922-22]SPS3, [7922-23]SPS3
- Pureur, David [7914-83]SPS3
- Puri, Yash R. [7940-56]S8, [7945-103]SPS4, [7954-50]S8
- Purlys, Vyntautas [7927-15]S4
- Purnawirman, Purnawirman [7918-39]SPS3
- Pursiainen, Otto [7927-01]S1
- Pursley, Randall H. [7896-72]S15
- Purtseladze, Anna L. [7957-29]SPS4
- Purwar, Harsh [7907-27]S4
- Putnam, Nicole [7886-12]S3
- Putt, Mary [7896-10]S2
- Puustinen, Janne [7919-04]S1, [7941-28]S7
- Puzzuoli, Stefano [7883D-84]S4
- Pyun, Su Hyun [7947-25]S7
- Q**
- Qadir, Ashraf [7923-22]S6
- Qarehbaghi, Reza [7927-45]SPS3
- Qavi, Abraham J. [7888-01]S1
- Qi, Hua [7947-31]SPS4
- Qi, Minghao [7913-32]S7
- Qi, Wenjuan [7883C-188]S2, [7889-18]S3, [7898-22]S3
- Qi, Yi [7892-32]SPS1
- Qian, Dayou [7960-06]S1, [7960-06]S1
- Qian, Zhiyu [7910-16]S4
- Qin, Guanshi [7934-23]S6, [7934-38]SPS4, [7934-39]SPS4
- Qin, Jia [7889-40]S6, [7898-11]S2, [7898-28]S5
- Qin, Qi [7953-23]S6
- Qin, Zhenpeng [7901-11]S3
- Qing, Ye [7889-122]SPS2
- Qiu, Jinze [7883B-43]S2
- Qiu, Le** [7907-26]S4, [7945-88]S15
- Qiu, Suimin [7903-58]S8
- Qiu, Wei [7907-03]S1
- Qiu, Yafeng [7934-32]SPS4
- Qiu, Yuchen [7900-12]S4
- Qiu, Yueming [7945-22]S4
- Qiu, Zhen** [7893-06]S2, [7893-12]S3
- Qiu, Zhengle [7951-13]S4
- Qu, Jianan Y.** 7890 ProgComm, 7890 S1 SessChr, [7890-17]S3, [7903-37]S6
- Qu, Junle** [7903-13]S2
- Quadir, Anita [7941-34]S8
- Qualtieri, A. [7947-08]S3
- Quan, Qimin [7946-09]S3, [7946-38]S9
- Quang, Timothy [7891-02]S1
- Quarles, Gregory J.** TrackChr
- Quarterman, Adrian H. [7919-26]S5, [7919-36]S8, [7919-37]S8, [7919-38]S8
- Quentin, Ulf [7925-40]S8, [7925-40]S12
- Quenzer, Hans J. [7930-24]S6
- Quintana-Owen, Patricia [7883F-133]S3
- Quiogue, Geraldine [7886-11]S2
- Quirce, Ana [7933-10]S3, [7952-22]S6
- Quirk, Bryden C. [7890-38]S7, [7893-29]S6
- Quivey, Robert G. [7888-12]S2
- Qureshi, Zihad [7933-48]S11
- R**
- Ra, Hyejun [7930-04]S1, [7930-04]S7
- Ra, Young-sik [7948-18]S4
- Raab, Michael [7953-58]S14
- Rabah, Danny [7895-35]SPS2, [7896-104]SPS1
- Rabelo, Jose S. [7883F-132]S3
- Rabin, Yoed 7901 S3 SessChr, [7901-28]S6
- Rabinovich, William** [7923-04]S1
- Racu, Ana Maria [7937-29]S7
- Radabaugh, Rebecca A. [7901-35]S7
- Rademacher, Sven [7945-25]S4
- Rademeyer, Pieter [7944-32]S9, [7944-32]S2, [7956B-33]S3
- Radosevich, Andrew J. [7895-36]SPS2, [7907-02]S1, [7907-29]S5
- Raele, Marcus P. [7889-117]SPS2, [7907-41]S6
- Rafailov, Edik U. [7890-53]SPS1, 7919 ProgComm, [7919-19]S4, [7919-29]S6, [7950-12]S3
- Raffaella, Ryne P. [7933-38]S8
- Rafol, Don [7945-67]S11
- Raghavachari, Ramesh 7891 Chr, 7891 S4 SessChr, 7891 S SessChr, 7902 CoChr, 7910 Chr, 7910 S11 SessChr, 7910 S6 SessChr
- Ragnow, Steffen [7921-28]S7, [7921-28]S11
- Ragusa, A. [7909-43]SPS2
- Rahm, Marco [7945-32]S5
- Rahman, B. M. Azizur [7941-34]S8, [7943-16]S5
- Rai, Prakash R. [7886-02]S1, [7910-01]S1, [7910-49]S10

- Rai, Ramrathan [7895-10]S3
 Rai, S.B. [7940-19]S5
Raicu, Valerica [7903-73]S10
 Rääkkönen, Heikki [7928-08]S3
 Raimbourg, Joel [7916-34]SPS3
 Raj, Ganesh [7932-01]S1
 Raj, Kannan [7944-04]S1, [7944-10]S3, [7944-24]S6
 Raja, Waseem K. [7929-03]S2, [7929-35]S3
 Rajabhandharaks, Danop [7883B-55]S4, [7883B-56]S4
Rajadhyaksha, Milind [7883C-61]S1, [7890-13]S3, [7890-23]S5, [7895-07]S2, [7903-65]S9, [7904-40]S8, [7904-44]S9
Rajagopalan, Raghavan [7886-12]S3, [7910-33]S7
 Rajan, Kamala [7956A-18]S5
 Rajan, Parthi [7941-26]S6
 Rajapakse, Jagath C. [7903-22]S3
 Rajapaksha, Chandani [7947-22]S6
 Rajguru, Suhud M. [7883G-160]S3, [7883G-161]S3
 Rajian, Justin [7899-75]S11
 Raju, Reddy [7918-30]S5
 Rakhlin, Inna [7895-33]SPS2
 Rakovich, Yury P. [7911-52]SPS1
Ralph, Stephen [7959-11]S5, [7960-09]S2, [7960-09]S2, [7960-09]S2, [7960-12]S3, [7960-18]S4
 Ramachandran, Siddharth 7914 ProgComm
 Ramalingam, Tirunelveli S. [7893-27]S5
 Ramamurthy, Gopal [7910-53]S12
Raman, Aaswath P. [7933-19]S5, [7933-44]S10, [7946-14]S4
Ramanujam, Nirmala [7890-10]S2, [7890-11]S2, [7891-09]S3
 Ramaseshan, Ram [7929-33]SPS3
 Ramaz, Francois [7948-04]S1, [7899-43]SPS2, [7899-86]S7
Ramella-Roman, Jessica C. 7883A ProgComm, 7883A S1 SessChr, [7883A-03]S1, [7885-69]SPS2, [7891-14]S4, 7897 ProgComm, 7897 S5 SessChr, [7897-24]S5, [7898-17]S3
 Ramesham, Rajeshuni SympComm, 7928 Chr, 7928 S2 SessChr, 7928 S3 SessChr, [7928-14]S4
 Ramon, Herman [7895-34]SPS2
 Ramos, Carlos A. [7928-19]S6, [7928-19]S1, [7928-19]S5, [7941-39]S9
 Ramsay, B. [7898-29]S5
 Ramsay, William T. [7929-22]S5
 Ran, Guangzhao [7935-08]S2, [7943-39]S12
 Rana, Farhan [7937-61]S14
Ranasinghesagara, Janaka C. [7899-16]S3, [7899-52]S8, [7899-132]SPS2, [7899-137]SPS2, [7899-147]SPS2, [7899-148]SPS2, [7899-153]SPS2
 Rancuret, Paul 7932 ProgComm, 7932 S4 SessChr
Randeborg, Lise Lyngsnes [7883A-06]S1, [7891-29]S7, [7891-31]S7
 Randel, Sebastian [7960-23]S5
 Rankin, Brian R. [7905-36]S8
 Rao, Bin [7884-30]SPS1, [7899-28]S4
 Rao, Devulapalli V. [7904-02]S1, [7917-53]S12
 Rao, Satish B. S. [7887-16]S4
 Rao, Shekar [7932-01]S1
 Rapaport, Noam [7918-34]S5
 Rape, Aaron [7912-65]S15
 Raphael, Patrick [7889-108]SPS2
 Raring, James W. [7939-47]S8
 Rashidian, Bizhan [7946-64]S15
 Rasmussen, Jens C. [7960-01]S, [7960-01]S, [7960-01]S
Rasmussen, John C. [7890-19]S4, [7890-50]SPS1, [7891-04]S1, [7892-14]S3, [7896-37]S8, [7902-52]S11
 Rastogi, Pawan [7909-22]S7
 Rathke, Carsten [7945-19]S3
 Ratto, Fulvio [7885-58]SPS2, [7910-47]S10, [7911-22]S5, [7911-46]SPS1
 Rattunde, Marcel [7919-06]S2
 Ratzmann, Lars [7930-24]S6
 Rau, Christoph [7883C-168]S3
Rau, Ileana 7935 ProgComm, [7935-04]S1
 Rauch, Christian [7939-86]S7
Raukas, Madis [7954-39]S10
 Rauschenberger, Jens [7914-54]S14
 Rauschenbeutel, Arno [7913-22]S5
 Raut, Sangram [7905-04]S1, [7905-48]SPS1, [7905-49]SPS1
 Rautiainen, Jussi [7917-01]S5, [7917-01]S1, [7919-02]S1
 Rauwerdink, Adam M. [7901-43]S9
 Rauwerdink, Kristen M. [7901-43]S9
 Ravaine, Serge [7937-15]S4
 Ravaro, Marco [7953-26]S7
 Ravindran, V. [7940-58]S8
 Ravishankar, Harish [7960-29]SPS4
 Rawert, Juergen [7956A-08]S2
 Rawlins, Wilson T. 7915 ProgComm, 7915 S2 SessChr, [7915-02]S1, [7915-03]S1, [7915-07]S2
 Ray, Sumon [7952-04]S1
 Raybaut, Myriam [7912-56]S13, [7917-24]S6
 Raymond, Pierre [7912-44]S11
 Raynaud, Henri-François G. [7885-68]SPS2
Razansky, Daniel [7899-04]S1, [7899-38]S6, [7899-39]S6, [7899-69]S10, [7899-93]SPS2, [7899-99]SPS2, [7899-100]SPS2, [7899-109]SPS2, [7899-121]SPS2, [7899-123]SPS2
Razansky, R. Nika [7892-31]SPS1, [7894-22]S4
Razeghi, Manijeh [7939-50]S9, 7940 ProgComm, [7940-17]S4, [7940-57]S12, 7942 ProgComm, [7942-15]S6, 7945 Chr, 7945 S7 SessChr, 7945 S SessChr, 7945 S1 SessChr, [7945-12]S2, [7945-48]S7, [7945-54]S8, [7945-62]S10, [7946-05]S2, 7947 ProgComm
 Rea, Mark S. [7954-03]S1
Readle, Jason D. [7922-03]S1, [7922-22]SPS3
Rebane, Aleksander K. [7910-13]S3, [7910-55]S12, [7935-27]S7, 7948 ProgComm
 Reble, Carina [7891-10]S3
 Reboud, Julien [7929-18]S5
 Rech, Bernd [7933-21]S5
 Rech, Ivan [7905-02]S1, [7945-100]S17
 Rech, Markus [7918-03]S1
 Rechmann, Beate [7884-15]S5
 Rechmann, Peter 7884 Chr, 7884 S5 SessChr, 7884 S6 SessChr, [7884-15]S5
 Rector, David M. [7898-49]SPS2
 Redarce, Tanneguy [7932-14]S3
 Reece, Lisa M. [7929-09]S3
 Reece, Peter J. [7933-17]S4
Reed, Graham T. 7943 Chr, 7943 S5 SessChr, 7943 S6 SessChr, 7943 S3 SessChr, [7943-07]S3, [7943-32]S10, [7943-35]S11, [7943-41]S13, [7943-44]S13, [7943-54]S11
 Reese, Jeff [7890-45]S8
 Reeves, Roger J. [7940-40]S10
 Regard, Boris [7918-21]S4
 Regar, Evelyn [7883D-79]S3, [7889-21]S4
 Regmi, Murari [7922-22]SPS3
 Regreny, Philippe [7913-51]S9
 Rehbein, Wolfgang [7953-14]S3
 Rehder, Gustavo P. [7935-47]SPS4
 Rehm, Robert H. [7945-61]S10
 Rehmman, Georg [7914-66]S16
 Reichart, Rupert [7883E-103]S3, [7903-41]S6
 Reichel, Jakob [7948-15]S4
 Reichel, Steffen SC1013 Inst
Reid, Branden [7883C-174]S4
 Reid, W. Darlene [7883F-123]S1
 Reig, Beatrice [7896-55]S12
 Reimann, Andreas [7926-02]S1
 Reinecke, Holger [7932-13]S3
 Reingand, Nadya O. 7957 ProgComm
 Reinhard, Benjamin [7945-32]S5
 Reinhard, Bjoern M. [7888-25]S1, [7888-25]S3, [7911-35]S7
 Reinhard, Friedemann [7948-33]S8
 Reiner, Charles M. [7946-08]S2
 Reisman, Charles [7889-105]SPS2
 Reiss, Peter 7909 S4 SessChr, [7909-44]S13
 Reithmaier, Johann P. 7953 ProgComm, 7953 S1 SessChr, [7953-12]S3, [7953-13]S3
 Reitinger, Bernhard [7899-110]SPS2
 Reitzenstein, Stephan [7947-01]S1
 Rembielińska, Anna Z. [7933-69]SPS4, [7912-68]SPS3
 Remion, Yannick [7904-30]S6
 Ren, Fang-Fang [7942-13]S5
 Ren, Jian [7885-63]SPS2
 Ren, Ming [7896-86]SPS1
Ren, Shen [7944-03]S1
 Ren, Zhijun [7916-36]SPS3
Renaud, Rémi [7902-06]S2
 Renaudin, Alan [7929-19]S5
 Renault, Mickael [7941-16]S4
 Renda, Priscilla F. [7888-16]S2
 Rendell, Ron W. [7946-44]S11
 Rendl, Torsten [7902-19]S5
Renero-Carrillo, Francisco J. [7930-10]S2
 Renganathan, Balusamy [7941-22]S5
 Renn, Alois [7948-41]S10
 Rennesson, Stéphanie [7945-75]S13
Renninger, William [7917-26]S7
 Renno, Ana [7887-13]S3
 Reno, John L. [7953-23]S6, [7953-27]S7
 Renz, Günther [7912-12]S4
 Renz, Marc [7902-19]S5
 Reparaz, Juan S. [7939-22]S2, [7940-04]S1
 Resch-Genger, Ute [7905-50]SPS1, [7910-37]S8
 Reshchikov, Michael A. [7939-23]S2
 Residori, Stefania [7949-39]S8
 Resnick, Paul J. 7926 Chr, 7926 S4 SessChr, [7927-25]S6
Restaino, Sergio R. [7923-27]S7, [7924-21]S4, 7931 ProgComm, [7931-04]S2, [7931-11]S5
 Restelli, Alessandro [7945-98]S17
 Resto, Vincente [7903-58]S8
 Rettenmaier, Alexander [7913-22]S5
 Revin, Dmitry G. [7953-41]S11
 Rey, Gustavo [7883E-115]S5, [7883E-121]SPS1
Rey, Sara M. [7889-06]S1, [7897-49]S10
 Reyes, Juan [7940-43]S11
 Reyné, Stéphane [7937-20]S5
 Reynolds, Jeffery S. 7906A ProgComm
 Reynolds, Kelly A. [7894-38]S7
 Rezzgui, Rachid [7987-03]S1
 Rezus, Yves [7948-41]S10
 Rhee, Choong-Ho [7893-12]S3
Rhee, Chung-Ku [7883C-68]S3, [7887-12]S3
 Rhee, Jong Il [7908-30]SPS2
 Rhein, Stephan [7914-109]SPS3
 Rhodes, Mark A. [7916-03]S1, [7916-05]S1
 Rhodes, William H. [7912-88]SPS3
Ribeiro Santos, Nicole [7887-31]SPS1, [7887-32]SPS1
 Ribet-Mohamed, Isabelle [7945-55]S9
 Ricaud, Sandrine [7912-29]S8, [7912-61]S14
 Ricco, Antonio J. [7929-27]S7
 Riccota, Gianna [7902-28]S6
 Rice, Anthony [7939-24]S2
 Rice, Christopher A. [7924-19]S4
 Rice, Colin [7883F-128]S2
Rice, Joseph P. [7914-02]S1, 7932 ProgComm, 7932 S3 SessChr
 Rice, Photini F. [7890-32]S6
 Rice, Tyler B. [7896-49]S10, [7907-11]S2
 Richards, David R. [7903-88]SPS1, [7910-40]S9
 Richards, Dwight [7958-08]S4, [7958-08]S4, [7958-19]S5
Richards-Kortum, Rebecca R. [7883C-158]S1, [7883C-180]S6, [7883C-183]S6, [7883C-187]S1
 Richardson, David J. [7914-23]S6
Richardson, Kathleen [7945-86]S15
Richardson, Martin C. 7912 ProgComm, [7912-31]S9, [7914-17]S4, [7914-57]S14, [7924-20]S4, [7925-20]S5, [7950-11]S3
 Richardson, Martin J. 7957 ProgComm, [7957-11]S3, [7957-12]S3, [7957-17]S4, [7957-18]S4
 Richieri, Steven [7887-19]S4
 Richter, André [7933-29]S7, [7959-20]S7
Richter, Claus-Peter [7883G-160]S3, [7883G-161]S3
 Richter, Harald H. [7943-28]S8, [7943-40]S12
 Richter, Heike [7898-27]S5
 Richter, Johan [7883E-98]S1
 Richter, Klaus [7883C-168]S3
 Richter, Marten [7937-48]S1
Richter, Sören [7925-24]S6, [7925-39]S11, [7925-39]S7
 Richwine, Robert A. [7945-103]SPS4
Ricles, Laura M. [7899-120]S11, [7910-43]S9
 Ricou, Pierre [7939-11]S13
 Ridgway, Richard W. [7936-17]S5
 Ridsdale, Andrew [7883D-71]S1, [7903-40]S6, [7903-112]SPS1
 Riechert, Henning [7954-26]S8
 Riecke, Sina M. [7917-06]S3
 Riede, Wolfgang [7912-04]S2
 Riedel, Peter [7914-39]S10
Riemann, Iris [7883A-26]S5
 Righetti, Raffaella [7892-26]SPS1
Righini, Giancarlo C. [7925-06]S2, 7934 ProgComm, [7941-31]S7, 7942 ProgComm
 Rigual, Nestor [7886-49]SPS1
 Riker, David R. [7893-32]S6
 Riley, Christopher B. [7899-41]S6
 Riley, Jason D. [7896-72]S15
 Riley, Roger [7952-14]S4
 Rimoli, M. [7909-43]SPS2
 Rinaldi, Fernando [7959-06]S3
Rinehart, Matthew T. [7890-36]S7
 Rink, Alexandra [7894-06]S1
 Rinke, Monika [7921-23]S6, [7921-24]S6
 Rinneberg, Herbert H. [7896-47]S10
 Ripken, Tammo [7885-25]S5
 Rippe, Lars [7948-02]S1, [7949-27]S5
 Risby, Terence H. [7945-20]S3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Risi, Matthew D.** [7893-15]S3
Ritchey, Jerry W. [7883B-189]S1, [7892-24]SPS1, [7895-18]S4
Ritchie, David A. [7919-36]S8, [7919-38]S8, [7933-64]S12, [7933-64]S15, [7947-06]S2, [7948-46]S11
Ritman, Erik L. [7898-16]S3
Ritsch-Marte, Monika A. [7903-52]S7, 7950 ProgComm, [7950-04]S2
Ritter, Wolfgang [7945-02]S1
Rittweger, Eva [7948-32]S8
Ritz-Lehnert, Marion [7929-11]S3
Riva, Charles E. [7885-13]S3
Rivera, Antonio C. [7909-20]S6
Rivera, Antonio 7916 S6 SessChr, [7916-27]S6
Rivera, David R. [7893-10]S2, [7895-32]SPS2
Rivera, Erin M. [7909-22]S7
Rivera Gil, Pilar 7909 S3 SessChr, [7909-29]S8
Rivera Lamela, Horacio [7899-156]SPS2, [7901-12]S3
Rivest, Benjamin D. [7897-13]S3
Riviere, R. [7951-11]S3
Rivoire, Kelley [7913-23]S5, [7946-10]S3
Rizvi, Imran [7886-06]S1, [7886-07]S2, [7886-08]S2
Rizzi, Angela [7939-86]S7
Roach, William P. TrackChr, [7897-13]S3, [7897-14]S3, [7897-15]S3
Robakidze, Natalia [7884-31]SPS1
Robert, Jean-Luc [7899-09]S2
Robert, Yannick [7953-09]S2, [7953-46]S12
Roberts, David W. [7883E-96]S1, [7883E-97]S1, [7883E-99]S1, [7886-24]S6
Roberts, John S. [7919-20]S4
Roberts, Valerie 7916 ProgComm
Roberts, W. Thomas [7923-11]S3
Robertson, Claire [7893-30]S6
Robertson, Gideon A. [7943-09]S3
Robin, Craig A. [7914-10]S3
Robin, Thierry [7914-98]SPS3
Robinson, Alan M. [7883G-160]S3
Robinson, Bryan S. [7923-01]S1
Robinson, Dominic J. [7883C-164]S5
Robinson, J. Paul 7902 CoChr
Robinson, Joseph P. [7904-16]S4
Robles, Francisco E. [7889-80]S12, [7907-39]S6
Roblyer, Darren M. [7896-44]S9, [7896-45]S9
Rocha Gonsalves, Antonio A. [7910-09]S2
Rocha-Mendoza, Israel [7903-50]S7
Rochat, Nevine [7946-57]S13
Roche, Philip [7908-23]S4
Roche-Labarbe, Nadège [7892-02]S1
Rock, Kendra [7892-24]SPS1, [7895-18]S4
Rockstuhl, Carsten [7941-49]S9
Rockwell, Benjamin A. [7897-15]S3, [7897-19]S4, [7897-21]S4, [7897-35]S7, [7897-41]S8, [7903-51]S7
Rode, Patrick [7933-39]S9
Roder, Claudia [7933-39]S9
Rodgers, K. J. [7885-22]S4
Rodina, Anna V. [7940-04]S1
Rodionov, A. Yu. [7913-19]S4
Rodriguez, Felix [7901-12]S3
Rodriguez, Hernan [7939-18]S15
Rodriguez, Jean Baptiste [7945-55]S9, [7945-58]S10
Rodríguez-Asomoza, Jorge [7958-13]S5
Roeflaers, Maarten B. [7903-89]SPS1
Roelkens, Günther [7913-51]S9, [7945-58]S10
Roelle, Thomas [7957-16]S4
Roemer, Friedhard [7933-39]S9
Roesch, Rudolf [7939-41]S7
Roessner, Benno [7919-06]S2
Rogatkin, Dmitri A. [7890-53]SPS1
Rogers, David J. 7940 Chr, 7940 S8 SessChr, [7940-01]S, [7940-17]S4, [7940-21]S5, [7940-34]S8, [7940-52]SPS4, [7940-53]SPS4, [7940-57]S12, [7942-15]S6
Rogers, Jeremy D. [7890-28]S5, [7891-19]S5, [7895-36]SPS2, [7907-02]S1, [7907-29]S5
Rogers, John A. [7889-69]S11
Rogers, John A. 7927 ProgComm, [7927-29]S7
Rogers, Kevin [7933-41]S9
Rogers-Haley, Joy E. [7935-27]S7
Roggemann, Michael C. [7944-08]S2
Rogowsky, Stephan [7953-32]S8, [7953-32]S14
Rohde, Magnus [7921-06]S2
Rohrbach, Daniel J. [7886-38]SPS1, [7886-49]SPS1
Rohwer, Erich G. [7925-30]S7
Roider, Johann [7885-26]S5, [7885-28]S5
Roitner, Heinz [7899-110]SPS2
Rojas, X. [7945-01]S
Rolland-Thompson, Jannick P. 7891 ProgComm, 7891 S6 SessChr, [7891-22]S6, [7891-23]S6
Rollins, Andrew M. 7883D S1 SessChr, [7883D-89]S5, [7883D-94]S6, [7883G-138]S2, 7889 ProgComm, 7889 S6 SessChr, [7889-10]S2, [7889-22]S4, [7889-25]S4, [7893-41]S8
Rollins, Keith 7956A ProgComm
Romain, Chery [7902-06]S2
Roman, Manuela [7896-53]S11
Romanini, Daniele [7945-07]S11
Romano, Valerio [7920-08]S2
Romão, Ricardo M. [7934-12]S3
Romasew, Eugen [7953-58]S14
Romeike, Bernd F. M. [7883E-103]S3, [7903-41]S6
Romero, Mario I. [7883G-136]S1
Rommel, Christina E. [7902-01]S1, [7904-03]S1
Ron, A. [7949-33]S7
Rondinelli, J. M. [7940-44]S12
Rong, Yiwen [7944-03]S1
Ronzitti, Emiliano [7903-102]SPS1
Rood, Kyle [7899-125]SPS2
Rooms, Frédéric [7931-08]S3
Roop, Ray M. SympComm
Roorda, Austin SC702 Inst
Roques, Alain [7916-35]SPS3
Ros, Robert [7905-03]S1
Rosbach, Kelsey [7883C-158]S1
Rose, Felicity R. [7897-44]S9, [7899-47]S7
Rosen, Jennifer E. [7883C-163]S1
Rosen, Mark A. [7896-41]S9
Rosen, Richard B. [7889-88]SPS2
Rosenberg, Irwin H. [7896-07]S2
Rosenblum, Lauren T. [7910-07]S2
Rosencher, Emmanuel [7912-56]S13
Rosenfeld, Arkadi [7925-26]S6, [7925-42]SPS3
Rosenhahn, Bodo [7883C-184]S7
Rosenthal, Amir [7892-31]SPS1, [7899-69]S10, [7899-93]SPS2, [7899-99]SPS2, [7899-100]SPS2
Rosenthal, Eben L. [7910-10]S2
Rosenthal, Eric [7896-09]S2
Rosiewicz, Alex [7912-05]S2
Rosin, Miriam [7883C-66]S8, [7895-13]S3
Ross, Caroline A. [7941-04]S1
Ross, Gerry [7887-20]S4
Roszbach, Robert K. [7919-10]S3
Rossi, Francesca [7883D-93]S6, [7885-24]S5, [7885-58]SPS2, [7910-47]S10, [7911-22]S5, [7911-46]SPS1
Rossi, Giacomo [7883D-93]S6
Rossi, Giuliano [7912-70]SPS3
Rossi, Vincent M. [7886-29]S7
Rossignol, Clément [7937-15]S4
Rossin, Victor V. [7918-30]S5
Roskopf, Jürgen [7945-09]S2, [7945-29]S4
Rostovtsev, Yuri V. [7949-16]S4
Rotenberg, Nir [7937-43]S10
Rotermund, Fabian [7937-26]S6
Roth, Caleb C. [7897-13]S3, [7897-15]S3, [7901-15]S4, [7901-18]S4, [7908-28]S4
Roth, Kevin [7902-28]S6
Roth, Michelle [7931-15]S6
Roth, Stephan [7920-05]S2
Roth, Zachary [7912-46]S12, [7950-11]S3
Rothen-Rutishauser, Barbara [7909-08]S3
Rothhardt, Jan [7914-27]S6
Rotter, Karsten [7918-13]S3, [7918-23]S4, [7918-29]S5
Rotter, Thomas J. [7919-03]S1, [7951-12]S3
Roudas, Ioannis 7960 ProgComm
Rouillard, Yves [7945-14]S3
Rouleau, Christopher [7922-03]S1, [7922-22]SPS3, [7922-23]SPS3
Roumeliotis, Michael B. [7899-65]S10, [7899-149]SPS2
Rouse, Andrew R. 7893 S4 SessChr, [7893-15]S3, [7893-40]S8
Roussakis, Emmanuel [7903-79]S11
Roussev, Rostislav V. [7917-71]S3, [7917-72]SPS3
Roussey, Matthieu [7946-45]S11
Rouvillain, Julien [7912-19]S6, [7912-19]S2
Roux, Filippus S. [7950-03]S1, [7950-27]S7
Rovati, Luigi L. [7884-21]SPS1, 7885 ProgComm, 7885 S10 SessChr, [7885-13]S3
Röver, Martin [7939-86]S7
Rowe, Steven M. [7893-33]S6
Rowland, Ken [7914-09]S3
Rowley, Mark I. [7903-74]S10
Roxworthy, Brian J. [7950-31]S8
Roy, Hemant [7907-23]S4, [7907-24]S4, [7907-29]S5
Roy, Vincent [7914-71]SPS3
Roychoudhuri, Chandrasekhar MeetingVIP
Royer, François [7941-05]S1
Royer, Pascal [7911-28]S6, [7941-16]S4, [7943-27]S8, [7946-57]S13, [7946-82]SPS4
Roy-Moisant, François [7894-06]S1
Royon, Arnaud [7925-20]S5, [7925-21]S5, [7925-22]S5
Ruan, Haowen [7899-47]S7
Rubenchik, Alexander M. [7914-113]SPS3
Rubinov, Anatoli N. [7897-59]SPS2
Rubinstein, Marc [7883C-159]S7, [7883C-165]S2, [7883C-188]S2, [7889-45]S7
Rubinsztein-Dunlop, Halina H. 7950 ProgComm, [7950-34]S4
Rückel, Markus [7931-15]S6
Ruckstuhl, Thomas [7888-14]S2, [7905-06]S2, [7905-07]S2
Ruda, Harry [7908-22]S4, [7946-48]S11
Ruda, Mitchell C. SC010 Inst
Ruderman, Sarah [7890-28]S5, [7891-19]S5
Rudin, Benjamin [7919-32]S7
Rudolph, Jörg [7937-36]S8
Rueck, Angelika C. [7903-69]S10
Ruehl, Axel [7917-44]S10
Ruers, Theo [7899-129]SPS2
Ruggeri, Marco [7885-29]S6
Ruiz, Myke [7953-46]S12
Ruiz, Saul [7911-31]S6, [7940-43]S11
Rukhlenko, Ivan D. [7941-47]SPS4
Rukosuev, Alexey L. [7913-18]S4
Ruminski, Daniel [7883E-109]S4
Rungsawang, Rakchanok [7937-24]S6, [7945-11]S2
Runkel, Frank [7892-30]SPS1, [7906B-38]S4
Ruppert, Claudia [7937-31]S7
Ruprecht, Aiko K. [7926-13]S4
Ruschin, Shlomo [7941-14]S3
Ruske, Florian [7933-21]S5
Ruske, Manfred [7921-09]S3, [7939-11]S13
Russbuedt, Peter [7912-23]S7, [7912-28]S8
Russell, Philip S. [7946-33]S8, [7950-21]S5, [7914-22]S6
Russier-Antoine, Isabelle [7905-05]S1, [7935-32]S8, [7946-61]S14
Russo, Beverly [7956A-02]S1
Russo, R. [7909-43]SPS2
Rutkis, Martins A. [7935-38]SPS4, [7935-39]SPS4
Rutter, Guy A. [7904-19]S4
Rüttimann, Christoph [7920-06]S2
Rüttinger, Steffen [7905-03]S1
Rutz, Frank [7945-61]S10
Ruvolo, Eduardo C. [7883A-15]S3
Ryan, P. J. [7940-44]S12
Ryan, Thomas P. 7901 Chr, 7901 S1 SessChr, [7901-05]S2, [7901-09]S3
Rylander, Marissa N. 7897 ProgComm, 7897 S7 SessChr
Rylyakov, Alexander [7944-17]S5
Ryou, Jae-Hyun [7953-57]S14, [7954-13]S4
Rypma, Roger L. SC977 Inst
Rytchikov, Dmitry [7924-05]S1
Ryu, Han-Youl [7933-76]SPS4, [7939-12]S13, [7939-36]S6
Ryu, Sang Hun [7899-97]SPS2
Ryu, Sang-gil [7922-04]S1

S

- Sa, Yu [7902-39]S8
Saab, Marie-Belle [7888-06]S1
Saadany, Bassam [7930-17]S4
Saager, Rolf B. [7883A-24]S5, [7883A-29]S6, [7896-29]S6
Saar, Brian G. [7903-23]S4, [7903-29]S5, [7903-38]S6, [7903-89]SPS1
Saaski, Eiric W. 7888 ProgComm
Saastamoinen, Toni [7927-22]S5, [7927-39]SPS3
Saavedra, Genaro [7904-29]S6
Sabanayagam, Chandran R. [7947-12]S3
Sabathil, Matthias [7933-39]S9
Sablinskas, Valdas [7902-69]SPS2
Sabooni, Mahmood [7948-02]S1, [7949-27]S5
Sabourin, Nicaulas [7888-04]S1
Sabry, Yasser [7930-17]S4
Saby, Julien [7914-25]S6, [7914-34]S8
Sacconi, Leonardo [7903-66]S9
Sackner-Bernstein, Jonathan [7891-01]S

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Sackrow, Marcus [7905-09]S2
 Sacks, Alana [7907-26]S4
 Sadangi, Rajendra [7912-65]S15
 Sader, John [7937-16]S4
 Sadot, Dan [7960-04]S1, [7960-04]S1, [7960-17]S4
Sadr, Alireza [7884-11]S5
 Sadwick, Laurence P. 7938 Chr, 7938 S2 SessChr, 7938 S3 SessChr, 7938 S1 SessChr, [7938-14]S3
 Saerchen, Emanuel [7899-160]SPS2
 Saeyns, Wouter [7895-34]SPS2
Safaisini, Rashid [7941-21]S5
 Safarian, Nastaran [7893-06]S2
 Safi, M. [7909-50]SPS2
 Safran, Samuel [7902-54]S12
 Saghati, Antonio [7913-07]S2
 Sagnes, Isabel [7945-07]S11, [7945-10]S2, [7945-92]S16
 Saha, Anushree [7906B-36]S3
 Sahin, Betül [7885-41]S8, [7885-68]SPS2
 Sahn, Alexander [7917-03]S5, [7917-03]S1, [7917-07]S3, [7953-36]S9
 Sahu, Jayanta [7914-05]S2
 Said, Ali A. [7925-45]S8, [7925-45]S12
 Saïda, Takashi [7960-07]S2, [7960-07]S2, [7960-07]S2
 Saidi, Arya [7883C-159]S7, [7883C-165]S2
 Saiki, Masayuki [7884-20]S6
 Sailor, Michael J. 7888 ProgComm
 Saini, Sajjan SC817 Inst
 Saini, Simarjeet [7910-19]S4, [7947-16]S4
 Saint-Cyr, Michel [7932-02]S1
 Saito, Kenichi [7885-39]S8
 Saito, Marcia T. [7906B-39]S4
 Saitoh, Daizoh [7897-66]SPS2
 Saijo, Mari [7887-06]S2
 Saijy, S. [7940-39]S10
 Sakai, Masaru [7946-81]SPS4
Sakai, Shingo [7883A-25]S5
 Sakakura, Masaaki [7920-38]S10, [7950-24]S6
 Sakamoto, Moritsugu [7950-15]S4
Sakamoto, Yuji [7957-05]S2, [7957-06]S2, [7957-15]S3, [7957-36]SPS4, [7957-37]SPS4
Sakata, Hironobu [7940-36]S9
 Sako, Hiroshi [7914-43]S10
 Sakoda, Kazuaki [7936-02]S1, [7947-13]S4
 Sakr, Salam [7939-48]S9, [7945-51]S8
 Sakurada, Masami [7883D-92]S6
 Sakurai, Hisashi [7939-67]SPS4
 Sakuray, Ryo 7955 ProgComm, [7956A-12]S3, 7956B ProgComm
 Salahi, Sara [7901-30]S6
 Salameh, Belal [7939-86]S7
 Salas, Pedro [7911-31]S6, [7940-14]S3
 Salas-García, Irene [7886-15]S3, [7906A-22]SPS2
 Salas-Montiel, Rafael [7943-26]S8, [7943-27]S8
 Salaun, Mathieu [7893-39]S8
 Salazar, James [7907-18]S3
Salcedo, José R. [7914-95]S1
 Sale, Terry [7952-04]S1
 Saleh, Khalidoun [7936-10]S3
 Saleh, T. A. [7940-38]S10
 Sales, David L. [7947-26]S7
 Sales, Salvador [7949-10]S2
 Salgaonkar, Vasant A. [7901-23]S5, [7901-26]S5, [7901-38]S5
 Salin, François [7914-25]S6, [7914-34]S8
 Sall, Elena G. [7912-80]SPS3
 Salleo, Alberto [7920-15]S4
 Salomonsson, Fredrik [7906A-01]S1
 Salter, C. L. [7933-64]S12, [7933-64]S15
 Salut, Roland [7921-18]S5
 Salvador, J. Pablo [7941-42]S9
 Salverda, Jante M. [7905-43]SPS1
 Salz, James J. [7885-22]S4
 Salzenstein, Patrice [7936-11]S3
 Samarkin, Vadim V. [7913-18]S4
 Samarov, Daniel [7891-28]S7
Samatham, Ravikant [7883A-08]S2, [7907-05]S1
 Sambandam, Senthil N. [7933-14]S4
 Sametov, Alexander R. [7957-35]SPS4
 Samim, Masood [7904-37]S8
Samkoe, Kimberley S. [7886-09]S2, [7892-21]S4, [7892-23]S4, [7907-19]S3, [7910-01]S1
 Sannakia, Bahgat G. [7956B-32]S3
 Samoylova, Elena [7935-37]S9
 Sampath, Anand V. [7939-42]S7
 Sampson, Bryce [7914-32]S8
Sampson, David D. [7889-12]S2, [7889-78]S12, [7889-119]SPS2, [7890-38]S7, [7890-58]SPS1, [7891-17]S5, [7893-29]S6, [7906B-33]S3, [7907-36]S6
 Samson, Benjamin [7898-23]S4
 Samson, Bryce N. [7914-18]S5
 Samson, Chelsea [7902-33]S7
 Samuelson, Lars [7939-20]S2
 Sana, Ajaz [7958-10]S4, [7958-10]S4, [7958-20]SPS4
 Sanamyan, Tigran [7914-26]S6
 Sancey, Lucie [7910-29]S6
 Sanchez, Antonio [7953-57]S14
 Sanchez, Carlos A. [7927-25]S6
 Sanchez, Victoria M. [7952-21]S6
Sanchez Lucero, Daniel [7917-40]S9, [7934-42]SPS4, [7934-52]SPS4
 Sanchez Perez, Karla J. [7917-40]S9
 Sanchez-Dehesa, Jose [7946-04]S1
 Sanchez-Elsner, Tilman [7909-18]S6
 Sancho-Dura, Juan [7949-10]S2
 Sandana, Vinod E. [7940-17]S4, [7940-53]SPS4, [7940-57]S12, [7942-15]S6
 Sandanayake, Neomal S. [7886-18]S4
 Sandeau, Nicolas [7893-09]S2
 Sandell, Julia [7886-20]S5, [7886-22]S6, [7886-47]SPS1, [7897-60]SPS2
 Sandén, Tor [7905-51]SPS1
 Sanders, Barry C. [7948-17]S4
 Sanders, Mary M. [7892-36]SPS1, [7899-07]S1
 Sanders, Niek N. [7908-42]S1
 Sandhu, Sunil [7949-17]S4
Sandkuij, Daaf [7904-37]S8
 Sandner, Thilo 7930 S7 SessChr, [7930-15]S4, [7930-25]S6, [7930-28]S7
 Sandoghdar, Vahid [7948-41]S10
 Sang, Krystina L. [7899-144]SPS2, [7901-41]S9
 Sang, Mei [7914-101]SPS3, [7936-22]S5
Sanghera, Jashbinder S. [7912-63]S15, [7914-24]S6, [7946-35]S8
 Sangirov, Jamshid [7933-96]SPS4, [7944-30]S1, [7944-30]S8
 Sangla, Damien [7914-34]S8
 Sangouard, Nicolas [7948-42]S10
 Sanjo, Yasutaka [7922-20]SPS3, [7927-26]S6
 Sankaridurg, Padmaja [7885-34]S7
 Sanner, Nicolas [7920-02]S1, [7937-19]S5
 Sano, Akihide [7958-04]S3, 7960 ProgComm
 Sanorpm, S. [7945-44]S7
 Sansonetti, Philippe [7910-42]S9
 Santamaria, Jesús [7909-31]S9
 Santana, Alex F. [7959-18]S6, [7959-18]S6, [7959-18]S6
 Santarelli, Giorgio [7953-26]S7
 Santeford, Andrea C. [7899-104]SPS2
Santiago, Freddie [7923-27]S7, [7931-04]S2, [7931-11]S5
 Santiago-Alvarado, Agustin [7906B-27]S1
 Santori, Charles M. [7942-03]S9, [7942-03]S2, 7948 Chr, 7948 S9 SessChr, 7948 S1 SessChr, [7948-25]S7, [7948-39]S9, [7948-40]S9
 Santos, Moises O. [7883F-132]S3
 Santos, Rafael V. [7900-14]S4
 Santos, Rui [7933-59]S13
 Santos, Susana I. C. O. [7902-24]S5, [7903-93]SPS1, [7904-50]S10
 Santos de Carvalho Monteiro, Juliana [7887-27]SPS1, [7887-28]SPS1
Santos Folgosi-Correa, Melissa [7898-35]SPS2
 Santschi, Christian [7905-51]SPS1
 Sapozhnikova, Veronika V. [7883D-72]S1
 Saraceno, Clara J. [7912-22]S7
 Saranya, Aruppukottai M. [7941-22]S5
 Sardar, Dhiraj [7908-15]S3
 Sardini, Alessandro [7896-65]S13, [7904-19]S4, [7904-34]S7, [7904-35]S7
 Saremi, Somaie [7920-43]SPS3
Sarfert, Wiebke [7954-31]S9
 Sargent, Joe [7956B-35]S3
 Sari, Emre [7945-38]S6
Sariciftci, Niyazi S. 7935 ProgComm, [7935-17]S4
 Sarkar, Pabak [7905-04]S1, [7905-48]SPS1, [7905-49]SPS1
 Sarmadi, H. [7904-39]S8
 Sarmento, Ana Bela [7910-09]S2
 Saroufeem, Ramez M. G. [7895-02]S1
 Sarpe-Tudoran, Cristian [7920-24]S8, [7920-24]S12
 Sarrach, Sebastian [7925-33]S5, [7925-33]S9
 Sarro, Pasqualina M. [7943-08]S3
 Sartorius, Bernd [7953-14]S3
 Sarukina, Nobuhiko [7916-13]S3
 Sarunic, Marinko V. [7889-110]SPS2, [7892-08]S2
 Saruta, Takashi [7955-14]S5
 Sarzynski, Marcin [7953-17]S4
Sasaki, Kazuhiro [7889-03]S1, [7931-05]S2
 Sasaki, Keiji [7913-34]S7
 Sasaki, Masahide [7933-43]S10
 Sasaki, Takatomo [7939-82]SPS4
Sasaki, Wakao [7913-47]SPS3, [7956B-31]S3, [7959-22]SPS4
 Sasaki, Yuzo [7889-54]S8
 Sasakura, Hirotaka [7933-43]S10, [7947-05]S2
 Sasaura, Masahiro [7889-54]S8
 Sasikala, T. [7940-50]SPS4
Sassaroli, Angelo [7896-07]S2, [7896-08]S2, [7896-15]S3, [7896-22]S5, [7896-52]S11
Sastikumar, Dillibabu [7941-22]S5
 Sato, Fumiya [7937-55]S12
 Sato, Ken-ichi 7958 ProgComm, [7959-17]S6, [7959-17]S6, [7959-17]S6
Sato, Koki [7957-34]SPS4, [7957-38]SPS4
Sato, Kunihiro [7904-01]S1
 Sato, Kunihiro [7958-15]S6, [7958-15]S6, [7958-15]S6
 Sato, Makoto [7889-20]S3
Sato, Shunichi [7883G-135]S1, [7897-65]SPS2, [7897-66]SPS2, [7902-30]S6, [7907-22]S4
 Sato, Shunichi [7922-08]S2, [7922-19]SPS3
Sato, Takashi [7933-58]S13, [7933-87]SPS4, [7941-25]S6
 Sato, Tetsuo [7944-21]S6
 Satoh, Yasushi [7897-66]SPS2
 Satou, Yoshiaki [7899-105]SPS2
 Satterwhite, Lisa L. [7904-04]S1
 Sattmann, Harald [7885-05]S1, [7889-30]S5
 Satzinger, Valentin [7944-07]S2
 Sauer, Markus 7902 ProgComm, [7905-20]S5, [7905-21]S5, [7905-35]S8
 Sauer, Vince [7929-29]S7
 Saunders, Michael D. [7891-03]S1
 Saunter, Christopher D. [7904-10]S3, [7904-38]S8
 Savasini, Marcio [7959-18]S6, [7959-18]S6, [7959-18]S6
 Savatier, Julien [7904-23]S5
 Savchenkov, Anatoliy A. [7913-25]S6
 Savitsky, Alexander P. [7910-11]S3
 Savoldelli, Michèle [7925-08]S2
 Savran, Cagri A. [7908-02]S1
 Sawada, Junko [7910-41]S9
 Sawaki, Daisuke [7921-21]S5
 Sawaki, Nobuhiko [7939-69]SPS4
 Sawallich, Simon [7945-11]S2
 Sawano, Tsutomu [7920-38]S10
 Sawicka, Magdalena [7916-09]S2
 Sawosz, Piotr L. [7896-01]S1, [7896-93]SPS1
 Sayed El-Ahl, Mohammad H. [7890-54]SPS1
 Sayegh, Kareem [7890-35]S7
 Sayegh, Samir I. [7890-35]S7
 Sayinc, Hakan [7914-36]S10, [7914-36]S9, [7914-76]SPS3
 Sayko, Gennadi [7890-08]S2
 Säynätjoki, Antti [7934-11]S3
 Sayad, Wasim A. [7950-32]S8
 Sazaki, Gen [7937-18]S4
 Sbaizer, Orfeo [7929-04]S2
 Sbrurlan, Suzana [7923-19]S5
Scagg, Michael J. 7913 ProgComm, 7913 S1 SessChr, [7913-05]S2, [7913-11]S3
 Scaliari, Giacomo [7945-15]S3, [7953-24]S6
 Scalia, Giuseppe [7905-01]S1
 Scaloria, Michael [7941-37]S8, [7946-76]SPS4
Scamarcio, Gaetano [7945-31]S5
 Scanlan, Michael [7916-16]S4
 Scarlott, Kerry WS933 Inst
 Schaar, Joseph [7949-38]S8
 Schade, Grit [7902-97]S
 Schade, Wolfgang [7945-87]S15
 Schaefer-Nolte, Eike-Oliver [7939-02]S1
 Schaeffer, Ronald D. SC689 Inst
 Schaepeers, Thomas [7939-02]S1
Schaffer, Christopher B. SC743 Inst, 7925 ProgComm, 7925 S4 SessChr, [7925-13]S3
 Schaffers, Kathleen I. [7912-57]S14
 Scharf, Toralf [7941-49]S9
 Schattka, Bernhard J. [7883D-71]S1, [7903-40]S6
Schaub, Michael P. SC384 Inst
Schaub, Nicholas J. [7897-48]S10
 Schei, Jennifer L. [7898-49]SPS2
 Scheibenzuber, Wolfgang G. [7953-15]S4, [7953-19]S4
 Scheibner, Ralf [7945-61]S10
 Scheiding, Sebastian [7927-23]S5
 Schelinski, Uwe [7930-01]S1, [7930-01]S7
 Schell, Andreas [7943-37]S12
 Schell, Martin [7941-10]S3, [7953-14]

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- S3, [7959-01]S, [7959-01]S, [7959-01]S
Schelle, Florian [7884-04]S2, [7884-05]S2, [7884-18]S6
Schellenberg, Markus [7904-49]S10, [7932-16]S4
Schenk, Harald SympChair, 7930 Chr, 7930 S2 SessChr, [7930-15]S4, [7930-25]S6, [7930-28]S7, [7930-34]S8
Schenk, Sven [7944-20]S5
Schenkel, Thomas [7948-27]S7
Schenke-Layland, Katja [7903-87]SPS1
Schepler, Kenneth L. [7912-51]S12, 7917 ProgComm
Scherer, Axel 7946 Chr, 7946 S2 SessChr, [7946-01]S1
Scherer, Benjamin [7945-19]S3, [7945-29]S4
Scherrer, Simon [7885-21]S4
Scheuer, Jacob [7945-82]S14, 7949 ProgComm, [7949-18]S4
Schiabel, Homero [7885-56]SPS2
Schie, Iwan W. [7903-91]SPS1
Schiemang, Max [7953-36]S9
Schiff, Steven J. [7947-10]S3
Schille, Joerg [7926-05]S2
Schilling, Bradley W. [7912-34]S9
Schilling, Jörg [7917-13]S4
Schimpf, Damian N. [7914-50]SPS3
Schineller, Bernd [7954-17]S5
Schippel, Achim [7959-10]S5
Schirmer, Sophie [7933-66]S12, [7933-66]S15
Schlag, Peter M. [7896-47]S10
Schlanitz, Ferdinand [7885-46]S9
Schlauch, Tobias [7937-27]S6
Schleede, Simone [7888-09]S1, [7913-33]S7
Schleife, Andre [7940-04]S1
Schleifenbaum, Frank [7902-34]S7, [7902-59]S13, [7905-09]S2, [7905-10]S2, [7905-41]SPS1
Schlereth, Tobias [7945-19]S3
Schlessner, Albert [7951-11]S3
Schlösser, Michael [7912-60]S14
Schlott, Kerstin [7885-26]S5, [7885-28]S5, [7889-13]S3
Schlupp, Philip [7903-06]S1
Schlupp, Peggy [7892-30]SPS1, [7906B-38]S4
Schmelfer, Dieter [7930-34]S8
Schmid, Gerhard [7944-07]S2
Schmid, Guenter [7954-31]S9
Schmid, Jens H. [7888-04]S1, 7941 ProgComm, [7941-39]S9, [7943-15]S5
Schmid, Marc [7920-08]S2
Schmid, Thomas [7917-24]S6
Schmid, Wolfgang [7953-53]S13
Schmidt, Ernst-Dieter 7959 ProgComm
Schmidt, Frank [7933-21]S5, [7933-28]S7, [7933-46]S10, 7941 ProgComm, [7941-15]S4
Schmidt, Holger 7943 ProgComm, 7943 S1 SessChr, 7949 ProgComm, [7949-30]S6
Schmidt, Jürgen G. [7905-22]S5
Schmidt, Kai [7920-37]S10
Schmidt, Lisa [7902-01]S1
Schmidt, Mathew C. [7939-47]S8
Schmidt, Megan [7899-125]SPS2
Schmidt, Michael [7890-08]S2
Schmidt, Michael H. M. [7920-05]S2
Schmidt, Michael [7925-40]S8, [7925-40]S12
Schmidt, Oliver A. [7914-63]S15, [7914-85]SPS3, [7914-88]SPS3
Schmidt, Oliver [7914-109]SPS3
Schmidt, Roman [7904-52]S10
Schmidt, Theodore J. [7960-02]S, [7960-02]S, [7960-02]S
Schmidt, Thilo [7926-12]S4
Schmidt, Torsten [7918-21]S4
Schmidt, Volker [7944-07]S2
Schmidt-Erfurth, Ursula [7885-46]S9
Schmidtke, Hans-Juergen [7959-24]S7
Schmidts, Thomas [7906B-38]S4
Schmitt, Joseph M. [7893-04]S1
Schmitt, Robert [7897-46]S9
Schmitz, Johannes [7945-61]S10
Schmoll, Tilman [7885-15]S3, [7885-18]S3, [7889-29]S5, [7889-30]S5
Schmabel, Christian [7893-38]S8
Schmabel, Florian [7953-13]S3
Schnall, Mitchell D. [7896-41]S9
Schneckenburger, Herbert [7902-11]S3, [7902-61]SPS2
Schned, Alan [7901-29]S6
Schneeberger, Stefan [7920-39]S7, [7920-39]S11
Schneider, Christian [7947-01]S1, [7948-29]S7
Schneider, Harald [7937-02]S1, [7937-07]S2
Schneider, Johannes [7921-06]S2
Schneider, Kyle R. [7914-43]S10
Schneider, Martin [7884-32]SPS1
Schneider, Stefan W. [7883A-26]S5
Schneider-Hornstein, Kerstin [7944-31]S9, [7944-31]S2
Schneiders, Malte [7959-10]S5
Schnekenburger, Jürgen [7902-01]S1, [7904-03]S1
Schnitzer, Itzhak [7918-34]S5
Schnitzer, Mark J. [7883C-167]S3, 7893 ProgComm
Schnitzler, Claus [7912-23]S7
Schnurbusch, Don [7918-07]S1
Schnürer, Frank H. [7945-25]S4
Schoenfeld, Winston V. 7927 Chr, 7927 S1 SessChr
Schoengen, Max [7946-50]S12
Schoenmann, Stuart G. MeetingVIP
Schoenstein, Tasha M. [7910-33]S7
Scholl, Iris [7918-28]S5
Schöll, Eckehard [7933-34]S8
Scholles, Michael [7930-01]S1, [7930-01]S7
Scholz, Christian [7921-29]S7, [7921-29]S11
Scholz, Ferdinand [7939-41]S7, [7954-24]S7
Scholz, Wenzel [7953-13]S3
Schomacker, Kevin [7883A-01]S1
Schomaker, Markus [7925-14]S4, [7925-18]S4
Schónau, Thomas [7917-06]S3
Schönle, Andreas [7904-52]S10, [7905-24]S6
Schoonover, Robert W. [7899-135]SPS2
Schotland, John C. [7896-103]SPS1
Schötz, Gerhard [7914-66]S16
Schow, Clint L. [7944-17]S5
Schrader, Sigurd K. [7913-42]S5, [7943-28]S8, [7943-40]S12
Schrage, Juergen [7944-05]S2
Schraub, Martin [7885-71]SPS2
Schrauwen, Benjamin [7942-24]S8
Schreiber, Jürgen [7897-26]S5
Schreiber, Thomas [7914-39]S10, [7914-109]SPS3, [7914-128]S3
Schrenk, Werner [7953-72]S15
Schriempf, J. Thomas 7915 Chr, 7915 S1 SessChr
Schröder, Dominic [7918-16]S3, [7918-18]S4, [7918-27]S5
Schröder, Helmut B. [7912-04]S2
Schröder, Henning 7944 ProgComm, [7944-11]S3
Schröder, Tim [7943-37]S12
Schroeder, Christian [7930-24]S6
Schroeder, Henning [7944-05]S2
Schróter, Siegmund [7914-63]S15, [7914-88]SPS3
Schubert, Colja [7959-01]S, [7959-01]S, [7959-01]S
Schubert, E. Fred SympChair, SC052 Inst, 7954 ProgComm, 7954 S4 SessChr, [7954-05]S2, [7954-14]S4, [7954-16]S4, [7954-50]S8
Schubert, Martin [7954-14]S4
Schubert, Olaf [7917-11]S4
Schuele, Georg 7885 ProgComm, 7885 S1 SessChr, [7885-23]S4
Schuetz, Christopher A. 7936 Chr, 7936 S1 SessChr, [7936-18]S5, [7936-19]S5, [7942-07]S3
Schuhmann, Karsten R. F. [7912-13]S4
Schuhmann, Rolf [7944-05]S2
Schulte-Huxe, H. [7921-28]S7, [7921-28]S11
Schultz, Christoph [7953-50]S13
Schulz, Olaf [7905-03]S1
Schulz, Roland [7919-13]S3
Schulz, Wolfgang-Michael [7919-10]S3
Schulze, Christian [7914-63]S15, [7914-85]SPS3, [7914-88]SPS3
Schulze, Haike [7918-27]S5
Schumacher, Silvia [7885-21]S4
Schuman, Joel S. [7885-43]S9
Schumann, Timo [7939-02]S1
Schunemann, Peter G. 7917 ProgComm, 7917 S11 SessChr, [7917-20]S6, [7917-50]S12, [7917-52]S12
Schupp, Thorsten [7937-36]S8
Schuster, David I. [7948-37]S9
Schuster, Kay [7925-06]S2, [7934-24]S6, [7946-34]S8
Schuster, Kurt J. [7897-19]S4, [7897-35]S7, [7897-56]SPS2
Schüth, Anna [7903-100]SPS1
Schütz, Viktor [7921-30]S7, [7921-30]S11
Schütze, Christopher [7885-46]S9
Schwab, Holger [7921-09]S3, [7939-11]S13
Schwab, Keith C. [7951-09]S3
Schwaiger, Stephan [7939-41]S7
Schwartz, Daniel M. [7885-17]S3, [7889-16]S3
Schwartz, Jon A. [7899-144]SPS2, [7901-41]S9, [7906A-03]S1
Schwartz, Stanley A. [7905-33]S8
Schwartz, Tim [7945-20]S3
Schwarz, Martin [7883A-26]S5
Schwarz, Richard A. [7883C-183]S6, [7883C-187]S1
Schwarz, Ulrich T. 7939 ProgComm, [7953-15]S4, [7953-19]S4
Schwarzäck, Thomas [7919-10]S3
Schwarzelbach, Oliver [7930-24]S6
Schwarzenberg, Markus [7930-01]S1, [7930-01]S7
Schwarzer, Clemens [7953-72]S15
Schweda, Dawid [7913-42]S5
Schweiger, Martin [7896-92]SPS1
Schweikert, Wenka [7945-25]S4
Schweinsberger, Gino [7883B-48]S3
Schwertfeger, Sven [7953-47]S12
Schwuchow, Anka [7914-66]S16, [7934-24]S6, [7946-34]S8
Scofield, Adam [7947-14]S4
Scolaro, Loretta [7907-36]S6
Scopatz, Stephen D. [7934-55]SPS4
Scope, Alon [7895-07]S2
Scott, Alan D. PanelMember, [7928-19]S6, [7928-19]S1, [7928-19]S5, PanelMember, PanelMember
Scott, Alex [7903-12]S2
Scott, Howard A. [7916-05]S1
Scott, Robin C. [7940-02]S1
Scotto d'Abbusco, Marco [7935-37]S9
Scully, Marlan O. [7948-05]S2
Seah, Chu Perng [7914-105]SPS3
Searcy, Steven [7959-11]S5, [7960-09]S2, [7960-09]S2, [7960-09]S2, [7960-12]S3, [7960-18]S4
Seassal, Christian [7942-17]S7, [7946-06]S2
Sebag, Jerry 7885 ProgComm
Sebastian, Jürgen [7918-27]S5
Secchi, Alberto [7941-31]S7
Secor, Jeff [7950-16]S4
Sedaghat, Zohreh [7943-27]S8, [7946-57]S13
Seddon, Angela B. [7912-52]S13
Sederberg, Matthew S. [7937-46]S10
Seeber, Wolfgang [7925-42]SPS3
Seeger, Stefan [7888-14]S2, [7905-07]S2
Seekel, Kevin C. [7883E-100]S2, [7911-07]S6
Seelert, Wolf 7912 ProgComm, 7912 S6 SessChr, [7912-17]S5, [7912-17]S1, [7912-42]S11, 7917 S2 SessChr
Seetamraju, Madhavi [7892-19]S4
Séfel, Richard [7957-27]S6
Segall, Jeff [7914-43]S10, [7914-110]SPS3
Segref, Armin [7918-08]S2, [7918-13]S3
Seibel, Barry [7885-23]S4
Seibel, Eric J. [7884-02]S1, 7891 ProgComm, 7891 S3 SessChr, [7891-03]S1, [7894-41]S8, [7904-20]S4
Seidel, Claus A. [7905-12]S3
Seidel, David J. [7913-25]S6
Seidel, Helmut [7903-54]S8, [7908-20]S4, [7920-43]SPS3, [7921-19]S5
Seidel, Wolfgang [7937-07]S2
Seifert, Hans-Helge [7883B-54]S4
Seigneur, M. [7909-50]SPS2
Seiler, Theo [7885-21]S4
Seimetz, Matthias [7959-01]S, [7959-01]S, [7959-01]S
Seise, Enrico [7914-48]S12, [7914-50]SPS3
Sekiguchi, Hiroki [7957-26]S6, [7957-41]SPS4
Sekine, Yoko [7957-22]S5
Selb, Juliette J. [7892-02]S1, [7896-09]S2
Seletskiy, Denis [7951-02]S1, [7951-04]S1, [7951-18]SPS4
Seleznov, Leonid V. [7915-12]S3
Selim, Maria Angelica [7903-61]S8
Sell, Alexander [7903-30]S5, [7917-11]S4
Selleri, Stefano [7894-20]S4, [7914-61]S15, [7914-67]S16, [7921-26]S7, [7921-26]S11
Selm, Romedi [7903-30]S5
Selvamanickam, Venkat [7933-14]S4
Selvan, Subramanian T. 7909 S9 SessChr, [7909-21]S7
Sementsov, Dmitry I. [7917-65]SPS3
Semjonov, Sergei L. [7914-87]SPS3, [7934-43]SPS4
Semmel, J. [7945-19]S3
Sen, Mehmet [7929-17]S4
Senanayake, Pradeep N. [7947-14]S4
Senaratne, Ruwan [7917-54]S12, [7940-41]S11, [7941-03]S1
Sencan, Ikbal [7891-18]S5, [7902-42]S9, [7904-45]S9, [7908-21]S4
Senellart, Pascale [7945-92]S16
Senesi, Folco [7890-55]SPS1
Senger, Frank [7930-24]S6

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Sengpiel, Frank [7889-07]S2
 Senlik, Ozlem [7946-13]S3
 Senoh, Takanori [7957-02]S1, [7957-08]S2
 Senokuchi, Teruki [7935-03]S1
 Sentis, Marc L. [7920-02]S1, [7937-19]S5
 Seo, Chi Hyung [7899-56]S8, [7899-68]S10
 Seo, Hyunwoo [7928-03]S1
Seo, InSeok [7883A-15]S3, [7883A-27]S5
 Seo, Jeong Hwan [7899-97]SPS2
 Seo, Jun-Kyu [7960-25]SPS4
 Seo, Seogjae [7935-43]SPS4
 Seo, Ye Won [7956B-34]S3
 Seo, Youngwoon [7883E-120]SPS1
 Seok, Chulkyun [7945-73]S12
 Seong, Tae-Yeon 7939 ProgComm, [7939-78]SPS4, [7939-80]SPS4
 Sepúlveda, Borja [7911-09]S2
 Serafino, Giovanni [7960-27]SPS4
 Serb, Alexander [7943-42]S13
 Sergon, Mildred [7897-26]S5
 Serkland, Darwin K. [7952-20]S6, [7952-21]S6
 Serra, Arménio C. [7910-09]S2
Serrano, Elba [7909-22]S7
 Serruys, Patrick W. [7883D-79]S3
 Sethian, John [7916-31]S7
 Setu, Praveen K. V. [7949-32]S6
 Setzler, Scott D. [7917-50]S12
 Seurin, Jean-Francois [7912-36]S9, 7952 ProgComm, [7952-15]S4
Sevick-Muraca, Eva M. [7890-19]S4, [7890-50]SPS1, [7891-04]S1, [7892-14]S3, 7896 Chr, [7896-19]S4, [7896-37]S8, [7902-52]S11, [7910-39]S8
 Sévigny, Benoit [7914-91]SPS3, [7914-94]SPS3
Seward, George H. SC865 Inst
 Sextl, Gerhard [7926-04]S2
 Sexton, Kristian J. [7886-09]S2, [7892-21]S4
 Seyfert, Karin [7905-18]S4
 Shaarawi, Amr [7927-28]S6
 Shaat, Ashraf [7885-36]S7
Shadgan, Babak [7883F-123]S1, [7890-21]S4
Shaffer, Etienne [7903-14]S2
 Shaffer, Michael K. [7915-05]S2
 Shafiiha, Roshanak [7944-02]S1, [7944-24]S6
 Shafirstein, Gal [7883C-156]S5, [7883C-157]S5, 7901 S9 SessChr, 7901 S SessChr, [7901-08]S2, [7901-25]S5, [7901-34]S7, [7901-37]S8, [7901-39]S8, [7901-45]S8
 Shah, Kanai S. [7912-88]SPS3
 Shah, Lawrence [7914-17]S4, [7914-57]S14, [7924-20]S4
 Shah, Maitri [7907-24]S4
 Shah, Udayan K. 7883C ProgComm
 Shah Hosseini, Ehsan [7946-51]S12
 Shahid, Hifsa [7953-02]S1, [7953-65]SPS4
Shahimin, Mukhzeer M. [7929-07]S2
Shahriar, Selim M. 7948 ProgComm, 7949 Chr, 7949 S5 SessChr, [7949-12]S3, [7949-15]S4, [7949-34]S7, [7949-38]S8, [7949-41]S8
Shaked, Natan T. [7904-04]S1
 Shakeel, Saad [7885-04]S1, [7885-48]S9, [7885-73]SPS2
 Shakhova, Natalia M. 7889 ProgComm
Shalaev, Vladimir 7922 ProgComm, [7946-24]S6
 Shamay, Moshe [7918-34]S5
 Shambat, Gary [7946-10]S3
 Shan, Chong-Xin [7940-46]S12
 Shan, Qifeng [7954-16]S4
 Shankar, Raji [7946-11]S3
 Shanley, Patrick [7896-23]S5
Shanmugam, Sivabalan [7895-15]S3, [7895-22]S4
 Shannon, Geoff J. [7920-51]SPS3
 Shannon, John H. [7894-48]S3
Shanor, Christopher [7951-08]S2
 Shao, Guocheng [7929-06]S2
 Shao, Jiayi [7945-69]S12
 Shao, Xia S. [7899-75]S11
 Shao, Yonghong [7903-13]S2
 Shapiro, Joshua N. [7947-14]S4
 Shapiro, Lucy [7905-23]S6
Sharkey, Ahmed S. [7943-12]S4
 Sharma, Nikhilesh [7899-125]SPS2
Sharma, Saurabh [7912-92]S15
 Sharma, Sheela [7907-39]S6
 Sharma, Sulbha K. [7887-06]S2
 Sharma, Sunil [7901-39]S8
 Sharma, Vikrant [7883B-42]S1, [7896-78]S16
 Sharon, Gilad [7928-12]S3
 Sharpe, Andrew W. [7948-21]S5
 Sharts, Olga N. [7902-78]SPS2, [7908-09]S1
 Shaverdova, Valentina G. [7957-29]SPS4
 Shavliakadze, Thea [7889-12]S2
Shaw, Brandon [7946-35]S8, 7914 ProgComm, 7914 S1 SessChr, [7914-24]S6
 Shay, Thomas M. [7914-09]S3
 Shayegan Salek, Mir Farrokh [7902-14]S4
 Shchegrov, Andrei V. 7912 S5
 SessChr, 7917 ProgComm, 7917 S1 SessChr, [7917-04]S5, [7917-04]S1
 Shchepakina, Elena [7924-04]S1
 Shcherbakov, Alexandre S. [7917-27]S7, [7917-40]S9, [7933-74]SPS4, [7934-42]SPS4, [7934-52]SPS4
 Shchukin, Vitaly A. [7952-18]S5
Shea, Herbert R. 7928 ProgComm, 7928 S5 SessChr, PanelModerator, [7928-09]S3, [7928-13]S4, [7928-15]S4, PanelModerator, PanelModerator, Sheffi, Nir [7960-04]S1, [7960-04]S1
 Sheik-Bahae, Mansoor 7951 Chr, [7951-02]S1, [7951-04]S1, [7951-12]S3, [7951-18]SPS4
Sheinfeld, Adi [7899-79]S12
 Shekhter, Robert I. [7933-51]S11
 Sheldakova, Julia [7913-08]S2, [7913-18]S4
 Sheldon, Katharine E. [7897-41]S8, [7897-56]SPS2
Shelton, Ryan L. [7889-108]SPS2, [7899-27]S4
 Shemyakin, A. N. [7913-04]S1
 Shen, Chien-Fu [7939-07]S12
 Shen, De-Zhen [7940-46]S12
 Shen, Duanwen [7910-66]S3
 Shen, Haiou [7892-14]S3
 Shen, Ji-Lin [7909-28]S8
 Shen, Kun-Ching [7945-50]S8
Shen, Mengzhe [7903-109]SPS1
 Shen, Paul H. [7939-42]S7
 Shen, Yiqiang [7934-04]S1
 Shen, Yue [7940-18]S5
 Shenoi, Rajeev V. [7937-06]S2
 Shephard, Jonathan D. [7894-34]S6, [7913-12]S3
Shepherd, Whitney E. [7935-15]S4
Sheppard, Colin J. R. [7903-02]S, [7904-11]S3, [7910-21]S4
 Sher, Alexander [7885-37]S7
Sher, Meng-Ju [7920-16]S4, [7920-40]S7, [7920-40]S11, [7934-45]SPS4
 Sherwin, Mark S. [7937-02]S1
 Shestakov, Alexander V. [7917-41]S9
 Sheth, Sameer [7883E-106]S3
 Sheu, Jinn-Kong [7939-54]SPS4, [7939-77]SPS4, [7946-70]SPS4
 Shevchenko, Anna V. [7954-46]SPS4
 Shi, Ce [7913-29]S7
Shi, Kebin [7903-53]S7
 Shi, Lei [7944-27]S7, [7944-34]SPS4
 Shi, Peng [7921-25]S6
Shi, Shouyan 7936 S3 SessChr, 7936 S2 SessChr
 Shi, Wei [7899-24]S4, [7899-118]SPS2
 Shi, Wei 7917 ProgComm, 7917 S4 SessChr, [7917-16]S5
 Shi, Yi-Wei [7894-14]S2
 Shi, Yunzhou [7903-90]SPS1
 Shi, Zhenzhi [7906A-16]SPS2
 Shiao, Wen-Yu [7939-53]SPS4, [7945-50]S8
 Shibata, Yasuo [7889-54]S8
 Shibuya, Takayuki [7897-12]S3
Shibuya, Takehisa [7934-37]SPS4
 Shieh, Dar-Bin [7883C-63]S1
 Shieh, Jeng-Jong [7910-33]S7
 Shields, Andrew J. [7933-64]S12, [7933-64]S15, [7947-06]S2, [7948-21]S5, [7948-46]S11
 Shields, Brendan [7913-23]S5
 Shields, Philip A. 7945 S14 SessChr, [7945-77]S13
 Shiga, Noriyasu [7935-35]S9
 Shigeoka, Katherine [7914-43]S10
 Shiina, Tsuyoshi [7899-87]SPS2, [7899-91]SPS2, [7899-92]SPS2
 Shik, Alex [7946-48]S11
 Shilagard, Tuya [7903-58]S8
Shilyagin, Pavel A. [7889-76]S11, [7889-121]SPS2
 Shim, BongChu [7898-33]S5, [7906A-15]S3, [7906A-19]SPS2
 Shim, Jong-In 7939 ProgComm, [7939-12]S13, [7939-36]S6, [7939-83]SPS4
 Shim, Jung-uk [7905-45]SPS1
 Shimada, Kohei [7959-17]S6, [7959-17]S6, [7959-17]S6
 Shimada, Naoyuki [7918-35]SPS3
 Shimada, Yasushi [7884-11]S5
 Shimazaki, Natsumi [7883D-92]S6
 Shimidzu, Naoki [7957-25]S6
 Shimizu, Hiroshi [7952-03]S1
 Shimizu, Hitoshi [7952-03]S1
 Shimizu, Kimiya [7885-30]S6, [7889-70]S11
 Shimizu, Yo [7955-03]S1
Shimono, Takaya [7917-62]SPS3, [7917-63]SPS3
Shimotsuma, Yasuhiko [7920-38]S10
 Shin, Dong-Soo [7939-12]S13, [7939-83]SPS4
 Shin, Eun Ji [7890-16]S3
 Shin, Hyun Joon [7927-31]S7
 Shin, Hyung-Cheul [7883E-120]SPS1
 Shin, Jae-Cheol [7953-22]S5
 Shin, Jae-Hyun [7889-51]S8
Shin, Jonghwa [7941-36]S8
 Shin, Jun Geun [7904-57]SPS2
 Shin, Jung H. [7913-41]S9
 Shin, Junsoo [7922-03]S1
 Shin, Sung-Sik [7956B-34]S3
 Shin, Yong Jin [7894-30]S5
 Shinagawa, Tsutomu [7922-20]SPS3, [7927-26]S6
 Shindo, Takahiko [7953-06]S2
 Shine, Gautam [7952-13]S4
 Shingledecker, Aurora D. [7897-35]S7
 Shinkawa, Mizuki [7949-01]S1
 Shinohara, Tetsuji [7883D-70]S1
 Shintani-Smith, Stephanie [7883C-168]S3
 Shiojima, Kenji 7939 ProgComm
 Shiomi, Masashi [7883D-71]S1, [7883D-95]SPS1, [7903-40]S6
Shipp, Dustin W. [7888-11]S2, [7907-34]S5
 Shiraaga, Hiroyuki [7916-13]S3
 Shirazi, Roza [7954-30]SPS4
 Shirey, Loretta [7946-44]S11
 Shirmanova, Marina V. [7886-30]S7, [7910-23]S5
 Shironita, Yu [7935-23]S6
 Shishkov, Milen S. [7883D-77]S2, [7883D-82]S3, [7893-03]S1, [7893-19]S4, [7893-32]S6
 Shitanda, Keishiro [7944-16]S4
Shivalingaiah, Shivaranjani [7883G-145]S3, [7885-70]SPS2, [7897-05]S1, [7902-73]SPS2
 Shlizerman, Eli [7933-55]S12, [7933-73]SPS4
Shobin, Loukose R. [7941-22]S5
Sholokhov, Eugene [7897-52]S11
Shome, Krishanu [7888-18]S2
 Shori, Ramesh 7912 Chr, 7912 S1 SessChr, 7912 S2 SessChr, 7912 S12 SessChr, [7912-46]S12
 Shori, Ramesh K. [7912-47]S12
 Shori, Ramesh 7917 ProgComm
 Shorte, Spencer [7902-33]S7, [7910-42]S9
 Shortoff, Kevin E. [7912-62]S14
 Shou, Yuanxin [7883F-131]S3
Shrestha, Sebina [7883C-67]S7, [7883D-74]S2
 Shreve, Andrew P. [7905-29]S7
 Shrien, Rownak [7942-07]S3
 Shterengas, Leon [7945-22]S4, [7953-37]S10, [7953-60]S15
 Shtoyko, Tanya [7905-48]SPS1
 Shu, Jing [7942-16]S7
Shuaib, Ali S. [7897-25]S5
 Shubin, Ivan N. [7944-01]S1, [7944-04]S1, [7944-10]S3, [7944-24]S6
 Shubina, Tatiana V. [7939-39]S7
 Shubochkin, Roman L. [7883D-77]S2
 Shuker, M. [7949-33]S7
 Shukla, Prashant [7902-67]SPS2, [7907-43]SPS2
 Shukla, Vijay [7912-65]S15
 Shuldjakov, Andrey A. [7887-30]SPS1
 Shumakher, Evgeny [7953-13]S3
 Shung, K. Kirk [7883D-83]S4, [7889-43]S7, [7893-43]SPS2, [7899-12]S2, [7899-28]S4
 Shutts, Sam [7953-07]S2
 Shuzo, Masaki [7940-13]S4, [7941-24]S6
 Shvartsman, Leonid D. [7898-08]S1
Shvets, Gennady [7946-59]S14
Shy, Shyi-Long [7926-20]SPS3, [7947-30]SPS4
Shyu, David [7953-63]S15
 Siao, Li-Han [7939-92]SPS4
 Sibbett, Wilson [7919-19]S4
 Sidky, Emil Y. [7899-140]SPS2
Sidorin, Yakov TrackChr, 7941 ProgComm, 7941 S6 SessChr
 Sidorov, Victor V. [7890-53]SPS1
 Sieber, Oliver D. [7919-25]S5, [7919-33]S7
 Siegel, David A. [7937-64]S14
 Siegel, Lawrence R. [7916-26]S6
 Siegel, Peter H. [7883G-143]S3
 Siegner, Uwe [7937-29]S7
 Siemeling, Ulrich [7922-15]S4
 Siemens, Mark E. [7937-41]S9
 Siemund, Roger [7894-16]S3
Sierra, Heidy [7904-25]S5
 Sikocinski, Pawel [7916-09]S2
 Sikora, Andrew [7883C-182]S6
 Silalahi, Samson T. H. [7942-13]S5

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Sillard, Pierre [7914-74]SPS3
Silohin, Igor [7898-46]SPS2
Silveira, Landulfo [7887-29]SPS1
Silverman, Gary S. [7939-11]S13
Silverman, Kevin L. 7947 ProgComm
Silverman, Ronald H. [7899-76]S12
Silvernail, Jeff A. [7956A-18]S5
Sim, Jae In [7954-48]SPS4
Simanek, Eric E. [7906A-10]S3
Simic, Aleksandar [7942-09]S4
Simmons, Jerry A. 7954 ProgComm
Simões Ribeiro, Martha [7887-08]S2, [7887-10]S2
Simon-Boisson, Christophe [7912-75]SPS3
Simonenko, Georgy V. [7884-29]SPS1
Simons, John [7944-24]S6
Simonsson, Carl [7903-78]S11
Simpson, David [7948-45]S11
Simpson, Mary Jane [7903-61]S8
Simpson, Trefford L. [7885-04]S1, [7885-73]SPS2
Sims, Robert A. [7914-17]S4, [7914-57]S14, [7924-20]S4
Sin, Yongkun [7918-02]S1, [7933-16]S4, [7953-03]S1
Sinclair, William [7888-04]S1, [7943-15]S5
Singaperumal, Makaram [7920-21]S6, [7920-21]S10
Singer, Ferdinand [7945-19]S3
Singer, Kenneth D. 7935 ProgComm
Singh, Amardeep S. G. [7885-15]S3, [7885-18]S3
Singh, Deo R. [7903-73]S10
Singh, Gajendra P. [7904-14]S3
Singh, Ghanshyam [7927-41]SPS3
Singh, Gursimranbir [7946-62]S14
Singh, Jagdeep [7940-20]S5
Singh, Joginder [7912-65]S15
Singh, Rahul S. [7938-20]S1
Singh, Rajbeer [7902-68]SPS2
Singh, Rajiv [7954-10]S3
Singh, Satya P. [7912-89]SPS3
Singh, Taranjeet [7902-67]SPS2
Singh, Upendra N. MeetingVIP, [7912-06]S2
Singh, Vijay Raj [7903-22]S3
Sinha, Priyasmita [7939-58]SPS4
Sinityn, Dmitry V. [7915-12]S3
Sinks, Louise E. [7903-79]S11
Sinnavee, Peter [7889-23]S4
Sinning, Steffen [7930-34]S8
Sinton, David [7929-23]S6
Sintov, Yoav [7914-13]S4
Sinzinger, Stefan [7931-10]S4
Sipma, Henrik [7912-25]S7
Siqueira, Jonathas de Paula [7917-28]S7
Sirbu, Alexei 7919 ProgComm, [7919-02]S1
Sirotkina, Marina A. [7886-30]S7, [7910-23]S5
Sirtori, Carlo [7937-24]S6, [7945-06]S1, [7945-11]S2, [7953-26]S7
Siska, Petr [7934-54]SPS4, [7923-14]S4
- S**
- Sisto, Marco M. [7914-71]SPS3
Sit, Jeremy [7946-69]SPS4
Sitar, Zlatko [7939-22]S2, [7939-24]S2
Sitharaman, Balaji [7899-89]SPS2
Sivakumar, Manickam [7922-18]SPS3
Sivasubramanian, Dhanuskodi [7917-59]SPS3
Siviloglou, Georgios [7950-11]S3
Skapa, Jan [7923-14]S4, [7934-54]SPS4
Skarman, E. [7885-20]S4
Skauli, Torbjørn [7891-29]S7, [7891-31]S7
Skibina, Julia S. [7898-46]SPS2
Skidmore, Jay A. [7918-30]S5
Skjonnemand, Karl [7956B-35]S3
Skoczowsky, Danilo [7913-07]S2, [7953-51]S13
Škoda, Václav [7912-69]SPS3, [7912-74]SPS3
Skold, Niklas [7947-06]S2
Skolnick, Maurice S. [7937-07]S2, [7946-07]S2
Skorikov, N. A. [7940-27]S7
Skovgaard, Peter M. W. [7914-93]SPS3
Skrebova Eikje, Natalija [7883A-28]S5, [7898-26]S4, [7906A-14]S3
Skrypnik, A. V. [7883A-35]SPS1
Slagle, Johnathan E. [7935-27]S7
Slavov, Slav [7917-04]S5, [7917-04]S1
Slayden, Richard A. [7888-05]S1
Stepchenkov, Michel M. [7910-52]S11
Slepkov, Aaron D. [7903-12]SPS1
Slezak, Andrzej [7933-69]SPS4
Slinger, Chris 7957 ProgComm
Slingerland, Elizabeth J. [7938-02]S1
Slingerland, Philip [7938-07]S2
Slipchenko, Mikhail N. [7903-26]S4, [7903-90]SPS1
Sliva, Danielle [7892-02]S1
Slivken, Steven 7945 ProgComm, [7945-12]S2
Slobodov, Gennady [7883B-189]S1, [7892-24]SPS1, [7895-18]S4
Slocum, Alexander H. [7901-07]S2
Slocum, Michael [7933-04]S1
Slump, Cornelis H. [7899-126]SPS2
Slutsky, Boris A. [7942-09]S4
Small, Jay A. [7918-01]S1
Smalley, Daniel E. [7957-01]S1
Smalling, Richard W. [7899-01]S1, [7899-02]S1
Smalyukh, Ivan I. 7955 ProgComm, 7955 S7 SessChr, [7955-10]S4
Smedh, Maria H. [7903-78]S11, [7903-98]SPS1
Smedsrod, Bård [7905-27]S7
Smerzi, Augusto [7948-14]S3
Smiley, Doug [7934-58]SPS4
Smillie, Paul J. [7927-20]S5
Smirnov, N. B. [7945-53]S8
Smirnov, Sergey V. [7917-69]SPS3
Smirnov, Vadim I. [7914-51]S13
Smith, Agnes S. [7903-64]S9
Smith, Barbara L. [7893-18]S4
Smith, Bradley D. [7910-36]S8
Smith, Brett [7903-45]S7
Smith, David J. [7939-68]SPS4, [7945-52]S8
Smith, Dean [7902-58]S13, [7929-26]S6
Smith, Don J. 7935 ProgComm
Smith, Don D. [7953-28]S7
Smith, Edward W. [7945-65]S11
Smith, G. [7956B-35]S3
Smith, Latisha A. [7890-19]S4, [7890-50]SPS1, [7902-52]S11
Smith, Linda A. WS973 Inst
Smith, Linsley [7883G-136]S1
Smith, Matthew J. [7920-44]SPS3
Smith, Michael B. [7896-63]S13, [7899-63]S9
Smith, Michael S. D. [7883D-71]S1, [7883D-87]S5, [7903-40]S6
Smith, Nicholas I. [7902-03]S1, [7904-51]S10, [7911-23]S5
Smith, Philip G. [7903-19]S3
Smith, Steve J. [7905-26]S5
Smith, Steven L. [7957-17]S4, [7957-18]S4
Smith, Timothy J. [7955-17]S6
Smith, Zachary J. [7902-32]S7
Smoliner, Juergen [7947-21]S6
Smolski, Oleg V. [7919-11]S3
Smolski, Viktor O. [7919-11]S3
Smolyakov, Gennady A. [7909-20]S6, [7933-12]S3
Smowton, Peter M. 7953 Chr, [7953-05]S1, [7953-07]S2
Smurov, Igor [7921-10]S3
Smyth, Ciarán [7911-52]SPS1
Snee, Preston T. [7935-24]S6
Snoswell, David R. E. [7927-01]S1
Snow, Brent [7901-30]S6
Snuderl, Matija [7883E-106]S3
Snyder, Abraham Z. [7896-05]S1
Snyman, Lukas W. [7930-32]S8, [7943-19]S6
So, Peter T. C. 7893 ProgComm, 7903 Chr, 7903 S8 SessChr, [7903-02]S3, [7903-22]S3, [7903-56]S8, [7903-97]SPS1, [7903-103]SPS1, [7910-21]S4
Soares, Jason W. [7940-20]S5
Soares, M. J. [7940-17]S4
Sobel, Eric S. [7883F-130]S2
Sobey, Mark S. MeetingVIP
Sobiesierski, Angela [7953-05]S1
Sobol, Emil [7897-51]S11
Soder, Hervé [7920-18]S5, [7920-18]S9
Söderberg, Per G. 7885 Chr, 7885 S10 SessChr, 7885 S SessChr, 7885 S SessChr, [7885-20]S4
Soderstrom, David [7952-04]S1
Sodnick, Zoran 7923 ProgComm
Soenmez, Yasin [7944-05]S2
Soghomonyan, Suren [7917-04]S5, [7917-04]S1
Soh, Daniel B. 7914 ProgComm, [7914-43]S10
Sohn, Ik-Bu [7926-16]SPS3
Sohn, Ok-Jae [7908-30]SPS2
Sohn, Rebecca [7899-104]SPS2
Soibel, Alexander [7945-22]S4, [7945-63]S11, [7945-67]S11, [7953-60]S15
Sokolov, Konstantin V. [7899-01]S1, [7899-02]S1, [7899-60]S9, [7899-120]S11, [7907-18]S3, [7910-43]S9, [7910-46]S10
Sokolovski, Sergei G. [7890-53]SPS1
Sokolovskii, Grigori S. [7919-19]S4
Sokolovsky, Bogdan S. [7933-71]SPS4, [7954-46]SPS4
Soldat, Henning [7952-10]S3
Solga, Steven [7945-20]S3
Solgaard, Olav [7883E-104]S3, [7930-04]S1, [7930-04]S7
Solheim, Brian H. [7928-19]S6, [7928-19]S1, [7928-19]S5
Soliz, Peter 7885 ProgComm, 7885 S8 SessChr, [7885-64]SPS2
Solomon, Glenn S. [7948-24]S6, [7948-43]S10
Solomon, Metasebya [7896-51]S11, [7910-44]S9
Solomon, Wayne C. [7915-01]S1
Soloviev, Vadim Y. [7896-65]S13
Solovyov, N. G. [7913-04]S1
Soltani, A. [7940-58]S8
Soma, Daiki [7958-17]S7
Somedra, Yasuhiro [7899-87]SPS2, [7899-91]SPS2
Sommerer, Georg [7912-39]S10, [7912-39]S9
Sommerhalter, Christof [7954-17]S5
Somunyudan, Meral F. [7897-06]S1
Son, Nam-Seon [7960-25]SPS4
Son, Taeyoon [7884-12]S5
Sone, Cheolsoo 7939 ProgComm
Song, Chul-Gyu [7899-97]SPS2
Song, Chun-Ying [7945-34]S5
Song, DaeGwon [7920-35]S10
Song, Dong Han [7956A-15]S4, [7956B-22]S1
Song, Feng 7934 ProgComm
Song, Hyon-min [7889-77]S12
Song, Hyun-Woo [7890-40]S7
Song, Jin Dong [7945-91]S16
Song, Jin-Joo 7937 Chr, 7937 S13 SessChr, 7937 S1 SessChr
Song, June-O [7939-80]SPS4
Song, Junfeng [7942-13]S5
Song, Jun-Hwa [7942-30]SPS4
Song, Liang [7899-19]S3, [7899-53]S8
Song, Lipei [7907-14]S2
Song, Liwei [7916-37]SPS3
Song, Renbo [7954-28]S8
Song, Sheng [7900-07]S2, [7900-16]SPS2
Song, Taehyeon [7928-23]SPS3
Song, Yanghee [7939-74]SPS4
Song, Yotak [7928-03]S1
Song, Youngjin [7883B-45]S2, [7889-112]SPS2, [7910-24]S5
Soni, Jaipal [7907-27]S4
Sonka, Julia [7883A-08]S2
Sonobe, Shingo [7920-48]SPS3
Sood, Adam W. [7954-50]S8
Sood, Ashok K. [7940-56]S8, [7945-103]SPS4, [7954-50]S8
Soppera, Olivier [7944-22]S6
Soprano, Martin B. [7940-56]S8, [7954-50]S8
Sorbara, Luigina [7885-04]S1, [7885-73]SPS2
Sorel, Marc [7933-94]SPS4, [7943-07]S3
Sorensen, Erik [7883F-127]S2
Sorg, Brian S. [7902-07]S2
Soria, Silvia [7941-31]S7, [7941-42]S9, [7925-06]S2
Sorokin, Evgeni [7917-45]S10
Sorokina, Irina T. [7917-45]S10
Sorouhian, Behrouz [7899-34]S5
Soskin, Marat S. 7950 ProgComm, 7950 S6 SessChr, [7950-09]S3
Soskind, Yakov G. 7944 ProgComm, [7944-28]S7
Sosnowski, Thomas S. [7914-29]S7, [7914-60]S15
Sossalla, Adam [7894-28]S5
Sota, Takayuki [7937-34]S8
Sotobayashi, Hideyuki [7958-14]S5
Sotodate, Yoshitugu [7934-36]SPS4
Sotto, David [7910-30]S6
Soumyanath, Amala [7883A-08]S2
Soures, John M. 7916 ProgComm, [7916-02]S1
Sousa, João M. [7914-95]S1, [7914-96]SPS3
Souza, Michael [7910-20]S4
Sowa, Michael G. [7883D-71]S1, [7883D-80]S3, [7883D-87]S5, [7884-08]S4, [7884-15]S5, [7903-40]S6
Sozzi, Michele [7894-20]S4
Spaeth, Hans [7935-06]S2
Spagnolo, Vincenzo 7945 S6 SessChr, [7945-18]S3
Spahn, Peter [7927-01]S1
Spain, James [7890-13]S3
Spaldin, N. A. [7940-44]S12
Spapleton, Dean [7918-13]S3
Sparks, Robert T. WS985 Inst
Spaulding, Jeremy M. [7954-02]S1
Specht, Alexandre [7903-117]SPS1

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Speck, James S. [7939-47]S8
 Speiser, Jochen [7912-12]S4
 Spence, David E. 7912 ProgComm, 7912 S8 SessChr
 Spencer, Peter [7953-02]S1
Spiclin, Ziga [7891-26]S7
 SPIE, Proceedings of [7885-00]S, [7888-00]S, [7889-135]S, [7907-00]S, [7908-00]S, [7909-00]S, [7910-00]S, [7911-00]S, [7912-99]S
 Spiekermann, Stefan [7912-39]S10, [7912-39]S9
 Spiessberger, Stefan [7953-36]S9
Spigulis, Janis [7883A-38]SPS1
 Spinelli, Lorenzo [7883D-84]S4, [7896-01]S1, [7896-11]S3, [7896-34]S7, [7896-36]S8
 Spirin, Vladimir F. [7887-30]SPS1
 Spittel, Ron [7946-34]S8
 Spott, Alexander [7917-46]S11
Sprague, Robert A. 7956A ProgComm, 7956B ProgComm
 Spreemann, Martin [7953-52]S13
 Spring, Bryan Q. [7886-02]S1, [7886-07]S2, [7910-01]S1, [7910-49]S10
 Springeling, Geert [7899-03]S1
 Sprinkle, Mike [7937-07]S2
Spuesens, Thijs [7913-51]S9
 Squier, Jeffrey A. [7902-28]S6, [7904-09]S2
 Sridharan, Shamira [7910-31]S6
 Srinivas, Shankar [7931-16]S6
 Srinivasan, Aarthi [7941-26]S6
 Srinivasan, Balaji [7954-19]S5
 Srinivasan, Kartik [7927-33]S8
 Srinivasan, Raman [7914-43]S10
 Srinivasan, S. [7895-15]S3
 Srinivasan, Subha [7886-09]S2
 Srinivasan, Vivek J. [7883E-11]S6
 Sriram, Rashmi [7888-21]S1, [7888-21]S3
Srivastava, Atul K. 7958 S1 SessChr, 7959 Chr, 7959 S5 SessChr, 7959 S1 SessChr, 7960 ProgComm, 7960 S1 SessChr
 St. Lawrence, Keith [7896-13]S3, [7896-14]S3, [7896-94]SPS1
 St.-Louis Lalonde, Bastien [7925-14]S4, [7925-17]S4
 Stacey, Alastair [7948-45]S11
 Stach, Martin [7959-06]S3
 Stafford, Christopher [7906B-41]S3
 Stafsudd, Oscar [7912-47]S12
 Stallunas, Kestutis [7927-15]S4
Stam, Barbara [7892-06]S1
 Stamp, Gordon W. [7883A-09]S2, [7893-07]S2, [7903-80]S11, [7904-19]S4
Stampanoni, Marco [7889-89]SPS2
 Stampoulidis, Leontios [7941-11]S3
Standish, Beau [7893-23]S5
 Staninec, Michal [7884-10]S4, [7884-28]SPS1
 Stanley, Michael C. [7903-118]S3
 Stanley, Ross P. [7928-09]S3, 7954 ProgComm, 7954 S9 SessChr
 Starikova, Marina K. [7917-64]SPS3
Stark, Andrew J. [7959-11]S5, [7960-09]S2, [7960-09]S2, [7960-09]S2, [7960-12]S3, [7960-18]S4
 Stark, Sebastian P. [7946-33]S8
 Starling, David [7949-32]S6
Starodoumov, Andrei N. [7912-18]S6, [7912-18]S2
 Staton, Kevin D. [7907-03]S1
 Staude, Isabelle [7921-01]S1
 Stauffer, Paul R. 7901 ProgComm, 7901 S2 SessChr, [7901-30]S6
 Stavrinou, Paul N. [7933-26]S6
 Steckl, Andrew J. [7935-06]S2, [7956A-06]S2
 Steegmueller, Ulrich [7933-39]S9
Steenbergen, Wiendelt 7899 ProgComm, [7899-30]S5, [7899-130]SPS2, [7906B-34]S3
 Steenhusen, Sönke [7927-13]S3
 Steeves, Diane M. [7940-20]S5
Stefani, Mario A. [7912-70]SPS3
 Stefanovic, Sharon [7955-17]S6
 Stehr, Dominik [7937-02]S1, [7937-07]S2
 Steier, William H. [7934-18]S4, [7936-08]S3
 Steiger, Ruth [7950-04]S2
 Steinbrueck, Andrea [7909-22]S7, [7909-41]S13
 Steiner, Gerald [7902-69]SPS2
 Steiner, Michael J. [7949-42]S8
 Steiner, Patrick [7889-89]SPS2
 Steinkellner, Oliver [7896-01]S1
Steinmetz, Alexander [7912-39]S10, [7912-39]S9, [7914-37]S10, [7914-37]S9
 Steinmetz, Tilo [7948-15]S4
 Stenberg, Petri [7927-41]SPS3
 Stenger, Nicolas [7946-25]S6
 Stephen, Andreas [7921-17]S4
 Stephens, Edward [7916-07]S2, [7918-07]S1
 Stepp, Herbert 7883E ProgComm, [7883E-107]S3
 Sterenborg, Henricus J. C. M. 7883C ProgComm, [7883C-164]S5, [7903-60]S8, [7903-114]SPS1, [7907-44]SPS2
 Stern, Liron [7949-28]S5
 Sterry, Wolfram [7898-27]S5
 Steshenko, Sergiy [7946-66]S15
 Stevens, Benjamin J. [7919-20]S4, [7953-65]SPS4
 Stevenson, Adam [7912-64]S15
 Stevenson, Mark R. 7933 S10 SessChr, [7933-64]S12, [7933-64]S15, [7947-06]S2
 Stewart, Allison [7903-17]S2
 Stewart, Charles N. [7890-35]S7
 Stewart, Jason 7930 ProgComm, [7930-20]S6, [7930-20]S1, [7930-20]S5, [7931-12]S5
 Stewart, Luke [7891-24]S6
 Stewart, Michael H. [7909-26]S8, [7909-39]S11
 Stewart, Neil Z. [7890-53]SPS1
 Sturman, Norbert [7949-17]S4
 Stichel, Thomas [7926-04]S2
 Stifter, David [7889-34]S5
 Stigen, Tyler [7883E-110]S4
 Stijnen, Marco [7894-17]S3
 Stine, Rory [7945-72]S12
 Stingl, Andreas [7912-41]S11
Stinson, Douglas G. [7883B-49]S3, [7883B-50]S3, [7883B-51]S3, [7883B-55]S4, [7883B-56]S4
 Stintz, Andreas [7919-03]S1, [7945-69]S12
 Stobbe, Søren [7947-01]S1
 Stock, Karl [7884-01]S1
 Stock, Michelle L. [7914-29]S7
 Stockbridge, Christopher R. [7931-12]S5
 Stockdale, Alan [7896-26]S6
 Stockman, Mark I. SC727 Inst, [7937-42]S10
 Stoehr, Hardo [7885-27]S5
 Stoian, Razvan I. 7920 S10 SessChr, [7920-29]S9, [7921-15]S4, [7925-26]S6
 Stoiber, Michael [7918-28]S5
 Stoica, Toma [7939-02]S1
Stojanoff, Christo G. [7957-21]S5
 Stoklasa, Jan [7912-87]SPS3
 Stolarek, David [7943-28]S8, [7943-40]S12
 Stollhof, Juergen [7925-28]S7
 Stollow, Albert [7883D-71]S1, [7903-40]S6, [7903-112]SPS1
 Stolz, Wolfgang [7919-14]S4, [7933-50]S11, [7939-79]SPS4, [7953-31]S8, [7953-31]S14, [7953-32]S8, [7953-32]S14
 Stomeo, Tiziana [7947-08]S3
Stone, Nicholas [7890-29]S6
 Stoneman, Michael R. [7903-73]S10
 Stopel, Marijn [7905-09]S2
 Storm, Erik 7916 ProgComm
 Stough, Matt [7954-39]S10
Straatsma, Cameron J. E. [7937-11]S3
 Stradi, Daniele [7940-06]S2
 Strait, Jared H. [7937-61]S14
 Strang, Christianne E. [7883G-139]S1
 Strassburg, Martin [7933-39]S9
 Strasser, Gottfried [7947-21]S6, [7953-72]S15
 Straub, Martin H. [7903-54]S8, [7908-20]S4, [7920-26]S8, [7920-26]S12, [7920-43]SPS3
 Strauch, Olaf [7914-66]S16
 Strauss, Uwe [7918-28]S5, [7919-13]S3, [7953-15]S4, [7953-19]S4, [7953-53]S13
 Strazdaite, Simona [7902-69]SPS2
 Strelbel, Daniel Dimitri [7883B-54]S4
 Streed, Erik W. [7948-19]S4
 Streeter, Jackson [7887-19]S4
 Streubel, Klaus P. TrackChr, TrackChr, SympChair, 7954 Chr, 7954 S1 SessChr
 Stride, Eleanor [7899-44]S7
 Striemer, Christopher C. 7888 ProgComm
 Strittmatter, Andre [7939-10]S13
 Strobach, Xenia [7929-11]S3
 Strobbe, Ernesto [7885-13]S3
 Strohm, Eric [7899-127]SPS2
 Stroisch, Marc [7912-59]S14
Strojnik, Marija 7945 ProgComm, 7945 S9 SessChr
 Strömberg, Tomas [7896-70]S15, [7906A-01]S1
 Strong, Louis H. [7888-24]S1, [7888-24]S3
 Strouse, Geoffrey F. [7909-37]S11
 Strupler, Mathias [7883F-122]S1, [7893-20]S4, [7893-21]S4
 Strzoda, Rainier [7945-09]S2
 Stuckey, Daniel W. [7896-65]S13, [7904-19]S4, [7904-34]S7
 Stuebbe, Oliver [7944-05]S2
 Stuhmeier, Frank [7904-61]SPS2
 Stute, Uwe [7921-30]S7, [7921-30]S11
Stutzki, Fabian [7914-42]S10, [7914-92]SPS3
 Stypula, Yolanda [7907-29]S5
 Stys, Peter [7903-45]S7
 Su, Bertram [7903-68]S10
 Su, Che-Hsuan [7935-13]S3
 Su, Guan-Chin [7886-31]SPS1
 Su, Guo-Dung J. [7944-25]S7
 Su, Heng-Sheng [7958-09]S4, [7958-09]S4
 Su, Hung-Wei [7902-21]S5
Su, Jianping [7883E-108]S4
 Su, Jianzhong [7896-86]SPS1
Su, Jimmy L. [7899-119]SPS2
 Su, Mehmet F. [7946-08]S2
 Su, Ping-Jung [7897-47]S10, [7903-05]S1
 Su, Richard [7897-34]S7, [7899-08]S2, [7899-157]SPS2
 Su, Shin-Yuan [7899-78]S12
 Su, Shu-Yu [7946-21]S5
Su, Tai Yuan [7885-02]S1
 Su, Ting [7900-21]SPS2
Su, Ting-Wei [7902-42]S9, [7904-42]S9, [7904-45]S9, [7906A-05]S2, [7908-21]S4
 Su, Tung-Yu [7903-16]S2
 Su, Yu-Chuan 7926 ProgComm
 Su, Yu-Lun [7933-90]SPS4
 Subagyo, Agus [7957-06]S2
 Subbaraman, Harish [7936-03]S1, [7944-14]S4
 Subhash, Hreesh M. [7883C-186]S3, [7889-102]SPS2
 Subramaniam, Vinod [7905-09]S2
 Subramanian, Hariharan [7897-70]SPS2, [7907-23]S4, [7907-24]S4
 Such, Mario [7914-66]S16
 Suda, Atsushi [7941-24]S6
 Suda, Jun [7926-03]S1, [7926-11]S3
 Sudduth, Amanda [7899-124]SPS2
Sudharsanan, Rengarajan 7945 CoChr, 7945 S17 SessChr
 Sudheendran, Narendran [7889-81]S12
 Sudlow, Gail [7910-66]S3
 Südmeyer, Thomas [7903-99]SPS1, [7912-22]S7, [7918-26]S5, 7919 S8 SessChr, [7919-15]S4, [7919-18]S4, [7919-25]S5, [7919-27]S6, [7919-32]S7, [7919-33]S7
 Sudo, Kenta [7889-47]S7
 Suedmeyer, Isabelle J. [7921-06]S2
 Suehira, Nobuhito [7889-20]S3
 Suemune, Ikuo 7933 ProgComm, [7933-43]S10, [7947-05]S2
 Suenari, Tsukasa [7883D-91]S6
 Sueoka, Kazuhisa [7957-06]S2
 Suffczynski, Jan [7945-92]S16
 Suganuma, Akiko [7912-64]S15
 Suggs, Laura J. [7899-120]S11, [7910-43]S9
 Sugie, Tomoharu [7899-91]SPS2
 Sugihara, Okihiro [7944-06]S2
 Sugimori, Yusuke [7944-23]S6
 Sugimoto, Yoshimasa [7913-44]S9
Sugioka, Koji 7920 ProgComm, [7920-42]SPS3, [7920-50]SPS3, 7921 ProgComm, [7929-20]S5
Sugiura, Tadao [7902-66]SPS2
 Sugiyama, Shigeru [7937-18]S4
 Suh, Hyunsuk [7883C-163]S1
 Suh, Myung-Whan [7883C-68]S3
 Suhni, Sergey [7957-35]SPS4
 Suhling, Klaus [7902-31]S7, [7903-72]S10
 Suizu, Koji [7897-12]S3
 Sujecki, Sławomir [7912-52]S13
 Sukhorukov, Andrey 7949 S4 SessChr, [7949-02]S1
Sukuta, Sydney WS972 Inst ?ulc, Jan [7884-03]S1, [7894-05]S1, [7912-69]SPS3, [7912-74]SPS3
Suleski, Thomas J. SympChair, 7927 Chr, 7927 S3 SessChr, [7927-20]S5, [7927-34]S8
 Suliman AM, Ziyadh [7935-11]S3
 Sullivan, Charles R. [7901-09]S3
 Sulser, Tullio [7883B-54]S4
 Sultan, Ebraheem [7902-72]SPS2
 Sumetsky, Mikhail [7913-21]S5, [7949-21]S4
 Sumi, Yasunori [7884-11]S5
 Summer, Stefan [7883A-21]S4
 Sumner, Robert [7930-20]S6, [7930-20]S1, [7930-20]S5
 Sumpf, Bernd [7953-34]S9
Sun, Chia-Wei [7883B-41]S1, [7883E-114]S5, [7884-06]S2, [7884-22]SPS1, [7890-22]S4, [7896-102]SPS1

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Sun, Chi-Kuang** [7883A-02]S1, [7883C-63]S1, [7883D-10]S, [7903-08]S1, [7903-105]SPS1, 7937 ProgComm, 7937 S14 SessChr, [7937-56]S12, [7946-70]SPS4
- Sun, Chung-Ho [7883E-101]S2, [7883E-102]S2
- Sun, Dongning [7913-39]S8
- Sun, Gao [7904-19]S4
- Sun, Hai [7883C-186]S3, [7889-102]SPS2
- Sun, Han [7960-05]S1, [7960-05]S1, [7960-16]S4
- Sun, Hui** [7925-41]SPS3
- Sun, Jianfeng [7937-71]SPS4
- Sun, Kewei [7954-13]S4
- Sun, Pang-Chen [7943-03]S1
- Sun, Qunhui [7935-36]S9
- Sun, Ted [7932-08]S2
- Sun, Wen-Ching [7933-95]SPS4
- Sun, William [7903-117]SPS1
- Sun, Xiao Wei** [7934-17]S4, [7955-20]S7
- Sun, Xinyu [7952-05]S2, [7953-08]S2
- Sun, Yang [7883D-78]S2, [7883D-83]S4, [7890-15]S3
- Sun, Yao [7883F-130]S2
- Sun, Yong-Jian [7933-68]SPS4
- Sun, Yu** [7891-13]S4
- Sunar, Ulas** [7886-38]SPS1, [7886-49]SPS1
- Sundaram, Subramanian [7928-09]S3
- Sung, Kung-Bin** [7895-05]S1
- Sung, Sijun [7938-20]S1
- Sung, Yongjin** [7904-28]S6
- Supatto, Willy [7903-21]S3
- Surbek, Mario [7921-102]S
- Suresh Bhawe, Gauri [7898-25]S4
- Suris, Robert A. [7947-07]S2
- Susaki, Tomofumi [7940-37]S9
- Suski, adek [7953-17]S4, [7939-32]S5
- Suslick, Kenneth S. [7910-04]S1
- Sussman, Jason [7927-01]S1
- Susumu, Kimihiro [7909-26]S8, [7909-39]S11
- Suter, Laurence J. [7916-26]S6
- Suter, Melissa J.** [7883D-88]S5, [7889-24]S4, 7893 ProgComm, 7893 S5 SessChr, 7893 S6 SessChr, [7893-03]S1, [7893-32]S6, [7906A-09]S2
- Sutherland, Richard L.** 7955 ProgComm, 7955 S2 SessChr, [7955-24]S8
- Sutter, Eli [7939-02]S1
- Sutter, Peter [7939-02]S1
- Suttman, Oliver** [7925-37]S6, [7925-37]S10
- Sutton, Steve B. [7916-30]S7
- Suyama, Shiro [7956B-27]S2
- Suzuki, Atsushi [7939-67]SPS4
- Suzuki, Jun'ichi [7925-43]SPS3, [7925-44]SPS3
- Suzuki, Ken [7943-51]SPS4
- Suzuki, Takenobu** [7934-02]S1, [7934-06]SPS4, [7934-23]S6, [7934-38]SPS4, [7934-39]SPS4, [7934-48]SPS4
- Suzuki, Takuya [7889-53]S8
- Svanberg, Katarina** MeetingVIP, [7894-16]S3, [7895-16]S3, [7895-25]S5
- Svanberg, Sune** [7894-16]S3, [7895-16]S3
- Svedberg, Fredrik [7903-24]S4
- Svenmarker, Pontus [7896-67]S14, [7896-105]SPS1
- Svensson, Tomas [7894-16]S3, [7896-34]S7
- Sverdlov, Boris N. [7953-35]S9, [7953-48]S12
- Svetikov, V. [7918-24]S4
- Svetukhin, Vyacheslav [7897-52]S11
- Swidzinsky, Anatoly A. [7948-05]S2
- Sviridov, Alexander P. [7897-51]S11
- Svitelskiy, Oleksiy** [7913-39]S8, [7929-29]S7
- Swann, William C. [7917-42]S10
- Swartzlander, Grover A.** 7950 ProgComm, 7950 S7 SessChr, [7950-29]S8
- Swatowski, Brandon W.** [7944-08]S2
- Sweatlock, Luke A. [7946-31]S7
- Swedish, Tristan B.** [7904-16]S4
- Sweeney, Frederic D. [7890-39]S7, [7890-56]SPS1
- Sweeney, Stephen J.** [7933-63]S14, [7939-13]S13, [7953-04]S1, [7953-31]S8, [7953-31]S14
- Sweeney, Timothy M. [7939-42]S7
- Swietlik, Tomasz [7918-28]S5
- Swift, Seth M. [7945-66]S11
- Swillam, Mohamed A.** [7933-30]S7, [7938-04]S1, [7941-38]S8
- Swoboda, Robert [7944-31]S9, [7944-31]S2
- Syed, Saba H. [7889-09]S2, [7898-05]S1
- Sympson, Carolyn [7886-12]S3
- Sysoliatin, Alexej A. [7901-19]S4, [7917-65]SPS3
- Szabo, Vivian [7908-16]S3
- Szameit, Alexander 7925 ProgComm
- Szczambura, Mirosław [7943-28]S8
- Szczyciel, Lukasz [7892-08]S2
- Szep, Attila A.** 7936 ProgComm, [7936-12]S3
- Szkopek, Thomas [7938-09]S2
- Szkułmowski, Maciej** [7883E-109]S4, [7885-14]S3, [7889-38]S6, [7889-67]S10
- Szlag, Daniel** [7885-14]S3, [7889-67]S10
- Szmulowicz, Frank** [7945-68]S12, 7947 Chr
- Sztul, Henry I.** [7950-18]S5, [7950-26]S7
- Szustakowski, Mieczysław [7938-19]SPS4
-
- T**
- Tabakoglu, Hasim O. [7902-10]S3
- Tabares, Gema [7940-30]S8
- Tabatabaei, Nima** [7884-09]S4
- Tabatabadze, David [7883A-35]SPS1
- Tabrizian, Maryam [7898-32]S5
- Tabuchi, Arata [7893-24]S5
- Tabunshchik, Kyrylo [7946-69]SPS4
- Taccheo, Stefano [7925-06]S2, [7934-07]S2, [7934-09]S2, [7934-57]SPS4, 7941 ProgComm, 7941 S3 SessChr, [7941-08]S2, [7958-21]SPS4
- Tachibana, Koichi [7939-85]SPS4
- Tachikawa, Noriko [7884-14]S5
- Tachtidsis, Ilias [7896-02]S1
- Tadatomo, Kazuyuki [7954-40]S11
- Tadros, Michael [7903-10]S2
- Tagami, Junji [7884-11]S5
- Tagaya, Akihiro [7955-14]S5
- Taguchi, Takahisa 7902 ProgComm
- Taha, Hesham [7927-42]SPS3, [7945-42]S6
- Taher, Masud A.** [7934-07]S2
- Tahir, Khadija B. [7896-65]S13
- Tai, Dean [7903-63]S9
- Tai, Kuochou [7914-110]SPS3
- Tai, Yuan-Chuan [7910-44]S9
- Tailon, Yves [7914-03]S1, [7914-71]SPS3
- Tain, Yanqing [7929-26]S6
- Taitelbaum, Haim [7897-71]S6
- Tajima, Kenichi [7923-18]S5
- Takabayashi, Masanori [7923-23]S6
- Takada, Daisuke [7889-106]SPS2
- Takagi, Tatsuro [7903-46]S7
- Takagi, Tomohiro [7952-03]S1
- Takahashi, Masahide [7934-15]S4
- Takahashi, Mei [7883D-91]S6, [7897-29]S6
- Takahashi, Natsuki [7889-106]SPS2
- Takahashi, Shinichi** [7954-45]SPS4
- Takahashi, Tomoya [7937-52]S12
- Takahashi, Yoshinori [7937-18]S4
- Takahata, Masahiko [7883F-124]S1
- Takai, Hiroshi [7920-50]SPS3
- Takaki, Keishi [7952-03]S1
- Takaki, Yasuhiro [7957-14]S3
- Takaku, Hiroyuki [7894-05]S1
- Takamatsu, Tetsuro [7897-40]S8, [7902-12]S3
- Takano, Kazufumi [7937-18]S4
- Takano, Kunihiko [7957-38]SPS4
- Takanokura, Tomoe [7955-28]SPS4
- Takara, Hidehiko [7959-19]S7
- Takarada, Shigeru [7935-35]S9
- Takashima, Hideaki [7913-43]S9, [7948-16]S4
- Takatsuki, Seiji [7883D-91]S6
- Takayama, Yoshihisa [7923-23]S6
- Takeda, Seiji [7946-06]S2, [7946-18]S4
- Takeuchi, Shigeki [7913-43]S9, [7948-16]S4
- Takeuchi, Tetsuya [7939-63]SPS4, [7939-67]SPS4
- Takeyama, Norihide [7927-40]SPS3
- Takezoe, Hideo [7956B-20]S1
- Takida, Yuma** [7917-09]S3, [7917-14]S4, [7917-61]SPS3
- Takiya, Toshio [7917-63]SPS3
- Taku, Masakazu [7899-91]SPS2
- Takubo, Yuya [7889-53]S8
- Talamo, Jonathan H. [7885-23]S4
- Talbalyev, Diyar [7937-02]S1
- Talbot, Clifford B. [7883A-09]S2, [7903-80]S11, [7904-35]S7, [7904-61]SPS2
- Talin, A. Alec [7954-27]S8, [7927-33]S10
- Tam, Justina O.** [7910-46]S10
- Tamada, Daiki [7931-05]S2
- Tamang, Sudarsan [7909-44]S13
- Tamborski, Szymon** [7889-38]S6
- Tammela, Simo [7914-70]SPS3
- Tamura, Mamoru 7896 Chr
- Tan, Bo [7922-18]SPS3
- Tan, Hark Hoe [7942-18]S7
- Tan, Hsin-Yuan [7885-62]SPS2, [7895-09]S2
- Tan, I. B. [7883C-164]S5
- Tan, I-Chih [7890-19]S4, [7890-50]SPS1, [7896-37]S8, [7902-52]S11
- Tan, Khay-Ming E. [7904-14]S3
- Tan, Lihao [7917-23]S6
- Tan, Melda [7898-40]S2
- Tan, Ou [7889-15]S3
- Tan, Piau Siong [7911-44]SPS1
- Tan, Qing [7946-45]S11
- Tan, Weihong 7908 ProgComm
- Tan, Yeon Wee [7941-48]SPS4
- Tanabe, Setsuhisa** 7934 ProgComm, [7934-03]S1
- Tanaka, Akira [7913-43]S9, [7948-16]S4
- Tanaka, Atsushi 7883D S5 SessChr, [7883D-88]S5, [7889-21]S4
- Tanaka, Fumiya [7937-52]S12
- Tanaka, Hideo [7902-12]S3
- Tanaka, Kazuo A. 7916 ProgComm
- Tanaka, Masanosuke** [7906A-25]SPS2
- Tanaka, Norio [7935-35]S9
- Tanaka, Shuhei** [7920-46]SPS3, [7925-43]SPS3, [7925-44]SPS3
- Tanaka, Tsuyoshi [7939-29]S4
- Tanaka, Yuji [7922-20]SPS3, [7927-26]S6
- Tanaka, Yuto [7922-14]S4, [7954-45]SPS4
- Tanamai, Vaya W. [7891-02]S1, [7896-42]S9, [7896-44]S9
- Tang, Cha-Min [7898-15]S2
- Tang, Ching W. [7935-17]S4
- Tang, Dingyuan [7914-53]S14
- Tang, Feng-Chin [7955-12]S5
- Tang, Guichen [7895-17]S3, [7895-20]S4
- Tang, Hsuan-Ming [7934-49]SPS4
- Tang, Lingling [7946-13]S3, [7946-21]S5
- Tang, Mengxing [7899-143]SPS2
- Tang, Shirley [7908-11]S2
- Tang, Shuo [7903-109]SPS1
- Tang, Tsung-Yi [7939-53]SPS4, [7945-50]S8
- Tang, Yongchun [7945-05]S1
- Tang, Zhulong [7914-41]S10
- Tang, Yuluqi [7912-52]S13
- Tangella, Krishna V. [7889-26]S4, [7890-06]S1
- Tangen, Kyrre [7932-09]S2
- Tanigawa, Shoji [7914-19]S5
- Taniguchi, Daigo [7897-40]S8
- Taniguchi, Tomohiro [7898-16]S7
- Tanikawa, Tomoyuki [7939-69]SPS4
- Tanimura, Takahito [7960-01]S, [7960-01]S, [7960-01]S
- Tanji, Koichi [7899-92]SPS2
- Tankala, Kanishka 7914 ProgComm, [7914-18]S5, [7914-32]S8, [7914-62]S15
- Tannenbaum, Susan [7896-40]S9
- Tanpowpong, Pornthep [7893-17]S4
- Tansu, Nelson** [7933-32]S7, [7939-04]S1, [7939-37]S6, 7953 ProgComm, [7953-16]S4, [7954-28]S8, [7954-42]S11
- Tanvir, Huda [7941-34]S8
- Tao, Xiaodong [7931-21]S6
- Tao, Yuan kai K.** [7889-14]S3
- Tao, Zhenning [7960-01]S, [7960-01]S, [7960-01]S
- Tarasashvili, Lado [7957-29]SPS4
- Tardif, Jean-Claude [7899-95]SPS2
- Tarnok, Attila** 7902 CoChr, [7902-37]S8, [7902-56]S12, 7910 ProgComm, 7910 S12 SessChr
- Taroni, Paola** [7895-12]S3, [7896-57]S12
- Tarpara, Eshani [7924-10]S2
- Tartakovskii, Alexander I. [7946-07]S2
- Tarutis, Adrian** [7899-04]S1, [7899-38]S6
- Tarvainen, Tanja [7899-64]S10
- Tashima, Toshio [7902-74]SPS2
- Tashiro, Takayoshi [7958-16]S7
- Taslim, Sumitro Joyo [7952-04]S1
- Taslimi, Shazard [7908-23]S4
- Tatam, Ralph P.** MeetingVIP, [7952-14]S4
- Tate, Jennifer A. [7901-09]S3, [7901-42]S9
- Tate, Naoya [7957-22]S5
- Tatebayashi, Jun [7937-05]S2, [7947-15]S4
- Taubert, Dieter R. [7896-01]S1
- Tauro, Sandeep** [7950-22]S6, [7950-24]S6
- Tavakoli, Behnoosh** [7896-40]S9, [7896-97]SPS1, [7896-100]SPS1
- Tavares, Anthony J. [7909-32]S9
- Tavernier, Hervé [7936-11]S3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Tay, Jian Wei [7948-08]S2
Tayag, Tristan J. [7897-43]S9
 Taylor, Antoinette J. [7937-02]S1, [7937-06]S2
 Taylor, Douglas S. [7902-23]S5
 Taylor, Harriet B. [7904-19]S4
 Taylor, James R. 7914 ProgComm
 Taylor, Jonathan M. [7904-10]S3
 Taylor, Rebecca E. 7935 ProgComm
 Taylor, Robert A. 7937 S6 SessChr, [7937-38]S8
 Taylor, Zachary D. [7938-20]S1
 Taysing-Lara, Monica A. [7927-06]S2
 Tchelnokov, Alexei [7943-26]S8
 Tchernycheva, Maria [7939-48]S9, [7945-51]S8
 Te, Kenny [7890-49]SPS1
Teare, Scott W. [7931-11]S5
 Tearney, Guillermo J. 7883D Chr, 7883D S2 SessChr, [7883D-73]S1, [7883D-75]S2, [7883D-76]S2, [7883D-77]S2, [7883D-82]S3, [7883D-88]S5, 7889 ProgComm, [7889-21]S4, [7889-24]S4, 7893 Chr, 7893 S1 SessChr, [7893-01]S1, [7893-03]S1, [7893-17]S4, [7893-18]S4, [7893-19]S4, [7893-22]S4, [7893-25]S5, [7893-31]S6, [7893-32]S6, [7893-33]S6, [7906A-09]S2
 Teepe, Mark [7939-10]S13
 Tegos, George P. [7887-08]S2, [7887-10]S2
 Teh, Peh Siong [7914-23]S6
 Teherani, Ferechteh H. 7940 Chr, [7940-01]S, [7940-17]S4, [7940-21]S5, [7940-34]S8, [7940-52]SPS4, [7940-53]SPS4, [7940-57]S12, [7942-15]S6, 7945 ProgComm, 7945 S8 SessChr
Tehranchi, Amirhossein [7917-48]S11
Teichman, Joel M. 7883B ProgComm, 7883B S4 SessChr, [7883B-43]S2
 Teixeira Cangussu, Maria Cristina [7887-27]SPS1, [7887-28]SPS1
 Tekavec, Michael [7912-83]SPS3
 Tekin, Tolga [7928-04]S2, [7945-40]S6
 Telenkov, Sergey A. [7899-33]S5
Telfair, William B. 7885 ProgComm, 7885 S5 SessChr
 Telford, Steven [7916-10]S3
 Telkкала, Jarkko [7953-10]S2
 Tempea, Gabriel [7912-41]S11
 Ten Hagen, Timo L. M. [7899-130]SPS2
 Teng, Bao [7910-38]S8
 Tennant, William E. [7945-60]S10
Teo, Ee Jin [7943-25]S8
 Teo, Ju Teng [7894-01]S1
 Teodorovich, Oleg [7883B-52]S4
 Tepper, Michal [7894-47]S6
 Terada, Takaya [7897-67]SPS2
Terakawa, Mitsuhiro [7902-30]S6, [7920-25]S8, [7920-25]S12, [7922-14]S4, [7925-11]S3, [7946-18]S4
 Teramae, Fumiharu [7939-67]SPS4
 Terazzi, Romain [7953-20]S5
 Terfort, Andreas [7909-29]S8
 Terry, Nathan [7919-05]S1, [7945-08]S2
 Tervonen, Ari [7914-70]SPS3, [7914-81]SPS3, [7934-11]S3, [7959-09]S4, [7959-09]S4
 Teseng, Guan-Chin [7902-17]S4
 Tesi, Chiara [7903-66]S9
 Tessler, Renana [7918-34]S5
 Testa, Genni [7943-08]S3
 Tewari, Priyamvada [7938-20]S1
 Tewari, Surya Prakash [7935-44]SPS4
 Texier-Nogues, Isabelle F. [7886-35]SPS1, [7909-44]S13, [7910-29]S6
 Thacker, Hiren D. [7944-01]S1, [7944-04]S1, [7944-10]S3, [7944-24]S6
 Thaler, Christopher [7883G-140]S1
 Thaler, Gerald [7918-04]S1
 Thalhammer, Gregor [7903-52]S7, [7950-04]S2
 Thapa, Abhas [7932-01]S1, [7932-02]S1, [7932-03]S1, [7932-04]S1
 Thayil, Anisha [7931-16]S6, [7941-42]S9
 Theeg, Thomas [7914-36]S10, [7914-36]S9, [7914-76]SPS3
 Theiss, Jesse [7945-43]S6
 Thenkondar, Kumar [7910-27]S5
 Theobald, Christian [7912-37]S10, [7912-37]S9
 Theodoropoulos, Catherine [7899-84]S12
 Thestrup, Birgitte [7918-38]SPS3
 Thevan, S. Thiruthakka [7948-28]S6
 Thevenaz, Luc 7949 S3 SessChr, [7949-09]S2, [7949-10]S2, [7949-45]S9
Thiagarajan, Prabhu [7918-04]S1
 Thiberville, Luc [7893-39]S8
 Thiel, Michael [7921-01]S1
 Thielecke, Hagen [7894-28]S5
 Thiell, Gaston [7916-35]SPS3
Thienpont, Hugo MeetingVIP
 Thiesse-Namati, Jacqueline R. [7889-24]S4, [7893-03]S1, [7893-17]S4, [7893-32]S6
 Thieu, Q. T. [7945-45]S7
 Thillainayagam, Andrew [7893-07]S2
Tholl, Hans-Dieter [7953-58]S14
 Thomas, Giju [7903-60]S8, [7903-114]SPS1
 Thomas, Heidi [7909-29]S8
Thomas, Jens [7914-17]S4, [7925-48]S8
 Thomas, Kai [7883A-26]S5
 Thomas, Oliver [7948-21]S5
Thomas, Robert J. 7897 Chr, 7897 S6 SessChr, 7897 S4 SessChr, [7897-14]S3, [7897-15]S3, [7897-16]S4, [7897-19]S4, [7897-21]S4, [7897-35]S7
 Thomas, Roney [7943-45]S13
 Thomaz, André A. [7903-09]S1, [7903-108]SPS1
Thomazy, David [7945-18]S3, [7945-20]S3, [7945-28]S4
 Thompson, Alex J. [7893-07]S2, [7895-16]S3
Thompson, Deanna L. [7905-25]S6, [7905-47]SPS1
 Thompson, Gary L. [7908-28]S4
 Thompson, Maria R. [7954-02]S1
 Thompson, Michael A. [7905-23]S6
Thompson, Oliver B. [7898-12]S2, [7898-13]S2
 Thomsen, Sharon L. 7901 ProgComm, 7901 S8 SessChr, [7901-01]S1
 Thomson, David J. [7943-41]S13, [7943-44]S13
 Thonnard, Norbert [7922-03]S1
 Thorin, Eric [7883E-117]S6
 Thorp, Keith A. 7916 ProgComm
 Thrall, Michael J. [7890-41]S8
 Thrane, Lars [7889-62]S9
 Thuillier, Philippe [7883A-08]S2
 Thurston, Thomas [7954-10]S3
 Thyagarajan, Sujatha [7910-32]S7
 Ti, Yalin [7886-13]S3
Tian, Fenghua [7883E-118]S6, [7883G-136]S1, [7896-06]S1, [7896-82]SPS1
 Tian, Jianguo [7889-122]SPS2
 Tian, Yanqing [7902-58]S13
 Tian, Zhaobing [7943-47]S8, [7943-47]S14
Tibbits, Tom N. D. 7933 S8 SessChr, [7933-02]S1
 Tibuleac, Sorin [7959-11]S5, [7960-09]S2, [7960-09]S2, [7960-09]S2
 Tice, Bradley S. [7888-27]SPS1, [7910-58]SPS2
 Tichauer, Kenneth M. [7892-41]SPS1, [7896-13]S3, [7896-66]S14, [7896-94]SPS1
 Tidemand-Lichtenberg, Peter [7912-33]S9, [7917-38]S9, [7917-39]S9
Tidrow, Meimei Z. 7945 ProgComm, 7945 S9 SessChr, [7945-70]S12
 Tignon, Jerome [7937-24]S6, [7945-11]S2
 Tijero, Jose Manuel [7952-11]S3
 Tikhodeev, Sergei G. [7943-53]SPS4
 Tillo, Shane E. [7910-13]S3, [7910-55]S12
 Timmerman, Richard J. [7894-48]S3
 Timmins, Graham S. [7909-20]S6
 Timotijevic, Branislav [7928-09]S3
 Ting, Chu-Chi [7954-12]S3
Ting, David Z. Y. [7945-63]S11, [7945-67]S11
 Ting, Shao-Ying [7940-31]S8, [7945-50]S8
 Ting, Siong Luong [7898-40]S2
 Ting, Yung-Chiang [7926-20]SPS3, [7947-30]SPS4
 Tingley, James [7917-72]SPS3
 Tino, Angela [7909-10]S3, [7909-43]SPS2
 Tirpak, Alan SC657 Inst
 Tisa, Simone [7905-01]S1, [7942-19]S7, [7942-20]S7, [7945-95]S17
 Titorenko, Vladimir A. [7884-29]SPS1
Tittel, Frank K. [7945-18]S3, [7945-20]S3, [7945-24]S4, [7945-27]S4, [7945-28]S4
Titterton, David H. 7912 ProgComm, 7912 S11 SessChr
 Tiwari, Ashish [7907-29]S5
Tkaczyk, Tomasz S. SC978 Inst, 7891 ProgComm, 7891 S7 SessChr, [7892-05]S1
 Todd, Paul W. [7929-09]S3
 Togashi, Tadashi [7937-55]S12
 Tognolotti, Piero [7901-30]S6
 Toi, Masakazu [7899-91]SPS2
 Tokarz, Danielle B. [7910-56]S12
Tokayer, Jason M. [7889-104]SPS2
 Tokizono, Takero [7940-13]S4
 Tokunari, Masao [7944-09]S3
 Tokuno, Shinichi [7897-66]SPS2
 Tolmachev, Vladimir [7943-13]S4, [7943-14]S4
 Toma, Marieta [7897-26]S5
 Toma, Renata [7887-23]SPS1
 Toma, Takahiro [7939-04]S1, [7954-42]S11
 Tomic, Stanco [7945-30]S4
 Tomita, Akihisa [7923-23]S6, [7944-15]S4, [7958-15]S6, [7958-15]S6, [7958-15]S6, [7958-17]S7
 Tomlins, Pete [7891-21]S6
 Tomljenovic-Hanic, Snjezana [7948-45]S11, [7949-03]S1
 Tomohiro, Kita [7943-50]SPS4, [7943-51]SPS4
 Tomov, Ivan [7914-100]SPS3
 Ton, Phuc [7892-26]SPS1
 Tondiglia, Vincent P. [7955-24]S8
 Tonelli, Mauro [7951-04]S1
Tong, Hua [7933-32]S7, [7939-37]S6, [7954-42]S11
 Tong, Jian [7952-04]S1
 Tong, Xia [7955-34]S7
Tong, Yunjie [7896-04]S1
 Tong, Zhisong [7924-22]S4
 Ton-That, Cuong [7940-03]S1
 Topaloglu, Nermin [7897-06]S1
 Topart, Patrice [7930-23]S6
 Topol, Igor [7910-11]S3
 Tormen, Maurizio [7928-09]S3
 Tor-ngern, Pantana [7946-13]S3
 Toronov, Vladislav Y. 7898 ProgComm
 Toropov, Alexey A. [7939-39]S7
 Torosean, Sason [7886-37]SPS1
 Torous, Svetlana V. [7924-15]S3
 Torregrossa, Murielle [7896-35]S8
 Torrent, Daniel [7946-04]S1
 Torres, Alejandro [7940-14]S3
 Torres, Faraon [7946-79]SPS4
 Torres, Juan P. 7950 ProgComm
Torres-Mapa, Maria Leilani Y. [7925-10]S3
 Torricelli, Alessandro [7883D-84]S4, [7896-01]S1
 Torrioli, Guido [7945-31]S5
Toruellas, William E. 7914 ProgComm, 7914 S8 SessChr, [7914-12]S3, [7914-62]S15
 Tortiglione, Claudia [7909-10]S3, [7909-43]SPS2
 Tortschanoff, Andreas [7930-25]S6
 Torzicky, Teresa [7885-51]S10, [7889-30]S5, [7889-32]S5, [7889-64]S10, [7889-115]SPS2
Toselli, Italo [7924-21]S4
 Toshiyoshi, Hiroshi MeetingVIP, [7930-202]S
Tosi, Alberto [7895-12]S3, [7896-11]S3, [7896-34]S7, [7933-61]S14, [7934-21]S5, [7942-19]S7, [7942-20]S7, [7945-95]S17, [7945-99]S17
 Tosi Belleffi, Giorgio [7934-57]SPS4
 Toth, Cynthia A. [7885-47]S9, [7889-14]S3
 Totsuka, Kouki [7889-53]S8
 Toubaru, Kiyota [7913-43]S9
 Tournie, Eric [7945-17]S3, [7945-58]S10
 Toury, Marion [7903-64]S9
 Toussaint, Jimmy D. [7883D-73]S1
 Toussaint, Kimani C. [7913-17]S2, [7946-78]SPS4, [7950-31]S8
 Tovmasyan, Artak G. [7886-40]SPS1
 Toya, Kazuyuki [7922-02]S1, [7940-12]S3
 Toyli, David M. [7948-27]S7
 Toyoda, Michisato [7902-74]SPS2
 Toyooka, Terushige [7883G-135]S1
 Toyosaki, Tatsuya [7943-05]S2
 Toyoshima, Morio 7923 ProgComm, 7923 S3 SessChr, 7923 S8 SessChr
 Tozawa, Takenori [7909-38]S11
Tozburun, Serhat [7883B-46]S2, [7883G-162]S3
 Tozuka, Masataka [7957-38]SPS4
 Tracy, Erin [7886-49]SPS1
 Tracy, Joseph B. [7911-18]S4
 Träger, Frank 7922 Chr, 7922 S3 SessChr, [7922-12]S3, [7922-15]S4
 Traggis, Nick [7912-57]S14
 Trammell, Susan [7883B-48]S3
 Trampert, Achim [7933-39]S9
 Tran, Michael [7953-09]S2
 Tranberg, Karl-Goran 7900 ProgComm
 Tranh, Khanh [7937-69]SPS4
 Tränkle, Günther [7917-07]S3, [7937-27]S6, [7953-34]S9, [7953-47]S12
 Traub, Martin [7918-09]S2
 Trauvailé, Grégoire [7915-16]S3
 Travis, Kort [7907-18]S3
Trebino, Rick P. SC746 Inst, [7914-38]S7, [7917-30]S7, [7917-37]S9, [7950-10]S3
 Tredicce, Jorge R. 7949 S9 SessChr, [7949-37]S7
 Tredicucci, Alessandro [7945-31]S5
 Treeby, Bradley E. [7899-107]SPS2

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Trejo-Tzab, Rudy A. [7883F-133]S3
Tremblay, Eric J. [7885-35]S7
Tretout, B. [7945-75]S13
Trieu, Simeon [7933-68]SPS4
Trifanov, Irina [7889-100]SPS2
Trinka, Vijmasi [7895-10]S3, [7895-35] SPS2, [7896-104]SPS1
Tripathy, Sakya [7899-57]S9
Trivedi, Rahul P. [7955-10]S4
Trivedi, Sudhir B. [7912-65]S15, [7953-63]S15
Trivella, Maria Giovanna [7883D-84]S4, [7896-36]S8
Troadeel, D. [7940-58]S8
Troccoli, Mariano 7953 S14 SessChr, [7953-40]S10, [7953-56]S14
Troen, Aron [7896-07]S2
Troiano, Michela [7883A-31]S6
Tromberg, Bruce J. MeetingVIP, [7891-02]S1, [7892-05]S1, 7896 Chr, [7896-26]S6, [7896-27]S6, [7896-42]S9, [7896-44]S9, [7896-45] S9, [7896-49]S10, [7896-73]S15, [7896-112]SPS1, 7907 ProgComm, [7907-11]S2
Trong, Nghia N. D. [7895-34]SPS2
Trono, Cosimo [7890-03]S1, [7890-55] SPS1, [7941-40]S9
Troppenz, Ute [7953-14]S3
Tropfer, Anne C. 7919 ProgComm, 7919 S6 SessChr, [7919-26]S5, [7919-34]S8, [7919-36]S8, [7919-37] S8, [7919-38]S8
Trotter, Douglas C. [7943-09]S3
Troy, Mike [7932-11]S3
Troy, Neil [7925-25]S6
Troyon, Michel [7940-17]S4, [7942-15] S6
Truby, Ryan [7910-20]S4
Trujillo Provencio, Casilda [7909-22]S7
Trunina, Natalia A. [7884-25]SPS1, [7898-33]S5
Trunk, M. [7945-85]S15
Truong, Thai V. [7903-21]S3
Trzcinski, Robert [7883A-11]S2
Trzcinski, Tomasz [7938-19]SPS4
Tsai, Cheng-Hua [7883A-02]S1, [7883D-10]S, [7903-08]S1, [7946-70]SPS4
Tsai, Chun-Yin [7926-18]SPS3, [7926-19]SPS3
Tsai, Din Ping [7920-45]SPS3, [7933-78]SPS4
Tsai, Meng-Tsan [7883C-59]S7, [7889-28]S4, [7889-113]SPS2, [7889-114]SPS2, [7890-57]SPS1, [7909-15]S5, [7911-16]S4, [7937-45] S10
Tsai, Miao-Chan [7935-42]SPS4, [7939-76]SPS4, [7954-49]SPS4
Tsai, Ming-Hsui [7902-17]S4
Tsai, Ming-Rung [7883A-02]S1, [7883C-63]S1, [7883D-10]S, [7903-08]S1
Tsai, Tracy R. [7953-42]S11
Tsai, Tsongru [7937-35]S8
Tsai, Tsung-Han [7889-44]S7, [7893-04]S1
Tsai, Tsung-Yen [7954-41]S11
Tsai, Yu-Cheng [7920-12]S3
Tsakmakidis, Kosmas L. [7949-24]S5
Tsao, Stanley [7945-12]S2
Tschekalinskij, Vladimir [7946-47]S11
Tschierske, Carsten [7955-17]S6
Tse, Eddy [7916-25]S5
Tsekoun, Alexei G. [7953-55]S14
Tsen, Kong-Thon [7895-28]S5, 7937 Chr, 7937 S4 SessChr
Tsen, Shaw-Wei D. [7895-28]S5
Tseng, Chi-Che [7947-19]S5
Tseng, Derek K. [7888-13]S2, [7890-05]S1, [7891-18]S5, [7906A-05]S2, [7908-21]S4
Tseng, Hung-Yu [7889-113]SPS2, [7889-114]SPS2, [7909-15]S5, [7911-16]S4, [7937-45]S10
Tseng, Jennifer [7895-09]S2
Tseng, Ming Lun [7920-45]SPS3
Tseng, Snow H. [7907-09]S1
Tseng, Te-Yu [7895-05]S1
Tseng, Yao-Teng [7927-38]SPS3
Tsia, Kevin K. [7917-32]S8
Tsilipakos, O. [7945-40]S6
Tsin, Andrew [7908-15]S3
T'so, Dan [7885-64]SPS2
Tsufura, Lisa M. MeetingVIP
Tsui, Polly B. [7897-31]S6, [7897-68] SPS2
Tsujita, Kazuhiro [7899-105]SPS2, [7899-108]SPS2
Tsukamoto, Katsutoshi 7958 Chr, 7958 S5 SessChr, 7958 S7 SessChr, 7958 S3 SessChr, [7958-11]S5, [7958-12]S5, [7958-16]S7
Tsukazaki, Atsushi [7940-48]SPS4
Tsukiji, Naoki [7952-03]S1
Tsumura, Norimichi [7897-57]SPS2, [7907-20]S4
Tsuta, Koji [7922-02]S1, [7940-12]S3
Tsuta, Mizuki [7895-34]SPS2
Tsutsumi, Eishi [7927-35]S8
Tsutsumi, Masakage [7956B-27]S2
Tsybouski, Dmitri [7899-35]S5, [7899-48]S8
Tu, Feng [7894-03]S1
Tu, Li-Wei 7954 Chr
Tu, Shang-Ju [7939-54]SPS4
Tu, Xuchou [7938-13]S3
Tu, Yanfei [7949-41]S8
Tu, Yongming [7934-27]S6
Tuchin, Valery V. [7883A-35]SPS1, [7884-25]SPS1, [7884-29]SPS1, 7885 ProgComm, [7885-57]SPS2, [7887-09]S2, 7889 Chr, 7889 S12 SessChr, [7889-81]S12, 7898 Chr, 7898 S SessChr, 7898 S1 SessChr, [7898-33]S5, [7898-46]SPS2, [7898-47]SPS2, [7898-48]SPS2, [7911-46] SPS1
Tuchina, Elena S. [7884-29]SPS1, [7887-09]S2, [7911-46]SPS1
Tucker, Derek [7914-43]S10
Tuducea, Rodica [7908-41]S3
Tudury, Gaston E. [7914-29]S7
Tuer, Adam E. [7903-11]S2, [7910-56] S12
Tulki, Jukka [7933-40]S9, [7933-65] S12, [7933-65]S15, [7951-16]S4
Tumlinson, Alexandre R. [7889-07]S2
Tung, Burcu [7901-20]S4
Tünnermann, Andreas [7893-11]S3, [7912-39]S10, [7912-39]S9, 7914 ProgComm, [7914-07]S2, [7914-11] S3, [7914-17]S4, [7914-27]S6, [7914-37]S10, [7914-37]S9, [7914-42]S10, [7914-48]S12, [7914-50] SPS3, [7914-54]S14, [7914-89] SPS3, [7914-92]SPS3, [7914-109] SPS3, [7925-24]S6, [7925-31]S7, [7925-39]S11, [7925-39]S7, [7925-48]S8, [7926-08]S3, [7930-09]S2
Tuomisto, Filip [7939-86]S7
Tur, Moshe [7949-09]S2
Turaga, Shuvan Prashant [7935-44] SPS4
Turchette, Quentin [7912-40]S11
Turchin, Ilya V. [7886-30]S7
Turckova, Dana [7953-24]S6
Turek, John J. [7898-04]S1, [7907-13] S2
Turitsyn, Sergei K. [7914-112]SPS3, [7914-113]SPS3
Turki, Mohammed R. [7895-35]SPS2, [7896-104]SPS1
Turner, George W. [7953-57]S14
Turner, Trey [7912-40]S11
Turzhitsky, Vladimir M. [7895-36]SPS2, [7907-02]S1, [7907-29]S5
Tweedie, James [7939-22]S2, [7939-24]S2
Twitcheen, Daniel [7948-25]S7
Tyazhev, Aleksey [7917-51]S12, [7917-56]S12
Tylczynski, Zbigniew [7933-69]SPS4
Tyler, Betty [7883E-105]S3
Tyson, Robert K. 7924 ProgComm
Tzeranis, Dimitrios S. [7903-97]SPS1
Tzortzakis, Stelios [7925-23]S6
-
- ## U
- Uchiyama, Kazuya [7939-43]S8
Uchugonova, Aisada A. 7903 SPS1 SessChr, [7903-54]S8, [7903-55]S8
Udart, Martin [7884-01]S1
Udem, Thomas [7914-54]S14, [7925-31]S7
Uebernickel, Mirko [7917-03]S5, [7917-03]S1, [7917-07]S3, [7918-11]S2, [7918-26]S5
Ueda, Daisuke [7939-29]S4
Ueda, Motoi [7917-08]S3
Ueda, Shigeto [7896-44]S9, [7896-45] S9, [7896-49]S10
Ueda, Tetsuzo [7939-29]S4
Uedono, Akira [7937-34]S8, 7939 S6 SessChr, [7939-31]S5
Ueno, Ichiro [7935-35]S9
Ueno, Kazunori [7940-26]S6
Ufret-Vincenty, Rafael [7932-05]S1
Ughi, Giovanni J. [7889-23]S4
Uhlhorn, Stephen [7885-29]S6
Uhring, Wilfried [7896-80]SPS1
Ukaegbu, Augustine Ikechi [7944-30] S1, [7944-30]S8
Ukaegbu, Ikechi A. [7933-96]SPS4
Ukegawa, Hiroshi [7939-82]SPS4
Ulloa, Jose Maria M. [7947-26]S7
Ulm, Thorsten [7912-37]S10, [7912-37] S9
Ulmer, Melville P. 7945 S16 SessChr, [7945-54]S8
Umarji, A. M. [7926-22]S3
Umeda, Nobuhiro [7910-59]SPS2
Umekage, Masafumi [7909-38]S11
Umemura, Nobuhiro [7917-67]SPS3
Unger, Sonja [7914-39]S10
Unglert, Carolin I. [7893-25]S5, [7893-31]S6
Unlu, M. Selim [7888-16]S2
Unlu, Mehmet B. [7892-20]S4, [7892-37]SPS1
Unruh, Jay R. [7905-15]S4
Unterhuber, Angelika [7889-06]S1, [7892-10]S2
Unterman, Shimon [7883C-174]S4
Unterseher, Fred D. 7957 ProgComm
Unverferth, John [7920-01]S1
Uozumi, Jun [7923-23]S6
Uozumi, Yoichi [7897-65]SPS2, [7907-22]S4
Upadhy, Prashanth [7954-27]S8
Upchurch, Derek [7917-52]S12
Upile, Tahwinder [7883C-150]S3, [7883C-154]S8, [7883C-155]S8
Uptegrove, Micah [7899-125]SPS2
Ura, Shogo [7942-01]S1, [7942-01]S8
Urakami, Takeo [7910-41]S9
Urano, Yasuteru 7910 ProgComm, 7910 S4 SessChr, [7910-59]SPS2
-
- ## V
- V., Vishnukanthan [7945-85]S15
V. DeCastro, Isabele C. [7887-27] SPS1
Vabre, Laurent [7885-41]S8
Vacar, Daniel [7952-09]S3
Vachon, Martin [7888-04]S1, [7943-15] S5
Vaddi, Butchi R. [7920-32]S9
Vahala, Kerry [7908-24]S4, [7913-27] S6
Vahima, Pasi [7927-41]SPS3
Vahrenkamp, Torsten [7893-11]S3
Vaillant, Julien [7946-57]S13
Vaithilingam, Srikanth [7899-154]SPS2
Vakil, Ashkan [7946-23]S6
Vakoc, Benjamin [7889-21]S4
Valdes, Pablo A. [7883E-96]S1, [7883E-97]S1, [7883E-99]S1, [7886-24]S6
Valdivieso, Frederico [7896-48]S10
Valeine, L. [7883A-38]SPS1
Valentini, Gianluca [7896-28]S6
Valenziano, Luca [7932-09]S2
Valero Quiros, Maria Carmen [7902-04] S1
Valette, Gilles [7904-30]S6
Validire, Pierre [7895-14]S3
Valim, Niksa [7896-60]S13, [7896-109] SPS1
Valk, Bernd [7918-17]S3
Valle, Angel [7933-10]S3, [7952-22]S6
Vallee, Fabrice 7937 ProgComm, 7937 S12 SessChr
Vamivakas, Nick [7948-35]S8
Van Arsdall, Paul J. 7916 ProgComm
Van Daele, Peter 7944 ProgComm, 7944 S7 SessChr, [7944-13]S4, 7958 ProgComm
van Dam, Goitzen [7899-04]S1
van de Line, Sebastian [7905-35]S8
van den Berg, Albert 7929 ProgComm
van den Heuvel, Dave J. [7902-44]S9
van der Heijden, Rob W. [7946-46]S11
Van der Jeught, Sam [7889-85]SPS2, [7889-88]SPS2
Van der Lee, Alexander M. [7894-17]S3
van der Mark, Martin B. [7907-44]SPS2
Van der Sande, Guy [7933-94]SPS4
van der Schoot, Josine [7885-45]S9
van der Steen, Antonius F. W. [7883D-79]S3, [7899-03]S1
van der Vecht, Paul [7890-56]SPS1
van der Voort, Marjolein [7907-44] SPS2
van Driel, Henry M. [7937-43]S10
van Gemert, Martin J. [7892-06]S1
van Herten, Johan C. G. [7899-130] SPS2
Van Hoe, Bram [7944-13]S4
Van Keuren, Edward [7948-24]S6

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- van Kuijk, Harry [7934-19]S5
 van Leenders, Arno Geert J. L. H. [7883D-79]S3
 Van Leeuwen, Robert [7912-36]S9, [7952-15]S4
van Leeuwen, Ton G. [7889-83]S12, [7889-84]S12, [7892-06]S1, [7895-21]S4, [7899-30]S5, [7899-129]SPS2, [7899-130]SPS2, [7902-02]S1, [7906B-30]S2, [7906B-34]S3, [7907-04]S1
 Van Neck, Johan W. [7899-130]SPS2
 Van Nortwick, Amy S. [7898-49]SPS2
 van Rijsen, Peter C. [7883E-113]S5
van Soest, Gijis 7883D S3 SessChr, [7883D-79]S3, [7889-21]S4, [7899-03]S1
 Van Steenberge, Geert [7944-13]S4
Van Thourhout, Dries [7913-51]S9, [7945-58]S10
 Van Tuijl, Sjoerd [7894-17]S3
 van Veen, R. L. P. [7883C-164]S5
 van Veen, Robert L. 7883C ProgComm, 7883C S3 SessChr
van Voskuilen, Johan [7903-60]S8, [7903-114]SPS1
 van Weelden, Jerfey [7903-114]SPS1
 Van Wouterghem, Bruno M. 7916 ProgComm
Vanbrabant, Pieter J. M. [7955-09]S4
 Vanderesse, Régis [7886-35]SPS1
 Vandervelde, Thomas E. [7945-69]S12
 VanDevender, Aaron P. [7948-15]S4
 Vandoorne, Kristof T. [7942-24]S8
 Vanfleteren, Jan M. [7929-25]S6
 Vannahme, Christoph [7888-09]S1, [7912-59]S14, [7913-33]S7
Varadarajan, Vijayalakshmi [7897-33]S7, [7908-12]S2
 Varadi, Gyula [7888-24]S1, [7888-24]S3
Varadranjan, Vijaylakshmi [7922-07]S2
 Vardi, Alon [7939-48]S9
Vargas, Gracie [7903-58]S8
Vargis, Elizabeth [7883A-13]S3, [7890-45]S8, [7891-05]S1
 Varkentina, Nadezda [7920-02]S1
 Varticovski, Lyuba [7899-58]S9
Vasa, Nilesh J. [7920-21]S6, [7920-21]S10
Vasefi, Fartash [7894-24]S4, [7896-76]S16, [7897-30]S6, [7897-61]SPS2, [7908-18]S3, [7911-40]S8, [7911-41]S8
 Vashaei, Zahra [7945-48]S7
 Vasiliev, Mikhail [7937-73]SPS4, [7937-74]SPS4
Va?inek, Vladimir [7934-54]SPS4, [7923-14]S4
 Vasseur, Olivier [7914-31]S7, [7914-52]S13
Vasylyv, Oresta M. [7891-08]S3, [7902-60]SPS2
 Vauchier, Claude M. 7929 ProgComm
 Vaughan, Melville B. [7900-06]S2
 Vaughan, Peter M. [7917-30]S7, [7917-37]S9, [7950-10]S3
Vaupel, Andreas [7912-31]S9
 Vayrynen, Juha T. [7927-22]S5, [7927-39]SPS3
Vazquez-Montiel, Sergio [7883A-36]SPS1, [7897-27]S5, [7906A-20]SPS2, [7906B-27]S1
Vazquez-Villa, Alexis [7883A-36]SPS1
 Veber, Philippe [7912-58]S14
 Vecht, David L. [7918-30]S5
 Vedenyapin, Vitaliy [7917-56]S12
 Veen, Jeroen [7894-17]S3
 Veerasubramanian, Venkat [7943-47]S8, [7943-47]S14
 Vega-Criollo, R. [7957-31]SPS4
 Veilleux, Israel [7906B-29]S2, [7906B-37]S4
 Veit, Peter [7939-46]S8
 Velazquez, Matias [7912-58]S14
 Velazquez-Xique, Reyna [7957-30]SPS4
 Velez, Christian [7889-99]SPS2
 Velha, Philippe [7943-07]S3
 Velicu, Silviu [7930-19]S4, [7945-59]S10
 Velikov, Leonid V. [7918-24]S4
 Velmahos, George C. [7906A-09]S2
 Velthaus, Karl-Otto [7941-10]S3, [7959-01]S, [7959-01]S, [7959-01]S
 Vemulpad, Subramanyam [7883B-57]SPS1
 Venkatachalam, Muthaiah [7958-06]S3
 Venkatakrishnan, Krishnan [7922-18]SPS3
 Venkatesan, P. [7895-15]S3
 Venter, Petrus J. [7944-32]S9, [7944-32]S2, [7956B-33]S3
Ventura, Liliane [7886-36]SPS1, [7890-52]SPS1, [7885-55]SPS2, [7885-56]SPS2
Venugopal, Vivek [7892-13]S3, [7892-17]S4
Venugopal Rao, Soma [7935-44]SPS4
Venus, George B. [7914-51]S13, [7915-17]S3
Verdaasdonk, Rudolf M. [7883A-20]S4, 7883B ProgComm, 7883B S1 SessChr, [7883C-62]S3, [7883E-113]S5, [7890-26]S5, 7891 ProgComm, 7891 S1 SessChr, [7895-26]S5, [7897-02]S1, [7897-32]S7, [7901-36]S8
 Verdes, Dorinel [7905-07]S2
 Verdeyen, Joseph T. [7915-01]S1, [7915-10]S2
Verdun, Horacio R. [7914-06]S2
 Veres, Istvan A. [7946-43]S10
Vergien, Christopher L. [7917-68]SPS3
 Vergnole, Sébastien [7883D-80]S3, [7883D-87]S5, [7883D-90]S5, [7884-08]S4, [7889-56]S8, [7889-68]S10, [7889-94]SPS2, [7897-07]S2
 Verhalen, Brandy [7903-77]S11
Verma, Pramode [7923-08]S2, [7945-83]S14
 Vermeer, Koenraad A. [7885-45]S9
 Veronis, Georgios [7941-35]S8
 Verpoort, Sven [7931-06]S3
 Verschaffelt, Guy [7933-94]SPS4
 Verstraeten, David [7942-24]S8
 Vertu, Stanislas [7904-58]SPS2
 Vervaet, Chris [7908-42]S1
 Verwaal, Nanko [7946-47]S11
 Vescan, Andrei [7954-32]S9
 Vesuna, Sam [7903-84]S11
Vetrovec, John [7912-86]SPS3, [7918-15]S3
 Vever-Bizet, Christine [7893-39]S8
Viard, Clément [7885-07]S2
 Viard, Thierry [7928-17]S5
Viator, John A. [7899-124]SPS2, [7899-125]SPS2
 Vieira, Gislaïne [7903-09]S1
 Viellerobe, Bertrand [7893-07]S2
 Vignati, Jonathan T. [7918-14]S3
 Vigneswaran, Nadarajah [7883C-181]S6, [7883C-183]S6, [7883C-187]S1
 Viheriala, Jukka [7953-10]S2, [7953-12]S3
 Vijaya, Gopi Krishna [7933-15]S4, [7933-86]SPS4
 Vijaya Raghavan, Ayanam Parthasarathy [7895-10]S3
Vijayakumar, Deepak [7918-38]SPS3
 Viktorovitch, Pierre [7941-27]S7, [7946-06]S2, [7946-18]S4
Vilensky, Maxim [7898-48]SPS2
 Vilitis, Oskars [7935-39]SPS4
 Villa, Federica A. [7905-01]S1
 Villanueva, Flordeliza S. [7899-57]S9
 Villanueva, Guillermo [7960-27]SPS4
Villanueva-Luna, Adrian E. [7883A-36]SPS1, [7906A-20]SPS2, [7906B-27]S1
Villeneuve, Alain [7889-56]S8, [7914-33]S8, [7914-99]SPS3
 Villeneuve, David M. [7925-46]S7
 Villiger, Martin L. [7889-57]S9, [7904-17]S4
 Vincent, Denis [7930-23]S6
 Vincent, Higoneng [7916-35]SPS3
Vincetti, Maria Antonietta [7941-37]S8, [7946-76]SPS4
 Vinegoni, Claudio [7892-31]SPS1
 Vinet, Françoise [7886-35]SPS1, [7910-29]S6
 Vinogradov, Sergei A. [7903-79]S11, [7910-32]S7
 Vinu, Ajayan [7935-20]S5
 Virtanen, Jaakko [7896-12]S3
 Visitkul, Viput [7902-22]S5
 Visovsky, Nick J. [7953-71]S11
Vitasek, Jan [7934-54]SPS4, [7923-14]S4
Vitiello, Miriam S. 7945 ProgComm, 7945 S3 SessChr, [7945-31]S5
 Vitkin, Edward [7907-26]S4, [7945-88]S15
Vitkin, I. Alex [7907-06]S1
 Vivien, Daniel [7912-64]S15
 Vivona, Marilena [7914-98]SPS3
Vizbaras, Augustinas [7953-40]S10
Vizbaras, Kristijonas [7952-12]S4
 Vizhanyo, Attila [7883A-21]S4
 Vlachos, Fotios [7896-43]S9
 Vlachos, Kyriakos G. [7914-78]SPS3
 Vlasov, Yurii A. [7942-11]S5, [7943-31]S9
 Vo-Dinh, Tuan TrackChr, 7890 Chr, 7911 Chr, 7911 S1 SessChr, [7911-55]S7, [7911-56]S8
Vodopyanov, Konstantin L. SC1012 Inst, 7917 Chr, 7917 S10 SessChr, [7917-43]S10
 Vodrahalli, Nagesh [7928-05]S2
 Voelker, Maximilian [7892-30]SPS1
 Voevodin, Anastasia [7955-24]S8
Vogel, Alfred 7897 ProgComm, 7925 ProgComm
 Vogel, Curtis R. [7885-11]S2
 Vogel, Florian [7922-15]S4
 Vogel, Horst [7905-51]SPS1
 Vogel, Steven S. [7883G-140]S1
 Vogler, Nadine [7895-25]S5
 Vogt, Patrick [7939-18]S15
 Voigtländer, Christian [7914-17]S4, [7925-48]S8
 Voisin, Paul [7945-92]S16
 Vojnovic, Borivoj [7903-74]S10
 Volkmer, Andreas [7903-35]S6, [7905-19]S5
 Volkov, Michael V. [7907-45]SPS2
 Vollertsen, Frank [7921-17]S4
 Vollet Filho, José D. [7886-39]SPS1
 Völm, Henning [7920-43]SPS3
 Vollmer, Angelika [7904-03]S1
 Vollmer, Frank [7925-01]S1
 Volynskiy, Kirill [7936-11]S3
 Volynskaya, Zoya I. [7906B-36]S3
 Volz, Jürgen [7948-15]S4
 Volz, Kerstin [7939-79]SPS4, [7953-31]S8, [7953-31]S14, [7953-32]S8, [7953-32]S14
 von Bally, Gert [7902-01]S1, [7904-03]S1
 von Borczyskowski, Christian [7905-11]S2
 Von der Porten, Steven [7953-55]S14
 von Edlinger, Michael [7945-14]S3
 von Elm, Ruediger [7912-42]S11
 von Freymann, Georg [7921-01]S1, 7927 ProgComm, [7927-07]S2
 von Lerber, Tuomo [7959-09]S4, [7959-09]S4
 von Niederhäusern, Tim [7889-98]SPS2
 Vonesch, Jean-Luc [7903-117]SPS1
 Voortman, Jarno [7902-44]S9
Vora, Kevin [7927-14]S4
 Vorbeck, Sascha 7959 ProgComm, [7959-10]S5
 Vorobiev, Yu. [7918-24]S4
 Vorobyov, Vasily [7889-07]S2
 Voronova, Olga [7897-52]S11, [7901-19]S4
 Vorontsov, Mikhail A. [7914-47]S12, [7914-108]SPS3, [7924-07]S2, [7924-14]S3
 Vorreau, Philipp [7889-98]SPS2, [7889-99]SPS2
 Vos, Jeffrey [7901-03]S1
 Voss, John [7905-17]S4
 Voss, P. [7942-15]S6
 Vossmeier, Tobias [7903-100]SPS1
 Voyles, P. M. [7939-87]SPS4, [7939-94]S14
 Vray, Didier [7895-23]S4
 Vretenar, N. [7912-11]S3
 Vu, Tania Q. 7909 ProgComm
 Vuckovic, Jelena [7913-23]S5, [7946-10]S3
 Vullev, Valentine [7910-27]S5, [7910-45]S10
 Vurgatman, Igor [7945-72]S12, [7953-22]S5, [7953-38]S10, [7953-39]S10
Vyhlidal, David [7912-87]SPS3
 Vyroskinos, Konstantinos [7945-40]S6
 Vysotsky, Dmitry V. [7914-79]SPS3

W

- Waag, Andreas [7933-39]S9
Waarts, Robert G. 7914 ProgComm, 7914 S7 SessChr
Wabnitz, Heidrun [7896-01]S1, [7896-02]S1, [7896-11]S3, [7896-92]SPS1
 Wachsmann-Hogiu, Sebastian [7902-32]S7
 Wächter, Christoph A. 7941 CoChr, 7941 S4 SessChr
 Wacker, Andreas [7953-21]S5
 Wackerbarth, Hainer [7929-21]S5
 Wada, Masaki [7933-43]S10
 Wada, Satoshi [7917-22]S6
Wada, Takehiko [7934-47]SPS4
 Wadajkar, Aniket [7912-34]S7
 Wadsworth, William J. 7946 ProgComm
 Wagner, Joachim [7919-06]S2, [7953-32]S8, [7953-32]S14, [7953-58]S14, [7954-24]S7
 Wagner, Lars [7918-22]S4
 Wagner, Markus R. [7939-22]S2, [7940-04]S1
 Wagner, Martin [7937-02]S1
 Wagner, Michael [7902-11]S3
 Wagner, Michael [7930-34]S8
 Wagner, Paul [7959-10]S5
 Wagner, Steffen [7918-18]S4
 Wagner, Torrey J. [7912-51]S12
 Wagner, Volker [7912-15]S4
Wagneres, Georges A. 7890 ProgComm, 7890 S4 SessChr
 Wahl, Dietmar [7959-06]S3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Wahl, Michael [7903-76]S11, [7903-106]SPS1, [7905-03]S1
Wahlbrink, Thorsten [7943-17]S5
Wai, Alex P. K. A. [7914-58]S14
Waitong-Braemming, Ulrika [7895-16]S3
Wajler, Anna [7934-46]SPS4
Wajnryt, Ella [7908-32]SPS2
Wakabayashi, Kazuyuki [7944-26]S7
Wakabayashi, Naoki [7902-12]S3
Wakaki, Moriaki [7927-40]SPS3, [7934-36]SPS4, [7934-37]SPS4, [7940-36]S9
Wakayama, Toshitaka [7906A-25]SPS2
Wakayama, Yuta [7944-15]S4, [7958-15]S6, [7958-15]S6, [7958-15]S6, [7958-17]S7
Wakefield, Nicholas [7946-69]SPS4
Walavalkar, S. [7946-01]S1
Wälchli, Ben [7928-08]S3
Walczak, Jaroslaw [7919-02]S1
Walczak, Karl A. [7941-02]S1, [7944-08]S2
Waldo, Geoffrey S. [7905-22]S5
Wali, Ramesh [7907-29]S5
Walker, David R. [7949-42]S8
Walker, Robert [7918-04]S1
Walker, Robert B. [7934-13]S3
Walla, Jonny [7900-09]S3, [7900-10]S3
Wallace, Vincent P. [7883C-176]S7
Wallenberg, Marika A. [7907-06]S1
Wallis, Heike [7897-46]S9, [7903-87]SPS1
Walmer, David K. [7891-09]S3
Walsh, Alexandra [7891-05]S1
Walsh, Conor J. [7901-07]S2
Walston, Steven [7883A-27]S5
Walters, Robert J. [7933-24]S6, [7933-26]S6
Walther, Christophe [7945-15]S3
Walther, Julia [7889-08]S2, [7889-39]S6
Walther, Martin [7945-61]S10
Walther, Sarah [7893-11]S3
Wan, Peng [7914-102]SPS3
Wandernoth, Bernhard [7923-03]S1
Wandschneider, Rene [7894-36]S7
Wandt, Dieter [7914-86]SPS3
Wang, Alan X. [7936-06]S2, [7936-16]S4, 7944 ProgComm
Wang, Alexander [7889-120]SPS2
Wang, Baishi SC1020 Inst
Wang, Bo [7899-01]S1, [7899-02]S1, [7899-61]S9
Wang, Bowen [7946-46]S11
Wang, C. H. [7939-70]SPS4
Wang, Changle [7936-22]S5
Wang, Chao-Hsun [7954-07]S2
Wang, Chaoyang [7900-19]SPS2
Wang, Chengao [7951-12]S3
Wang, Chiachi [7914-32]S8
Wang, Chien-Kun [7935-51]SPS4
Wang, Christine A. [7953-57]S14
Wang, Chun-Chin [7903-62]S9
Wang, Chun-Ta [7955-04]S2
Wang, Chun-Yang [7883B-41]S1, [7883E-114]S5, [7884-06]S2, [7884-22]SPS1, [7890-22]S4, [7896-102]SPS1
Wang, Chun-Yuan [7946-73]SPS4
Wang, Churng-Ren C. [7899-72]S11, [7899-141]SPS2
Wang, Danni [7883E-104]S3, [7910-12]S3
Wang, Dayang [7909-30]S9
Wang, Ding [7916-37]SPS3
Wang, Emily [7893-06]S2
Wang, Fengtao [7906A-08]S2
Wang, Ge [7892-14]S3, [7896-120]SPS1
Wang, George T. [7954-27]S8
Wang, Hailin 7937 ProgComm, [7939-42]S7
Wang, Haining [7937-61]S14
Wang, Hao [7883D-75]S2, [7883D-76]S2
Wang, Hequn [7883A-04]S1
Wang, Hongying [7917-58]SPS3
Wang, Hsiang-Chen [7890-57]SPS1, [7891-20]S5, [7954-12]S3
Wang, Hsing-Wen [7886-26]S6
Wang, Hsing-Wen [7886-31]SPS1, [7891-25]S6, [7894-19]S4, [7894-33]S6, [7903-110]SPS1
Wang, Hsin-Neng [7911-55]S7, [7911-56]S8
Wang, Hsueh-Hsiao [7909-28]S8
Wang, Hui [7883E-110]S4
Wang, Hui [7889-25]S4, [7893-41]S8
Wang, Ji 7914 ProgComm, 7914 S15 SessChr, [7950-18]S5
Wang, Jian Jim 7927 Chr, 7927 S5 SessChr
Wang, Jiangfeng [7916-21]S4
Wang, Jianhua [7885-01]S1
Wang, Jinfang [7949-40]S8
Wang, Jing [7883A-34]SPS1
Wang, Jing [7917-34]S8
Wang, Jing [7954-16]S4
Wang, Jing Jing [7911-52]SPS1
Wang, Jingyi [7952-04]S1
Wang, Jiwu [7927-37]S8
Wang, John [7894-19]S4
Wang, Jun [7918-01]S1, [7918-05]S1, [7918-32]S5
Wang, Jun [7929-06]S2
Wang, Jun [7953-45]S12, [7953-49]S13
Wang, Junlong [7914-101]SPS3, [7936-22]S5
Wang, Jyh-Yang [7889-113]SPS2, [7889-114]SPS2, [7909-15]S5, [7911-16]S4, [7937-45]S10, [7939-53]SPS4, [7945-50]S8
Wang, Kang L. [7935-51]SPS4
Wang, Ke [7903-29]S5
Wang, Kenneth K. 7886 S5 SessChr, [7886-17]S4
Wang, Kun [7899-140]SPS2
Wang, Lele [7885-37]S7
Wang, Li [7916-29]S6
Wang, Lidai [7899-26]S4
Wang, Lihong V. [7884-30]SPS1, [7895-19]S4, 7897 ProgComm, 7898 ProgComm, 7899 Chr, 7899 S SessChr, 7899 S6 SessChr, 7899 S SessChr, [7899-05]S1, [7899-09]S2, [7899-12]S2, [7899-19]S3, [7899-20]S4, [7899-21]S4, [7899-22]S4, [7899-23]S4, [7899-26]S4, [7899-28]S4, [7899-31]S5, [7899-36]S6, [7899-37]S6, [7899-42]S7, [7899-45]S7, [7899-51]S8, [7899-53]S8, [7899-77]S12, [7899-89]SPS2, [7899-104]SPS2, [7899-112]SPS2, [7899-114]SPS2, [7899-116]SPS2, [7899-117]SPS2, [7899-122]SPS2, [7899-134]SPS2, [7899-152]SPS2, 7906B ProgComm, [7948-02]S1, [7948-03]S1, [7949-27]S5
Wang, Ling [7889-06]S1
Wang, Ling [7895-34]SPS2
Wang, Mei [7907-21]S4
Wang, Michael R. [7885-01]S1, [7927-24]S5, [7935-36]S9
Wang, Pin [7889-61]S9, [7907-03]S1
Wang, Pinghe [7889-96]SPS2, [7889-97]SPS2
Wang, Po-Hsun [7899-72]S11, [7899-103]SPS2
Wang, Pu [7903-26]S4
Wang, Qi Jie [7953-25]S6
Wang, Qiang [7885-10]S2, [7885-52]S10, [7885-53]S10, [7885-54]S10
Wang, Qing [7912-36]S9, [7952-15]S4
Wang, Qingpu [7912-67]SPS3
Wang, Quanzeng [7891-14]S4
Wang, Ru [7898-06]S1, [7910-31]S6
Wang, Rui [7889-71]S11, [7893-35]S1, [7893-35]S7
Wang, Ruikang K. [7883C-186]S3, 7889 ProgComm, [7889-35]S6, [7889-37]S6, [7889-40]S6, [7889-101]SPS2, [7889-102]SPS2, [7889-107]SPS2, 7898 Chr, 7898 S4 SessChr, [7898-02]S1, [7898-11]S2, [7898-18]S3, [7898-28]S5, [7898-30]S5, [7898-34]SPS2, [7898-36]SPS2, [7898-41]SPS2, [7898-43]SPS2, [7899-155]SPS2
Wang, Sean X. [7934-20]S5
Wang, Sha [7943-40]S12
Wang, Shih-Ming [7911-39]S8
Wang, Shing-Chung [7939-65]SPS4, [7939-69]SPS4, [7939-70]SPS4, [7954-07]S2
Wang, Shumin [7933-18]S4
Wang, Shuping [7935-21]S5
Wang, Thomas D. 7893 Chr, 7893 S2 SessChr, [7893-02]S1, [7893-05]S1, [7893-06]S2, [7893-12]S3, [7930-04]S1, [7930-04]S7
Wang, Tianhe [7914-101]SPS3
Wang, Tianheng [7883F-131]S3, [7892-36]SPS1, [7899-158]SPS2
Wang, Tianyi [7883D-72]S1
Wang, Ting [7959-16]S6, [7959-16]S6, [7959-21]S7, [7960-06]S1, [7960-06]S1, [7960-14]S4, [7960-24]S6, [7960-24]S6, [7960-24]S6
Wang, Tingting [7891-32]SPS1
Wang, Tsuei-Lian [7919-03]S1, [7933-50]S11
Wang, Tsun-Hsin [7954-49]SPS4
Wang, Tzung-Dau [7883D-10]S
Wang, Wang N. [7945-77]S13
Wang, Wanjun 7929 ProgComm, [7929-06]S2, 7930 ProgComm, [7930-30]S7
Wang, Weina [7890-01]S1, [7902-71]SPS2
Wang, Wubao 7895 ProgComm, 7895 S3 SessChr, [7895-11]S3, [7895-17]S3, [7895-20]S4, [7895-33]SPS2, [7934-45]SPS4
Wang, Xiao [7916-33]S7
Wang, Xiaojun [7953-40]S10, [7953-42]S11, [7953-56]S14
Wang, Xiaolong A. [7941-20]S5, [7944-35]SPS4, [7944-36]SPS4, [7944-41]S5
Wang, Xin [7896-101]SPS1
Wang, Xu [7937-38]S8
Wang, Xudong [7940-16]S4
Wang, Xueding [7899-06]S1, [7899-75]S11, [7899-136]SPS2
Wang, Xujing [7907-35]S5
Wang, Y. Andrew [7947-11]S3
Wang, Yiliang [7937-16]S4
Wang, Yimin [7889-15]S3
Wang, Yimin [7912-88]SPS3
Wang, Yin [7953-71]S11
Wang, Ying Min [7899-46]S7
Wang, Yingxiao [7910-31]S6
Wang, Yingying [7946-32]S8
Wang, Yu [7899-09]S2, [7899-21]S4
Wang, Yu-Hsin [7899-54]S8, [7899-141]SPS2
Wang, Yu-Sheng [7935-13]S3
Wang, Zhao M. [7889-22]S4
Wang, Zhenguo [7889-105]SPS2
Wang, Zhichao [7896-95]SPS1, [7896-111]SPS1
Wang, Zhiyong [7890-41]S8
Wang, Zhong Lin 7940 ProgComm, [7940-56]S8
Wang, Zhuo [7898-06]S1, [7902-05]S1, [7907-32]S5
Wang, Zuojia [7928-26]SPS3
Wang, Zuolan [7918-08]S2, [7918-13]S3
Wanguemert-Perez, Juan [7941-39]S9
Wanke, Michael C. 7938 ProgComm, 7938 S1 SessChr, [7953-27]S7
Wankhede, Mamta [7902-07]S2
Wanlass, Mark W. [7927-25]S6
Wanyo, Christy [7896-54]S11
Warburton, Ryan E. [7945-97]S17
Ward, Martin B. [7947-06]S2
Wårdell, Karin [7883E-98]S1
Warger, William C. [7906A-09]S2
Warner, Jamie H. [7937-38]S8
Warren, Sean [7883A-09]S2, [7903-80]S11
Warren, Warren S. [7903-25]S4, [7903-61]S8
Warther, David [7903-117]SPS1
Washburn, Adam L. [7888-01]S1
Washio, Kunihiko 7921 Chr, 7921 S2 SessChr
Wasicok Thomas, Linda [7923-04]S1
Wasilewski, Zbigniew R. [7945-33]S5, [7945-34]S5, [7945-56]S9
Wasley, Nicholas A. [7946-07]S2
Wasserman, Steven [7902-09]S3
Wassner, Thomas A. [7937-66]S15
Watanabe, Akira 7921 ProgComm, [7921-03]S1
Watanabe, Hideki [7953-18]S4
Watanabe, Hirofumi [7935-35]S9
Watanabe, Katsuhiko [7899-92]SPS2
Watanabe, Masachika [7955-28]SPS4
Watanabe, Michiko [7883D-89]S5, [7883D-94]S6, [7883G-138]S2
Watanabe, Naoki [7926-03]S1, [7926-11]S3
Watanabe, Tomoko [7931-16]S6
Watanabe, Toshiyuki 7935 ProgComm
Watanabe, Wataru 7925 ProgComm
Watkins, Laurence S. [7912-36]S9
Watkins, Simon C. 7903 ProgComm
Watson, Jennifer M. [7890-32]S6
Watson, Peter [7903-50]S7, [7911-33]S7
Watté, Rodrigo [7895-34]SPS2
Wattellier, Benoit F. [7904-23]S5
Watts, Michael P. 7927 ProgComm
Watts, Michael R. [7943-09]S3
Wax, Adam P. [7883E-100]S2, [7889-80]S12, [7890-36]S7, [7896-33]S7, [7904-04]S1, 7907 Chr, 7907 S6 SessChr, 7907 S5 SessChr, [7907-38]S6, [7907-39]S6, [7911-07]S6
Waxer, Leon J. [7916-15]S3
Waxman, Irving [7897-70]SPS2
Way, Winston I. 7959 ProgComm
Way, Miu-Yee [7911-42]SPS1
Waynant, Ronald W. 7887 Chr, 7887 S3 SessChr, 7894 S7 SessChr
Weaver, John B. [7901-43]S9
Webb, Anthony J. [7906A-11]S3, [7906A-13]S3
Webb, Nathan [7890-45]S8
Webb, Watt W. [7889-10]S2
Weber, Jessica [7883C-156]S5, [7901-34]S7, [7901-37]S8, [7901-39]S8
Weber, Jessie R. [7906B-36]S3
Weber, Mark E. [7914-28]S7
Weber, Norbert [7946-47]S11
Weber, Petra [7902-11]S3
Weber, Rudolf [7920-34]S10, [7925-35]S5, [7925-35]S9

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Webster, George J. M. [7886-18]S4
 Webster, Paul J. [7925-38]S11, [7925-38]S7
 Wedel, Björn [7914-66]S16, [7921-32]SPS3
 Weeber, Jean-Claude [7945-40]S6
 Wegener, Martin [7921-01]S1, [7927-07]S2, [7946-25]S6
 Weglarz, Helena [7934-46]SPS4
 Wegner, David [7909-12]S4
 Wegner, Paul [7916-16]S4
 Wehmhann, Hergo-Heinrich [7933-39]S9
Wegner, Eleanor F. [7932-01]S1, [7932-02]S1, [7932-03]S1, [7932-04]S1
 Wehrmann, Anja [7921-07]S2, [7921-28]S7, [7921-28]S11
 Wehry, Richard [7884-18]S6
 Wei, Alexander [7889-77]S12
 Wei, George C. [7954-39]S10
 Wei, Hongzhen [7942-22]S8
 Wei, Kuo-Chen [7899-72]S11
 Wei, Pei-Kuen [7946-70]SPS4
 Wei, Qing [7899-25]S4
 Wei, Wei [7893-43]SPS2
 Wei, Wei [7933-68]SPS4
 Wei, Xiaofeng [7916-33]S7
Wei, Xunbin 7900 ProgComm, 7900 S4 SessChr, [7900-11]S4
 Wei, Yau-Huei [7886-31]SPS1, [7903-110]SPS1
Weida, Miles [7902-45]S9, [7953-54]S14
 Weidlich, Kai [7918-03]S1
 Weidmann, Matthew [7950-11]S3
 Weidtkamp-Peters, Stefanie [7905-12]S3
Weiershausen, Werner 7958 S SessChr, 7958 S2 SessChr, 7958 S6 SessChr, 7959 Chr, 7959 S2 SessChr, 7959 S SessChr, 7959 S7 SessChr, 7959 S6 SessChr, 7959 S7 SessChr, [7959-09]S4, [7959-09]S4, [7959-10]S5, 7960 S SessChr, 7960 S2 SessChr, 7960 S6 SessChr
 Weigel, Thomas [7921-102]S
 Weightman, Alan P. [7898-07]S1
Weigl, Bernhard H. 7929 ProgComm
 Weigl, Wojciech [7896-81]SPS1, [7896-93]SPS1
 Weiland, Timothy L. [7916-26]S6
 Weiler, Sascha [7912-08]S3
 Weingarten, Kurt J. [7912-26]S7
 Weinhold, Till J. [7948-19]S4
 Weinmann, Pia [7947-01]S1
 Weinstein, Yaakov S. [7948-11]S3
 Weirich, Andy MeetingVIP
 Weis, Christoph [7948-27]S7
 Weis, Erik [7959-04]S1, [7959-04]S1
 Weiser, Marc-Stephan [7957-16]S4
 Weiss, Alexander [7945-102]SPS4
 Weiss, Jeff [7951-08]S2
 Weiss, Ori [7949-18]S4
Weiss, Sharon M. 7888 ProgComm
 Weiss, Shimon [7905-01]S1
 Weisshart, Klaus [7905-34]S8
 Welch, David F. [7960-05]S1, [7960-05]S1, [7960-16]S4
 Welch, William H. [7927-10]S3
 Wellen, Jeroen S. 7958 ProgComm
 Weller, Horst [7903-100]SPS1, 7909 ProgComm, 7909 S12 SessChr, [7909-06]S13
 Wells, Bill [7889-52]S8
 Wells, Dominic J. [7896-65]S13
 Wells, Jonathon D. [7883E-112]S5, [7883G-142]S2
 Wells, Wendy A. [7896-46]S10, [7907-25]S4
Wells-Gray, Elaine M. [7898-14]S2
 Welsler, Roger E. [7954-50]S8
 Wen, He [7949-13]S3
 Wen, Yu-Chieh [7946-70]SPS4
 Wendler, Elke [7940-24]S6
 Wendler, Joachim C. [7945-61]S10
 Wennmalm, Stefan [7905-51]SPS1
 Wenzel, Hans [7953-34]S9, [7953-36]S9, [7953-47]S12, [7953-50]S13, [7953-52]S13
 Werner, Ekkehard A. [7918-18]S4, [7918-22]S4
 Werner, James H. [7905-29]S7
 Werner, Johannes M. [7913-02]S1
Werner, John S. [7885-09]S2, [7885-11]S2, [7889-16]S3
 Wernli, Jeremy [7885-21]S4
 Werth, Dennis MeetingVIP
 Wesch, Werner [7940-24]S6
 Wesoff, Eric A. MeetingVIP
 Wessel, Waldemar [7920-24]S8, [7920-24]S12
 Wessels, Bruce W. [7934-27]S6, [7949-04]S1
 West, John L. [7955-22]S7
 Westbergh, Petter [7952-19]S5, [7959-07]S3
 Westhofen, Martin [7883C-178]S3, [7883C-185]S7
 Wetter, Niklaus U. [7907-41]S6
 Wetzel, Benjamin [7917-35]S8
Wetzel, Christian [7954-21]S6
 Weyers, Markus [7919-35]S8, [7939-18]S15
Weyrauch, Thomas [7914-47]S12, [7914-108]SPS3
 Whaley, Ralph D. [7941-26]S6
Whelan, William M. [7894-13]S2, 7899 ProgComm, 7899 S3 SessChr, [7899-34]S5, [7899-41]S6
 White, Bradley M. [7886-29]S7
 White, Brian R. [7883E-116]S5, [7883E-119]S6, [7896-05]S1, [7896-51]S11
White, Ian M. [7911-04]S1
 White, Ian H. [7933-48]S11, [7953-46]S12
 White, Lisa [7890-18]S4
White, Sean [7897-50]S10
 White, Timothy J. [7955-24]S8, [7955-26]S8
 Whittaker, David [7933-66]S12, [7933-66]S15
 Whitten, James E. [7940-20]S5
 Wicht, Andreas [7953-36]S9
Wiegand, Gordon W. [7902-49]S10
 Wiegraebe, Winfried [7905-15]S4
 Wierer, Sebastian [7902-34]S7
 Wiesauer, Karin [7912-41]S11
 Wieser, Wolfgang [7889-01]S1, [7889-32]S5, [7889-49]S8, [7914-16]S4, [7914-97]SPS3
 Wigdor, Harvey A. 7884 ProgComm
 Wigle, Jeffrey C. [7897-41]S8
 Wijewarnasuriya, Priyalal S. [7945-103]SPS4
 Wijshoff, Ralph [7894-17]S3
 Wikner, David A. [7936-13]S4
Wilcox, Christopher C. [7923-27]S7, [7931-04]S2, [7931-11]S5
 Wilcox, James M. [7910-33]S7
 Wilcox, Keith G. [7919-26]S5, [7919-36]S8, [7919-37]S8, [7919-38]S8
 Wilcox, Reg [7960-19]S5
 Wilczynski, Grzegorz [7883E-109]S4, [7889-38]S6
 Wildanger, Dominik [7948-32]S8
 Wildenhain, Michael [7930-25]S6
 Wilder-Smith, Petra B. B. [7884-30]SPS1
 Wildey, Chester [7883G-136]S1
 Wiley, Robert [7914-14]S4
 Wilhelmsen, Karl [7916-23]S5
 Wilke, Lee [7890-11]S2
 Wilkens, Stephan [7903-77]S11
 Wilkinson, James S. [7912-91]SPS3, [7929-07]S2, [7934-59]SPS4
 Wilkinson, Timothy D. [7955-11]S4
 Wilks, R. G. [7940-27]S7
 Willadino, Lilia G. [7902-08]S2
 Willander, Magnus [7940-09]S3, [7940-15]S4
 Willemink, Rene G. [7899-126]SPS2, [7899-130]SPS2
 Willer, Ulrike [7945-87]S15
 Williams, Chris 7956A ProgComm
 Williams, Dafydd R. [7883F-127]S2
 Williams, David M. [7919-20]S4
 Williams, David P. [7937-05]S2
 Williams, James [7929-03]S2
 Williams, Keith I. 7936 ProgComm
 Williams, Matthew O. [7933-55]S12, [7941-12]S3
 Williams, Michelle D. [7883C-158]S1, [7883C-180]S6, [7883C-183]S6, [7883C-187]S1
 Williams, Rebecca M. [7903-18]S3
Williams, Robert J. [7914-15]S4, [7925-19]S5
 Williams, Robin L. [7947-03]S1
 Williamson, Robert S. [7953-33]S9
 Williams, Jonathan E. [7912-54]S13
Willis, Christina [7914-17]S4, [7924-20]S4
 Willman, Eero [7955-09]S4
Willner, Alan E. 7923 ProgComm, 7948 ProgComm, [7949-07]S2, [7958-02]S2, [7958-02]S2, [7958-02]S2, [7958-02]S2, 7960 S4 SessChr
 Willoughby, Nicholas A. [7929-22]S5
 Willsley, Brian [7883D-72]S1
Wilminck, Gerald J. [7883G-144]S3, 7897 ProgComm, 7897 S3 SessChr, [7897-13]S3, [7897-14]S3, [7897-15]S3, [7901-15]S4, [7901-18]S4, [7908-28]S4
 Wilson, Andrew [7948-15]S4
 Wilson, Anthony J. 7904 S2 SessChr
 Wilson, Brian C. [7883E-96]S1, [7883E-97]S1, [7886-24]S6
 Wilson, Christy [7883E-100]S2
 Wilson, Clara [7886-19]S5
Wilson, David L. [7883D-89]S5, [7889-10]S2, [7889-22]S4
 Wilson, Emmanuel [7901-06]S2
 Wilson, John P. [7936-18]S5
Wilson, Katheryne E. [7899-71]S11, [7899-73]S11
 Wilson, Luke R. [7937-07]S2
 Wilson, Mark A. [7906A-04]S1
 Wilson, Rab [7929-18]S5
 Wilson, Tony 7904 Chr, [7927-16]S4, [7931-16]S6
 Wimpenny, Ian [7898-07]S1
 Winckler, Pascale [7905-16]S4, [7908-01]S1
 Winebrenner, Dale P. [7890-25]S5
 Wineland, David J. [7948-15]S4
 Winkler, Mark T. [7920-40]S7, [7920-40]S11
 Winnerl, Stephan F. [7937-07]S2
 Winsor-Hines, Dawn [7883D-88]S5
 Winterflood, Christian M. [7888-14]S2, [7905-07]S2
 Winterhalder, Martin [7903-30]S5
 Winzer, Torben [7937-62]S14
 Wippermann, Frank [7893-11]S3, [7926-02]S1, [7926-08]S3
Wirth, Dennis J. [7883E-106]S3
 Wirth, Manfred [7897-26]S5
 Wirth, Ralph [7954-39]S10
 Wise, Damian [7918-05]S1, [7918-32]S5, [7953-45]S12
Wise, Frank W. [7903-28]S5, Review, [7914-56]S14, [7914-60]S15, [7917-26]S7
 Wiseman, Howard M. [7948-10]S3
 Wiseman, Paul W. 7903 ProgComm
 Wisniewski, Przemek [7953-17]S4
 Wissel, Alexander [7912-39]S10, [7912-39]S9
 Witcher, Jon J. [7925-25]S6
Withers, Nathan J. [7909-20]S6
 Withford, Michael J. [7914-15]S4, 7925 S6 SessChr, [7925-19]S5
 Witjes, Max [7883C-164]S5
 Witte, Frank [7883C-184]S7
 Witte, Reiner [7920-39]S7, [7920-39]S11
 Witte, Ulrich [7918-09]S2
 Wittig, Dierk [7889-08]S2
 Wittrock, Ulrich 7931 ProgComm, [7931-06]S3
 Wittwer, Valentin J. [7919-25]S5, [7919-32]S7, [7919-33]S7
 Witzens, Jeremy [7936-05]S2
Witzmann, Bernd 7919 S4 SessChr, [7919-18]S4, [7919-24]S5, 7933 Chr, 7933 S1 SessChr, [7933-39]S9
 Włodarczyk, Jakub [7883E-109]S4, [7889-38]S6
 Woehl, Jorg C. [7905-08]S2, [7908-03]S1
 Woerdman, Han [7950-14]S4
 Woerner, Michael [7937-32]S7
 Woggon, Thomas [7912-59]S14
 Wohl, Gregory [7883F-127]S2
 Wohlfeld, Denis [7944-20]S5
 Wohlmuth, Matthias [7913-02]S1
 Wojciechowski, Artur [7933-69]SPS4
 Wojcik, Aleksander K. [7953-44]S11
Wojcik, Michael D. [7917-70]SPS3
 Wojdyla, Joliete K. [7910-33]S7
 Wojtkiewicz, Stanislaw [7896-93]SPS1, [7889-24]S4
Wojtkowski, Maciej [7883E-109]S4, [7885-14]S3, 7889 ProgComm, [7889-38]S6, [7889-67]S10
Wolf, David E. [7908-29]S4
 Wolf, Konrad [7956A-16]S5
 Wolf, Martin [7917-11]S4
 Wolf, Paul [7918-23]S4
 Wolf, Philip [7952-16]S5, [7952-18]S5
 Wolf, Roman F. [7900-09]S3, [7900-10]S3
 Wolford, Matthew F. [7916-31]S7
Wolinski, Tomasz R. [7955-33]S
 Woll, Dirk [7914-43]S10, [7914-110]SPS3
 Wollenhaupt, Matthias [7920-24]S8, [7920-24]S12
 Wollrab, Viktoria [7945-32]S5
 Woltsche, Steffen [7930-34]S8
 Wolter, Steve [7905-35]S8
Won, Chang-Hee [7890-49]SPS1
Won, Nayoun [7909-23]S7, [7909-24]S7, [7909-25]S7
 Won, Young Jae [7902-64]SPS2
Wong, Brian J. TrackChr, 7883C Chr, 7883C S7 SessChr, 7883C S1 SessChr, [7883C-159]S7, [7883C-165]S2, [7883C-188]S2, [7889-45]S7, [7901-04]S1
 Wong, Bruce [7927-45]SPS3
 Wong, Chee Wei 7942 S8 SessChr, [7942-16]S7
 Wong, Chee-Howe [7904-11]S3
 Wong, Gordon [7914-22]S6
 Wong, Kelvin K. [7890-41]S8
Wong, Kin-Yip K. [7917-32]S8
 Wong, Kit Fei [7904-11]S3
 Wong, Michael S. 7909 ProgComm
Wong, Ping-Show [7947-14]S4
 Wong, Robert L. [7923-03]S1

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Wong, Shing-Wa [7958-01]S, [7958-01]S, [7958-01]S
Wong, Stephen T. C. [7890-41]S8
Wong, Yong-Kie [7894-19]S4
Wong-ek, Krongkamol [7911-05]S1
Woo, Han Young [7903-96]SPS1, [7908-08]S1
Wood, Christopher J. [7905-15]S4
Wood, Michael F. G. [7907-06]S1
Wood, William A. [7917-71]S3
Woods, David L. [7914-43]S10
Woods, Ian [7953-14]S3
Woodward, John T. [7914-02]S1
Woolard, Dwight L. [7938-10]S3
Wooliams, Peter [7891-21]S6
Wootton, Jeffery [7901-23]S5
Worchesky, Terrance [7953-62]S15, [7953-69]SPS4, [7953-70]SPS4
Wördehoff, C. [7960-21]S5
Wörhoff, Kerstin [7942-25]S8
Wörtl, Andreas [7945-61]S10
Worschech, Lukas [7945-14]S3, [7945-19]S3, [7947-01]S1
Wosinska, Lena [7958-07]S4, [7958-07]S4
Wosinski, Lech [7908-22]S4
Wraback, Michael [7939-42]S7
Wrachtrup, Joerg 7948 ProgComm, [7948-33]S8
Wright, Ewan M. 7950 ProgComm
Wright, Kate L. [7929-07]S2
Wright, Logan G. [7925-38]S11, [7925-38]S7
Wright, Oliver B. [7946-43]S10
Wu, Bin [7949-30]S6
Wu, Binlin [7892-15]S3
Wu, Chen-Ying [7939-84]SPS4
Wu, Chih-Hung [7939-92]SPS4
Wu, Dengsheng [7916-32]S7
Wu, Edward C. [7883C-169]S7
Wu, Fengbing [7947-11]S3
Wu, Frank F. [7912-84]SPS3, [7917-66]SPS3
Wu, Hao [7949-40]S8
Wu, Jianfeng [7951-08]S2
Wu, Jigang [7902-46]S10
Wu, June-Tai [7903-92]SPS1
Wu, Katherine [7902-63]SPS2
Wu, Kuang-Tsan [7960-05]S1, [7960-05]S1, [7960-16]S4
Wu, Lawrence [7911-11]S2
Wu, Linhui [7892-27]SPS1, [7896-108]SPS1
Wu, Ming Hong [7885-02]S1
Wu, Ming Hsien 7956B Chr, 7956B S2 SessChr
Wu, MingChe [7933-14]S4, [7933-86]SPS4
Wu, Mo [7939-27]S3, [7939-68]SPS4, [7939-88]SPS4, [7939-89]SPS4
Wu, Peiheng [7938-13]S3, [7960-28]SPS4
Wu, Pengfei [7935-36]S9
Wu, QiuHe [7887-06]S2
Wu, Ruifen [7914-105]SPS3
Wu, Sheng 7945 ProgComm, 7945 S4 SessChr, [7945-05]S1
Wu, Shengnan [7887-07]S2, [7887-11]S3, [7887-25]SPS1, [7887-26]SPS1, [7900-15]SPS2
Wu, Shin-Tson 7955 ProgComm, [7955-13]S5, [7956A-14]S4
Wu, Shou-Yen [7889-113]SPS2, [7889-114]SPS2, [7909-15]S5, [7911-16]S4, [7937-45]S10
Wu, Shun-De [7902-17]S4
Wu, Shu-Yuen [7911-11]S2
Wu, Stewart H. [7891-25]S6
Wu, Tzu-Yu [7902-14]S4
Wu, Wen Ting [7933-56]S12
Wu, Xiaohua [7945-56]S9, [7947-17]S4
Wu, Xingjia [7887-17]S4
Wu, Yangzhe [7902-35]S10
Wu, Yicong [7890-16]S3
Wu, Yi-Kuei [7946-72]SPS4
Wu, Ying-Yi [7893-14]S3
Wu, Yin-Hao [7939-38]S6
Wu, Yuchang [7947-07]S2
Wu, Yuehao [7932-17]S4
Wu, Yuh-Renn [7939-93]SPS4
Wu, Ziran [7938-12]S3, [7938-16]S4
Wunderer, Thomas [7939-41]S7
Wurm, Christian A. [7905-24]S6
Würth, Christian [7910-37]S8
Wüstenberg, Jan-Peter [7937-21]S5
Wuu, Dong-Sing [7954-41]S11
Wyant, James C. SC212 Inst
Wynn, James D. [7952-15]S4
Wynne, James J. [7883A-11]S2
Wynne, Klaas 7937 ProgComm
Wysocki, Gerard [7953-42]S11, [7953-71]S11
Wyss, Romain [7905-51]SPS1
-
- X**
- Xi, Jiefeng [7889-42]S7, [7889-46]S7, [7889-50]S8, [7890-16]S3
Xia, Anping [7889-108]SPS2
Xia, Fengnian [7943-31]S9
Xia, Jinjun [7899-56]S8, [7899-62]S9
Xia, Jun [7899-36]S6
Xia, Rongmin [7901-08]S2, [7901-25]S5
Xia, Wenfeng [7906B-34]S3
Xia, Younan [7899-77]S12
Xiang, Guoyong [7948-10]S3
Xiang, Jie [7955-15]S5
Xiang, Xiaoyan [7902-52]S11
Xiao, Jiaying [7883F-130]S2
Xiao, Min [7947-10]S3
Xiao, S. [7946-24]S6
Xiao, Shizhou [7921-27]S4
Xiao, Yunfeng [7913-37]S8
Xie, Chuan [7952-05]S2
Xie, Chuang [7947-11]S3
Xie, Feng [7953-71]S11
Xie, Haiyan [7909-13]S12
Xie, Hongtao [7883D-78]S2, [7883D-83]S4, [7890-15]S3
Xie, Jinqiao [7939-24]S2
Xie, Sunney X. 7903 ProgComm, 7903 S4 SessChr, [7903-23]S4, [7903-29]S5, [7903-38]S6, [7903-89]SPS1
Xie, Xiaobo [7960-13]S3
Xie, Yijing [7883E-11]S4
Xie, Zhiqiang [7921-12]S3
Xie, Zhixing [7899-06]S1
Xin, Hao [7938-12]S3, [7938-16]S4
Xin, Maoqing [7943-43]S13
Xing, Da [7887-07]S2, [7887-11]S3, [7887-25]SPS1, [7887-26]SPS1, 7900 ProgComm, [7900-07]S2, [7900-13]S4, [7900-15]SPS2, [7900-16]SPS2
Xing, Hai-Ying [7934-44]SPS4
Xing, Jiong [7890-41]S8
Xing, Xiaoman [7886-26]S6
Xiong, Boqian [7943-25]S8
Xiong, Chang [7933-68]SPS4
Xiong, Wei [7920-14]S4, [7921-13]S3
Xiong, Yihan [7912-36]S9
Xosé, Luis D. B. [7899-109]SPS2
Xu, Bingwei [7903-120]SPS1
Xu, Can T. [7896-67]S14, [7896-105]SPS1, [7909-13]S12
Xu, Canhua [7916-37]SPS3
Xu, Chen [7896-97]SPS1, [7896-99]SPS1, [7899-29]S5
Xu, Chris [7891-16]S5, [7893-10]S2, [7895-32]SPS2, [7903-29]S5
Xu, Danxia [7941-39]S9, [7888-04]S1, [7928-19]S6, [7928-19]S1, [7928-19]S5, 7943 ProgComm, [7943-15]S5
Xu, Dapeng [7918-05]S1, [7918-32]S5, [7953-45]S12
Xu, Di [7946-79]SPS4
Xu, Frank [7886-05]S1
Xu, Ji [7946-79]SPS4
Xu, Gaixia [7908-13]S2
Xu, Guan [7892-12]S3, [7896-31]S7
Xu, Guoyang [7912-36]S9, [7952-15]S4
Xu, Jian [7945-79]S14, 7947 ProgComm, [7947-10]S3, [7947-11]S3
Xu, Jian-Bin [7911-42]SPS1
Xu, Jianqiu [7914-41]S10
Xu, Jimmy [7945-103]SPS4
Xu, Jun [7912-78]SPS3, [7912-81]SPS3
Xu, Kexin [7898-34]SPS2, [7898-38]SPS2, 7906A ProgComm, [7906A-16]SPS2, [7906A-17]SPS2, [7906A-18]SPS2
Xu, Lei [7913-31]S7
Xu, Lei [7918-30]S5
Xu, Lin [7914-41]S10
Xu, Michelle [7908-22]S4, [7911-12]S3
Xu, Min [7892-15]S3, [7895-20]S4, [7896-23]S5
Xu, Qian [7903-53]S7
Xu, Shanshan [7896-45]S9
Xu, Tao [7908-22]S4
Xu, Ting [7933-79]SPS4, [7946-72]SPS4
Xu, Wanjiang [7935-08]S2
Xu, Xianfan 7920 Chr, 7920 S9 SessChr, 7921 ProgComm, 7922 ProgComm
Xu, Xiao [7899-42]S7, [7899-45]S7, [7948-03]S1
Xu, Xiaochuan [7936-03]S1, [7944-14]S4
Xu, Xiaofeng [7954-38]S10
Xu, Xingsheng [7937-50]S11
Xu, Yan [7896-40]S9, [7896-59]S12, [7896-99]SPS1
Xu, Yaqiong [7922-06]S2
Xu, Yong 7946 ProgComm
Xu, Zhang [7896-23]S5
Xu, Zhizhan [7912-78]SPS3, [7916-36]SPS3, [7916-37]SPS3
Xu, Zhun [7899-37]S6
Xuan, Weijun [7887-06]S2
Xue, Jianpeng [7910-16]S4
Xuereb, André [7951-10]S3
-
- Y**
- Yabashi, Makina [7937-55]S12
Yablon, Andrew D. SC974 Inst, [7914-59]S15
Yablon, Joshua [7949-41]S8
Yablonovitch, Eli MeetingVIP, 7946 ProgComm
Yadav, Amrita R. [7888-08]S1, [7888-17]S2
Yadav, R. P. [7927-41]SPS3
Yadavalli, Kameshwar [7939-52]S9
Yadroitsev, Igor [7921-10]S3
Yafi, Amr [7883A-29]S6
Yagi, Shogo [7889-54]S8
Yagi, Takayuki [7899-91]SPS2, [7899-92]SPS2
Yagi, Tetsuya [7918-35]SPS3
Yagi, Yukako [7883D-73]S1, [7893-17]S4
Yagimuna, Hideyuki [7905-18]S4
Yaglidere, Oguzhan [7891-18]S5
Yaguchi, Hiroyuki [7945-89]S16
Yahiaoui, Riad [7917-13]S4
Yahiatène, Idir [7905-20]S5, [7905-21]S5
Yahioğlu, Gokhan [7903-72]S10
Yahiro, Masayuki [7947-32]SPS4
Yakimov, Mikhail Yu. [7913-04]S1
Yakovlev, Vladislav V. [7892-22]S4, [7899-81]S12, [7899-82]S12, [7903-43]S7, [7917-29]S7
Yalla, Veeraganesh [7932-11]S3
Yamada, Hirohito [7940-48]SPS4, [7940-49]SPS4, [7943-50]SPS4, [7943-51]SPS4
Yamada, Ichiro [7940-13]S4, [7941-24]S6
Yamada, Kazuro [7889-20]S3
Yamada, Takehumi [7957-32]SPS4
Yamada, Tsuyoshi [7912-79]SPS3, [7917-08]S3
Yamada, Yasuhiro [7937-59]S13
Yamada, Yoichi [7939-35]S6, [7939-62]SPS4
Yamada, Yukio [7896-62]S13
Yamagishi, Yuki [7933-58]S13
Yamaguchi, Ichirou 7957 ProgComm
Yamaguchi, Kazuhiro [7957-05]S2
Yamaguchi, Kenzo [7911-02]S1
Yamaguchi, Masahito [7939-17]S15, [7939-69]SPS4
Yamaguchi, Takeshi [7957-44]SPS4
Yamaguchi, Tomohiro [7893-03]S1
Yamaji, Masahiro [7925-43]SPS3
Yamakawa, Makoto [7899-87]SPS2, [7899-91]SPS2, [7899-92]SPS2
Yamakawa, Shiro 7923 ProgComm, [7923-10]S3, [7923-18]S5
Yamamoto, Hirotosugu [7956B-27]S2
Yamamoto, Kazuyo [7884-20]S6
Yamamoto, Kenji 7909 Chr
Yamamoto, Kenji 7909 S6 SessChr
Yamamoto, Kenji [7909-09]S3, [7909-38]S11
Yamamoto, Kenji [7947-26]S7
Yamamoto, Kenji [7957-02]S1, [7957-08]S2
Yamamoto, Manabu [7957-32]SPS4, [7957-33]SPS4
Yamamoto, Naokatsu [7958-14]S5
Yamamoto, Ryota [7956B-27]S2
Yamamoto, Satoshi [7907-20]S4
Yamamoto, Yoshihisa [7948-29]S7
Yaman, Fatih [7960-14]S4
Yamanaka, Masahito [7904-51]S10
Yamanari, Masahiro [7883A-25]S5, [7885-19]S3, [7885-49]S10, [7885-50]S10, [7889-33]S5, [7889-47]S7, [7889-65]S10
Yamani, Z. H. [7940-38]S10
Yamano, K. [7939-51]S9
Yamaoka, Yoshihisa [7897-40]S8, [7902-12]S3
Yamashiro, Darrell J. [7896-43]S9
Yamashita, Shinji [7889-53]S8
Yamashita, Yoji [7939-43]S8
Yamauchi, Midori [7907-20]S4
Yamauchi, Toyohiko [7904-27]S6, [7904-41]S8
Yamazaki, Masaaki [7912-20]S6, [7912-20]S2, [7912-79]SPS3
Yan, Aimin [7937-71]SPS4
Yan, Han [7902-80]SPS2
Yan, Jin [7955-13]S5
Yan, Jun J. [7883F-151]S3
Yan, Rongjin [7888-05]S1, [7941-21]S5
Yan, Xin [7934-23]S6, [7934-38]SPS4, [7934-39]SPS4
Yan, Yuling [7883C-69]S2
Yan, Zeng [7955-21]S7
Yanai, Avner [7949-28]S5
Yandle, Ron [7933-41]S9
Yanez, Ciceron O. [7910-41]S9
Yang, Bo Gi [7903-116]S3

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

- Yang, Bruce [7883A-07]S2
Yang, Changhui [7885-63]SPS2, [7899-46]S7, [7902-46]S10, [7904-33]S7, 7906A S2 SessChr, [7906A-06]S2, [7911-32]S7
 Yang, Changjae [7945-73]S12
 Yang, Changxi [7903-28]S5
Yang, Chih-Chung [7883C-59]S7, [7889-28]S4, [7889-113]SPS2, [7889-114]SPS2, [7909-15]S5, [7911-16]S4, 7937 ProgComm, 7937 S3 SessChr, [7937-45]S10, 7939 ProgComm, [7939-53]SPS4, [7940-31]S8, [7945-50]S8, [7954-06]S2
 Yang, Chih-Ciao [7939-54]SPS4
 Yang, Chih-Yuan [7903-16]S2, [7903-115]SPS1
 Yang, Chunmei [7886-23]S6
 Yang, Delin [7914-101]SPS3
 Yang, De-Ming [7891-25]S6
 Yang, Fang [7896-87]SPS1, [7896-101]SPS1
 Yang, Fang [7909-29]S8
 Yang, Haitao [7954-38]S10
 Yang, Harold H. [7886-09]S2, [7892-23]S4
 Yang, Hee Kyung [7956B-26]S2
 Yang, Hung-Chih [7954-07]S2
 Yang, Jame J. [7885-01]S1, [7927-24]S5
 Yang, Jeng-Yuan [7958-02]S2, [7958-02]S2, [7958-02]S2
 Yang, Ji Won [7954-48]SPS4
 Yang, Jing [7942-25]S8
Yang, Joon Young [7956B-24]S1
Yang, Joon-Mo [7899-12]S2
 Yang, Kai-Min [7883C-59]S7, [7889-28]S4, [7889-113]SPS2, [7889-114]SPS2, [7909-15]S5, [7911-16]S4, [7937-45]S10
 Yang, Lan [7913-37]S8
 Yang, Meng-Heng [7910-08]S2
Yang, Owen [7883A-07]S2
 Yang, Pengyuan [7943-25]S8
 Yang, Qi [7960-03]S1, [7960-03]S1
 Yang, Qiang [7885-11]S2
 Yang, Quankui K. [7953-58]S14
 Yang, Ronggui [7937-41]S9
 Yang, Ruoxi [7938-08]S2, [7946-71]SPS4
 Yang, Samuel [7906A-06]S2
 Yang, Sang Sik [7928-03]S1, [7928-22]SPS3
 Yang, Shaosua [7896-86]SPS1
 Yang, Shibo [7939-59]SPS4
 Yang, Shu-Chun [7946-73]SPS4
 Yang, Tianxin [7914-101]SPS3, [7936-22]S5
 Yang, Tsai-Yu [7934-30]S7
Yang, Victor X. D. 7883E ProgComm, [7893-23]S5, [7907-37]S6, [7907-40]S6
Yang, Weiguo [7934-20]S5
 Yang, Wenxuan [7933-31]S7
 Yang, X. [7939-88]SPS4
Yang, Xinmai [7899-131]SPS2, [7899-142]SPS2
 Yang, Yaliang [7890-41]S8, [7903-85]SPS1
Yang, Yi [7883F-131]S3, [7892-36]SPS1, [7899-158]SPS2
Yang, Yi [7914-41]S10
Yang, Ying 7897 ProgComm, 7898 ProgComm, [7898-07]S1, BO304XX ProgComm
 Yang, Yongju [7898-33]S5, [7906A-15]S3, [7906A-19]SPS2
 Yang, Yu-Chen [7939-06]S12, [7939-81]SPS4
 Yang, Yuchuan [7916-33]S7
 Yang, Yue [7906A-16]SPS2, [7906A-17]SPS2
 Yang, Zhenshan [7933-45]S10
Yang, ZhenYu [7933-47]S10
 Yang, Zhihong [7939-10]S13, [7939-18]S15
 Yang, Zhiyong [7894-38]S7
 Yanik, Ahmet A. [7911-30]S6, [7943-01]S1, [7946-60]S14
 Yanik, Mehmet F. [7902-09]S3, [7943-02]S1
 Yanina, Irina Y. [7887-33]SPS1
 Yankelevich, Diego R. [7883D-78]S2
 Yankevich, Eugene B. [7912-68]SPS3
Yankov, Vladimir V. [7918-24]S4
 Yankovich, A. B. [7939-87]SPS4, [7939-94]S14
 Yankovskaya, Inna [7883B-52]S4
 Yannas, Ioannis V. [7903-97]SPS1
 Yanson, Dan A. [7918-31]S5, [7918-34]S5
 Yanushefski, Lisa [7883A-23]S5
Yao, Gang [7897-25]S5
 Yao, Jie [7934-20]S5
 Yao, Jin [7944-01]S1, [7944-04]S1, [7944-10]S3, [7944-24]S6
Yao, Junjie [7899-22]S4, [7899-26]S4, [7899-122]SPS2
 Yao, Mingjin [7908-31]SPS2
 Yao, Peng [7936-18]S5, [7942-07]S3
Yao, Xin-Cheng [7883G-139]S1, [7907-35]S5
 Yao, Yu [7953-42]S11, [7953-72]S15
Yao, Yuan [7886-25]S6
 Yao, Zhidong [7951-08]S2
 Yaoci, Takeshi [7909-38]S11
 Yaqoob, Zahid [7904-27]S6, [7904-41]S8, [7906B-36]S3
 Yarborough, Michael [7933-50]S11
 Yaremyk, Roman Y. [7891-08]S3
 Yaroslavsky, Anna N. [7883A-18]S4, [7883A-19]S4, [7883E-106]S3
 Yaroslavsky, Ilya V. [7883A-35]SPS1, [7884-29]SPS1
 Yashin, Vladimir E. [7912-80]SPS3
 Yasrebi, Navid [7946-64]S15
 Yasui, Hiroyuki [7909-38]S11
 Yasukawa, Koji [7958-11]S5, [7958-12]S5
 Yasumatsu, Mao [7947-32]SPS4
Yasuno, Yoshiaki [7883A-25]S5, [7885-19]S3, [7885-49]S10, [7885-50]S10, 7889 ProgComm, 7889 S8 SessChr, [7889-03]S1, [7889-33]S5, [7889-47]S7, [7889-65]S10, [7889-103]SPS2, [7889-111]SPS2, [7931-05]S2
 Yasuo, Kenzo [7884-20]S6
Yasuoka, Fatima M. [7912-70]SPS3
Yatagai, Toyohiko MeetingVIP, [7885-50]S10, [7889-47]S7, 7957 ProgComm, [7957-26]S6, [7957-41]SPS4
Yatsui, Takashi [7957-22]S5
 Yavtushenko, Igor [7917-65]SPS3
 Yavtushenko, Marina [7901-19]S4, [7917-65]SPS3
Yazdanfar, Siavash 7892 ProgComm, [7892-07]S2, 7895 ProgComm
 Yazici, Birsan [7896-110]SPS1
 Ye, Changgeng [7914-81]SPS3
 Ye, Han [7940-18]S5
 Ye, Jhao-Cheng [7939-77]SPS4
 Ye, Jun [7917-44]S10
 Ye, Zhou [7934-60]SPS4
Yeager, Douglas E. [7899-01]S1
Yee, Brandon [7902-45]S9
 Yee, Ki-Ju [7947-25]S7
 Yegnanarayanan, Siva [7903-48]S7, [7946-39]S9, [7946-51]S12
 Yeh, Bao [7956A-03]S1
 Yeh, Chen-Sheng [7910-08]S2
 Yeh, Chun-Ming [7890-57]SPS1, [7891-20]S5, [7954-12]S3
 Yeh, Hung-I [7909-28]S8
 Yeh, Pochi 7956B ProgComm
 Yeh, Wen-Yung [7939-49]S9
 Yeh, Yen-Hsien [7939-38]S6
 Yeh, Yi-Jou [7945-36]S5
Yelin, Dvir [7893-16]S4, [7906A-02]S1, [7911-19]S4, [7911-20]S4
 Yelissev, Alexander P. [7917-56]S12, [7917-64]SPS3
 Yelleswarapu, Chandra S. [7904-02]S1, [7917-53]S12
 Yen, Cheng-Ying [7954-41]S11
 Yen, Hsi-Hsuan [7939-49]S9
 Yen, She-Hwa [7958-01]S, [7958-01]S, [7958-01]S
 Yen, Sheng-Horn [7939-76]SPS4
 Yen, Stephen [7936-17]S5
 Yen, Tsung-Hsien [7886-45]SPS1
 Yen, Tzu-Chen [7899-72]S11
 Yeo, Boon Y. [7890-58]SPS1
 Yeo, Changmin [7883A-05]S1
 Yeom, Jiwoon [7956B-28]S2
 Yeom, Sehyuk [7908-34]SPS2, [7926-17]SPS3, [7935-48]SPS4
 Yerram, Nitin [7883G-160]S3
 Yeshua, Talia [7927-42]SPS3
 Yew, Elijah Y. [7903-56]S8
 Yi, Dingrong [7906A-08]S2, [7927-37]S8
 Yi, Ji [7889-79]S12
 Yi, Ming [7901-27]S6
 Yi, Xi [7896-108]SPS1
Yi, Zhangjing [7941-21]S5
 Yifat, Yuval [7945-82]S14
 Yih, T. C. 7926 ProgComm
 Yildirim, Murat [7883C-175]S4
Yilmaz, Yigit O. [7919-11]S3
 Yim, Hae-dong [7935-50]SPS4, [7942-28]SPS4
 Yim, Huiqing [7894-01]S1
 Yim, Sang Y. [7937-74]SPS4
 Yin, Guang-Yu [7949-35]S7
 Yin, Jiechen [7889-43]S7
 Ylä-Jarkko, Kalle [7914-70]SPS3
 Ylisen, Sami [7941-28]S7, [7943-30]S9
 Yoder, P. Douglas [7954-13]S4
 Yodh, Arjun G. [7886-13]S3, [7886-26]S6, 7892 ProgComm, 7896 Chr, [7896-03]S1, [7896-10]S2, [7896-24]S5, [7896-41]S9, [7896-48]S10, [7896-50]S11, [7896-84]SPS1, [7896-85]SPS1, [7896-103]SPS1
 Yokota, Nobuhide [7937-28]S6
 Yokouchi, Masahito [7957-14]S3
 Yokouchi, Noriyuki 7952 ProgComm
 Yokoyama, Eisuke [7934-36]SPS4, [7940-36]S9
Yokoyama, Hiroshi 7955 CoChr, 7955 S6 SessChr, [7955-06]S3
 Yokoyama, Hiroyuki [7953-18]S4
 Yokoyama, Shiyoshi 7935 ProgComm
 Yonai, Jun [7934-19]S5
 Yoneda, Hitoki [7937-55]S12
 Yonenaga, Kazushige [7959-19]S7
Yoo, HongKi [7883D-77]S2, [7883D-82]S3, [7889-24]S4, [7893-17]S4
 Yoo, Jihyun [7908-08]S1
 Yoo, Sonia H. [7885-12]S
 Yoon, David [7893-27]S5, [7893-37]S8
 Yoon, Doingki [7955-18]S6
 Yoon, Euijoon 7939 CoChr, 7939 S5 SessChr, [7939-57]SPS4, [7945-73]S12
 Yoon, Hyung-Do [7945-38]S6
 Yoon, Hyun-Jin [7956B-35]S3
 Yoon, Jonghee [7897-39]S8
 Yoon, Juho [7883B-45]S2
 Yoon, Min-Seok [7934-35]SPS4
 Yoon, Sang June [7903-116]S3
 Yoon, Soon Joon [7899-60]S9, [7910-46]S10
Yoon, Tae-Hoon 7955 ProgComm, 7955 S5 SessChr, [7956A-15]S4, [7956B-22]S1, [7956B-34]S3
 Yoon, Yeo-Taek [7923-13]S4
 Yoshida, Harumasa [7939-43]S8
 Yoshida, Hirofumi [7889-20]S3
 Yoshida, Hiroyuki [7955-03]S1
 Yoshida, Junji [7952-03]S1
 Yoshie, Tomoyuki [7946-13]S3, [7946-21]S5
 Yoshikado, Akira [7940-36]S9
 Yoshikawa, Hiroshi Y. [7937-18]S4
Yoshikawa, Hiroshi 7957 S3 SessChr, [7957-44]SPS4
 Yoshikawa, Kazushi [7884-20]S6
 Yoshikawa, Yutaka [7909-38]S11
 Yoshimi, Tomoaki [7956B-31]S3
 Yoshimoto, Naoto [7958-16]S7
 Yoshimura, Elisabeth M. [7906B-39]S4
 Yoshimura, Hidetoshi [7902-74]SPS2
 Yoshimura, Masashi [7939-82]SPS4
 Yoshimura, Reiko [7884-14]S5, [7885-30]S6
 Yoshimura, Tetsuzo 7944 ProgComm, [7944-26]S7
 Yost, Dylan C. [7917-44]S10
 You, Borwen [7938-11]S3, [7938-18]S4
 You, Duck-Jae [7939-57]SPS4
 You, Guanjun [7947-11]S3
 You, Han [7935-06]S2
 You, Jungmok [7935-20]S5, [7935-43]SPS4
 Youn, Daehwan [7890-34]S6
 Young, Eric [7890-30]S6
Young, Geoffrey S. [7903-38]S6
Young, Mei [7889-110]SPS2, [7892-08]S2
 Youngbull, Cody [7902-58]S13, [7929-26]S6
 Younger, Rebecca [7903-27]S4
Youngworth, Richard N. SC003 Inst
 Yousuke, Miura [7941-25]S6
 Yu, Bing [7890-10]S2, [7891-09]S3
 Yu, Chang-Jae [7956B-21]S1
 Yu, Chih-Jen [7934-50]SPS4, [7934-51]SPS4
 Yu, Chin-Ping [7938-18]S4
 Yu, Chung [7937-69]SPS4
 Yu, Dennis [7954-43]S11
 Yu, Hanry [7903-63]S9
 Yu, Hongbin [7930-07]S2
 Yu, Hongbo [7914-43]S10, [7914-110]SPS3
 Yu, Huang [7900-18]SPS2
 Yu, Ite A. [7949-35]S7
Yu, Jae Su [7940-08]S3
 Yu, Jia-Sin [7903-110]SPS1
 Yu, Jin [7887-19]S4
 Yu, Jirong [7912-06]S2
 Yu, Joe X. [7925-38]S11, [7925-38]S7
 Yu, Lianghong [7916-36]SPS3
Yu, Lingfeng [7889-18]S3, [7897-54]S11, [7902-27]S6, [7906A-23]SPS2
 Yu, Mingbin [7942-13]S5
 Yu, Nan [7913-28]S6
Yu, Nanfang 7953 S7 SessChr, [7953-25]S6, [7953-44]S11
 Yu, Peichen [7933-22]S5, [7933-95]SPS4
Yu, Ping [7890-31]S6, [7957-24]S6
Yu, Shui-Qing [7953-04]S1
 Yu, Wan-Chun [7909-28]S8
 Yu, Wei W. [7911-04]S1
 Yu, Yang [7896-52]S11
 Yu, Yanlei [7955-21]S7
 Yu, Yingqiu [7903-109]SPS1
 Yu, ZhongYuan [7940-18]S5

Index of Authors, Chairs, and Committee Members

Bold = SPIE Member

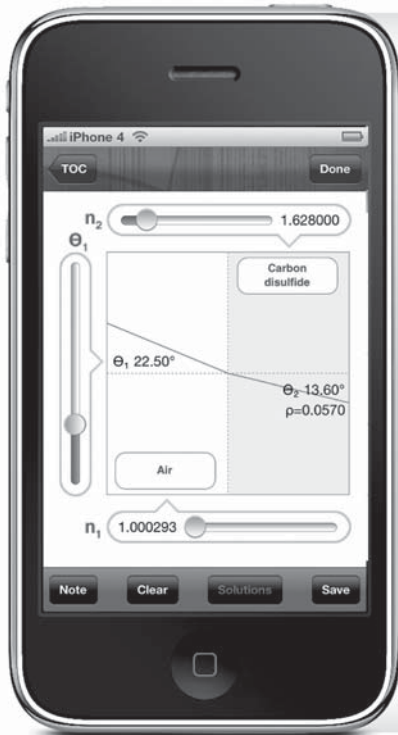
- Yu, Zongfu** [7933-19]S5, [7933-44]S10, [7946-14]S4
Yuan, Baohong [7899-113]SPS2
Yuan, Guifang [7940-18]S5
Yuan, Heng [7908-34]SPS2
Yuan, Jingli [7909-34]S10
Yuan, Ping [7949-40]S8
Yuan, Shuai [7898-15]S2, [7904-94]S4
Yuan, Tao [7889-108]SPS2
Yuan, Xiao [7924-06]S1
Yuan, Xiaocong [7889-71]S11, [7893-35]S1, [7893-35]S7, [7911-44]SPS1
Yuan, Zhao-Qing [7960-28]SPS4
Yuan, Zhen [7883F-130]S2
Yuan, Zhiliang L. [7948-21]S5
Yuasa, Takashi [7889-20]S3
Yudovsky, Dmitry [7883A-01]S1, [7896-75]S16
Yuen, Horace P. 7948 ProgComm
Yum, Honam [7949-12]S3, [7949-15]S4, [7949-41]S8
Yumoto, Masaki [7917-22]S6
Yun, Seok-Hyun [7883C-64]S4, [7889-72]S11, [7889-74]S11
Yura, Harold T. [7923-03]S1
Yurt, Abdulkadir [7888-16]S2
Yust, Brian G. [7908-15]S3
Yvind, Kresten [7949-14]S3
- Z**
- Zablocki, Mathew J. [7943-12]S4
Zabrodina, Natalia [7883B-52]S4
Zaccanti, Giovanni [7896-21]S5, [7896-92]SPS1, [7906B-32]S2
Zacharovas, Stanislovas J. [7957-09]S2
Zadok, Avi [7949-09]S2
Zadoyan, Ruben [7903-31]S5, [7903-39]S6
Zagaynova, Elena V. [7886-30]S7, [7910-23]S5
Zah, Chung-En [7953-71]S11
Zahreddine, Ramzi N. [7904-48]S9
Zaidi, Syed R. [7958-10]S4, [7958-10]S4, [7958-20]SPS4
Zakariya, Abdullah J. [7953-67]SPS4
Zaldívar-Huerta, Ignacio E. [7958-13]S5
Zalev, Jason [7899-94]SPS2
Zalovsky, Zeev [7905-30]SPS1
Zalvidea, Dobryna [7903-113]SPS1
Zalyetin, V. M. [7945-53]S8
Zamkotsian, Frederic [7928-17]S5, [7930-21]S6, [7930-21]S1, [7930-21]S5, [7932-09]S2
Zanardi de Freitas, Anderson [7889-117]SPS2, [7907-41]S6
Zang, Zhigang [7933-31]S7
Zanganeh, Saeid [7896-97]SPS1, [7899-63]S9
Zanin, Fátima A. A. [7887-28]SPS1
Zanishevskaja, Anastasija [7898-46]SPS2
Zannin, M. [7934-09]S2
Zanoni, Enrico 7939 S9 SessChr, [7939-44]S8
Zaouter, Yoann [7912-29]S8, [7914-55]S14, [7925-27]S7
Zappa, Franco [7895-12]S3, [7896-11]S3, [7896-34]S7, [7905-01]S1, [7933-61]S14, [7934-21]S5, [7942-19]S7, [7942-20]S7, 7945 ProgComm, 7945 S17 SessChr, [7945-95]S17, [7945-99]S17
Zarazua, Isaac [7940-43]S11
Zarobila, Clarence J. [7914-02]S1
Zarrabi, Nawid [7903-77]S11
Zasadzinski, Joseph A. [7911-24]S5
Zaugg, Christian A. [7945-24]S4
Zavada, John M. 7934 ProgComm, 7945 ProgComm
Zawadzki, Robert J. [7885-09]S2, [7885-11]S2, [7885-32]S6, [7889-16]S3
Zawilski, Kevin T. [7917-20]S6, [7917-52]S12
Zdrajevsky, Roman A. [7898-48]SPS2
Zdyrko, Bogdan [7945-86]S15
Zediker, Mark S. 7918 Chr
Zeebregts, Clark [7889-04]S1
Zegelin, Andrea [7885-27]S5
Zeil, Peter [7925-48]S8
Zeitels, Steven M. [7883C-64]S4, [7883C-65]S7
Zeitner, Uwe D. [7953-53]S13
Zeldovich, Boris Y. [7915-17]S3
Zelmon, David E. [7912-47]S12, 7914 ProgComm, 7914 S13 SessChr
Zemek, Allison J. [7883C-166]S3
Zemp, Roger J. [7899-16]S3, [7899-24]S4, [7899-52]S8, [7899-118]SPS2, [7899-132]SPS2, [7899-137]SPS2, [7899-145]SPS2, [7899-147]SPS2, [7899-148]SPS2, [7899-153]SPS2
Zeng, Haishan 7883A Chr, 7883A S4 SessChr, [7883A-04]S1, [7883A-17]S4, [7903-109]SPS1
Zeng, Linfei [7918-04]S1
Zeng, Shaoqun [7900-21]SPS2, [7905-28]S7, 7906A ProgComm
Zeng, Xiaoming [7916-33]S7, [7916-38]SPS3
Zeng, Yaguang [7889-107]SPS2
Zeng, Yan [7890-17]S3
Zeng, Yining [7905-26]S5
Zeni, Luigi [7943-08]S3
Zenidaka, Akira [7922-14]S4, [7954-45]SPS4
Zentgraf, Ulrike [7902-34]S7
Zerbini Costal, Glauco [7912-70]SPS3
Zeringue, Clint [7914-08]S2, [7917-68]SPS3
Zerouali-Boukhal, Karim [7899-95]SPS2
Zervantonakis, Ioannis [7891-11]S4
Zervas, Michalis N. [7914-20]S5, [7914-39]S10, [7914-65]S16
Zettergren, Eric W. [7902-79]SPS2
Zeuner, Michael [7934-41]SPS4
Zeuner, Thomas [7912-15]S4
Zezell, Denise M. [7883F-132]S3, [7903-104]SPS1
Zha, Dingjun [7889-107]SPS2
Zhan, Hui [7937-09]S3
Zhan, Qiwen [7914-106]SPS3, 7936 ProgComm
Zhan, Yuxuan [7896-83]SPS1
Zhang, Anqi [7896-90]SPS1
Zhang, Bei [7933-68]SPS4
Zhang, Bo [7960-08]S2, [7960-08]S2, [7960-08]S2
Zhang, Chi [7899-20]S4
Zhang, Chris [7914-43]S10, [7914-110]SPS3
Zhang, Chunfeng [7945-79]S14, [7947-10]S3
Zhang, Chunfeng [7947-11]S3
Zhang, Chunping [7889-122]SPS2
Zhang, Dai [7937-23]S5
Zhang, Delong [7903-90]SPS1
Zhang, Edward Z. [7889-41]S7, [7899-40]S6, [7899-50]S8, [7899-107]SPS2
Zhang, Fan [7899-47]S7
Zhang, Fan [7945-79]S14
Zhang, Guo-Yi [7933-68]SPS4
Zhang, Han [7914-53]S14
Zhang, Hao F. [7889-04]S1, [7899-13]S2, [7899-25]S4, [7899-80]S12, [7899-82]S12
Zhang, Heng [7887-26]SPS1
Zhang, Hua [7941-01]S1
Zhang, Hua [7945-15]S3
Zhang, Huijing [7903-54]S8, [7903-55]S8, [7920-43]SPS3, [7921-19]S5
Zhang, Huiliang [7948-02]S1, [7949-27]S5
Zhang, Jianyong [7959-03]S1, [7959-03]S1
Zhang, Jie [7920-17]S4
Zhang, Jing [7933-32]S7, [7939-04]S1, [7939-37]S6
Zhang, Jing [7942-13]S5
Zhang, Jing [7949-40]S8
Zhang, Jing [7953-16]S4, [7954-42]S11
Zhang, Jingdan [7902-52]S11
Zhang, Jun [7883C-159]S7, [7889-96]SPS2
Zhang, Jun [7914-26]S6
Zhang, Kang [7883E-105]S3, [7894-08]S2, [7894-18]S3, [7904-18]S4
Zhang, Labao [7960-28]SPS4
Zhang, Lewei [7883C-66]S8
Zhang, Limin [7892-25]SPS1, [7896-101]SPS1, [7896-108]SPS1
Zhang, Lin [7907-03]S1
Zhang, Lin [7958-02]S2, [7958-02]S2, [7958-02]S2
Zhang, Lingling [7898-34]SPS2, [7898-38]SPS2
Zhang, Qiang [7891-15]S4
Zhang, Qing Xin [7942-13]S5
Zhang, Rong [7898-25]S4
Zhang, Rui [7917-34]S8, [7949-08]S2
Zhang, Sasa [7912-67]SPS3
Zhang, Shengkun [7934-45]SPS4
Zhang, Shiguo [7918-05]S1, [7918-32]S5, [7953-45]S12
Zhang, Shiyong Y. [7953-41]S11
Zhang, T. [7945-85]S15
Zhang, Taiping [7941-27]S7
Zhang, Wei [7892-25]SPS1, [7896-101]SPS1
Zhang, Weidong [7938-10]S3
Zhang, Wenfu [7934-25]S6
Zhang, Xiang [7946-02]S1
Zhang, Xiangyang [7889-04]S1
Zhang, Xiaofeng [7892-32]SPS1, [7896-68]S14
Zhang, Xiaomin [7913-29]S7
Zhang, Xi-Cheng SC547 Inst, [7917-15]S5, [7938-03]S1
Zhang, Xinbo [7889-15]S3
Zhang, Xingyu [7912-67]SPS3
Zhang, Xiongjun [7916-32]S7
Zhang, Xirui [7888-16]S2
Zhang, Xu [7903-89]SPS1
Zhang, Xuan [7909-51]S2
Zhang, Xuefeng [7892-19]S4
Zhang, Xuenan [7949-40]S8
Zhang, Xuping 7944 ProgComm
Zhang, Yan [7894-24]S4, [7896-76]S16
Zhang, Yang [7943-33]S10, [7944-14]S4, [7944-33]SPS4
Zhang, Yanjie [7909-01]S1
Zhang, Yi [7929-18]S5
Zhang, Yinan [7910-51]S11
Zhang, Yinan [7927-02]S1, [7946-09]S3, [7946-38]S9, [7948-09]S2
Zhang, Yong [7956B-34]S3
Zhang, Yong-Hang [7933-18]S4, [7933-23]S5, [7940-02]S1, 7951 ProgComm, [7953-04]S1
Zhang, Yu [7899-77]S12
Zhang, Yuan [7946-30]S7
Zhang, Yuanhao [7945-47]S7
Zhang, Yundong [7949-40]S8
Zhang, Yu-Ping [7955-27]S8
Zhang, Yuying [7889-42]S7, [7889-46]S7, [7890-16]S3, [7903-39]S6, [7910-60]SPS2
Zhang, Zhaowei [7914-05]S3
Zhang, Zhenzhen [7900-15]SPS2, [7900-17]SPS2
Zhang, Zhihong [7900-21]SPS2
Zhang, Zhuopeng [7938-05]S1
Zhao, Daomu 7924 ProgComm
Zhao, Dongfeng [7916-29]S6
Zhao, Futing [7927-37]S8
Zhao, Guang-Lin [7934-60]SPS4
Zhao, Guowei [7952-23]S6
Zhao, Hong [7890-41]S8
Zhao, Hongkai [7896-120]SPS1
Zhao, Hongping [7939-04]S1, [7953-16]S4, [7954-42]S11
Zhao, Hong-Quan [7913-43]S9, [7948-16]S4
Zhao, Huijuan [7890-51]SPS1, [7891-32]SPS1, [7892-25]SPS1, [7892-27]SPS1, [7896-95]SPS1, [7896-101]SPS1, [7896-108]SPS1, [7896-111]SPS1, [7906A-16]SPS2
Zhao, Jianhua [7883A-04]S1, [7883A-17]S4
Zhao, Jianze [7940-32]S8
Zhao, Jing [7883F-131]S3
Zhao, Junliang [7940-22]S5
Zhao, Lei [7913-35]S7
Zhao, Lei [7916-33]S7
Zhao, Lingjuan [7941-09]S2
Zhao, Livia [7952-05]S2
Zhao, Long [7940-18]S5
Zhao, Ming [7904-32]S7, [7905-13]S3
Zhao, Ming [7933-47]S10
Zhao, Mingtao [7889-21]S4
Zhao, Shuang [7941-18]S4
Zhao, Wangshi [7933-84]SPS4, [7938-08]S2, [7946-71]SPS4
Zhao, Wei [7934-25]S6
Zhao, Yang [7946-27]S7
Zhao, Yan Zhu 7928 ProgComm
Zhao, Yi [7955-34]S7
Zhao, Yi-Guang [7933-92]SPS4
Zhao, Yong [7948-35]S8
Zhao, Yue [7955-34]S7
Zhao, Zhiguo [7924-06]S1
Zhao, Zhijun [7924-16]S3
Zhao, Zhuang [7919-31]S7
Zharov, Vladimir P. 8898 ProgComm, [7898-01]S, 7899 ProgComm, 7900 ProgComm
Zharova, Julia A. [7943-14]S4
Zhdanov, Boris V. [7915-05]S2
Zhen, Jiang [7883B-189]S1, [7892-24]SPS1, [7895-18]S4
Zheng, Bin [7900-12]S4
Zheng, Feng [7896-15]S3
Zheng, Guoan [7902-46]S10, [7906A-06]S2, [7911-32]S7
Zheng, Hongyu [7926-06]S2
Zheng, Jia [7891-13]S4
Zheng, Jiangjun [7942-16]S7
Zheng, Jiexiang [7906A-17]SPS2
Zheng, Jie [7910-38]S8
Zheng, Lei Z. [7886-02]S1, [7886-07]S2
Zheng, Lihe [7912-78]SPS3, [7912-81]SPS3
Zheng, Rui [7911-13]S3, [7911-14]S3
Zheng, Wanguo [7916-12]S3
Zheng, Wei [7889-93]SPS2
Zheng, Wei [7890-17]S3, [7903-37]S6
Zheng, Wei [7903-47]S7, [7903-63]S9
Zheng, Xuezhe [7944-01]S1, [7944-04]S1, [7944-10]S3, [7944-24]S6
Zheng, Yi [7954-39]S10
Zhernovaya, Olga S. [7898-47]SPS2
Zhi, Zhongwei [7889-35]S6, [7889-40]S6, [7898-18]S3, [7898-36]SPS2,

[7898-41]SPS2
 Zhong, Lanlan [7905-26]S5
 Zhong, Miao [7940-13]S4
Zhou, Anhong [7902-35]S10
 Zhou, Changhe 7916 ProgComm
 Zhou, Chao [7889-44]S7, [7893-04]S1
 Zhou, Feifan [7900-05]S2, [7900-07]S2, [7900-13]S4, [7900-16]SPS2
 Zhou, Feifei [7883D-78]S2
 Zhou, Feng [7895-33]SPS2
 Zhou, Guangya [7930-07]S2, [7930-26]S6
 Zhou, Haifeng [7936-02]S1
 Zhou, Hao-Min [7896-106]SPS1
 Zhou, Jack X. [7934-20]S5
 Zhou, Jian [7897-08]S2
 Zhou, Kainan [7916-33]S7
 Zhou, Kevin [7902-52]S11
 Zhou, Lin [7945-52]S8
 Zhou, Qifa [7889-43]S7, [7893-43]SPS2, [7899-12]S2, [7899-28]S4, [7899-158]SPS2
Zhou, Renjie [7914-106]SPS3
 Zhou, Shenlei [7916-39]SPS3
 Zhou, Shuyun [7937-64]S14
Zhou, Tian [7901-22]S5
Zhou, Wei [7926-06]S2
 Zhou, Weimin [7927-06]S2
 Zhou, Wen-Yuan [7889-122]SPS2
 Zhou, Xianfeng [7902-58]S13, [7929-26]S6
 Zhou, Xiang [7960-13]S3
 Zhou, Xiaoqing [7891-32]SPS1, [7896-111]SPS1
 Zhou, Yaopeng [7931-17]S6
 Zhou, Yi-Hong [7883E-102]S2
 Zhou, Yu [7937-71]SPS4
 Zhou, Yue [7913-35]S7
 Zhou, Yue [7917-32]S8
 Zhou, Yunshen [7920-14]S4, [7921-12]S3, [7921-13]S3
 Zhou, Zhiping 7943 ProgComm, 7943 S10 SessChr, 7943 S11 SessChr
 Zhou, Zhongxing [7890-51]SPS1, [7896-101]SPS1
 Zhu, Banghe [7891-04]S1, [7892-14]S3, [7896-37]S8
 Zhu, Congyong [7939-88]SPS4, [7939-89]SPS4
 Zhu, Dan [7883A-34]SPS1
 Zhu, Hai [7940-46]S12
 Zhu, Haixin [7902-58]S13, [7929-26]S6
 Zhu, Hongliang [7941-09]S2
 Zhu, Hui [7893-41]S8
Zhu, Jiangang [7913-37]S8
 Zhu, Jun-Jie [7947-09]S3
 Zhu, Ning [7908-22]S4
 Zhu, Qihua [7916-33]S7
Zhu, Qing [7883F-131]S3, [7892-36]SPS1, 7896 ProgComm, [7896-40]S9, [7896-59]S12, [7896-63]S13, [7896-96]SPS1, [7896-97]SPS1, [7896-99]SPS1, [7896-100]SPS1, 7899 ProgComm, [7899-07]S1, [7899-29]S5, [7899-36]S6, [7899-63]S9, [7899-138]SPS2, [7899-158]SPS2
 Zhu, Qun [7896-88]SPS1
Zhu, Timothy C. 7886 S6 SessChr, [7886-20]S5, [7886-22]S6, [7886-26]S6, [7886-47]SPS1
 Zhu, X. [7894-43]S8
 Zhu, Yiqun [7891-12]S4
Zhu, Yizheng [7907-38]S6, [7907-39]S6
 Zhu, Yuanjia [7907-23]S4
 Zhu, Yunhui [7917-34]S8, [7949-08]S2
 Zhuang, Qian [7945-21]S4
 Zhuang, Songlin [7947-11]S3
 Zhuk, Dmitrii I. [7913-19]S4
 Zhuo, Zong-Yan [7903-16]S2

Zia, Rashid 7945 S15 SessChr, [7945-74]S13, 7946 S12 SessChr, [7946-55]S13
 Zibik, Evgeny [7937-07]S2, [7953-35]S9, [7953-48]S12
 Ziebert, Carlos [7921-23]S6, [7921-24]S6
 Ziegler, Johann [7945-61]S10
 Zielinski, Rafal [7910-35]S8
 Zilio, Sérgio C. [7917-28]S7
 Zimakov, Vladimir P. [7913-04]S1
 Zimer, Hagen [7914-39]S10, [7914-109]SPS3
 Zimmer, Klaus-Peter [7921-07]S2, [7921-28]S7, [7921-28]S11
 Zimmerman, George B. [7916-05]S1
 Zimmerman, Ian A. [7938-12]S3
 Zimmerman, Joseph W. [7915-01]S1
 Zimmermann, Bernhard 7903 ProgComm
 Zimmermann, Horst K. [7944-31]S9, [7944-31]S2
 Zimmermann, Lars [7941-11]S3, [7943-28]S8, [7943-40]S12
 Zimmermann, Matthias [7883B-54]S4
 Zimnyakov, Dmitry A. 7898 ProgComm, [7898-48]SPS2, 7906A ProgComm
 Zimprich, Martin [7939-79]SPS4, [7953-31]S8, [7953-31]S14, [7953-32]S8, [7953-32]S14

Zin, Wang-Cheol [7955-32]S6
 Zink, Christof [7953-51]S13
 Zink, Nate [7954-39]S10
 Zinnkann, Steffen [7939-79]SPS4
 Ziolkowski, Richard W. [7938-12]S3
 Zipfel, Warren R. 7903 ProgComm, [7903-18]S3
 Zipp, Lucas J. [7948-31]S8
 Ziswiler, Adrian [7902-97]S
 Zlenko, Alexander S. [7934-43]SPS4
 Zogal, Karolina [7959-07]S3
 Zolek, Norbert S. [7896-89]SPS1, [7896-92]SPS1, [7896-93]SPS1
Zollers, Michael W. [7954-38]S10
 Zolot, Alex [7917-42]S10
 Zolotovskaya, Svetlana A. [7919-19]S4, [7919-29]S6
 Zolotovskiy, Igor [7897-52]S11, [7901-19]S4, [7917-65]SPS3
 Zong, Jie [7951-08]S2
 Zorba, Vassilia 7920 ProgComm
 Zordan, Michael D. [7888-26]S1, [7888-26]S3, [7902-36]S8, [7929-09]S3
 Zorn, Martin [7918-27]S5, [7919-35]S8
 Zorn, Telma Maria T. [7903-104]SPS1
 Zortman, William [7943-09]S3
 Zotter, Stefan [7885-51]S10, [7889-30]S5, [7889-32]S5, [7889-64]S10
Zou, Jun [7895-19]S4
 Zou, Wei-Xiong [7952-15]S4
 Zou, Yang [7911-15]S3

Zouani, Omar [7899-32]S5
 Zschiechrich, Lin W. [7933-21]S5, [7933-28]S7, [7941-15]S4
 Zubairy, M. Suhail 7948 ProgComm, 7949 ProgComm
 Zubkina, Ekaterina A. [7885-57]SPS2
 Zucchelli, Lucia [7896-01]S1
 Zucker, Erik P. 7918 ProgComm, 7918 S4 SessChr, [7918-30]S5
 Zulqurnain, Ali [7909-03]S1
 Zuluaga, Andres F. [7883C-190]S2
 Zumbusch, Andreas [7903-30]S5
 Zumofen, Gert H. [7948-41]S10
 Zunoubi, Mohammad R. [7897-63]SPS2
 Zuo, Yanlei [7916-33]S7
 Zuo, Yi [7931-21]S6
 Zuo, Zheng [7940-32]S8
 Zupanski-Nielsen, Donna [7883A-11]S2
 Zushi, Hironari [7915-15]S3
 Zuzak, Karel J. [7906B-40]S4, 7932 ProgComm, 7932 S1 SessChr, [7932-01]S1, [7932-02]S1, [7932-03]S1, [7932-04]S1, [7932-05]S1
 Zuzolo, Robert C. [7895-33]SPS2
 Zvorykin, Vladimir D. [7915-12]S3
 Zwaka, P. A. [7890-20]S4
Zweiback, Jason [7915-08]S2
 Zyczkowski, Marek [7894-04]S1



SPIE Field Guide App for iPhone®



SPIE Field Guide to Geometrical Optics

Take Field Guides to a new level—usable equations, linked terms, bookmarking, note taking, and interactive figures.



Try out SPIE Field Guide Lite for FREE



Registration

Onsite Registration and Information Hours

North Lobby

Saturday 22 January	7:00 am to 5:00 pm
Sunday 23 January	7:15 am to 5:00 pm
Monday 24 January	7:00 am to 5:00 pm
Tuesday 25 January	7:30 am to 5:00 pm
Wednesday 26 January	7:30 am to 5:00 pm
Thursday 27 January	7:30 am to 4:00 pm

Multiple facilities in downtown San Francisco may be used for courses, so please allow yourself enough time to register, pick up your materials and possibly walk to a nearby facility before your course begins.

Course Materials Desk

Located near the SPIE Registration Area, North Lobby

Open during Registration Hours

- If you have registered to attend a course, please stop by the Course Materials Desk AFTER you pick up your badge.
- You must obtain your course notes to find out class location.
- Ask at the Course Materials Desk about the latest Education Services catalog (includes all SPIE courses, videos, and CD-ROM's) as well as customized in-company courses.

Exhibition Hours

BiOS Exhibition

South Hall A

Saturday 22 January	Noon to 5:00 pm
Sunday 23 January	10:00 am to 5:00 pm

Photonics West Exhibition

North Hall, South Hall

Tuesday 25 January	10:00 am to 5:00 pm
Wednesday 26 January	10:00 am to 5:00 pm
Thursday 27 January	10:00 am to 4:00 pm

SPIE Receipts, Badge Corrections, Cashier

North Lobby

SPIE cashier can assist with registration payments, receipts and badge corrections.

- **Registration Payments**—If you are paying by cash or check as part of your onsite registration, wish to add a short course, workshop, or special event requiring payment, or have questions regarding your registration please see the onsite cashier at the Cashier station in the registration area.
- **Receipts**—Preregistered attendees who did not receive a receipt prior to the meeting may obtain a new copy of their registration receipt onsite at the Badge Corrections and Receipts counter in the registration area.
- **Badge Correction**—Attendees who need a correction to their badge information onsite may do so at the Badge Corrections and Receipts counter in the registration area. Please have your badge removed from the badge holder, marked with your changes, and ready to hand to the attendant upon approaching the counter.

Author/Presenter Information

Speaker Check-In Desk/ Preview Station

Esplanade Level

Saturday through Thursday 7:30 am to 5:00 pm

All conference rooms will have a computer workstation, LCD projector, screen, lapel microphone, and laser pointer. All presenters are requested to come to the speaker check-in desk to confirm display settings of their presentations from their memory devices or laptops with the audiovisual equipment being used at this symposium.

Poster Setup Instructions

Room 103 and 104 (Exhibit Level)

Sunday 23 January
BiOS conferences

Monday 24 January
BiOS conferences

Tuesday 25 January
LASE and MOEMS/MEMS conferences

Wednesday 26 January
OPTO conferences

Poster presenters must set up their posters between **10:00 am** and **5:00 pm** on the day of their assigned presentation.

- Paper numbers will be posted on the poster boards in numerical order; please find your paper number and post your poster in the designated space.
- A poster author or coauthor is required to stand by the poster during the scheduled poster session to answer questions from attendees.
- Presenters who have not placed their papers on their assigned board by 5:00 pm on the day of their presentation will be considered a “no show” and their manuscript will not be published.
- Presenters must remove their posters immediately after the poster session.
- Posters not removed will be considered unwanted and will be discarded.
- SPIE assumes no responsibility for posters left up after the end of each poster session.

Photonics West maps:

Moscone Center Maps
pp. 2–4

SPIE Onsite Services

SPIE Marketplace

Outside North Hall

Open during Registration hours

Visit the Marketplace for:

- SPIE Press books and proceedings
- Educational and professional development CDs and DVDs
- T-shirts and gifts for kids
- SPIE Membership and Digital Library subscriptions
- Free posters and information

Press Room

The on-site Press Room provides meeting space, refreshments, access to exhibitor press releases, and high-speed internet connections for the use of registered press covering the event. For more information about SPIE resources for the media, see <http://spie.org/pr>.

Internet Access

Concourse (Exhibit Level)

Saturday – Wednesday 7:30 am to 6:00 pm

Thursday 7:30 am to 4:00 pm

There will be multiple workstations allowing attendees to access their internet e-mail during the conference, and several Ethernet connections to use with your personal laptop. There will be a 10-minute time limit per each person's internet session.

WiFi

Complimentary WiFi access for attendees with 802.11b wireless enabled laptops and PDAs will be available Saturday through Thursday in the South Lobby and in the Concourse (exhibit level) near the SPIE Marketplace.

Car Rental



Hertz Car Rental is the official car rental agency for this Symposium. To reserve a car, identify yourself as a Photonics West Conference attendee using the Hertz Meeting Code CV# 029B0015.

- In the United States call 1-800-654-2240.

Parking During Photonics West

For parking information please check the SPIE website www.spie.org/x24985.xml or Concierge Desk located in Registration, North Lobby.

Business Services

Moscone Business Center

Near South Hall C (Exhibit Level)

The Moscone Business Center provides full service business needs for your convenience. They provide photocopying, faxing, computer workstations and printing services. Shipping is provided through UPS. Office supplies are also available. Phone 415-974-4080. Saturday through Thursday.

Messages

SPIE has an urgent message line available during registration hours Saturday through Thursday by calling: 415-905-1000.

Luggage/Package Storage and Coat Check

Room 102 (Exhibit Level)

Saturday through Thursday

Complimentary luggage/package and coat storage will be available to attendees.

Please note hours of operation posted onsite. If you intend to stay later than closing time, you will need to claim your checked items before this station closes.

Boarding Pass Kiosks

Room 102 (Exhibit Level)

Complimentary boarding pass printing is available at kiosks located in the coat/luggage check area.

Child Care Services

Child care services available in San Francisco:

1. **ABC Bay Area Child Care Agency**, 115 Lawton Street, San Francisco, CA 94122, Phone: 1-415-309-5662
2. **American Childcare Services**, 580 California Street, Suite 1600, San Francisco, CA 94104, Phone: 415-285-2300, www.americanchildcare.com

Note: SPIE does not imply an endorsement or recommendation of these services. They are provided on an "information-only" basis for your further analysis and decision. Other services may be available.

Concierge Desk

North Lobby

A Concierge Desk will be open 10:00 am to 6:00 pm Saturday through Wednesday and 10:00 am to 2:00 pm on Thursday during registration hours for sightseeing, shopping, and restaurant information.

Housing Desk

North Lobby

A housing desk will be open in the North Lobby; hours are posted at the desk.

General Information

Food and Beverage Services

Coffee Breaks

Complimentary coffee will be served at approximately 10:00 am and 3:00 pm in the following locations:

Saturday AM	Esplanade Foyer
Saturday PM	South Hall A
Sunday AM	South Hall A
Sunday PM	South Hall A
Monday AM	Esplanade Foyer
Monday PM	Concourse (near Marketplace)
Tuesday through Thursday	All Exhibition Halls

Desserts

Saturday and Sunday

Served in the BIOS Exhibition, South Hall A

Tuesday through Thursday

Served in the North and South Exhibition Halls

Dessert snacks will be served from 3:00 to 3:30 pm. Complimentary tickets for the dessert will be included in course and conference attendee registration packets.

Meals and Refreshments for Purchase

Saturday through Thursday

A variety of food outlets will serve hot and cold snacks, espresso, beverages, deli-type sandwiches, salads, hot entrees, and pastries.

Food Outlets Open in the Exhibition Halls

South Exhibition Hall

Saturday Noon to 3:00 pm

Sunday 11:00 am to 3:00 pm

North and South Exhibition Halls

Tuesday through Thursday 10:00 am to 4:00 pm

Policies

Audio/Video/Digital Recording Policy

In the Meeting Rooms and Poster Sessions: For copyright reasons, recordings of any kind are strictly prohibited without prior written consent of the presenter in any conference session, course or of posters presented. Each presenter being taped must file a signed written consent form. Individuals not complying with this policy will be asked to leave a given session and asked to surrender their film or recording media. Consent forms are available at the Speakers Check-In Desk.

In the Exhibition Hall: For security and courtesy reasons, photographing or videotaping individual booths and displays in the exhibit hall is allowed ONLY with explicit permission from onsite company representatives. Individuals not complying with this policy will be asked to surrender their film and to leave the exhibition hall.

Laser Pointer Safety Information

SPIE supplies tested and safety approved laser pointers for all conference meeting rooms, and for short course rooms if instructors request one. For safety reasons, SPIE requests that presenters use our provided laser pointers available in each meeting room.

If using your own laser pointer, have it tested at your facility to make sure it has <5 mW power output. Laser pointers in Class II and IIIa (<5 mW) are eye safe if power output is correct - but don't automatically trust the labeling. Commercially available laser pointers, red or green (or any color), could be incorrectly labeled as to their wavelength and power output.

Presenters intending to use their own laser pointer for presentations are required to come to the Speakers Check-In Desk onsite and test their pointer on our power meter. If the pointer fails the safe power level you may not use the pointer at the conference. You will be required to sign a waiver releasing SPIE of any liability for use of potentially non-safe laser pointers.

Use of a personal laser pointer at an SPIE event represents user's acceptance of liability for use of a non-SPIE supplied laser pointer device. Misuse of any laser pointer could lead to eye damage. In California, it is a criminal misdemeanor to shine a laser pointer at individuals "who perceive they are at risk."

Underage Persons on Show Floor

For safety and insurance reasons, no persons under the age of 16 will be allowed in the exhibition area during move-in and move-out. During open exhibition hours, only children over the age of 12 accompanied by an adult will be allowed in the exhibition area.

Unauthorized Solicitation

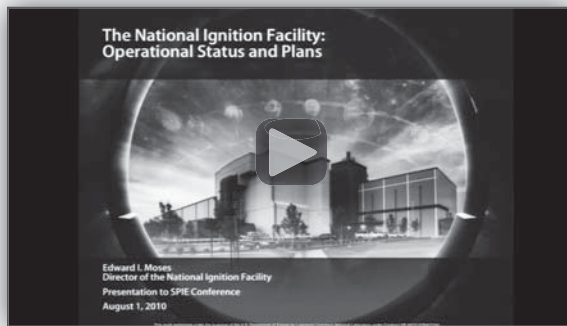
Unauthorized solicitation in the Exhibition Hall is prohibited. Any non-exhibiting manufacturer or supplier observed to be soliciting business in the aisles, or in another company's booth, will be asked to leave immediately.

Unsecured Items

Personal belongings such as briefcases, backpacks, coats, book bags, etc., should not be left unattended in meeting rooms or public areas. These items will be subject to removal by security upon discovery.

Tune in to the optics and photonics community

View more than 100 videos from SPIE including relevant technical interviews, features, presentations, and SPIE conference coverage.



SPIE.TV

spie.org/spietv

SPIE annually provides over \$2 million in support of photonics education programs

- ▶ SPIE Scholarships
- ▶ Education Outreach Grants
- ▶ Student Chapters
- ▶ Student Activities
- ▶ Best Student Paper Prizes
- ▶ Free Posters
- ▶ Free Educational CDs, DVDs, and Videos
- ▶ Women in Optics
- ▶ Education and Training in Optics and Photonics Conference (ETOP)
- ▶ Student Outreach
- ▶ Science Fairs
- ▶ Optics Education Directory
- ▶ Free SPIE Journal Access in developing nations
- ▶ Active Learning in Optics and Photonics (ALOP): Teacher Training
- ▶ International Centre for Theoretical Physics (ICTP) Winter College
- ▶ Visiting Lecturers Program

spie.org/giving



PROCEEDINGS AND SEARCHABLE CD-ROMs OF SPIE

AVAILABLE
AT THE
MARKETPLACE

BIOS 



PRINTED PROCEEDINGS VOLUMES.

If you are only interested in editor-reviewed papers from a single conference or want an archive of the conference that includes your paper, choose the printed book. Available 6 weeks after the meeting.



SEARCHABLE CD-ROMS WITH MULTIPLE CONFERENCES.

If you are interested in editor-reviewed papers from multiple conferences and a broad topical area, choose the searchable CD-ROMs. Available within 8 weeks of the meeting; PC, Macintosh, and Unix compatible.

Vol#	Title/Editor	Prepublication Price	Vol#	Title/Editor	Prepublication Price
7883	Photonic Therapeutics and Diagnostics VII N. Kollias/B. Choi/H. Zeng/H. Kang/ B. E. Knudsen/B. J. Wong/J. F. Ilgner/ K. W. Gregory/G. J. Tearney/ L. Marcu/H. Hirschberg/S. J. Madsen/ A. Mandelis/A. Mahadevan-Jansen/ E. Jansen	\$150	7899	Photons Plus Ultrasound: Imaging and Sensing 2011 A. A. Oraevsky/L. V. Wang	\$160
7884	Lasers in Dentistry XVII P. Rechmann/D. Fried	\$60	7900	Biophotonics and Immune Responses VI W. R. Chen	\$53
7885	Ophthalmic Technologies XXI F. Manns/P. G. Söderberg/A. Ho	\$100	7901	Energy-based Treatment of Tissue and Assessment VI T. P. Ryan	\$70
7886	Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XX D. H. Kessel	\$70	7902	Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues IX D. L. Farkas/D. V. Nicolau/R. C. Leif	\$105
7887	Mechanisms for Low-Light Therapy VI M. R. Hamblin/R. W. Waynant/J. Anders	\$60	7903	Multiphoton Microscopy in the Biomedical Sciences XI A. Periasamy/P. T. So/K. König	\$130
7888	Frontiers in Biological Detection: From Nanosensors to Systems III B. L. Miller/P. M. Fauchet	\$53	7904	Three-Dimensional and Multidimensional Microscopy: Image Acquisition and Processing XVIII J. Conchello/C. J. Cogswell/T. Wilson/ T. G. Brown	\$90
7889	Optical Coherence Tomography and Coherence Domain Optical Methods in Biomedicine XV J. G. Fujimoto/J. A. Izatt/V. V. Tuchin	\$135	7905	Single Molecule Spectroscopy and Imaging IV J. Enderlein/Z. K. Gryczynski/R. Erdmann	\$80
7890	Advanced Biomedical and Clinical Diagnostic Systems IX A. Mahadevan-Jansen/T. Vo-Dinh/ W. S. Grundfest	\$80	7906	Optical Diagnostics and Sensing XI: Toward Point-of-Care Diagnostics; and Design and Performance Validation of Phantoms Used in Conjunction with Optical Measurement of Tissue III R. J. Nordstrom/G. L. Coté	\$70
7891	Design and Quality for Biomedical Technologies IV R. Raghavachari/R. Liang	\$60	7907	Biomedical Applications of Light Scattering V A. P. Wax/V. Backman	\$70
7892	Multimodal Biomedical Imaging VI F. S. Azar/X. Intes	\$70	7908	Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications VIII A. N. Cartwright/D. V. Nicolau	\$60
7893	Endoscopic Microscopy VI G. J. Tearney/T. D. Wang	\$70	7909	Colloidal Quantum Dots/Nanocrystals for Biomedical Applications VI W. J. Parak/K. Yamamoto/M. Osirski	\$70
7894	Optical Fibers, Sensors, and Devices for Biomedical Diagnostics and Treatment XI I. Gannot	\$70	7910	Reporters, Markers, Dyes, Nanoparticles, and Molecular Probes for Biomedical Applications III S. Achilefu/R. Raghavachari	\$90
7895	Optical Biopsy VIII R. R. Alfano	\$60	7911	Plasmonics in Biology and Medicine VIII T. Vo-Dinh/J. R. Lakowicz	\$80
7896	Optical Tomography and Spectroscopy of Tissue IX B. J. Tromberg/A. G. Yodh/M. Tamura/ E. M. Sevick-Muraca/R. R. Alfano	\$130			
7897	Optical Interactions with Tissue and Cells XXII E. Jansen/R. J. Thomas	\$100			
7898	Dynamics and Fluctuations in Biomedical Photonics VIII V. V. Tuchin/D. D. Duncan/K. V. Larin/ M. J. Leahy/R. K. Wang	\$70			

BIOS CD-ROM

(Includes Vols. 7883–7911)
Order No. CDS421
Est. pub. March 2011
Meeting attendee: \$135
Nonattendee member price: \$1730
Nonattendee nonmember price: \$2265

Vol#	Title/Editor	Prepublication Price
7912	Solid State Lasers XX: Technology and Devices\$120 W. Clarkson/N. Hodgson/R. Shori	
7913	Laser Resonators and Beam Control XIII\$80 A. V. Kudryashov/A. H. Paxton/V. S. Ilchenko	
7914	Fiber Lasers VIII: Technology, Systems, and Applications\$130 J. W. Dawson	
7915	High Energy/Average Power Lasers and Intense Beam Applications V . . . \$45 S. J. Davis/M. C. Heaven/J. Schriempf	
7916	High Power Lasers for Fusion Research\$70 A. A. Awwal/A. Dunne/H. Azechi/B. E. Kruschwitz	
7917	Nonlinear Frequency Generation and Conversion: Materials, Devices, and Applications X\$100 K. L. Vodopyanov	
7918	High-Power Diode Laser Technology and Applications IX\$70 M. S. Zediker	
7919	Vertical External Cavity Surface Emitting Lasers (VECSELs)\$60 U. Keller	

Vol#	Title/Editor	Prepublication Price
7920	Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM) XVI\$80 B. Gu/G. Hennig/X. Xu/H. Niino	
7921	Laser-based Micro- and Nanopackaging and Assembly V . . . \$60 W. Pfleging/Y. Lu/K. Washio	
7922	Synthesis and Photonics of Nanoscale Materials VIII \$53 J. J. Dubowski/D. B. Geohegan/F. Träger	
7923	Free-Space Laser Communication Technologies XXIII\$53 H. Hemmati	
7924	Atmospheric and Oceanic Propagation of Electromagnetic Waves V\$53 O. Korotkova	
7925	Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XI \$70 A. Heisterkamp/J. Neev/S. Nolte	

LASE CD-ROM

(Includes Vols. 7912–7925)
Order No. CDS422
Est. pub. March 2011
Meeting attendee: \$135
Nonattendee member price: \$735
Nonattendee nonmember price: \$960

Vol#	Title/Editor	Prepublication Price
7926	Micromachining and Microfabrication Process Technology XVI\$53 M. Maher/J. Chiao/P. J. Resnick	
7927	Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IV \$70 W. V. Schoenfeld/J. Wang/M. Loncar/T. J. Suleski	
7928	Reliability, Packaging, Testing, and Characterization of MEMS/MOEMS and Nanodevices X \$53 S. Garcia-Blanco/R. Ramesham	
7929	Microfluidics, BioMEMS, and Medical Microsystems IX \$60 H. Becker	
7930	MOEMS and Miniaturized Systems X \$60 H. Schenk/W. Piyawattanametha	
7931	MEMS Adaptive Optics V \$53 S. S. Olivier/T. Bifano/J. A. Kubby	
7932	Emerging Digital Micromirror Device Based Systems and Applications III . \$45 M. R. Douglass/P. I. Oden	

MOEMS-MEMS CD-ROM

(Includes Vols. 7926–7932)
Order No. CDS423
Est. pub. March 2011
Meeting attendee: \$135
Nonattendee member price: \$280
Nonattendee nonmember price: \$365

Vol#	Title/Editor	Prepublication Price
7933	Physics and Simulation of Optoelectronic Devices XIX\$120 B. Witzigmann/F. Henneberger/Y. Arakawa/A. Freundlich	
7934	Optical Components and Materials VIII \$80 M. J. Digonnet/S. Jiang/J. W. Glesener/J. Dries	
7935	Organic Photonic Materials and Devices XIII \$80 R. L. Nelson/F. Kajzar/T. Kaino/Y. Koike	
7936	RF and Millimeter-Wave Photonics . \$53 R. L. Nelson/D. W. Prather/C. A. Schuetz	
7937	Ultrafast Phenomena in Semiconductors and Nanostructure Materials XV \$100 K. Tsen/J. Song	
7938	Terahertz Technology and Applications IV \$45 L. P. Sadwick/C. M. O'Sullivan	
7939	Gallium Nitride Materials and Devices VI \$120 J. Chyi/Y. Nanishi/H. Morkoç	
7940	Oxide-based Materials and Devices II \$80 F. H. Teherani/D. C. Look/D. J. Rogers	
7941	Integrated Optics: Devices, Materials, and Technologies XV . . . \$70 J. E. Broquin/G. Nunzi Conti	
7942	Optoelectronic Integrated Circuits XIII \$60 L. A. Eldada/E. Lee	

Vol#	Title/Editor	Prepublication Price
7943	Silicon Photonics VI \$80 J. A. Kubby/G. T. Reed	
7944	Optoelectronic Interconnects and Component Integration X \$60 A. L. Glebov/R. T. Chen	
7945**	Quantum Sensing and Nanophotonic Devices VIII \$125 M. Razeghi	
7946	Photonic and Phononic Properties of Engineered Nanostructures . . . \$105 A. Adibi/S. Lin/A. Scherer	
7947	Quantum Dots and Nanostructures: Synthesis, Characterization, and Modeling VIII \$60 K. G. Eyink/F. Szmulowicz/D. L. Huffaker	
7948	Advances in Photonics of Quantum Computing, Memory, and Communication IV \$70 Z. U. Hasan/P. R. Hemmer/H. Lee/C. M. Santori	
7949	Advances in Slow and Fast Light IV \$70 S. M. Shahriar/P. R. Hemmer	
7950	Complex Light and Optical Forces V \$60 D. L. Andrews	
7951	Laser Refrigeration of Solids IV . . . \$45 R. Epstein/M. Sheik-Bahae	
7952	Vertical-Cavity Surface-Emitting Lasers XV \$53 J. K. Guenter/C. Lei	
7953	Novel In-Plane Semiconductor Lasers X \$100 A. A. Belyanin/P. M. Snowton	

Vol#	Title/Editor	Prepublication Price
7954	Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XV \$70 K. P. Streubel/H. Jeon/L. Tu	
7955	Emerging Liquid Crystal Technologies VI \$60 L. Chien	
7956	Advances in Display Technologies; and E-papers and Flexible Displays . . . \$60 K. Blankenbach/L. Chien/S. Lee/M. Wu	
7957	Practical Holography XXV: Materials and Applications \$70 H. I. Bjelkhagen	
7958**	Broadband Access Communication Technologies V \$53 B. Dingel/R. Jain/K. Tsukamoto	
7959**	Optical Metro Networks and Short-Haul Systems III \$53 W. Weiershausen/B. Dingel/A. K. Dutta/A. K. Srivastava	
7960**	Coherent Optical Communication: Components, Subsystems, and Systems \$53 G. Li/D. S. Jäger	

OPTO CD-ROM

(Includes Vols. 7919, 7933–7960)
Order No. CDS424
Est. pub. March 2011
Meeting attendee: \$135
Nonattendee member price: \$1485
Nonattendee nonmember price: \$1950

**Indicates volumes that will be available at the meeting. Other Proceedings will be available an average of 6 weeks after the meeting.



discover
**who's making
all the noise**
in the world of photonics

for the latest news, analysis, market intelligence and
insight direct to your desktop or mobile device

sign up today to receive your
free weekly email **Newsletter**

optics.org/newsletter

channelized content for
key industry sectors

- industrial
- defense
- cleantech
- life science

additional features

- buyer's guide
- new products
- events calendar
- the latest jobs

the business of photonics
optics.org



The world's largest collection of optics & photonics research



Astronomy



Biomedical Optics



Communications



Defense & Security



Imaging



Energy



Nanophotonics



Sensors

SPIE
Digital
Library

Find the answer

SPIDigitalLibrary.org

Stop by for a demo, Booth 5502

IMRA

The Femtosecond Fiber Laser Company



- Pioneering quality engineering and manufacturing of femtosecond fiber lasers
- Manufacturing quality control system benchmarked to the automotive and medical industries
- Production sites located in the US and Japan for redundancy and risk management
- High volume manufacturing operation
- More than 700 femtosecond fiber lasers deployed in the field
- Over 1 Million accumulated hours of laser operation at industrial customer sites



Photonics West Booth #418, BiOS Booth #8418

1044 Woodridge Ave | Ann Arbor, MI 48105 | (734) 930-2560 | www.imra.com | lasers@imra.com