



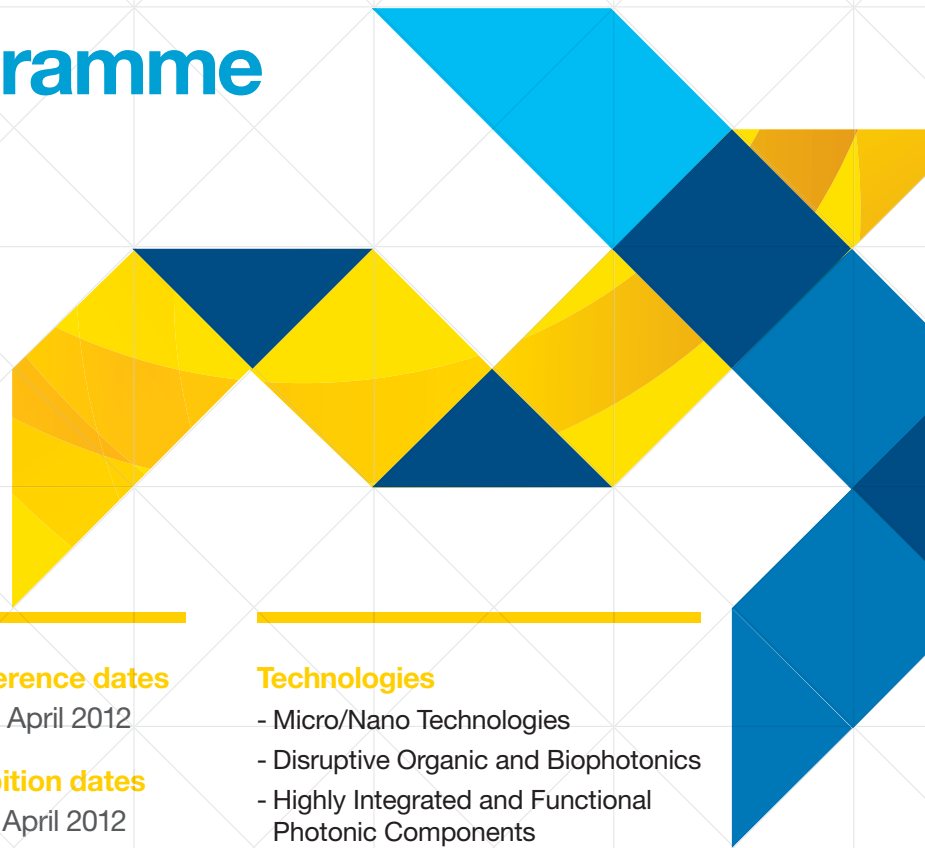
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2012 Photonics Europe

16–19 April 2012

Technical Programme
spie.org/pe



Location

Square Brussels Meeting Centre
Brussels, Belgium

Conference dates

16–19 April 2012

Exhibition dates

16–18 April 2012

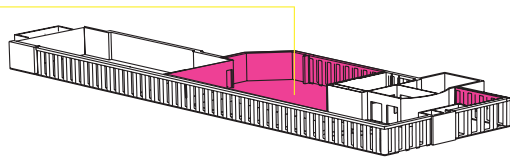
Technologies

- Micro/Nano Technologies
- Disruptive Organic and Biophotonics
- Highly Integrated and Functional Photonic Components
- Advances in Laser and Amplifier Technologies
- Photonics in Industrial Applications

Square Brussels Meeting Centre Floor Plan

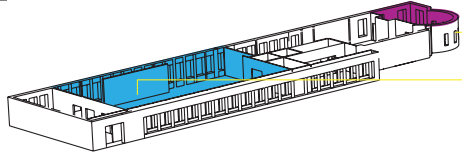
LEVEL + 5

Panoramic Hall



LEVEL + 4

Conferences

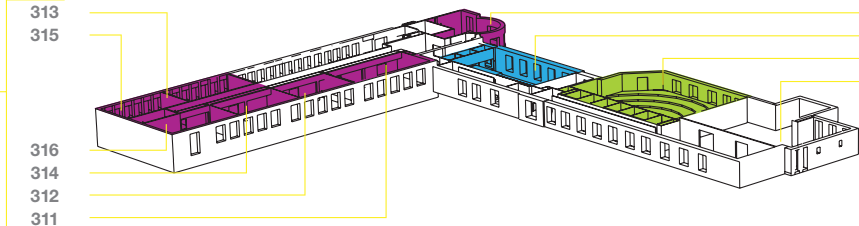


410 (Circle 4)

400

LEVEL + 3

Conferences



313
315

316
314
312
311

310 (Circle 3)

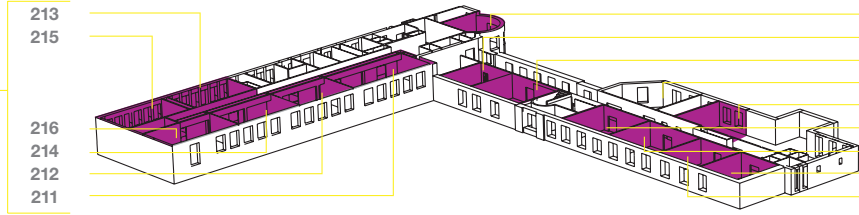
300

The Arc

The Arc Foyer

LEVEL + 2

Conferences



213
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210 (Circle 2)

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205 Foyer

203

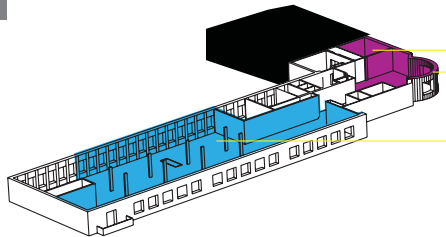
204

202

201A

201B

LEVEL + 1



111

110 (Circle 1)

100

LEVEL 0

Silver Foyer (SPIE Information, Speaker Check-in)

Silver Hall

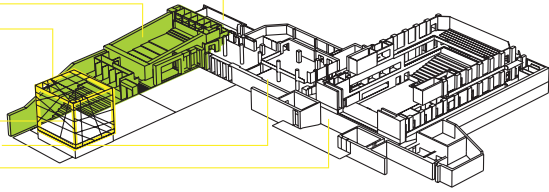
Copper Hall

Access to Copper Foyer

Glass Entrance

Magritte Foyer (Internet, Member Lounge)

Delvaux Foyer



LEVEL - 2 and -1

Copper Foyer (Level - 1)

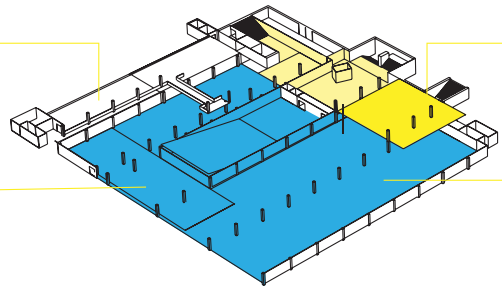
Exhibition

Photonics Innovation Village

European Networks

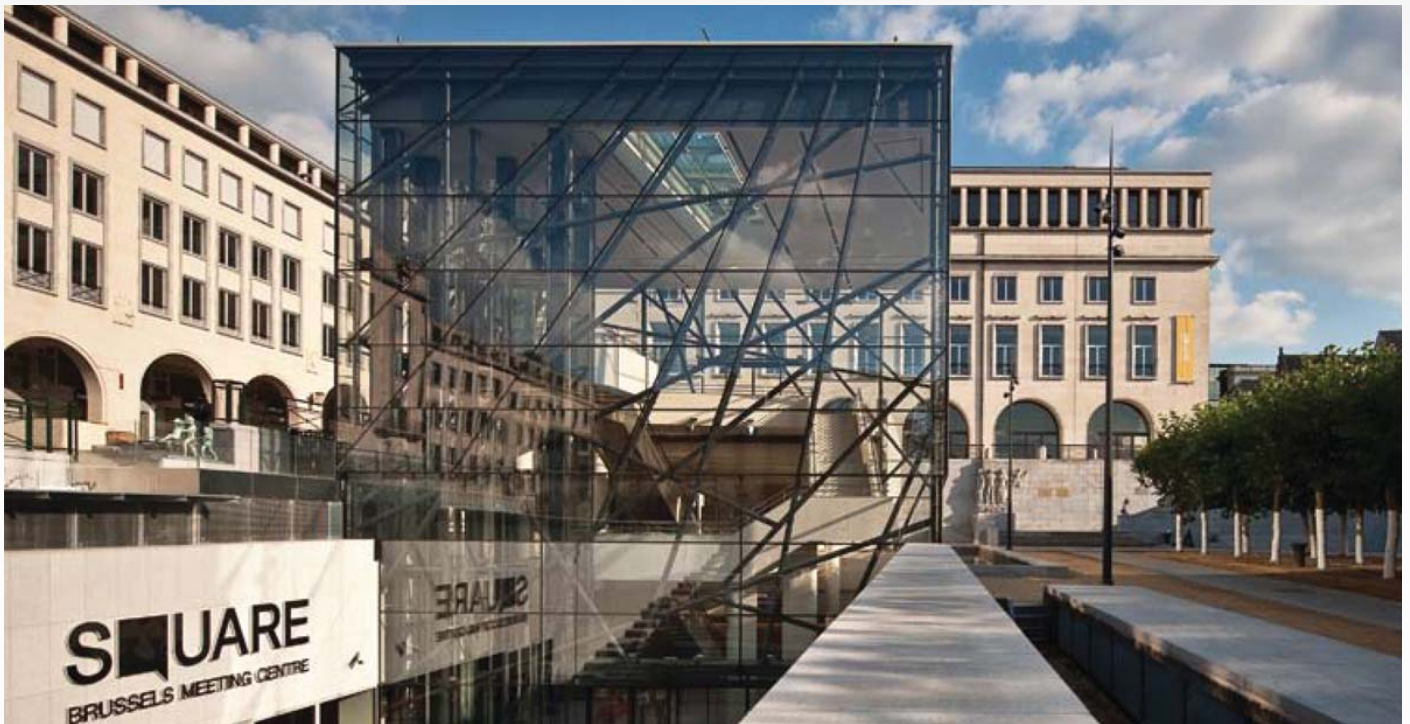
Photonics Career Event

Posters



Registration Hall
(Level -1)

Exhibition
Grand Hall 1 & 2
(Level -2)



Conferences: 16–19 April 2012
 Exhibition: 17 April 2012
 Square Brussels Meeting Centre
 Brussels, Belgium

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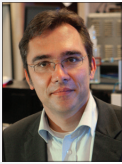
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Welcome to Brussels


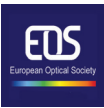










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Plenary Events

Don't miss the Hot Topics in Photonics, a series of plenary sessions aimed at giving researchers and engineers an overview of the most important developments in the field of photonics.

Sessions are open to all paid conference attendees.

Hot Topics I

Monday 16 April · 08.30 to 11.55 · Gold Hall

8.30 to 8.40

Opening Remarks and Awards Presentation



Eustace L. Dereniak,
College of Optical Sciences,
Univ of Arizona, United States
SPIE President

Presentation of the Chandra S. Vikram Award in Optical Metrology



to
Hans Tiziani,
Univ. Stuttgart (Germany)

Early Career Achievement Award



to
Andrea Alù,
The Univ. of Texas at Austin (United States)

8.40 to 8.50

Welcome



Francis Berghmans,
Vrije Univ. Brussel, Belgium
Symposium Chair



8.50 to 8.55

Introduction to Hot Topics



Hugo Thienpont,
Vrije Univ. Brussel, Belgium
Symposium Chair

8.55 to 9.25

European Commission Address: Innovating in Photonics in Horizon 2020



Thierry Van der Pyl,
Director, Directorate G "Components and Systems",
Information Society and Media Directorate General
European Commission

This talk will focus on the upcoming Horizon 2020, the EU's new Framework Programme for Research and Innovation for 2014 to 2020, with a particular emphasis on the role of photonics research and innovation. Photonics is recognised as one of the European Union's six Key Enabling Technologies. Nevertheless, there are still many challenges in translating excellent research into innovation potential and economic growth and job creation. The speaker will give an overview of the main photonics challenges in Horizon 2020 and will address some of the main ingredients needed for the success for photonics research and innovation, including the key role to be played by close partnerships, between industry and academia, between public and private sources of finance and between the European, national and regional levels.

Biography: Thierry Van der Pyl graduated from Ecole Normale Supérieure de Cachan and is docteur d'état in Informatics from University Pierre et Marie Curie, Paris VI.

He was researcher at CNRS and joined the European Commission in 1984 where he held different management positions in the research programs on Information and Communication Technologies, including head of unit of High Performance Computing, Microelectronics, and Future and Emerging Technologies. He was chosen as the first head of the European Commission's Photonic Unit which was set up in 2007. In 2008 Thierry Van der Pyl was awarded The OSA Advocates of Optics award, together with Commissioner Viviane Reding.

He is currently the Director of the Directorate on Components and Systems in Directorate-General Information Society & Media, which includes responsibility for photonics in the European research Framework Programme.

9.25 to 10.05

Breakthroughs in nonlinear optics: new waveguides, new nonlinearities, new directions in ultrafast science



John M Dudley,
Univ. de Franche-Comté,
CNRS Institut FEMTO-ST, Besançon, France

The years 2010 and 2011 saw worldwide celebrations of the invention of the laser and the birth of nonlinear optics. These coupled anniversaries remind us how the fields of laser source development and nonlinear optics have been natural partners now for over half a century, and how this partnership has impacted on all fields of science and technology. The purpose of this talk in the first months of 2012 will be to look to the future, and to survey a broad selection of new breakthroughs in nonlinear optics. We will discuss in particular how developments in new materials and new classes of photonic waveguide are leading to fundamental advances in the understanding of nonlinear light-matter interactions and new applications across many different fields. We focus especially on development in ultrafast nonlinear photonics, and consider how these advances are motivating unexpected new directions of research with surprising applications for other fields of physics.

Biography: Originally from the South Auckland town of Otahuhu in New Zealand, John Dudley received his Ph.D. from the University of Auckland in 1992. After postdoctoral research in Scotland, he returned to a lecturing position at the University of Auckland in 1994. In 2000, he moved to Europe and was appointed Professor at the University of Franche-Comté, where he heads the Optoelectronics and Photonics research group. His research covers a wide range of fields of nonlinear and ultrafast optics.

10.05 to 10.35: Coffee Break

10.35 to 11.15

Next generation fibre sensors



Kyriacos Kalli,
Nanophotonics Research Laboratory,
Cyprus Univ. of Technology, Cyprus

Fibre sensors have been the subject of vigorous research activity for more than forty years, but have yet to reach their anticipated, ground-breaking role in real-world applications. This challenge has gained a new momentum with the development of innovative fibre types and the emergence of novel sensing concepts. This is particularly the case for microstructure optical fibres, where a myriad of fibre geometries are possible; when coupled with new host materials, infusion of the holey structure and doping, increased functionalisation is possible for sensing. A further impetus has been given to conventional optical fibre sensors; the advent of femtosecond lasers has added extraordinary versatility and flexibility to sensor development. Both sensor inscription and fibre micromachining are readily possible on a common platform, offering the opportunity to tailor the mechanical and optical properties of sensor devices.

In this plenary session, the latest developments in fibre sensors will be presented, with particular consideration to the versatility of optical fibre sensors. The development of embedded, advanced microstructure fibre grating sensors in glasses and polymers will be presented. Recent advances in infiltrated microstructure fibre sensors using ferrofluids for magnetic field measurements will be discussed, as will surface plasmon sensors for measuring low refractive indices required for bio-photonics and sensors tailored for measurements in harsh radiation environments. Moreover, the use of femtosecond lasers in developing vectorial fibre sensors and diffractive micro-optical elements for sensing will be reviewed. Finally, we will consider what the future may hold for sensor development.

Biography: Kyriacos Kalli is an Assistant Professor in the Department of Electrical Engineering/Computer Engineering and Informatics at the Cyprus University of Technology (2008 onwards). He received the

Ph.D. in Physics (1992) from the University of Kent, UK. From 1994 - 1996 he lectured and undertook research at the University of Kent into the use of fibre Bragg gratings in multiplexed sensor arrays and Raman spectroscopy. At the University of Cyprus he was engaged in research into integrated gas flow and gas sensors based on porous silicon micromachining, fluorescence spectroscopy, and non-destructive evaluation of semi-conductors. From 2001 to 2007 he was a lecturer at the Higher Technical Institute, where he created the Nanophotonics Research Laboratory. His research interests are in Bragg grating and optical fibre sensors, photonic switching devices, multiplexing of optical sensors and laser material interactions. Dr. Kalli has more than 150 journal and conference publications and many book chapters, and has given several invited talks at international conferences. He is co-author of the book "Fiber Bragg Gratings: Fundamentals and Applications in Telecommunications and Sensing".

11.15 to 11.55

Advances in high-power fiber laser systems



Andreas Tünnerman,
Friedrich Schiller Univ. Jena, Institute of Applied
Physics, and Fraunhofer Institute for Applied Optics
and Precision Engineering, Germany

Most recently, rare-earth-doped fibers have established themselves as an attractive and power scalable solid-state laser concept in science and industry. Using advanced large mode area fibers, in continuous-wave operation output powers in the 10 kW-regime with diffraction-limited beam quality at electrical to optical efficiencies of 30 percent have been demonstrated. In the pulsed regime average powers in the order of 1 kW even for femtosecond fiber laser systems have been reported, peak powers of fiber lasers exceed the GW-level. Novel beam combination techniques allow for further power scaling.

In this contribution the state of the art in solid state laser technology operating at high average powers with inherent high efficiencies is reviewed. The prospects for future developments will be discussed.

Biography: Andreas Tünnermann received the diploma and Ph.D. degrees in physics from the University of Hannover in 1988 and 1992, respectively. In 1997 he received the habilitation.

He was head of the department of development at the Laser Zentrum Hannover from 1992 to 1997. In the beginning of 1998 he joined the Friedrich-Schiller-University in Jena, Germany as a Professor and Director of the Institute of Applied Physics. In 2003 he additionally became the Director of the Fraunhofer Institute for Applied Optics and Precision Engineering IOF in Jena.

He is a sought-after expert in optics and photonics industry. He is founder and member of the board of directors of the industry driven cluster OptoNet Jena, one of the most dynamic regional optics clusters in Europe.

Andreas Tünnermann is member of various societies, e.g. of the German Physical Society and the Optical Society of America. His research activities on applied quantum electronics have been awarded e.g. with the Gottfried-Wilhelm-Leibniz-Award (2005).

Plenary Events

Hot Topics II

Tuesday 17 April · 16.30 to 18.30 · Gold Hall

16.30 to 16.35

Introduction

16.35 to 17.15

Optofluidics for solar energy



Demetri Psaltis,
École Polytechnique Fédérale de Lausanne,
Switzerland

Optofluidics refers to a class of devices and techniques that combine optics and fluidics. Biophotonics has been a major application of optofluidics partially because in biology we normally use light to make measurements of entities suspended in liquids. Therefore biophotonics naturally combines fluids and optics. The same thing is true in the field of solar fuels where generally chemicals in liquid form are exposed to sunlight which catalyzes or thermally accelerates a chemical reaction that generated useful fuels. The design of a solar fuel system requires the simultaneous optimization of the optical and fluidic properties of the system. We will discuss how optofluidic solar fuel systems [1] that rely on microstructured components with dual, optical and fluidic functionality can improve the fuel generation efficiency.

[1] Erickson D, Sinton D, Psaltis D, Optofluidics for energy applications, Nature Photonics, Vol. 5, pp. 583-590, October 2011

Biography: Dr. Psaltis was educated at Carnegie-Mellon University where he received the Bachelor of Science degree in Electrical Engineering and Economics in 1974, the Master's in 1975, and the PhD in Electrical Engineering in 1977. In 1980, he joined the faculty at the California Institute of Technology, Pasadena, California. He served as Executive Officer for the Computation and Neural Systems department from 1992-1996. From 1996 until 1999 he was the Director of the National Science Foundation research center on Neuromorphic Systems Engineering at Caltech. He was director of the Center for Optofluidic Integration at Caltech. In the beginning of 2007, he moved to the Ecole Polytechnique Fédérale de Lausanne, Switzerland where he is professor and director of the optics laboratory and the dean of the school of engineering.

17.15 to 17.55

Photoacoustic tomography: ultrasonically breaking through the optical diffusion limit



Lihong V. Wang,
Optical Imaging Lab.,
Washington Univ., United States

Photoacoustic tomography (PAT), combining optical and ultrasonic waves via the photoacoustic effect, provides in vivo multiscale non-ionizing functional and molecular imaging. Light offers rich tissue contrast but does not penetrate biological tissue in straight paths as x-rays do. Consequently, high-resolution pure optical imaging (e.g., confocal microscopy, two-photon microscopy, and optical coherence tomography) is limited to depths within the optical diffusion limit (~1 mm in the skin). Ultrasonic imaging, on the contrary, provides good image resolution but suffers from poor contrast in early-stage tumors as well as strong speckle artifacts. In PAT, pulsed laser light penetrates the tissue and generates a small but rapid temperature rise, which induces emission of ultrasonic waves due to thermoelastic expansion. The ultrasonic waves, ~1000 times less scattering than optical waves in tissue, are then detected to form high-resolution images at depths up to 7 cm, breaking through the optical diffusion limit. Further depths can be reached by using microwaves or RF waves as the excitation source. PAT, embodied

in the forms of scanning photoacoustic microscopy or photoacoustic computed tomography, is the only modality capable of imaging across the length scales of organelles, cells, tissues, and organs with consistent contrast. Such a technology has the potential to enable multiscale systems biology and accelerate translation from microscopic laboratory discoveries to macroscopic clinical practice. PAT may also hold the key to the earliest detection of cancer by in vivo label-free quantification of hypermetabolism, the quintessential hallmark of cancer. The technology is commercialized by several companies.

Biography: Lihong Wang earned his Ph.D. degree at Rice University, Houston, Texas under the tutelage of Robert Curl, Richard Smalley, and Frank Tittel. He currently holds the Gene K. Beare Distinguished Professorship of Biomedical Engineering at Washington University in St. Louis. His book entitled "Biomedical Optics: Principles and Imaging," one of the first textbooks in the field, won the 2010 Joseph W. Goodman Book Writing Award. He also coauthored a book on polarization and edited the first book on photoacoustic tomography. Professor Wang has published over 280 peer-reviewed journal articles with an h-index of 57 and delivered more than 310 keynote, plenary, or invited talks. His laboratory invented or discovered functional photoacoustic tomography, 3D photoacoustic microscopy (PAM), the photoacoustic Doppler effect, photoacoustic reporter gene imaging, focused scanning microwave-induced thermoacoustic tomography, the universal photoacoustic or thermoacoustic reconstruction algorithm, frequency-swept ultrasound-modulated optical tomography, time-reversed ultrasonically encoded (TRUE) optical focusing, sonoluminescence tomography, Mueller-matrix optical coherence tomography, optical coherence computed tomography, and oblique-incidence reflectometry. In particular, PAM broke through the long-standing diffusion limit to the penetration of conventional optical microscopy and reached super-depths for non-invasive biochemical, functional, and molecular imaging in living tissue at high resolution. His Monte Carlo model of photon transport in scattering media is used worldwide. He has received 31 research grants as the principal investigator with a cumulative budget of over \$34M. Professor Wang is a Fellow of the AIMBE (American Institute for Medical and Biological Engineering), OSA (Optical Society of America), IEEE (Institute of Electrical and Electronics Engineers), and SPIE (Society of Photo-Optical Instrumentation Engineers). He is the Editor-in-Chief of the Journal of Biomedical Optics. He chairs the annual conference on Photons plus Ultrasound, and chaired the 2010 Gordon Conference on Lasers in Medicine and Biology and the 2010 OSA Topical Meeting on Biomedical Optics. He is a chartered member on an NIH Study Section. Wang serves as the founding chairs of the scientific advisory boards for two companies commercializing his inventions. He received NIH's FIRST and NSF's CAREER awards. He was awarded OSA's C.E.K. Mees Medal and IEEE's Technical Achievement Award for "seminal contributions to photoacoustic tomography and Monte Carlo modeling of photon transport in biological tissues and for leadership in the international biophotonics community".

17.55

Best Student Paper Awards

Best student papers will be awarded at the 2012 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE-sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.



Hot Topics III

Thursday 19 April · 08.40 to 10.05 · Gold Hall

08.40 to 08.45

Introduction

08.45 to 09.25

Technologies and equipment used in the manufacturing of silicon solar cells and thin-film panels



Finlay Colville,
SOLARBUZZ, United Kingdom

The solar industry has seen explosive growth in recent years, driven by attractive government policies and aggressive manufacturing expansions. As a result, the solar industry has developed into a multi-billion dollar industry, with a strong focus on technology including novel methods for manufacturing solar cells and panels. There are two main technology approaches competing to satisfy industry demand. The dominant technology uses polysilicon wafers that are processed into PV cells and then interconnected into panels. The competing approach involves depositing thin film materials typically on large glass sheets. Each approach is differentiated in both its manufacturing process flow and its equipment supply-chain.

This presentation will provide a review of each of these technologies, covering the value-chain for manufacturing and the different type of equipment used at each stage. New technologies and trends will also be addressed, including what impact they may have on the solar industry in providing higher efficiencies or lower manufacturing costs and how this may help the industry in achieving widespread grid-parity out to 2020.

Biography: As Vice-President at NPD Solarbuzz, Finlay Colville leads a team of analysts dedicated to PV market research and strategic consulting activities. Dr. Colville has been active in the PV industry since 2005, and brings over a decade of global sales and marketing experience to Solarbuzz. He is a frequent speaker at high-profile industry engagements and major industry events worldwide, and is a regular contributor to leading trade magazines and online newsletters. Dr. Colville previously served as Director of Strategic Marketing for Coherent, Inc.'s solar business unit where he managed market intelligence and product strategy. He holds a BSc. in Physics from the University of Glasgow and a Ph.D. in Photonics from the University of St. Andrews.

9.25 to 10.05

Recent advances in solid state lighting



Berit Wessler,
OSRAM, Germany

Solid-state light sources, i.e. light-emitting diodes (LED) and organic light emitting diodes (OLED), are starting a new era in lighting as they are on their way to outperform almost all other light sources in terms of efficiency and provide unique properties such as long lifetime, instant-on and color tunability. Theoretically more than 50% of electrical energy used for lighting could be saved with advanced LED technology which, in turn, will lead to a massive reduction of carbon dioxide emissions.

An overview on the technology innovations of the last years will be given with respect to the whole product value chain from LED chips to fixtures as well as an outlook to the future challenges which need to be solved to enable the broad penetration of Solid State Lighting (SSL) in the lighting market.

Biography: Dr. Berit Wessler is currently working at OSRAM in Munich as head of the Strategic Technology Cooperation. She gained her PhD in Chemistry at the University of Bonn in 2001 and joined the Competence Center Ceramics of Siemens Corporate Technology in Munich, Germany, the same year. From 2003 to 2007 she was heading the competence field luminescent ceramics for LEDs and medical applications. In Feb 2007 she moved to OSRAM Opto Semiconductors as head of the innovations management. Beginning of 2010 she moved to Osram assuming her current position. She is responsible for monitoring new trends in lighting technology and initiating strategic national and European collaborative projects. She is member of the Board of Stakeholder of the European Technology Platform Photonics21

Join your colleagues for the interactive poster sessions,
while enjoying refreshments.

Open to all paid conference attendees.

Monday · 17.45 to 19.15 hrs · Grand Hall

Wednesday · 17.40 to 19.10 hrs · Grand Hall

Posters will be on display after 10.00 on Monday and Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster sessions on Monday and Wednesday. 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. For individual conference poster session, please refer to the conference program. Attendees are required to wear their conference registration badges to the poster sessions.



Industry Events

Hands-on training to support the technical conferences.

Companies have been invited to organise user workshops giving general information on specific topics.

Free to all technical conference attendees; preregistration required.



NARNIA

NEW ARCHAEOLOGICAL RESEARCH NETWORK FOR
INTEGRATING APPROACHES TO ANCIENT MATERIAL STUDIES

IASHG 2012 NARNIA WORKSHOP:

Integrated Approaches to the Study of Historical Glass

Monday 16 April · 13.30 to 16.30 · Room: 203

Tuesday 17 April · 9.00 to 16.30 · Room: 203

Location: The Square Conference Centre Brussels, Belgium.

NARNIA is an interdisciplinary project, the main objective of which is to provide young researchers with the means to conduct research on ancient Eastern Mediterranean material culture and to develop their analytical skills through a series of research and training activities.

The project aims to:

- Provide high-quality and multidisciplinary training of young researchers for skills and research development
- Introduce the interdisciplinary study of ancient materials contributing to historical and cultural knowledge of the Eastern Mediterranean region
- Explore applications of techniques coming both from the “soft” and “hard” sciences and testing of their suitability and complementarity for the study of ancient materials.

The workshop has both a theoretical and an experimental component.

The theoretical section (16-17 April) is focused on methods and methodologies for the study, documentation and conservation of ancient glasses. Lectures will target on studies where analytical tools and measurement techniques are applied to specific archaeological and art historical questions. This includes but is not limited to the use of SEM-EDX (EPMA), LA-ICP spectrometry, PIXE, XRF, Raman spectroscopy, UV-VIS-NIR spectroscopy, luminescence, isotope analysis, X-ray diffraction and XANES.

Wednesday–Friday 18–20 April

**Location: Vrije Universiteit Brussel -
Campus Etterbeek - SURF & B-PHOT labs, Belgium**

In the second part of the workshop (18-20 April) lab demonstrations will be given (SEM-EDX, UV/VIS/NIR & Raman spectroscopy) and the participant has the opportunity to perform hands-on experiments with the available optical spectrum analyzers (own material can be studied).

SCHOTT WORKSHOP

The properties of optical glass and special optical materials

SCHOTT
glass made of ideas

Monday 16 April · 14.00 to 17.15 · Room: 207



Lecturer:
Peter Hartmann,
SCHOTT AG, (Germany)

Optical glass is a key material for general technology. It is the material providing the essential function of imaging in precision optics, a ubiquitous discipline in scientific research, development, diagnosis and metrology in production processes.

SCHOTT offers an introduction to optical materials such as optical glass, special optical glass, filters from colored glasses or made by coating and the zero-expansion glass ceramic Zerodur.

The first part of the workshop concentrates on optical glass. An overview will be given of the glass types programme including eco-, classical-, low Tg and high transmittance glass types as well as development trends for new glass types. Some information will be presented underlining the highly strategic relevance of these optical materials.

The production process of optical glass, its melting and the tempering process called fine annealing, will be presented in the view of their influence on glass properties. These properties especially refractive index, dispersion, homogeneity, transmittance, bubbles and inclusions, striae and stress birefringence will be discussed in detail including their measurement methods.

The second part provides an overview over glass types optimized for special requirements with their main properties and applications:

- glasses resistant to ionizing radiation for use in space orbits
- low fluorescent glasses for microscopy
- infrared transmitting glasses extending the transmittance range to ca. 4 µm
- glass blanks for large optical elements up to 1 meter
- colored glass filters
- coated glass filters
- the zero-expansion glass ceramic ZERODUR for applications where extreme length or shape accuracy and stability is crucial, its very low coefficient of thermal expansion CTE and the high CTE homogeneity.

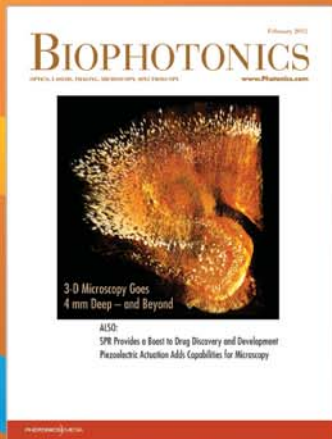
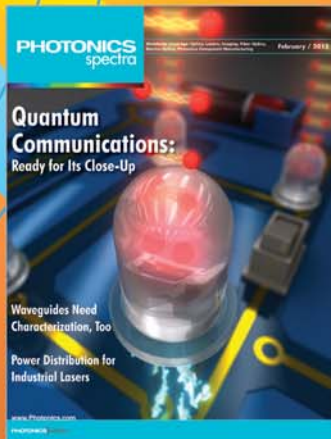
Workshop Schedule

- 14.00 to 14.10: **SCHOTT Advanced Optics: Company introduction**
- 14.10 to 14.40: **Optical Glass: optical glass types programme eco-, classical-, low Tg and high-transmittance glass types**
- New glass type development trends, new glass types
 - Strategic relevance, Production process - melting and annealing.
- 14:40 to 15:40: **Optical Glass: properties and its measurement**
- Refractive index, dispersion, homogeneity, transmittance, inclusions, striae, stress birefringence
- 15.40 to 16.10: **Coffee Break**
- 16.10 to 17.10: **Special optical glass types and other optical materials**
- Radiation resistant ~, low fluorescent ~, IR transmitting ~, large glass blanks, colored filter glass, coated filters
 - Zero-expansion glass ceramic Zerodur: properties and applications.
- 17.10 to 17.15: **Closing Remarks**

Read
the industry's

LEADING magazines

Because staying informed has never been so critical.



2012 Content Sneak Peek

Photonics Spectra

- ▶ Communications
- ▶ Defense & Security
- ▶ Manufacturing
- ▶ Industry Trends

BioPhotonics

- ▶ Medical Imaging
- ▶ Global Health
- ▶ Cancer
- ▶ Medical Devices

EuroPhotonics

- ▶ Machine Vision
- ▶ Solar
- ▶ Optics
- ▶ Laser Systems

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PHOTONICS MEDIA

THE PULSE OF THE INDUSTRY

LOVALITE-LUMERICAL WORKSHOP

Advanced Opto-Electronic Simulation, from Devices to Photonic Integrated Circuits

Tuesday 17 April · 09.00 to 13.00 · Room: 207



Workshop Schedule

- 09.00 to 9.15: **Numerical simulation of next generation opto-electronic devices: challenges and opportunities**
- 09.15 to 10.00: **Optical simulation of photonic devices with FDTD Solutions Algorithm review**
- Application example (OLEDs, plasmonic devices, integrated optical components)
 - Advanced simulation features and tips
- 10.00 to 10.40: **Coffee break**
- 10.40 to 11.10: **Guided wave optical simulation with MODE Solutions**
- Algorithm review (Eigenmode solver, 2.5D planar propagation, Eigenmode decomposition and propagation)
 - Application examples (photonic crystal fibres, plasmonic waveguide, integrated optical waveguides and components)
 - Advance simulation features and tips

- 11.10 to 11.25: **Electrical simulation with Lumerical DEVICE**
- Algorithm review
- 11.25 to 12.10: **Opto-electronic device simulation with Lumerical**
- How to combine optical and electrical simulation results (optical to electrical, electrical to optical)
 - Application example (CMOS image sensors, solar cells, Mach-Zehnder waveguides, photodiodes)
- 12.10 to 12.55: **Simulation of opto-electronic photonic integrated circuits with Lumerical INTERCONNECT**
- Algorithm review (time domain simulation, frequency domain simulation, multimode and bidirectional signals)
 - Integrating results from Lumerical's DEVICE, FDTD Solutions and MODE Solutions
 - Application examples (Mach-Zehnder modulators, coupled ring resonators, add-drop multiplexers)
 - Advanced simulation features and tips
- 12.55 to 13.00: **Closing Remarks**

APPLIED PLASMONICS WORKSHOP

PLAISIR Project: Plasmonics in the Infrared

Tuesday 17 April · 13.50 to 18.00 · Silver Hall



The 2nd Applied Plasmonics Workshop will be held in conjunction with Nanophotonics conference, SPIE Photonics Europe. The objective of the Workshop is to showcase the potential of infrared plasmonic technology in various industrial applications and its commercial prospective. In all areas from health, environment through to security and chemical process control, mid-infrared imaging and spectroscopic chemical sensing is of fundamental importance. The mid-IR is the key region for finger printing molecules and proteins and their abundance. Photonic properties of plasmonic nanostructures and plasmonic metamaterials find applications in such diverse areas as enhancing photodetectors and imaging cameras, providing enhanced sensitivity capability for chemical and biological sensing. The lectures will be given by international experts from industry and academia. The workshop will be incorporated within Nanophotonics Conference programme.

Until recently plasmonics has been pursued by academic institutions and has been underappreciated by industry. This situation is changing. The 1st Applied Plasmonic workshop aimed at bridging the gap between the plasmonic research and industrial applications has taken place in 2009 and was very successful in terms of the interest from both academics and commercial companies <http://www.plasmocom.org/apw/>. The 2nd workshop will be devoted to infrared plasmonics It will be sponsored by the EC FP7 project PLAISIR www.plaisir-project.eu with the support from SPIE. It will present an opportunity for both industry and academics to learn about the latest developments in plasmonic applications in the infrared as well as the industrial drivers in this field.

Who should attend

The workshop is organized for participants from industry and academia who are:

- using plasmonic solutions and are interested in finding customers
- working on plasmonics and are interested in finding applications for their ideas
- interested in the possibilities of plasmonics and in need of innovative solutions to their problems
- looking for applications for their research output

Workshop Schedule

Plasmonics in the Infrared I

Session Chair: **Anatoly Zayats**, King's College London (United Kingdom)

- 13.45 to 14.00: **Photonics research under the Future and Emerging Technologies Programme**
Prabhat Agarwal, European Commission (Belgium)
- 14.00 to 14.30: **Plasmonic innovative sensing in the IR**
Ross Stanley, CSEM (Switzerland)
- 14.30 to 15.00: **Advantages and novel application for multi-colour and polarization sensitive NIR and SWIR focal planes arrays**
Jan Vermeiren, Xenics NV (Belgium)
- 15.00 to 15.30: **Plasmonics for infrared detection and imaging**
Riad Haidar, ONERA (France)
- 15.30 to 16.00: **Coffee Break**

Plasmonics in the Infrared II

Session Chair: **Ross Stanley**, CSEM, (Switzerland)

- 16.00 to 16.30: **MCT infrared detectors with plasmonic light harvesting structures for trace gas detection**
Agata Roszkiewicz, Vigo System SA (Poland)
- 16.30 to 17.00: **Surface plasma wave enhanced infrared detectors**
Steven Brueck, University of New Mexico (United States)
- 17.00 to 17.30: **Modelling of plasmonic devices: a comparison of eigenmode expansion, FDTD and finite element methods**
Dominic Gallagher, Photon Design Ltd. (United Kingdom)
- 17.30 to 18.00: **Roundtable Discussion**
Moderators: **Jan Vermeiren**, Xenics NV (Belgium), **Ross Stanley**, CSEM (Switzerland)

Photonics Europe Industry Programme

Wednesday, 18 April · 14.00 to 17.00
Room: 314/316

The Industry Perspectives Programme will provide a series of executive briefings covering the growing markets and consequent business opportunities of photonics technology and applications.

Come and listen to key members of Europe's photonics industry highlight current trends and opportunities. They will discuss future plans and offer strategic perspectives on ways to maximize market penetration and business development. Learn how developers, industrialists, and investors can create growth centered on the future of photonics manufacturing. Find out how emerging initiatives can open new horizons for business and technology development across Europe.

These sessions will offer executive-level networking and invaluable insight to those seeking to understand and capture photonics-centered business development opportunities: come and engage with the presenters and attendees; they could be potential suppliers, partners, or customers.

Programme Schedule

- 14.00: **Global photonics markets**
Stephen G. Anderson, SPIE
- 14.35: **Horizon 2020: research and innovation in European photonics**
Ronan Burgess, European Commission
- 15.10: **Coffee break**
- 15.45: **Action to Support Photonic Innovation Clusters in Europe (ASPICE)**
Alastair Wilson, UK Photonics Knowledge Transfer Network
- 16.20: **Life science opportunities in photonics**
Jürgen Popp, Friedrich-Schiller University
- 16.55: **Opportunities in photonics manufacturing in Europe**
John Lincoln, Harlin Ltd.



Best Practices in Effective Science Communication

Open to all attendees.

Professional Development Seminar Series

Tuesday 17 April · 13.30 to 16.30

The work that scientists and engineers do is becoming increasingly complex and multi-disciplinary, making the ability to clearly communicate with people from different backgrounds even more essential.

In this Professional Development Seminar Series, top speakers will address effective communication methods with business, the media, the public, and other researchers. Come away from this seminar with more effective ways to convey the impact of your work and accomplish your goals.

13.40 to 14.20

How to Hit the Beadlines (for all the right reasons)



Nadya Ancombe, freelance technology journalist, gives tips on how to get the media's attention and ensure accurate, effective coverage for your work.

14.20 to 15.00

Technology Transfer: Practical Advice for a Changing Landscape



Get advice that will help you avoid surprises when you bring your research to your local technology transfer office. **William Bird** is a European, British and German patent and trademark attorney and is a founding partner of the IP law firm Bird Goën & Co. with a background in physics, chemistry and electrical engineering.

15.00 to 15.40

Graphs: Conveying Accurate Messages, Not Lies



Although widely used to communicate about data, graphical displays are still poorly mastered by researchers, who often use the wrong graphs or use them in the wrong way. Based on **Dr. Jean-luc Doumont's** book, *Trees, maps, and theorems*, the talk discusses how to select the right graph, optimize the graph's construction, and phrase a useful caption.

15.40 to 16.20

Engaging the Public with Photonics



Photonics as a visual science has a lot of potential to spark interest in the public, yet often remains obscure. This talk will discuss effective methods of engaging public interest and shining a spotlight on the science of light.

Professional Development

Student Chapter Leadership Workshop

Sunday 15 April · 09.00 to 17.00 · Room 211



SPIE's successful Student Chapter Leadership Workshop comes to Europe for the first time. Join Student Chapter officers from around the world for a full day of professional development training and networking.

Popular lecturer Jean-luc Doumont will facilitate a workshop on leadership in organizations, focusing on motivation and the various leadership styles needed to succeed in a volunteer organization.

All student chapter members are welcome to attend, but please RSVP to students@spie.org for confirmation. SPIE will be hosting a post-workshop social event at Crosly.

Effective Technical Presentations

WS897

Course level: Introductory

CEU .35 \$100/€75 member / \$160/€150 non-member USD

Wednesday 08.30 to 12.30

Oral presentation skills are a key to success for researchers. This course proposes a five-step methodology that will take you from scratch to an effective technical presentation. It also offers tips on how to manage the nervousness associated with speaking in public.

Instructor: **Jean-luc Doumont** runs lectures, workshops, and training programs in oral, written, and graphical communication for engineers, scientists, and managers worldwide. He is an engineer from the University of Louvain and a doctor in applied physics from Stanford University. This course is based on his popular lecture on oral presentations at over 15 top-ranked engineering schools (MIT, Stanford U, UC Berkeley, Caltech, Harvard, etc.).

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

Effective Scientific Papers

WS908

Course level: Introductory

CEU .35 \$100/€75 member / \$160/€150 non-member USD

Wednesday 13.30 to 17.30

Strong writing skills are a key to success for researchers. This course proposes a methodology that will take you from scratch to an effective scientific or technical document—a question of structure, not style. The approach is applicable across languages and for a wide range of document types beyond scientific papers, too.

Instructor: **Jean-luc Doumont** runs lectures, workshops, and training programs in oral, written, and graphical communication for engineers, scientists, and managers worldwide. He is an engineer from the University of Louvain and a doctor in applied physics from Stanford University. This course is based on his lectures and workshops on scientific and technical writing at universities and research centers around the world (MIT, Shell, Johnson & Johnson, etc.).

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

Getting Hired in 2012

Wednesday 18 April · 15.30 to 17.00

Grand Hall, Product Demo Area



Rik Moons, professional management and communications consultant, will open this session with a best practices session on how to prepare to locate an attractive job, market your skills, and ultimately land a job. Additional perspectives on the corporate hiring process will come directly from hiring managers in the optics and photonics sector. Find out where the jobs are and how to get them.

How to Hit the Headlines (for all the right reasons)

Thursday, 18 April · 09.00 to 12.00

Course level: introductory · Room 300

There is a bewildering array of business-to-business magazines and on-line publications covering the photonics market. This workshop will give you the tools to get your work or company covered in these publications and ensure that this coverage is accurate, targeted and effective. The course will give you an insight into how the press work, how to get a journalist's attention and how to publicise your work in a low-cost, or no-cost, way.

LEARNING OUTCOMES

This course will enable you to

- identify which publications are right for you
- plan and organize free publicity for your work or company
- write a press release that gets an editor's attention
- speak to journalists confidently

INTENDED AUDIENCE

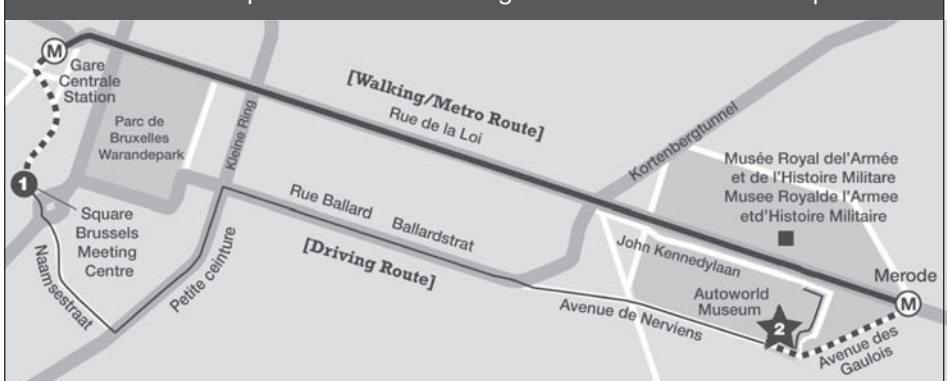
This workshop is aimed at anyone who needs to communicate with the media, be they novices (such as scientists and engineers speaking to the media for the first time) or professionals (marketing executives wanting to improve the way they communicate with the press).

INSTRUCTOR

Nadya Anscombe is a highly experienced technology journalist and editor, and a professional media trainer. She has more than 12 years' experience of writing about the photonics industry and her work has appeared in several publications including Photonics Spectra, Nature Photonics, BioPhotonics International, Optics.org, Electro Optics, Physics World and New Scientist. Her media training course has been well-received by many clients including the Institute of Physics (IOP), the Scottish Optoelectronics Association and the University of Southampton's Optoelectronics Research Centre.

This course is free to all attendees, but you must register to attend. See cashier.

Directions from Square Brussels Meeting Centre to Welcome Reception



The Cinquantenaire Museum

Parc de Cinquantenaire 10
1000 Brussels

Walk to Gare Centrale

- Head southeast on Kunstberg toward Ravensteinstraat
- Turn left at Ravensteinstraat
- Slight left to stay on Ravensteinstraat
- Turn right at Houtmarket

Metro – 5 – Herrmann-Debroux (M)

- Depart Gare Centrale
- Arrive Merode (6 min)

Walk to Parc de Cinquantenaire 10

- Head west toward Avenue des Gaulois N295
- Slight left at Avenue des Gaulois/N295. Continue to follow N295
- Continue along Avenue des Nerviens
- Museum is on the right

Network

Networking Receptions · Student Social Events · SPIE Member Events

Enjoy relaxing social interactions with your colleagues as you continue the day's discussions at these relaxed-atmosphere networking events.



Student Chapter Information Session

Monday 16 April · 15.30 to 16.00 · Grand Hall, Product Demo Area

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

Student Chapter Exhibition

Monday 16 April · 16.00 to 18.00
Grand Hall, Product Demo Area

Join us for refreshments and a late-afternoon mixer in the Student Chapter section of the Exhibition Hall. Meet our amazing students and learn about the innovative activities of some of the best and brightest Student Chapters across the globe!

Lunch with the Experts

Monday 16 April · 12.00 to 13.30 · Panoramic Hall

Open to all Student Attendees

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 optics and photonics. Seating is limited and will be granted on a first-come, first-served basis.



SPIE Fellows Luncheon

Tuesday 17 April · 13.00 to 14.30 · Panoramic Hall

All Fellows of SPIE are invited to join your colleagues for the second SPIE-hosted fellows luncheon in Europe. Please plan to attend this informal lunch gathering and a special opportunity to meet with the international community of SPIE Fellows. Fellows planning to attend are asked to RSVP to brentj@spie.org.



Fellows Luncheon Presentation:
**Optical Sensing in the 21st Century:
Tiny Chips Create Big Opportunities**
Stephen G. Anderson,
Industry & Market Strategist
SPIE

Best Student Paper Awards

Tuesday 17 April · 17.55 to 18.30 · Gold Hall

Best student papers will be awarded at the 2012 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE-sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Welcome Reception

Tuesday 17 April · 19.00 to 22.00 · Royal Museum of Art & History

All attendees are invited to the Welcome Reception. Relax, socialize, and enjoy the refreshments. Please remember to wear your registration badges. Dress is casual.

See map for walking directions on page 18.

Women in Optics Luncheon

Wednesday 18 April · 13.00 to 14.00 · Panoramic Hall

Join us for an early afternoon opportunity for networking and inspiration. Dr. Anna Mignani, CNR-Institute of Applied Physics 'Nello Carrara', Italy, will lead a moderated discussion to encourage networking and information exchange among those attending.

Connect with your colleagues while enjoying a light lunch.

Speed Networking Social

Wednesday 18 April · 20.00 to 21.30

Open to all attendees

Join us for the next generation of networking! Add a new contact to your network every five minutes while enjoying the atmosphere and refreshments of a famous Belgian beer pub. Bring your badge, plenty of business cards, and prepare to expand your network at "À la Mort Subite."



Directions
from Square Brussels
Meeting Centre to
À la Mort Subite

**Walk to
À la Mort Subite**
rue Montagne-aux-
Herbes Potagères 7

- About a 15 minute walk from the Square Brussels Meeting Centre)



Moving Technology to Market™

Photonics Europe

Exhibition

Photonics Europe is the exhibition for scientists and engineers who need the latest equipment to do their best work.

Attendees will see leading companies from throughout Europe that are showcasing new products featuring optical components, lasers, fiber optics, detectors, sensors, cameras, and other instrumentation for the optics and photonics fields. Take advantage of this opportunity to see well-known suppliers and new innovators under one roof.

Exhibiting companies will display technology ranging from optical components to lasers to fibre optics:

- Chemical and Biological Sensing
- Clinical, Chemical, and Biological Instrumentation
- Cameras and CCD Components
- Communications
- Displays
- Electronic Imaging Components, Equipment, and Systems
- Electronics and Signal Analysis Equipment
- Software
- Optics Manufacturing
- Fibre Optic Components, Equipment, and Systems
- High Speed Imaging and Sensing
- Infrared Sources, Detectors, and Systems
- Ion-Beam, X-Ray, EUV, Electron-Beam, and Optical/Laser
- Lasers and Other Light Sources, Laser Accessories, and Laser Systems
- Metrology, Inspection and Process Control
- Optical Components, Detectors, Fibers, Materials and Substrates
- Optical Test and Measurement Equipment, Interferometer
- Finished Optics, Filters, and Coatings, Optical Fabrication Equipment
- Optics Manufacturing
- Photonics Equipment Manufacturer
- Resist Technology and Processing
- Vacuum, Cooling, and Gas Handling Equipment



Location: Grand Hall

Monday 16 April	15.00 to 19.10
Tuesday 17 April	10.00 to 16.00
Wednesday 18 April	10.00 to 19.30



See startups in motion and connect with funding organisations

- **Photonics Innovation Village**
Showcasing developments from universities, nonprofits, and research centres
- **European Networks**
Meet Network representatives and discover more about links between groups across Europe in the field of Optics and Photonics.
- **Product Demonstrations**
Exhibiting companies will showcase new and successful products in half-hour demonstrations.



Photonics Innovation Village

Grand Hall · Open during Exhibition hours

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Purpose of the Innovation Village

- To support and publicise research teams from universities, non-profit institutions and research centres who are working on research, new applications and product development.
- To provide free exhibition space together with broad exposure and publicity to the young innovators who are developing the photonics-based products of the future.
- To showcase Europe's (and the world's) finest research programmes and to encourage the transfer of optics/photonics research and technology into new and useful products.



Innovation Village
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2012 COMPETITORS

DynAMITe (Dynamic range Adjustable for Medical Imaging Technology) sensor
UNIVERSITY OF LINCOLN, UK

Compact three-dimensional (3D) imaging and measurement systems
NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE

Low-cost and easy to use photohaemostatic device based on LED technology
LIGHT4TECH/P4L, GERMANY

The Photonics Explorer
EYEST, BELGIUM

MoBiSense: A Truly Low-Cost and Disposable Mobile Molecular Sensor as a Multi-Purpose Sensing Platform
NANODEV SCIENTIFIC, BILKENT UNIVERSITY - UNAM, TURKEY

Spectrifire: no-moving parts portable Fourier Transform spectrometer
FUSION PHOTONICS, IRELAND

Fabrication of nanostructured flat-surface micro-optical components
HERIOT-WATT UNIVERSITY, UK

Photonic crystal fiber sensor to measure refractive index, optical density and turbidity
SARATOV STATE UNIVERSITY, RUSSIA

Fiber probe as medical sensor with high spatial resolution
IPHT, GERMANY

Monitoring system for the cover slide in the laser cladding head
POLITECNICO DI MILANO, ITALY

Mono- and two-dimensional arrays for both 2D imaging and 3D ranging
POLITECNICO DI MILANO, ITALY

Nanoimprint for components
TECNALIA, SPAIN

Devices for optical monitoring of human health
INSTITUTE OF ATOMIC PHYSICS AND SPECTROSCOPY, LATVIA

Table-top setup for time-resolved detection of singlet oxygen luminescence in solutions and cell suspensions
HUMBOLDT-UNIVERSITY, GERMANY

Second harmonic generation into periodically poled fibres
MULTITEL, BELGIUM

CMOS single-photon time-correlated SPAD arrays for biomedical applications
EPFL LAUSANNE, SWITZERLAND

Conference Daily Schedule

Sunday Evening	Monday	Tuesday	Wednesday	Thursday	
	8423 Metamaterials (<i>Boardman/Johnson/Ziolkowski/Zheludev</i>), p. 23				
Starts 16.30	8424 Nanophotonics (<i>Andrews/Nunzi/Ostendorf</i>), p. 27 This conference starts Sunday 15 April at 16.30. See online programme for details.				
	8425 Photonic Crystal Materials and Devices (<i>Míguez/Romanov/Andreani/Seassal</i>), p. 32				
		8426 Micro-structured and Specialty Optical Fibres (<i>Kalli/Mendez</i>), p. 36			
	8427 Biophotonics: Photonic Solutions for Better Health Care (<i>Popp/Drexler/Tuchin/Matthews</i>), p. 39				
	8428 Micro-Optics (<i>Thienpont/Mohr/Zappe/Nakajima</i>), p. 45				
	8429 Optical Modelling and Design (<i>Wyrowski/Sheridan/Tervo/Meuret</i>), p. 48				
	8430 Optical Micro- and Nanometrology (<i>Gorecki/Asundi/Osten</i>), p. 52				
	8431 Silicon Photonics and Photonic Integrated Circuits (<i>Vivien/Honkanen/Pavesi/Pelli</i>), p. 55				
	8432 Semiconductor Lasers and Laser Dynamics (<i>Panajotov/Sciamanna/Valle/Michalzik</i>), p. 59				
	8433 Laser Sources and Applications (<i>Graf/Mackenzie/Jelinková/Powell</i>), p. 63				
	8434 Nonlinear Optics and its Applications (<i>Eggleton/Gaeta/Broderick</i>), p. 67				
	8435 Organic Photonics (<i>Rand/Adachi/van Elsbergen</i>), p. 70				
		8436 Optics, Photonics and Digital Technologies for Multimedia Applications (<i>Schelkens/Ebrahimi/Cristóbal/Truchetet/Saarikko</i>), p. 74			
				8437 Real-Time Image and Video Processing (<i>Kehtarnavaz/Carlsohn</i>), p. 77	
	8438 Photonics for Solar Energy Systems (<i>Wehrspohn/Gombert</i>), p. 79				
	8439 Optical Sensing and Detection (<i>Berghmans/Mignani/De Moor</i>), p. 92				
	8440 Quantum Optics (<i>Durt/Zadkov</i>), p. 96				

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Metamaterials

Conference Chairs: **Allan D. Boardman**, Univ. of Salford (United Kingdom); **Nigel P. Johnson**, Univ. of Glasgow (United Kingdom); **Richard W. Ziolkowski**, The Univ. of Arizona (United States)

Programme Committee: **Javier García de Abajo**, Consejo Superior de Investigaciones Científicas (Spain); **Antonello Andreone**, Univ. degli Studi di Napoli Federico II (Italy); **Sergey I. Bozhevolnyi**, Univ. of Southern Denmark (Denmark); **Mario Bertolotti**, Univ. degli Studi di Roma La Sapienza (Italy); **Igal Brener**, Sandia National Labs. (United States); **Tie Jun Cui**, Southeast Univ. (China); **Jennifer A. Dionne**, Univ. of California, Berkeley (United States); **Ulf Leonhardt**, Univ. of St. Andrews (United Kingdom); **Willie J. Padilla**, Boston College (United States); **Carsten Rockstuhl**, Friedrich-Schiller-Univ. Jena (Germany); **Tomasz Szoplik**, Univ. of Warsaw (Poland); **Sergei Tretyakov**, Aalto Univ. School of Science and Technology (Finland); **Giorgos P. Tsiornis**, Foundation for Research and Technology-Hellas (Greece); **Dao Hua Zhang**, Nanyang Technological Univ. (Singapore); **Said Zouhdi**, Lab. de Génie Électrique de Paris (France)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

Welcome and Introduction

Room: 400 **Mon. 13.10 to 13.15**

Allan D. Boardman, Univ. of Salford (United Kingdom);
Nigel P. Johnson, Univ. of Glasgow (United Kingdom);
Richard W. Ziolkowski, The Univ. of Arizona (USA)

SESSION 1

Room: 400 **Mon. 13.15 to 15.10**

Lensing/Guided Optics and Photonic Metamaterials

Session Chair: **Stefan Maier**,
 Imperial College, London (United Kingdom)

13.15: Science meets magic: photonic metamaterials
(Keynote Presentation), Ekmel Ozbay, Bilkent Univ. (Turkey) [8423-01]

13.45: Low loss metamaterial lens *(Invited Paper)*, Dao Hua Zhang, D. D. Li, Nanyang Technological Univ. (Singapore); C. C. Yan, Xuzhou Normal Univ. (China); Z. J. Xu, Nanyang Technological Univ. (Singapore) [8423-02]

14.05: Dark mode excitation in asymmetric planar optical metamaterial dimer, Ndubuisi E. J. Omaghali, Volodymyr Tkachenko, Antonello Andreone, Giancarlo Abbate, CNR-SPIN (Italy) and Univ. degli Studi di Napoli Federico II (Italy) [8423-03]

14.20: Sub-wavelength structured illumination *(Invited Paper)*, Michael Mazilu, Sebastian Kosmeier, Tom Vettenburg, Univ. of St. Andrews (United Kingdom); Edward T. F. Rogers, Nikolay Zheludev, ORC Univ. of Southampton (United Kingdom); Kishan Dholakia, Univ. of St. Andrews (United Kingdom) ... [8423-04]

14.35: Metal-dielectric metamaterials for guided optics applications, Anatole Lupu, Natalia Dubrovina, Rasta Ghasemi, Aloyse Degiron, André De Lustrac, Univ. Paris-Sud 11 (France) [8423-05]

14.50: Isotropic properties of the photonic bandgap in quasicrystals with low-index contrast *(Invited Paper)*, Antonello Andreone, Giancarlo Abbate, Emiliano Di Gennaro, Priya T. Rose, Univ. degli Studi di Napoli Federico II (Italy) [8423-92]
 Coffee Break 15.10 to 15.50

SESSION 2

Room: 400 **Mon. 15.50 to 17.40**

Chirality and Special Properties of Metamaterials

Session Chair: **Ekmel Ozbay**, Bilkent Univ. (Turkey)

15.50: Chiral and multifunctional meta-materials *(Invited Paper)*, Thierry Verbiest, Ward Brullot, Ventsislav Valev, Katholieke Univ. Leuven (Belgium) [8423-06]

16.10: New design methodologies for negative index, chiral, and broadband light harvesting metamaterials *(Invited Paper)*, Stefan A. Maier, Imperial College London (United Kingdom) [8423-07]

16.30: Helical assemblies of plasmonic nanorods as chiral metamaterials, Aristi Christofi, Univ. of Athens (Greece) and National Ctr. for Scientific Research Demokritos (Greece); Nikolaos Stefanou, Univ. of Athens (Greece); Georgios Gantzounis, Nikos Papanikolaou, National Ctr. for Scientific Research Demokritos (Greece) [8423-08]

16.45: Complete optical absorption in periodically patterned graphene metamaterials, Sukosin Thongrattanasiri, IQFR-Consejo Superior de Investigaciones Científicas (Spain); F. H. L. Koppens, ICFO - Institut de Ciències Fotòniques (Spain); Javier F. García de Abajo, IQFR-Consejo Superior de Investigaciones Científicas (Spain) [8423-90]

17.00: Localized modes, Fano resonances, and embedded states in nonlinear magnetic metamaterials *(Invited Paper)*, Mario I. Molina, Univ. de Chile (Chile) [8423-87]

17.20: Tunable Josephson metamaterials *(Invited Paper)*, Philipp Jung, Suzanne Butz, Karlsruher Institut für Technologie (Germany); Sergey V. Shitov, National Univ. of Science and Technology "MISIS" (Russian Federation) and Kotelnikov Institute of Radio Engineering and Electronics (Russian Federation); Alexey V. Ustinov, Karlsruher Institut für Technologie (Germany) and National Univ. of Science and Technology (Russian Federation) [8423-88]

Tuesday 17 April

SESSION 3

Room: 400 **Tues. 08.50 to 10.30**

Advanced Fabrication

Session Chair: **Jennifer Dionne**, Stanford Univ. (USA)

08.50: Three-dimensional metamaterials: from nano bumps to erected U-shape nano-rings and toroidal metamaterials in optical region *(Keynote Presentation)*, Din Ping Tsai, National Taiwan Univ. (Taiwan); Nikolay I. Zheludev, Vassili Savinov, Vassili Fedotov, ORC Univ. of Southampton (United Kingdom); Hung Guei Tsai, Chun Yen Liao, Kuang Sheng Chung, You Zhe Ho, Li Chung Kuo, Yen Ju Liu, Hsin Wei Huang, Yao-Wei Huang, Kuang-Yu Yang, Chih Ting Hsiao, Shulin Sun, National Taiwan Univ. (Taiwan); Bo Han Cheng, National Cheng Kung Univ. (Taiwan); Yu Lin Chen, Pin Chieh Wu, Chia Min Chang, Ming Lun Tseng, Wei Ting Chen, National Taiwan Univ. (Taiwan) [8423-09]

09.20: Nano-antenna for greatly enhanced THz emission in a photomixer *(Invited Paper)*, Jinghua Teng, Hendrix Tanoto, Steve Wu, A*STAR Institute of Materials Research and Engineering (Singapore); Mei Sun, Zhi Ning Chen, A*STAR Institute for Infocomm Research (Singapore); Bing Wang, Siew Lang Teo, Chan Choy Chum, A*STAR Institute of Materials Research and Engineering (Singapore); Stefan Maier, Imperial College London (United Kingdom); Guangyuan Si, Liyuan Deng, Aaron J. Danner, Soojin Chua, National Univ. of Singapore (Singapore) [8423-65]

09.40: Self-organized eutectic and metal-dielectric nanoplasmonic composites: manufacturing and properties *(Invited Paper)*, Dorota A. Pawlak, Marcin Gajc, Krzysztof Bienkowski, Andrzej Klos, Katarzyna Sadecka, Andrzej Stefanski, Barbara Surma, Institute of Electronic Materials Technology (Poland) [8423-11]

10.00: Fabrication of 70-nm split ring resonators by nanoimprint lithography, Graham J. Sharp, Ali Z. Khokhar, Nigel P. Johnson, Univ. of Glasgow (United Kingdom) [8423-12]

10.15: Left-handed Maxwellian aspects of natural pearl, Alope K. R. Sarkar, Aditi Sarkar, Arnab Gangopadhyay, Bijoy Krishna Girls' College (India) [8423-13]
 Coffee Break 10.30 to 11.10

SESSION 4

Room: 400 **Tues. 11.10 to 12.40**

Special/Quantum Effects

Session Chair: Dorota Pawlak,
Institute of Electronic Material Technology (Poland)

- 11.10: **Quantum plasmon resonances of individual and coupled metallic nanoparticles** (*Invited Paper*), Jennifer A. Dionne, Jonathan A. Scholl, Ai Leen Koh, Stanford Univ. (United States) [8423-14]
- 11.30: **Repulsive Casimir forces and quantum levitation in exotic media** (*Invited Paper*), Stanislav I. Maslovski, Mario G. Silveirinha, Instituto de Telecomunicações (Portugal) [8423-15]
- 11.50: **Cooperative response in ordinary and superconducting planar metamaterials** (*Invited Paper*), Janne Ruostekoski, Stewart Jenkins, Univ. of Southampton (United Kingdom) [8423-16]
- 12.05: **Graphene: a novel platform for capturing and manipulating light at the nanoscale** (*Invited Paper*), F. H. L. Koppens, ICFO - Institut de Ciències Fotòniques (Spain) [8423-86]
- 12.25: **Metamaterials can suppress Anderson localization of light in one dimension**, Felipe A. Pinheiro, Univ. Federal do Rio de Janeiro (Brazil); Dmitri Mogilevtsev, B.I. Stepanov Institute of Physics (Belarus); Raimundo dos Santos, Univ. Federal do Rio de Janeiro (Brazil); Solange Cavalcanti, Univ. Federal de Alagoas (Brazil); Luiz Oliveira, Univ. Estadual de Campinas (Brazil) [8423-17]
- Lunch/Exhibition Break 12.40 to 13.40

Keynote Session

Room: 400 **Tues. 13.40 to 14.10**

- 13.40: **Metamaterials: negative refraction and generalized Snell's Law** (*Keynote Presentation*), Vladimir M. Shalaev, Purdue Univ. (United States) [8423-42]

SESSION 5

Room: 400 **Tues. 14.10 to 15.55**

Sensors/Dispersion/Control

Session Chair: Janne Ruostekoski,
Univ. of Southampton (United Kingdom)

- 14.10: **Highly sensitive optical detection of organic materials using asymmetric split ring resonators** (*Invited Paper*), Nigel P. Johnson, Univ. of Glasgow (United Kingdom); Basudev Lahiri, National Institute of Standards and Technology (United States); Richard M. De La Rue, Univ. of Malaya (Malaysia); Scott G. McMeekin, Glasgow Caledonian Univ. (United Kingdom) [8423-18]
- 14.30: **Electromagnetic field sensors hidden from the field source** (*Invited Paper*), Antti Karilainen, Sergei Tretyakov, Aalto Univ. School of Science and Technology (Finland) [8423-19]
- 14.50: **Extremely thin metamaterial absorbers for subterahertz waves: from fundamentals towards applications in uncooled bolometric sensors**, Sergey A. Kuznetsov, Novosibirsk State Univ. (Russian Federation) and Budker Institute of Nuclear Physics SB RAS (Russian Federation); Andrey G. Paulish, Alexander V. Gelfand, A.V. Rzhhanov Institute of Semiconductor Physics (Russian Federation) and Novosibirsk State Univ. (Russian Federation); Mikhail A. Astafiev, Novosibirsk State Univ. (Russian Federation); Andrey V. Arzhannikov, Novosibirsk State Univ. (Russian Federation) and Budker Institute of Nuclear Physics SB RAS (Russian Federation); Victor N. Fedorinin, A.V. Rzhhanov Institute of Semiconductor Physics (Russian Federation) and Novosibirsk State Univ. (Russian Federation); Manfred K. A. Thumm, Novosibirsk State Univ. (Russian Federation) and Karlsruhe Institute of Technology (Germany) [8423-20]
- 15.05: **Dirac cone dispersions and metamaterials** (*Invited Paper*), Che-Ting Chan, Z. H. Hang, X. Q. Huang, Hong Kong Univ. of Science and Technology (Hong Kong, China) [8423-21]
- 15.25: **Diffraction-managed superlensing using metallodielectric heterostructures**, Carlos J. Zapata-Rodriguez, David Pastor, Univ. de València (Spain); Maria T. Caballero, Juan J. Miret, Univ. de Alicante (Spain) . . . [8423-22]
- 15.40: **Subwavelength diffraction-free beams in metallic wire media**, Juan J. Miret, Univ. de Alicante (Spain); Carlos J. Zapata-Rodriguez, Univ. de València (Spain); Slobodan Vukovic, Univ. of Belgrade (Serbia); David Pastor, Univ. de València (Spain) [8423-23]
- Coffee Break 15.55 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 6

Room: 400 **Wed. 08.50 to 10.15**

Tunable/Switching Metamaterials

Session Chair: Peter Nordlander, Rice Univ. (USA)

- 08.50: **Tunable microwave metamaterials controlled by light** (*Keynote Presentation*), Polina V. Kapitanova, Stanislav I. Maslovski, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) and The Australian National Univ. (Australia); Ilya V. Shadrivov, The Australian National Univ. (Australia) and National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Pavel M. Voroshilov, Dmitry S. Filonov, Pavel Below, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) and The Australian National Univ. (Australia); Yuri S. Kivshar, The Australian National Univ. (Australia) and National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [8423-24]

- 09.20: **Switching nonlinearity in a superconductor-enhanced metamaterial** (*Invited Paper*), Steven M. Anlage, Univ. of Maryland, College Park (United States) [8423-25]

- 09.40: **Thermally and optically tunable high-temperature superconducting terahertz metamaterials** (*Invited Paper*), Ranjan Singh, Jie Xiong, Hao Yang, Abul K. Azad, John F. O'Hara, Stuart A. Trugman, Quanxi Jia, Antoinette J. Taylor, Hou-Tong Chen, The Ctr. for Integrated Nanotechnologies (United States) [8423-26]

- 10.00: **Electrically tunable mid-infrared metamaterials** (*Invited Paper*), Young Chul Jun, Sandia National Labs. (United States) [8423-27]

Coffee Break 10.15 to 10.55

SESSION 7

Room: 400 **Wed. 10.55 to 12.40**

Plasmonic/Active Media I

Session Chair: Steven Anlage, Univ. of Maryland (USA)

- 10.55: **Control of resonance characteristics of metamaterials in THz and optical frequency range** (*Keynote Presentation*), Jeong-Weon Wu, Ewha Womans Univ. (Korea, Republic of) [8423-28]

- 11.25: **Plasmonic nanojets: ultrafast hydrodynamics in metamaterials** (*Invited Paper*), Ventsislav K. Valev, Denitza Denkova, Xuezhi Zheng, Katholieke Univ. Leuven (Belgium); Arseniy Kuznetsov, A*STAR - Data Storage Institute (Singapore); Carsten Reinhardt, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany); Gichka Tsutsumanova, Sofia Univ. (Bulgaria); Edward J. Osley, Univ. College London (United Kingdom); Veselin Petkov, Katholieke Univ. Leuven (Belgium); Ben De Clercq, Univ. Hasselt (Belgium); Alejandro V. Silhanek, Univ. de Liège (Belgium); Yogesh Jayaram, Vladimir Volski, Katholieke Univ. Leuven (Belgium); Paul Warburton, Univ. College London (United Kingdom); Guy Vandenbosch, Katholieke Univ. Leuven (Belgium); Stoyan Russev, Sofia Univ. (Bulgaria); Oleg A. Aktsipetrov, Lomonosov Moscow State Univ. (Russian Federation); Marcel Ameloot, Univ. Hasselt (Belgium); Victor V. Moshchalkov, Thierry Verbiest, Katholieke Univ. Leuven (Belgium) [8423-29]

- 11.45: **Plasmonics: from quantum effects to Fano interference and light harvesting** (*Invited Paper*), Peter J. Nordlander, Rice Univ. (United States) [8423-30]

- 12.05: **Plasmonic Brewster angle for broadband absorption, enhanced nonlinearities and directional emitters** (*Invited Paper*), Andrea Alu, Christos Argyropoulos, Khai Le, The Univ. of Texas at Austin (United States) . . . [8423-31]

- 12.25: **Polarization scrambling with meander structures**, Philipp Schau, Liwei Fu, Karsten Frenner, Heinz Schweizer, Martin Schäferling, Harald Giessen, Univ. Stuttgart (Germany); Luis Miguel Gaspar Venancio, European Space Research and Technology Ctr. (Netherlands); Sandro Hannemann, cosine Research B.V. (Netherlands); Wolfgang Osten, Univ. Stuttgart (Germany) [8423-10]

Lunch/Exhibition Break 12.40 to 13.40

SESSION 8

Room: 400 **Wed. 13.40 to 15.20**

Plasmonic/Active Media II

Session Chair: Javier F. Garcia de Abajo, IQFR-Consejo Superior de Investigaciones Científicas (Spain)

- 13.40: **Alternative route to low-loss metamaterials and plasmonics** (*Invited Paper*), Vassili A. Fedotov, Optoelectronics Research Ctr. (United Kingdom) [8423-94]
- 14.00: **Passive plasmonic components based on sub-wavelength structured metal film** (*Invited Paper*), Tie Jun Cui, Xiaopeng Shen, Southeast Univ. (China) [8423-32]
- 14.20: **Conquering loss in metamaterials and plasmonics: from optical gain to parametric amplification** (*Invited Paper*), Mikhail A. Noginov, Mohammed E. Mayy, J. K. Kitur, Guohua Zhu, Norfolk State Univ. (United States) [8423-33]
- 14.40: **Plasmonic nanoparticles assemblies: preparation, structural, and optical properties** (*Invited Paper*), Thomas Bürgi, Alastair Cunningham, Univ. of Geneva (Switzerland) [8423-34]
- 15.00: **Angle-resolved cathodoluminescence imaging spectroscopy of plasmonic metamaterials** (*Invited Paper*), Albert Polman, FOM Institute for Atomic and Molecular Physics (Netherlands) [8423-35]
- Coffee Break 15.20 to 16.00

SESSION 9

Room: 400 **Wed. 16.00 to 17.45**

Quantum Dots and Nanoparticles

Session Chair: Vassili Fedotov, Univ. of Southampton (United Kingdom)

- 16.00: **Non-Foster particles for metamaterials** (*Invited Paper*), Nader Engheta, Univ. of Pennsylvania (United States) [8423-36]
- 16.20: **Hybrid quantum dot-metal nanoparticle systems: connecting the dots** (*Invited Paper*), Garnett W. Bryant, Joint Quantum Institute (United States) and National Institute of Standards and Technology (United States); Ryan D. Artuso, Univ. of Maryland, College Park (United States) [8423-37]
- 16.40: **Optical spectroscopy, cathodoluminescence, and electron energy loss spectroscopy on metal nanoparticles** (*Invited Paper*), Viktor Myroshnychenko, Javier F. Garcia de Abajo, Instituto de Química-Física (Spain) [8423-38]
- 17.00: **Cloaking dielectric spheres by a shell of plasmonic nanoparticles**, Mohamed D. Farhat, Stefan Muehlig, Carsten Rockstuhl, Falk Lederer, Friedrich-Schiller-Universität Jena (Germany); Alastair Cunningham, Thomas Bürgi, Univ. of Geneva (Switzerland) [8423-39]
- 17.15: **Cloaking in layered system of nanosphere-dispersed nematic liquid crystal metamaterial for chosen infrared wavelengths**, Grzegorz Pawlik, Antoni Mitus, Wrocław Univ. of Technology (Poland); Iam-Choon Khoo, The Pennsylvania State Univ. (United States) [8423-40]
- 17.30: **Optical pulse frequency conversion inside transformation-optical metamaterials**, Vincent Ginis, Vrije Univ. Brussel (Belgium); Philippe Tassin, Ames Lab. (United States); Ben Craps, Jan Danckaert, Irina Veretennicoff, Vrije Univ. Brussel (Belgium) [8423-41]

POSTERS – WEDNESDAY

Grand Hall **Wed. 17.40 to 19.10**

A poster session will be held on Wednesday 17.40 to 19.10. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Wednesday. 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 at <http://spie.org/x34963.xml>.

- Unidirectional transmission in photonic-crystal gratings at beam-type illumination**, Atilla O. Cakmak, Evrim Colak, Bilkent Univ. (Turkey); Andriy E. Serebryannikov, Technische Univ. Hamburg-Harburg (Germany); Ekmeleddin Ozbay, Bilkent Univ. (Turkey) [8423-59]
- Strong magnetism by closely spaced gold nanostructures**, Maria Lorente-Crespo, Ruben Ortuno, Irene Alepuz-Benaches, Carlos Garcia-Meca, Li Wang, Univ. Politècnica de Valencia (Spain); Yasin Ekinci, Paul Scherrer Institut (Switzerland); Alejandro Martinez, Univ. Politècnica de Valencia (Spain) [8423-60]
- Dispersion, diffraction, and surface waves in semi-infinite metal-dielectric superlattices**, Slobodan Vukovic, Univ. of Belgrade (Serbia); Carlos J. Zapata-Rodriguez, Univ. de València (Spain); Juan J. Miret, Univ. de Alicante (Spain); Zoran Jakšić, Univ. of Belgrade (Serbia) [8423-61]

Analytic design of chirped planar photonic crystals in the metamaterial regime, Eric Cassan, Institut d'Électronique Fondamentale (France); Khanh Van Do, Delphine Marris-Morini, Laurent Vivien, Institut d'Électronique Fondamentale (United States) [8423-62]

Dynamics of frequency-modulated wave packets in nonlinear oppositely directed coupler, Igor O. Zolotovskii, Dmitriy I. Sementsov, Andrey A. Fotiadi, Igor O. Yavtushenko, Christina V. Borisova, Elena I. Barykina, Ulyanovsk State Univ. (Russian Federation) [8423-63]

Dual hyperbolic-elliptic media, Carlos J. Zapata-Rodriguez, Pablo Cencillo, Mario Avellaneda, Univ. de València (Spain); Slobodan Vukovic, Univ. of Belgrade (Serbia); Juan J. Miret, Univ. de Alicante (Spain) [8423-64]

Non-volatile bi-directional all-optical switching in chalcogenide glass metamaterials, Behrad Gholipour, Jianfa Zhang, Kevin F. MacDonald, Daniel W. Hewak, Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-66]

Optimization of field propagation in optical coaxial nano-waveguides of complicated form, Olga N. Kozina, Institute of Radio Engineering and Electronics (Russian Federation); Leonid A. Melnikov, Saratov State Technical Univ. (Russian Federation); Igor Nefedov, Aalto Univ. School of Science and Technology (Finland) [8423-67]

Metamaterial engineering of plasmonic metal luminescence, Mengxin Ren, ORC Univ. of Southampton (United Kingdom) and Nankai Univ. (China); Giorgio Adamo, Eric Plum, JinKyu So, Kevin F. MacDonald, ORC Univ. of Southampton (United Kingdom); Jingjun Xu, Nankai Univ. (China); Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-68]

From nonlinear optics to nonlinear plasmonics: giant nonlinear optical activity in a metamaterial, Mengxin Ren, ORC Univ. of Southampton (United Kingdom) and Nankai Univ. (China); Eric Plum, ORC Univ. of Southampton (United Kingdom); Jingjun Xu, Nankai Univ. (China); Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-69]

Coherent emission from plasmonic metamaterials, Giorgio Adamo, Jun-Yu Ou, JinKyu So, ORC Univ. of Southampton (United Kingdom); Stewart D. Jenkins, Univ. of Southampton (United Kingdom); Kevin F. MacDonald, ORC Univ. of Southampton (United Kingdom); Francesco De Angelis, Enzo Di Fabrizio, Italian Institute of Technology (Italy) and Univ. of Magna Graecia (Italy); Janne Ruostekoski, Univ. of Southampton (United Kingdom); Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-70]

Optical gecko toe: near-field force sticks a metamaterial to any surface, Jianfa Zhang, Kevin F. MacDonald, Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-71]

Nano-electro-mechanical switchable (NEMS) photonic metamaterial, Jun-Yu Ou, Eric Plum, ORC Univ. of Southampton (United Kingdom); Wei Ting Chen, ORC Univ. of Southampton (United Kingdom) and National Taiwan Univ. (Taiwan); Din Ping Tsai, National Taiwan Univ. (Taiwan); Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-72]

Ultrafast nonlinearity of graphene metamaterial, Andrey Nikolaenko, Evangelos Atmatzakis, Nikitas Papisimakis, ORC Univ. of Southampton (United Kingdom); Zhiqiang Luo, Ze Xiang Shen, Nanyang Technological Univ. (Singapore); Francesco De Angelis, Enzo Di Fabrizio, Istituto Italiano di Tecnologia (Italy) and Univ. degli studi Magna Graecia di Catanzaro (Italy); Nikolay Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-73]

Light absorption by interference of radiation in a metamaterial: an anti-LASER, Jianfa Zhang, Kevin F. MacDonald, Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-74]

Electro-optical modulation of sub-terahertz radiation in a superconducting metamaterial, Vassili Savinov, Vassili A. Fedotov, ORC Univ. of Southampton (United Kingdom); Peter A. J. de Groot, Univ. of Southampton (United Kingdom); Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-75]

Light localization, linear, and nonlinear properties of disordered plasmonic metamaterials, Tsung Sheng Kao, Tapashree Roy, Mengxin Ren, Nikitas Papisimakis, ORC Univ. of Southampton (United Kingdom); Francesco De Angelis, Enzo Di Fabrizio, Istituto Italiano di Tecnologia (Italy) and Univ. degli studi Magna Graecia di Catanzaro (Italy); Andrey Nikolaenko, Nikolay Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-76]

Toroidal plasmonic metamaterial, Vassili Savinov, ORC Univ. of Southampton (United Kingdom); Wei Ting Chen, ORC Univ. of Southampton (United Kingdom) and National Taiwan Univ. (Taiwan); Yao-Wei Huang, National Taiwan Univ. (Taiwan); Vassili A. Fedotov, ORC Univ. of Southampton (United Kingdom); Din Ping Tsai, National Taiwan Univ. (Taiwan); David B. Burckel, Igal Brener, Sandia National Labs. (United States); Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-77]

Flux exclusion quantum superconducting metamaterial, Vassili Savinov, Anagnostis Tsiatmas, Anthony R. Buckingham, Vassili A. Fedotov, ORC Univ. of Southampton (United Kingdom); Peter A. J. de Groot, Univ. of Southampton (United Kingdom); Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-78]

Femtosecond polarization conversion with plasmonic crystals, Polina Vabishchevich, Maxim Shcherbakov, Varvara Komarova, Tatyana Dolgova, Andrey Fadyanin, Lomonosov Moscow State Univ. (Russian Federation) [8423-79]

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Engineering interface singularities with metamaterials: planar optical prism and diffraction grating, Tapashree Roy, Andrey E. Nikolaenko, Edward T. F. Rogers, Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-80]

Cooperative asymmetry-induced transparency in ensembles of interacting plasmonic resonators, Stewart D. Jenkins, Janne Ruostekoski, Univ. of Southampton (United Kingdom) [8423-81]

Light transmission spectra in a symmetrical fibonacci metamaterial structure, Eudenilson L. Albuquerque, Umberto L. Fulco, Manoel S. Vasconcelos, Univ. Federal do Rio Grande do Norte (Brazil) [8423-82]

Phonon polaritons in metamaterial photonic crystals at terahertz frequency range, Manoel S. Vasconcelos, Eudenilson L. Albuquerque, Umberto L. Fulco, Univ. Federal do Rio Grande do Norte (Brazil) [8423-83]

Experimental demonstration of dispersion engineering through mode interactions in plasmonic microcavities, Liwei Fu, Philipp Schau, Karsten Frenner, Heinz Schweizer, Jun Zhao, Bettina Frank, Larissa Wollet, Patrick Gaiser, Bruno Gompf, Harald Giessen, Wolfgang Osten, Univ. Stuttgart (Germany) [8423-84]

Tunable metamaterials: a comparative study of different geometries and modulation mechanisms, Antonello Andreone, Univ. degli Studi di Napoli Federico II (Italy) [8423-93]

Thursday 19 April

Hot Topics III

Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall

For details, please see page 13

SESSION 10

Room: 400 Thurs. 10.40 to 12.50

Nonlinear/Active

Session Chair: **Natalia M. Litchinitser**, Univ. of Buffalo (USA)

10.40: **Metamaterials for active photonics and energy conversion** (*Keynote Presentation*), Harry A. Atwater, California Institute of Technology (United States) [8423-43]

11.10: **Nonlinear responses in optical metamaterials: theory and experiment** (*Invited Paper*), Shiwei Tang, Fudan Univ. (China); David J. Cho, Univ. of California, Berkeley (United States); Hao Xu, Fudan Univ. (China); Wei Wu, Hewlett-Packard Labs. (United States); Y. Ron Shen, Univ. of California, Berkeley (United States); Lei Zhou, Fudan Univ. (China) [8423-44]

11.30: **Second harmonic generation in plasmonic nanoresonators** (*Invited Paper*), Marco Centini, Alessio Benedetti, Mario Bertolotti, Concita Sibilia, Univ. degli Studi di Roma La Sapienza (Italy) [8423-45]

11.50: **Nonlinear magneto-optic light control of metamaterial waveguides** (*Invited Paper*), Allan D. Boardman, Peter Egan, Univ. of Salford (United Kingdom); Yury Rapoport, National Taras Shevchenko Univ. of Kyiv (Ukraine) [8423-46]

12.10: **Intrinsic localization in nonlinear and superconducting metamaterials** (*Invited Paper*), Nikos Lazarides, George P. Tsironis, Univ. of Crete (Greece) and IESL-FORTH (Greece) [8423-47]

12.30: **TBA** [8423-96]

Lunch Break 12.50 to 13.50

SESSION 11

Room: 400 Thurs. 13.50 to 14.45

Nonlinear/Special Effects

Session Chair: **Peter de Groot**, Univ. of Southampton (United Kingdom)

13.50: **Nonlinear and reconfigurable metamaterial components** (*Invited Paper*), Natalia M. Litchinitser, Apra Pandey, Univ. at Buffalo (United States) [8423-48]

14.10: **Nonlinear lasing-dynamics of gain-enhanced nanoplasmonic metamaterials** (*Invited Paper*), S. Wuestner, Andreas Pusch, Joachim Hamm, Univ. of Surrey (United Kingdom); Kosmas L. Tsakmakidis, Ortwin Hess, Imperial College London (United Kingdom) [8423-49]

14.30: **Compensation of plasmonic losses in metamaterial using nonlinear interactions**, Mengxin Ren, ORC Univ. of Southampton (United Kingdom) and Nankai Univ. (China); Eric Plum, ORC Univ. of Southampton (United Kingdom); Jingjun Xu, Nankai Univ. (China); Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8423-50]

SESSION 12

Room: 400 Thurs. 14.45 to 17.20

Magnetic Metamaterials

Session Chair: **Nikos Lazarides**, Univ. of Crete (Greece)

14.45: **Magnetoelastic nonlinearity and conformational effects in metamaterials** (*Invited Paper*), Mikhail Lapine, The Australian National Univ. (Australia) [8423-51]

15.05: **Novel meta-surfaces to manipulate electromagnetic waves** (*Invited Paper*), Lei Zhou, Fudan Univ. (China) [8423-52]

Coffee Break 15.25 to 16.05

16.05: **Magnetic metamaterials** (*Invited Paper*), Peter de Groot, Univ. of Southampton (United Kingdom) [8423-53]

16.25: **Unravelling vector fields at the nanoscale** (*Invited Paper*), Laurens K. Kuipers, FOM Institute for Atomic and Molecular Physics (Netherlands) [8423-54]

16.45: **Magnetic light-matter interactions: quantifying and exploiting magnetic dipole transitions** (*Invited Paper*), Rashid Zia, Brown Univ. (United States) [8423-91]

17.05: **Concentrator of magnetic field of light**, Piotr Wróbel, Univ. of Warsaw (Poland); Tomasz J. Antosiewicz, Chalmers Univ. of Technology (Sweden); Tomasz Szoplik, Univ. of Warsaw (Poland) [8423-55]

Don't miss the Photonics Europe Exhibition

Location: Grand Hall

Monday 16 April 15.00 to 19.10

Tuesday 17 April 10.00 to 16.00

Wednesday 18 April 10.00 to 19.30

Conference 8424 · Room: Silver Hall

Sunday-Thursday 15-19 April 2012 • Proceedings of SPIE Vol. 8424

Nanophotonics

Conference Chairs: David L. Andrews, Univ. of East Anglia Norwich (United Kingdom); Jean-Michel Nunzi, Queen's Univ. (Canada); Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

Programme Committee: Fabrice Charra, Commissariat à l'Énergie Atomique (France); Alain Dereux, Institut Carnot de Bourgogne (France); Aleksandra B. Djuricic, The Univ. of Hong Kong (Hong Kong, China); Harald W. Giessen, Univ. Stuttgart (Germany); Yuval Golan, Ben-Gurion Univ. of the Negev (Israel); Dirk M. Guld, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Martti Kauranen, Tampere Univ. of Technology (Finland); Satoshi Kawata, Osaka Univ. (Japan); Karsten König, JenLab GmbH (Germany); Stefan A. Maier, Imperial College London (United Kingdom); Manijeh Razeghi, Northwestern Univ. (United States); Carsten Reinhardt, Laser Zentrum Hannover e.V. (Germany); Gary P. Wiederrecht, Argonne National Lab. (United States); Anatoly V. Zayats, King's College London (United Kingdom)

Sunday 15 April

Welcome and Introduction

Room: Silver Hall Sun. 15.55 to 16.00

David L. Andrews, Univ. of East Anglia Norwich (United Kingdom)

SESSION 1

Room: Silver Hall Sun. 16.00 to 18.00

Optical Spectroscopy of Nanoparticles

Session Chair: David L. Andrews,
Univ. of East Anglia Norwich (United Kingdom)

- 16.00: **Optical spectroscopy of single molecules and gold nanoparticles** (*Invited Paper*), Michel Orrit, Leiden Univ. (Netherlands). [8424-01]
- 16.30: **Metal nano-particle affected optical and transport properties of molecular complexes** (*Invited Paper*), Volkhard May, Humboldt-Univ. zu Berlin (Germany) [8424-02]
- 17.00: **Single particle spectroscopy of twisted gold bipyramids correlated with TEM and TEM 3D**, Delphine Manchon, Julien Navarro, Alexis Mosset, Christophe Bonnet, Jean Lermé, Frédéric Lerouge, Michel Broyer, Stéphane Parola, Michel Pellarin, Univ. Claude Bernard Lyon 1 (France). [8424-03]
- 17.20: **Anomalous lifetime effects in fluorescence resonance energy transfer (FRET)**, Thomas A. Masters, Richard J. Marsh, Univ. College London (United Kingdom); Banafshe Larijani, Cancer Research UK London Research Institute (United Kingdom); Angus J. Bain, Univ. College London (United Kingdom) [8424-04]
- 17.40: **In situ optical monitoring of the plasmon resonance of Ag nanoparticles submitted to oxidation or/and etching**, Lionel Simonot, Vivek Antad, David Babonneau, Sophie Camelio, Frédéric Pailloux, Philippe Guérin, Univ. de Poitiers (France) [8424-05]

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

SESSION 2

Room: Silver Hall Mon. 13.00 to 15.10

Surface Plasmons and Devices I

Session Chair: Anatoly V. Zayats,
King's College London (United Kingdom)

- 13.00: **Dielectric loaded surface plasmon waveguides for datacom applications** (*Invited Paper*), Jean-Claude Weeber, Karim Hassan, Laurent Markey, Alain Dereux, Lab. Interdisciplinaire Carnot de Bourgogne (France); Alexandros K. Pitiilakis, Odysseas Tsilipakos, Emmanouil E. Kriezis, Aristotle Univ. of Thessaloniki (Greece); Michael G. Nielsen, Sergey I. Bozhevolnyi, Univ. of Southern Denmark (Denmark). [8424-06]
- 11.30: **High efficient broadband nano-plasmonic coupler for directional control of light propagation in a photonic waveguide**, Themis Sidiropoulos, Stefan A. Maier, Rupert F. Oulton, Imperial College London (United Kingdom) [8424-07]
- 13.50: **Interference of ultrashort surface plasmon polaritons: double slits, plasmonic cavities, and propagation tracking**, Carsten Reinhardt, Arune Gaidukeviciute, Wei Cheng, Urs Zywiets, Andrey B. Evlyukhin, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany). [8424-08]
- 14.10: **Surface plasmon coupled emission in highly directional and sensitive plasmonic devices**, Nan-Fu Chiu, Shih-Lin Lai, National Taiwan Normal Univ. (Taiwan); Jiun-Haw Lee, Chii-Wann Lin, National Taiwan Univ. (Taiwan) [8424-09]

14.30: **Nanoantenna structures for strong coupling studies of surface plasmon polaritons and quantum dots**, Aaro I. Väkeväinen, Robert J. Moerland, Antti-Pekka Eskelinen, Heikki T. Rekola, Gaurav Sharma, Lauri J. Lehtola, Päivi Törmä, Aalto Univ. School of Science and Technology (Finland) [8424-10]

14.50: **Optical properties of isolated and arrayed hollow nanotriangles**, Jingbo Zhang, Yi Yu, Sandeep Kulkarni, Yuan Hsing Fu, A*STAR - Data Storage Institute (Singapore) [8424-127]

Coffee Break 15.10 to 15.50

SESSION 3

Room: Silver Hall Mon. 15.50 to 17.40

Quantum and Nonlinear Optics in Nanostructures

Session Chair: Jean-Michel Nunzi, Queen's Univ. (Canada)

- 15.50: **Quantum-dot Mollow triplet in a semiconductor cavity-QED system** (*Invited Paper*), Stephen Hughes, Queen's Univ. (Canada). [8424-11]
- 16.20: **Controlling the interaction of photons and single quantum systems in a plasmonic nanoparticle dimer**, Andreas M. Kern, Eberhard Karls Univ. Tübingen (Germany); Alexey I. Chizhik, Georg-August-Univ. Göttingen (Germany); Alfred J. Meixner, Eberhard Karls Univ. Tübingen (Germany) [8424-12]
- 16.40: **Quantum plasmonics: nonlinear effects and field enhancement in a plasmonic nanoparticle dimer**, Dana C. Marinica, Univ. Paris-Sud 11 (France); Andrei K. Kazansky, Donostia International Physics Ctr. (Spain); Peter Nordlander, Rice Univ. (United States); Javier Aizpurua, Donostia International Physics Ctr. (Spain); Andrei G. Borisov, Univ. Paris-Sud 11 (France) [8424-13]
- 17.00: **Strong second-harmonic generation from silicon nitride films and resonant waveguide gratings**, Tingyin Ning, Henna Pietarinen, Ravi Kumar, Goëry Genty, Martti Kauranen, Outi Hyvärinen, Janne Simonen, Tampere Univ. of Technology (Finland); Tommi Kaplas, Univ. of Eastern Finland (Finland) [8424-14]
- 17.20: **Nonperturbative cavity-QED using a quantum dot and a single metal nanoparticle**, Cole P. Van Vlack, Queen's Univ. (Canada); Philip Trøst Kristensen, Technical Univ. of Denmark (Denmark); Stephen Hughes, Queen's Univ. (Canada) [8424-15]

POSTERS—MONDAY

Grand Hall Mon. 17.45 to 19.15

A poster session will be held on Monday 17.45 to 19.15. Posters will be on display after 10.00 Monday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Monday. 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 at <http://spie.org/x34963.xml>.

Generation of entangled photons by excited two-level supercold atom in high finesse nanocavity with single decaying resonance mode, Vladislav F. Cheltsov, Moscow State Mining Univ. (Russian Federation) [8424-61]

Dynamic light scattering study of mixture PEG with the AOT microemulsion, Soheil Sharifi, Univ. of Sistan and Baluchestan (Iran, Islamic Republic of) [8424-62]

Real-space distribution of cavity modes in single ZnO nanowires, Frank Güell, Univ. de Barcelona (Spain); Alejandro R. Gofí, Consejo Superior de Investigaciones Científicas (Spain); Josep Oriol Ossó, MATGAS (Spain); Luis Alberto Pérez, Eduardo A. Coronado, La Univ. Nacional de Córdoba (Argentina); Joan Ramon Morante, Institut de Recerca en Energia de Catalunya (Spain) [8424-63]

Description of undamped surface plasmon-polariton collective mode in metallic nanochain within nonlinear approach, Lucjan Jacak, Krzysztof Marszalski, Janusz Jacak, Wojciech Donderowicz, Witold A. Jacak, Ryszard Gonczarek, Wroclaw Univ. of Technology (Poland) [8424-64]

- The design and optimization of three-wavelength wavelength division multiplexing based on photonic crystal waveguides**, Pei Liang, China Jiliang Univ. (China) [8424-65]
- Improving the performance of white light emitting diode by using dielectric film technique**, Le Wang, China Jiliang Univ. (China) [8424-66]
- Optimizing magneto-optical activity and optical losses by electromagnetic field engineering in metal-dielectric magnetoplasmonic nanodisks**, Alfonso Cebollada, Juan Carlos Banthí, David Meneses, Fernando García, María Ujué González, Antonio García-Martín, Gaspar Armelles, Consejo Superior de Investigaciones Científicas (Spain) [8424-67]
- Triggering a photochromic ring-opening reaction of spiropyran derivative by excitation rare earth doped luminescent nanocrystals**, Bartłomiej Straszak, Katarzyna Matczyszyn, Joanna Olesiak-Banska, Radosław Kolkowski, Marcin Nyk, Marek Samoc, Wrocław Univ. of Technology (Poland); Remi Metivier, Keitaro Nakatani, Ecole Normale Supérieure (France); Pei Yu, Univ. Paris-Sud 11 (France) [8424-68]
- Periodic nanogap arrays for Raman and fluorescence enhancement: modeling and performance**, Thomas Siegfried, Yasin Ekinci, Paul Scherrer Institut (Switzerland); Harun Solak, Eulitha AG (Switzerland); Hans-Christian Sigg, Paul Scherrer Institut (Switzerland); Olivier J. F. Martin, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8424-69]
- Transverse averages of the Gouy phase shift and their relation with the irradiance moments of a beam**, Pedro M. Mejías Arias, Rosario Martínez-Herrero, Univ. Complutense de Madrid (Spain) [8424-70]
- Creation and investigation of self-organized hybrid nanostructures based on bacteriorhodopsin and silver nanoparticles**, Grigory E. Adamov, Evgeny P. Grebennikov, Vagiz R. Kurbangaleev, Nikolay O. Poroshin, Yury S. Orlov, Pavel S. Shmelin, Pavel B. Malyshev, Technomash, Ltd. (Russian Federation) [8424-71]
- Integration of nanoscale features into high efficiency III-nitride light-emitting diodes**, Sang-Mook Kim, Korea Photonics Technology Institute (Korea, Republic of) [8424-72]
- Nanoparticles size control at ultrashort laser ablation of gold thin film**, Petar A. Atanasov, Nikolay N. Nedyalkov, Institute of Electronics (Bulgaria); Salvatore Amoruso, Xuan Wang, Riccardo Bruzzese, Univ. degli Studi di Napoli Federico II (Italy) [8424-73]
- On the propagating and evanescent waves associated to azimuthally polarized non-paraxial fields**, Pedro M. Mejías Arias, Rosario Martínez-Herrero, Univ. Complutense de Madrid (Spain); Ignasi Juvells, Artur Carnicer, Univ. de Barcelona (Spain) [8424-74]
- Unexplained high sensitivity of the reflectance of porous natural photonic structures to the presence of gases and vapours in the atmosphere**, Sébastien R. Mouchet, Olivier Deparis, Jean-Pol Vigneron, Facultes Univ. Notre Dame de la Paix (Belgium) [8424-75]
- Unidirectional surface plasmon polariton excitation at asymmetrical periodic metalodielectric multilayers**, Agata Roszkiewicz, Wojciech Nasalski, Institute of Fundamental Technological Research (Poland) [8424-76]
- Highly efficient Förster resonance energy transfer in hybrid organic/inorganic semiconductor nanostructures**, Diana Savateeva, Centro de Física de Materiales (Spain); Dzmityry Melnikau, CIC nanoGUNE Consolider (Spain); Yury P. Rakovich, Centro de Física de Materiales (Spain) [8424-77]
- Enhanced photoluminescence of Alq₃ via patterned array silver dendritic nanostructures**, Wei-Shiou Syu, Feng Chia Univ. (Taiwan) [8424-78]
- Fabrication of large-area bi-layer wire-grid polarizers for display technology using EUV interference lithography**, Li Wang, Mohamad Hojjei, Bernd Terhalle, Paul Scherrer Institute (Switzerland); Harun H. Solak, Eulitha AG (Switzerland); Yasin Ekinci, Paul Scherrer Institute (Switzerland) [8424-79]
- Colloidal QDs-polymer nanocomposites**, Henry Gordillo, Isaac Suárez, Juan Martínez-Pastor, Vladimir Chirvony, Raul Garcia, Rafael Abargues, Pedro J. Rodriguez, Univ. de València (Spain) [8424-80]
- Surface plasmons in the near UV wavelength range in circular thin metal film gratings**, Katsiaryna Ushakova, Silvania F. Pereira, H. Paul Urbach, Technische Univ. Delft (Netherlands) [8424-81]
- Integrated silicon contradirectional couplers: modeling and experiment**, Wei Shi, Xu Wang, Han Yun, Wen Zhang, Lukas Chrostowski, Nicolas A. F. Jaeger, The Univ. of British Columbia (Canada) [8424-82]
- Ultrafast plasmonic photoemission and electron acceleration from metallic nanostructures**, Peter Dombi, Péter Rácz, István Márton, Research Institute for Solid-State Physics and Optics (Hungary); Christine Prietl, Ulrich Hohenester, Joachim Krenn, Karl-Franzens-Univ. Graz (Austria) [8424-83]
- Controlling the emission features of two-chromophore nano-sources with coaxial nanowires**, Jean-Luc Duvail, Alexandre Garreau, Institut des Matériaux Jean Rouxel (France); Stéphane Cordier, Yann Molard, Univ. de Rennes 1 (France); Florian Massuyeau, Institut des Matériaux Jean Rouxel (France); Alain Bulou, Univ. du Maine (France); Jany Wéry, Eric Faulques, Institut des Matériaux Jean Rouxel (France) [8424-84]
- Separation of different shape gold nanostructures from a wet chemistry route and stability study upon irradiation with femtosecond laser**, Marta Gordel, Joanna Olesiak-Banska, Katarzyna Matczyszyn, Marek J. Samoc, Wrocław Univ. of Technology (Poland) [8424-85]
- The bamboo-like nanotubes as nanomaterial for energy conversion**, Olga E. Glukhova, Michel M. Slepchenkov, Anna S. Kolesnikova, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Gennadiy V. Torgashov, Institute of Radio Engineering and Electronics (Russian Federation) [8424-86]
- Surface structure enhanced second harmonic generation in organic nanofibers**, Jacek Fiutowski, Christian Maibohm, Oksana Kostiukenko, Univ. of Southern Denmark (Denmark); Andreas Osadnik, Arne Lützen, Rheinische Friedrich-Wilhelms-Univ. Bonn (Germany); Horst-Günter Rubahn, Univ. of Southern Denmark (Denmark) [8424-87]
- Laser cooling with Tm³⁺: doped nano-crystals of oxy-fluoride glass ceramic**, Galina A. Nemova, Raman Kashyap, Ecole Polytechnique de Montréal (Canada) [8424-88]
- Strong magnetic resonance of coupled aluminum nanodisks on top of a silicon waveguide**, Irene Alepuz-Benach, Carlos Garcia-Meca, Francisco José Rodríguez-Fortuño, Ruben Ortuño, María Lorente-Crespo, Amadeu Griol, Javier Marti-Sendra, Alejandro Martinez, Univ. Politècnica de Valencia (Spain)[8424-89]
- CW z-scan measurements using Fresnel diffraction theory in TiO₂ nanocrystals prepared by pulsed laser ablation in water**, Fariba Moslehirad, Islamic Azad Univ. (Iran, Islamic Republic of); Mohammad Hossein Majles Ara, Tarbiat Moallem Univ. (Iran, Islamic Republic of); Elahe Nahvifard, Behnaz Khorrami, Imam Khomeini International Univ. (Iran, Islamic Republic of) [8424-90]
- Control of spontaneous emission in semi-conducting photonic nanowires**, Mathieu Munsch, Joel Bleuse, Julien Claudon, Megan Creasey, Nitin Malik, Emmanuel Dupuy, Commissariat à l'Énergie Atomique (France); Yuntian Chen, Niels Gregersen, Jesper Mork, Technical Univ. of Denmark (Denmark); Ivan Maksymov, Jean-Paul Hugonin, Philippe Lalanne, Univ. Paris-Sud 11 (France); Jean-Michel Gérard, Commissariat à l'Énergie Atomique (France) [8424-91]
- Wavelength dependent third-order nonlinear optical properties of colloidal gold nanorods**, Joanna Olesiak-Banska, Marta Gordel, Radosław Kolkowski, Katarzyna Matczyszyn, Marek Samoc, Wrocław Univ. of Technology (Poland) [8424-92]
- Amplification of the evanescent field of free electrons**, Jin-Kyu So, Jun-Yu Ou, Giorgio Adamo, Kevin F. MacDonald, ORC Univ. of Southampton (United Kingdom); F. Javier Garcia de Abajo, Consejo Superior de Investigaciones Científicas (Spain); Nikolay I. Zheludev, ORC Univ. of Southampton (United Kingdom) [8424-93]
- Tunable mid-infrared filter based on the superposition of sub-wavelength gratings**, Thomas Estruch, Julien Jaeck, Sophie Derelle, ONERA (France); Fabrice Pardo, Ctr. National de la Recherche Scientifique (France); Christophe Coudrain, Roland Domel, ONERA (France); Jean-Luc Pelouard, Ctr. National de la Recherche Scientifique (France); Jérôme Primot, Riad Haidar, ONERA (France) [8424-94]
- A comparison between PECVD and ALD for the fabrication of slot waveguide based sensors**, Grégory Pandraud, Agung Purniawan, Technische Univ. Delft (Netherlands); Eduardo Margallo-Balbás, MedLumics S.L. (Spain); Lina Sarro, Technische Univ. Delft (Netherlands) [8424-95]
- Fabrication of ZnO nanostructures and their application in biomedicine**, Anna O. Dikovska, Nikolay N. Nedyalkov, Institute of Electronics (Bulgaria); Reneta A. Toshkova, Elena G. Gardeva, Liliya S. Yossifova, Institute of Experimental Pathology and Parasitology (Bulgaria); Petar A. Atanasov, Institute of Electronics (Bulgaria) [8424-96]
- Surface enhanced Raman scattering hot spots on single plasmonic Fano-oligomers**, Jian Ye, IMEC (Belgium); Fangfang Wen, Heidar Sobhani, J. Britt Lassiter, Rice Univ. (United States); Pol Van Dorpe, IMEC (Belgium); Peter Nordlander, Naomi Halas, Rice Univ. (United States) [8424-97]
- Concentration dependence of photo-induced birefringence and second-order susceptibility in all-optical poling**, Matti P. Virkki, Martti Kauranen, Tampere Univ. of Technology (Finland); Arri Priimagi, Aalto Univ. (Finland) and Tokyo Institute of Technology (Japan) [8424-98]
- Laser fabrication and optical characterization of large-scale arrays of metal, metal alloys, and semiconductor nanoparticles**, Urs Zywiets, Andrey B. Evlyukhin, Carsten Reinhardt, Wei Cheng, Arseniy I. Kuznetsov, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) [8424-99]
- Dispersion control of propagating surface plasmons on nanoporous gold**, Neha Sardana, Martin-Luther Univ. Halle-Wittenberg (Germany) and Max-Planck-Institut für Mikrostrukturphysik (Germany); Jörg Schilling, Martin-Luther Univ. Halle-Wittenberg (Germany) [8424-100]
- Direct lasers-assisted synthesis of localized gold nanoparticles from both Au (III) and Au (I) precursors within a silica monolith**, Matteo Tonelli, Univ. des Sciences et Technologies de Lille (France); Maria Cristina Cassani, Univ. degli Studi di Bologna (Italy); Sylvia Turrell, Hicham El Hamzaoui, Bruno Capoen, Odile Robbe Cristini, Mohamed Bouazaoui, Univ. des Sciences et Technologies de Lille (France) [8424-101]
- Blue light-emitting-diodes from poly (N-vinylcarbazole) doped with colloidal quantum dots encapsulated with carbazole terminated ligand: spectroscopic studies and devices**, Adis Khetubol, Katholieke Univ. Leuven (Belgium) [8424-102]

Tuesday 17 April

SESSION 4

Room: Silver Hall Tues. 08.20 to 10.20

Nanoscale Optical and Electronic Processes

Session Chair: Martti Kauranen, Tampere Univ. of Technology (Finland)

08.20: **Piezo-phototronic effect and its applications in flexible optoelectronics and energy** (*Invited Paper*), Zhong Lin Wang, Georgia Institute of Technology (United States) [8424-16]

08.50: **Interaction of pulse laser beam with colloidal nanoparticles** (*Invited Paper*), Alexander Pyatenko, National Institute of Advanced Industrial Science and Technology (Japan) [8424-17]

09.20: **Surface enhanced coherent anti-Stokes Raman scattering on nanostructured gold surfaces**, Christian Steuwe, Clemens F. Kaminski, Jeremy J. Baumberg, Sumeet Mahajan, Univ. of Cambridge (United Kingdom)[8424-121]

09.40: **Spontaneous emission in a cylindrical nanocavity: Ab initio analytical approach**, Vladimir G. Bordo, Univ. of Southern Denmark (Denmark) . . [8424-19]

10.00: **Multipole contributions into resonant scattering of light by nonspherical nanoparticles using the discrete dipole approximation**, Andrey B. Evlyukhin, Carsten Reinhardt, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) [8424-20]

Coffee Break 10.20 to 10.50

SESSION 5

Room: Silver Hall Tues. 10.50 to 12.50

Photonic Nanobiosensors

Session Chair: Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

10.50: **Nonlinear nanobubble-enhanced photoacoustic spectral imaging to break the spectral, diffraction, and detection limits** (*Invited Paper*), Vladimir P. Zharov, Univ. of Arkansas for Medical Sciences (United States) [8424-21]

11.20: **Photonic nanobiosensors as advanced tools for diagnostics applications** (*Invited Paper*), Laura M. Lechuga, Ctr. d'Investigacions en Nanociència i Nanotecnologia (Spain) [8424-22]

11.50: **Integrated prism-free coupled surface plasmon resonance biochemical sensor**, Jean-Pierre Vilcot, Univ. des Sciences et Technologies de Lille (France); Caroline Desfours, Juri Hastanin, Cedric Lenaerts, Karl Fleury-Frenette, Univ. de Liège (Belgium); Edy Wijaya, Sophie Maricot, Bernard Pinchemel, Mohamed Bouazaoui, Univ. des Sciences et Technologies de Lille (France); Serge Habraken, Univ. de Liège (Belgium) [8424-23]

12.10: **Classification of antibiotics by neural network analysis of optical resonance data of whispering gallery modes in dielectric microspheres**, Vladimir A. Saetchnikov, Elina A. Tcherniavskaja, Belarusian State Univ. (Belarus); Gustav Schweiger, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany) [8424-24]

12.30: **Graphene-based high-performance surface plasmon resonance biosensors**, Edy Wijaya, Nazek Maalouli, Rabah Boukherroub, Sabine Szunerits, Jean-Pierre Vilcot, Univ. des Sciences et Technologies de Lille (France)[8424-25]

Lunch/Exhibition Break 12.50 to 13.50

Photonic properties of two-dimensional photonic crystals based on monolayer of dielectric nanospheres, Getachew T. Ayenew, Mahmoud Chakaroun, Nathalie Fabre, Jeanne Solard, Alexis Fischer, Azzedine Boudrioua, Univ. Paris 13 (France); Chii-Chang Chen, Chia-Hua Chan, National Central Univ. (Taiwan) [8424-103]

Hyperspectral near-field imaging for nanophotonics, Jean Dellinger, Loïc Lalouat, Benoît Cluzel, Frédérique A. De Fornel, Univ. de Bourgogne (France) [8424-104]

Particle size dependent thermal characterization of gold nanofluid using thermal lens technique, Achamma Kurian, Rajesh Kumar, Catholice College (India); Shemeena N. Basheer, Catholice College (India); Sajan D. George, Technische Univ. Darmstadt (Germany) [8424-105]

Evolution of plasmonic resonance of gold nano-blocks embedded in dielectric multilayers, Abdellatif Akjouj, Ophélie Saison, Yan Pennec, Gaëtan Leveque, Bahram Djafari-Rouhani, Sabine Szunerits, Rabah Boukherroub, Univ. des Sciences et Technologies de Lille (France) [8424-106]

Novel nano-plasmonic splitter based on T-shaped Bragg grating waveguide, Youqiao Ma, Gerald Farrell, Yuliya Semenova, Qiang Wu, Dublin Institute of Technology (Ireland) [8424-107]

Enhanced optical coupling in localized and band-gap characteristics of plasmonic nanostructure, Nan-Fu Chiu, Chih-Jen Cheng, National Taiwan Normal Univ. (Taiwan); Jiun-Haw Lee, Chii-Wann Lin, National Taiwan Univ. (Taiwan) [8424-109]

Iron oxide Fe₂O₃, Fe₃O₄ nanoparticles for antimicrobial photodynamic action, Elena S. Tuchina, Vyacheslav I. Kochubey, Valery V. Tuchin, Marina V. Kulikova, Pavel O. Petrov, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [8424-110]

Plasmonic sinks for the selective removal of long-lived states, Aeneas Wiener, Stéphane Kéna-Cohen, Yonatan Sivan, Paul N. Stavrinou, Donal D. C. Bradley, Andrew P. Horsfield, Stefan A. Maier, Imperial College London (United Kingdom) [8424-111]

Influence of ellipticity of nanorods on both TPA of femtosecond laser pulse and transformation of pulse spectrum, Vyacheslav A. Trofimov, Tatiana Lysak, Lomonosov Moscow State Univ. (Russian Federation); Sheng Lan, South China Normal Univ. (China) [8424-112]

Enhancement of QDs photoluminescence by localized surface plasmon effect of Au-NPs, Esmail Heydari, Tonino Greco, Joachim Stumpe, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) . . . [8424-114]

Detecting the radial and azimuthal components of Laguerre Gaussian beams, Michael Mazilu, Areti Mourka, Tom Vettenburg, Univ. of St. Andrews (United Kingdom); Ewan Wright, College of Optical Sciences, The Univ. of Arizona (United Kingdom); Kishan Dholakia, Univ. of St. Andrews (United Kingdom) [8424-115]

Fano interference in symmetry-reduced multi-arm plasmonic nanocrosses, Niels Verellen, Katholieke Univ. Leuven (Belgium); Pol Van Dorpe, Dries Vercruyse, IMEC (Belgium); Guy A. E. Vandenbosch, Victor V. Moshchalkov, Katholieke Univ. Leuven (Belgium) [8424-116]

InP/ZnSe/ZnS core-multishell quantum dots for improved luminescence efficiency, Tonino Greco, Christian Ippen, Armin Wedel, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) [8424-117]

Sensitivity enhancement of coupled plasmon-waveguide resonance sensors with optimization of gold-silver-alumina layers, Sumeyye Alasag, Mustafa M. Aslan, TÜBİTAK Marmara Research Ctr. (Turkey); Nurhan Cansever, Yildiz Teknik Univ. (Turkey) [8424-119]

Polarised stimulated emission depletion dynamics following single- and two-photon excitation, Elinor Bailey, Richard J. Marsh, Angus J. Bain, Univ. College London (United Kingdom) [8424-120]

Magneto-absorption in strongly oblate semiellipsoidal quantum dot, David B. Hayrapetyan, State Engineering Univ. of Armenia (Armenia); Gevorg A. Dvovyan, Eduard M. Kazaryan, Russian-Armenian (Slavonic) State Univ. (Armenia) [8424-122]

Amplifying the figure of merit of phase sensitive refractive index sensing by coupling of propagating and localized surface plasmon resonances, Kristof Lodewijks, Willem Van Roy, Gustaaf R. Borghs, Pol Van Dorpe, IMEC (Belgium) [8424-124]

Metal nanoparticle and plasmon resonances in organic light emitting diodes and solar cells, Feng Liu, Jean-Michel Nunzi, Queen's Univ. (Canada) [8424-126]

Flexible cavity imprinted PDMS templates for the creation of metal sphere to cuboid nanoparticle or nano-void arrays, Colm T. Mallon, Robert J. Forster, Tia E. Keyes, Dublin City Univ. (Ireland) [8424-128]

Principle, applications, evaluation and development of time lens: a review and outlook, Sheng Liang, Xinzhi Sheng, Chongqing Wu, Zhi Wang, Jian Wang, Lanlan Liu, Limei Zhang, Beijing Jiaotong Univ. (China); Zhicheng Li, Shenzhen Institute of Advanced Technology (China) [8424-129]

PLAISIR Project Workshop	
Silver Hall Tues. 13.50 to 18.00	
Plasmonics in the Infrared I	
<i>Session Chair: Anatoly Zayats, King's College London (United Kingdom)</i>	
13.45 to 14:00:	Photonics research under the Future and Emerging Technologies Programme Prabhat Agarwal , European Commission (Belgium)
14.00 to 14.30:	Plasmonic innovative sensing in the IR Ross Stanley , CSEM (Switzerland)
14.30 to 15:00:	Advantages and novel application for multi-colour and polarization sensitive NIR and SWIR focal planes arrays Jan Vermeiren , Xenics NV (Belgium)
15.00 to 15:30:	Plasmonics for infrared detection and imaging Riad Haidar , ONERA (France)
15.30 to 16:00:	<i>Coffee Break</i>
Plasmonics in the Infrared II	
<i>Session Chair: Ross Stanley, CSEM (Switzerland)</i>	
16.00 to 16:30:	MCT infrared detectors with plasmonic light harvesting structures for trace gas detection Agata Roszkiewicz , Vigo System SA (Poland)
16.30 to 17:00:	Surface plasma wave enhanced infrared detectors Steven Brueck , University of New Mexico (United States)
17.00 to 17:30:	Modelling of plasmonic devices: a comparison of eigenmode expansion, FDTD, and finite element methods Dominic Gallagher , Photon Design Ltd. (United Kingdom)
17.30 to 18.00	Roundtable Discussion <i>Moderators: Jan Vermeiren, Xenics NV (Belgium); Ross Stanley, CSEM (Switzerland)</i>

Hot Topics II	
Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall	
For details, please see page 12	

Wednesday 18 April

SESSION 6

Room: Silver Hall Wed. 08.20 to 10.10

Nanoscale Optics

Session Chair: Carsten Reinhardt, Laser Zentrum Hannover e.V. (Germany)

08.20:	Generalized Snell's Law in three dimensions and out-of-plane refraction with plasmonic phase discontinuities (<i>Invited Paper</i>), Francesco Aieta, Patrice Genevet, Nanfang Yu, Mikhail Kats, Zeno Gaburro, Federico Capasso, Harvard Univ. (United States) [8424-26]
08.50:	Quasi-total funneling of light in high aspect ratio gold grooves , Patrick Bouchon, ONERA (France); Fabrice Pardo, Ctr. National de la Recherche Scientifique (France); Riad Haidar, ONERA (France); Jean-Luc Pelouard, Ctr. National de la Recherche Scientifique (France) [8424-27]
09.10:	Fabrication and optical stability of silanized gold nanorods as multifunctional transducers of near infrared light , Fulvio Ratto, Istituto di Fisica Applicata Nello Carrara (Italy); Sonia Centi, Raffaella Mercatelli, Univ. degli Studi di Firenze (Italy); Francesca Tatini, Paolo Matteini, Francesca Rossi, Istituto di Fisica Applicata Nello Carrara (Italy); Giovanni Romano, Franco Fusi, Univ. degli Studi di Firenze (Italy); Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy) [8424-28]
09.30:	The plasmonic rainbow effect: separating wavelengths at the nanoscale , Jean-Sebastien Bouillard, Wayne Dickson, Daniel P. O'Connor, Gregory A. Wurtz, Anatoly V. Zayats, King's College London (United Kingdom) . [8424-29]
09.50:	Silver-poly(vinylidene fluoride-trifluoroethylene) nanocomposites: plasmon-polariton oscillations and ferroelectric poling behavior , Tonino Greco, Michael Wegener, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) [8424-125]
Coffee Break 10.10 to 10.50	

SESSION 7

Room: Silver Hall Wed. 10.50 to 12.50

Nanoplasmonic Sensors

Session Chair: Harald Giessen, Univ. Stuttgart (Germany)

10.50:	Nanoplasmonic sensing for nanomaterials science (<i>Invited Paper</i>), Christoph Langhammer, Chalmers Univ. of Technology (Sweden) [8424-31]
11.20:	On the use of plasmonic nanostructures for the design of active nanodevices (<i>Invited Paper</i>), Gregory A. Wurtz, Anatoly V. Zayats, King's College London (United Kingdom) [8424-32]
11.50:	Plasmonic detection of single non-absorbing proteins using a gold nanorod , Peter Zijlstra, Leiden Univ. (Netherlands); Pedro M. R. Paulo, Univ. Técnica de Lisboa (Portugal); Michel Orrit, Leiden Univ. (Netherlands) . [8424-33]
12.10:	Plasmon dumping in Ag-nanoparticles/polymer composite for optical detection of amines and thiols vapours , Jose Marques-Hueso, Univ. de València (Spain) and Heriot-Watt Univ. (United Kingdom); Rafael Abargues, Jose L. Valdes, Juan P. Martinez-Pastor, Univ. de València (Spain) [8424-34]
12.30:	Second harmonic generation hotspots for switching and sensing applications in plasmonic nanostructures , Ventsislav K. Valev, Katholieke Univ. Leuven (Belgium); Ben de Clercq, Univ. Hasselt (Belgium); Xuezhong Zheng, Denitza Denkova, Katholieke Univ. Leuven (Belgium); Claudiu G. Biris, Nicolae C. Panouiu, Univ. College London (United Kingdom); Alejandro V. Silhanek, Univ. de Liège (Belgium); Vladimir Volski, Katholieke Univ. Leuven (Belgium); Oleg A. Aktsipetrov, Lomonosov Moscow State Univ. (Russian Federation); Marcel M. Ameloot, Univ. Hasselt (Belgium); Victor V. Moshchalkov, Thierry Verbiest, Katholieke Univ. Leuven (Belgium) [8424-35]
Lunch/Exhibition Break 12.50 to 13.50	

SESSION 8

Room: Silver Hall Wed. 13.50 to 15.40

Surface Plasmons and Devices II

Session Chair: Martti Kauranen, Tampere Univ. of Technology (Finland)

13.50:	Bridging classical and quantum plasmonics (<i>Invited Paper</i>), Javier Aizpurua, Ruben Esteban, Ctr. de Fisica de Materiales (Spain); Peter Nordlander, Rice Univ. (United States); Andrei Borisov, Univ. Paris-Sud 11 (France) [8424-36]
14.20:	Surface plasmon polariton modulator with optimized active layer , Viktoriia E. Babicheva, Andrei Lavrinenko, Technical Univ. of Denmark (Denmark) [8424-37]
14.40:	Infrared spectral filtering based on guided-mode resonance structure , Emilie Sakat, Grégory Vincent, ONERA (France); Petru Ghenuche, Nathalie Bardou, Stéphane Collin, Fabrice Pardo, Ctr. National de la Recherche Scientifique (France); Riad Haidar, ONERA (France); Jean-Luc Pelouard, Ctr. National de la Recherche Scientifique (France) [8424-38]
15.00:	Near-field optical properties of Au-nanocubes: confinement of hot and cold spots , Mohamed Haggui, Univ. de Technologie Troyes (France); Montacer Dridi, Northwestern Univ. (United States); Jérôme Plain, Univ. de Technologie Troyes (France); Sylvie Marguet, Henri Perez, Commissariat à l'Énergie Atomique (France); George C. Schatz, Northwestern Univ. (United States); Gary P. Wiederrecht, Stephen K. Gray, Argonne National Lab. (United States); Renaud Bachelot, Univ. de Technologie Troyes (France) [8424-39]
15.20:	Plasmonic nanosensors in the treatment of cancer: an attempt to conquer the immortal illness , Saikat Das, Jari Turunen, Univ. of Eastern Finland (Finland) [8424-40]
Coffee Break 15.40 to 16.10	

SESSION 9

Room: Silver Hall Wed. 16.10 to 18.00

Optical Antennas and Nanoantennas

Session Chair: Jean-Michel Nunzi, Queen's Univ. (Canada)

- 16.10: **Ultrafast nanoplasmonics with optical antennas** (*Invited Paper*), Rudolf Bratschitsch, Technische Univ. Chemnitz (Germany) [8424-41]
- 16.40: **Realization of hybrid systems coupling molecules and gold nanoparticles towards fluorescence enhancement**, Yara El Harfouch, Kang Liu, Fabrice Charra, Sylvie Marguet, Celine Fiorini, Commissariat à l'Énergie Atomique (France) [8424-42]
- 17.00: **Engineering the optical properties of single epitaxial GaAs quantum dots using optical antennas**, Klas Lindfors, Markus Pfeiffer, Max-Planck-Institut für Festkörperforschung (Germany) and Univ. of Stuttgart (Germany); Paola Atkinson, Armando Rastelli, Oliver G. Schmidt, Leibniz-Institut für Festkörper- und Werkstoffforschung Dresden (Germany); Harald Giessen, Univ. of Stuttgart (Germany); Markus Lippitz, Max-Planck-Institut für Festkörperforschung (Germany) and Univ. of Stuttgart (Germany) [8424-43]
- 17.20: **Surface plasmon polaritons excitation by second-harmonic generation in inorganic crystalline nanowires deposited on thin metal films**, Esben Skovsen, Peter Fojan, Kjeld Pedersen, Aalborg Univ. (Denmark) [8424-44]
- 17.40: **Nanoantenna-enhanced ultrafast nonlinear spectroscopy of a single gold nanoparticle**, Markus Lippitz, Thorsten Schumacher, Daniela Ullrich, Mario Hentschel, Max-Planck-Institut für Festkörperforschung (Germany); Harald W. Giessen, Univ. Stuttgart (Germany) [8424-45]

Thursday 19 April

Hot Topics III

Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall

For details, please see page 13

SESSION 10

Room: Silver Hall Thurs. 10.40 to 12.30

Surface Plasmons and Devices III

Session Chair: Celine Fiorini-Debuisschert, Commissariat à l'Énergie Atomique (France)

- 10.40: **Surface plasmon detectors on silicon** (*Invited Paper*), Pierre Berini, Anthony Olivier, Univ. of Ottawa (Canada) [8424-46]
- 11.10: **Surface plasmon polariton waveguiding and emission by organic nanofibers**, Till Leissner, Christian-Albrechts-Univ. zu Kiel (Germany); Jacek Fiutowski, Univ. of Southern Denmark (Denmark); Christoph Lemke, Christian-Albrechts-Univ. zu Kiel (Germany); Kasper Thilsing-Hansen, Univ. of Southern Denmark (Denmark); Stephan Jauernik, Christian-Albrechts-Univ. zu Kiel (Germany); Jakob Kjelstrup-Hansen, Univ. of Southern Denmark (Denmark); Michael Bauer, Christian-Albrechts-Univ. zu Kiel (Germany); Horst-Günter Rubahn, Univ. of Southern Denmark (Denmark) [8424-47]
- 11.30: **Hybrid silicon-plasmonics: efficient waveguide interfacing for low-loss integrated switching components**, Odysseas Tsilipakos, Alexandros K. Ptilaklis, Emmanouil E. Kriezis, Aristotle Univ. of Thessaloniki (Greece) . [8424-48]
- 11.50: **Diamond nanoparticles as deterministic quantum plasmon launchers**, Aurelien Drezet, Serge Huant, Oriane Mollet, Institut NÉEL (France) . . [8424-49]
- 12.10: **Measurement and reduction of damping in plasmonic nanowires**, Joachim R. Krenn, Karl-Franzens-Univ. Graz (Austria) [8424-50]
- Lunch Break 12.30 to 13.30

SESSION 11

Room: Silver Hall Thurs. 13.30 to 15.10

Nanomicroscopy and Imaging

Session Chair: Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

- 13.30: **Near-field microscopy using localized molecular second harmonic generation at a metallic tip** (*Invited Paper*), Celine Fiorini-Debuisschert, Ivan Berlin, Fabrice Charra, Commissariat à l'Énergie Atomique (France) . . [8424-51]
- 14.00: **Imaging of DNA liquid-crystalline phases by polarization sensitive two-photon fluorescence microscopy** (*Invited Paper*), Katarzyna Matczyszyn, Joanna Olesiak-Banska, Marta Gordel, Marek Samoc, Wroclaw Univ. of Technology (Poland); Dominique Chauvat, Marcin Zielinski, Joseph Zyss, Ecole Normale Supérieure de Cachan (France) [8424-52]
- 14.30: **Imaging of waveguided and scattered interferences in individual GaAs nanowires via second-harmonic generation**, Rachel Grange, Anton Sergejev, Friedrich-Schiller-Univ. Jena (Germany); Gerald Brönstrup, Max Planck Institute for the Science of Light (Germany); Jessica Richter, Andreas Tünnerman, Thomas Pertsch, Friedrich-Schiller-Univ. Jena (Germany); Silke Christiansen, Max Planck Institute for the Science of Light (Germany); Christian Leiterer, Wolfgang Fritzsche, Institut für Photonische Technologien e.V. (Germany); Christoph Gutschke, Andrey Lysov, Werner Probst, Franz-Josef Tegude, Univ. Duisburg-Essen (Germany) [8424-53]
- 14.50: **Near-field imaging of surface plasmon resonances in gold nanobars with hollow-pyramid probes**, Denitza Denkova, Katholieke Univ. Leuven (Belgium); Niels Verellen, Katholieke Univ. Leuven (Belgium) and IMEC (Belgium); Alejandro V. Silhanek, Univ. de Liège (Belgium); Ventsislav K. Valev, Katholieke Univ. Leuven (Belgium); Pol Van Dorpe, IMEC (Belgium); Victor V. Moshchalkov, Katholieke Univ. Leuven (Belgium) [8424-54]
- Coffee Break 15.10 to 15.40

SESSION 12

Room: Silver Hall Thurs. 15.40 to 18.00

Nanomanipulation with Light

Session Chair: David L. Andrews, Univ. of East Anglia Norwich (United Kingdom)

- 15.40: **Structure mediated micro-to-nano coupling using spatial light manipulation** (*Invited Paper*), Jesper Glückstad, Andrew Rafael M. Banas, Darwin Palima, Technical Univ. of Denmark (Denmark) [8424-55]
- 16.10: **Optical trapping and binding in evanescent fields** (*Invited Paper*), Colin D. Bain, Luen Y. Wong, Durham Univ. (United Kingdom) [8424-56]
- 16.40: **Slow Bloch mode nanotweezer**, Emmanuel Gerelli, Taha Benyattou, Cecile Jamois, Institut National des Sciences Appliquées de Lyon (France); Christian Seassal, Ali Belarouci, Xavier Letartre, Pierre Viktorovitch, Ecole Centrale de Lyon (France) [8424-57]
- 17.00: **Measuring air viscosity by optically rotating trapped birefringent microparticles**, Yoshi Arita, Univ. of St. Andrews (United Kingdom); Andrew W. McKinley, Univ. of St. Andrews (United Kingdom) and Imperial College London (United Kingdom); Michael Mazilu, Univ. of St. Andrews (United Kingdom); Halina Rubinsztein-Dunlop, The Univ. of Queensland (Australia); Kishan Dholakia, Univ. of St. Andrews (United Kingdom) [8424-58]
- 17.20: **Holographic optical bottle beams**, Christina Alpmann, Michael Esseling, Patrick Rose, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) [8424-59]
- 17.40: **A balanced, phase sensitive back-focal plane interferometry technique to determine dynamics of a trapped bead in optical tweezers**, Basudev Roy, Sambit Bikas Pal, Arijit Haldar, Ratnesh Kumar Gupta, Nirmalya Ghosh, Ayan Banerjee, Indian Institute of Science Education and Research Kolkata (India) [8424-60]

Photonic Crystal Materials and Devices

Conference Chairs: **Hernán Ruy Míguez**, Consejo Superior de Investigaciones Científicas (Spain); **Sergei G. Romanov**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Lucio Claudio Andreani**, Univ. degli Studi di Pavia (Italy); **Christian Seassal**, Ecole Centrale de Lyon (France)

Programme Committee: **Kurt Busch**, Karlsruher Institut für Technologie (Germany); **Eric Cassan**, Institut d'Électronique Fondamentale (France); **Emmanuel Centeno**, Univ. d'Auvergne Clermont-Ferrand I (France); **Richard M. De La Rue**, Univ. of Malaya (Malaysia) and Univ. of Glasgow (United Kingdom); **Romuald Houdré**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Sven Hoefling**, Julius-Maximilians-Univ. Würzburg (Germany); **Thomas F. Krauss**, Univ. of St. Andrews (United Kingdom); **Kobus Kuipers**, FOM Institute for Atomic and Molecular Physics (Netherlands); **Mikhail F. Limonov**, Ioffe Physico-Technical Institute (Russian Federation); **Cefe López**, Consejo Superior de Investigaciones Científicas (Spain); **Barry Luther-Davies**, The Australian National Univ. (Australia); **Jordi Martorell**, ICFO-Institut de Ciències Fotòniques (Spain); **Adriana Passaseo**, Univ. del Salento (Italy); **Min Qiu**, Royal Institute of Technology (Sweden); **Anne Sentenac**, Institut Fresnel (France); **Diederik S. Wiersma**, Univ. degli Studi di Firenze, Lab for Nonlinear Spectroscopy (Italy); **Alejandro M. Yacomotti**, Ctr. National de la Recherche Scientifique/Lab de Photonique et de Nanostructures (France)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

Welcome and Introduction

Room: 211 **Mon. 13.00 to 13.10**

Hernán Ruy Míguez, Consejo Superior de Investigaciones Científicas (Spain); **Sergei G. Romanov**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Lucio Claudio Andreani**, Univ. degli Studi di Pavia (Italy); **Christian Seassal**, Ecole Centrale de Lyon (France)

SESSION 1

Room: 211 **Mon. 13.10 to 15.00**

Slow Waves and Nonlinear Effects in Photonic Crystals

Session Chairs: **Hernán Ruy Míguez**, Consejo Superior de Investigaciones Científicas (Spain); **Lucio Claudio Andreani**, Univ. degli Studi di Pavia (Italy)

13.10: **Enhancement of nonlinear effects in slow light photonic crystal waveguides and its application to all-optical signal processing and quantum integrated optics** (*Invited Paper*), Christelle Monat, Ecole Centrale de Lyon (France) and The Univ. of Sydney (Australia) [8425-01]

13.40: **Slow light propagation in photonic crystal slab waveguides: theory and practical issues**, Panagiotis Kanakis, National and Kapodistrian Univ. of Athens (Greece); Thomas Kamalakis, Harokopio Univ. of Athens (Greece); Thomas Spicopoulos, National and Kapodistrian Univ. of Athens (Greece) [8425-02]

14.00: **Slow light in slot photonic crystal waveguides by dispersion engineering**, Charles Caer, Xavier Le Roux, Delphine Marris-Morini, Eric Cassan, Laurent Vivien, Institut d'Électronique Fondamentale (France). [8425-03]

14.20: **Slow light propagation due to nonlinear interaction in a 2D semi-conductor photonic crystal cavity**, Patricio Grinberg, Kamel Bencheikh, Ctr. National de la Recherche Scientifique (France); Yannick Dumeige, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); Juan Ariel Levenson, Isabelle Sagnes, Alejandro Yacomotti, Ctr. National de la Recherche Scientifique (France) [8425-04]

14.40: **Airy beam induced optical routing**, Patrick Rose, Falko Diebel, Martin Boguslawski, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) [8425-05]

Coffee Break 15.00 to 15.40

SESSION 2

Room: 211 **Mon. 15.40 to 17.10**

Applications of Photonic Crystals to Biosensing and Photodetection

Session Chair: **Christelle Monat**, Ecole Centrale de Lyon (France)

15.40: **Slotted photonic crystals for biosensing applications** (*Invited Paper*), Andrea Di Falco, Mark G. Scullion, Univ. of St. Andrews (United Kingdom) [8425-06]

16.10: **Luminescent photonic crystal cavities for fiber optic sensors, coupled dissimilar cavities, and optofluidics**, Mehmet A. Dundar, Bowen Wang, Timothy Siahhan, Joost Voorbraak, Noud Speijcken, Richard Notzel, Technische Univ. Eindhoven (Netherlands); Marinus J. van der Hoek, VanderHoekPhotonics (Netherlands); Sailing He, Zhejiang Univ. (China); Andrea Fiore, Rob W. Van der Heijden, Technische Univ. Eindhoven (Netherlands) [8425-07]

16.30: **Plasmonic device using backscattering of light for enhanced gas and vapour sensing**, Michaël Lobet, Olivier Deparis, Facultes Univ. Notre Dame de la Paix (Belgium) [8425-08]

16.50: **Resonant detectivity enhancement of quantum well infrared photodetectors by photonic crystal slabs**, Stefan Kalchmair, Roman Gansch, Peter Reininger, Sangil Ahn, Hermann Detz, Aaron M. Andrews, Werner Schrenk, Gottfried Strasser, Technische Univ. Wien (Austria) [8425-09]

Tuesday 17 April

SESSION 3

Room: 211 **Tues. 08.30 to 10.20**

Photonic Crystal Cavities and Light-Matter Interaction I

Session Chairs: **Christian Seassal**, Ecole Centrale de Lyon (France); **Sergei G. Romanov**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

08.30: **Cavity quantum electrodynamics in quantum dot and 2D/3D photonic crystal nanocavity coupled systems** (*Invited Paper*), Yasuhiko Arakawa, The Univ. of Tokyo (Japan) [8425-10]

09.00: **Experimental characterization of far-field emission profiles from photonic crystal cavity modes**, Cristian Bonato, Leiden Univ. (Netherlands); Dario Gerace, Univ. degli Studi di Pavia (Italy); Jenna Hagemeier, Univ. of California, Santa Barbara (United States); Susanna M. Thon, Univ. of Toronto (Canada); Hyochul Kim, Univ. of California, Santa Barbara (United States) and Univ. of Maryland, College Park (United States); Lucio C. Andreani, Univ. degli Studi di Pavia (Italy); Pierre M. Petroff, Univ. of California, Santa Barbara (United States); Martin P. van Exter, Dirk Bouwmeester, Leiden Univ. (Netherlands) [8425-11]

09.20: **New design for high Q slow Bloch mode cavity**, Taha Benyattou, Emmanuel Gerelli, Institut National des Sciences Appliquées de Lyon (France); Pierre Viktorovitch, Xavier Letartre, Ali Belarouci, Ecole Centrale de Lyon (France); Cecile Jamois, Institut National des Sciences Appliquées de Lyon (France); Christian Seassal, Ecole Centrale de Lyon (France) [8425-12]

09.40: **Efficient free space coupling in 2D semi-conductor photonic crystal nanocavities**, Samir Haddadi, Alejandro Yacomotti, Ariel Juan Levenson, Isabelle Sagnes, Fabrice Raineri, Ctr. National de la Recherche Scientifique (France) [8425-13]

10.00: **Antibonding ground state in photonic crystal molecules**, Niccolò Caselli, Francesca Intonti, Francesco Riboli, Univ. degli Studi di Firenze (Italy); Dario Gerace, Univ. degli Studi di Pavia (Italy); Anna Vinattieri, Univ. degli Studi di Firenze (Italy); Annamaria Gerardino, Consiglio Nazionale delle Ricerche (Italy); Andrea Fiore, Technische Univ. Eindhoven (Netherlands); Massimo Gurioli, Univ. degli Studi di Firenze (Italy) [8425-14]

Coffee Break 10.20 to 11.00

SESSION 4

Room: 211 Tues. 11.00 to 12.30

Photonic Crystal Cavities and Light-Matter Interaction II*Session Chair: Yasuhiko Arakawa, The Univ. of Tokyo (Japan)*11.00: **Enhanced light-matter interaction of extended quantum dots in photonic nanostructures** (*Invited Paper*), Peter Lodahl, Søren Stobbe, Univ. of Copenhagen (Denmark) [8425-15]11.30: **Dual-wavelength laser for Terahertz generation by photomixing**, Koku Kusiaku, Xavier Letartre, Jean-Louis Leclercq, Christian Seassal, Pedro Rojo-Romeo, Philippe Regreny, Pierre Viktorovitch, Ecole Centrale de Lyon (France); Laurent Chusseau, Filipo Disanto, Fabrice Philippe, Univ. Montpellier 2 (France); Emmanuel Augendre, CEA-LETI-Minatec (France) [8425-16]11.50: **All-optical dynamic frequency conversion in photonic crystal cavities**, Michel Castellanos Munoz, Alexander Y. Petrov, Manfred Eich, Technische Univ. Hamburg-Harburg (Germany) [8425-17]12.10: **Optical trapping and assembly of particles by a nanocavity inside an optofluidic silicon chip**, Claude C. Renaut, Univ. de Bourgogne (France) and Commissariat à l'Énergie Atomique (France); Benoit Cluzel, Loïc Lalouat, Jean Dellinger, Univ. de Bourgogne (France); Emmanuel Picard, Commissariat à l'Énergie Atomique (France); David Peyrade, Ctr. National de la Recherche Scientifique (France); Emmanuel Hadji, Commissariat à l'Énergie Atomique (France); Frédérique A. de Fornel, Univ. de Bourgogne (France) [8425-18]

Lunch/Exhibition Break 12.30 to 13.50

SESSION 5

Room: 211 Tues. 13.50 to 15.40

Photonic-Phononic Crystals*Session Chair: Peter Lodahl, Technical Univ. of Denmark (Denmark)*13.50: **Photon and acoustic phonon coupling in phoxonic crystals** (*Invited Paper*), Vincent Laude, FEMTO-ST (France) [8425-19]14.20: **Guiding of high-frequency phonons through a phoxonic crystal**, Bernard Bonello, Univ. Pierre et Marie Curie (France) and Ctr. National de la Recherche Scientifique (France); Laurent Belliard, Univ. Pierre et Marie Curie (France); Alejandro Martínez, Amadeu Griol, Univ. Politècnica de Valencia (Spain) [8425-20]14.40: **Acousto-optic interaction enhancement in dual photonic-phononic cavities**, Nikos Papanikolaou, Georgios Gantzounis, National Ctr. for Scientific Research Demokritos (Greece); Nikolaos Stefanou, Univ. of Athens (Greece) [8425-21]15.00: **Phoxonic crystal sensor**, Ralf Lucklum, Otto-von-Guericke-Univ. Magdeburg (Germany); Yan Pennec, Antoine Kraych, Institut d'Électronique, de Microélectronique, et de Nanotechnologie (France); Mikhail Zubtsov, Otto-von-Guericke-Univ. Magdeburg (Germany); Bahram Djafari-Rouhani, Institut d'Électronique, de Microélectronique, et de Nanotechnologie (France) [8425-22]15.20: **Phononic and phoxonic crystal slabs sensors**, Bahram Djafari Rouhani, Yan Pennec, Ralf Lucklum, Institut d'Électronique, de Microélectronique, et de Nanotechnologie (France) [8425-23]

Coffee Break 15.40 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 6

Room: 211 Wed. 08.30 to 10.00

Photonic Structures for Photovoltaic Cells*Session Chairs: Hernán Ruy Míguez,**Consejo Superior de Investigaciones Científicas (Spain);**Lucio Claudio Andreani, Univ. degli Studi di Pavia (Italy)*08.30: **3D photonic crystals for photon management in solar cells** (*Invited Paper*), Ralf B. Wehrspohn, Martin-Luther Univ. Halle-Wittenberg (Germany) [8425-24]09.00: **Tailoring the absorption in a photonic crystal membrane: modal approach**, Romain Peretti, Guillaume Gomard, Christian Seassal, Xavier Letartre, Emmanuel Drouard, Ecole Centrale de Lyon (France) [8425-25]09.20: **Absorbing photonic crystals for thin film solar cells**, Xianqin Meng, Emmanuel Drouard, Guillaume Gomard, Ecole Centrale de Lyon (France); Christos Trompoukis, Depauw Valerie, Ounsi El Daif, Frederic Dross, Ivan Gordon, IMEC (Belgium); Alain Fave, Mustapha Lemiti, Institut National des Sciences Appliquées de Lyon (France); Christian Seassal, Ecole Centrale de Lyon (France) [8425-26]09.40: **Optical field confinement effects on the absorption of compounds embedded in periodic nanostructured multilayers**, Mauricio E. Calvo, Miguel Anaya, Gabriel Lozano, Hernán R. Míguez, Olalla Sanchez-Sobrado, Consejo Superior de Investigaciones Científicas (Spain); Luis M. Liz-Marzán, Ana M. Sánchez-Iglesias, Univ. de Vigo (Spain); Jose Miguel Luque, Consejo Superior de Investigaciones Científicas (Spain) [8425-27]

Coffee Break 10.00 to 10.40

SESSION 7

Room: 211 Wed. 10.40 to 12.10

Nanoparticle-based Photonic Crystals*Session Chair: Ralf Wehrspohn,**Martin-Luther Univ. Halle-Wittenberg (Germany)*10.40: **Anisotropic resonant scattering from polymer photonic crystals** (*Invited Paper*), Andrew I. Haines, Univ. of Cambridge (United Kingdom); Chris E. Finlayson, Univ. of Cambridge (United Kingdom) and Aberystwyth Univ. (United Kingdom); David R. E. Snoswell, Univ. of Cambridge (United Kingdom); Peter Spahn, Goetz P. Hellmann, Deutsches Kunststoff-Institut (Germany); Jeremy J. Baumberg, Univ. of Cambridge (United Kingdom) [8425-28]11.10: **Optical diffraction from opal-based photonic structures: transition from 2D to 3D regimes**, Ivan S. Sinev, Mikhail V. Rybin, Anton K. Samusev, Kirill B. Samusev, Ekaterina Y. Trofimova, Dmitry A. Kurdukov, Valery G. Golubev, Mikhail F. Limonov, Ioffe Physico-Technical Institute (Russian Federation) [8425-29]11.30: **Interplay of Mie and Bragg resonances in partly ordered monolayers of colloidal particles**, Sergei G. Romanov, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) and Ioffe Physico-Technical Institute (Russian Federation); Alexander V. Korovin, Oleksandr Zhuromsky, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Sergei Orlov, Max Planck Institute for the Science of Light (Germany); Nicolas Vogel, Katharina Landfester, Clemens Weiss, Max-Planck-Institut für Polymerforschung (Germany) [8425-30]11.50: **Tailored luminescent emission of dyes embedded in porous resonators**, Alberto Jiménez-Solano, José Miguel Luque, Mauricio E. Calvo, Consejo Superior de Investigaciones Científicas (Spain); Fernando Fernández-Lázaro, Univ. Miguel Hernández de Elche (Spain); Hernán R. Míguez, Consejo Superior de Investigaciones Científicas (Spain) [8425-31]

Lunch/Exhibition Break 12.10 to 13.30

SESSION 8

Room: 211 Wed. 13.30 to 15.10

Controlling Light Propagation and Collimation in Photonic Crystals*Session Chair: Alexander N. Poddubny,**Ioffe Physico-Technical Institute (Russian Federation)*13.30: **Experimental demonstration of waveguiding in honeycomb and square-lattice silicon photonic crystal membranes**, Daniel Puerto, Amadeu Griol, José María Escalante, Univ. Politècnica de Valencia (Spain); Bahram Djafari-Rouhani, Yan Pennec, Vincent Laude, Jean-Charles Beugnot, Ctr. National de la Recherche Scientifique (France); Alejandro Martínez, Univ. Politècnica de Valencia (Spain) [8425-32]13.50: **Experimental demonstration of light bending effect at optical wavelengths in a non-homogenizable graded photonic crystal**, Khanh Van Do, Xavier Le Roux, Delphine Marris-Morini, Laurent Vivien, Eric Cassan, Institut d'Électronique Fondamentale (France) [8425-33]14.10: **Photonic crystal waveguide created by selective infiltration**, Alvaro Casas Bedoya, Peter Domachuk, Christian Grillet, The Univ. of Sydney (Australia); Cristelle Monat, Ecole Centrale de Lyon (France); Eric Magi, Enbang Li, Benjamin J. Eggleton, The Univ. of Sydney (Australia) [8425-34]14.30: **Zero-average index metamaterials and zero-average dispersion curvature photonic crystal superlattices for self-collimation of light**, Julien Arlandis, Emmanuel Centeno, Rémi Pollès, Antoine Moreau, Univ. Blaise Pascal (France) [8425-35]14.50: **Woodpile photonic crystal for beam collimation**, Lina Maigyte, Jose Trull, Crina M. Cojocar, Univ. Politècnica de Catalunya (Spain); Vygantas Mizeikis, Shizuoka Univ. (Japan); Mangirdas Malinauskas, Vilnius Univ. (Lithuania); Saulius Juodkakis, Swinburne Univ. of Technology (Australia); Marius Rutkauskas, Martynas Peckus, Valdas Sirutkaitis, Vilnius Univ. (Lithuania); Kestutis Staliunas, Univ. Politècnica de Catalunya (Spain) and ICREA (Spain) [8425-36]

Coffee Break 15.10 to 15.50

SESSION 9

Room: 211 Wed. 15.50 to 17.20

Novel Effects in Photonic Crystal Structures

Session Chair: **Andrew I. Haines**, Univ. of Cambridge (United Kingdom)

15.50: **Resonant photonic crystals and quasicrystals** (*Invited Paper*), Alexander N. Poddubny, Ioffe Physico-Technical Institute (Russian Federation) [8425-37]

16.20: **Bistable photonic nanostructures based on molecular spin crossover complexes**, Gábor Molnár, Illia Gural'skiy, Amal Akou, Carlos Quintero, Khaldoun Abdul-kader, Gautier Félix, Lab. de Chimie de Coordination (France); Tarik Mahfoud, Lab. de Chimie de Coordination (France) and Moroccan Foundation for Advanced Science, Innovation and Research (Morocco); William Nicolazzi, Lionel Salmon, Azzedine Bousseksou, Lab. de Chimie de Coordination (France); Carlos Bartual, Christophe Thibault, Christian Bergaud, Christophe Vieu, Lab. d'Analyse et d'Architecture des Systèmes (France) [8425-38]

16.40: **Hybrid architectures: towards enabling 4-dimensional plasmonic-photonic crystals**, Sergei G. Romanov, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) and Ioffe Physico-Technical Institute (Russian Federation); Mohammad Reza Bahrami, Alexander V. Korovin, Ulf Peschel, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [8425-39]

17.00: **Ultrafast dynamics of Faraday rotation in magnetic photonic crystals**, Margarita I. Sharipova, Artem Chetvertukhin, Alexander G. Zhdanov, Tatyana V. Dolgova, Andrey A. Fedyanin, Lomonosov Moscow State Univ. (Russian Federation) [8425-40]

POSTERS—WEDNESDAY

Grand Hall Wed. 17.40 to 19.10

A poster session will be held on Wednesday 17.40 to 19.10. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Wednesday. 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 at <http://spie.org/x34963.xml>.

Band-edge lasing and mini-band lasing in 1D dual-periodic photonic crystal, Cui-Feng Ying, Wen-Yuan Zhou, Qing Ye, Chun-Ping Zhang, Jian-Guo Tian, Nankai Univ. (China) [8425-49]

Investigation the effect of shapes, size, and orientation of dielectric rods on the photonic band gap for various lattices in 2D anisotropic photonic crystals, Mahsa Hadadi Moghadam, Manoochehr Kalafi, Univ. of Tabriz (Iran, Islamic Republic of); Amir Foghani, AIDCO (Iran, Islamic Republic of) . . . [8425-50]

Microwave properties of nonlinear one-dimensional quasiperiodic photonic crystals, Youssef Trabelsi, Mounir Kanzari, Ecole Nationale d'Ingénieurs de Tunis (Tunisia) [8425-51]

Fabrication and characterization of three-dimensional metalodielectric photonic crystals for infrared spectral region, Pavel N. Dyachenko, Sergey V. Karpeev, Vladimir S. Pavelyev, Image Processing Systems Institute (Russian Federation) and Samara State Aerospace Univ. (Russian Federation) . . [8425-52]

Electrically tunable photonic films for large area display, Youngseok Kim, Mingi Kwak, Korea Electronics Technology Institute (Korea, Republic of) [8425-53]

Micro- and nanoscale photonic lattices induced by Bessel beam technique in doped lithium niobate crystals, Paytsar A. Mantashyan, Anahit Badalyan, Ruben K. Hovsepian, Vahram Mekhitarian, Rafael K. Drampyan, Institute for Physical Research (Armenia) [8425-54]

Photonic crystal sensor for simultaneous strain detection on orthogonal directions, Martina De Laurentis, Andrea Irace, Giovanni Breglio, Univ. degli Studi di Napoli Federico II (Italy) [8425-55]

Double cavity refractive index photonic crystal sensor temperature calibrated, Martina De Laurentis, Irace Andrea, Giovanni Breglio, Univ. degli Studi di Napoli Federico II (Italy) [8425-56]

Diffraction-compensated dispersion-accumulated superprism based on two cascaded photonic crystals, Eric Cassan, Institut d'Électronique Fondamentale (France); Marco Casale, IMEP-LAHC (France); Delphine Marris-Morini, Laurent Vivien, Institut d'Électronique Fondamentale (France) . . [8425-58]

Beam combining of low-loss tapered photonic crystal fibers bundle, Jie Li, Zilun Chen, Shaofeng Guo, National Univ. of Defense Technology (China) [8425-59]

Group delay tuning in three-beam interferometers: an alternative to photonic crystals for generating slow and fast light, Julia Arias, Aida Sánchez-Meroño, María del Mar Sánchez-López, Ignacio Moreno, Univ. Miguel Hernández de Elche (Spain) [8425-60]

Anomalous giant soliton formation near boundary of nonlinear layered PC and its propagation across the PC, Vyacheslav A. Trofimov, Tatiana M. Lysak, Lomonosov Moscow State Univ. (Russian Federation) [8425-61]

Manifestation of spatial filtering performed by 3D photonic crystals, Lina Maigyte, Univ. Politècnica de Catalunya (Spain); Titas Gertus, Vilnius Univ. (Lithuania) and Altechna Co. Ltd. (Lithuania); Martynas Peckus, Vilnius Univ. (Lithuania); Crina M. Cojocaru, Jose F. Trull, Univ. Politècnica de Catalunya (Spain); Valdas Sirutkaitis, Vilnius Univ. (Lithuania); Kestutis Staliunas, Univ. Politècnica de Catalunya (Spain) and ICREA (Spain) [8425-62]

Tuning the properties of colloidal magneto-photonic crystals by controlled infiltration with superparamagnetic magnetite nanoparticles, Pieter-Jan H. Demeyer, Maarten Bloemen, Stefaan Vandendriessche, Thierry Verbiest, Koen Clays, Katholieke Univ. Leuven (Belgium) [8425-63]

Group velocity control of reflected pulses in asymmetric Fabry-Perot filters, Aida Sánchez-Meroño, María del Mar Sánchez-López, Julia Arias, Ignacio Moreno, Univ. Miguel Hernández de Elche (Spain) [8425-64]

A silicon photonic quasi-crystal structures obtained by interference lithography, Szymon Lis, Adrian Zakrzewski, Jacek Gryglewicz, Waldemar Oleszkiewicz, Sergiusz Patela, Wroclaw Univ. of Technology (Poland) . [8425-65]

Multiphonon acousto-optic interactions in normal and oblique incidence inside a 1D phoxonic cavity, Gaetan Lévêque, El Houssaine El Boudouti, Abdellatif Akjouj, Yan Pennec, Bahram Djafari Rouhani, Univ. des Sciences et Technologies de Lille (France); Ioannis Pasrobas, National Ctr. for Scientific Research Demokritos (Greece); Nikolaos Stefanou, Univ. of Athens (Greece); Nikos Papanikolaou, National Ctr. for Scientific Research Demokritos (Greece); Vincent Laude, Univ. de Franche-Comté (France) [8425-66]

Dual phononic and photonic strip waveguides, Yan Pennec, Bahram Djafari-Rouhani, Changsheng Li, Youssef El Hassouani, Jose Maria Escalante, Alejandro Martinez, Sarah Benchabane, Vincent Laude, Nikos Papanikolaou, Institut d'Electronique, de Microélectronique, et de Nanotechnologie (France) . [8425-67]

Erbium doped two dimensional photonic crystals for band edge lasing, Jonathan A. Morton, Jose Marques-Hueso, Bryce S. Richards, Heriot-Watt Univ. (United Kingdom) [8425-68]

Macroporous silicon photonic crystals as infrared selective thermal emitters, David Hernandez, Univ. Politècnica de Catalunya (Spain); Moises Garin, Univ. Politècnica de Valencia (Spain); Trifon Trifonov, Ramon Alcobilla, Univ. Politècnica de Catalunya (Spain) [8425-69]

Slotted silicon hybrid microcavities for nonlinear applications, Clemens Schriever, Christian Bohley, Schilling Jörg, Martin-Luther-Univ. Halle-Wittenberg (Germany) [8425-70]

Design of an effective energy storage cavity in two-dimensional photonic crystal slab, Yazhao Liu, Technische Univ. Delft (Netherlands) and Foundation for Fundamental Research on Matter (Netherlands); Huub W. B. Salemink, Technische Univ. Delft (Netherlands) [8425-72]

Resonant gratings based on electro-optic materials for tunable narrow-band optical filtering, Da Shu, Evgueni K. Popov, Anne-Laure Fehrembach, Institut Fresnel (France) [8425-73]

Fano resonances in Kagome fibers, Luca Vincetti, Valerio Setti, Maurizio Zoboli, Univ. degli Studi di Modena e Reggio Emilia (Italy) [8425-74]

Elliptical hollow tube waveguides, Luca Vincetti, Valerio Setti, Maurizio Zoboli, Univ. degli Studi di Modena e Reggio Emilia (Italy) [8425-75]

Numerical investigation of electrostriction forces in submicron photonic waveguide, Jean-Charles Beugnot, Vincent Laude, Sr., Ctr. National de la Recherche Scientifique (France) [8425-76]

Optical induction of complex translation invariant photonic superstructures, Andreas Kelberer, Martin Boguslawski, Patrick Rose, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) [8425-77]

Multiple Bragg diffraction effects in angle-resolved reflection and transmission spectra of opaline photonic crystal films, Vladimir G. Fedotov, Saint-Petersburg State Univ. (Russian Federation); Timofey A. Ukleev, Ioffe Physico-Technical Institute (Russian Federation); Anastasia Y. Men'shikova, Natalia N. Shevchenko, Institute of Macromolecular Compounds (Russian Federation); Alexander V. Sel'kin, Saint-Petersburg State Univ. (Russian Federation) and Ioffe Physico-Technical Institute (Russian Federation) . [8425-78]

Excitation of surface plasmon polaritons on sinusoidally corrugated metal-dielectric interface fabricated using interference lithography, Przemyslaw Ryba, Szymon Lis, Wojciech Macherzynski, Sergiusz Patela, Wroclaw Univ. of Technology (Poland) [8425-80]

Design and modelling of photonic crystal superprism based on SRSN films for microspectrometer application with internal light source, Konrad Ptasinski, Sergiusz Patela, Wroclaw Univ. of Technology (Poland) . . . [8425-81]

Enhancement of negligible transmission band using hybrid periodic/Fibonacci one dimensional photonic crystal in near infrared and microwave domains, Abir Mouldi, Mounir Kanzari, Ecole Nationale d'Ingénieurs de Tunis (Tunisia) [8425-82]

Random laser emission in innovative structured optofluidic channel, Shivakiran N. Bhaktha Bantwal Narasimha, X. Noblin, Lab. de Physique de la Matière Condensée, CNRS, Univ. de Nice Sophia Antipolis (France); Nicolas Bachelard, Patrick Sebbah, L'Institut Langevin (France) [8425-83]

Random laser in totally disordered 2D GaAs/AlGaAs heterostructures, Antoine Monmayrant, Olivier Gauthier-Lafaye, Julien Campos, Sophie Bonnefont, Lab. d'Analyse et d'Architecture des Systèmes, CNRS, Univ. de Toulouse (France); Shivakiran N. Bhaktha Bantwal Narasimha, Christian Vanneste, Lab. de Physique de la Matière Condensée, CNRS, Univ. de Nice-Sophia Antipolis (France); Nicolas Bachelard, Patrick Sebbah, L'Institut Langevin (France); Françoise Lozes-Dupuy, Lab. d'Analyse et d'Architecture des Systèmes, CNRS, Univ. de Toulouse (France) [8425-84]

An overview of vanadates crystals used as laser materials, Mirela Nicolov, Virgil-Florin Duma, Aurel Vlaicu Univ. of Arad (Romania) [8425-89]

Inverted Yablonovite-like 3D photonic crystals fabricated by laser nanolithography, Ivan I. Shishkin, Kirill B. Samusev, Mikhail V. Rybin, Mikhail F. Limonov, National Research Univ. for Information Technology/ITMO and Ioffe Physical-Technical Institute (Russian Federation); Yuri S. Kivshar, The Australian National Univ. (Australia); Arune Gaidukeviciute, Roman Kiyan, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) [8425-95]

SESSION 11

Room: 211 Thurs. 13.20 to 15.00

Effects of Disorder in Photonic Crystals

Session Chairs: **Christian Seassal,** Ecole Centrale de Lyon (France); **Sergei G. Romanov,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

13.20: Photonic crystals with controlled deterministic aperiodic disorder (Invited Paper), Michael Renner, Georg von Freymann, Technische Univ. Kaiserslautern (Germany) [8425-45]

13.50: Random lasers ensnared (Invited Paper), Cefe López, Consejo Superior de Investigaciones Científicas (Spain) [8425-46]

14.20: Active control of the emission of a random laser, Nicolas Bachelard, L'Institut Langevin (France); Jonathan Andreasen, College of Optical Sciences, The Univ. of Arizona (United States); Sylvain Gigan, Patrick Sebbah, L'Institut Langevin (France) [8425-47]

14.40: Spatial control of second-harmonic light from a disordered structure, Francisco J. Rodriguez, Can Yao, ICFO - Institut de Ciències Fotòniques (Spain); Jorge Bravo-Abad, Univ. Autónoma de Madrid (Spain); Jordi Martorell, ICFO - Institut de Ciències Fotòniques (Spain) [8425-48]

Thursday 19 April

Hot Topics III

Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall
For details, please see page 13

SESSION 10

Room: 211 Thurs. 10.40 to 12.00

Novel Materials and Technologies

Session Chairs: **Cefe López,** Consejo Superior de Investigaciones Científicas (Spain); **Georg von Freymann,** Nanoscribe GmbH (Germany)

10.40: High-Q (>600,000) photonic crystal nanocavities fabricated from chalcogenide glass fully embedded in an index matched cladding, Xin Gai, Barry Luther-Davies, Thomas P. White, The Australian National Univ. (Australia) [8425-41]

11.00: Group-III nitride 2D-PC microcavities integrated on silicon, Mohammad Junaebur Rashid, Ctr. de Recherche sur l'Hétéro-Epitaxie et ses Applications (France) and Univ. de Nice Sophia Antipolis (France); Delphine Néel, Institut d'Électronique Fondamentale (France); Sylvain Sergent, Ctr. de Recherche sur l'Hétéro-Epitaxie et ses Applications (France); Meletios Mexis, Univ. Montpellier 2 (France); Diane Sam-giao, Commissariat à l'Énergie Atomique (France); Thierry Guillet, Christelle Brimont, Thierry Bretagnon, Univ. Montpellier 2 (France); Fabrice Semon, Ctr. de Recherche sur l'Hétéro-Epitaxie et ses Applications (France); Bruno Gayral, Commissariat à l'Énergie Atomique (France); Sylvain David, Xavier Checoury, Philippe Boucaud, Institut d'Électronique Fondamentale (France) [8425-42]

11.20: Photonic crystal cavity definition by electron beam bleaching of chromophore doped polymer cladding, Stefan Prorok, Jan Hendrik Wülbern, Alexander Y. Petrov, Manfred Eich, Technische Univ. Hamburg-Harburg (Germany) [8425-43]

11.40: 3D optical micro-resonators by curving nanostructures using intrinsic stress, Clément Sieutat, Céline Chevalier, Alexandre Danescu, Geneviève Grenet, Philippe Regreny, Pierre Viktorovitch, Xavier Letartre, Jean-Louis Leclercq, Ecole Centrale de Lyon (France) [8425-44]

Lunch Break 12.00 to 13.20

Don't miss the
**Photonics Europe
Exhibition**

Location: Grand Hall

Monday 16 April 15.00 to 19.10

Tuesday 17 April 10.00 to 16.00

Wednesday 18 April 10.00 to 19.30

Micro-structured and Specialty Optical Fibres

Conference Chairs: **Kyriacos Kalli**, Cyprus Univ. of Technology (Cyprus); **Alexis Mendez**, MCH Engineering LLC (United States)

Programme Committee: **Jean-Luc Adam**, Univ. de Rennes 1 (France); **Miguel V. Andrés**, Univ. de València (Spain); **John Ballato**, Advanced Materials Ctr. (United States); **Ole Bang**, Technical Univ. of Denmark (Denmark); **Hartmut Bartelt**, Institut für Photonische Technologien e.V. (Germany); **Aurelien Bergonzo**, Draka Comteq France (France); **Neil G. Broderick**, The Univ. of Auckland (New Zealand); **Benjamin J. Eggleton**, The Univ. of Sydney (Australia); **Christopher Emslie**, Fibercore Ltd. (United Kingdom); **Sébastien Février**, XLIM Institut de Recherche (France); **Jiri Kanka**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Jonathan C. Knight**, Univ. of Bath (United Kingdom); **Hanne Ludvigsen**, Aalto Univ. School of Science and Technology (Finland); **Walter Margulis**, Acreo AB (Sweden); **Saeed Rehman**, Fibertronix AB (Sweden); **Valerio Romano**, Berner Fachhochschule Technik und Informatik (Switzerland); **Kay Schuster**, Institut für Photonische Technologien e.V. (Germany); **Waclaw Urbanczyk**, Wroclaw Univ. of Technology (Poland); **David J. Webb**, Aston Univ. (United Kingdom); **Alexei M. Zheltikov**, Lomonosov Moscow State Univ. (Russian Federation)

Tuesday 17 April Welcome and Introduction

Room: 312 Tues. 10.30 to 10.40

Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus)
Alexis Mendez, MCH Engineering LLC (USA)

SESSION 1

Room: 312 Tues. 10.40 to 12.50

Fibre Modification and Microstructure Infiltration

Session Chair: **Alexis Mendez**, MCH Engineering LLC (United States)

10.40: **Preparation and characterisation of optical fiber tips for nanoscopic applications** (*Invited Paper*), Jörg Bierlich, Jens Kobelke, David Brand, Konstantin Kirsch, Jan Dellith, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany) [8426-01]

11.10: **Investigation on colloidal Te doped CdSe (CdSe:Te) quantum dots suspension in a liquid-core fiber**, Sönke Pilz, Univ. Bern (Switzerland); Valerio Romano, Berner Fachhochschule Technik und Informatik (Switzerland) [8426-02]

11.30: **Formation of PDMS films inside the holes of silica photonic crystal fibers**, George Kakarantzas, National Hellenic Research Foundation (Greece); Christos Markos, National Hellenic Research Foundation (Greece) and Univ. of Patras (Greece); Kyriacos G. Vlachos, Univ. of Patras (Greece) [8426-03]

11.50: **Optical temperature switch based on microstructured fibre filled with different chemical mixtures**, Pawel P. Marc, Pawel P. Piliżek, Michal Murawski, Michal Szymanski, Military Univ. of Technology (Poland); Katarzyna Pawlik, InPhoTech Ltd. (Poland); Tomasz A. Nasilowski, Leszek R. Jaroszewicz, Military Univ. of Technology (Poland) [8426-04]

12.10: **Microstructure-assisted grating inscription in photonic crystal fibers**, Tigran Baghdasaryan, Thomas Geernaert, Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8426-05]

12.30: **Photonic bandgap guiding into a composite AgPO₃-glass/silica microstructured optical fibre**, Ioannis Konidakis, Gianluigi Zito, Stavros Pissadakis, Foundation for Research and Technology-Hellas (Greece) . [8426-06]

Lunch/Exhibition Break 12.50 to 14.00

SESSION 2

Room: 312 Tues. 14.00 to 15.50

Speciality Fibre Sensors I

Session Chair: **Kyriacos Kalli**, Cyprus Univ. of Technology (Cyprus)

14.00: **A smart-skin shear sensor based on ferrofluid infiltrated Bragg grating in a microstructured optical fibre** (*Invited Paper*), Alessandro Candiani, Univ. degli Studi di Parma (Italy); Maria Konstantaki, Foundation for Research and Technology-Hellas (Greece); Walter Margulis, Acreo AB (Sweden); Stavros Pissadakis, Foundation for Research and Technology-Hellas (Greece) . [8426-07]

14.30: **Optical RI sensor based on an in-fiber Bragg grating Fabry-Perot cavity embedded with a micro-channel**, Zhijun Yan, Aston Univ. (United Kingdom); Saffari Pouneh, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Adebayo Adedotun, Kaiming Zhou, Lin Zhang, Aston Univ. (United Kingdom) [8426-08]

14.50: **Design of turn-around-point long-period gratings in Ge-doped photonic crystal fibers for evanescent sensing**, Jiri Kanka, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8426-09]

15.10: **In-fiber temperature measurement during optical pumping of Yb-doped laser fibers**, Julia Fiebrandt, Martin Leich, Manfred W. Rothhardt, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany) . [8426-10]

15.30: **An FBG based hydrostatic pressure sensor for liquid level measurements**, Dipankar Sengupta, National Institute of Technology, Warangal (India) [8426-11]

Coffee Break 15.50 to 16.40

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 3

Room: 312 Wed. 08.20 to 10.10

Speciality Fibre Sensors II

Session Chair: **Ole Bang**, Technical Univ. of Denmark (Denmark)

08.20: **Fibre Bragg gratings written in highly birefringent microstructured fibre as very sensitive strain sensors** (*Invited Paper*), Tadeusz Tenderenda, Michal Murawski, Michal Szymanski, Military Univ. of Technology (Poland) and InPhoTech Ltd. (Poland); Martin Becker, Manfred Rothhardt, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany); Pawel Mergo, Univ. Marii Curie-Sklodowskiej (Poland); Krzysztof Poturaj, Univ. Marii Curie-Sklodowskiej (Poland) and InPhoTech Ltd. (Poland); Mariusz Makara, Univ. Marii Curie-Sklodowskiej (Poland); Krzysztof Skorupski, Univ. Marii Curie-Sklodowskiej (Poland) and InPhoTech Ltd. (Poland); Pawel Marc, Leszek R. Jaroszewicz, Military Univ. of Technology (Poland); Tomasz A. Nasilowski, Military Univ. of Technology (Poland) and InPhoTech Ltd. (Poland) [8426-12]

08.50: **A grating-less in-fibre magnetometer realised in a polymer-MOF infiltrated using ferrofluid**, Alessandro Candiani, Foundation for Research and Technology-Hellas (Greece) and Univ. degli Studi di Parma (Italy); Alexander Argyros, Richard Lwin, Sergio G. Leon-Saval, The Univ. of Sidney (Australia); Gianluigi Zito, Foundation for Research and Technology-Hellas (Greece); Stefano Selleri, Univ. degli Studi di Parma (Italy); Pissadakis Stavros, Foundation for Research and Technology-Hellas (Greece) [8426-13]

09.10: **Curvature sensor using a photonic crystal fiber with three coupled cores**, Hugo F. Martins, Manuel B. Marques, Pedro A. Jorge, INESC Porto (Portugal); Cristiano M. Cordeiro, Univ. Estadual de Campinas (Brazil); Orlando Frazão, INESC Porto (Portugal) [8426-14]

09.30: **Strain characterization of suspended-core fiber tapers**, Ricardo M. André, Susana F. Silva, Manuel B. Marques, INESC Porto (Portugal); Martin Becker, Kay Schuster, Manfred Rothhardt, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany); Orlando Frazão, INESC Porto (Portugal) [8426-15]

09.50: **Low power and inexpensive microstructured fiber Mach Zehnder interferometer as temperature insensitive mechanical sensor**, Michal Murawski, Michal Szymanski, Military Univ. of Technology (Poland) and InPhoTech Ltd. (Poland); Zbigniew Holdynski, Military Univ. of Technology (Poland); Tadeusz Tenderenda, Lukasz Ostrowski, Military Univ. of Technology (Poland) and InPhoTech Ltd. (Poland); Katarzyna Pawlik, InPhoTech Ltd. (Poland); Kai Gossner, Henrik Krisch, Krohne Messtechnik GmbH & Co. KG (Germany); Pawel P. Marc, Leszek R. Jaroszewicz, Military Univ. of Technology (Poland); Tomasz A. Nasilowski, Military Univ. of Technology (Poland) and InPhoTech Ltd. (Poland) [8426-16]

Coffee Break 10.10 to 10.50

SESSION 4

Room: 312 Wed. 10.50 to 12.40

Novel Fibre Fabrication

- 10.50: **Active material for fiber core made by powder-in-tube method: subsequent homogenization by means of stack-and-draw technique** (*Invited Paper*), Vladimir V. Velmiskin, A. M. Prokhorov General Physics Institute (Russian Federation); Vladimir Mishkin, Mordovian State Univ. (Russian Federation); Olga N. Egorova, A. M. Prokhorov General Physics Institute (Russian Federation); Konstantin Nishchev, Mordovian State Univ. (Russian Federation); Sergey L. Semjonov, A. M. Prokhorov General Physics Institute (Russian Federation) [8426-17]
- 11.20: **Flattened fundamental mode in microstructured optical fibers: design and realization**, Constance Valentin, Yves Quiquempois, Géraud Bouwmans, Laurent Bigot, Marc Douay, Univ. des Sciences et Technologies de Lille (France); Laure Lago, Commissariat à l'Énergie Atomique (France); Arnaud Mussot, Univ. des Sciences et Technologies de Lille (France); Emmanuel Hugonnot, Commissariat à l'Énergie Atomique (France) [8426-18]
- 11.40: **The influence of the drawing process on the intrinsic stress in optical fibers and the arising possibility to optimize the birefringence of PM fibers**, Florian Just, Matthias L. Jaeger, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany) [8426-19]
- 12.00: **Erbium doped low phonon glasses for application in up-conversion fiber lasers**, Krzysztof Anders, Piotr Florczyk, Warsaw Univ. of Technology (Poland); Ryszard Stepien, Dariusz Pysz, Institute of Electronic Materials Technology (Poland); Dawid Piatkowski, Nicolaus Copernicus Univ. (Poland); Ryszard Piramidowicz, Warsaw Univ. of Technology (Poland) [8426-20]
- 12.20: **Optical properties of Bi-doped Mg-Al-silicate glasses and fibers**, Vladimir V. Velmiskin, Igor A. Bufetov, Boris I. Denker, Sergey V. Firstov, Boris I. Galagan, Sergey L. Semjonov, Ilya L. Shulman, Sergey Sverchkov, Evgeniy M. Dianov, A. M. Prokhorov General Physics Institute (Russian Federation) [8426-21]
- Lunch/Exhibition Break 12.40 to 13.50

SESSION 5

Room: 312 Wed. 13.50 to 15.20

Test and Measurement

Session Chair: Hartmut Bartelt,

Institut für Photonische Technologien e.V. (Germany)

- 13.50: **Spectral interferometry-based dispersion characterization of microstructured and specialty optical fibers using a supercontinuum source** (*Invited Paper*), Petr Hlubina, Dalibor Ciprian, Miroslava Kadulová, Technical Univ. of Ostrava (Czech Republic); Tadeusz Martynkien, Wrocław Univ. of Technology (Poland); Pawel Mergo, Univ. Marii Curie-Sklodowskiej (Poland); Waclaw Urbanczyk, Wrocław Univ. of Technology (Poland) .. [8426-22]
- 14.20: **Investigation of dispersion characteristics of highly nonlinear microstructured fibre series for customized supercontinuum generation**, Zbigniew Holdynski, Military Univ. of Technology (Poland); Michal Szymanski, Michal Murawski, Tomasz Nasilowski, Military Univ. of Technology (Poland) and InPhoTech Ltd. (Poland); Pawel Mergo, Univ. Marii Curie-Sklodowskiej (Poland); Pawel P. Marc, Leszek R. Jaroszewicz, Idzi Merta, Military Univ. of Technology (Poland) [8426-23]
- 14.40: **Influence of high power 405-nm multi-mode and single-mode diode laser light on the long-term stability of fused silica fibers**, Cornell P. Gonschior, Karl-Friedrich Klein, Technische Hochschule Mittelhessen (Germany); Tong Sun, The City Univ. (United Kingdom); Kenneth T. Grattan, Technische Hochschule Mittelhessen (Germany) [8426-24]
- 15.00: **Mechanical reliability of micro-structured optical fibers: a comparative study of tensile and bending strength**, Camille Sonnenfeld, Sanne Sulejmani, Thomas Geernaert, Vrije Univ. Brussel (Belgium); Sophie Eve, Moussa Gomina, ENSICAEN (France); Mariusz Makara, Krzysztof Skorupski, Pawel Mergo, Univ. Marii Curie-Sklodowskiej (Poland); Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8426-25]
- Coffee Break 15.20 to 16.00

SESSION 6

Room: 312 Wed. 16.00 to 17.50

Fibre Design and Numerical Analysis I

Session Chair: Jean-Luc Adam, Univ. de Rennes 1 (France)

- 16.00: **An improved non-linear nearly-zero dispersion flattened photonic crystal fibers with threefold symmetry core** (*Invited Paper*), Richard Zeleny, Michal Lucki, Leos Bohac, Czech Technical Univ. in Prague (Czech Republic) [8426-26]
- 16.30: **Characterization of the propagation in photonic crystal fibers with the scalar-finite element method**, Lynda A. Cherbi, Ecole Nationale Supérieure Polytechnique d'Alger (Algeria); Lyes Bahloul, Lamara Mustapha, Mohamed Touzene, Aissa Bellalia, Univ. des Sciences et de la Technologie Houari Boumediene (Algeria) [8426-27]
- 16.50: **Design of a low-bending-loss large-mode-area photonic crystal fiber**, Marek Napierala, Vrije Univ. Brussel (Belgium) and Wrocław Univ. of Technology (Poland); Elzbieta M. Beres-Pawlik, Wrocław Univ. of Technology (Poland); Tomasz A. Nasilowski, Military Univ. of Technology (Poland); Pawel Mergo, Univ. Marii Curie-Sklodowskiej (Poland); Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8426-28]
- 17.10: **Approximation of the effective refractive index of surface plasmons propagating along micron-sized gold wires in photonic crystal fibers**, Ron Spittel, Hartmut Bartelt, Matthias L. Jäger, Institut für Photonische Technologien e.V. (Germany) [8426-29]
- 17.30: **A low loss ultra-narrowband negative-dispersion and large mode field area photonic crystal fiber for dispersion compensation**, Yani Zhang, Xi'an Institute of Optics and Precision Mechanics (China); Jungang Huang, Kang Li, Univ. of Glamorgan (United Kingdom); Yongkang Gong, Xi'an Institute of Optics and Precision Mechanics (China); Nigel J. Copner, Univ. of Glamorgan (United Kingdom) [8426-30]

POSTERS—WEDNESDAY

Grand Hall Wed. 17.40 to 19.10

A poster session will be held on Wednesday 17.40 to 19.10. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Wednesday. 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 at <http://spie.org/x34963.xml>.

- Polarization and dispersion properties of hybrid square-lattice photonic crystal fiber**, So Eun Kim, Gwangju Institute of Science and Technology (Korea, Republic of) [8426-34]
- Tellurite composite microstructured optical fibers with ultra-flattened zero dispersion**, Zhongchao Duan, Meisong Liao, Koji Asano, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan) [8426-46]
- All-fiber micro-machined Fabry-Perot strain sensor**, Simon Pevec, Denis Donlagic, Univ. of Maribor (Slovenia) [8426-47]
- Narrow band amplification and tunability in a two-turn erbium-doped microfiber coil resonator**, Mojtaba Arjmand, Vahid Ahmadi, Mohammad Karimi, Tarbiat Modares Univ. (Iran, Islamic Republic of); Ayda Aray, Univ. of Isfahan (Iran, Islamic Republic of) [8426-48]
- A thermally scanned all-fiber interferometer based on vanadium-doped fiber**, Ziga Matjasec, Univ. of Maribor (Slovenia); Stanislaw Campelj, Optacore d.o.o. (Slovenia); Denis Donlagic, Univ. of Maribor (Slovenia) [8426-49]
- Design and experimental evaluation of a multi-core fibre with low macrobending-induced crosstalk and optimized fan-out/fan-in solution for application in telecommunications**, Michal Szymanski, Michal Murawski, Tadeusz Tenderenda, Military Univ. of Technology (Poland) and InPhoTech Ltd. (Poland); Pawel Mergo, Univ. Marii Curie-Sklodowskiej (Poland); Krzysztof Poturaj, Univ. Marii Curie-Sklodowskiej (Poland) and InPhoTech Ltd. (Poland); Mariusz Makara, Univ. Marii Curie-Sklodowskiej (Poland); Krzysztof Skorupski, Univ. Marii Curie-Sklodowskiej (Poland) and InPhoTech Ltd. (Poland); Katarzyna Pawlik, InPhoTech Ltd. (Poland); Michal Dlubek, Jan Kalisz, P.H. ELMAT Sp. z o. o. (Poland); Paweł Jaroszewicz, P. Marc, Leszek R. Jaroszewicz, Military Univ. of Technology (Poland); Tomasz A. Nasilowski, Military Univ. of Technology (Poland) and InPhoTech Ltd. (Poland) [8426-50]
- Large core microstructured fibers with asymmetric cladding design for practical single-mode operation**, Victor S. Shevandin, Konstantin V. Dukelsky, Vladimir Demidov, S.I. Vavilov State Optical Institute (Russian Federation) [8426-51]
- Progress in the fabrication of rare earth doped aluminophosphosilicate optical fibers by the granulated silica method**, Dereje Etissa, Martin Neff, Soenke Pilz, Manuel Ryser, Valerio Romano, Univ. Bern (Germany) ... [8426-52]

Dispersion properties of all-solid photonic crystal fibers with nanostructured core, Jacek Pniewski, Univ. of Warsaw (Poland); Dariusz Pysz, Ryszard Stepień, Ireneusz S. Kujawa, Institute of Electronic Materials Technology (Poland); Andrew J. Waddie, Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom); Ryszard R. Buczynski, Univ. of Warsaw (Poland) and Institute of Electronic Materials Technology (Poland) [8426-53]

Analysis of up-conversion pumping schemes in erbium doped tellurite fibers, Piotr Florczyk, Krzysztof Anders, Warsaw Univ. of Technology (Poland); Dawid Piatkowski, Nicolaus Copernicus Univ. (Poland); Ryszard Piramidowicz, Warsaw Univ. of Technology (Poland) [8426-54]

Mode conversion in hybrid optical fiber coupler, Karol Stasiewicz, Paweł P. Marc, Leszek R. Jaroszewicz, Military Univ. of Technology (Poland) ... [8426-55]

Chemical sensor of liquids based on suspended-core fiber, Barbara Wajnoch, Michał Grabka, Szymon Pustelny, Jagiellonian Univ. in Kraków (Poland); Paweł Mergo, Univ. Marii Curie-Skłodowskiej (Poland); Wojciech Gawlik, Jagiellonian Univ. in Kraków (Poland) [8426-56]

Designing a special-cut dual-core photonic crystal fiber for pressure sensing applications, Hamidreza Rezaei, Islamic Azad Univ. (Iran, Islamic Republic of); Mohammad Sabaean, Shahid Chamran Univ. of Ahwaz (Iran, Islamic Republic of); Laleh Mousave, Islamic Azad Univ. (Iran, Islamic Republic of) [8426-57]

Femtosecond and UV inscribed grating characterization in photonic crystal fibers: optimization for sensing applications, Charalambos Koutsides, Eleni Yiangou, Cyprus Univ. of Technology (Cyprus); Christos Themistos, Michael Z. Komodromos, Frederick Institute of Technology (Cyprus); Paul Christodoulides, Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus) [8426-58]

Modeling microfluidic flow and heat transfer in circular and elliptical channels in microstructure fibres, Paul Christodoulides, G. Florides, Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus); Michael Z. Komodromos, Frederick Institute of Technology (Cyprus) [8426-59]

Spatial optical filter using hollow core silica tube for sensing applications, Marta S. Ferreira, INESC Porto (Portugal); Kay Schuster, Jens Kolbelke, Institut für Photonische Technologien e.V. (Germany); José L. Santos, Orlando Frazão, INESC Porto (Portugal) [8426-60]

Thursday 19 April

Hot Topics III

Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall

For details, please see page 13

SESSION 7

Room: 312 Thurs. 10.40 to 12.30

Fibre Design and Numerical Analysis II

Session Chair: Jiri Kanka, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)

10.40: **On the influence of hexagonal lattice photonic crystal fiber parameters on femtosecond grating inscription** (*Invited Paper*), Tigran Baghdasaryan, Thomas Geernaert, Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8426-31]

11.10: **Low-loss multimode interference couplers for terahertz waves**, Christos Themistos, Frederick Institute of Technology (Cyprus); Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus); Michael Komodromos, Christos Markides, Frederick Institute of Technology (Cyprus); Anita Quadir, B. M. Azizur Rahman, Kenneth T. V. Grattan, The City Univ. (United Kingdom) [8426-32]

11.30: **Modeling of photonic crystal fiber with polymer inclusions**, Christos Markos, Kyriacos G. Vlachos, Univ. of Patras (Greece); George Kakarantzas, National Hellenic Research Foundation (Greece) [8426-33]

11.50: **TBA**

12.10: **Beam quality alterations due to heat generation in photonic crystal fiber lasers**, Laleh Mousave, Islamic Azad Univ. (Iran, Islamic Republic of); Mohammad Sabaean, Shahid Chamran Univ. of Ahwaz (Iran, Islamic Republic of) [8426-35]

Lunch Break 12.30 to 13.40

SESSION 8

Room: 312 Thurs. 13.40 to 15.10

Mid-IR Sources and Nonlinearities

Session Chair: David J. Webb, Aston Univ. (United Kingdom)

13.40: **Brillouin fiber laser using AsSe suspended-core chalcogenide fiber** (*Invited Paper*), Kenny Hey Tow, Yohann Léguillon, Pascal Besnard, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France) and Univ. Européenne de Bretagne (France); Laurent Brilland, Plate-forme d'Étude et de Recherche sur les Fibres Optiques Spéciales (France); Johan Trolès, Perrine Toupin, Sciences Chimiques de Rennes (France) and Univ. Européenne de Bretagne (France); Denis Trégoat, David Méchin, Plate-forme d'Étude et de Recherche sur les Fibres Optiques Spéciales (France); Martine Doisy, Thales Underwater Systems (France) [8426-36]

14.10: **Enhanced stimulated Brillouin scattering in tellurite microstructured fibers**, Rim Cherif, Mourad Zghal, SUP'COM (Tunisia); Yasutake Ohishi, Meisong Liao, Toyota Technological Institute (Japan) [8426-37]

14.30: **CW parametric generation in polarization maintaining PCF pumped by Yb-doped laser**, Ekaterina Zlobina, Institute of Automation and Electrometry (Russian Federation); Sergey I. Kablukov, Institute of Automation and Electrometry (Russian Federation) and Novosibirsk State Univ. (Russian Federation); Sergey A. Babin, Institute of Automation and Electrometry (Russian Federation) [8426-38]

14.50: **Development of large-core photonic crystal fiber for hyperspectral transmission**, Ryszard Stepień, Dariusz Pysz, Ireneusz Kujawa, Institute of Electronic Materials Technology (Poland); Jacek Pniewski, Univ. of Warsaw (Poland); Andrew J. Waddie, Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom); Ryszard R. Buczynski, Univ. of Warsaw (Poland) and Institute of Electronic Materials Technology (Poland) and Heriot-Watt Univ. (United Kingdom) [8426-39]

Coffee Break 15.10 to 15.50

SESSION 9

Room: 312 Thurs. 15.50 to 17.50

Polymer Fibres: Design Sensors and Applications

Session Chair: John Ballato, Advanced Materials Ctr. (United States)

15.50: **Novel block copolymers for multiagent detection using polymer optical fibers**, Loukas Athanasekos, Stergios Pispas, Christos Riziotis, National Hellenic Research Foundation (Greece) [8426-40]

16.10: **Development of large core microstructured polymer optical fiber**, Adam Filipkowski, Heriot-Watt Univ. (United Kingdom) and Institute of Electronic Materials Technology (Poland); Paweł Gdula, Warsaw Univ. of Technology (Poland); Dariusz Pysz, Krzysztof Harasny, Institute of Electronic Materials Technology (Poland); Andrew J. Waddie, Heriot-Watt Univ. (United Kingdom); Ryszard Stepień, Institute of Electronic Materials Technology (Poland); Krzysztof Borzycki, National Institute of Telecommunications (Poland); Ryszard Piramidowicz, Warsaw Univ. of Technology (Poland); Ryszard Buczynski, Institute of Electronic Materials Technology (Poland) and Heriot-Watt Univ. (United Kingdom); Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom); Katrin Welikow, Warsaw Univ. of Technology (Poland) [8426-41]

16.30: **Fiber design and realization of point-by-point written fiber Bragg gratings in polymer optical fibers**, Alessio Stefani, Technical Univ. of Denmark (Denmark); Matthias Stecher, Philipps-Univ. Marburg (Germany); Graham E. Town, Macquarie Univ. (Australia); Ole Bang, Technical Univ. of Denmark (Denmark) [8426-42]

16.50: **An intrinsic biochemical concentration sensor using a polymer optical fibre Bragg grating**, Wei Zhang, David J. Webb, Aston Univ. (United Kingdom); Gangding Peng, The Univ. of New South Wales (New Zealand) [8426-43]

17.10: **An investigation into the wavelength stability of polymer optical fibre Bragg gratings**, Wei Zhang, Ada Abang, David J. Webb, Aston Univ. (United Kingdom); Gangding Peng, The Univ. of New South Wales (New Zealand) [8426-44]

17.30: **Microstructured plastic optical fibers for applications in FTTH systems**, Katrin Welikow, Warsaw Univ. of Technology (Poland); Paweł Gdula, Paweł Szczepanski, Warsaw Univ. of Technology (Poland) and National Institute of Telecommunication (Poland); Ryszard Buczynski, Univ. of Warsaw (Poland); Ryszard Piramidowicz, Warsaw Univ. of Technology (Poland) [8426-45]

Biophotonics: Photonic Solutions for Better Health Care

Co-Sponsor



Conference Chairs: **Jürgen Popp**, Institut für Photonische Technologien e.V. (Germany); **Wolfgang Drexler**, Medizinische Univ. Wien (Austria); **Valery V. Tuchin**, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); **Dennis L. Matthews**, UC Davis Medical Ctr. (United States)

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Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs • Gold Hall

For details see pages 10-11

Sessions 1 and 3 run concurrently

SESSION 1

Room: Copper Hall Mon. 13.00 to 15.00

Microscopy I

Session Chair: **Jürgen Popp**, Institut für Photonische Technologien e.V. (Germany)

13.00: **High resolution microscopy using line confocal structured illumination** (*Invited Paper*), Rainer Heintzmann, Institut für Photonische Technologien e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) [8427-01]

13.40: **Patterned illumination for analysing neuronal function in 3D**, Mary Ann Go, Christian Stricker, Hans-Albert Bachor, Steve Redman, Vincent R. Daria, The Australian National Univ. (Australia) [8427-02]

14.00: **Estimation of single cell volume from 3D confocal images using automatic data processing**, Alzbeta Chorvatova, Michal Cagalinec, Anton Mateasik, Dusan Chorvat, Jr., International Laser Ctr. (Slovakia) [8427-03]

14.20: **Endo-microscope for early carcinoma diagnosis**, Davor Kosanic, Bastien Ratchet, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8427-103]

14.40: **New imaging technique using degree of polarization for the study of polarimetric properties for non-invasive biomedical diagnostic**, Isabella C. Buscemi, Steve Guyot, Jacques Lemoine, Univ. Paris 12 - Val de Marne (France) [8427-05]

Coffee Break 15.00 to 15.40

SESSION 3

Room: 215 Mon. 13.00 to 15.00

Optical Sensors I

Session Chair: **Malte Christian Gather**, Technische Univ. Dresden (Germany)

13.00: **Membrane permeable luminescent metal complexes for cellular imaging** (*Invited Paper*), Tia E. Keyes, Dublin City Univ. (Ireland) [8427-11]

13.40: **Optoacoustic platform for noninvasive accurate monitoring of multiple physiologic parameters**, Rinat O. Esenaliev, Yuriy Y. Petrov, Irina Y. H. Petrov, Donald S. Prough M.D., The Univ. of Texas Medical Branch (United States) [8427-12]

14.00: **Microring resonator arrays for multiparameter biochemical analysis**, Peter Lützw, Daniel Pergande, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Dominik Gausa, Sophie Huscher, Helmut Heidrich, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) [8427-13]

14.20: **Resonant dielectric nanostructures for biosensor applications**, Mohamad Hojeij, Benedikt Oswald, Andreas Lieb, Vitaliy A. Guzenko, Li Wang, Yasin Ekinci, Jens Gobrecht, Paul Scherrer Institut (Switzerland) [8427-14]

14.40: **Addressable LED arrays for biophotonics applications**, Pleun P. Maaskant, Tyndall National Institute (Ireland) and Univ. College Cork (Ireland); Mahbub Akhter, Noreen Nudds, Peter A. O'Brien, Tyndall National Institute (Ireland); Patrick A. Degenaar, Newcastle Univ. (United Kingdom); Brian Corbett, Tyndall National Institute (Ireland) [8427-15]

Coffee Break 15.00 to 15.40

Sessions 2 and 4 run concurrently

SESSION 2

Room: Copper Hall Mon. 15.40 to 17.30

Microscopy II

Session Chair: **Rainer Heintzmann**, Institut für Photonische Technologien e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany)

15.40: **Spectral imaging microendoscopy in ducts and vessels** (*Invited Paper*), Alexandre Douplik, Ryerson Univ. (Canada); Brian C. Wilson, Univ. of Toronto (Canada); Zeev Zalevsky, Bar-Ilan Univ. (Israel) [8427-06]

16.10: **High-resolution fluorescence imaging of whole brains with confocal ultramicroscopy**, Ludovico Silvestri, Leonardo Sacconi, European Lab. for Non-linear Spectroscopy (Italy); Alessandro Bria, Univ. Campus Bio-Medico (Italy) and Univ. degli Studi di Cassino (Italy); Giulio Iannello, Univ. Campus Bio-Medico (Italy); Francesco S. Pavone, European Lab. for Non-linear Spectroscopy (Italy) [8427-07]

16.30: **Self-interference digital holographic microscopy for live cell imaging**, Björn Kemper, Frank Schlichthaber, Sebastian Dartmann, Robin Schubert, Angelika Vollmer, Steffi Ketelhut, Gert von Bally, Ctr. for Biomedical Optics and Photonics (Germany) [8427-08]

16.50: **Three-dimensional digital holographic tracking of optically manipulated particles for the inner analysis of living cancer cells**, Alvaro Barro, Ctr. for Biomedical Optics and Photonics (Germany) and Westfälische Wilhelms-Univ. Münster (Germany); Björn Kemper, Ctr. for Biomedical Optics and Photonics (Germany); Mike Woerdemann, Westfälische Wilhelms-Univ. Münster (Germany); Angelika Vollmer, Steffi Ketelhut, Gert von Bally, Ctr. for Biomedical Optics and Photonics (Germany); Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) [8427-09]

17.10: **Quantitative measurement of absolute cell volume and intracellular integral refractive index (RI) with dual-wavelength digital holographic microscopy (DHM)**, Daniel Boss, Jonas Kühn, Christian Depeursinge, Pierre J. Magistretti, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Pierre Marquet, Ctr. Hospitalier Univ. Vaudois (Switzerland) [8427-10]

SESSION 4

Room: 215 Mon. 15.40 to 17.30

Optical Sensors II

Session Chair: **Tia E. Keyes**, Dublin City Univ. (Ireland)

15.40: **Lasng from biological cells expressing green fluorescent protein** (*Invited Paper*), Malte C. Gather, Harvard Medical School (United States) and Technische Univ. Dresden (Germany); Seok Hyun Yun, Wellman Ctr. for Photomedicine (United States) [8427-16]

16.10: **Layered polymer: inorganic composite waveguides for biosensor applications**, Jussi Hiltunen, VTT Technical Research Ctr. of Finland (Finland); Meng Wang, Univ. of Oulu (Finland); Christina Liedert, Sanna Aikio, Noriyuki Masuda, VTT Technical Research Ctr. of Finland (Finland); Stuart Pearce, Martin Charlton, Univ. of Southampton (United Kingdom); Pentti Karioja, VTT Technical Research Ctr. of Finland (Finland) [8427-17]

16.30: **Development of FBG probe for non-invasive carotid pressure waveform assessment**, Cátia J. Leitão, Univ. de Aveiro (Portugal); Nélia J. Alberto, Lúcia B. Bilro, Instituto de Telecomunicações (Portugal); Paulo C. Antunes, Univ. de Aveiro (Portugal) and Instituto de Telecomunicações (Portugal); Hugo F. Lima, Univ. de Aveiro (Portugal); Paulo S. Brito André, Rogério Nogueira, Instituto de Telecomunicações (Portugal); João L. Lemos Pinto, Univ. de Aveiro (Portugal) [8427-18]

16.50: **A minimally invasive chip based near infrared sensor for continuous glucose monitoring**, Lhoucine Ben Mohammadi, Susanne Sigloch, Ines Frese, Volkmar Stein, Knut Welzel, Felix Schmitz, Thomas Klotzbuecher, Institut für Mikrotechnik Mainz GmbH (Germany) [8427-19]

17.10: **Photoplethysmography system for blood pulsation detection in unloaded arterial conditions**, Andris Grabovskis, Zbignevs Marcinkevics, Uldis Rubins, Edgars Kviesis-Kipge, Vieda Lusa, Univ. of Latvia (Latvia) [8427-20]

Tuesday 17 April

SESSION 5

Room: Copper Hall Tues. 08.30 to 10.20

Optical Micromanipulation I

Session Chair: Dennis L. Matthews,
UC Davis Medical Ctr. (United States)

08.30: **Application of laser tweezers Raman spectroscopy techniques to the monitoring of single cell response to stimuli** (*Invited Paper*), James Chan, Rui Liu, NSF Ctr. for Biophotonics Science and Technology (United States); Dennis L. Matthews, UC Davis Medical Ctr. (United States) [8427-21]

09.00: **Rotational behaviour of rod-shaped self-propelled bacteria investigated utilising holographic optical tweezers**, Lena Dewenter, Christina Alpmann, Mike Woerdemann, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) [8427-22]

09.20: **Characterizing Matrigel stiffness by optical tweezers active microrheology**, Martha B. Alvarez-Elizondo, Breanna Padilla, Samir G. Shreim, Elliot L. Botvinick, Univ. of California, Irvine (United States) [8427-23]

09.40: **Mechanical properties of bleb formation during cell migration of primordial germ cells in zebrafish embryos**, Florian Hörner, Cornelia Denz, Erez Raz, Westfälische Wilhelms-Univ. Münster (Germany) [8427-24]

10.00: **Diagnostic of red blood cells viscoelastic properties by means of optical tweezers**, Evgeny Lyubin, Maria D. Khokhlova, Maria Skryabina, Andrey A. Fedyanin, Lomonosov Moscow State Univ. (Russian Federation) . . . [8427-25]

Coffee Break 10.20 to 11.00

SESSION 6

Room: Copper Hall Tues. 11.00 to 12.50

Optical Micromanipulation II

Session Chair: James Chan,
NSF Ctr. for Biophotonics Science and Technology (United States)

11.00: **Towards gene therapy based on femtosecond optical transfection** (*Invited Paper*), Maciej K. Antkowiak, Maria Leilani Y. Torres-Mapa, Univ. of St. Andrews (United Kingdom); James McGinty, Mirna Chahine, Laurence Bugeon, Anna Rose, Amber Finn, Imperial College London (United Kingdom); Susana L. Moleirinho, Univ. of St. Andrews (United Kingdom); Kenji Okuse, Margaret Dallman, Paul French, Sian E. Harding, Imperial College London (United Kingdom); Paul Reynolds, Frank Gunn-Moore, Kishan Dholakia, Univ. of St. Andrews (United Kingdom) [8427-26]

11.30: **Noncontact microsurgery and micromanipulation of living cells with combined system femtosecond laser scalpel-optical tweezers**, Inna V. Il'ina, Dmitry S. Sitnikov, Andrey V. Ovchinnikov, Mikhail B. Agranat, Joint Institute for High Temperatures (Russian Federation); Yulia V. Khranova, Maria L. Semenova, Lomonosov Moscow State Univ. (Russian Federation) [8427-27]

11.50: **Photonic crystal cavities for resonant evanescent field trapping of single bacteria**, Thijs van Leest, Jeroen Heldens, Jaap Caro, Technische Univ. Delft (Netherlands) [8427-28]

12.10: **Towards a laser-integrated module for marker-free sorting of micrometer-sized particles in microfluidic channels**, Wolfgang Schwarz, Anna Bergmann, Dietmar Wahl, Ulm Univ. (Germany); Dieter Rimpf, Timo Mappes, Karlsruher Institut für Technologie (Germany); Rainer Michalzik, Ulm Univ. (Germany) [8427-29]

12.30: **Optical trapping detects colored noise in the fluctuations of an extended DNA molecule**, Ignacio A. Martinez, Saurabh Raj, ICFO - Institut de Ciències Fotòniques (Spain); Dmitri Petrov, ICFO - Institut de Ciències Fotòniques (Spain) and Institució Catalana de Recerca i Estudis Avançats (Spain) [8427-30]

Lunch/Exhibition Break 12.50 to 14.00

SESSION 7

Room: Copper Hall Tues. 14.00 to 16.00

Advanced Microscopic and Spectroscopic Methods I

Session Chair: Thomas G. Mayerhöfer,
Institut für Photonische Technologien e.V. (Germany)

14.00: **Linear and nonlinear imaging of electrical activity and morphology in intact tissues** (*Invited Paper*), Francesco S. Pavone, Univ. degli Studi di Firenze (Italy) [8427-31]

14.40: **Polarization-modulated SHG analysis of the thermal modification of corneal stroma**, Fulvio Ratto, Paolo Matteini, Istituto di Fisica Applicata Nello Carrara (Italy); Riccardo Cicchi, European Lab. for Non-linear Spectroscopy (Italy); Francesca Rossi, Istituto di Fisica Applicata Nello Carrara (Italy); Dimitrios Kapsokalyvas, European Lab. for Non-linear Spectroscopy (Italy); Marella De Angelis, Istituto di Fisica Applicata Nello Carrara (Italy); Francesco S. Pavone, European Lab. for Non-linear Spectroscopy (Italy); Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy) [8427-32]

15.00: **Two-photon autofluorescent and second-harmonic generation microscopy for the tracking of TiO₂ and ZnO nanoparticles penetration into human tooth in vitro**, Natalia A. Trunina, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Alexey P. Popov, Univ. of Oulu (Finland); Jürgen M. Lademann, Charité Universitätsmedizin Berlin (Germany); Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Risto Myllylä, Univ. of Oulu (Finland); Maxim E. Darvin M.D., Charité Universitätsmedizin Berlin (Germany) [8427-33]


15.20: **Non-invasive label-free investigation and typing of head and neck cancers by multimodal nonlinear microscopy**, Tobias Meyer, Institut für Photonische Technologien e.V. (Germany); Benjamin Dietzek, Friedrich-Schiller-Univ. Jena (Germany); Denis Akimov, Institut für Photonische Technologien e.V. (Germany); Orlando Guntinas-Lichius, Universitätsklinikum Jena (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) . . . [8427-34]

15.40: **Discrimination of skin diseases using the multimodal imaging approach**, Nadine Vogler, Institut für Photonische Technologien e.V. (Germany); Sandro Heuke, Friedrich-Schiller-Univ. Jena (Germany); Denis Akimov, Ines Latka, Institut für Photonische Technologien e.V. (Germany); Katarina Svanberg, Niels Bendsoe, Lund Univ. Hospital (Sweden); Jürgen Lademann, Charité Universitätsmedizin Berlin (Germany); Benjamin Dietzek, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) [8427-35]

Coffee Break 16.00 to 16.30

Hot Topics II
Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall
For details, please see page 12

Best Poster Award
Wednesday 18 April · 17.40 to 19.10
The Journal of Biophotonics Poster Award
will honour the best poster presentation in the field of Biophotonics.
The award is sponsored by:



Wednesday 18 April

Sessions 8 and 10 run concurrently

SESSION 8

Room: Copper Hall Wed. 08.20 to 10.10

Advanced Microscopic and Spectroscopic Methods II

Session Chair: Francesco Saverio Pavone,
European Lab. for Non-linear Spectroscopy (Italy)

- 08.20: **Quantification and optimal control of contrast in CARS images** (*Invited Paper*), Benjamin Dietzek, Friedrich-Schiller-Univ. Jena (Germany); Gero Bergner, Ines Latka, Institut für Photonische Technologien e.V. (Germany); Sebastian Schlücker, Univ. Osnabrück (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) [8427-36]
- 08.50: **Force and Raman spectroscopy of single red blood cell**, Saurabh Raj, Michal Wojdyla, Mónica Marro Sánchez, ICFO - Institut de Ciències Fotòniques (Spain); Dmitri Petrov, ICFO - Institut de Ciències Fotòniques (Spain) and Institució Catalana de Recerca i Estudis Avançats (Spain) [8427-37]
- 09.10: **Use of Raman microspectroscopy to score the malignancy of breast cancer cells**, Claudia Nieva, ICFO - Institut de Ciències Fotòniques (Spain) and IDIBELL - Institut d'Investigació Biomèdica de Bellvitge (Spain); Monica Marro, ICFO - Institut de Ciències Fotòniques (Spain); Naiara Santana, IDIBELL - Institut d'Investigació Biomèdica de Bellvitge (Spain); Satish Rao, ICFO - Institut de Ciències Fotòniques (Spain); Dmitri Petrov, ICFO - Institut de Ciències Fotòniques (Spain) and ICREA-Institució Catalana de Recerca i Estudis Avançats (Spain); Angels Sierra, IDIBELL - Institut d'Investigació Biomèdica de Bellvitge (Spain) [8427-38]
- 09.30: **Double optical fibre-probe device for the diagnosis of melanocytic lesions**, Riccardo Cicchi, Alessandro Cosci, European Lab. for Non-linear Spectroscopy (Italy); Susanna Rossari M.D., Vincenzo De Giorgi, Daniela Massi, Univ. degli Studi di Firenze (Italy); Francesco S. Pavone, European Lab. for Non-linear Spectroscopy (Italy) [8427-39]
- 09.50: **Detecting neuroinflammation non-invasively through the retina by means of Raman spectroscopy and multivariate analysis**, Mónica Marro Sánchez, ICFO - Institut de Ciències Fotòniques (Spain); Alice Taubes, Institut d'Investigacions Biomèdiques Agustí Pi Sunyer (Spain); Dmitri Petrov, ICFO - Institut de Ciències Fotòniques (Spain) and ICREA - Institut Català de Recerca i Estudis Avançats (Spain); Pablo Villoslada, Institut d'Investigacions Biomèdiques Agustí Pi Sunyer (Spain) [8427-40]
- Coffee Break 10.10 to 10.50

SESSION 10

Room: 316 Wed. 08.20 to 10.20

OCT I

Session Chair: Peter E. Andersen,
Technical Univ. of Denmark (Denmark)

- 08.20: **Monitoring in vivo treatment response with structural and functional optical coherence tomography** (*Invited Paper*), Alex I. Vitkin, Ontario Cancer Institute (Canada) [8427-47]
- 09.00: **High-speed polarization-sensitive OCT at 1060 nm using a Fourier domain mode-locked swept source**, Sebastian Marschall, Technical Univ. of Denmark (Denmark); Teresa Torzicky, Medizinische Univ. Wien (Austria); Thomas Klein, Wolfgang Wieser, Benjamin Biedermann, Ludwig-Maximilians-Univ. München (Germany); Erich Götzinger, Michael Pircher, Stefan Zotter, Marco Bonesi, Medizinische Univ. Wien (Austria); Christian Pedersen, Technical Univ. of Denmark (Denmark); Robert Huber, Ludwig-Maximilians-Univ. München (Germany); Christoph Hitzenberger, Medizinische Univ. Wien (Austria); Peter Andersen, Technical Univ. of Denmark (Denmark) [8427-48]
- 09.20: **Guiding glaucoma laser surgery using fourier-domain optical coherence tomography at 1.3 µm**, Masreshaw D. Bayleyegn, Houssine Makhlof, Lab. Charles Fabry (France); Caroline Crotti, Karsten Plamann, Ecole Nationale Supérieure de Techniques Avancées (France); Arnaud Dubois, Lab. Charles Fabry (France) [8427-49]
- 09.40: **Snapshot retinal imaging with multi-MHz FDML OCT**, Thomas Klein, Wolfgang Wieser, Raphael André, Christoph Eigenwillig, Robert Huber, Ludwig-Maximilians-Univ. München (Germany) [8427-50]
- 10.00: **Extended range MHz FDML laser for OCT imaging of the anterior segment**, Wolfgang Wieser, Thomas Klein, Ludwig-Maximilians-Univ. München (Germany); Desmond C. Adler, St. Jude Medical, Inc. (United States); Christoph M. Eigenwillig, Sebastian Karpf, Ludwig-Maximilians-Univ. München (Germany); Joseph M. Schmitt, St. Jude Medical, Inc. (United States); Robert Huber, Ludwig-Maximilians-Univ. München (Germany) [8427-51]
- Coffee Break 10.20 to 10.50

Sessions 9 and 11 run concurrently

SESSION 9

Room: Copper Hall Wed. 10.50 to 13.00

Advanced Microscopic and Spectroscopic Methods III

Session Chair: Benjamin Dietzek,
Friedrich-Schiller-Univ. Jena (Germany)

- 10.50: **Reusable silver plasmonic arrays for analytical applications** (*Invited Paper*), Karina Weber, Dana Cialla, Institut für Photonische Technologien e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany); Uwe Huebner, Matthias Zeisberger, Henrik Schneidewind, Roland Mattheis, Institut für Photonische Technologien e.V. (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) [8427-41]
- 11.20: **Application of innovative plasmonic nanostructures in (bio)analytics**, Dana Cialla, Institut für Photonische Technologien e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany); Uwe Huebner, Henrik Schneidewind, Roland Mattheis, Institut für Photonische Technologien e.V. (Germany); Karina Weber, Juergen Popp, Institut für Photonische Technologien e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) [8427-42]
- 11.40: **Nanophotonics for molecular imaging of cancer markers: development of Epidermal Growth Factor receptor (EGFR) specific nanoprobes for Surface Enhanced Raman Spectroscopy (SERS)**, Leanne Lucas, Dalhousie Univ. (Canada); W. Zhang, Mladen Korbelik, Haishan Zeng, The BC Cancer Agency Research Ctr. (Canada); Kevin C. Hewitt, Dalhousie Univ. (Canada) [8427-43]
- 12.00: **TBA**
- 12.20: **Application of cheap lasers in shifted excitation Raman difference spectroscopy**, Stefan Wolf, Heinz Döring, Hochschule Mittweida (Germany) [8427-45]
- 12.40: **Characterization of atherosclerotic plaque depositions in vivo by fiber optic Raman spectroscopy and ex vivo by FTIR imaging**, Christian Matthäus, Sebastian Dochow, Christoph Krafft, Institut für Photonische Technologien e.V. (Germany); Annika Lattermann, Bernd F. M. Romeike, Bernhard R. Brehm, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) [8427-46]
- Lunch/Exhibition Break 13.00 to 14.10

SESSION 11

Room: 316 Wed. 10.50 to 12.50

OCT II

Session Chair: Alex I. Vitkin, Ontario Cancer Institute (Canada)

- 10.50: **Comparative analysis of optical coherence tomography signal and microhardness for demineralization evaluation of human tooth enamel**, Ana Claudia B. Cara, Denise M. Zezell, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Patricia A. Ana, Univ. Federal do ABC (Brazil); Alessandro M. Deana, Univ. Nove de Julho (Brazil); Marcello M. Amaral, Nilson Dias Vieira, Jr., Anderson Z. Freitas, Instituto de Pesquisas Energéticas e Nucleares (Brazil) [8427-52]
- 11.10: **Phase and amplitude optimization in an optical coherence tomography system using a programmable spectral filter**, Frédéric Vanholsbeeck, Anna Yang, Stephane Coen, Norman Lippok, The Univ. of Auckland (New Zealand); Jochen Schroeder, The Univ. of Sydney (Australia) [8427-53]
- 11.30: **Processing optical coherence tomography data as a synthetic digital hologram for transverse resolution improvement**, Alexander A. Moiseev, Grigory V. Gelikonov, Pavel A. Shilyagin, Dmitry A. Terpelov, Dmitry V. Shabanov, Valentine M. Gelikonov, Institute of Applied Physics (Russian Federation) [8427-54]
- 11.50: **Fabrication of high quality optical coherence tomography (OCT) calibration artefacts using femtosecond inscription**, Graham C. Lee, Janarthanan Rasakanthan, Aston Univ. (United Kingdom); Peter D. Woolliams, National Physical Lab. (United Kingdom); Kate Sugden, Aston Univ. (United Kingdom) [8427-55]
- 12.10: **Auto-correlation OCT**, Marcus P. Raele, Anderson Z. de Freitas, Marcello M. Amaral, Instituto de Pesquisas Energéticas e Nucleares (Brazil) [8427-56]
- 12.30: **Coherence effects of thick objects imaging in interference microscopy**, Anton A. Grebenyuk, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Vladimir P. Ryabukho, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) and Institute of Precision Mechanics and Control (Russian Federation) [8427-57]

SESSION 12

Room: Copper Hall Wed. 14.10 to 17.10

Advanced Microscopic and Spectroscopic Methods IV

Session Chair: Siva Umaphathy, Indian Institute of Science (India)

14.10: **Simultaneous EEG and diffuse optical imaging of seizure-related hemodynamic activity in the newborn infant brain** (*Invited Paper*), Jeremy C. Hebden, Adam P. Gibson, Nick L. Everdell, Topun Austin, Univ. College London (United Kingdom) [8427-58]

14.50: **Optimization of wavelengths sets for multispectral reflectance imaging of rat olfactory bulb activation in vivo**, Remi N. Renaud, Mounir Bendahmane, Romain Chery, Claire Martin, Hirac Gurden, Frederic Pain, Institut National de Physique Nucléaire et de Physique des Particules (France) [8427-59]

15.10: **Fluorescence-enhanced optical spectroscopy using early arriving photons in transmission mode: a finite element approach**, Vianney M. Piron, Jean-Pierre L'Huilier, Ecole Nationale Supérieure d'Arts et Métiers (France) [8427-60]

Coffee Break 15.30 to 16.10

16.10: **Optical projection tomography of the vascular network of living specimens**, Andrea Bassi, Luca Fieramonti, Cosimo D'Andrea, Gianluca Valentini, Politecnico di Milano (Italy); Marina Mione, IFOM-IEO (Italy) . [8427-61]

16.30: **Spectro-angular mapping of localized gold inclusions in Intralipid phantoms**, Serge Grabtchak, Tyler J. Palmer, William M. Whelan, Univ. of Prince Edward Island (Canada) [8427-62]

16.50: **Photoacoustic spectroscopy of weakly absorbing media using nanosecond laser pulses**, Luis G. Arnaut, Luis A. Reis, Univ. de Coimbra (Portugal); Fábio A. Schaberle, Luzitin SA (Portugal) [8427-63]

POSTERS—WEDNESDAY

Grand Hall Wed. 17.40 to 19.10

A poster session will be held on Wednesday 17.40 to 19.10. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Wednesday. 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 at <http://spie.org/x34963.xml>.

Line-scanning microscope with improved axial resolution, Milton P. Macedo, Instituto Superior de Engenharia de Coimbra (Portugal); Carlos M. B. A. Correia, Univ. de Coimbra (Portugal) [8427-04]

Laser scattering by transcranial rat brain illumination, Marcelo V. Pires de Sousa, Univ. de São Paulo (Brazil); Renato A. Prates, Ilka T. Kato, Caetano P. Sabino, Luis C. Suzuki, Martha Ribeiro, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Elisabeth M. Yoshimura, Univ. de São Paulo (Brazil) [8427-78]

Accurate determination of the complex refractive index of a solid tissue-equivalent phantom, Jin Wang, Qing Ye, Zhi-chao Deng, Wen-yuan Zhou, Chun-ping Zhang, Jian-Guo Tian, Nankai Univ. (China) [8427-79]

Protein-based integrated optical sensor device, Anna Mathesz, Sándor Valkai, István Andó, Biological Research Ctr. (Hungary); Elmar K. Wolff, Univ. Witten/Herdecke gGmbH (Germany); Pál Ormos, András Dér, Biological Research Ctr. (Hungary) [8427-80]

Comparison between experimental and computational methods for scattering anisotropy coefficient determination in dental-resin composites, Alicia Fernández-Oliveras, Irene M. Carrasco, Razvan Ghinea, María M. Pérez, Manuel Rubiño López, Univ. de Granada (Spain) [8427-81]

Measurements of scattering anisotropy in dental tissue and zirconia ceramic, Alicia Fernández-Oliveras, Oscar E. Pecho D.D.S., Manuel Rubiño López, María M. Pérez, Univ. de Granada (Spain) [8427-82]

Time of correlation of low-frequency fluctuations in the regional laser Doppler flow signal from human skin, Gesse E. Calvo Nogueira, Melissa S. Folgosi-Corrêa, Instituto de Pesquisas Energéticas e Nucleares (Brazil) [8427-85]

Load bearing studies of single DNA molecules and red blood cells using optical tweezers and Raman spectroscopy, Saurabh Raj, Satish Rao, Mónica Marro Sánchez, Michal Wojdyla, ICFO - Institut de Ciències Fotòniques (Spain); Dmitri Petrov, ICFO - Institut de Ciències Fotòniques (Spain) and ICREA - Institut Català de Recerca i Estudis Avançats (Spain) [8427-86]

X-ray radiation-induced effects in human mammary epithelial cells investigated by Raman microspectroscopy, Rossella Risi, Lorenzo Manti, Univ. Federico II (Italy); Giuseppe Perna, Maria Lasalvia, Vito Capozzi, Univ. degli Studi di Foggia (Italy); Ines Delfino, Univ. degli Studi della Tuscia (Italy); Maria Lepore, Seconda Univ. degli Studi di Napoli (Italy) [8427-87]

Monitoring of pathological changes in the skin, Ivan A. Bratchenko, Valery P. Zakharov, Samara State Aerospace Univ. (Russian Federation); Kirill V. Larin, Univ. of Houston (United States); Julia A. Khristoforova, Samara State Aerospace Univ. (Russian Federation) [8427-88]

Investigation of cell morphology by the TRUImage digital holographic microscopy system, Oi Choo Chee, Weijuan Qu, Kim Kheong Chai, Ngee Ann Polytechnic (Singapore); Anand K. Asundi, Nanyang Technological Univ. (Singapore) [8427-89]

3D CARS image reconstruction and pattern recognition on SHG images, Anna Medyukhina, Nadine Vogler, Ines Latka, Institut für Photonische Technologien e.V. (Germany); Benjamin Dietzek, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) [8427-90]

Mid infrared optical tweezers and nanosecond laser ablation on yeast and algae cells, D. G. Kotsifaki, Mersini I. Makropoulou-Loukogiannaki, Alexander A. Serafetinides, National Technical Univ. of Athens (Greece) [8427-91]

Diode laser based photoacoustic gas measuring instruments intended for medical research, Anna Szabó, Árpád Mohácsi, Peter Novak, Daniela Aladzić, Kinga Turzó, Zoltán Rakonczay, Gábor Eros, Mihály Boros, Katalin Nagy, Gábor Szabó, Univ. of Szeged (Hungary) [8427-92]

Dual wavelength multiple-angle light scattering system for cryptosporidium detection, Somporn Buapathoom, Stephen J. Sweeney, Steve Pedley, Univ. of Surrey (United Kingdom) [8427-93]

Real-time processing of laser speckle imaging for fast blood flow visualization, Chao Jiang, Pengcheng Li, Qingming Luo, Huazhong Univ. of Science and Technology (China) [8427-94]

Laser based signal and image fractal analysis for assessment of blood flow, Sujatha Narayanan Unni, Cerine Lal, Indian Institute of Technology Madras (India) [8427-95]

Water-soluble conjugated polyelectrolytes for highly sensitive and selective potassium ion detection, Han Young Woo, Pusan National Univ. (Korea, Republic of) [8427-96]

Spectroscopic detection of chemotherapeutics and antioxidants, Ines Latka, Roman Grüner, Institut für Photonische Technologien e.V. (Germany); Benjamin Dietzek, Friedrich-Schiller-Univ. Jena (Germany); Wolfgang Werncke, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Jürgen Lademann, Charité Universitätsmedizin Berlin (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) [8427-97]

Laser heating of gold nanoparticles: photothermal cancer cell therapy, Nikolay N. Nedyalkov, Petar A. Atanasov, Institute of Electronics (Bulgaria); Reneta A. Toshkova, Elena G. Gardeva, Liliya S. Yossifova, Marin T. Alexandrov, Institute of Experimental Morphology, Pathology and Anthropology with Museum (Bulgaria) [8427-98]

Multifunctional nanoparticles for imaging applications, Maarten Bloemen, Ward Brulot, Ventsislav K. Valev, Louise Vanyasacker, Carla Denis, Luc De Meester, Thierry Verbiest, Katholieke Univ. Leuven (Belgium) [8427-99]

Multiphoton two-photon imaging of mice heart tissue detecting calcium waves, Claudio de Mauro, Carlo A. Cecchetti, Domenico Alfieri, Light4Tech Firenze S.r.l. (Italy); Giulia Borile, Marco Mongillo, Univ. degli Studi di Padova (Italy); Francesco S. Pavone, Univ. degli Studi di Firenze (Italy) [8427-100]

Quenching of nanomarkers phosphorescence by heavy metals ions and energy acceptors in determination of structural changes in proteins, Andrey G. Melnikov, Saratov State Technical Univ. (Russian Federation) . . . [8427-102]

Optical tractor beam for novel micromanipulations of target cells, Cheng-Wei Qiu, National Univ. of Singapore (Singapore) [8427-105]

The parameters of oxidative stress in cervical cancer tumors under femtosecond laser irradiation, Irina Antoneeva, Ulyanovsk State Univ. (Russian Federation); Alexey Sysolyatin, A. M. Prokhorov General Physics Institute (Russian Federation); Tatyana Gening, Vyacheslav Svetukhin, Tatyana Abakumova, Olga Voronova, Dinara Arslanova, Ulyanovsk State Univ. (Russian Federation) [8427-107]

Improvement of axial resolution of spectral domain optical coherence tomography with wide band PLC splitter, Joo Beom Eom, Korea Photonics Technology Institute (Korea, Republic of); Eun Jung Min, Byeong Ha Lee, Gwangju Institute of Science and Technology (Korea, Republic of) . . . [8427-108]

Effect of probe angle for diffuse reflectance spectroscopy on human skin, Chung Ghu Lee, Chosun Univ. (Korea, Republic of); Soeun Kim, Gwangju Institute of Science and Technology (Korea, Republic of); Inkyu Moon, Chosun Univ. (Korea, Republic of) [8427-109]

Photoacoustic tomography: ultrasonically breaking through the optical diffusion limit (*Invited Paper*), Lihong V. Wang, Washington Univ. in St. Louis (United States) [8427-110]

The study of sensitivity of boundary integral method to detect of depth of tumor, Mohammad Ali Ansari, Saeid Alikhani, Ezeddin Mohajerani, Shahid Beheshti Univ. (Iran, Islamic Republic of) [8427-111]

Theoretical analysis of two nodal-wedges method to enhance the vibration behavior of NSOM probe with its tip being immersed partially in liquid, Wonjun Lee, Dae-Chan Kim, Beom-Hoan O, Se-Geun Park, El-Hang Lee, Seung Gol Lee, Inha Univ. (Korea, Republic of) [8427-112]

Comparison of laser-assisted damage in porcine liver using multi-directional and forward firing fiber, Ho Lee, ChangHwan Kim, Kyungpook National Univ. (Korea, Republic of); Ik-Bu Sohn, Gwangju Institute of Science and Technology (Korea, Republic of) [8427-113]

- Optical biosensors utilizing polymer-based athermal microring resonators**, Linghua Wang, Dalian Univ. of Technology (China) and Univ. Gent (Belgium); Xuiyou Han, Yiyang GU, Huanlin Lv, Jianfang Cheng, Jie Teng, Jun Ren, Jinyan Wang, Xigao Jian, Dalian Univ. of Technology (China); Geert Morthier, Univ. Gent (Belgium); Mingshan Zhao, Dalian Univ. of Technology (China) [8427-114]
- Analysis of skin basaloma and melanoma by multispectral imaging**, Ilze Diebele, Ilona Kuzmina, Univ. of Latvia (Latvia); Alexander Derjabo, Janis Kapostinsh, SIA Riga Eastern Clinical Univ. Hospital (Latvia); Amina Bekina, Janis Spigulis, Univ. of Latvia (Latvia) [8427-115]
- Three-dimensional scaffolds for bone tissue engineering**, Paulius Danilevicius, Foundation for Research and Technology-Hellas (Greece) and Vilnius Univ. (Lithuania); Mangirdas Malinauskas, Roaldas Gadonas, Vilnius Univ. (Lithuania); Frederik Claeysens, The Univ. of Sheffield (United Kingdom); Maria Vamvakaki, Foundation for Research and Technology-Hellas (Greece) and Univ. of Crete (Greece); Maria Chatzinikolaïdou, Univ. of Crete (Greece); Maria Farsari, Foundation for Research and Technology-Hellas (Greece) [8427-116]
- Clinical measurements with multi-spectral photoplethysmography sensors**, Lasma Asare, Maris Ozols, Uldis Rubins, Oskars Rubenis, Janis Spigulis, Univ. of Latvia (Latvia) [8427-117]
- Analysis of porous polymer scaffolds for cells cultivation with confocal microscopy**, Yuliya A. Shved, Institute of Cytology (Russian Federation) [8427-118]
- Non-linear optical imaging and fibre-based spectroscopy of fresh colon biopsies**, Riccardo Cicchi, European Lab. for Non-linear Spectroscopy (Italy); Alessandro Sturiale, Gabriella Nesi, Francesco Tonelli, Univ. degli Studi di Firenze (Italy); Francesco S. Pavone, European Lab. for Non-linear Spectroscopy (Italy) [8427-119]
- RGB imaging system for monitoring of skin vascular malformation's laser therapy**, Dainis Jakovels, Ilona Kuzmina, Univ. of Latvia (Latvia); Anna Berzina, The Clinic of Laser Plastics (Latvia); Janis Spigulis, Univ. of Latvia (Latvia) [8427-120]
- Full-range spectral domain optical coherence tomography using fibre-based sample scanner as self-phase shifter**, Eun Jung Min, Jun Geun Shin, Jae Hwi Lee, Byeong Ha Lee, Gwangju Institute of Science and Technology (Korea, Republic of) [8427-121]
- Waveguide-type localized plasmon resonance biosensor for noninvasive glucose concentration detection**, Alexei V. Nashchekin, Vladimir N. Nevedomskiy, Petr A. Obraztsov, Ioffe Physico-Technical Institute (Russian Federation); Oleg A. Podsvirov, St. Petersburg State Polytechnical Univ. (Russian Federation); Alexander I. Sidorov, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Konstantin K. Turoverov, Institute of Cytology (Russian Federation); Oleg A. Usov, Semen G. Konnikov, Ioffe Physico-Technical Institute (Russian Federation) [8427-122]
- Magnetic particles for sequence-specific DNA detection**, Susanne Pahlow, Dana Cialla, Karina Weber, Juergen Popp, Friedrich-Schiller-Univ. Jena (Germany) and Institut für Photonische Technologien e.V. (Germany) . [8427-123]
- Supercontinuum laser based double-integrating-sphere system for measuring optical properties of highly dense turbid media in the 1300-2350 nm region with high sensitivity**, Ling Wang, Sandeep Sharma, Ben Aernouts, Frank Mathijs, Herman Ramon, Wouter Saeys, Katholieke Univ. Leuven (Belgium) [8427-124]
- Ultrahigh resolution full-field optical coherence microscopy with multiple light-emitting diodes**, Houssine Makhlouf, Masreshaw D. Bayleyegn, Mitradreep Sarkar, Delphine Sacchet, Arnaud Dubois, Lab. Charles Fabry (France) [8427-125]
- A multimodal holographic system for optical injection and manipulation of developing embryos**, Maria Leilani Y. Torres-Mapa, Maciej K. Antkowiak, Hana Cizmarova, David E. Ferrier, Kishan Dholakia, Frank J. Gunn-Moore, Univ. of St. Andrews (United Kingdom) [8427-126]
- Propagation, structural similarity index, and image quality**, Jorge Perez, David Mas, Julian Espinosa, Carmen Vazquez, Carlos Illueca, Univ. de Alicante (Spain) [8427-127]
- AFM and SEM imaging in low vacuum conditions of new drug delivery nanosystems**, Ellas Spyratou, National Technical Univ. of Athens (Greece); Elena Mourelatou, Costas Demetzos, National and Kapodistrian Univ. of Athens (Greece); Alexandros A. Serafetinides, Mersini I. Makropoulou-Loukogiannaki, National Technical Univ. of Athens (Greece) [8427-128]
- Development of portable non-contact photoplethysmography device**, Eriks Zaharans, Janis Zaharans, Uldis Rubins, Edgars Kviessis-Kipge, Oskars Rubenis, Univ. of Latvia (Latvia) [8427-129]
- Miniature wireless photoplethysmography devices: integration in garments and test measurements**, Edgars Kviessis-Kipge, Oskars Rubenis, Viktorija Mechnika, Univ. of Latvia (Latvia) [8427-130]
- Influence of low power CW laser irradiation on skin hemoglobin changes**, Inesa Ferulova, Janis Lesinsh, Alexey P. Lihachev, Dainis Jakovels, Janis Spigulis, Univ. of Latvia (Latvia) [8427-131]
- Physiological state influence to skin autofluorescence photobleaching**, Janis Lesins, Univ. of Latvia (Latvia); Maija Rumaka, Riga Stradiņš Univ. (Latvia); Kristine Rozniece, Skin Diseases and Sexually Transmitted Disease Clinic (Latvia); Inesa Ferulova, Janis Spigulis, Univ. of Latvia (Latvia) [8427-132]
- Microscopic control of cell viability in a biocarrier**, Pavel E. Timchenko, Elena V. Timchenko, Valery P. Zakharov, Samara State Aerospace Univ. (Russian Federation); Larisa T. Volova, Violetta V. Boltovskay, Samara State Medical Univ. (Russian Federation) [8427-133]
- Study of magnetotactic bacteria interaction with magnetic field using digital holographic microscopy**, Ali-Reza Moradi, Zanjan Univ. (Iran, Islamic Republic of); Ali Mohebbi, Islamic Azad Univ. (Iran, Islamic Republic of); Farzaneh Borji, Zanjan Univ. (Iran, Islamic Republic of); Mehdi Habibi, Institute for Advanced Studies in Basic Sciences (Iran, Islamic Republic of) [8427-134]
- Single-layer reduced graphene oxide based SPR biochips for tuberculosis bacillus detection**, Nan-Fu Chiu, Teng-Yi Huang, Chun-Chuan Kuo, Wei-Che Lee, National Taiwan Normal Univ. (Taiwan); Min-Hua Hsieh, Hsin-Chih Lai, Chang Gung Univ. (Taiwan) [8427-135]
- Development of a non-invasive multispectral LED device for adipose tissue thickness measurements in vivo**, Karina Volceka, Dainis Jakovels, Zane Arina, Janis Zaharans, Edgars Kviessis-Kipge, Aija Strode, Eliza Svampe, Liga Ozolina-Moll, Maija Marisa Butnere, Univ. of Latvia (Latvia) [8427-136]
- The effects of pressure in determination of position and size of the tumor of biological phantoms**, Mohammad Ali Ansari, Saeid Alikhani, Mohsen Erfanzadeh, Ezeddin Mohajerani, Shahid Beheshti Univ. (Iran, Islamic Republic of) [8427-137]
- FTIR characterization of animal lung cells: normal and precancerous modified e10 cell line**, Denise M. Zezell, Thiago M. Pereira, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Gregory Mennecier, Univ. de São Paulo (Brazil); Angelo B. Govone, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Luciano Bachmann, Maria Lucia Z. Dagli, Univ. de São Paulo (Brazil) [8427-138]
- Corneal topography reinterpretation through separate analysis of the projected rings**, Julian Espinosa, Ana B. Roig, David Mas, Consuelo Hernandez, Carlos Illueca, Univ. de Alicante (Spain) [8427-139]
- In vivo real-time monitoring of nanoparticle clearance rate from blood circulation using high speed flow cytometry**, Mustafa Sarimollaoglu, Dmitry A. Nedosekin, Ekaterina I. Galanzha, Vladimir P. Zharov, Univ. of Arkansas for Medical Sciences (United States) [8427-140]
- Real-time monitoring of nanoparticle-cell interaction using photothermal and photoacoustic cytometry**, Stephen B. Foster, Dmitry A. Nedosekin, Ekaterina I. Galanzha, Vladimir P. Zharov, Univ. of Arkansas for Medical Sciences (United States) [8427-141]
- Multispectral imaging and identification of chromophores in bacteria, live cells, and C. elegans using confocal photothermal spectromicroscopy**, Dmitry A. Nedosekin, Ekaterina I. Galanzha, Univ. of Arkansas for Medical Sciences (United States); Srinivas Ayyadevara, Robert J. Reis, Univ. of Arkansas for Medical Sciences (United States) and Central Arkansas Veterans Healthcare System (United States); Vladimir P. Zharov, Univ. of Arkansas for Medical Sciences (United States) [8427-142]
- Optimal irradiation condition of demineralized dentin treatment with a nanosecond pulsed laser at 5.8 μm wavelength range**, Katsunori Ishii, Masayuki Saiki, Tetsuya Kita, Osaka Univ. (Japan); Kazushi Yoshikawa, Kenzo Yasuo, Kazuyo Yamamoto, Osaka Dental Univ. Hospital (Japan); Kunio Awazu, Osaka Univ. (Japan) [8427-143]
- The effects of diode pumping YLF: Er laser radiation on hard tooth tissues**, Andrey V. Belikov, Alexei V. Skrypnik, Ksenia V. Shatilova, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [8427-144]
- Development of a biochip scanner based on laser confocal scanning technology**, Jihong Feng, Beijing Univ. of Technology (China) [8427-145]
- Photodynamic inactivation with Zn(II), Pd(II), and Ni(II) phthalocyanines of periodontal pathogen aggregatibacter actinomycetemcomitans planktonic and biofilm cultured**, Ivan P. Angelov, Institute of Organic Chemistry with the Ctr. of Phytochemistry (Bulgaria); Vesselin Kussovski, The Stephan Angeloff Institute of Microbiology (Bulgaria); Vanya N. Mantareva, Institute of Organic Chemistry with the Ctr. of Phytochemistry (Bulgaria); Latchezar A. Avramov, Institute of Electronics (Bulgaria); Slavcho Dimitrov, Medical Univ. Sofia (Bulgaria); Elka Popova, Medical Univ. Plovdiv (Bulgaria) [8427-146]
- Stereomicroscopic evaluation of the articular cartilage and bone tissue in osteoporosis**, Vasile E. Liliana M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania) [8427-147]
- Femtosecond irradiation of chicken corneas analyzed by digital holographic microscopy**, Antonio Fimia, María Gomariz, Angel Murciano, Pablo Acebal Gonzalez, Roque Fernando Madrigal, Luis Carretero López, Univ. Miguel Hernández de Elche (Spain); Jorge L. Alió, Alejandra Rodríguez, Vissum Oftalmológica Corp. (Spain); Eduardo Fernández, Univ. Miguel Hernández de Elche (Spain) [8427-148]
- Stereomicroscopic study of the human tooth caries: clinical and morphological correlations**, Roxana Dancu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania) [8427-149]
- Electronmicroscopic evaluation of the microlesional aspects in the pulp dentinal complex after repeated whitening therapy**, Bodea Rodica M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania) . . . [8427-150]

Size and photostable effect of gold nanoparticles in dual-modality photodynamic and photothermal therapy, Wen-Shuo Kuo, Yi-Ting Chang, Shean-Jen Chen, National Cheng Kung Univ. (Taiwan) [8427-151]

Effects of the position of Galactose substituents to Zn(II) phthalocyanines on the fluorescence detection and photodynamic activities towards breast cancer cells, Vanya N. Mantareva, Institute of Organic Chemistry with the Ctr. of Phytochemistry (Bulgaria); Anton Kril D.V.M., Institute of Experimental Morphology, Pathology and Anthropology with Museum (Bulgaria); Ivan P. Angelov, Institute of Organic Chemistry with the Ctr. of Phytochemistry (Bulgaria); Rumen Dimitrov, Institute of Biology and Immunology of Reproduction (Bulgaria); Ekaterina G. Borisova, Latchezar A. Avramov, Institute of Electronics (Bulgaria) [8427-152]

Photodynamic therapy with water-soluble phthalocyanines against bacterial biofilms in teeth root canals, Ivan P. Angelov, Institute of Organic Chemistry with the Ctr. of Phytochemistry (Bulgaria); Raina Gergova, Medical Univ. Sofia (Bulgaria); Vanya N. Mantareva, Institute of Organic Chemistry with the Ctr. of Phytochemistry (Bulgaria); Tzvetelina Georgieva, Ivan Mitov, Medical Univ. Sofia (Bulgaria); Serjoga Valkanov, Institute of Metal Science (Bulgaria); Slavcho Dimitrov, Medical Univ. Sofia (Bulgaria) [8427-153]

Characterization and differentiation of leukocyte sub populations in blood using micro-Raman spectroscopy, Anuradha A. Ramoji, Ute Neugebauer, Universitätsklinikum Jena (Germany); Thomas Bocklitz, Friedrich-Schiller- Univ. Jena (Germany); Martin Förster, Yvonne Schlenker, Universitätsklinikum Jena (Germany); Michael Kiehnopf, Friedrich-Schiller- Univ. Jena (Germany); Michael Bauer, Universitätsklinikum Jena (Germany); Jürgen Popp, Institut für Photonische Technologien e.V. (Germany) [8427-154]

Photonic crystal fibers for food quality analysis, Anton V. Malinin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) and LLC SPE Nanostructured Glass Technology (Russian Federation); Anastasiya A. Zanishevskaya, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Yulia S. Skibina, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) and LLC SPE Nanostructured Glass Technology (Russian Federation); Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) and Institute of Precise Mechanics and Control (Russian Federation); Igor Y. Silohkin, LLC SPE Nanostructured Glass Technology (Russian Federation) [8427-155]

Monitoring of the microhemodynamic in an aggressive clinical behavior of cerebral hemorrhage using dynamic light scattering techniques, Maxim A. Vilensky, Valery V. Tuchin, Dmitry N. Agafonov, Oxana V. Semyachkina-Glushkovskaya, Veronika A. Berdnikova, Polina A. Timoshina, Yana V. Kuznetsova, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [8427-156]

Photo-induced fat cell porosity and lipolysis, Irina Y. Yanina, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) and Univ. of Oulu (Finland) [8427-157]

Description and activities of the Biophotonics4Life International Consortium, Gabriela Lee, NSF Ctr. for Biophotonics Science and Technology (United States); Dennis L. Matthews, UC Davis Medical Ctr. (United States) [8427-158]

Simulation of electrophysical properties of biological tissues by the intracavity laser spectroscopy method, Kirill G. Kulikov, St. Petersburg State Polytechnical Univ. (Russian Federation) [8427-159]

Superconducting nanowire single-photon detectors for picosecond time resolved spectroscopic applications, Julia Toussaint, Institut für Photonische Technologien e.V. (Germany) [8427-160]

Anti-Brownian electrokinetic trapping of single peridinin-chlorophyll-proteins in solution, Samuel Bockenbauer, W. E. Moerner, Sanford Univ. (United States) [8427-161]

Anti-stokes effect CCD camera and SLD based optical coherence tomography for full-field imaging in the 1550 nm region, Lukasz Kredzinski, Michael J. Connelly, Univ. of Limerick, Ireland [8427-162]

Thursday 19 April

Hot Topics III

Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall

For details, please see page 13

SESSION 13

Room: Copper Hall Thurs. 10.40 to 12.40

Advanced Microscopic and Spectroscopic Methods V

Session Chair: **Jeremy C. Hebden**, Univ. College London (United Kingdom)

10.40: **Infrared microscopic studies to understand the effect of drugs at molecular level** (*Invited Paper*), Siva Umopathy, Kumaravel Somasundaram, Dipankar Nandi, Bhawana Singh, Rekha Gautam, Sivaraman Boopathy, Bhagawat Chandrasekar, Vinay Kumar, Srabanti Rakshit, Indian Institute of Science (India) [8427-64]

11.10: **Label-free multimodal microspectroscopic differentiation of glioblastoma tumor model cell lines by means of multivariate data analysis**, Edwin Ostertag, Barbara Boldrini, Sabrina Luckow, Rudolf W. Kessler, Reutlingen Univ. (Germany) [8427-65]

11.30: **Sensor design for cancer tissue diagnostics**, Luigi La Spada, Univ. degli Studi di Roma Tre (Italy); Filiberto Bilotti, Lucio Vegni, RomaTre Univ. (Italy) [8427-66]

11.50: **Recent advances of in vivo flow cytometry** (*Invited Paper*), Ekaterina I. Galanzha, Univ. of Arkansas for Medical Sciences (United States) [8427-67]

12.20: **Three-dimensional laser microfabrication of polymers for stem cell growth and tissue engineering applications**, Mangirdas Malinauskas, Daiva Baltrukiene, Evaldas Balciunas, Sima Rekežytė, Vilnius Univ. (Lithuania); Evaldas Stankevicius, Ctr. of Physical Sciences and Technology (Lithuania); Paulius Danilevicius, Vilnius Univ. (Lithuania); Gediminas Raciukaitis, Ctr. of Physical Sciences and Technology (Lithuania); Virginija Bukelskiene, Roaldas Gadonas, Vilnius Univ. (Lithuania) [8427-68]

Lunch Break 12.40 to 13.40

SESSION 14

Room: Copper Hall Thurs. 13.40 to 15.10

Optical Therapy I

Session Chair: **Valery V. Tuchin**, N.G. Chernyshevsky Saratov State Univ. (Russian Federation)

13.40: **Fluorescent protein Killer-Red as a potential photosensitizer for PDT of cancer: a pilot animal study** (*Invited Paper*), Elena V. Zagaynova, Marina V. Shirmanova, Ludmila B. Snopova, Marina L. Bugrova, Marina A. Sirotkina, Nizhny Novgorod State Medical Academy (Russian Federation); Ekaterina A. Minakova, N.I. Lobachevsky State Univ. of Nizhny Novgorod (Russian Federation); Ilya V. Turchin, Institute of Applied Physics (Russian Federation); Ekaterina O. Serebrovskaya, Sergey A. Lukyanov, Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry of the Russian Academy of Sciences (Russian Federation) [8427-69]

14.10: **A compact handheld low-cost LED-based device for selective photocoagulation**, Riccardo Cicchi, European Lab. for Non-linear Spectroscopy (Italy); Francesca Rossi, Istituto di Fisica Applicata Nello Carrara (Italy); Domenico Alfieri, Light4Tech Firenze S.r.l. (Italy); Daniela Massi, Gaetano De Siena, Giovanni Cannarozzo, Univ. degli Studi di Firenze (Italy); Pini Roberto, Istituto di Fisica Applicata Nello Carrara (Italy); Francesco S. Pavone, European Lab. for Non-linear Spectroscopy (Italy) [8427-70]

14.30: **Minimally invasive combined laser surgery to perform corneal endothelium transplants in human patients**, Francesca Rossi, Istituto di Fisica Applicata Nello Carrara (Italy); Luca Menabuoni M.D., Annalisa Canovetti, Alex Malandrini, Ivo Lenzetti, Ospedale Misericordia e Dolce (Italy); Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy) [8427-71]

14.50: **Laser reshaping of costal cartilage for ENT**, Olga I. Baum, Yulia M. Soshnikova, Emil N. Sobol, Institute on Laser and Information Technologies (Russian Federation) [8427-72]

Coffee Break 15.10 to 15.40

SESSION 15

Room: Copper Hall Thurs. 15.40 to 17.20

Optical Therapy II

Session Chair: **Elena V. Zagainova**, Nizhny Novgorod State Medical Academy (Russian Federation)

15.40: **Toluidine blue O-conjugated gold nanoparticles for photodynamic therapy of cultured colon cancer**, Rasoul Al-Majmaie, Nebraska Atlatr, Dominic Zerulla, Mohamed Al-Rubeai, Univ. College Dublin (Ireland) [8427-73]

16.00: **Cancer cells start to generate singlet oxygen once been triggered by 1268-nm laser irradiation: modeling oxidative stress mechanism**, Sergei G. Sokolovskiy, Svetlana Zolotovskaya, Univ. of Dundee (United Kingdom); Alexey Goltsov, Univ. of Abertay Dundee (United Kingdom); Celine Pourreyron, Andrew P. South, Edik U. Rafailov, Univ. of Dundee (United Kingdom) [8427-74]

16.20: **In vitro efficacy of Ruthenium compounds in photodynamic therapy of cancer**, Pavel Kaspler, Yaxal Arenas, Jamie L. Fong, Arkady Mandel, Theralase, Inc. (Canada); Lothar Lilge, Princess Margaret Hospital (Canada) [8427-75]

16.40: **Oxygen independent antimicrobial photodynamic therapy using Ru based photosensitizers**, Yaxal N. Arenas, Jamie L. Fong, Pavel Kaspler, Arkady Mandel, Theralase, Inc. (Canada); Lothar Lilge, Ontario Cancer Institute (Canada) [8427-76]

17.00: **The development of skin immersion clearing method for increasing of laser exposure efficiency on subcutaneous objects**, Alexandra M. Kozina, Elina A. Genina, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Georgy S. Terentyuk, First Veterinary Clinic, Ltd. (Russian Federation); Alexei N. Bashkatov, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Boris N. Khlebtsov, Institute of Biochemistry and Physiology of Plants and Microorganisms (Russian Federation); Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) [8427-77]

Micro-Optics

Conference Chairs: **Hugo Thienpont**, Vrije Univ. Brussel (Belgium); **Jürgen Mohr**, Karlsruher Institut für Technologie (Germany); **Hans Zappe**, Univ. Freiburg (Germany); **Hirochika Nakajima**, Waseda Univ. (Japan)

Programme Committee: **Véronique Bardinal**, Lab. d'Analyse et d'Architecture des Systèmes (France); **Francis Berghmans**, Vrije Univ. Brussel (Belgium); **Pierre H. Chavel**, Institut d'Optique Graduate School (France); **Pietro Ferraro**, Istituto Nazionale di Ottica (Italy); **Dietmar Fey**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Michael A. Fiddy**, The Univ. of North Carolina at Charlotte (United States); **Eric Fogarassy**, Institut d'Électronique du Solide et des Systèmes (France); **Alexei L. Glebov**, OptiGrate Corp. (United States); **Jürgen Jahns**, FernUniv. in Hagen (Germany); **Pentti Karioja**, VTT Technical Research Ctr. of Finland (Finland); **Bernard Kress**, USI Photonics Inc. (United States); **El-Hang Lee**, Inha Univ. (Korea, Republic of); **Marc J. Madou**, Univ. of California, Irvine (United States); **Olivier M. Parriaux**, Univ. Jean Monnet Saint-Etienne (France); **Oltmann Riemer**, Univ. Bremen (Germany); **Clivia M. Sotomayor Torres**, Institut Català de Nanotecnologia (Spain); **Ion G. Stiharu**, Concordia Univ. (Canada); **Peter Van Daele**, Univ. Gent (Belgium); **Henne van Heeren**, EnablingM3 (Netherlands); **Geert Van Steenberge**, Univ. Gent (Belgium)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

SESSION 1

Room: 206 Mon. 13.00 to 15.10

Nanoimprint Lithography I

Session Chair: **Clivia M. Sotomayor Torres**, Institut Català de Nanotecnologia (Spain)

13.00: **Pattern definition by nanoimprint** (*Invited Paper*), Hella-Christin Scheer, Bergische Univ. Wuppertal (Germany) [8428-01]

13.30: **Nanoimprint lithography for small volume production of nanophotonic LEDs, VCSELs, and thin-film PV** (*Invited Paper*), Marc A. Verschuuren, Philips Research Nederland B.V. (Netherlands) [8428-02]

14.00: **UV-based nanoimprint lithography: a method to fabricate single and multilayer negative index materials**, Iris Bergmair, PROFACOR GmbH (Austria); Babak Dastmalchi, Michael Bergmair, Guenter Hesser, Johannes Kepler Univ. Linz (Austria); Maria Losurdo, Univ. degli Studi di Bari (Italy); Giovanni Bruno, Institute of Inorganic Methodologies and Plasmas (Italy); Christian Helgert, Ekaterina Pshenay-Severin, Ernst-Bernhard Kley, Friedrich-Schiller-Univ. Jena (Germany); Uwe Hübner, Institut für Photonische Technologien e.V. (Germany); N. H. Shen, Maria Kafesaki, Costas M. Soukoulis, Foundation for Research and Technology-Hellas (Greece); Kurt Hingerl, Johannes Kepler Univ. Linz (Austria); Michael Mühlberger, PROFACOR GmbH (Austria) [8428-03]

14.20: **Tailor-made materials for nanoimprint lithography as enabler for optical applications**, Hakan Atasoy, Anna Klukowska-Kahlenberg, micro resist technology GmbH (Germany); Arne Schleunitz, Helmut Schiff, Paul Scherrer Institut (Switzerland); Gabi Gruetzner, micro resist technology GmbH (Germany) [8428-04]

14.40: **Nanoimprint lithography for optofluidics** (*Invited Paper*), Anders Kristensen, Mads B. Christiansen, Christoph Vannahme, Christopher J. Lüscher, Kristian H. Rasmussen, Anil H. Thilsted, Johan Eriksen, Technical Univ. of Denmark (Denmark); Timo Mappes, Karlsruher Institut für Technologie (Germany); Lasse H. Thamdrup, Rodolphe Marie, Technical Univ. of Denmark (Denmark) [8428-05]

Coffee Break 15.10 to 15.40

SESSION 2

Room: 206 Mon. 15.40 to 18.00

Nanoimprint Lithography II

Session Chair: **Jouni Ahopelto**, NaPa (Finland)

15.40: **Metallic colour filtering arrays manufactured by nanoimprint lithography** (*Invited Paper*), Stefan Landis, Pierre Brianceau, Nicolas Chaix, Yohan Desieres, Maxime Argoud, CEA-LETI (France) [8428-06]

16.10: **Functional optical surfaces: challenges for large area nanoimprints and perspectives for applications** (*Invited Paper*), Jérémie Teisseire, Etienne Barthel, Fabien Roberrini, Alban Letailleur, Nicolas Chemin, Simon Mazoyer, Elin Sondergard, Saint-Gobain Recherche (France) [8428-07]

16.40: **Swellable hydrogels imprinted for optical sensor structures**, Timothy Kehoe, Institut Català de Nanotecnologia (Spain); Isabel Obieta, INASMET-Tecnalia (Spain); Nikolaos Kehagias, Achille Francone, Claudia Delgado, Institut Català de Nanotecnologia (Spain); Ali Z. Khokhar, Univ. of Glasgow (United Kingdom); Leire Bilbao, INASMET-Tecnalia (Spain); Nikolaj Gadegaard, Univ. of Glasgow (United Kingdom); Clivia M. Sotomayor Torres, Institut Català de Nanotecnologia (Spain) [8428-08]

17.00: **NIL for automotive optical components** (*Invited Paper*), Vito Lambertini, Ctr. Ricerche Fiat S.C.p.A. (Italy) [8428-09]

17.30: **Enhancement of extraction efficiency in nanoimprinted optical device structures** (*Invited Paper*), Vincent Reboud, CEA-LETI (France) and Catalan Institute of Nanotechnology (Spain); Clivia M. Sotomayor, Institut Català de Nanotecnologia (Spain) and Institució Catalana de Recerca i Estudis Avançats (ICREA) (Spain) and Univ. Autònoma de Barcelona (Spain) [8428-10]

POSTERS—MONDAY

Grand Hall Mon. 17.45 to 19.15

A poster session will be held on Monday 17.45 to 19.15. Posters will be on display after 10.00 Monday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Monday. 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 at <http://spie.org/x34963.xml>.

Low f-number microlens array fabricated in thick resist, Giuseppe A. Cirino, Arlindo N. Montagnoli, Univ. Federal de São Carlos (Brazil); Patrick Verdonck, IMEC (Belgium); Luiz G. Neto, Univ. de São Paulo (Brazil) [8428-44]

Fabrication of near- or mid-infrared wire-grid polarizers with WSi wires, Itsunari Yamada, The Univ. of Shiga Prefecture (Japan); Kohei Fukumi, National Institute of Advanced Industrial Science and Technology (Japan); Junji Nishii, Hokkaido Univ. (Japan); Mitsunori Saito, Ryukoku Univ. (Japan) [8428-45]

New industrial and innovative writing machine for the fabrication of sol-gel TiO₂ based sub-micrometric period diffraction gratings, Valentin Gâté, Lab. Hubert Curien (France) and Laboratoire des Matériaux et de Génie Physique (France); Yves Jourlin, Lab. Hubert Curien (France); Michel Langlet, Institut National Polytechnique de Grenoble (France); Francis Vocanson, Olivier Dellea, Colette Veillas, Gérard Bernaud, Anthony Cazier, Lab. Hubert Curien (France); Paul Coudray, KLOË SA (France) [8428-46]

Highly efficient relief diffraction gratings inscribed in a chalcogenide bulk glass by a femtosecond laser, Tomas Kohoutek, Mark A. Hughes, Hiroyasu Kawashima, Toyota Technological Institute (Japan); Morio Matsumoto, Takashi Misumi, Furukawa Electric Co., Ltd. (Japan); Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan) [8428-47]

Laser stabilized by acousto-optic cells for optoelectronic oscillators, Patrice Salzenstein, Ctr. National de la Recherche Scientifique (France); Arseniy S. Trushin, Vitaly B. Voloshinov, Lomonosov Moscow State Univ. (Russian Federation) [8428-48]

Design of optical interconnects inspired in multi-aperture optics based in compound insect eyes, Anel Garza Rivera, Carlos G. Trevino Palacios, Francisco J. Renero Carrillo, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) [8428-49]

Design and fabrication of a novel pump having a pulseless steady flow for bio-applications, Sheng-Li Chang, Chu-Yu Huang, Kuo-Chi Chiu, Yu-Shi Weng, Industrial Technology Research Institute (Taiwan) [8428-50]

Fabrication of 100% fill factor arrays of microlenses from silicon molds, Maciej Baranski, Nicolas Passilly, Jorge Albero, Christophe Gorecki, FEMTO-ST (France) [8428-51]

Design and fabrication of microwindmill for fluidic media based on SU-8 for using flow-meter, Iman Sabri Alirezaei, Mohammad Amir Ghaderi, Mohammad Khalafi, Hamid Latifi, Shahid Beheshti Univ. (Iran, Islamic Republic of) [8428-52]

Design and fabrication of a polymeric nano-precision micro z-stage, Mohammad Amir Ghaderi, Majid Taghavi, Farzin Beygi Azar, Iman Sabri Alirezaei, Mohammad Khalafi, Hamid Latifi, Shahid Beheshti Univ. (Iran, Islamic Republic of) [8428-53]

Design and numerical simulation of an optofluidic pressure sensor, Majid Ebnali-Heidari, Shahrekord Univ. (Iran, Islamic Republic of); M. Mansuri, Islamic Azad Univ. (Iran, Islamic Republic of); Saeed Mokhtarian, Isfahan Univ. of Technology (Iran, Islamic Republic of); Mohammad Kazem Moravvej Farshi, Tarbiat Modares Univ. (Iran, Islamic Republic of) [8428-54]

Application of epitiopropylcarbazole and carbazolyalkylmethacrylate copolymers as holographic and e-beam recording media, Stefan Robu, Andrei Andries, Elena Achimova, Alexandr Prisacar, Serghei Serghiev, Alexei Meshalkin, Ctr. of Optoelectronics (Moldova) [8428-56]

Tuesday 17 April

SESSION 3

Room: 206 Tues. 08.20 to 10.30

Gratings and Holographic Optical Elements

Session Chair: Olivier Parriaux, Lab. Hubert Curien (France)

08.20: **Volume multiplexed holographic optical elements for narrow-band optical filtering and beam combining** (*Invited Paper*), Alexei L. Glebov, Oleksiy Mokhun, Vadim Smirnov, Leonid B. Glebov, OptiGrate Corp. (United States) [8428-11]

08.50: **Holographic exposure of subwavelength circular gratings using cones based interferogram**, Jean Sauvage-Vincent, Svetlen Tonchev, Yves Jourlin, Olivier Parriaux, Lab. Hubert Curien (France) [8428-12]

09.10: **Optical diffraction into thick slab waveguides: a finite-beam RCWA approach to solve extremely asymmetrical scattering-EAS in slanted holographic gratings**, Silvia M. Pietralunga, Istituto di Fotonica e Nanotecnologie, CNR, Politecnico di Milano (Italy); Mirko Serafini, Alessandro Geroldi, Politecnico di Milano (Italy) [8428-13]

09.30: **Industrial fabrication of an optical security device for document protection using plasmon resonant transmission through a thin corrugated metallic film embedded on a plastic foil**, Jean Sauvage-Vincent, Hologram Industries (France); Yves Jourlin, Svetlen Tonchev, Colette Veillas, Pedri Claude, Olivier Parriaux, Lab. Hubert Curien (France) [8428-14]

09.50: **Diffraction grating with suppressed zero order fabricated using dielectric forces**, Naresh Sampara, Gary Wells, Nottingham Trent Univ. (United Kingdom); Emmanouil E. Kriezis, Aristotle Univ. of Thessaloniki (Greece); John Fyson, Brunel Univ. (United Kingdom); Carl Brown, Nottingham Trent Univ. (United Kingdom) [8428-15]

10.10: **Interferometric inscription of volume Bragg gratings in a commercial high-refractive index glass (S-TIH53) by 400 nm femtosecond (fs) laser pulses**, Tino Elsmann, Alexander Hartung, Eric Lindner, Martin Becker, Manfred Rothhardt, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany) [8428-16]

Coffee Break 10.30 to 11.10

SESSION 4

Room: 206 Tues. 11.10 to 12.50

Fabrication and Packaging of Micro-Optical Components

Session Chair: Peter Van Daele, Univ. Gent (Belgium)

11.10: **Design and fabrication of advanced fiber alignment structures for field-installable fiber connectors** (*Invited Paper*), Jurgen Van Erps, Michael Vervaeke, Alberto Sánchez Martínez, Christof Debaes, Vrije Univ. Brussel (Belgium); Stefano Berì, Jan Watté, TE Connectivity Ltd. (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8428-17]

11.40: **Micromanipulators for a flexible automated assembly of micro optics**, Christian Brecher, Nicolas Pyschny, Sebastian Haag, Vicente Guerrero, Fraunhofer-Institut für Produktionstechnologie (Germany) [8428-18]

12.00: **Single-step laser fabrication and integrated packaging of complex shaped microoptical components**, Albertas Žukauskas, Mangirdas Malinauskas, Vilnius Univ. (Lithuania); Carsten Reinhardt, Laser Zentrum Hannover e.V. (Germany); Mindaugas Žiciuka, Andrius Melninkaitis, Roaldas Gadosas, Vilnius Univ. (Lithuania) [8428-19]

12.20: **Micro-optical foundry: 3D lithography by freezing liquid instabilities at nanoscale** (*Invited Paper*), Pietro Ferraro, Istituto Nazionale di Ottica (Italy) [8428-20]

Lunch/Exhibition Break 12.50 to 14.00

SESSION 5

Room: 206 Tues. 14.00 to 15.50

Wafer-level Optics and Microlenses

Session Chair: Juergen Mohr, Karlsruher Institut für Technologie (Germany)

14.00: **Miniature wafer-level optical imaging and sensing modules** (*Invited Paper*), Markus Rossi, Heptagon (Switzerland) [8428-21]

14.30: **Polymer tunable microlens arrays suitable for VCSEL beam control**, Benjamin Reig, Véronique Bardinal, Thierry Camps, Jean-Baptiste Doucet, David Bourrier, Emmanuelle Daran, Jérôme Launay, Yann Boucher, Lab. d'Analyse et d'Architecture des Systèmes (France); Christophe Levallois, Institut National des Sciences Appliquées de Rennes (France) [8428-22]

14.50: **Fabrication of optical microlenses by a new inkjet printing technique based on pyro-electro-hydro-dynamic (PEHD) effect**, Sara Coppola, Veronica Vespini, Simonetta Grilli, Pietro Ferraro, Istituto Nazionale di Ottica (Italy); Immacolata A. Grimaldi, Fulvia Villani, Fausta Loffredo, ENEA (Italy) ... [8428-23]

15.10: **Fabrication and testing of polymeric microaxicons**, Francesco Merola, Sara Coppola, Veronica Vespini, Simonetta Grilli, Pietro Ferraro, Istituto Nazionale di Ottica (Italy); Donatella Balduzzi, Andrea Galli, Roberto Puglisi, Istituto Sperimentale Italiano Lazzaro Spallanzani (Italy) [8428-24]

15.30: **Large diameter multilevel graded nanostructured microlens**, Jędrzej M. Nowosielski, Heriot-Watt Univ. (United Kingdom) and Univ. of Warsaw (Poland); Ryszard R. Buczynski, Adam Filipkowski, Institute of Electronic Materials Technology (Poland) and Heriot-Watt Univ. (United Kingdom); Andrew J. Waddie, Heriot-Watt Univ. (United Kingdom); Dariusz Pysz, Ireneusz S. Kujawa, Ryszard Stepień, Institute of Electronic Materials Technology (Poland); Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom) [8428-25]

Coffee Break 15.50 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 6

Room: 206 Wed. 08.20 to 10.10

Micro-optics Structures and Materials

Session Chair: Hans Zappe, Albert-Ludwigs-Univ. Freiburg (Germany)

08.20: **Customised birefringence in nanostructured micro-optical devices** (*Invited Paper*), Andrew J. Waddie, Jędrzej M. Nowosielski, Adam Filipkowski, Heriot-Watt Univ. (United Kingdom); Ryszard Stepień, Dariusz Pysz, Institute of Electronic Materials Technology (Poland); Ryszard Buczynski, Univ. of Warsaw (Poland) and Institute of Electronic Materials Technology (Poland) and Heriot-Watt Univ. (United Kingdom); Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom) [8428-26]

08.50: **Micromachining of optical fibers using selective etching of doped silica glass**, Simon Pevec, Edvard Cibula, Univ. of Maribor (Slovenia); Borut Lenardic, Optacore d.o.o (Slovenia); Denis Donlagic, Univ. of Maribor (Slovenia) [8428-27]

09.10: **The micro-optical elements and optical materials of certain spider webs**, Deb M. Kane, Doug J. Little, Nishen Naidoo, Macquarie Univ. (Australia) [8428-28]

09.30: **Focused ion beam sectioning of micro-optics as a tool for destructive testing for optical material imperfections**, Deb M. Kane, Macquarie Univ. (Australia); Richard J. Chater, David S. McPhail, Imperial College London (United Kingdom) [8428-29]

09.50: **Scalar diffraction theory for azimuthally structured fresnel zone plate**, Thordis Vierke, Jürgen Jahns, FernUniv. in Hagen (Germany) ... [8428-30]

Coffee Break 10.10 to 10.50

SESSION 7

Room: 206 **Wed. 10.50 to 12.00**

Micro-optics in Display and Spectroscopy

Session Chair: Alexei L. Glebov, OptiGrate Corp. (United States)

- 10.50: **Diffractive optical combiner for compact see through near to eye display.** (*Invited Paper*), Bernard C. Kress, Vic Hejmadi, USI Photonics Inc. (United States) [8428-31]
- 11.20: **Microstructured head-up display screen for automotive applications.** Mehmet K. Hedili, Hakan Urey, Koç Univ. (Turkey); Mark O. Freeman, Microvision, Inc. (United States) [8428-32]
- 11.40: **Single-shot capable fast FTIR based on microfabricated 3D multimirror array.** Herbert O. Moser, Karlsruher Institut für Technologie (Germany); Sascha P. Heussler, Shenbaga M. P. Kalaiselvi, National Univ. of Singapore (Singapore) [8428-33]
- Lunch/Exhibition Break 12.00 to 13.10

SESSION 8

Room: 206 **Wed. 13.30 to 15.00**

Micro-optics Lab-on-a-chip

Session Chair: Bernard C. Kress, USI Photonics Inc. (United States)

- 13.30: **Photonically enhanced polymer labs-on-a-chip** (*Invited Paper*), Heidi Ottevaere, Vrije Univ. Brussel (Belgium) [8428-34]
- 14.00: **3D tracking and phase-contrast imaging by twin-beams digital holographic microscope in microfluidics.** Lisa Miccio, Pasquale Memmolo, Andrea Finizio, Melania Paturzo, Francesco Merola, Simonetta Grilli, Pietro Ferraro, Istituto Nazionale di Ottica (Italy) [8428-35]
- 14.20: **Optically mediated dielectrophoretic trapping by electric field gradients in lithium niobate.** Stefan Gläsener, Michael Esseling, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) [8428-36]
- 14.40: **Microoptical device for efficient read-out of active WGM resonators.** Tobias Wienhold, Marko Brammer, Karlsruher Institut für Technologie (Germany); Tobias Grossmann, Karlsruher Institut für Technologie (Germany) and Institute of Microstructure Technology, Karlsruher Institut für Technologie (Germany); Marc Schneider, Heinz Kalt, Timo Mappes, Karlsruher Institut für Technologie (Germany) [8428-37]
- Coffee Break 15.00 to 15.40

SESSION 9

Room: 206 **Wed. 15.40 to 17.40**

Micro-optics for Sensing and MEMS

Session Chair: Hugo Thienpont, Vrije Univ. Brussel (Belgium)

- 15.40: **Optical characterization of a miniaturized large field of view motion sensor.** Els Moens, Heidi Ottevaere, Youri Meuret, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8428-38]
- 16.00: **Long single-mode waveguides made by imprint patterning for optical interconnects and sensors.** Mikko Karppinen, Jussi Hiltunen, Noriyuki Masuda, Marianne Hiltunen, Jarkko Tuominen, Pentti Karioja, VTT Technical Research Ctr. of Finland (Finland) [8428-39]
- 16.20: **Novel gap alignment sensor for high-resolution proximity lithography.** Torsten Harzendorf, Lorenz Stuerzebecher, Uwe D. Zeitner, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [8428-40]
- 16.40: **Micro-machined optical fibre cantilever as sensor elements.** Jun Li, Frank Albri, Robert R. J. Maier, D. P. Hand, W. N. Macpherson, Heriot-Watt Univ. (United Kingdom) [8428-41]
- 17.00: **Partially athermalized waveguide gratings.** Muhammad Rizwan Saleem, Petri A. Stenberg, Univ. of Eastern Finland (Finland); Muhammad Bilal Khan, National Univ. of Sciences and Technology (Pakistan); Seppo K. Honkanen, Aalto Univ. (Finland); Jari Turunen, Univ. of Eastern Finland (Finland) [8428-70]
- 17.20: **3D rotating octagonal micromirror optical scanner: design, fabrication, and assembly.** Mohamed A. Basha, Univ. of Tabuk (Saudi Arabia) [8428-43]

POSTERS—WEDNESDAY

Grand Hall **Wed. 17.40 to 19.10**

A poster session will be held on Wednesday 17.40 to 19.10. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Wednesday. 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 at <http://spie.org/x34963.xml>.

Talbot-carpets of periodic and quasi-periodic close-packed 2D mask structures calculated by a modified Chirp-z-algorithm. Jacqueline Maass, Oliver Sandfuchs, Alexandre Gatto, Robert Brunner, Carl Zeiss Jena GmbH (Germany) [8428-55]

The refractive index measurement technique based on the defocus correction method in full-field optical coherence tomography. Gihyeon Min, Ju Wan Kim, Byeong-Ha Lee, Gwangju Institute of Science and Technology (Korea, Republic of) [8428-57]

Ferrule-top nanoindentation. Thomas C. van de Watering, Dhawal Chavan, Martin Slaman, Davide Iannuzzi, Vrije Univ. Amsterdam (Netherlands) . [8428-58]

Fabry-Perot tunable infrared filter based on structured reflectors. Steffen Kurth, Fraunhofer-Institut für Elektronische Nanosysteme (Germany); Karla Hiller, Technische Univ. Chemnitz (Germany); Norbert Neumann, Mario Seifert, Martin Ebermann, Infra Tec GmbH (Germany); Hendrik Specht, Marco Meinig, Thomas Gessner, Fraunhofer-Institut für Elektronische Nanosysteme (Germany)[8428-59]

Development of glass microoptics for MidIR with hot embossing technology. Ireneusz S. Kujawa, Ryszard Stepień, Institute of Electronic Materials Technology (Poland); Andrew J. Waddie, Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom); Ryszard Buczynski, Institute of Electronic Materials Technology (Poland) and Heriot-Watt Univ. (United Kingdom); Grzegorz Skrabalak, Univ. of Warsaw (Poland) [8428-60]

Optical birefringence in 2D photonic crystals. Lucila H. D. Cescato, Jacson weber de Menezes, Luis Fernando de Avila, Univ. Estadual de Campinas (Brazil) [8428-61]

Diffractive optics development with stack-and-draw technique. Jędrzej M. Nowosielski, Heriot-Watt Univ. (United Kingdom) and Univ. of Warsaw (Poland); Adam Filipkowski, Institute of Electronic Materials Technology (Poland) and Heriot-Watt Univ. (United Kingdom); Andrew J. Waddie, Heriot-Watt Univ. (United Kingdom); Ireneusz S. Kujawa, Ryszard Stepień, Institute of Electronic Materials Technology (Poland); Ryszard R. Buczynski, Univ. of Warsaw (Poland) and Institute of Electronic Materials Technology (Poland); Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom) [8428-62]

Ultra compact switching matrices on InP. Djamilia Cherfi, Institut d'Electronique, de Microélectronique, et de Nanotechnologie (France). [8428-63]

Development of light-scattering thermal cross-link package material based on self-assembly in optical devices. Satoshi Takei, Toyama Prefectural Univ. (Japan) [8428-64]

Development of plant-based resist material derived from biomass on hardmask layer in ultraviolet curing nanoimprint lithography. Satoshi Takei, Toyama Prefectural Univ. (Japan) [8428-65]

Development of water-developable resist material derived from biomass in multilayer processes of advanced lithography. Satoshi Takei, Toyama Prefectural Univ. (Japan) [8428-66]

Exploration of a microdeformable liquid mirror device. Eric S. ten Have, Delft Univ. of Technology (Netherlands); Gleb V. Vdovin, Flexible Optical B.V. (Netherlands) [8428-67]

Giant increase of photorefractive effect in Fe:LiNbO₃: a new approach. Marco Bazzan, M. Michieletto, Anna Maria Zaltron, Maria Vittoria Ciampolillo, Nicola Argiolas, Cinzia Sada, Univ. degli Studi di Padova (Italy) [8428-68]

Investigation on 2D disks and stadiums micro-resonators structures based on UV210 polymer. David Pluchon, Bruno Beche, Nolwenn Huby, Univ. de Rennes 1 (France) [8428-71]

Controlled USP laser ablation strategies for shaping optics. Christian Schindler, Univ. of Applied Sciences Jena (Germany); Jan Giesecke, IFW Jena (Germany); Jens Bliedtner, Univ. of Applied Sciences Jena (Germany); Hartmut Müller, IFW Jena (Germany); Volkmar Giggel, Carl Zeiss Jena GmbH (Germany) [8428-72]

Optical Modelling and Design

Conference Chairs: **Frank Wyrowski**, Friedrich-Schiller-Univ. Jena (Germany); **John T. Sheridan**, Univ. College Dublin (Ireland); **Jani Tervo**, Univ. of Eastern Finland (Finland); **Youri Meuret**, Vrije Univ. Brussel (Belgium)

Programme Committee: **Pierre Ambis**, Univ. de Haute Alsace (France); **Pierre H. Chavel**, Institut d'Optique Graduate School (France); **Zbigniew Jaroszewicz**, Instytut Optyki Stosowanej (Poland); **Bahram Javidi**, Univ. of Connecticut (United States); **Norbert Lindlein**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **M. G. Moharam**, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States); **Cristian Neipp**, Univ. de Alicante (Spain); **Hagen Schweitzer**, LightTrans GmbH (Germany); **Vladimir Sergeevich Pavelyev**, Image Processing Systems Institute (Russian Federation); **Colin James Richard Sheppard**, National Univ. of Singapore (Singapore); **Boris Spektor**, Technion-Israel Institute of Technology (Israel); **Jari Turunen**, Univ. of Eastern Finland (Finland)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

Welcome and Introduction

Room: 201 **Mon. 13.20 to 13.30**

Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany);
John T. Sheridan, Univ. College Dublin (Ireland);
Jani Tervo, Univ. of Eastern Finland (Finland);
Youri Meuret, Vrije Univ. Brussel (Belgium)

SESSION 1

Room: 201 **Mon. 13.30 to 15.00**

Optical System Design

Session Chair: **Youri Meuret**, Vrije Univ. Brussel (Belgium)

13.30: **On the design of spherical gradient index lenses** (*Invited Paper*), Juan Carlos Miñano, Pablo Benítez, Dejan Grabovickic, Juan Carlos González, Univ. Politécnica de Madrid (Spain) [8429-01]

14.00: **3D metrology system based on a bidirectional OLED microdisplay**, Constanze Grossmann, Ute Gawronski, Gunther Notni, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [8429-02]

14.20: **Integrating the advanced human eye model (AHM) and optical instrument models to model complete visual optical systems inclusive of the typical or atypical eye**, William J. Donnelly III, Breault Research Organization, Inc. (United States) [8429-03]

14.40: **All aspect correction of canopy induced optical aberrations in electro-optical systems**, James A. Harder, Elbit Systems of America (United States) [8429-05]

Coffee Break 15.00 to 15.40

SESSION 2

Room: 201 **Mon. 15.40 to 17.20**

Imaging Systems

Session Chair: **Youri Meuret**, Vrije Univ. Brussel (Belgium)

15.40: **Electro-optically actuated liquid-lens zoom**, Oliver Pütsch, Max C. Funck, RWTH Aachen (Germany); Peter Loosen, RWTH Aachen (Germany) and Fraunhofer-Institut für Lasertechnik (Germany) [8429-06]

16.00: **Method to determine influence functions for complex optical systems**, Rudolf Saathof, Jo W. Spronck, Robert H. Munnig Schmidt, Technische Univ. Delft (Netherlands) [8429-07]

16.20: **Using Fermat's principle to design two free-form lens profiles for optimal imaging performance**, Fabian Duerr, Vrije Univ. Brussel (Belgium); Pablo Benítez, Juan Carlos Miñano, Univ. Politécnica de Madrid (Spain) and Light Prescriptions Innovators LLC (United States); Youri Meuret, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8429-08]

16.40: **Correction of a liquid lens for 3D imaging systems**, Andrew J. Bower, Rose-Hulman Institute of Technology (United States); Weixu Li, Lauren A. Christopher, Indiana Univ.-Purdue Univ. Indianapolis (United States); Robert M. Bunch, Paul O. Leisher, Rose-Hulman Institute of Technology (United States) [8429-09]

17.00: **Optical design of a multichannel multiresolution imaging system**, Gebirye Y. Belay, Youri Meuret, Heidi Ottevaere, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8429-10]

Tuesday 17 April

SESSION 3

Room: 201 **Tues. 08.30 to 10.20**

Illumination Systems

Session Chair: **Youri Meuret**, Vrije Univ. Brussel (Belgium)

08.30: **Optical simulations for Ambilight TV systems** (*Invited Paper*), Filip Bruyneel, Lieve Lanoye, Philips Consumer Lifestyle (Belgium) [8429-11]

09.00: **Phase space optics: an engineering tool for illumination design**, Alois M. Herkommer, Denise Rausch, Univ. Stuttgart (Germany) [8429-12]

09.20: **Simulation of the multicomponent radiation source with the required irradiance and color distribution in the working area**, Aleksandr N. Chertov, Elena V. Gorbunova, Valery V. Korotaev, Vladimir S. Peretyagin, Maria G. Serikova, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [8429-75]

09.40: **Thermo-optical (TOP) analysis by coupling FEM and ray tracing**, Alexander Gatej, RWTH Aachen (Germany); Thomas Molitor, Fraunhofer-Institut für Lasertechnik (Germany); Peter Loosen, Fraunhofer-Institut für Lasertechnik (Germany) and RWTH Aachen (Germany) [8429-14]

10.00: **LED street lighting: modeling and design**, Ivan Moreno, Alejandra Bugarin, Univ. Autónoma de Zacatecas (Mexico) [8429-15]

Coffee Break 10.20 to 11.00

SESSION 4

Room: 201 **Tues. 11.00 to 12.30**

Physical Optics Modelling I

Session Chair: **Frank Wyrowski**, Friedrich-Schiller-Univ. Jena (Germany)

11.00: **Extreme super-resolution using the spherical geodesic waveguide** (*Invited Paper*), Juan Carlos Miñano, Juan Carlos González, Pablo Benítez, Dejan Grabovickic, Univ. Politécnica de Madrid (Spain) [8429-16]

11.30: **Elementary field method simulations for broad area laser diodes**, Henri S. Partanen, Jari Turunen, Jani Tervo, Univ. of Eastern Finland (Finland) [8429-17]

11.50: **Propagation of non-paraxial fields by parabal field decomposition**, Daniel Asoubar, Site Zhang, Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany); Michael Kuhn, LightTrans VirtualLab UG (Germany) [8429-18]

12.10: **Efficient and rigorous propagation of harmonic fields through plane interfaces**, Site Zhang, Daniel Asoubar, Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany); Michael Kuhn, LightTrans VirtualLab UG (Germany) [8429-19]

Lunch/Exhibition Break 12.30 to 13.50

SESSION 5

Room: 201 Tues. 13.50 to 15.50

Physical Optics Modelling II

Session Chair: Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany)

13.50: **Optical modelling of silicon thin film solar cells by combination of the transfer matrix method and the Raytracer algorithm**, Cordula Walder, Jürgen Lacombe, Karsten von Maydell, Carsten Agert, Next Energy (Germany) [8429-20]

14.10: **A simulation procedure for light-matter interaction at different length scales**, Claude Leiner, Wolfgang Nemitz, Franz P. Wenzel, Paul Hartmann, JOANNEUM RESEARCH Forschungsgesellschaft mbH (Austria); Ulrich Hohenester, Karl-Franzens-Univ. Graz (Austria); Christian Sommer, JOANNEUM RESEARCH Forschungsgesellschaft mbH (Austria) [8429-21]

14.30: **Influence of nonlinear effects in WDM system with non-equidistant channel spacing using different types of high-order PSK and QAM modulation formats**, Daniel Benedikovic, Ján Litvík, Michal Kuba, Milan Dado, Jozef Dubovan, Univ. of Žilina (Slovakia) [8429-22]

14.50: **Generation of complex beams by means of polarization holograms**, Ulises Ruiz-Corona, Univ. della Calabria (Italy); Karen P. Volke-Sepúlveda, Univ. Nacional Autónoma de México (Mexico); Clementina Provenzano, Pasquale Pagliusi, Gabriella Cipparrone, Univ. della Calabria (Italy) [8429-23]

15.10: **Modeling of nano-optical features for emission and absorption enhancement in light-emitting diodes and solar cells**, Oskari Heikkilä, Jani Oksanen, Jukka Tulkkii, Aalto Univ. School of Science and Technology (Finland) [8429-24]

15.30: **Acousto-optical dispersive delay lines for femtosecond laser systems**, Konstantin B. Yushkov, Sergey I. Chizhikov, Vladimir Y. Molchanov, National Univ. of Science and Technology MISiS (Russian Federation) [8429-25]

Coffee Break 15.50 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 6

Room: 201 Wed. 08.30 to 10.10

Physical Optics Modelling III

Session Chair: Jani Tervo, Univ. of Eastern Finland (Finland)

08.30: **Design of a novel multicore optical fibre for imaging and beam delivery in endoscopy**, Stefaan Heyvaert, Christof Debaes, Heidi Ottevaere, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8429-26]

08.50: **A flexible tool for simulating the bulk optical properties of polydisperse suspensions of spherical particles in an absorbing host medium**, Ben Aernouts, Rodrigo Watté, Lammertyn Jeroen, Wouter Saeys, Katholieke Univ. Leuven (Belgium) [8429-28]

09.10: **A multilayer Monte Carlo method with free phase function choice**, Rodrigo Watté, Ben Aernouts, Wouter Saeys, Katholieke Univ. Leuven (Belgium) [8429-27]

09.30: **Two-dimensional analysis of generalized grating imaging in the Talbot-Lau arrangement**, Koichi Iwata, Lumino (Japan) [8429-29]

09.50: **Fast computation of the conical response of subwavelength metallic structures using the B-spline modal method**, Benjamin Portier, Patrick Bouchon, ONERA (France); Fabrice Pardo, Ctr. National de la Recherche Scientifique (France); Riad Haïdar, ONERA (France) and Ecole Polytechnique (France); Jean-Luc Pelouard, Ctr. National de la Recherche Scientifique (France) [8429-30]

Coffee Break 10.10 to 10.50

SESSION 7

Room: 201 Wed. 10.50 to 12.10

Physical Optics Modelling IV

Session Chair: Jani Tervo, Univ. of Eastern Finland (Finland)

10.50: **Precise control of dispersion flatness in silicon nitride waveguides by cladding refractive index engineering**, José Manuel Chávez Boggio, Daniel Bodenmuller, Roger Haynes, Martin M. Roth, Leibniz-Institut für Astrophysik Potsdam (Germany) [8429-31]

11.10: **Self-trapping waveguiding structures in nonlinear photorefractive media based on Plexiglas with phenanthrenequinone molecules**, Elen Tolstik, Friedrich-Schiller-Univ. Jena (Germany); Oleg Romanov, Belarusian State Univ. (Belarus); Vladislav Y. Matusevich, Richard M. Kowarschik, Friedrich-Schiller-Univ. Jena (Germany); Alexei L. Tolstik, Belarusian State Univ. (Belarus) [8429-32]

11.30: **Speckle: two new metrology techniques**, Dayan Li, Univ. College Dublin (Ireland); Raoul Kirner, Damien P. Kelly, Technische Univ. Ilmenau (Germany); John T. Sheridan, Univ. College Dublin (Ireland) [8429-33]

11.50: **Generation of arbitrary spatially variant polarized fields using computer generated holograms**, Artur Carnicer, Ignasi Juvells, David Maluenda, Univ. de Barcelona (Spain); Rosario Martínez-Herrero, Pedro M. Mejías, Univ. Complutense de Madrid (Spain); Fabian Schaschek, Univ. de Barcelona (Spain) [8429-34]

Lunch/Exhibition Break 12.10 to 13.40

SESSION 8

Room: 201 Wed. 13.40 to 15.00

Thin Films and Plasmonics

Session Chair: Jani Tervo, Univ. of Eastern Finland (Finland)

13.40: **Necessary boundary conditions for the transfer function of a feasible optical thin film filter**, Bastian Diehm, Norbert Frühauf, Univ. Stuttgart (Germany) [8429-35]

14.00: **B-CALM: an open-source GPU-based 3D-FDTD simulator with multipole dispersion for plasmonics**, Pierre Wahl, Vrije Univ. Brussel (Belgium) and Stanford Univ. (United States); Dany-Sebastien Ly-Gagnon, Stanford Univ. (United States); Christof Debaes, Vrije Univ. Brussel (Belgium); David A. B. Miller, Stanford Univ. (United States); Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8429-36]

14.20: **Tuning localized plasmon resonance peaks in golden nanoparticle arrays**, Joonas Lehtolahti, Janne Laukkanen, Markku Kuittinen, Univ. of Eastern Finland (Finland); Martti Kauranen, Tampere Univ. of Technology (Finland) [8429-37]

14.40: **Dielectric structured components for giant field enhancement**, Cesaire Ndiaye, Myriam Zerrad, Fabien Lemarchand, Michel Lequime, Claude Amra, Institut Fresnel (France) [8429-38]

Coffee Break 15.00 to 15.40

SESSION 9

Room: 201 Wed. 15.40 to 17.20

Beam Shaping and Diffractive Elements

Session Chair: Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany)

15.40: **Wave-optical formation of the intensity distribution and diffraction limit of picture-generating freeform surfaces**, Susanne Zwick, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Robert Feßler, Jevgenij Jegorov, Fraunhofer-Institut für Techno- und Wirtschaftsmathematik (Germany); Gunther Notni, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [8429-39]

16.00: **Laser beam shaping by conical refraction in biaxial crystals**, Viktor Peet, Univ. of Tartu (Estonia) [8429-40]

16.20: **A new fly's eye homogenizer for single mode laser diodes**, Yosuke Mizuyama, Riccardo Leto, Nathan D. Harrison, Panasonic Boston Lab. (United States) [8429-41]

16.40: **Explication of diffraction lights on an optical imaging system by Fraunhofer diffraction perspective**, Takamasa Ando, Tsuguhiro Korenaga, Masa-aki Suzuki, Panasonic Corp. (Japan) [8429-42]

17.00: **Design rules for IR microcameras based on a single diffractive optical element**, Martin Piponnier, Guillaume Druart, Nicolas Guérineau, Jérôme Primot, ONERA (France) [8429-43]

POSTERS—WEDNESDAY

Grand Hall Wed. 17.40 to 19.10

A poster session will be held on Wednesday 17.40 to 19.10. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Wednesday. 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 at <http://spie.org/x34963.xml>.

Advanced multi-plane phase retrieval using Graphic

Processing Unit: augmented Lagrangian technique with sparse

regularization, Artem S. Migukin, Vladimir Katkovnik, Jaakko T. Astola, Tampere Univ. of Technology (Finland) [8429-59]

Formulation of adaptive Adam-Bashforth method for solving ordinary differential equations: modeling of highly doped waveguide amplifiers,

Anish Bekal, Balaji Srinivasan, Indian Institute of Technology Madras (India) [8429-60]

Method of optical image coding by time integration, Nikolay N. Evtikhiev, Sergey N. Starikov, Pavel A. Cheryomkhin, Vitaly V. Krasnov, Vladislav G. Rodin, National Research Nuclear Univ. MEPhI (Russian Federation) [8429-61]

Generalized model for beam-path variation induced by spherical mirrors' radial displacements in square ring resonator and its applications in backscattering coupling effect,

Meixiong Chen, Jie Yuan, Zhenglong Kang, Xingwu Long, Fei Wang, Jian Zhou, Xudong Yu, National Univ. of Defense Technology (China) [8429-62]

Extended focal depth imaging using single and double peacock eye phase diffractive elements,

Lenny A. Romero, María S. Millán García-Varela, Univ. Politècnica de Catalunya (Spain); Zbigniew Jaroszewicz, Institute of Applied Optics (Poland); Andrzej Kolodziejczyk, Warsaw Univ. of Technology (Poland) [8429-63]

Modeling the pulsed laser deposition process at the presence of a background gas and finding the optimal growth conditions for optical applications,

Mohammad Reza Rashidian Vaziri, Fereshteh Hajjesmaeilbaigi, Mohammad Hadi Maleki, NSTR Laser and Optics Research School (Iran, Islamic Republic of) [8429-64]

A novel assembly method to eliminate unavoidable fabrication distortion angle in square ring resonator,

Zhenglong Kang, National Univ. of Defense Technology (China); Jie Yuan, National Univ. of Defense Technology (China); Meixiong Chen, Xingwu Long, Fei Wang, National Univ. of Defense Technology (China); Jian Zhou, National Univ. of Defense Technology (China); Xudong Yu, National Univ. of Defense Technology (China) [8429-65]

Comparison of simplified theories in the analysis of the diffraction efficiency in surface-relief gratings,

Jorge Francés Monllor, Cristian Neipp, Sergi Gallego, Sergio Bleda, Andrés Márquez, Inmaculada Pascual, Augusto Beléndez, Univ. de Alicante (Spain) [8429-66]

Mathematical modeling of optical properties of biological structures, taking into account large-scale inhomogeneities,

Kirill G. Kulikov, St. Petersburg State Polytechnical Univ. (Russian Federation) [8429-67]

Accounting for small-scale inhomogeneities in the simulation of electrophysical characteristics of an optically thin layer method intracavity laser spectroscopy,

Kirill G. Kulikov, St. Petersburg State Polytechnical Univ. (Russian Federation) [8429-68]

Light scattering by dielectric bodies of arbitrary shape with the application to biophysical problem,

Kirill G. Kulikov, St. Petersburg State Polytechnical Univ. (Russian Federation) [8429-69]

Analysis of the geometry of a holographic memory setup,

Andrés Márquez, Elena Fernández, Francisco Javier Martínez-Verdu, Sergi Gallego, Manuel Francisco Ortuño Sanchez, Augusto Beléndez, Inmaculada Pascual, Univ. de Alicante (Spain) [8429-70]

Study of the stability in holographic reflection gratings recorded in PVA/AA-based photopolymer,

Elena Fernández, Rosa Fuentes, Manuel Ortuño Sanchez, Augusto Beléndez, Inmaculada Pascual, Univ. de Alicante (Spain) [8429-71]

Holographic optical elements based on edge-lit holograms,

Wei-Chia Su, Ming-Hsun Tsai, Hiu-Tzu Lin, National Changhua Univ. of Education (Taiwan) [8429-72]

Behaviors of four different photosensitizers in photopolymer material,

Yue Qi, Jinxin Guo, Univ. College Dublin (Ireland); Michael Gleeson, National Univ. of Ireland, Maynooth (Ireland); John T. Sheridan, Univ. College Dublin (Ireland) [8429-74]

Optical designs of micro-objects with use of base elements,

Alexey D. Frolov, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Olga A. Vinogradova, Alexey G. Tabatschkov, Dmitry N. Frolov, Labor-microscopes (Russian Federation); Svyatoslav M. Latyev, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [8429-76]

Athermalization of catadioptric infrared camera under uniform thermal distribution,

Ramin Khoei, Islamic Azad Univ. (Iran, Islamic Republic of) [8429-77]

The visible spectrum transmission on multimode interference,

Kuan-Yu Chen, National Taiwan Univ. of Science and Technology (Taiwan) [8429-78]

Analysis of PEA photopolymers at zero spatial frequency limit,

Sergi Gallego, Andrés Márquez, Manuel Ortuño Sanchez, Marina Riquelme, Cristian Neipp, Inmaculada Pascual, Augusto Beléndez, Univ. de Alicante (Spain) [8429-79]

Gain and refractive index guiding affects on the mode formation in the solid state laser resonators,

Mohammad Javadi Dashcasan, Elham Barati, National Iranian Ctr. for Laser Science and Technology (Iran, Islamic Republic of) [8429-80]

More exact modeling of COIL laser performance,

Shouxian Li, Xiaojian Shu, Yanyi Du, Hua Su, Yan Li, Zhen Yu, Institute of Applied Physics and Computational Mathematics (China) [8429-82]

Thursday 19 April

Hot Topics III

Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall

For details, please see page 13

SESSION 10

Room: 201 Thurs. 10.40 to 12.20

Holographic Materials

Session Chair: John T. Sheridan, Univ. College Dublin (Ireland)

10.40: **Characterization of holographic digital data page recording in nanoparticle-polymer composite films based on thiol-ene photopolymerization**, Yasuo Tomita, Keisuke Momose, Eiji Hata, Shingo Takayama, The Univ. of Electro-Communications (Japan) [8429-44]

11.00: **Computer simulation of Bragg grating formation in holographic polymer-dispersed liquid crystals based on the density functional theory**, Yoshiaki Fukuda, Yasuo Tomita, The Univ. of Electro-Communications (Japan) [8429-45]

11.20: **Kinetics of chain transfer agents in photopolymer material**, Jinxin Guo, Univ. College Dublin (Ireland); Michael R. Gleeson, National Univ. of Ireland, Maynooth (Ireland); John T. Sheridan, Univ. College Dublin (Ireland) [8429-46]

11.40: **Diacetone-acylamide-based new non-toxic holographic photopolymer**, Dervil Cody, Focas Research Institute, DIT (Ireland); Izabela Naydenova, Emilia M. Mihaylova, Dublin Institute of Technology (Ireland) [8429-47]

12.00: **Recent developments in the nonlocal photopolymerization driven diffusion model**, Michael R. Gleeson, National Univ. of Ireland, Maynooth (Ireland); Jinxin Guo, John T. Sheridan, Univ. College Dublin (Ireland) . . [8429-48]

Lunch Break 12.20 to 13.30

SESSION 11

Room: 201 **Thurs. 13.30 to 15.10**

Holography

Session Chair: John T. Sheridan, Univ. College Dublin (Ireland)

13.30: Automated 3D detection and classification of Giardia lamblia cysts using digital holographic microscopy with partially coherent source, Ahmed El Mallahi, Aurélie Detavernier, Catherine Yourassowsky, Frank Dubois, Univ. Libre de Bruxelles (Belgium) [8429-49]

13.50: Off-axis multispectral digital holographic microscope with partially coherent illumination, Frank Dubois, Catherine Yourassowsky, Univ. Libre de Bruxelles (Belgium) [8429-50]

14.10: A new iterative Fourier transform algorithm for optimal design in holographic optical tweezers, Pasquale Memmolo, Istituto Nazionale di Ottica (Italy) and Univ. degli Studi di Napoli Federico II (Italy); Lisa Miccio, Francesco Merola, Pietro Ferraro, Istituto Nazionale di Ottica (Italy); Paolo A. Netti, Univ. degli Studi di Napoli Federico II (Italy)..... [8429-51]

14.30: A new algorithm for digital holograms denoising based on compressed sensing, Pasquale Memmolo, Istituto Nazionale di Ottica (Italy) and Univ. degli Studi di Napoli Federico II (Italy); Inaki Esnaola, Alcatel-Lucent Bell Labs. (United States); Andrea Finizio, Melania Paturzo, Pietro Ferraro, Istituto Nazionale di Ottica (Italy); Antonia M. Tulino, Univ. degli Studi di Napoli Federico II (Italy) and Alcatel-Lucent Bell Labs (United States) [8429-52]

14.50: Numerical and optical reconstruction of digital off-axis Fresnel holograms, Nikolay N. Evtikhiev, Sergey N. Starikov, Pavel A. Cheryomkhin, Vitaly V. Krasnov, Vladislav G. Rodin, National Research Nuclear Univ. MEPhI (Russian Federation) [8429-53]

Coffee Break 15.10 to 15.40

SESSION 12

Room: 201 **Thurs. 15.40 to 17.20**

Optical System Modelling

Session Chair: John T. Sheridan, Univ. College Dublin (Ireland)

15.40: A novel deformable mirror with curvature and tip/tilt control based on the spider actuator concept, Daniel Rodriguez Sanmartin, Univ. of Brighton (United Kingdom); Timothy W. Button, Carl Meggs, The Univ. of Birmingham (United Kingdom); Alan G. Michette, Slawka J. Pfauntsch, King's College London (United Kingdom); Ady James, Graham Willis, Univ. College London (United Kingdom); Camelia Dunare, J. Tom Stevenson, William Parkes, The Univ. of Edinburgh (United Kingdom)..... [8429-54]

16.00: Dynamics of vesicle suspension in shear flow between walls by digital holographic microscopy with a spatially reduced coherent source, Christophe Minetti, Univ. Libre de Bruxelles (Belgium); Thomas Podgorsky, Gwennou Coupier, Univ. Joseph Fourier (France); Frank Dubois, Univ. Libre de Bruxelles (Belgium) [8429-55]

16.20: An iterative approach for modeling the interaction of a partial coherent light distribution with an absorbing photosensitive polymer, Stefaan Heyvaert, Youri Meuret, Wendy Meulebroeck, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8429-56]

16.40: Optimization of the concentration optics of the Martian Airborne Dust Sensor for MetNet Space Mission, Francisco Cortes, Amelia González, Antonio Gonzalez, Fernando Lopez, Univ. Carlos III de Madrid (Spain) . [8429-57]

17.00: An approach to the design of wide-angle optical systems with special illumination and IFOV requirements, Andrey V. Pravdivtsev, Constructive Cybernetics (Russian Federation) [8429-58]

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Optical Micro- and Nanometrology

Conference Chairs: **Christophe Gorecki**, Univ. de Franche-Comté (France); **Anand Krishna Asundi**, Nanyang Technological Univ. (Singapore); **Wolfgang Osten**, Univ. Stuttgart (Germany)

Programme Committee: **Karsten Buse**, Fraunhofer -Institute for Physical Measurement Techniques, IPM (Germany); **Jürgen W. Czarske**, Technische Univ. Dresden (Germany); **Peter J. de Groot**, Zygo Corporation (United States); **Pietro Ferraro**, Istituto Nazionale di Ottica (Italy); **Cosme Furlong**, Worcester Polytechnic Institute (United States); **Kay Gastinger**, Norwegian Univ. of Science and Technology (Norway); **Joby Joseph**, Indian Institute of Technology Delhi (India); **Malgorzata Kujawska**, Warsaw Univ. of Technology (Poland); **Peter H. Lehmann**, Univ. Kassel (Germany); **Yukitoshi Otani**, Utsunomiya Univ. (Japan); **Heidi Ottevaere**, Vrije Univ. Brussel (Belgium); **Christof Pruss**, Univ. Stuttgart (Germany); **Yingjie Yu**, Shanghai Univ. (China)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

Welcome and Introduction

Room: 311 **Mon. 13.25 to 13.30**

Christophe Gorecki, Univ. de Franche-Comté (France)

SESSION 1

Room: 311 **Mon. 13.30 to 15.20**

Holographic Techniques

Session Chair: **Wolfgang Osten**, Univ. Stuttgart (Germany)

13.30: **Novel interferometric technique for the measurement of vibration and displacement of rotating components** (*Invited Paper*), Jürgen W. Czarske, Technische Univ. Dresden (Germany) [8430-01]

14.00: **Influence of Fresnel diffraction on numerical propagation and correction of tilted image planes in digital holographic microscopy**, Björn Kemper, Frank Schlichthaber, Gert von Bally, Ctr. for Biomedical Optics and Photonics (Germany) [8430-02]

14.20: **Multilevel optical sectioning based on digital holography with a femtosecond frequency comb laser**, Klaus K. Körner, Giancarlo Pedrini, Igor Alexeenko, Wolfram Lyda, Univ. Stuttgart (Germany); Tilo Steinmetz, Ronald Holzwarth, MenloSystems GmbH (Germany); Wolfgang Osten, Univ. Stuttgart (Germany) [8430-03]

14.40: **An alternative reconstructing method in color holography based on digital holograms stretching**, Pasquale Memmolo, Istituto Nazionale di Ottica (Italy) and Istituto Italiano di Tecnologia (Italy); Andrea Finizio, Melania Paturzo, Pietro Ferraro, Istituto Nazionale di Ottica (Italy) [8430-04]

15.00: **Computer-generated hologram tailored for dielectrophoretic PDMS patterning**, Lisa Miccio, Pasquale Memmolo, Andrea Finizio, Pietro Ferraro, Istituto Nazionale di Ottica (Italy) [8430-05]

Coffee Break 15.20 to 16.00

SESSION 2

Room: 311 **Mon. 16.00 to 17.50**

Microstructure Metrology

Session Chair: **Richard K. Leach**, National Physical Lab. (United Kingdom)

16.00: **Effect of thin films on dynamic performance of resonating MEMS** (*Invited Paper*), Ryszard J. Pryputniewicz, Worcester Polytechnic Institute (United States) [8430-58]

16.30: **Optical measurement of the layer thickness of transparent materials**, Hanno Dierke, Rainer Tutsch, Technische Univ. Braunschweig (Germany) [8430-06]

16.50: **Full wafer metrology for chemically graded films**, Marc Jobin, Cedric Pellodi, Sergio dos Santos, Ecole d'ingénieurs de Genève (Switzerland) [8430-07]

17.10: **Investigation of defects in nanocrystalline tin dioxide films**, Diana A. Grishina, Artem Marikutsa, Andrey A. Mironov, Elizaveta A. Konstantinova, Lomonosov Moscow State Univ. (Russian Federation) [8430-08]

17.30: **Failure of thin organic films by a combination of shearography and electrochemical impedance spectroscopy: the new concept of resistivity**, Khaled J. Habib, Kuwait Institute for Scientific Research (Kuwait) [8430-09]

POSTERS—MONDAY

Grand Hall **Mon. 17.45 to 19.15**

A poster session will be held on Monday 17.45 to 19.15. Posters will be on display after 10.00 Monday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Monday. 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 at <http://spie.org/x34963.xml>.

Dynamic birefringence mapping, Yukitoshi Otani, Takashi Onuma, Utsunomiya Univ. (Japan) [8430-40]

Tomographic analysis of medium thickness transparent layers using white light scanning interferometry and XZ fringe image processing, Paul C. Montgomery, Denis Montaner, Fabien Salzenstein, Institut d'Électronique du Solide et des Systèmes (France) [8430-41]

Scatter method for measuring roughness of very smooth surfaces: an analysis and preliminary results, Romuald Synak, Institute of Mathematical Machines (Poland) [8430-42]

Precision topography of MOEMS by Moiré interferometry, Saïd Meguellati, Smail Djabi, Univ. Ferhat Abbas de Sétif (Algeria) [8430-43]

Optical characterization of a glass fibre with the use of low-coherent light (LED), Grzegorz Swirniak, Grzegorz Glomb, Wrocław Univ. of Technology (Poland) [8430-44]

IR-SWLI for subsurface imaging of large MEMS structures, Anton Nolvi, Ville Heikkinen, Ivan Kassamakov, Univ. of Helsinki (Finland); Juha Aaltonen, Helsinki Institute of Physics (Finland); Ossi Saresoja, Univ. of Helsinki (Finland); Maria Berdova, Aalto Univ. (Finland); Sami Franssila, Aalto Univ. School of Science and Technology (Finland); Edward Hæggsström, Univ. of Helsinki (Finland) . [8430-45]

Broadband phosphor conversion LED source for stroboscopic white light interferometry, Ben Wälchli, Univ. of Helsinki (Finland); Ville Heikkinen, Tor Paulin, Ivan Kassamakov, Edward Hæggsström, Univ. of Helsinki (Finland) [8430-46]

LED driver for stroboscopic interferometry, Tor Paulin, Ville Heikkinen, Ivan Kassamakov, Edward Hæggsström, Univ. of Helsinki (Finland) [8430-47]

Theoretical model of volumetric objects imaging in a microscope, Anton A. Grebenyuk, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Vladimir P. Ryabukho, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) and Institute of Precision Mechanics and Control (Russian Federation) [8430-48]

Simple method for measuring bilayer system optical parameters, Edgars Nitiss, Martins A. Rutkis, Univ. of Latvia (Latvia) [8430-49]

Uncertainties of displacement measurement of nanometrology coordinate measurement machines caused by laser source fluctuations, Jan Hrabina, Josef Lazar, Ondrej Cip, Institute of Scientific Instruments of the ASCR, v.v.i. (Czech Republic) [8430-50]

A micro-SPM head array with exchangeable cantilevers, Sai Gao, Physikalisch-Technische Bundesanstalt (Germany) [8430-51]

High-speed phenomena visualization using digital holographic microscopy, Mona Mihailescu, National Institute for Research and Development in Microtechnologies (Romania) and Polytechnical Univ. of Bucharest (Romania); Alina G. Ilie, Julia Costescu, Polytechnical Univ. of Bucharest (Romania); Oana T. Nedelcu, National Institute for Research and Development in Microtechnologies (Romania) [8430-52]

Speckle reduction by simultaneous multiple radiations on the object in digital holography, Mohammad Abolhassani, Arak Univ. (Iran, Islamic Republic of); Yadollah Rostami, Islamic Azad Univ. (Iran, Islamic Republic of) . . . [8430-53]

Zero-order elimination in off-axis digital holography by digital processing, Mohammad Abolhassani, Arak Univ. (Iran, Islamic Republic of); Yadollah Rostami, Islamic Azad Univ. (Iran, Islamic Republic of) [8430-54]

Low-cost pulsed solid state illumination for microPIV measurements, Humbat Nasibov, Ertan Balaban, Alisher A. Kholmatov, Adalat Nasibov, Fikret N. Hacizade, TÜBITAK National Research Institute of Electronics and Cryptology (Turkey) [8430-55]

Interferometric-displacement readout of cantilever sensors, Mohammad Amir Ghaderi, Iman Sabri Alirezaei, Hamid Latifi, Shahid Beheshti Univ. (Iran, Islamic Republic of) [8430-56]

Improving the display quality of full color holographic projection system, Yingjie Yu, Huadong Zheng, Tao Wang, Zhijiang Zhang, Shanghai Univ. (China) [8430-57]

Tuesday 17 April

SESSION 3

Room: 311 Tues. 08.20 to 10.00

Inspection of Microsystems

Session Chair: Pietro Ferraro, Istituto Nazionale di Ottica (Italy)

08.20: **Real-time 3D vibration measurements in microstructures**, Wanja Ochs, Robert Kowarsch, Alexander Dräbenstedt, Marcus Winter, Christian Rembe, Polytec GmbH (Germany) [8430-10]

08.40: **Interferometry of AlN-based microcantilevers to determine the material properties and failure mechanisms**, Christophe Gorecki, Univ. de Franche-Comté (France); Katarzyna Krupa, Warsaw Univ. of Technology (Poland) [8430-11]

09.00: **Advanced optical characterization of micro solid immersion lens**, Myun-Sik Kim, Toralf Scharf, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Mickael Brun, Segolene Olivier, Sergio Nicoletti, CEA-LETI-Minatec (France); Hans Peter Herzig, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8430-12]

09.20: **Wafer-scale nondestructive metrology on subwavelength diffraction gratings by means of Wood's anomaly**, Werner Vandermeiren, Johan H. Stiens, Vrije Univ. Brussel (Belgium); Cathleen De Tandt, Willy Ranson, Vrije Univ. Brussel (Belgium); Gennady N. Shkerdin, Institute of Radio Engineering and Electronics (Russian Federation); Roger A. Vounckx, Vrije Univ. Brussel (Belgium) [8430-13]

09.40: **On topography characterization of micro-optical elements with large numerical aperture using digital holographic microscopy**, Kamil Lizewski, Tomasz Kozacki, Michal Józwiak, Warsaw Univ. of Technology (Poland) [8430-14]
Coffee Break 10.00 to 10.40

SESSION 4

Room: 311 Tues. 10.40 to 13.10

3D Metrology

Session Chair: Anand Krishna Asundi, Nanyang Technological Univ. (Singapore)

10.40: **Advances in calibration methods for micro- to nanoscale surface measurements** (*Invited Paper*), Richard K. Leach, National Physical Lab. (United Kingdom) [8430-15]

11.10: **Quality assessment of aerospace materials with optical coherence tomography**, Ping Liu, Roger M. Groves, Rinze Benedictus, Technische Univ. Delft (Netherlands) [8430-16]

11.30: **Extrinsic calibration of a fringe projection sensor based on a zoom stereo microscope in an automatic multiscale measurement system**, Marc Gronle, Wolfram Lyda, Avinash Burla, Wolfgang Osten, Univ. Stuttgart (Germany) [8430-17]

11.50: **Submicron resolution high-speed spectral domain optical coherence tomography in quality inspection for printed electronics**, Jakub K. Czajkowski, Janne Lauri, Tapio Fabritius, Risto Myllylä, Univ. of Oulu (Finland); Barry Cense, Utsunomiya Univ. (Japan) [8430-18]

12.10: **Spectroscopic identification of materials with calibrated full-field optical coherence tomography in the visible range**, Antoine Morin, Jean-Marc Frigerio, Univ. Pierre et Marie Curie (France) and Institut des Nanosciences de Paris (France) [8430-19]

12.30: **Evaluation of nano-level 3D shape extraction system using RGB color interference fringes**, Seiji Hata, Kagawa Univ. (Japan); Shigeaki Morimoto, Rexxam Co., Ltd. (Japan); Hiroaki Kobayashi, Kagawa Univ. (Japan) .. [8430-20]

12.50: **The elimination of the errors in the calibration image of 3D measurement with structured light**, Qi Xue, Wang Zhao, Junhui Huang, Jianmin Gao, Xi'an Jiaotong Univ. (China) [8430-21]

Lunch/Exhibition Break 13.10 to 14.20

SESSION 5

Room: 311 Tues. 14.20 to 15.40

Topography and Surface Metrology

Session Chair: Malgorzata Kujawinska, Warsaw Univ. of Technology (Poland)

14.20: **Carrier and aberrations removal in interferometric fringe projection profilometry**, Pascal Blain, Fabrice Michel, Yvon L. Renotte, Serge Habraken, Univ. de Liège (Belgium) [8430-22]

14.40: **Optical analysis of orange peel on metallic surfaces**, Maria de Lourdes Miranda-Medina, Thomas Wagner, Johannes A. Böhm, AC?T Research GmbH (Austria); Andras Vernes, AC?T Research GmbH (Austria) and Technische Univ. Wien (Austria); Kurt Hingerl, Johannes Kepler Univ. Linz (Austria) [8430-23]

15.00: **Determination of the metrological characteristics of optical surface topography measuring instruments**, Richard K. Leach, Claudiu L. Giusca, National Physical Lab. (United Kingdom) [8430-25]

15.20: **Optical characterisation of highly polished surfaces**, Thomas Wagner, Maria de Lourdes Miranda-Medina, Johannes A. Böhm, AC?T Research GmbH (Austria); Andras Vernes, AC?T Research GmbH (Austria) and Technische Univ. Wien (Austria); Peter Fotiu, Univ. of Applied Sciences Wiener Neustadt (Austria) [8430-24]

Coffee Break 16.00

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 6

Room: 311 Wed. 09.00 to 10.00

Image Reconstruction and Signal Processing

Session Chair: Peter H. Lehmann, Univ. Kassel (Germany)

09.00: **Iterative least squares integration method for shape reconstruction from gradient**, Lei Huang, Anand K. Asundi, Nanyang Technological Univ. (Singapore) [8430-27]

09.20: **Application of linear systems theory to characterize coherence scanning interferometry**, Rahul Mandal, Kanik Palodhi, Jeremy M. Coupland, Loughborough Univ. (United Kingdom); Richard K. Leach, National Physical Lab. (United Kingdom); Daniel Mansfield, AMETEK Taylor Hobson Ltd. (United Kingdom) [8430-28]

09.40: **Measurement of rectangular edge and grating structures using extended low-coherence interferometry**, Jan Niehues, Peter H. Lehmann, Weichang Xie, Univ. Kassel (Germany) [8430-29]

Coffee Break 10.00 to 10.40

SESSION 7

Room: 311 Wed. 10.40 to 12.00

Novel Microscopy

Session Chair: Klaus K. Körner, Univ. Stuttgart (Germany)

10.40: **SLM-based microscopy**, Malte Hasler, Tobias Haist, Wolfgang Osten, Univ. Stuttgart (Germany) [8430-30]

11.00: **Combining digital holographic microscopy and optical tweezers: a new route in microfluidic**, Lisa Miccio, Pasquale Memmolo, Francesco Merola, Melania Paturzo, Andrea Finizio, Simonetta Grilli, Pietro Ferraro, Istituto Nazionale di Ottica (Italy) [8430-31]

11.20: **Quantitative differential interference contrast (DIC) microscope with fast modulation of bias and shear direction**, Michael I. Shribak, Marine Biological Lab. (United States) [8430-32]

Lunch/Exhibition Break 12.00 to 13.40

SESSION 8

Room: 311 Wed. 13.40 to 15.20

High Resolution Patterning and Metrology

Session Chair: Yingjie Yu, Shanghai Univ. (China)

13.40: **Ellipsometric detection of optical trapped nanoparticles by periodic localized light**, Naoya Taki, Yasuhiro Mizutani, Tetsuo Iwata, Univ. of Tokushima (Japan); Takao Kojima, Osaka Prefecture Univ. (Japan); Hiroki Yamamoto, Takahiro Kozawa, Osaka Univ. (Japan) [8430-35]

14.00: **Fiber-top and ferrule-top cantilevers for atomic force microscopy and scanning near field optical microscopy**, Dhwanjal C. Chavan, Grzegorz Gruca, Kier Heeck, Martin Slaman, Vrije Univ. Amsterdam (Netherlands); Dieter Andres, attocube systems AG (Germany); Bruno Tiribilli, Giancarlo Margheri, Istituto dei Sistemi Complessi (Italy); Davide Iannuzzi, Vrije Univ. Amsterdam (Netherlands) [8430-36]

14.20: **Real-time characterisation of non-metallic inclusions by optical scanning and milling of steel samples**, Johannes Herwig, Christoph Buck, Matthias Thureau, Josef Pauli, Wolfram Luther, Univ. Duisburg-Essen (Germany) [8430-37]

14.40: **Plasma surface figuring of large optical components**, Renaud P. Jourdain, Marco Castelli, Paul Morantz, Paul Shore, Cranfield Univ. (United Kingdom) [8430-38]

15.00: **Nanoscale patterns made by using a 13.5-nm Schwarzschild objective and a laser produced plasma source**, Zhanshan Wang, Xin Wang, Baozhong Mu, Tongji Univ. (China); Yuhong Bai, Changchun Institute of Optics, Fine Mechanics and Physics (China) [8430-39]

Don't miss the
**Photonics Europe
Exhibition**

Location: Grand Hall

Monday 16 April 15.00 to 19.10

Tuesday 17 April 10.00 to 16.00

Wednesday 18 April 10.00 to 19.30

Silicon Photonics and Photonic Integrated Circuits

Conference Chairs: **Laurent Vivien**, CNRS-Univ. Paris-Sud (France); **Seppo K. Honkanen**, Univ. of Eastern Finland (Finland); **Lorenzo Pavesi**, Univ. degli Studi di Trento (Italy); **Stefano Pelli**, Istituto di Fisica Applicata Nello Carrara (Italy)

Programme Committee: **Vilson R. Almeida**, Instituto de Estudos Avançados (Brazil); **Simona Binetti**, Univ. degli Studi di Milano Bicocca (Italy); **Jean-Marc Fédéli**, CEA-LETI (France); **Maurizio Ferrari**, Istituto di Fotonica e Nanotecnologie (Italy); **Patrice Féron**, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); **Michael Hochberg**, Univ. of Washington (United States); **Gong-Ru Lin**, National Taiwan Univ. (Taiwan); **Robert A. Norwood**, College of Optical Sciences, The Univ. of Arizona (United States); **Graham Trevor Reed**, Univ. of Surrey (United Kingdom); **Giancarlo C. Righini**, Istituto di Fisica Applicata Nello Carrara (Italy); **Günther Roelkens**, Univ. Gent (Belgium); **Jung H. Shin**, KAIST (Korea, Republic of); **Wolfgang Sohler**, Univ. Paderborn (Germany); **Jason Liow Tsung Yang**, A*STAR Institute of Microelectronics (Singapore); **Danxia Xu**, National Research Council Canada (Canada); **Koji Yamada**, Nippon Telegraph and Telephone Corp. (Japan); **YinZhong Yu**, Institute of Semiconductors (China)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

SESSION 1

Room: 216 Mon. 13.00 to 15.20

Nonlinear Integrated Photonics

Session Chair: **Laurent Vivien**, CNRS-Univ. Paris-Sud (France)

13.00: **Second and third order nonlinearities in silicon waveguides** (*Invited Paper*), Massimo Cazzanelli, Federica Bianco, Elisa Borga, Kamil Fedus, Univ. degli Studi di Trento (Italy); Mher Ghulinyan, Georg Pucker, Fondazione Bruno Kessler (Italy); Daniele Modotto, Stefano Wabnitz, Filippo Pigozzo, Univ. degli Studi di Brescia (Italy); Elena Degoli, Stefano Ossicini, Univ. degli Studi di Modena e Reggio Emilia (Italy); Eleonora Luppi, Univ. of California, Berkeley (United States); Valerie Veniard, Ecole Polytechnique (France); Francesco Enrichi, Roberto Pierobon, Associazione CIVEN (Italy); Lorenzo Pavesi, Univ. degli Studi di Trento (Italy) [8431-01]

13.30: **High-gain nonlinear silicon photonics** (*Invited Paper*), Richard M. Osgood, Jr., Columbia Univ. (United States); Xiaoping Liu, OFS Labs. (United States); Bart Kuyken, Univ. Gent (Belgium); Sebastian Dutsch, ETH Switzerland (Switzerland); Gunther Roelkens, Roel G. Baets, Univ. Gent (Belgium); William M. J. Green, IBM Thomas J. Watson Research Ctr. (United States) [8431-02]

14.00: **Silicon on sapphire and SOI photonic devices for mid-infrared and near-IR wavelengths** (*Invited Paper*), Ozdal Boyraz, Univ. of California, Irvine (United States); Xinzhu Sang, Beijing Univ. of Posts and Telecommunications (China); Yuewang Huang, Univ. of California, Irvine (United States) [8431-03]

14.30: **Nonlinear silicon photonics** (*Invited Paper*), Alexander L. Gaeta, Cornell Univ. (United States) [8431-04]

15.00: **Efficient four-wave-mixing-based wavelength conversion in silicon nanowire rings without dispersion engineering**, Nathalie Vermeulen, Vrije Univ. Brussel (Belgium); John E. Sipe, Univ. of Toronto (Canada); Yannick W. Lefevre, Christof Debaes, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8431-05]

Coffee Break 15.20 to 16.00

SESSION 2

Room: 216 Mon. 16.00 to 17.00

Nonlinear Optics

Session Chair: **Lorenzo Pavesi**, Univ. degli Studi di Trento (Italy)

16.00: **Structural modification of second harmonic generation in silicon**, Clemens Schriever, Christian Bohley, Martin-Luther-Univ. Halle-Wittenberg (Germany); Johannes de Boor, Max-Planck-Institut für Mikrostrukturphysik (Germany); Christian Eisenschmidt, Martin-Luther Univ. Halle-Wittenberg (Germany); Angelika Hähnel, Max-Planck-Institut für Mikrostrukturphysik (Germany); Jens Lange, Jörg Schilling, Martin-Luther-Univ. Halle-Wittenberg (Germany) [8431-06]

16.40: **Energy efficient all-optical signal processing in SOI: nanowires or slow-light structures?**, Chad A. Husko, Benjamin J. Eggleton, The Univ. of Sydney (Australia) and Institute of Photonics and Optical Science (Australia) [8431-07]

16.40: **Investigation of Si/chalcogenide hybrid slot waveguides**, Peter W. Nolte, Christian Bohley, Jörg Schilling, Martin-Luther-Univ. Halle-Wittenberg (Germany) [8431-08]

SESSION 3

Room: 216 Mon. 17.00 to 18.00

Photodetectors

Session Chair: **Seppo K. Honkanen**, Univ. of Eastern Finland (Finland)

17.00: **40Gbit/s germanium waveguide photodetector on silicon**, Leopold Virost, STMicroelectronics (France); Laurent Vivien, Institut d'Électronique Fondamentale (France); Andreas Polzer, Technische Univ. Wien (Austria); Delphine Marris-Morini, Johann Osmond, Institut d'Électronique Fondamentale (France); Jean-Michel Hartmann, Commissariat à l'Énergie Atomique (France); Paul Crozat, Univ. Paris-Sud 11 (France); Eric Cassan, Institut d'Électronique Fondamentale (France); Charles Baudot, STMicroelectronics (France); Christophe Kopp, CEA-LETI-Minatec (France); Frederic Boeuf, STMicroelectronics (France); Horst Zimmermann, Technische Univ. Wien (Austria); Jean-Marc Fédéli, CEA-LETI-Minatec (France) [8431-09]

17.20: **Si:Ge nanowire photodetectors**, Hyun-Seung Lee, Pohang Univ. of Science and Technology (Korea, Republic of); Cheol-Joo Kim, Cornell Univ. (United States); Yong-Jun Cho, Jee-Eun Yang, Ru Ri Lee, Ja Kyung Lee, Moon-Ho Jo, Pohang Univ. of Science and Technology (Korea, Republic of) [8431-10]

17.40: **Size-dependent photoconductive gain in Ge nanocrystal**, Hyun-Seung Lee, Pohang Univ. of Science and Technology (Korea, Republic of); Cheol-Joo Kim, Cornell Univ. (United States); Yong-Jun Cho, Kibum Kang, Moon-Ho Jo, Pohang Univ. of Science and Technology (Korea, Republic of) [8431-11]

Tuesday 17 April

SESSION 4

Room: 216 Tues. 08.20 to 10.30

Light Guiding and Coupling

Session Chair: **Giancarlo C. Righini**, Istituto di Fisica Applicata Nello Carrara (Italy)

08.20: **Group IV photonic devices for the mid-infrared** (*Invited Paper*), Goran Z. Mashanovich, Milos Nedeljkovic, Milan M. Milosevic, Youfang Hu, Frederic Y. Gardes, David J. Thomson, Univ. of Surrey (United Kingdom); Taha Ben Masaud, Ehsan Jaberansary, Harold M. H. Chong, Univ. of Southampton (United Kingdom); Richard Soref, Air Force Research Lab. (United States); Graham T. Reed, Univ. of Surrey (United Kingdom) [8431-12]

08.50: **Grating couplers in thick rib SOI waveguides for TE and TM polarizations**, Carlos Alonso-Ramos, Alejandro Ortega-Moñux, Robert Halir, Luis Zavargo-Peche, Iñigo Molina-Fernández, Univ. de Málaga (Spain); Pavel Cheben, Dan-Xia Xu, Siegfried Janz, National Research Council Canada (Canada) [8431-13]

09.10: **Reducing the temperature sensitivity of SOI waveguide-based biosensors**, Kristinn B. Gylfason, Royal Institute of Technology (Sweden); Albert Mola Romero, Royal Institute of Technology (Sweden) and Univ. de Barcelona (Spain); Hans Sohlström, Royal Institute of Technology (Sweden) [8431-61]

09.30: **Design, fabrication, and characterisation of fully etched TM grating coupler for photonic integrated system-in-package**, Oriol Gili de Villasante, Paul Toehg, Technische Univ. Berlin (Germany); Bei Wang, Alpaslan Suna, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (Germany); Giannis Giannoulis, Ioannis Lazarou, Dimitrios Apostolopoulos, Hercules Avramopoulos, National Technical Univ. of Athens (Greece); Nikos Pleros, Aristotle Univ. of Thessaloniki (Greece); Matthias Baus, Matthias Karl, AMO GmbH (Germany); Tolga Tekin, Technische Univ. Berlin (Germany) and Fraunhofer-Institute for Reliability and Microintegration (IZM) (Germany) [8431-15]

09.50: **WDM filter in Si photonic crystal technology with individual channel fine-tuning capability**, Anna Baldycheva, Trinity College Dublin (Ireland); Vladimir Tolmachev, Ioffe Physico-Technical Institute (Russian Federation); Kevin Berwick, Dublin Institute of Technology (Ireland); Tatiana Perova, Trinity College Dublin (Ireland) [8431-16]

10.10: **Narrow band forward coupling using Bragg reflectors**, Anatole Lupu, Kamal Muhieddine, Eric Cassan, Jean-Michel Lourtioz, Institut d'Électronique Fondamentale (France) [8431-17]

Coffee Break 10.30 to 11.00

SESSION 5

Room: 216 Tues. 11.00 to 12.40

Silicon and Germanium Modulator

Session Chair: Goran Z. Mashanovich, Univ. of Surrey (United Kingdom)

- 11.00: **Ring resonator silicon optical modulator based on interleaved pn junctions**, Melissa Ziebell, Delphine Marris-Morini, Gilles Rasigade, Institut d'Électronique Fondamentale (France); Jean-Marc Fedeli, CEA-LETI-Minatec (France); Eric Cassan, Laurent Vivien, Institut d'Électronique Fondamentale (France) [8431-18]
- 11.20: **Slow light-enhanced carrier depletion modulators with 1V drive voltage**, Antoine Brimont, Univ. Politécnica de Valencia (Spain); Dave Thomson, Frederic Gardes, Univ. of Surrey (United Kingdom); Jean-Marc Fédéli, CEA-LETI-Minatec (France); Graham Reed, Univ. of Surrey (United Kingdom); Pablo Sanchis, Univ. Politécnica de Valencia (Spain) [8431-19]
- 11.40: **Strain tuning of Ge electro-absorption modulators for Si photonics**, Ryo Kuroyanagi, Luan M. Nguyen, The Univ. of Tokyo (Japan); Tai Tsuchizawa, Nippon Telegraph and Telephone Corp. (Japan); Yasuhiko Ishikawa, The Univ. of Tokyo (Japan); Koji Yamada, Nippon Telegraph and Telephone Corp. (Japan); Kazumi Wada, The Univ. of Tokyo (Japan) [8431-20]
- 12.00: **The effects of strain on indirect absorption in Ge/SiGe quantum wells**, Leon J. Lever, Zoran Ikonic, Robert W. Kelsall, Univ. of Leeds (United Kingdom); Maksym Myronov, David Leadley, The Univ. of Warwick (United Kingdom); Youfang Hu, Frederic Gardes, Nathan Owens, Graham T. Reed, Univ. of Surrey (United Kingdom) [8431-21]
- 12.20: **Electroabsorption based on quantum-confined Stark effect from Ge/SiGe multiple quantum wells**, Papichaya Chaisakul, Delphine Marris-Morini, Institut d'Électronique Fondamentale (France); Giovanni Isella, Daniel Chrastina, Lab. for Epitaxial Nanostructures on Silicon and Spintronics (Italy); Mohamed Saïd Rouïfed, Institut d'Électronique Fondamentale (France); Jacopo Frigerio, Lab. for Epitaxial Nanostructures on Silicon and Spintronics (Italy); Eleonora Gatti, Univ. degli Studi di Milano-Bicocca (Italy); Xavier Le Roux, Samson Edmond, Eric Cassan, Jean-René Coudeville, Laurent Vivien, Institut d'Électronique Fondamentale (France) [8431-22]
- Lunch/Exhibition Break 12.40 to 13.40

SESSION 6

Room: 216 Tues. 13.40 to 16.00

CMOS Photonics for Theranostics

Session Chair: Lorenzo Pavesi, Univ. degli Studi di Trento (Italy)

- 13.40: **Real-time and low-cost biosensors based on photonic bandgap structures** (*Invited Paper*), Jaime García-Rupérez, Javier G. Castelló, Veronica Toccafondo, Pere Perez-Millan, Univ. Politécnica de Valencia (Spain) . [8431-23]
- 14.10: **Silicon biosensors for point-of-care diagnostic** (*Invited Paper*), Laura M. Lechuga, Ctr. d'Investigacions en Nanociència i Nanotecnologia (Spain) [8431-24]
- 14.40: **CMOS photonics for optical manipulation of particles and biosensing** (*Invited Paper*), Andrew W. Poon, Hong Cai, Ting Lei, Hong Kong Univ. of Science and Technology (Hong Kong, China) [8431-25]
- 15.10: **Pathogen detection system based on CMOS photonics** (*Invited Paper*), Danxia Xu, Siegfried Janz, Adam Densmore, Pavel Cheben, Martin Vachon, Nicolaus Sabourin, Heather McIntosh, Heping Ding, Rubin Ma, André Delâge, Jens H. Schmid, Shurui Wang, William Sinclair, Jean Lapointe, Greg Lopinski, Donling Zhang, Qing Yan Liu, National Research Council Canada (Canada) [8431-26]
- 15.40: **On-chip multiplexing concept for silicon photonic MZI biosensor array**, Paul Muellner, Roman Bruck, AIT Austrian Institute of Technology GmbH (Austria); Matthias Baus, Matthias Karl, Thorsten Wahlbrink, AMO GmbH (Germany); Rainer Hainberger, AIT Austrian Institute of Technology GmbH (Austria) [8431-27]
- Coffee Break 16.00 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 7

Room: 216 Wed. 08.30 to 09.50

Silicon Modulators

Session Chair: Laurent Fulbert, CEA-LETI (France)

- 08.30: **A study of variations in the free carrier absorption effect as a function of CMOS technological node**, Alexander Serb, Timothy G. Constantinou, Konstantin Nikolic, Imperial College London (United Kingdom) [8431-28]
- 08.50: **CMOS-compatible electro-optical Mach-Zehnder modulator based on the amorphous silicon technology**, Sandro Rao, Univ. Mediterranea di Reggio Calabria (Italy); Giuseppe Coppola, Mariano A. Gioffrè, Istituto per la Microelettronica e Microsistemi (Italy); Francesco G. Della Corte, Univ. Mediterranea di Reggio Calabria (Italy) [8431-29]
- 09.10: **High-speed silicon optical modulator based on a pin diode**, Melissa Ziebell, Delphine Marris-Morini, Gilles Rasigade, Institut d'Électronique Fondamentale (France); Jean-Marc Fedeli, CEA-LETI-Minatec (France); Eric Cassan, Laurent Vivien, Institut d'Électronique Fondamentale (France) . [8431-30]
- 09.30: **Low-voltage high-speed Si Mach-Zehnder optical modulator with multicascade p/n junctions along waveguides**, Ryuichi Furutani, Hiroshima Univ. (Japan) [8431-31]
- Coffee Break 09.50 to 10.30

SESSION 8

Room: 216 Wed. 10.30 to 12.30

Industry and Silicon Photonics

Session Chair: Lorenzo Pavesi, Univ. degli Studi di Trento (Italy)

- 10.30: **Silicon photonics for optical interconnects in computing applications** (*Invited Paper*), Bert-Jan Offrein, IBM Zürich Research Lab. (Switzerland) [8431-32]
- 11.00: **Silicon photonics at ST** (*Invited Paper*), Guido Chiaretti, STMicroelectronics (Italy) [8431-33]
- 11.30: **Opportunities and challenges of silicon photonics in optical networks** (*Invited Paper*), Roberto Sabella, Ericsson Telecomunicazione (Italy) . [8431-34]
- 12.00: **Silicon photonic, a technology for long haul WDM systems with high potential** (*Invited Paper*), Gabriel Charlet, Alcatel-Lucent (France) [8431-35]
- Lunch/Exhibition Break 12.30 to 13.30

SESSION 9

Room: 216 Wed. 13.30 to 15.30

Silicon Photonics Integration

Session Chair: Bert-Jan Offrein, IBM Zürich Research Lab. (Switzerland)

- 13.30: **Photonics-electronics integration on CMOS** (*Invited Paper*), Laurent Fulbert, Jean-Marc Fedeli, CEA-LETI (France) [8431-36]
- 14.00: **Si photonics toward WDM implementation on a chip** (*Invited Paper*), Kazumi Wada, Univ. of Tokyo (Japan) [8431-37]
- 14.30: **Silicon as a platform for quantum photonics**, Damien Bonneau, Erman Engin, Univ. of Bristol (United Kingdom); Kazuya Ohira, Nobuo Suzuki, Haruhiko Yoshida, Norio Iizuka, Mizunori Ezaki, Toshiba Corp. (Japan); Joshua W. Silverstone, Jianwei Wang, Univ. of Bristol (United Kingdom); Chandra M. Natarajan, Michael G. Tanner, Robert H. Hadfield, Heriot-Watt Univ. (United Kingdom); Sanders N. Dorenbos, Val Zwiller, Technische Univ. Delft (Netherlands); Jeremy L. O'Brien, Mark G. Thompson, Univ. of Bristol (United Kingdom) [8431-78]
- 14.50: **Co-integration of Ge detectors and Si modulators in an advanced Si photonics platform**, Peter Verheyen, Marianna Pantouvaki, Joris Van Campenhout, Guy Lepage, Philippe Absil, IMEC (Belgium); Hui Yu, Shankar K. Selvaraja, Wim Bogaerts, Univ. Gent (Belgium) [8431-39]
- 15.10: **New integration concept of PIN photodiodes in 0.35µm CMOS technologies**, Ingrid Jonak-Auer, Jordi Teva, Jong Mun Park, Stefan Jessenig, Peter Kailbauer, Ewald Wachmann, austriamicrosystems AG (Austria) . [8431-40]
- Coffee Break 15.30 to 16.10

SESSION 10

Room: 216 Wed. 16.10 to 18.10

Source on Silicon

Session Chair: Kazumi Wada, The Univ. of Tokyo (Japan)

- 16.10: **Er- and Nd-implanted MOS light emitting devices and their use for integrated photonic applications**, Lars Rebohle, R. Wutzler, Jan Lehmann, Slawomir Prucnal, Manfred Helm, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Wolfgang Skorupa, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Ghana) [8431-41]
- 16.30: **Carbon nanotubes for photonics: light emission in silicon and optical gain**, Nicolas Izard, Institut d'Électronique Fondamentale (France); Etienne Gaufres, Institut d'Électronique Fondamentale (France) and Univ. Montréal (Canada); Alexandre Beck, Adrien Noury, Xavier Le Roux, Laurent Vivien, Institut d'Électronique Fondamentale (France) [8431-42]
- 16.50: **Opto-electrical characterization of erbium-doped slot waveguides**, Andrea Tengattini, Alessandro Marconi, Nikola Prtljaga, Lorenzo Pavesi, Oleksiy Anopchenko, Univ. degli Studi di Trento (Italy); Jean-Marc Fedeli, CEA-LETI-Minatec (France); Pierrette Rivallin, Commissariat à l'Énergie Atomique (France); S. Kavittak, CEA-LETI (France) [8431-43]
- 17.10: **Room temperature direct-gap electroluminescence in Ge/SiGe quantum well waveguides**, Papichaya Chaisakul, Delphine Marris-Morini, Institut d'Électronique Fondamentale (France); Giovanni Isella, Daniel Christina, Jacopo Frigerio, Lab. for Epitaxial Nanostructures on Silicon and Spintronics (Italy); Mohamed-Saïd Rouifed, Nicolas Izard, Xavier Le Roux, Samson Edmond, Jean-René Coudeville, Laurent Vivien, Institut d'Électronique Fondamentale (France) [8431-44]
- 17.30: **Delayed photoluminescence in three-dimensional silicon/silicon germanium nanostructures**, Leonid Tsybeskov, Selina Mala, New Jersey Institute of Technology (United States); Jean-Marc Baribeau, Xiaohua Wu, David J. Lockwood, National Research Council Canada (Canada) [8431-45]
- 17.50: **Visible light emitting Si rich Si 3N 4 microdisk resonators for sensoristic applications**, Federico Ferrarese Lupi, Univ. de Barcelona (Spain); Daniel Navarro-Urrios, Institut Català de Nanotecnologia (Spain); Javier Rubio-Garcia, Institut de Recerca en Energia de Catalunya (Spain); Josep Monserrat, Carlos Dominguez, Ctr. Nacional de Microelectrónica (Spain); Paolo Pellegrino, Blas Garrido, Univ. de Barcelona (Spain) [8431-46]

POSTERS—WEDNESDAY

Grand Hall Wed. 17.40 to 19.10

A poster session will be held on Wednesday 17.40 to 19.10. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Wednesday. 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 at <http://spie.org/x34963.xml>.

- A diode-based bolometer implemented on micromachined CMOS technology for terahertz radiation detection**, Matteo Perenzoni, Suzana Domingues, Fondazione Bruno Kessler (Italy) [8431-64]
- Arrayed waveguide gratings beyond communication: utilization of entire image-plane of output star-coupler for spectroscopy and sensing**, Harendra N. J. Fernando, Andreas Stoll, Jose C. Boggio, Roger Haynes, Martin M. Roth, Leibniz-Institut für Astrophysik Potsdam (Germany) [8431-65]
- Simulation of polymeric integrated Young interferometer sensor**, Mihai Kusko, National Institute for Research and Development in Microtechnologies (Romania) [8431-66]
- Thermal analysis on silicon photonics integrated MZI modulator and driver**, Piotr Mackowiak, Ha-Duong Ngo, Technische Univ. Berlin (Germany); Henri Porte, Photline Technologies (France); Lars Zimmermann, IHP GmbH (Germany); Tolga Tekin, Technische Univ. Berlin (Germany) [8431-67]
- Approximate model of a DBR/F-P laser based on Raman effect in a silicon-on-insulator rib waveguide**, Anna Tyszka-Zawadzka, Pawel Szczepanski, Mirosław Karpierz, Agnieszka Mossakowska-Wyszynska, Marcin Bugaj, Wrocław Univ. of Technology (Poland) [8431-68]
- Effect of annealing treatment on Nd-SiOx thin film properties**, Chuanhui Liang, Olivier Debieu, Julien Cardin, Fabrice Goubilleau, ENSICAEN (France) [8431-69]
- Quantum well intermixing in AlInGaAs QW structures through the interdiffusion of group III atoms**, Ko-Hsin Lee, Kevin Thomas, Agnieszka Gocalinska, Emanuele Pelucchi, Tyndall National Institute (Ireland); Frank H. Peters, Tyndall National Institute (Ireland) and Univ. College Cork (Ireland); Brian Corbett, Tyndall National Institute (Ireland) [8431-70]
- Porous silicon gas-adsorption sensor structures based on the phenomena of photoluminescence and non-stationary photoconductivity**, Ivan V. Blonskyy, Institute of Physics (Ukraine); Liubomyr S. Monastyrsky, Bogdan S. Sokolovskii, Petro P. Parandiy, Myhailo R. Pavlyk, Ivan Franko National Univ. of L'viv (Ukraine) [8431-71]

- A photosensor on thin polysilicon membrane embedded in wafer level package LED**, Jin Kwan Kim, Hee Chul Lee, KAIST (Korea, Republic of) [8431-72]
- Design of rare-earth doped chalcogenide microspheres for mid-IR optical amplification**, Francesco Prudeniano, Luciano Mescia, Pietro Bia, Annalisa Di Tommaso, Marco De Sario, Politecnico di Bari (Italy); Maurizio Ferrari, Istituto di Fotonica e Nanotecnologie (Italy); Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy) [8431-73]
- Laser writing of polymer 3D microstructures on the boundary of opaque-transparent substrates**, Mangirdas Malinauskas, Sima Rekštyte, Albertas ?ukauskas, Roaldas Gadonas, Vilnius Univ. (Lithuania) [8431-74]
- Improved integrated resonators in polymer technology for tunable filter**, Azar Maalouf, Univ. Européenne de Bretagne (France); Claire Bastianelli, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); Fabrice Mahé, Aziz Belmiloudi, Michel Gadonna, Dominique Bosc, Univ. Européenne de Bretagne (France) [8431-75]
- A highly junction-capacitance-isolated 10-Gb/s CMOS optoelectronics receiver IC for short reach applications**, Won-Seok Oh, Kang-Yeob Park, Korea Electronics Technology Institute (Korea, Republic of) [8431-76]
- A new type of sensitive semiconductor detectors of terahertz radiation**, Dmitry Dolzhenko, Lomonosov Moscow State Univ. (Russian Federation); Andrey V. Nicorici, Institute of Applied Physics (Moldova); Ludmila I. Ryabova, Dmitry R. Khokhlov, Lomonosov Moscow State Univ. (Russian Federation) [8431-77]
- High quality factor dielectric multilayer structures fabricated by rf-sputtering**, Alessandro Chiasera, Istituto di Fotonica e Nanotecnologie (Italy); Sreeramulu Valligatla, Istituto di Fotonica e Nanotecnologie (Italy) and Univ. degli Studi di Trento (Italy) and Hyderabad Univ. (India); Stefano Varas, Istituto di Fotonica e Nanotecnologie (Italy); Nicola Bazzanella, Univ. degli Studi di Trento (Italy); Giancarlo C. Righini, Maurizio Ferrari, Istituto di Fotonica e Nanotecnologie (Italy) [8431-79]
- Fabrication and characterization of silver-doped chalcogenide planar waveguides for compact nonlinear optical devices**, Duk-Yong Choi, Steve J. Madden, Rongping Wang, Barry Luther-Davies, The Australian National Univ. (Australia) [8431-80]
- Low-frequency noise and electroluminescence measurements as a faster tool to investigate the quality of monocrystalline-silicon solar cells**, Zdenek Chobola, Miroslav Lunak, Jiri Vanek, Jan Dolensky, Brno Univ. of Technology (Czech Republic); Ales Poruba, Solartec, s.r.o. (Czech Republic) [8431-81]

Thursday 19 April

Hot Topics III

Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall

For details, please see page 13

SESSION 11

Room: 216 Thurs. 10.20 to 12.50

Non-Silicon Integrated Optical Devices

Session Chair: Stefano Pelli, Istituto di Fisica Applicata Nello Carrara (Italy)

- 10.20: **Sol-gel thin films for photonic devices** (*Invited Paper*), Alessandro Martucci, Univ. degli Studi di Padova (Italy) [8431-47]
- 10.50: **Lithium niobate-on-insulator (LNOI): status and perspectives** (*Invited Paper*), Hui Hu, Shandong Univ. (China); Gui Li, Wolfgang Sohler, Univ. Paderborn (Germany) [8431-48]
- 11.20: **Progress in tunable lithium niobate photonic crystal devices** (*Invited Paper*), Maria-Pilar Bernal Artajona, Univ. de Franche-Comté (France) [8431-49]
- 11.50: **Erbium-activated silica-tin oxide glass ceramics for photonic integrated circuits: fabrication, characterization, and assessment**, Sylvia J. Turrell, Univ. des Sciences et Technologies de Lille (France); T. T. Van Tran, Univ. des Sciences et Technologies de Lille (France) and LASIR, Univ. Lille 1 (France); Christophe Kinowski, Odile Cristini, Bruno Capoen, Univ. des Sciences et Technologies de Lille (France); Mauricio Ferrari, Istituto di Fotonica e Nanotecnologie (Italy) [8431-50]
- 12.10: **Tuning the emission wavelength of semiconductor ring lasers with on-chip filtered optical feedback**, Guy Verschaffelt, Ilya V. Ermakov, Stefano Beri, Mohamed A. Ashour, Jan Danckaert, Vrije Univ. Brussel (Belgium); Boudewijn Docter, Jeroen Bolk, Xaveer Leijtens, Technische Univ. Eindhoven (Netherlands) [8431-51]
- 12.30: **High index contrast optical platform using gallium phosphide on sapphire: an alternative to SOI?**, Donagh O'Mahony, Md. Nazmul Hossain, John Justice, Emanuele Pelucchi, Alan O'Riordan, Brian Corbett, Brendan J. Roycroft, Tyndall National Institute (Ireland) [8431-52]
- Lunch Break 12.50 to 13.50

SESSION 12

Room: 216 **Thurs. 13.50 to 15.20**

Plasmonics on Silicon

Session Chair: Seppo K. Honkanen, Univ. of Eastern Finland (Finland)

13.50: **Light propagation in metallic nanoparticle chains on SOI waveguide (Invited Paper)**, Mickaël Fevrier, Philippe Gogol, Abdelhanin Aassime, Robert Megy, Alexandre Bondi, Institut d'Électronique Fondamentale (France) and Ctr. National de la Recherche Scientifique (France); Alexei Chelnokov, CEA-LETI-Minatec (France); Aniello Apuzzo, Sylvain Blaize, Gilles Lerondel, Univ. de Technologie Troyes (France); Jean-Michel Lourtioz, Beatrice Dagens, Institut d'Électronique Fondamentale (France) and Ctr. National de la Recherche Scientifique (France) [8431-53]

14.20: **Numerical investigation and characterization of MOS plasmonic waveguides**, Siddharth Nambiar, Alexandros Emboras, Adel Najjar, Emmanuel Augendre, Roch Espiau De Lamaestre, Philippe Grosse, CEA-LETI-Minatec (France) [8431-54]

14.40: **Proposal of a silicon optical modulator based on surface plasmon resonance**, Tetsuo Tabei, Shin Yokoyama, Hiroshima Univ. (Japan) .. [8431-55]

15.00: **CMOS integration of field effect plasmonic modulator**, Alexandros Emboras, Adel Najjar, Cecile Delacour, Philippe Grosse, Emmanuel Augendre, Jean-Marc Fedeli, Roch Espiau de Lamaestre, CEA-LETI-Minatec (France); Ryan M. Briggs, Harry A. Atwater, California Institute of Technology (United States) [8431-56]

Coffee Break 15.20 to 15.40

SESSION 13

Room: 216 **Thurs. 15.40 to 17.00**

Passive and Resonant Photonic Devices

Session Chair: Béatrice Dagens, Institut d'Électronique Fondamentale (France)

15.40: **Low-nonlinearity and low-loss silicon slot waveguides with ALD-grown thin films**, Lasse Karvonen, Antti Säynätjoki, Aalto Univ. (Finland); Xiaoguang Tu, Tsung-Yang Liow, A*STAR Institute of Microelectronics (Singapore); Marianne Hiltunen, VTT (Finland); Ari Tervonen, Aalto Univ. (Finland); Guo-Qiang Lo, A*STAR Institute of Microelectronics (Singapore); Seppo K. Honkanen, Aalto Univ. (Finland) and Univ. of Eastern Finland (Finland) . [8431-57]

16.00: **Integrated optical waveguide interferometer for geophysical applications**, Serge Olivier, Philippe Millier, Commissariat à l'Énergie Atomique (France); Florent Gardillou, Cédric Cassagnettes, Denis Barbier, Teem Photonics S.A. (France) [8431-58]

16.20: **Silicon-based monolithically integrated whispering-gallery mode resonators with buried waveguides**, Mher Ghulinyan, Fondazione Bruno Kessler (Italy); Romain Guider, Johannes Kepler Univ. Linz (Austria); Georg Pucker, Fondazione Bruno Kessler (Italy); Lorenzo Pavesi, Univ. degli Studi di Trento (Italy) [8431-59]

16.40: **Whispering gallery modes in coated silica microspheres**, Davor Ristic, Alessandro Chiasera, Istituto di Fotonica e Nanotecnologie (Italy); Enrico Moser, Univ. degli Studi di Trento (Italy); Patrice Feron, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); Gilles Cibiel, Ctr. National d'Études Spatiales (France); Mile Ivanda, Institut Ruder Boškovic (Croatia); Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy); Maurizio Ferrari, Istituto di Fotonica e Nanotecnologie (Italy) [8431-60]

SESSION 14

Room: 216 **Thurs. 17.00 to 18.00**

Biosensing

Session Chair: Laurent Vivien, CNRS-Univ. Paris-Sud (France)

17.00: **A single-lithography SOI rib waveguide sensing circuit with apodized low back-reflection surface grating fiber coupling**, Valentin J. Dubois, Mikael Antelius, Hans Sohlström, Kristinn B. Gylfason, Royal Institute of Technology (Sweden) [8431-14]

17.20: **Low-loss single mode light waveguides in polymer**, Heinrich Sieber, Hans-Jürgen Boehm, Uwe Hollenbach, Jürgen Mohr, Karlsruher Institut für Technologie (Germany); Ute Ostrzinski, Karl Pfeiffer, micro resist technology GmbH (Germany); Marcin K. Szczurowski, Wacław Urbanczyk, Wrocław Univ. of Technology (Poland) [8431-62]

17.40: **Slot ring biosensors using silicon nitride waveguides with small temperature coefficient**, Tomoya Taniguchi, Hiroshima Univ. (Japan) [8431-63]

Semiconductor Lasers and Laser Dynamics

Conference Chairs: **Krassimir Panajotov**, Vrije Univ. Brussel (Belgium); **Marc Sciamanna**, Supélec (France); **Angel Valle**, Univ. de Cantabria (Spain); **Rainer Michalzik**, Univ. Ulm (Germany)

Programme Committee: **Sylvain Barbay**, Ctr. National de la Recherche Scientifique (France); **Dieter Bimberg**, Technische Univ. Berlin (Germany); **Weng W. Chow**, Sandia National Labs. (United States); **Kent D. Choquette**, Univ. of Illinois at Urbana-Champaign (United States); **Wolfgang E. Elsaesser**, Technische Univ. Darmstadt (Germany); **Anders Larsson**, Chalmers Univ. of Technology (Sweden); **Jesper Moerk**, Technical Univ. of Denmark (Denmark); **Jerome V. Moloney**, College of Optical Sciences, The Univ. of Arizona (United States); **Wlodzimierz Nakwaski**, Technical Univ. of Lodz (Poland); **K. Alan Shore**, Bangor Univ. (United Kingdom); **Anne C. Tropper**, Univ. of Southampton (United Kingdom); **Atsushi Uchida**, Saitama Univ. (Japan); **Joachim Wagner**, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); **Sebastian Wiczorek**, The Univ. of Exeter (United Kingdom)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

SESSION 1

Room: 204 Mon. 13.00 to 15.00

VCSELS I

Session Chair: **Krassimir Panajotov**, Vrije Univ. Brussel (Belgium)

13.00: **High-speed VCSELS for energy efficient computer interconnects** (*Invited Paper*), Philip Moser, Philip Wolf, Technische Univ. Berlin (Germany); James A. Lott, VI Systems GmbH (Germany); Gunter Larisch, Alex Mutig, Waldemar Unrau, Technische Univ. Berlin (Germany); Nikolay N. Ledentsov, VI Systems GmbH (Germany); Werner Hofmann, Technische Univ. Berlin (Germany); Dieter Bimberg, Technische Univ. Berlin (Germany) and King Abdulaziz Univ. (Saudi Arabia) [8432-01]

13.30: **New standards in high-speed and tunable long wavelength VCSELS** (*Invited Paper*), Tobias Gruendl, Technische Univ. München (Germany); Michael Mueller, Markus C. Amann, Walter Schottky Institut (Germany) [8432-02]

14.00: **Hybrid integration approach of VCSELS for miniaturized optical deflection of microparticles**, Anna Bergmann, Dietmar Wahl, Rainer Michalzik, Niazul I. Khan, Jose A. Martos Calahorra, Univ. Ulm (Germany) [8432-03]

14.20: **Transverse mode and polarization characteristics of AlGaInP-based VCSELS with integrated multiple oxide apertures**, Susanne Weidenfeld, Hendrik Niederbracht, Michael Jetter, Peter Michler, Univ. Stuttgart (Germany) and Research Center SCoPE (Germany) [8432-04]

14.40: **VCSELS with two-sided beam emission for pressure sensor applications**, Balthasar Fischer, Technische Univ. Wien (Austria); Andreas Strodl, Univ. Ulm (Germany); Ernst Wintner, Technische Univ. Wien (Austria); Rainer Michalzik, Univ. Ulm (Germany) [8432-05]

Coffee Break 15.00 to 15.40

SESSION 2

Room: 204 Mon. 15.40 to 17.30

VCSELS II

Session Chair: **Rainer Michalzik**, Univ. Ulm (Germany)

15.40: **New confinement method for monolithic GaSb-VCSEL emitting in the mid-IR** (*Invited Paper*), Dorian Sanchez, Laurent Cerutti, Eric Tournie, Montpellier 2 (France) [8432-06]

16.10: **Single-mode InGaAs/GaAs 1.3- μ m VCSELS based on mode-profile engineering**, Xingang Yu, Yu Xiang, Royal Institute of Technology (Sweden); Muhammad N. Akram, Vestfold Univ. College (Sweden); Jesper Berggren, Royal Institute of Technology (Sweden); Mattias Hammar, Kista Photonics Research Ctr. (Sweden) [8432-07]

16.30: **Three-dimensional simulation of 1300-nm AlGaInAs VCSEL arrays**, Tomasz Czeszanowski, Maciej Dems, Michal Wasiaik, Robert P. Sarzala, Wlodzimierz Nakwaski, Technical Univ. of Lodz (Poland) [8432-08]

16.50: **Polarization mode structure in long-wavelength wafer-fused vertical-cavity surface-emitting lasers**, Nicolas Volet, Vladimir Iakovlev, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Alexandru Mereuta, Andrei Caliman, Beam Express S.A. (Switzerland); Alexei Sirbu, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Grigore Suruceanu, Beam Express S.A. (Switzerland); Elyahou Kapon, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8432-09]

17.10: **Electro-optically modulated coupled-cavity VCSELS: electrical design optimization for high-speed operation**, Mateusz Zujewski, Hugo Thienpont, Vrije Univ. Brussel (Belgium); Krassimir Panajotov, Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics (Bulgaria) [8432-10]

Tuesday 17 April

SESSION 3

Room: 204 Tues. 08.30 to 10.20

Quantum Dot Lasers I

Session Chair: **Philip Moser**, Technical University Berlin (Germany)

08.30: **Long wavelength VCSELS and VECSELS fabricated by wafer fusion: technology and applications** (*Invited Paper*), Alexei Sirbu, Alexandru Mereuta, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Andrei Caliman, Beam Express S.A. (Switzerland); Vladimir Iakovlev, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Grigore Suruceanu, Beam Express S.A. (Switzerland); Nicolas Volet, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Jussi Rautiainen, Jari Lyytikäinen, Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland); Elyahou Kapon, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8432-11]

09.00: **Room temperature continuous-wave lasing in microcylinder and microring quantum-dot laser diodes**, Mathieu Munsch, Julien Claudon, Commissariat à l'Énergie Atomique (France); Karen Gilbert, Philippe Grosse, CEA-LETI (France); Jean-François Motte, Institut NÉEL (France); Nitin Malik, Marlène Terrier, Emmanuel Dupuy, Jean-Michel Gérard, Commissariat à l'Énergie Atomique (France); Ferdinand Albert, Fabian Langer, Thomas Schlereth, Maciej Michal Pieczarka, Sven Höfling, Martin Kamp, Alfred Forchel, Julius-Maximilians-Univ. Würzburg (Germany); Stefan Reitzenstein, Technische Univ. Berlin (Germany) [8432-12]

09.20: **Absorption spectra of a quantum dot laser device with integrated electro-optic modulator**, Miriam Wegert, Kathy Lüdge, Eckehard Schöll, Technische Univ. Berlin (Germany) [8432-13]

09.40: **Quantum dot microlasers with external feedback: a chaotic system close to the quantum limit**, Ferdinand Albert, Julius-Maximilians-Univ. Würzburg (Germany); Caspar Hopfmann, Technische Univ. Berlin (Germany); Christian Schneider, Sven Höfling, Lukas Worschech, Martin Kamp, Wolfgang Kinzel, Alfred W. B. Forchel, Stephan Reitzenstein, Julius-Maximilians-Univ. Würzburg (Germany); Ido Kanter, Bar-Ilan Univ. (Israel) [8432-14]

10.00: **Intra-cavity absorber photocurrent characteristics of a quantum dot laser emitting on two emission-states: experiment and simulation**, Stefan Breuer, Technische Univ. Darmstadt (Germany); M. Rosetti, ENEA (Italy); Lukas Drzewietzki, Technische Univ. Darmstadt (Germany); Ivo Montrosset, Politecnico di Torino (Italy); Mark Hopkinson, The Univ. of Sheffield (United Kingdom); Wolfgang E. Elsaesser, Technische Univ. Darmstadt (Germany) [8432-15]

Coffee Break 10.20 to 11.00

SESSION 4

Room: 204 Tues. 11.00 to 12.50

Quantum Cascade Lasers I

Session Chair: **Sven Höfling**, Julius-Maximilians-Univ. Würzburg (Germany)

11.00: **High-performance GaAs/AlGaAs quantum cascade lasers: optimization of electrical and thermal properties** (*Invited Paper*), Maciej Bugajski, Kamil Kosiel, Anna Szerling, Piotr Karbownik, Kamil Pierscinski, Dorota Pierscinska, Institute of Electron Technology (Poland); Grzegorz Haldas, Andrzej Kolek, Politechnika Rzeszowska (Poland) [8432-16]

11.30: **Quantum cascade lasers with optimized facet reflectivity**, Christian Schilling, Quankui Yang, Ralf Ostendorf, Rolf Aidam, Wolfgang Bronner, Frank Fuchs, Joachim Wagner, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany) [8432-17]

11.50: **Effect of cavity length on the lasing spectra and far-field intensity distribution of mid-infrared quantum cascade lasers**, Michel Kinzer, Quankui Yang, Stefan Hügler, Marie Brunner, Frank Fuchs, Rolf Aidam, Rachid Driad, Joachim Wagner, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany) [8432-18]

12.10: **Facet reflectivity reduction of quantum cascade lasers by tilted facets**, Sangil Ahn, Aaron M. Andrews, Werner Schrenk, Gottfried Strasser, Technische Univ. Wien (Austria) [8432-19]

12.30: **Experimental analysis of thermal properties of AlGaAs/GaAs quantum cascade lasers**, Kamil Pierscinski, Dorota Pierscinska, Malgorzata Iwinska, Kamil Kosiel, Anna Szerling, Piotr Karbownik, Maciej Bugajski, Institute of Electron Technology (Poland) [8432-20]

Lunch/Exhibition Break 12.50 to 14.00

SESSION 5

Room: 204 **Tues. 14.00 to 15.50**

Quantum Cascade Lasers II

Session Chair: Maciej Bugajski,
Institute of Electron Technology (Poland)

14.00: **Room temperature continuous wave interband cascade lasers for gas sensing** (*Invited Paper*), Sven Höfling, Adam Bauer, Robert Weih, Martin Kamp, Alfred Forchel, Julius-Maximilians-Univ. Würzburg (Germany) .. [8432-21]

14.30: **Near-field characteristics of broad area diode lasers during catastrophic optical damage failure**, Martin Hempel, Jens W. Tomm, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Martina Bäuml, Helmer Konstanzer, Fraunhofer Institut für Angewandte Festkörperphysik (Germany); Jayanta Mukherjee, Univ. of Surrey (United Kingdom); Thomas Elsässer, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) [8432-22]

14.50: **Lateral-longitudinal modes of high-brightness inhomogeneous waveguide lasers**, Vladimir Kalosha, Kristijan Posilovic, Dieter Bimberg, Technische Univ. Berlin (Germany) [8432-23]

15.10: **Spatial rocking for improving the spatial quality of the beam of broad area semiconductor lasers**, Mindaugas Radziunas, Weierstrass-Institute für Angewandte Analysis und Stochastik (Germany); Kestutis Staliunas, Univ. Politècnica de Catalunya (Spain) and Institutio Catalana de Reserca i Estudis Avancats (ICREA), Barcelona (Spain) [8432-24]

15.30: **Narrow linewidth discrete mode laser diodes at 1550 nm**, John O'Carroll, Eblana Photonics Ltd. (Ireland) and Dublin City Univ. (Ireland); Richard Phelan, Brian Kelly, Diarmuid Byrne, Eblana Photonics Ltd. (Ireland); Frank Smyth, Barry Cardiff, Prince M. Anandarajah, Liam P. Barry, Dublin City Univ. (Ireland) [8432-25]

Coffee Break 15.50 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 6

Room: 204 **Wed. 08.20 to 10.10**

Semiconductor Lasers

Session Chair: Weng Chow, Sandia National Labs. (United States)

08.20: **III-N based violet emitting short-pulse diode lasers** (*Invited Paper*), Nicolas Grandjean, Luca Sulmoni, Jean-Michel Lamy, Julien Dorsaz, Antonino Castiglia, Jean-Francois Carlin, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Xi Zeng, Dmitri Boiko, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Wolfgang Scheibenzuber, Ulrich Schwarz, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany) [8432-26]

08.50: **Laterally coupled high power 2- μ m GaSb distributed feedback lasers fabricated by nanoimprint lithography**, Kimmo Haring, Jonna Paajaste, Riku Koskinen, Soile Suomalainen, Jukka Viheriälä, Tapio Niemi, Mircea Guina, Tampere Univ. of Technology (Finland) [8432-27]

09.10: **Band engineering of dilute bismide alloys for efficient near- and mid-infrared semiconductor lasers**, Eoin P. O'Reilly, Tyndall National Institute (Ireland) and Univ. College Cork (Ireland); Muhammad Usman, Tyndall National Institute (Ireland); Christopher A. Broderick, Tyndall National Institute (Ireland) and Univ. College Cork (Ireland); Stephen J. Sweeney, Zahida Batool, Konstanze Hild, Shirong Jin, Univ. of Surrey (United Kingdom); Jeff Hosea, Univ. Teknologi Malaysia (Malaysia) [8432-28]

09.30: **Narrow linewidth 1120-nm GaInAs/GaAs VECSEL for cooling Mg⁺ ions**, Sanna Ranta, Tomi Leinonen, Miki Tavast, Tampere Univ. of Technology (Finland); Ryan Epstein, Areté Associates (United States); Mircea Guina, Tampere Univ. of Technology (Finland) [8432-29]

09.50: **Frequency doubled AlGaInP-VECSEL with high output power at 331 nm and a large wavelength tuning range in the UV**, Thomas Schwarzbäck, Hermann Kahle, Michael Jetter, Peter Michler, Univ. Stuttgart (Germany) and Research Ctr. SCoPE (Germany) [8432-30]

Coffee Break 10.10 to 10.50

SESSION 7

Room: 204 **Wed. 10.50 to 12.20**

Mode-Locking

Session Chair: Stefan Breuer, Technische Univ. Darmstadt (Germany)

10.50: **Theoretical modeling of mode-locked quantum dot lasers** (*Invited Paper*), Andrei G. Vladimirov, Aleksandr Pimenov, Weierstrass-Institute für Angewandte Analysis und Stochastik (Germany); Dmitrii Rachinskii, Univ. College Cork (Ireland); Natalia Rebrova, Tyndall National Institute (Ireland); Christian Otto, Technische Univ. Berlin (Germany); Dmitry Turaev, Imperial College, London (United Kingdom); Guillaume Huyet, Tyndall National Institute (Ireland) [8432-31]

11.20: **Passively mode-locked 1-GHz MOPA system generating sub-500-fs pulses after external compression**, Thorsten Ulm, Florian Harth, Johannes L'huillier, Photonik-Zentrum Kaiserslautern e.V. (Germany) [8432-32]

11.40: **Mode-locking behaviour in an InAs/InP quantum dot laser with dual spectral lobes**, Michael J. Strain, Shahid Mahmood, Moss Haji, Univ. of Glasgow (United Kingdom); Philip J. Poole, National Research Council Canada (Canada); Piotr M. Stolarz, Catrina A. Bryce, Marc Sorel, Univ. of Glasgow (United Kingdom) [8432-33]

12.00: **Conversion between optical ASK and optical FSK using nonlinear dynamics of semiconductor lasers**, Sheng-Kwang Hwang, National Cheng Kung Univ. (Taiwan); Sze-Chun Chan, City Univ. of Hong Kong (China); Shiu-an-Li Lin, Cheng-Hao Chu, Yu-Han Hung, National Cheng Kung Univ. (Taiwan) [8432-34]

Lunch/Exhibition Break 12.20 to 13.30

SESSION 8

Room: 204 **Wed. 13.30 to 15.20**

Time Delay Systems

Session Chair: Angel Valle, Univ. de Cantabria (Spain)

13.30: **Square-wave switching in orthogonal polarization delay-coupled semiconductor lasers** (*Invited Paper*), Tom Gavrielides, Air Force Office of Scientific Research (United States) [8432-35]

14.00: **Theoretical analysis of a multi-stripe laser array with external off-axis feedback**, Alexander Pimenov, Andrei Vladimirov, Vasile Z. Tronciu, Weierstrass-Institut für Angewandte Analysis und Stochastik (Germany); Gregory Kozyreff, Univ. Libre de Bruxelles (Belgium) [8432-36]

14.20: **Low-frequency fluctuations in a laser diode with phase-conjugate feedback**, Andreas Karsaklian Dal Bosco, Martin Virte, Delphine Wolfersberger, Marc Sciamanna, Supélec (France) [8432-37]

14.40: **Photonic single nonlinear-delay dynamical node for information processing**, Silvia Ortin, Daniel San Martín, Luis Pesquera, Jose Manuel Gutierrez, Univ. de Cantabria (Spain) [8432-38]

15.00: **Dynamical properties of two delay-coupled lasers: on spectra, correlations, and synchronisation**, Otti D'Huys, Julius-Maximilians-Univ. Würzburg (Germany) and Vrije Univ. Brussel (Belgium); Lynx Lean, Vrije Univ. Brussel (Belgium); Raul Vicente, Max-Planck-Institut für Hirnforschung (Germany) and Frankfurt Institute for Advanced Studies (FIAS) (Germany); Jan Danckaert, Vrije Univ. Brussel (Belgium); Ingo Fischer, Univ. de les Illes Balears (Spain) [8432-39]

Coffee Break 15.20 to 16.00

SESSION 9

Room: 204 **Wed. 16.00 to 17.30**

Nanolaser and Optical Injection

Session Chair: Marc Sciamanna, Supélec (France)

16.00: **Higher-order photon correlations in pulsed photonic crystal nanolasers** (*Invited Paper*), Alexios Beveratos, David Elvira, Xavier Hachair, Ctr. National de la Recherche Scientifique (France); Varun Verma, National Institute of Standards and Technology (United States); Remy Braive, Gregoire Beaudoin, Isabelle Robert-Philip, Isabelle Sagnes, Ctr. National de la Recherche Scientifique (France); Burm Baek, Sae Woo Nam, National Institute of Standards and Technology (United States); Eric Dauler, MIT Lincoln Lab. (United States); Izo Abram, Ctr. National de la Recherche Scientifique (France); Martin Stevens, National Institute of Standards and Technology (United States) [8432-40]

16.30: **Excitability in a monolithic vertical cavity laser with saturable absorber**, Sylvain Barbay, Ctr. National de la Recherche Scientifique (France); Rémy Braive, Ctr. National de la Recherche Scientifique (France) and Univ. Paris Diderot (France); Isabelle Sagnes, Robert Kuszelewicz, Alejandro Yacomotti, Ctr. National de la Recherche Scientifique (France) [8432-41]

16.50: **Bifurcations in a two-color laser subject to dual optical injection**, Simon W. Osborne, Patrycja Heinrich, Tyndall National Institute (Ireland); Benjamin Wetzel, FEMTO-ST (France); Stephen O'Brien, Tyndall National Institute (Ireland); Andreas Amann, Tyndall National Institute (Ireland) and Univ. College Cork (Ireland) [8432-42]

17.10: **Mapping transients in the nonlinear dynamics of an optically injected VCSEL**, Josh P. Toomey, Macquarie Univ. (United Kingdom); Deb M. Kane, Macquarie Univ. (Australia); Kevin Schires, Univ. of Essex (United Kingdom); Chetan Nickkawde, Macquarie Univ. (United Kingdom); Ian D. Henning, Michael J. Adams, Univ. of Essex (United Kingdom) [8432-43]

POSTERS—WEDNESDAY

Grand Hall Wed. 17.40 to 19.10

A poster session will be held on Wednesday 17.40 to 19.10. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Wednesday. 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 at <http://spie.org/x34963.xml>.

Theoretical study about the optical gain in indirect bandgap semiconductor cavities, Jose M. Escalante Fernandez, Univ. Politécnic de Valencia (Spain) [8432-57]

Performance and electrical consumption evaluation of semiconductor optical amplifier, Joel Jacquet, Xunqi Wu, Juliette Pochet, Laurie Pontreau, David Allieux, Supélec (France) [8432-59]

Numerical analysis of hybrid mode-locking in edge-emitting quantum-dot semiconductor lasers, Rostislav Arkhipov, Mindaugas Radziunas, Andrei Vladimirov, Weierstrass-Institute für Angewandte Analysis und Stochastik (Germany) [8432-60]

Self-consistent simulation of mid-IR quantum cascade lasers based on rate equation approach, Piotr I. Karbownik, Maciej Bugajski, Institute of Electron Technology (Poland) [8432-61]

Nonlinear dynamics in directly modulated semiconductor ring lasers, Sifeu T. Kingni, Guy Van der Sande, Lendert Gelens, Jan Danckaert, Vrije Univ. Brussel (Belgium) [8432-62]

Experimental and numerical study of square wave oscillations due to asymmetric optical feedback in semiconductor ring lasers, Lilia A. Mashal, Guy Van der Sande, Lendert Gelens, Stefano Beri, Vrije Univ. Brussel (Belgium); Thomas Erneux, Univ. Libre de Bruxelles (Belgium); Jan Danckaert, Guy Verschaffelt, Vrije Univ. Brussel (Belgium) [8432-63]

Electrical and optical characterisation of mid-IR GaAs/AlGaAs quantum cascade lasers, Dorota Pierscinska, Kamil Pierscinski, Malgorzata Iwinska, Kamil Kosiel, Anna Szerling, Piotr Karbownik, Maciej Bugajski, Institute of Electron Technology (Poland) [8432-64]

Low timing jitter 40 Gb/s all-optical clock recovery based on an amplified feedback laser diode, Cheng Chen, Institute of Semiconductors (China) and Tsinghua Univ. (China); Jifang Qiu, Lingjuan Zhao, Institute of Semiconductors (China); Jian Wu, Beijing Univ. of Posts and Telecommunications (China); Caiyun Lou, Tsinghua Univ. (China); Wei Wang, Institute of Semiconductors (China) [8432-65]

Interaction between laser beams FP and BFB laser diodes, Vladimir Va?inek, Petr Koudelka, Jan Latal, Petr Siska, Karel Witas, Jan Vitasek, Technical Univ. of Ostrava (Czech Republic) [8432-66]

Optical injection locking of spatial modes and polarization modes in single-aperture VCSELs and VCSEL arrays emitting at 1.3 µm, Elodie Lamothe, Christopher Long, Alexandru Mereuta, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Andrei Caliman, Beam Express S.A. (Switzerland); Alexei Sirbu, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Vladimir Iakovlev, Beam Express S.A. (Switzerland); Eli Kapon, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8432-67]

Volume Bragg grating temperature gradient effect on laser diode array and stack spectra narrowing, Hongyan Wang, Zining Yang, Weihong Hua, Wenguang Liu, Xiaojun Xu, National Univ. of Defense Technology (China) [8432-68]

850-nm VCSEL with a liquid crystal overlay, Veena M. Nair, Vrije Univ. Brussel (Belgium); Krassimir Panajotov, Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics, 72 Tzarigradsko Chaussee Blvd., 1784 Sofia, (Bulgaria); Mikov Petrov, Institute of Solid State Physics (Bulgaria); Hugo Thienpont, Vrije Univ. Brussel (Belgium); Yi Xie, Jeroen Beeckman, Kristiaan Neyts, Univ. Gent (Belgium) [8432-69]

Extended synchronization resulting from resonant phase and intensity dynamics in a dual-polarization laser, Jérémie Thévenin, Univ. de Rennes 1 (France); Marc Brunel, Univ. de Rouen (France); Marc Vallet, Marco Romanelli, Univ. de Rennes 1 (France); Thomas Erneux, Univ. Libre de Bruxelles (Belgium) [8432-70]

Discrete mode laser diodes for FTTH/PON applications up to 10 Gbit/s, John O'Carroll, Eblana Photonics Ltd. (Ireland) and Dublin City Univ. (Ireland); Richard Phelan, Brian Kelly, Diarmuid Byrne, Eblana Photonics Ltd. (Ireland); Prince M. Anandarajah, Sylwester Latkowski, Liam P. Barry, Dublin City Univ. (Ireland) [8432-71]

Red AlGaInP-VECSEL emitting at around 665 nm: strain compensation and performance comparison of different epitaxial designs, Thomas Schwarzbäck, Hermann Kahle, Michael Jetter, Peter Michler, Univ. Stuttgart (Germany) and Research Center SCoPE (Germany) [8432-73]

Experimental demonstration of spatial rocking in a low Fresnel number nondegenerate optical oscillator with injected signal, Fernando Silva-Vazquez, Stanislav Kolpakov, Germán de Valcárcel, Eugenio Roldán, Univ. de València (Spain); Kestutis Staliunas, Univ. Politécnic de Catalunya (Spain) [8432-74]

Optical noise and alpha-factor in the broadband emission of quantum dot laser, Vladimir V. Korenev, Saint Petersburg Academic Univ. (Russian Federation); Artem V. Savelyev, St. Petersburg Academic Univ. (Russian Federation); Mikhail V. Maximov, Alexey Zhukov, Ioffe Physico-Technical Institute (Russian Federation) [8432-75]

Improving beam quality in broad area semiconductor amplifiers, Ramon Herrero, Muriel Botey, Nikhil P. Kumar, Kestutis Staliunas, Univ. Politécnic de Catalunya (Spain) [8432-76]

Interplay between phase space filling and band non-parabolicity in quantum-cascade lasers, Mykhaylo V. Klymenko, Oleksiy V. Shulika, Sergii Petrov, Kharkov National Univ. of Radio Electronics (Ukraine); Igor A. Sukhoivanov, Univ. de Guanajuato (Mexico) [8432-77]

Development of epitaxially regrown vertical-cavity surface-emitting lasers, Yu Xiang, Royal Institute of Technology (Sweden); Wei Shi, The Univ. of British Columbia (Canada); Xingang Yu, Royal Institute of Technology (Sweden); Muhammad N. Akram, Vestfold Univ. College (Norway); Lukas Chrostowski, The Univ. of British Columbia (Canada); Jesper Berggren, Royal Institute of Technology (Sweden); Mattias Hammar, Kista Photonics Research Ctr. (Sweden) [8432-78]

Carrier escape from ground state and non-zero resonance frequency at low bias powers for semiconductor quantum-dot lasers, Cheng Wang, Institut National des Sciences Appliquées de Rennes (France); Frederic Grillot, Telecom ParisTech (France); Jacky Even, Institut National des Sciences Appliquées de Rennes (France) [8432-79]

Thursday 19 April

Hot Topics III
 Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall
 For details, please see page 13

SESSION 10

Room: 204 Thurs. 10.40 to 12.30

Semiconductor Lasers and Optical Injection

Session Chair: Sylvain Barbay,
 Ctr. National de la Recherche Scientifique (France)

10.40: **Gain model for Ge laser** (*Invited Paper*), Weng W. Chow, Sandia National Labs. (United States) [8432-44]

11.10: **Deterministic and stochastic dynamics of linear polarizations emitted by single-mode VCSELs subject to orthogonal optical injection**, Pablo Perez, Ana Quirce, Angel Valle, Luis Pesquera, Univ. de Cantabria (Spain) . . . [8432-45]

11.30: **Polarization switching of transverse modes in VCSELs subject to two-frequency orthogonal optical injection**, Ana Quirce, Angel Valle, Univ. de Cantabria (Spain); Hong Lin, Yu Zhang, David W. Pierce, Bates College (United States) [8432-46]

11.50: **Delay induces motion of multipeak localized structures in VCSEL devices**, Etienne Averlant, Univ. Libre de Bruxelles (Belgium) and Vrije Univ. Brussel (Belgium); Mustapha Tlidi, Univ. Libre de Bruxelles (Belgium); Andrei G. Vladimirov, Weierstrass-Institut für Angewandte Analysis und Stochastik (Germany); Hugo Thienpont, Vrije Univ. Brussel (Belgium); Krassimir Panajotov, Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics (Bulgaria) [8432-47]

12.10: **Dynamics accompanying polarization switching in vertical-cavity surface-emitting lasers**, Martin Virte, Supélec (France) and Vrije Univ. Brussels (Belgium); Marc Sciamanna, Supélec (France); Krassimir Panajotov, Vrije Univ. Brussel (Belgium) and Institute of solid state Physics (Bulgaria) [8432-48]

Lunch Break 12.30 to 13.50

SESSION 11

Room: 204 **Thurs. 13.50 to 15.10**

Semiconductor Lasers

Session Chair: Andrej Vladimirov, Weierstrass-Institute für Angewandte Analysis und Stochastik (Germany)

13.50: **High performance identical layer InGaAlAs-MQW 1300nm electroabsorption-modulated DFB-lasers for 4x25Gbit/s**, Holger Klein, Carsten Bornholdt, Georges Przyrembel, Ariane Sigmund, Wolf-Dietrich Molzow, Martin Moehrle, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) [8432-80]

14.10: **True photonic band-gap in vertical-cavity surface-emitting lasers**, Maciej Dems, Technical Univ. of Lodz (Poland); Krassimir Panajotov, Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics (Bulgaria) [8432-50]

14.30: **Simulation of 1550-nm diamond VECSEL with high contrast grating**, Jaroslaw Walczak, Tomasz Czyszanowski, Maciej Dems, Michal Wasiak, Robert Sarzala, Technical Univ. of Lodz (Poland); Vladimir Iakovlev, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8432-51]

14.50: **Semiconductor ring lasers as optical neurons**, Werner Coomans, Lendert Gelens, Lilia Mashal, Stefano Beri, Guy Van der Sande, Jan Danckaert, Guy Verschaffelt, Vrije Univ. Brussel (Belgium) [8432-52]

Coffee Break 15.10 to 15.50

SESSION 12

Room: 204 **Thurs. 15.50 to 16.50**

Quantum Dot Lasers II

Session Chair: Krassimir Panajotov, Vrije Univ. Brussel (Belgium)

15.50: **Many-body effects and self-contained phase dynamics in an optically injected quantum-dot laser**, Benjamin Lingnau, Kathy Lüdge, Technische Univ. Berlin (Germany); Weng W. Chow, Sandia National Labs. (United States); Eckehard Schöll, Technische Univ. Berlin (Germany) [8432-53]

16.10: **Impact of band structure on locking dynamics of quantum dot laser under optical injection**, Christian Otto, Johannes Pausch, Egle Tylaite, David A. Strehober, Kathy Lüdge, Eckehard Schöll, Technische Univ. Berlin (Germany) [8432-54]

16.30: **Simultaneous multi-state stimulated emission in quantum dot lasers: experiment and analytical approach**, Vladimir V. Korenev, Artem Savelyev, Alexander Omelchenko, St. Petersburg Academic Univ. (Russian Federation); Mikhail Maximov, Yuri Shernyakov, Alexey Zhukov, Ioffe Physico-Technical Institute (Russian Federation) [8432-55]

ADJOURN. **Thurs. 16.50 to 16.55**

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Laser Sources and Applications

Conference Chairs: **Thomas Graf**, Univ. Stuttgart (Germany); **Jacob I. Mackenzie**, Univ. of Southampton (United Kingdom); **Helena Jelinková**, Czech Technical Univ. in Prague (Czech Republic); **John Powell**, Lulea Univ. of Technology (Sweden)

Programme Committee: **Friedrich G. Bachmann**, LUMERA Laser GmbH (Germany); **Francesc Diaz**, Univ. Rovira i Virgili (Spain); **Pascal Dupriez**, ALPhANOV (France); **Efstratios Georgiou**, Technological Education Institute of Crete (Greece); **Stefan Kaieler**, Fraunhofer-Institut für Lasertechnik (Germany); **Alexander F. H. Kaplan**, Luleå Univ. of Technology (Sweden); **Norbert Lichtenstein**, Oclaro, Inc. (Switzerland); **Beat Neuenschwander**, Berner Fachhochschule Technik und Informatik (Switzerland); **Andreas Ostendorf**, Ruhr-Univ. Bochum (Germany); **Nicolaie Pavel**, National Institute for Laser, Plasma and Radiation Physics (Romania); **Yehoshua Shimoni**, Soreq Nuclear Research Ctr. (Israel); **Akira Shirakawa**, The Univ. of Electro-Communications (Japan)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall
For details see pages 10-11

Welcome and Introduction

Room: 202 Mon. 13.00 to 13.10
Jacob I. Mackenzie, Univ. of Southampton (United Kingdom)

SESSION 1

Room: 202 Mon. 13.10 to 15.00

Waveguide Lasers

Session Chair: **Jacob I. Mackenzie**, Univ. of Southampton (United Kingdom)

13.10: **High-power high repetition rate picosecond optical parametric oscillator pumped by frequency doubled all-fibre Yb-doped MOPA** (*Invited Paper*), Shaif-ul Alam, Florian Kienle, Peh Siong Teh, Dejiao Lin, Jonathan H. Price, David C. Hanna, David J. Richardson, David P. Shepherd, ORC Univ. of Southampton (United Kingdom) [8433-01]

13.40: **Thermal lensing characterisation of a high-radiance 946-nm planar waveguide laser**, Siang Ping Ng, Jacob I. Mackenzie, ORC Univ. of Southampton (United Kingdom) [8433-02]

14.00: **Comparison of different wavelength pump sources for Tm subnanosecond amplifier**, Andras Cserteg, Sebastien Guillemet, Yves Hernandez, Domenico Giannone, Multitel A.S.B.L. (Belgium) [8433-03]

14.20: **Modeling and measurement of ytterbium fiber laser generation spectrum**, Sergey I. Kablukov, Institute of Automation and Electrometry (Russian Federation) and Novosibirsk State Univ. (Russian Federation); Ekaterina A. Zlobina, Institute of Automation and Electrometry (Russian Federation); Evgeniy V. Podivilov, Sergey A. Babin, Institute of Automation and Electrometry (Russian Federation) and Novosibirsk State Univ. (Russian Federation) [8433-04]

14.40: **Dual-wavelength operation of continuous-wave and mode-locked erbium-doped fiber lasers**, Olivier J. M. Pottiez, David Monzon-Hernandez, Alejandro Martinez-Rios, Ctr. de Investigaciones en Óptica, A.C. (Mexico); Juan Carlos Hernández García, Ctr. de Investigaciones en Óptica A.C. (Mexico); Baldemar Ibarra-Escamilla, Evgeny A. Kuzin, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) [8433-05]

Coffee Break 15.00 to 15.40

SESSION 2

Room: 202 Mon. 15.40 to 17.30

Novel Lasers

Session Chair: **Jacob I. Mackenzie**, Univ. of Southampton (United Kingdom)

15.40: **High-performance wavelength tuning of a mid-infrared solid state laser using a resonant diffraction grating** (*Invited Paper*), Nathalie Vermeulen, Vrije Univ. Brussel (Belgium); Piotr Wasylczyk, Univ. of Warsaw (Poland); Svetlen Tonchev, Lab. Hubert Curien (France); Peter Muys, Lambda Research Optics, Inc. (Belgium); Heidi Ottevaere, Vrije Univ. Brussel (Belgium); Olivier Parriaux, Lab. Hubert Curien (France); Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8433-06]

16.10: **Compact and efficient Cr:LiSAF laser pumped by one low-cost single-spatial-mode diode**, Umit Demirbas, Univ. Konstanz (Germany) and International Antalya Univ. (Turkey); Stefan Eggert, Alfred Leitenstorfer, Univ. Konstanz (Germany) [8433-07]

16.30: **Self-induced laser line sweeping and self-pulsing in double-clad fiber lasers in Fabry-Perot and unidirectional ring cavities**, Pavel Peterka, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Petr Navrátil, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. (Czech Republic); Pavel Honzátko, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Bernard Dussardier, Univ. de Nice Sophia Antipolis (France); Radan Slavík, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) and Univ. of Southampton (United Kingdom); Václav Kubeček, Czech Technical Univ. in Prague (Czech Republic) [8433-08]

16.50: **Study of tunable resonances in laser beam divergence and beam deflection**, Ambrus Kohazi-Kis, Jozsef Klebniczki, Mihály Görbe, Péter Nagy, Kecskemét College (Hungary) [8433-09]

17.10: **High-efficiency Q-switched and diffraction-limited Nd:YLF side-pumped laser**, Niklaus U. Wetter, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Alessandro M. Deana, Univ. Nove de Julho (Brazil) . [8433-10]

POSTERS—MONDAY

Grand Hall Mon. 17.45 to 19.15

A poster session will be held on Monday 17.45 to 19.15. Posters will be on display after 10.00 Monday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Monday. 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 at <http://spie.org/x34963.xml>.

Eye-safe pulsed kW-peak power high-repetition rate all-fiber MOPA source, Jacek Swiderski, Maria Maciejewska, Wieslaw Pichola, Jacek Kwiatkowski, Marek Skorczakowski, Military Univ. of Technology (Poland) [8433-48]

Millijoule-level 20 ps Nd:YAG oscillator-amplifier laser system for investigation of stimulated Raman scattering and optical parametric generation, Michal Jelínek, Vaclav Kubecek, Czech Technical Univ. in Prague (Czech Republic) [8433-49]

Ultrashort pulse amplification in the induced optical anisotropic medium, Mariam Hovhannisyan, Yerevan State Univ. (Armenia) [8433-50]

Transfer capability of 3-5 μm radiation by hollow glass waveguide, Michal Nemeč, Helena Jelinkova, Czech Technical Univ. in Prague (Czech Republic); Mitsunobu Miyagi, Hiroyuki Takaku, School Corp. of Tohoku Gakuin (Japan); Katsumasa Iwai, Sendai National College of Technology (Japan); Yuji Matsuura, Tohoku Univ. (Japan); Maxim E. Doroshenko, A. M. Prokhorov General Physics Institute (Russian Federation) [8433-51]

Tunable Fe:Cr:ZnMgSe gain-switched mid-IR laser operating at room temperature, Helena Jelinková, Czech Technical Univ. in Prague (Czech Republic); Maxim E. Doroshenko, A. M. Prokhorov General Physics Institute (Russian Federation); Jan Žulc, Michal Jelínek, Michal Nemeč, Miroslav Cech, Czech Technical Univ. in Prague (Czech Republic); Tasoltan T. Basiev, A. M. Prokhorov General Physics Institute (Russian Federation); Vitaliy K. Komar, Andriy S. Gerasimenko, Vyacheslav M. Puzikov, Institute for Single Crystals (Ukraine) [8433-52]

A highly efficient resonantly pumped Ho:YAG laser, Jacek Kwiatkowski, Jan K. Jabczynski, Waldemar Zendzian, Jacek Swiderski, Mateusz Kaskow, Lukasz Gorajek, Military Univ. of Technology (Poland) [8433-53]

Ion argon-krypton laser for new medical applications, Wojciech Kaminski, Warsaw Univ. of Technology (Poland); Jan Kasprzak, Medical Univ. of Warsaw (Poland); Jerzy Kesik, Piotr Warda, Warsaw Univ. of Technology (Poland) [8433-54]

Influence of noble gas additions on the output power value of krypton ion laser, Wojciech Kaminski, Jerzy Kesik, Piotr Warda, Warsaw Univ. of Technology (Poland) [8433-55]

Pr,Ce:YAlO₃ crystal properties under UV-radiation exposure, Martin Fibrich, Helena Jelinková, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Václav ?koda, Crytur Ltd. (Czech Republic) [8433-56]

Laser turn-on behavior in organic VECSELS, Sébastien V. Chénais, Tatiana Leang, Oussama Mhibik, Hadi Rabbani-Haghighi, Univ. Paris 13 (France); Alain Siove, Ctr. National de la Recherche Scientifique (France); Sébastien Forget, Univ. Paris 13 (France) [8433-57]

Excited-state absorption measurements of Tm-doped crystals, Jakub Szela, Jacob I. Mackenzie, ORC Univ. of Southampton (United Kingdom) ... [8433-58]

Tunability of laser based on Yb-doped hot-pressed CaF₂ ceramics, Jan Sulc, Czech Technical Univ. in Prague (Czech Republic); Maxim E. Doroshenko, A. M. Prokhorov General Physics Institute (Russian Federation); Helena Jelinkova, Czech Technical Univ. in Prague (Czech Republic); Tasoltan T. Basiev, Vasilii A. Konyushkin, Vyacheslav V. Osiko, A. M. Prokhorov General Physics Institute (Russian Federation) [8433-59]

Bulk Er:YAP and Er:Yb:YAP optical emission studies for eyesafe laser applications, Efstratios Georgiou, Technological Educational Institute of Crete (Greece); Jean-Pierre Boquillon, Olivier Musset, Univ. de Bourgogne (France) [8433-60]

Energy transfer analysis of Tb³⁺ and Yb³⁺ ions doped in borosilicate glass, Takenobu Suzuki, Kento Mizuno, Yasutake Ohishi, Toyota Technological Institute (Japan) [8433-61]

CaF₂-TmF₃ ceramics a potential active medium for 2 μm lasers, Polina A. Ryabochkina, Andrew Lyapin, Alexandr Malov, Mordovian State Univ. (Russian Federation); Vyacheslav V. Osiko, Pavel P. Fedorov, Sergey N. Ushakov, A. M. Prokhorov General Physics Institute (Russian Federation); Marina Kruglova, Nikita Sakharov, Eugene Chuprunov, N.I. Lobachevsky State Univ. of Nizhni Novgorod (Russian Federation); Eugene Garibin, INCROM Ltd. (Russian Federation) [8433-62]

Simulation of the influence of atmospheric conditions on low-cost optical free-space link, Jan Latal, Petr Koudelka, Jan Vitasek, Petr Siska, Jan Skapa, Vladimir Vasinek, Technical Univ. of Ostrava (Czech Republic) [8433-63]

Laser-induced shock waves from structured surfaces, Leela Chelikani, Rakesh Kumar Vaddapally, Surya P. Tewari, Prem Kiran Paturi, Univ. of Hyderabad (India) [8433-64]

The investigation of transient thermal effects in optical elements under high laser intensities, Mateusz Kaskow, Military Univ. of Technology (Poland); Jan Tarka, Wrocław Univ. of Technology (Poland); Jacek Kwiatkowski, Waldemar Zendzian, Lukasz Gorajek, Jan Jabczynski, Military Univ. of Technology (Poland) [8433-65]

Large aperture plasma electrodes Pockels cell for multi-pass amplified scheme of SGI upgrading laser, Dengsheng Wu, Jing Feng, Ping Li, Xiongjun Zhang, China Academy of Engineering Physics (China) [8433-66]

A comparative numerical study on Yb-doped Sc₂O₃, Lu₂O₃, and YAG performance in high-power thin disk lasers, Saeid Radmard, Shahram Kazemi, National Iranian Ctr. for Laser Science and Technology (Iran, Islamic Republic of) [8433-67]

Power scaling limitations in quasi-three level disk lasers, Mohammad Javadi Dashcasan, Elham Barati, National Iranian Ctr. for Laser Science and Technology (Iran, Islamic Republic of) [8433-68]

Dynamic response of metals and alloys to laser-induced shock waves, E. Manikanta, Pinnajo Venkateshwarlu, S. Sai Shiva, Rakesh K. Vaddapally, Leela Chelikani, Surya P. Tewari, Manoj Kumar Gundawar, Prem Kiran Paturi, Univ. of Hyderabad (India) [8433-69]

Simulations of two types of crystals utilized as laser materials, Mirela F. Nicolov, Virgil-Florin Duma, Aurel Vlaicu Univ. of Arad (Romania) [8433-70]

Stability analysis of solid-state lasers regarding thermal lensing effect, Thomas Graupeter, Christoph Pflaum, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) and University of Erlangen, Department of Computer Science 10 (Germany) [8433-71]

Photodarkening measurements in Yb: doped silica fibers, Hrvoje Gebavi, Stefano Taccheo, Swansea Univ. (United Kingdom); Daniel Milanese, Politecnico di Torino (Italy); Achille Monteville, Olivier Le Goffic, Daniel Landais, David Méchin, Denis Tregoa, Plate-forme d'Étude et de Recherche sur les Fibres Optiques Spéciales (France); Benoit Cadier, Thierry Robin, ixFiber SAS (France) [8433-73]

Tuesday 17 April

SESSION 3

Room: 202 Tues. 09.00 to 10.30

Short-pulse Lasers

Session Chair: **Helena Jelinková**,
Czech Technical Univ. in Prague (Czech Republic)

09.00: **Current confinement in EP-VECSELS for high power single mode operation suitable for passive mode-locking (Invited Paper)**, Imad Dahan, Bernd Witzigmann, Univ. Kassel (Germany); Wolfgang P. Pallmann, Christian A. Zaugg, Martin Hoffmann, Yohan Barbarin, Matthias Golling, Thomas Südmeyer, Ursula Keller, ETH Zurich (Switzerland) [8433-11]

09.30: **Femtosecond Cr:colquirite lasers pumped by high-brightness red tapered diodes**, Umit Demirbas, Univ. Konstanz (Germany) and International Antalya Univ. (Turkey); Michael Schmalz, Univ. Konstanz (Germany); Bernd Sumpf, Götz Erbert, Ferdinand-Braun-Institut (Germany); Gale S. Petrich, Leslie A. Kolodziejski, James G. Fujimoto, Massachusetts Institute of Technology (United States); Franz X. Kärtner, Massachusetts Institute of Technology (United States) and Hamburg Univ. (Germany); Alfred Leitenstorfer, Univ. Konstanz (Germany) [8433-12]

09.50: **Dispersion management with a normal dispersive fiber in an ultrafast thulium-doped fiber laser**, Andreas Wienke, Laser Zentrum Hannover e.V. (Germany); Frithjof Haxsen, Dieter Wandt, Laser Zentrum Hannover e.V. (Germany) and Ctr. for Quantum Engineering and Space-Time Research (Germany); Uwe Morgner, Laser Zentrum Hannover e.V. (Germany) and Ctr. for Quantum Engineering and Space-Time Research (Germany) and Leibniz Univ. Hannover (Germany); Jörg Neumann, Dietmar Kracht, Laser Zentrum Hannover e.V. (Germany) and Ctr. for Quantum Engineering and Space-Time Research (Germany) [8433-13]

10.10: **Efficient high-power narrow-linewidth all-fibred linearly polarized ytterbium laser source**, Anthony Bertrand, Flavien Liegeois, Yves Hernandez, Domenico Giannone, Multitel A.S.B.L. (Belgium) [8433-14]

Coffee Break 10.30 to 11.10

SESSION 4

Room: 202 Tues. 11.10 to 12.40

Mode-locked Lasers

Session Chair: **Helena Jelinková**,
Czech Technical Univ. in Prague (Czech Republic)

11.10: **Optically induced switching between mode-locked and unmode-locked continuous wave regimes of a femtosecond Cr:forsterite laser (Invited Paper)**, David A. Walsh, Christine E. Crombie, Wilson Sibbett, Univ. of St. Andrews (United Kingdom); David Burns, Stephane Calvez, Univ. of Strathclyde (United Kingdom); Christian T. A. Brown, Univ. of St. Andrews (United Kingdom); Vasilii G. Savitski, Univ. of Strathclyde (United Kingdom) [8433-15]

11.40: **Mode-locked femtosecond all PM Yb fiber laser delivering linearly chirped pulses**, Claude Agueraray, Neil G. Broderick, John D. Harvey, The Univ. of Auckland (New Zealand) [8433-16]

12.00: **Positively chirped pulses from a mode-locked thulium fiber laser**, Frithjof Haxsen, Dieter Wandt, Laser Zentrum Hannover e.V. (Germany) and Ctr. for Quantum Engineering and Space-Time Research (Germany); Uwe Morgner, Leibniz Univ. Hannover (Germany) and Laser Zentrum Hannover e.V. (Germany) and Ctr. for Quantum Engineering and Space-Time Research (Germany); Jörg Neumann, Dietmar Kracht, Laser Zentrum Hannover e.V. (Germany) and Ctr. for Quantum Engineering and Space-Time Research (Germany) [8433-17]

12.20: **Using graphite nanoparticle doped thin PVA film as saturable absorber for passively mode-locking erbium-doped fiber ring laser**, Gong-Ru Lin, Yung-Hsiang Lin, National Taiwan Univ. (Taiwan) [8433-18]

Lunch/Exhibition Break 12.40 to 14.00

SESSION 5

Room: 202 Tues. 14.00 to 15.30

Beam Shaping

Session Chair: Efstratios Georgiou,
Technological Education Institute of Crete (Greece)

- 14.00: **Top-hat beam output from a large mode area microstructured fiber for beam delivery** (*Invited Paper*), Pierre Calvet, Commissariat à l'Énergie Atomique (France) and Univ. des Sciences et Technologies de Lille (France); Constance Valentin, Univ. des Sciences et Technologies de Lille (France); Julien Saby, Anthony Meunier, EOLITE Systems (France); Yves Quiquempois, Geraud Bouwmans, Laurent Bigot, Marc Douay, Univ. des Sciences et Technologies de Lille (France); François Salin, EOLITE Systems (France); Arnaud Mussot, Univ. des Sciences et Technologies de Lille (France); Emmanuel Hugonnot, Commissariat à l'Énergie Atomique (France) [8433-19]
- 14.30: **Applying refractive beam shapers in techniques of beam combining with using volume Bragg gratings**, Alexander V. Laskin, AdlOptica Optical Systems GmbH (Germany); Leonid B. Glebov, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States); Vadim Laskin, AdlOptica Optical Systems GmbH (Germany) [8433-20]
- 14.50: **Low speckle line generation using a semiconductor laser source**, Gordon Craggs, Youri Meuret, Jan Danckaert, Guy Verschaffelt, Vrije Univ. Brussel (Belgium) [8433-21]
- 15.10: **Beam shaping in high-power laser systems with using refractive beam shapers**, Alexander V. Laskin, Vadim Laskin, AdlOptica Optical Systems GmbH (Germany) [8433-22]

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall
For details, please see page 12

Wednesday 18 April

SESSION 6

Room: 202 Wed. 09.00 to 12.10

Laser Materials Processing

Session Chair: Marwan Abdou Ahmed, Univ. Stuttgart (Germany)

09.00: **Laser materials processing** (*Keynote Presentation*), William O'Neill, Univ. of Cambridge (United Kingdom) [8433-23]

09.40: **Development of a laser based process chain for manufacturing freeform optics** (*Invited Paper*), Sebastian Heidrich, Edgar Willenborg, Fraunhofer-Institut für Lasertechnik (Germany); Annika Richmann, RWTH Aachen (Germany) [8433-24]

Coffee Break 10.10 to 10.50

10.50: **Laser processing of GaN-based LEDs with ultraviolet picosecond laser pulses**, Rüdiger Moser, Michael Kunzer, Christian Goßler, Ralf Schmidt, Klaus Köhler, Wilfried Pletschen, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Ulrich T. Schwarz, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany) and Albert-Ludwigs-Univ. Freiburg (Germany); Joachim Wagner, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany) [8433-25]

11.10: **Investigations of the temperature regimes of the selective laser melting**, Yuri A. Chivel, Belarusian State Univ. (Belarus) and MERPHOTONICS (France) [8433-26]

11.30: **Monitoring of the protective glass during laser cladding with active fiber laser**, Barbara Previtali, Bruno Valsecchi, Politecnico di Milano (Italy) [8433-27]

11.50: **Three-dimensional modeling of melting and crystallization during laser cladding process with coaxial powder injection**, Maxim D. Khomenko, Panchenko Y. Vladislav, Niziev G. Vladimir, Mirzade K. Fikret, Roman V. Grishaev, Institute on Laser and Information Technologies (Russian Federation) [8433-28]

Lunch/Exhibition Break 12.10 to 13.20

SESSION 7

Room: 202 Wed. 13.20 to 15.30

Laser Cutting and Welding

Session Chair: Marwan Abdou Ahmed, Univ. Stuttgart (Germany)

13.20: **Laser transmission welding of ABS using a tailored high-power diode-laser optical fiber coupled system** (*Invited Paper*), Eva Rodríguez Vidal, Iban Quintana, Jon Etxarri, Deitze Otaduy, Tekniker (Spain); Francisco González, Fernando Moreno, Univ. de Cantabria (Spain) [8433-29]

13.50: **Stabilization of laser welding processes by means of beam oscillation**, Christiane Thiel, Axel Hess, Rudolf Weber, Thomas Graf, Univ. Stuttgart (Germany) [8433-30]

14.10: **Pyrometry diagnostic in laser cutting technology**, Vladimir D. Dubrov, Yuri N. Zavalov, Alexander V. Dubrov, Elena S. Makarova, Nickoly G. Dubrovin, Institute on Laser and Information Technologies (Russian Federation) [8433-31]

14.30: **Optimum power consumption at high-quality laser-oxygen cutting**, Victor B. Shulyatyev, Anatoly M. Orishich, Alexandr G. Malikov, Khristianovich Institute of Theoretical and Applied Mechanics (Russian Federation) [8433-32]

14.50: **Regression modeling to predict the geometric characteristics of Ti6Al4V thin sheets butt joints welded by disk laser**, Fabrizia Caiazzo, Ernesto Mastrocinque, Gaetano Corrado, Vincenzo Sergi, Univ. degli Studi di Salerno (Italy) [8433-33]

15.10: **Characterization of lap joints laser beam welding of thin AA 2024 sheets with Yb:YAG disk-laser**, Fabrizia Caiazzo, Vittorio Alfieri, Francesco Cardaropoli, Vincenzo Sergi, Univ. degli Studi di Salerno (Italy) [8433-34]

Coffee Break 15.30 to 16.00

SESSION 8

Room: 202 Wed. 16.00 to 18.10

Laser Applications

Session Chair: Pascal Dupriez, ALPhANOV (France)

16.00: **Biomedical optical imaging in the human retina using spectral scanning laser sources** (*Invited Paper*), Seyed Hossein Rasta, Univ. of Aberdeen (United Kingdom) [8433-35]

16.30: **Holographic lithography for biomedical applications**, Evaldas Stankevicius, Institute of Physics (Lithuania); Mangirdas Malinauskas, Vilnius Univ. (Lithuania); Gediminas Raciukaitis, Institute of Physics (Lithuania) [8433-36]

16.50: **High-precision measurements of reflectance, transmittance, and scattering at 632.8 nm**, Humbat Nasibov, Izmir Mamedbeili, Dadash Riza, Ertan Balaban, Fikret N. Hacizade, TÜBİTAK National Research Institute of Electronics and Cryptology (Turkey) [8433-37]

17.10: **Airborne laser systems for atmospheric sounding in the near infrared**, Roberto Sabatini, Mark Richardson, Cranfield Univ. (Australia) [8433-38]

17.30: **Numerical simulation of a laser-acoustic landmine detection system**, Ion I. Lancranjan, National Institute for Aerospace Research (Romania); Sorin Miclos, Dan Savastru, Roxana S. Savastru, National Institute of Research & Development for Optoelectronics (Romania); Constantin Opran, Polytechnical Univ. of Bucharest (Romania) [8433-39]

17.50: **Three-dimensional Dip-in Laser Lithography (DiLL)**, Julian Ott, Holger Fischer, Georg von Freymann, Michael Thiel, Nanoscribe GmbH (Germany) [8433-72]

Thursday 19 April

Hot Topics III

Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall

For details, please see page 13

SESSION 9

Room: 202Thurs. 10.40 to 12.10

High-power Lasers

Session Chair: John Powell, Luleå Univ. of Technology (Sweden)

- 10.40: **Laser-plasma accelerators-based high-energy radiation femtochemistry and spatiotemporal radiation biomedicine** (*Invited Paper*), Yann A. Gauduel, Victor Malka, Ecole Nationale Supérieure de Techniques Avancées (France); Michèle Martin, Commissariat à l'Énergie Atomique (France) [8433-40]
- 11.10: **Power balance on the SG-III prototype facility**, Ping Li, Jing Feng, Dengsheng Wu, China Academy of Engineering Physics (China) [8433-41]
- 11.30: **Tapered fiber phase conjugation for high-power all-solid-state laser with high repetition rates**, Chun Tang, Lixin Tong, Qingsong Gao, Institute of Applied Electronics (China) [8433-42]
- 11.50: **Development of $\Phi 500\text{mm}$ array-lens beam sampler**, Honglai Xu, Yong Peng, Yidong Ye, Xiao-yang Hu, Chun Tang, Institute of Applied Electronics (China) [8433-43]
- Lunch Break 12.10 to 13.30

SESSION 10

Room: 202Thurs. 13.30 to 15.00

Thin-disk Lasers

Session Chair: Jacob I. Mackenzie, Univ. of Southampton (United Kingdom)

- 13.30: **Grating waveguide structures for intracavity generation of beams with azimuthal polarization in an Yb:YAG thin-disk laser** (*Invited Paper*), Martin Rumpel, Marwan Abdou Ahmed, Andreas Voss, Thomas Graf, Univ. Stuttgart (Germany) [8433-44]
- 14.00: **Spectroscopic properties of newly flux grown $\text{RE}_2\text{O}_3:\text{Yb}^{3+}$ ($\text{RE}=\text{Y},\text{Gd},\text{Lu}$) laser crystals for high-power diode-pumped systems**, Matias Velazquez, Philippe Veber, Véronique Jubera, Yannick Petit, Stanislav Pechev, Oudomsack Viraphong, Rodolphe Decourt, Institut de Chimie de la Matière Condensée de Bordeaux (France); Gerard Aka, Anael Jaffres, P. Aschehough, Ecole Nationale Supérieure de Chimie de Paris (France); Gabriel Buse, Institut de Chimie de la Matière Condensée de Bordeaux (France) [8433-45]
- 14.20: **Ytterbium doped Sc_2SiO_5 in thin-disk laser configuration**, Katrin S. Wentsch, Birgit Weichelt, Univ. Stuttgart (Germany); Lihe Zheng, Shanghai Institute of Ceramics (China); Jun Xu, Shanghai Institute of Optics and Fine Mechanics (China); Marwan Abdou Ahmed, Thomas Graf, Univ. Stuttgart (Germany) [8433-46]
- 14.40: **High-efficiency wavelength and polarization selective grating-waveguide structures for Yb:YAG thin-disk lasers**, Martin Rumpel, Marwan Abdou Ahmed, Andreas Voss, Univ. Stuttgart (Germany); Thomas Graf, Univ. Stuttgart (United States) [8433-47]

Nonlinear Optics and its Applications

Conference Chairs: Benjamin J. Eggleton, The Univ. of Sydney (Australia); Alexander L Gaeta, Cornell Univ. (United States); Neil G. Broderick, The Univ. of Auckland (New Zealand)

Programme Committee: Stephane Coen, The Univ. of Auckland (New Zealand); Arnaud Couaïron, Ecole Polytechnique (France); Richard M. De La Rue, Univ. of Malaya (Malaysia) and Univ. of Glasgow (United Kingdom); Christophe Dorrer, Univ. of Rochester (United States); John M. Dudley, Univ. de Franche-Comté (France); Majid Ebrahim-Zadeh, ICFO - Institut de Ciències Fotòniques (Spain); Yuri S. Kivshar, The Australian National Univ. (Australia); John D. Harvey, The Univ. of Auckland (New Zealand); Peter Horak, Univ. of Southampton (United Kingdom); Colin J. McKinstrie, Alcatel-Lucent Bell Labs. (United States); Leif Katsuo Oxenløwe, Technical Univ. of Denmark (Denmark); David J. Richardson, Univ. of Southampton (United Kingdom); John E. Sipe, Univ. of Toronto (Canada)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

Welcome and Introduction

Room: 410 Mon. 13.00 to 13.10

Benjamin J. Eggleton, The Univ. of Sydney (Australia);
Alexander L. Gaeta, Cornell Univ. (United States);
Neil G. Broderick, The Univ. of Auckland (New Zealand)

SESSION 1

Room: 410 Mon. 13.10 to 15.00

New Photonic Sources

Session Chair: Juerg Leuthold,
Karlsruher Institut für Technologie (Germany)

13.10: **Graphene for photonics applications** (*Invited Paper*), Andrea C. Ferrari, Univ. of Cambridge (United Kingdom) [8434-01]

13.40: **Soliton pattern formations in figure-of-eight laser**, Foued Amrani, Mohamed Salhi, Alioune Niang, Andrey Komarov, François Sanchez, Univ. d'Angers (France) [8434-02]

14.00: **Dynamic multimode analysis (DMA) of passively Q-switched intracavity frequency-doubling solid state laser**, Fan Feng, Christoph Pflaum, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [8434-03]

14.20: **High-beam-quality narrow-linewidth 13-W continuous-wave fiber-based source at 970 nm**, Kavita Devi, Chaitanya Kumar Suddapalli, ICFO - Institut de Ciències Fotòniques (Spain); Majid Ebrahim-Zadeh, ICFO - Institut de Ciències Fotòniques (Spain) and Institutio Catalana de Recerca i Estudis Avancats (Spain) [8434-04]

14.40: **Generation of picoseconds pulses around 6.45 μm by synchronously pumped OPO using AgGaS₂ and CdSiP₂**, Nordine Hendaoui, Vincent Bruyninckx, Facultes Univ. Notre Dame de la Paix (Belgium); Christophe Siliën, Univ. of Limerick (Ireland); André G. Peremans, Facultes Univ. Notre Dame de la Paix (Belgium); Adolfo Esteban-Martin, Majid Ebrahim-Zadeh, ICFO - Institut de Ciències Fotòniques (Spain); Peter G. Schunemann, Kevin T. Zawilski, BAE Systems (United States); Valentin P. Petrov, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) [8434-66]

Coffee Break 15.00 to 15.40

SESSION 2

Room: 410 Mon. 15.40 to 17.30

Silicon Photonics

Session Chair: Benjamin J. Eggleton, The Univ. of Sydney (Australia)

15.40: **Nonlinear optics in tapered silicon fibers** (*Invited Paper*), Anna Peacock, Univ. of Southampton (United Kingdom); Noel Healy, Optoelectronics Research Ctr. (United Kingdom) [8434-06]

16.10: **Optimized wavelength conversion in silicon waveguides based on off-Raman-resonance operation**, Yannick W. Lefevre, Nathalie Vermeulen, Christof Debaes, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8434-07]

16.30: **Nonreciprocal lasing and polarization selectivity in silicon ring Raman lasers based on micro- and nano-scale waveguides**, Nathalie Vermeulen, Vrije Univ. Brussel (Belgium) [8434-08]

16.50: **Extending the phase mismatch formalism for silicon-based wavelength converters**, Yannick Lefevre, Nathalie Vermeulen, Christof Debaes, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8434-09]

17.10: **Sub-two-cycle soliton self-compression in a tapered tellurite photonic crystal fiber**, Amine Ben Salem, Rim Cherif, Mourad Zghal, SUP'COM (Tunisia) [8434-10]

POSTERS—MONDAY

Grand Hall Mon. 17.45 to 19.15

A poster session will be held on Monday 17.45 to 19.15. Posters will be on display after 10.00 Monday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Monday. 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 at <http://spie.org/x34963.xml>.

Phase matching in defected core tellurite/phosphate composite nonlinear optical fiber, Edmund P. Samuel, Xin Yan, Meisong Liao, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan) [8434-05]

Cascaded sum and difference frequency generation (cSFG/DFG)-based wavelength conversion of short optical pulses, Rahman Nouroozi, Institute for Advanced Studies in Basic Sciences (Iran, Islamic Republic of); Hubertus Suche, Wolfgang Sohler, Univ. Paderborn (Germany) [8434-41]

Design of ultra-compact low-power all-optical modulator by means of dispersion engineered slow light regime in photonic crystal Mach-Zehnder, Sara Bakhshi, Mohammad Kazem Moravvej-Farshi, Tarbiat Modares Univ. (Iran, Islamic Republic of); Majid Ebnali-Heidari, Shahrekord Univ. (Iran, Islamic Republic of) [8434-42]

All-fiber broadband supercontinuum generation in a single-mode high-nonlinear silica fiber, Weiqing Gao, Meisong Liao, Toyota Technological Institute (Japan); Lingzhen Yang, Taiyuan Univ. of Technology (China); Xin Yan, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan) [8434-43]

Surface wave modulation instability in sbn-61, Sergey A. Chetkin, A. M. Prokhorov General Physics Institute (Russian Federation) [8434-44]

Phthalocyanines, porphycenes, and corroles: nonlinear optical properties and ultrafast dynamics, Venugopal Rao Soma, Univ. of Hyderabad (India) [8434-45]

Protein-based high-speed all-optical logic, Anna Mathesz, Laszlo Fabian, Sandor Valkai, Biological Research Ctr. (Hungary); Elmar K. Wolff, Univ. Witten/Herdecke gGmbH (Germany); Pal Ormos, Andras Der, Biological Research Ctr. (Hungary) [8434-46]

Ultrafast nonlinear optical studies of cyclo[4]naphthobipyroles, P. T. Anusha, Debasis Swain, Tridib Sarma, Pradeepta K. Panda, Venugopal Rao Soma, Univ. of Hyderabad (India) [8434-47]

Switching Faraday rotation on a molecular level, Stefaan Vandendriessche, Ward Brullot, Ventsislav K. Valev, Thierry Verbiest, Katholieke Univ. Leuven (Belgium) [8434-48]

Second-harmonic generation as characterization tool for Ge/passivation layer interfaces, Maarten K. Vanbel, Ventsislav K. Valev, Katholieke Univ. Leuven (Belgium); Annelies Delabie, Sonia Sioncke, IMEC (Belgium); Valeri V. Afanas'ev, Jean-Pierre Locquet, Katholieke Univ. Leuven (Belgium); Sven Van Elshocht, Matty Caymax, IMEC (Belgium); Thierry Verbiest, Katholieke Univ. Leuven (Belgium) [8434-49]

Spectral measurements to probe the magneto-optical properties of commonly used organic dyes, Ward Brullot, Stefaan Vandendriessche, Ventsislav K. Valev, Thierry Verbiest, Katholieke Univ. Leuven (Belgium) [8434-50]

Nonlinear characteristics of laser-induced incandescence of rough carbon surfaces, Katerina Zelenska, Sergei Zelensky, Alexandr Kopyshinsky, Leonid V. Popereenko, National Taras Shevchenko Univ. of Kyiv (Ukraine) [8434-51]

Amplification of frequency-modulated similariton pulses in length-inhomogeneous active fibers, Igor O. Zolotovskii, Dmitriy I. Sementsov, Ulyanovsk State Univ. (Russian Federation); Alexey S. Sysolyatin, A. M. Prokhorov General Physics Institute (Russian Federation); Marina S. Yavtushenko, Christina V. Borisova, Igor O. Yavtushenko, Ulyanovsk State Univ. (Russian Federation) [8434-52]

Rectangular similaritons in fiber amplifiers and ring lasers, Vladimir Kruglov, Claude Aguerarar, Neil G. Broderick, John D. Harvey, The Univ. of Auckland (New Zealand) [8434-53]

Third-order optical nonlinearities of Ag nanoparticles fabricated by two-step ion exchange, John Rönn, Lasse Karvonen, Sami Kujala, Antti Säynätjoki, Ari Tervonen, Seppo K. Honkanen, Aalto Univ. (Finland) [8434-54]

Cherenkov-type second- and third-harmonic generation in random quadratic media, Mousa Ayoub, Philip Roedig, Joerg Imbrock, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) [8434-55]

Anderson localization of light in photonic lattices for dimensional crossover, Dragana M. Jovic, Institute of Physics (Serbia); Milivoj R. Belic, Texas A&M Univ. at Qatar (Qatar); Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) [8434-56]

Ultrafast temporal caustics: a new approach to femtosecond beam shaping, Luc Froehly, Francois Courvoisier, Amaury Mathis, Maxime Jacquot, John M. Dudley, FEMTO-ST (France) and Ctr. National de la Recherche Scientifique (France) and Univ. de Franche-Comté (France) [8434-57]

Surface photorefractive wave on the boundary of a photorefractive crystal covered by metal, Boris A. Usievich, Djamil K. Nurligareev, Vladimir A. Sychugov, Lyudmila I. Ivleva, Pavel A. Lykov, Bogodae V. Nikolay, A. M. Prokhorov General Physics Institute (Russian Federation) [8434-58]

An improved molecular design of obtaining NLO active molecular glasses using triphenyl moieties as amorphous phase formation enhancers, Kaspars Traskovskis, Riga Technical Univ. (Latvia); Igors Mihailovs, Andrejs Tokmakovs, Univ. of Latvia (Latvia); Valdis Kokars, Riga Technical Univ. (Latvia); Martins A. Rutkis, Univ. of Latvia (Latvia) [8434-59]

Numerical simulation of Bessel beam filamentation in dielectrics, Jinggui Zhang, Francois Courvoisier, John M. Dudley, Univ. de Franche-Comté (France) [8434-60]

Femtosecond pulses on a circle: highly non-paraxial non-diffracting beams, Francois Courvoisier, Amaury Mathis, Luc Froehly, Luca Furfaro, Remo Giust, Maxime Jacquot, Pierre-Ambroise Lacourt, John M. Dudley, Univ. de Franche-Comté (France) [8434-62]

Intensity sweeping in accelerating beams with arbitrary trajectories, Amaury Mathis, Francois Courvoisier, Luc Froehly, Maxime Jacquot, John M. Dudley, Univ. de Franche-Comté (France) [8434-63]

Optical patterns using vortex beams, Vianney Caullet, Nicolas Marsal, Delphine Wolfersberger, Marc Sciamanna, Supélec (France) [8434-64]

Electro-optical group-velocity control in reconfigurable phase-shifted grating structures, Sebastian Kroesen, Wolfgang Horn, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) [8434-65]

Optical limiting in carbon black suspensions under reduced ambient pressure, Andrii Karazhov, Sergiy Zelensky, Alexander Kopyshinsky, National Taras Shevchenko Univ. of Kyiv (Ukraine) [8434-67]

Computing using delayed feedback systems: towards photonics, Lennert Appeltant, Vrije Univ. Brussel (Belgium); Miguel C. Soriano, Univ. de les Illes Balears (Spain); Guy Van der Sande, Jan Danckaert, Vrije Univ. Brussel (Belgium); Serge Massar, Univ. Libre de Bruxelles (Belgium); Joni Dambre, Benjamin Schrauwen, Univ. Gent (Belgium); Claudio R. Mirasso, Ingo Fischer, Univ. de les Illes Balears (Spain) [8434-68]

Self-heating phase-mismatching in KGW Raman generator, Mohammad Sabaeian, Shahid Chamran Univ. of Ahwaz (Iran, Islamic Republic of); Ali Parsafar, Ministry of Education (Iran, Islamic Republic of); Mostafa Mohammad-Rezaee, Shahid Chamran Univ. of Ahwaz (Iran, Islamic Republic of) ... [8434-69]

Study on the additional surface variation of large diameter and thin-type KDP plate caused by fabrication error, Zhao Xiong, China Academy of Engineering Physics (China) [8434-70]

A frequency-comb-referenced singly-resonant OPO for sub-Doppler spectroscopy, Iolanda Ricciardi, Eduardo De Tommasi, Pasquale Maddaloni, S. Mosca, Alessandra S. Rocco, INO-CNR, Istituto Nazionale di Ottica (Italy); Jean-Jacques Zondy, Lab. Commun de Métrologie LNE-CNAM (France); Maurizio De Rosa, Paolo De Natale, INO-CNR, Istituto Nazionale di Ottica (Italy) [8434-71]

Tuesday 17 April

SESSION 3

Room: 410 **Tues. 08.30 to 10.20**

Plasmonics and Optical Parametric Oscillators

Session Chair: Andrew D. Ellis, Tyndall National Institute (Ireland)

08.30: Nonlinear plasmonics (Invited Paper), Anatoly V. Zayats, King's College London (United Kingdom) [8434-11]

09.00: Continuous-wave mode-locked optical parametric oscillator, Kavita Devi, Chaitanya K. Suddapalli, ICFO - Institut de Ciències Fotòniques (Spain); Goutam K. Samanta, ICFO - Institut de Ciències Fotòniques (Spain) and Physical Research Lab. (India); Adolfo Esteban-Martin, ICFO - Institut de Ciències Fotòniques (Spain); Majid Ebrahim-Zadeh, ICFO - Institut de Ciències Fotòniques (Spain) and Institutio Catalana de Recerca i Estudis Avancats (Spain) [8434-12]

09.20: Interferometric output coupling of a continuous-wave optical parametric oscillator, Kavita Devi, Chaitanya Kumar Suddapalli, Adolfo Esteban-Martin, ICFO - Institut de Ciències Fotòniques (Spain); Majid Ebrahim-Zadeh, ICFO - Institut de Ciències Fotòniques (Spain) and Institutio Catalana de Recerca i Estudis Avancats (Spain) [8434-13]

09.40: High-energy tunable mid-infrared picosecond optical parametric generation in CdSiP₂, Chaitanya Kumar Suddapalli, ICFO - Institut de Ciències Fotòniques (Spain) and Czech Technical Univ. in Prague (Czech Republic) and BAE System (Spain); Michal Jelinek, Jr., Czech Technical Univ. in Prague (Czech Republic); Mattias Baudisch, ICFO - Institut de Ciències Fotòniques (Spain); Kevin T. Zawilski, Peter G. Schunemann, BAE Systems (United States); Václav Kubecek, Czech Technical Univ. in Prague (Czech Republic); Jens Biegert, Majid Ebrahim-Zadeh, ICFO - Institut de Ciències Fotòniques (Spain) [8434-14]

10.00: Subwavelength plasmonic kinks, solitons, and oscillons in arrays of nonlinear metallic nanoparticles, Roman Noskov, Pavel Belov, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Yuri S. Kivshar, The Australian National Univ. (Australia) and National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [8434-15]

Coffee Break 10.20 to 11.00

SESSION 4

Room: 410 **Tues. 11.00 to 12.50**

Limits of Conventional Nonlinear Optics

Session Chair: Anatoly V. Zayats, King's College London (United Kingdom)

11.00: Nonlinear Shannon limit and the need for new fibres (Invited Paper), Andrew D. Ellis, Tyndall National Institute (Ireland) [8434-16]

11.30: Multi-order automatic dispersion compensation for 1.28 Terabaud signals, Yvan Paquot, Jochen Schröder, The Univ. of Sydney (Australia); Jürgen Van Erps, Vrije Univ. Brussel (Belgium); Trung Duc Vo, Mark D. Pelusi, The Univ. of Sydney (Australia); Steve J. Madden, Barry Luther-Davies, The Australian National Univ. (Australia); Benjamin J. Eggleton, The Univ. of Sydney (Australia) [8434-17]

11.50: RF-pilot-based nonlinearity compensation in frequency domain for CO-OFDM transmission, Omar Jan, Mohamed El-Darawy, Kidsanapong Puntsri, Ali M. Al-Bermani, Reinhold Noe, Univ. Paderborn (Germany) . [8434-18]

12.10: Limits of the two-level approximation in nonlinear optics, David L. Andrews, Matt M. Coles, Jamie N. Peck, Vasily S. Oganessian, Univ. of East Anglia Norwich (United Kingdom) [8434-19]

12.30: Propagation of pulsating, erupting, and creeping solitons in the presence of higher order effects, Sofia C. Latas, Mário F. S. Ferreira, Univ. de Aveiro (Portugal) [8434-20]

Lunch/Exhibition Break 12.50 to 14.00

SESSION 5

Room: 410 Tues. 14.00 to 15.50

Integrated Nonlinear Optics

Session Chair: Peter Horak, Univ. of Southampton (United Kingdom)

14.00: **Novel frontier in integrated nonlinear optics: on-chip frequency conversion** (*Invited Paper*), Roberto Morandotti, Luca Razzari, Institut National de la Recherche Scientifique (Canada); Marcello Ferrera, Univ. of St. Andrews (United Kingdom); David Duchesne, Massachusetts Institute of Technology (United States); Marco Peccianti, Alessia Pasquazi, Jose Azana, Institut National de la Recherche Scientifique (Canada); S. Chu, City Univ. of Hong Kong (Hong Kong, China); David J. Moss, The Univ. of Sydney (Australia); Brent E. Little, Infinera Corp. (United States) [8434-21]

14.30: **An SMS fiber structure based on chalcogenide and silica fibers**, Pengfei Wang, ORC Univ. of Southampton (United Kingdom) and Dublin Institute of Technology (Ireland); Gilberto Brambilla, Ming Ding, ORC Univ. of Southampton (United Kingdom); Yuliya V. Semenova, Qiang Wu, Gerald T. Farrell, Dublin Institute of Technology (Ireland) [8434-22]

14.50: **Photonic chip based tunable slow and fast light via stimulated Brillouin scattering**, Ravi Pant, Adam Byrnes, The Univ. of Sydney (Australia); Christopher G. Poulton, Univ. of Technology, Sydney (Australia); Enbang Li, The Univ. of Sydney (Australia); Duk-Yong Choi, Steve J. Madden, Barry Luther-Davies, The Australian National Univ. (Australia); Benjamin J. Eggleton, The Univ. of Sydney (Australia) [8434-23]

15.10: **Four wave mixing in silicon hybrid micro photonic structures**, Sebastian Jakobs, Alexander Y. Petrov, Manfred Eich, Technische Univ. Hamburg-Harburg (Germany); Joseph W. Perry, Joel M. Hales, Seth R. Marder, Georgia Institute of Technology (United States); Virginie Nazabal, Univ. de Rennes 1 (France); Petr Nemeec, Univ. Pardubice (Czech Republic) [8434-24]

15.30: **Self-trapped beams for fabrication of optofluidic chip**, Mathieu Chauvet, Luai Al fares, Fabrice Devaux, FEMTO-ST (France) [8434-25]

Coffee Break 15.50 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 6

Room: 410 Wed. 08.20 to 10.10

Physics of Filamentations

Session Chair: John M Dudley, Univ. de Franche-Comté (France)

08.20: **Filamentation-free femtosecond plasma dynamics in hollow core fiber** (*Invited Paper*), John C. Travers, Max Planck Institute for the Science of Light (Germany) [8434-26]

08.50: **Nonlinear propagation and filamentation of intense Airy beams in transparent media**, Arnaud Couairon, Ecole Polytechnique (France); Antonio Lotti, Univ. degli Studi dell'Insubria (Italy); Paris Panagiotopoulos, Daryoush Abdollahpour, Foundation for Research and Technology-Hellas (Greece); Daniele Faccio, Heriot-Watt Univ. (United Kingdom); Dimitrios G. Papazoglou, Stelios Tzortzakos, Foundation for Research and Technology-Hellas (Greece) [8434-27]

09.10: **Effect of lens tilt on SCE and filamentation from tightly focused fs pulses in air**, Sreeja S. Pillai, Univ. of Hyderabad (India) and Cochin Univ. of Science & Technology (India); Shuvan Prashant Turaga, Univ. of Hyderabad (India); Padmanabhan Radhakrishnan, Cochin Univ. of Science & Technology (India); Leela Chelikani, Rakesh K. Vaddapally, Surya P. Tewari, Venugopal Rao Soma, Prem Kiran Paturi, Univ. of Hyderabad (India) [8434-28]

09.30: **Filamentation characteristics of sharply focused fs pulses in atmosphere**, Sreeja S. Pillai, Univ. of Hyderabad (India) and Cochin Univ. of Science & Technology (India); Rakesh Kumar Vaddapally, Leela Chelikani, Univ. of Hyderabad (India); Padmanabhan Radhakrishnan, Cochin Univ. of Science & Technology (India); Surya P. Tewari, Venugopal Rao Soma, Prem Kiran Paturi, Univ. of Hyderabad (India) [8434-29]

09.50: **Detection and analysis of low-frequency electromagnetic emissions from ns laser induced breakdown of air**, Vinoth Kumar Lakshmi, Leela Chelikani, E. Manikanta, Surya P. Tewari, Prem Kiran Paturi, Univ. of Hyderabad (India) [8434-30]

Coffee Break 10.10 to 10.50

SESSION 7

Room: 410 Wed. 10.50 to 13.00

Nonlinear Optics for Telecommunications and Frequency Combs

Session Chair: Neil G. Broderick, The Univ. of Auckland (New Zealand)

10.50: **Nonlinear optics in telecommunications** (*Invited Paper*), Juerg Leuthold, Karlsruhe Institut für Technologie (Germany) [8434-31]

11.20: **Light-by-light polarization control and stabilization in optical fibers for telecommunication applications**, Julien Fatome, Philippe Morin, Stephane Pitois, Christophe Finot, Univ. de Bourgogne (France) [8434-32]

11.40: **Fiber-based astronomical optical frequency comb with optical feedback**, José M. Chávez Boggio, Leibniz-Institut für Astrophysik Potsdam (Germany); Michael Boehm, Univ. Potsdam (Germany); Andres Rieznik, Instituto Tecnológico de Buenos Aires (Argentina); Roger Haynes, Martin M. Roth, Leibniz-Institut für Astrophysik Potsdam (Germany) [8434-33]

12.00: **Toward Mid-IR supercontinuum generation in bismuth-lead-galate glass based photonic crystal fibers**, Ryszard R. Buczynski, Univ. of Warsaw (Poland) and Institute of Electronic Materials Technology (Poland) and Heriot-Watt Univ. (United Kingdom); Henry T. Bookey, Heriot-Watt Univ. (United Kingdom); Ryszard Stepień, Institute of Electronic Materials Technology (Poland); Jacek Pniewski, Univ. of Warsaw (Poland); Dariusz Pysz, Institute of Electronic Materials Technology (Poland); Ajoy A. Kar, Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom) [8434-34]

12.20: **Application of Brillouin scattering to optical frequency combs**, Juan Galindo, Mercedes Alcon-Carnas, Sonia Martín-López, Consejo Superior de Investigaciones Científicas (Spain); Ana Carrasco-Sanz, Univ. de Granada (Spain); Pedro Corredera, Consejo Superior de Investigaciones Científicas (Spain) [8434-35]

12.40: **All-optical fiber-based devices for ultrafast amplitude jitter magnification**, Charles-Henri Hage, Julien Fatome, Bertrand Kibler, Christophe Finot, Univ. de Bourgogne (France) [8434-36]

Lunch/Exhibition Break 13.00 to 14.10

SESSION 8

Room: 410 Wed. 14.10 to 15.40

Frequency Combs and Supercontinuum

Session Chair: Anna Peacock, Univ. of Southampton (United Kingdom)

14.10: **Silicon-based parametric frequency combs** (*Invited Paper*), Yoshitomo Okawachi, Cornell Univ. (United States) [8434-37]

14.40: **Continuous wave supercontinuum generation aided by a weak pulse laser**, Gil C. Fernandes, Instituto de Telecomunicações (Portugal); Margarida Facao, Univ. de Aveiro (Portugal); Maria Inês Carvalho, Univ. do Porto (Portugal); Sílvia Rodrigues, Univ. de Aveiro (Portugal); Jamshid Heidarilamdarloo, Univ. do Porto (Portugal); Armando N. Pinto, Instituto de Telecomunicações (Portugal); Mario F. Ferreira, Univ. de Aveiro (Portugal) [8434-38]

15.00: **Observation of modulational and hydrodynamic instabilities of multiple four-wave mixing**, Julien Fatome, Christophe Finot, Univ. de Bourgogne (France); Andrea Armaroli, Stefano Trillo, Univ. degli Studi di Ferrara (Italy) [8434-39]

15.20: **Supercontinuum generation in the black light region by pumping at 355 nm a silica photonic crystal fiber**, Thibaut Sylvestre, Abdi-Ide Robleh Ragueh, Min Won Lee, Birgit Stiller, FEMTO-ST (France); Alexandre Kudlinski, Arnaud Mussot, Benoit Barvau, Univ. des Sciences et Technologies de Lille (France) [8434-40]

Organic Photonics

Conference Chairs: Barry P. Rand, IMEC (Belgium); Chihaya Adachi, Kyushu Univ. (Japan); Volker van Elsbergen, Philips Research (Germany)

Programme Committee: Heinrich Becker, Merck OLED Materials GmbH (Germany); David Beljonne, Univ. de Mons (Belgium); Paul W. M. Blom, Univ. of Groningen (Netherlands); Donald D. C. Bradley, Imperial College London (United Kingdom); Franco Cacialli, Univ. College London (United Kingdom); Enrico Da Como, Ludwig-Maximilians-Univ. München (Germany); Richard H. Friend, Univ. of Cambridge (United Kingdom); Alan J. Heeger, Univ. of California, Santa Barbara (United States); Paul L. Heremans, IMEC (Belgium); René A. J. Janssen, Technische Univ. Eindhoven (Netherlands); Junji Kido, Yamagata Univ. (Japan); Jang-Joo Kim, Seoul National Univ. (Korea, Republic of); Guglielmo Lanzani, Politecnico di Milano (Italy); Karl Leo, Technische Univ. Dresden (Germany); Niyazi Serdar Sariciftci, Johannes Kepler Univ. Linz (Austria); Paul van der Schaaf, BASF Schweiz AG (Switzerland); Chung-Chih Wu, National Taiwan Univ. (Taiwan)

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Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

Welcome and Introduction

Room: The Arc Mon. 13.10 to 13.15

Welcome and Introduction

Barry P. Rand, IMEC (Belgium);
Chihaya Adachi, Kyushu Univ. (Japan);
Volker van Elsbergen, Philips Research (Germany)

SESSION 1

Room: The Arc Mon. 13.15 to 15.00

Technology Development in Organic Photonics

Session Chair: Volker van Elsbergen, Philips Research (Germany)

- 13.15: **OLED lighting technology: a snapshot on features and performance** (*Invited Paper*), Erwin Lang, Stefan Seidel, Thilo Reusch, Ulrich Niedermeier, Thomas D. Dobbertin, OSRAM Opto Semiconductors GmbH (Germany) [8435-01]
- 13.45: **Recent advancements of OLED display and OLED lighting technology using the doping approach** (*Invited Paper, Presentation Only*), Jan Blochwitz-Nimoth, Novalde AG (Germany) [8435-02]
- 14.15: **Solution processed multi layer OLEDs with low onset voltage**, Thai Hung Do, Stefan Hoeffle, Daniel Bahro, Alexander Colsmann, Uli Lemmer, Karlsruher Institut für Technologie (Germany) [8435-03]
- 14.30: **Influence of barrier absorption properties on laser patterning thin organic films**, Sanjeev Naithani, Univ. Gent (Belgium); Rajesh Mandamparambil, Ferdie van Assche, Henri Fledderus, An Prenen, Holst Ctr. (Netherlands); Geert Van Steenberge, Jan Vanfleteren, Univ. Gent (Belgium) [8435-04]
- 14.45: **Roll-to-roll printed simple photovoltaics on paper substrates**, Bystrik Trnovec, Björn Engler, Tino Zillger, Moazzam Ali, Nora Wetzold, Arved C. Hübler, Technische Univ. Chemnitz (Germany) [8435-05]
- Coffee Break 15.00 to 15.40

SESSION 2

Room: The Arc Mon. 15.40 to 17.45

Material Development for Organic Electronics and Photonics

Session Chair: Chihaya Adachi, Kyushu Univ. (Japan)

- 15.40: **Semiconducting polymers for transistors and solar cells** (*Invited Paper*), Iain McCulloch, Imperial College London (United Kingdom) [8435-06]
- 16.10: **Blue light emitting Cu(I) complexes and singlet harvesting**, Hartmut Yersin, Rafal Czerwiec, Univ. Regensburg (Germany) [8435-07]
- 16.25: **Measuring efficiency losses in quantum dot polymer solar cells**, Josep Albero, ICIQ - Institut Català d'Investigació Química (Spain); Yunfei Zhou, Michael Eck, Albert-Ludwigs-Univ. Freiburg (Germany); Frank Rauscher, Phenixa Nyamakon, Bayer Technology Services GmbH (Germany); Ines Dumsch, Sybille Allard, Ullrich Scherf, Bergische Univ. Wuppertal (Germany); Michael Krüger, Albert-Ludwigs-Univ. Freiburg (Germany); Emilio Palomares, ICIQ - Institut Català d'Investigació Química (Spain) [8435-94]

16.45: **Molecular design of triazine derivatives having a high up-conversion efficiency from triplet into singlet excited states and their application to OLEDs**, Sae Youn Lee, Nomura Hiroko, Takuma Yasuda, Chihaya Adachi, Kyushu Univ. (Japan) [8435-09]

17.00: **Solution processed bi-layer small molecular weight solar cells with high open-circuit voltage**, Olga Malinkiewicz, Martijn Lenes, Hicham Brine, Alejandra Soriano, Henk Bolink, Univ. de València (Spain) [8435-10]

17.15: **Terpolymers based on benzotrithiophene for FET and OPV applications**, Bob C. Schroeder, Christian B. Nielsen, Raja Shahid Ashraf, Pasquale D'Angelo, Thomas D. Anthopoulos, Iain McCulloch, Imperial College London (United Kingdom) [8435-11]

17.30: **Nonlinear optical properties of conjugated polymers**, Guy Koeckelberghs, Katholieke Univ. Leuven (Belgium); Inge Asselberghs, IMEC (Belgium); Koen Clays, Thierry Verbiest, Katholieke Univ. Leuven (Belgium) [8435-12]

POSTERS—MONDAY

Grand Hall Mon. 17.45 to 19.15

A poster session will be held on Monday 17.45 to 19.15. Posters will be on display after 10.00 Monday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Monday. 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 at <http://spie.org/x34963.xml>.

Tuning of superfine electron-nuclear interaction in ground structure in the series of multinuclear compounds and of characteristics of the full systems excited electronic states with the help of formation of effective photophysics and spectral-energy properties, Alexander E. Obukhov, Moscow Mining Institute (Russian Federation) [8435-54]

Dye design for photoelectrochemical solar cells by changing the conjugation order: importance of computational errors, Sergei Manzhos, Hiroshi Segawa, Koichi Yamashita, The Univ. of Tokyo (Japan) [8435-55]

Behaviour of electron and hole currents in three layer heterostructure OLET, Karoliina Jokinen, Alexander V. Bykov, Rafal Sliz, Risto Myllyla, Univ. of Oulu (Finland) [8435-56]

Rectifying and negative differential resistance behavior in single tris(8-hydroxyquinoline) aluminum (Alq3) nanowire diode, Shih-Shou Lo, Shu-Hao Sie, Wei-Shou Syu, Feng Chia Univ. (Taiwan) [8435-58]

Formation of pyramid-shape 8-hydroxyquinoline aluminum (Alq3) and its negative resistance behavior in a single pyramid-shape Alq3 diode, Shih-Shou Lo, Ming-Hao Hsieh, Shu-Hao Sie, Feng Chia Univ. (Taiwan) [8435-59]

Integrated light sources based on self-formed polymer waveguide doped with active medium, Shuhei Sugimoto, Takashi Kawaguchi, Kenichi Yamashita, Kyoto Institute of Technology (Japan) [8435-60]

Investigation of covalent functionalized single-wall carbon nanotubes using Surface-Enhanced Raman Scattering, Nebras E. Alattar, Rasoul Al-Majmaie, James H. Rice, Univ. College Dublin (Ireland); Ilona Kopf, Silvia Giordani, Trinity College Dublin (Ireland) [8435-61]

Synthesis, optical and thermal properties of glassy trityl group containing luminiscent derivatives of 2-tert-butyl-6-methyl-4H-pyran-4-one, Elmars Zarins, Karina Siltane, Elina Misina, Valdis Kokars, Kristine Lazdovica, Riga Technical Univ. (Latvia); Aivars Vembris, Univ. of Latvia (Latvia); Valdis Kampars, Riga Technical Univ. (Latvia); Inta Muzikante, Martins Rutkis, Univ. of Latvia (Latvia) [8435-63]

Time-dependent charge carrier transport in organic light emitting diodes: modeling dark injection transients, Harm van Eersel, Charley Schaefer, Hanno Reuvers, Rein J. de Vries, Technische Univ. Eindhoven (Netherlands); Reinder Coehoorn, Philips Research Nederland B.V. (Netherlands); Jeroen de Groot, Murat Mesta, Peter A. Bobbert, Technische Univ. Eindhoven (Netherlands) [8435-64]

Synthesis and properties of 2-dicyanomethylenethiazole merocyanines, David J. Clarke, Andrew Kay, Ayla Middleton, Industrial Research Ltd. (New Zealand); Gerald J. Smith, Victoria Univ. of Wellington (New Zealand) . [8435-65]

Luminescent properties of polymer nanocomposites activated with praseodymium-doped nanocrystals, Anna Jusza, Warsaw Univ. of Technology (Poland); Ludwika Lipinska, Magdalena Baran, Institute of Electronic Materials Technology (Poland); Pawel Mergo, Univ. Marii Curie-Sklodowskiej (Poland); Ryszard Piramidowicz, Warsaw Univ. of Technology (Poland) [8435-66]

Charge transport studies of polymeric photovoltaic thin films and their bulk-heterojunction blends with an electron blocking and trapping layer, Harrison Ka Hin Lee, Kevin Ka Hin Chan, Shu-Kong So, Hong Kong Baptist Univ. (Hong Kong, China) [8435-67]

Creation and investigation of photoexcited organic semiconductor laser of the blue-green region of spectra, Tatyana N. Kopylova, Ruslan M. Gadirov, Viktor Y. Artukhov, Eugene N. Telminov, Sergey Y. Nikonov, Tomsk State Univ. (Russian Federation) [8435-68]

N-vinylcarbazole based materials for photonics, Stefan Robu, Dmitri Mitcov, Galina Dragalina, Oleg Popusoi, Arcadii Chirita, Nadejda Nasedchina, Univ. de Stat din Moldova (Moldova) [8435-69]

A comparison of printing and coating techniques for the production of large-area polymer light-emitting diodes, Koen Gilissen, Wim Deferme, Jean Manca, Univ. Hasselt (Belgium) [8435-70]

Spectral, luminescent, and electroluminescent properties of linear divinylidiphenylthiophenesulfone derivatives, Ruslan M. Gadirov, Tatyana N. Kopylova, Tomsk State Univ. (Russian Federation); Alexander V. Kukhta, Institute of Molecular and Atomic Physics (Belarus); Konstantin M. Degtyarenko, Nina S. Eremina, Lubov G. Samsonova, Tomsk State Univ. (Russian Federation) [8435-71]

Extraction of circuital parameters of organic solar cells using the exact solution based on Lambert W-function, Beatriz Romero, Gonzalo del Pozo, Belén Arredondo, Univ. Rey Juan Carlos (Spain) [8435-72]

Strongly emitting Pt(CN)₂(CNR)₂ stacks: luminescence color tuning by variation of the isocyanide ligands, Rafal Czerwieńiec, Tobias W. Fischer, Univ. Regensburg (Germany); Uwe Monkowius, Johannes Kepler Univ. Linz (Austria); Hartmut Yersin, Univ. Regensburg (Germany) [8435-73]

Manufacturing polymer light emitting diode with high luminescence efficiency by solution process, Miyoung Kim, Ho-Chang Yang, Song-Jin Jo, Dea Yeol Lee, Dang Mo Yoon, Seung-Hyun Lee, Byung-Seuk Moon, Ju Hwan Choi, Bum-Joo Lee, Jin-Koog Shin, Korea Electronics Technology Institute (Korea, Republic of) [8435-74]

Cu(I) dimers with high emission quantum yields for singlet harvesting in OLEDs, Markus J. Leitzl, Univ. Regensburg (Germany); Fritz-Robert Kühle, Lars Wesemann, Eberhard Karls Univ. Tübingen (Germany); Hartmut Yersin, Univ. Regensburg (Germany) [8435-75]

Relation of energy levels in thin films of polar photoconductive molecules, Raitis Grizibovskis, Inta Muzikante, Janis Latvels, Maira Indrikova, Univ. of Latvia (Latvia); Valdis Kampars, Pauls Pastors, Riga Technical Univ. (Latvia) . [8435-76]

AC-driven light emission from in situ grown organic nanofibers, Xuhai Liu, Jakob Kjelstrup-Hansen, Roana M. de Oliveira Hansen, Morten Madsen, Horst-Günter Rubahn, Univ. of Southern Denmark (Denmark) [8435-77]

Influence of sputtered contacts on the performance of organic solar cells, Marushka Sendova-Vassileva, George Popkirov, Petko Vitanov, Christosko Dikov, Central Lab. of Solar Energy and New Energy Sources (Bulgaria); Valeria Gancheva, Dimitrina Tsocheva, Pavlina Mokreva, Institute of Polymers (Bulgaria) [8435-79]

Perylene bisimide derivatives as innovative sensitizers for photorefractive composites, Thomas Schemme, Katharina Ditte, Westfälische Wilhelms-Univ. Münster (Germany); Jiang Wei, Zhaohui Wang, Institute of Chemistry (China); Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) [8435-80]

Light-emitting thin films of glassy forming organic compounds containing 2-tert-butyl-6-methyl-4H-pyran-4-one, Aivars Vembris, Kaspars Pudzs, Inta Muzikante, Univ. of Latvia (Latvia) [8435-81]

Temperature influence on photoisomerisation kinetics in thin polymer films doped with carboxyl group azobenzene derivative, Elina Laizane, Univ. of Latvia (Latvia); Daina Gustina, Latvian Academy of Sciences (Latvia); Inta Muzikante, Martins Narels, Univ. of Latvia (Latvia) [8435-82]

NIL fabrication of a polymer based photonic sensor device in P3SENS project, Domenico Giannone, Fabian Dortu, Damien Bernier, Multitel A.S.B.L. (Belgium); Timo Aalto, Kai P. Kolari, VTT Technical Research Ctr. of Finland (Finland); Nigel P. Johnson, Ali Z. Khokhar, Univ. of Glasgow (United Kingdom); Holger Egger, Bayer Technology Services GmbH (Germany) [8435-83]

Synthesis and characterization of RE³⁺:Al₂O₃ nanopowders for application in the polymer based composite light sources, Anna Jusza, Krzysztof Anders, Agnieszka Jastrzebska, Pawel Polis, Andrzej Olszyna, Joanna Jureczko, Wojciech Fabianowski, Antoni Kunicki, Ryszard Piramidowicz, Warsaw Univ. of Technology (Poland) [8435-84]

Enhancing the color gamut of white displays using novel deep-blue organic fluorescent dyes to form color-changed thin films with improved efficiency, Weiting Liu, Ming-Sian Jhang, Wen-Yao Huang, Cheng-Han Yu, National Sun Yat-Sen Univ. (Taiwan) [8435-86]

The role of molecular packing on the UV-visible optical properties of [Re₂Ci₂(CO)₆·4,5-(Me₃Si)₂pyridazine], Peter Spearman, Silvia Tavazzi, Univ. degli Studi di Milano-Bicocca (Italy); Leonardo Silvestri, The Univ. of New South Wales (Australia); Andrea Burini, Alessandro Borghesi, Univ. degli Studi di Milano-Bicocca (Italy); Pierluigi Mercandelli, Monica Panigati, Giuseppe D'Alfonso, Angelo Sironi, Univ. degli Studi di Milano (Italy); Luisa De Cola, Westfälische Wilhelms-Univ. Münster (Germany) [8435-87]

Titanium dioxide nanostructure synthesized by sol-gel for organic solar cells using natural dyes extracted from black and red sticky rice, Ari H. Ramelan, Harjana Harjana, Latifah S. Sakti, Univ. Sebelas Maret (Indonesia) [8435-89]

Equilibrium component composition and structure of nanometer cyanine dye layers and their photoinduced modification, Anton A. Starovoytov, Nikita A. Toropov, Tatiana K. Razumova, Elena N. Kaliteevskaya, Valentina P. Krutyakova, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [8435-93]

Large scale synthesis of squaraine dyes and their applications in organic photovoltaics, Siyi Wang, Univ. of Southern California (United States); Peter Deakin, Kanth Josyula, Wei Wei, Scott Batcheller, Sigma-Aldrich Corp. (United States); Mark Thompson, Univ. of Southern California (United States) . [8435-95]

Tuesday 17 April

SESSION 3

Room: The Arc Tues. 08.30 to 10.30

Interfaces, Oxides, and Doping

Session Chair: Barry P. Rand, IMEC (Belgium)

08.30: **Controlling recombination and improving the photocurrent in polymer: fullerene blends with molecular doping** (*Invited Paper*), Elizabeth von Hauff, Albert-Ludwigs-Univ. Freiburg (Germany); Antonietta De Sio, Ali Veyssel Tunc, Carl von Ossietzky Univ. Oldenburg (Germany); Felix A. Deschler, Enrico Da Como, Ludwig-Maximilians-Univ. München (Germany) [8435-13]

09.00: **Electronic structure of organic/oxide interfaces for OPV devices** (*Invited Paper*), Antoine L. Kahn, Princeton Univ. (United States) [8435-14]

09.30: **Molybdenum trioxide as a universal p-dopant for organic hole transporters**, Shu-Kong So, Wenwei Xu, Cyrus Yiu Him Chan, Harrison Ka Hin Lee, Hong Kong Baptist Univ. (Hong Kong, China) [8435-15]

09.45: **Functional interfaces for organic electronic devices characterized by in situ XPS, current voltage measurements, and impedance spectroscopy**, Jürgen Gassmann, Technische Univ. Darmstadt (Germany); Thilo C. G. Reusch, Thomas D. Dobbertin, OSRAM Opto Semiconductors GmbH (Germany); Andreas Klein, Technische Univ. Darmstadt (Germany) [8435-16]

10.00: **Low temperature sol-gel processing of MoO₃ as high work function charge extraction layer in stable and efficient organic solar cells**, Kirill Zilberberg, Gharbi Houssein, Andreas Behrendt, Sara Trost, Thomas J. Riedl, Bergische Univ. Wuppertal (Germany) [8435-17]

10.15: **Low-temperature fabrication of ZnO-based inverted organic solar cells**, Yoonseok Ka, Eungkyu Lee, Siyoon Park, Youn Sang Kim, Changsoon Kim, Seoul National Univ. (Korea, Republic of) [8435-18]

Coffee Break 10.30 to 11.00

SESSION 4

Room: The Arc Tues. 11.00 to 12.45

Exploring Fundamental Processes

Session Chair: Wolfgang Brütting, Univ. Augsburg (Germany)

- 11.00: **Polaron pair generation yield in low-bandgap donor-acceptor copolymers for photovoltaics** (*Invited Paper*), Enrico Da Como, Raphael Tautz, Jochen Feldmann, Ludwig-Maximilians-Univ. München (Germany); Elizabeth von Hauff, Albert-Ludwigs-Univ. Freiburg (Germany); Ulrich Scherf, Bergische Univ. Wuppertal (Germany) [8435-19]
- 11.30: **Exploring the exciton dissociation process at a donor-acceptor heterojunction in both time and space via an induced Stark shift**, Noel C. Giebink, The Pennsylvania State Univ. (United States); Barry P. Rand, David Cheyns, Jan Genoe, IMEC (Belgium); Jasmina Hranisavljevic, Richard D. Schaller, Gary P. Wiederrecht, Argonne National Lab. (United States) . . [8435-20]
- 11.45: **Modelling exciton and charge carrier dynamics in organic semiconductors: a quantum chemical view** (*Invited Paper*), Christian Lennartz, Andreas Fuchs, BASF SE (Germany); Falk May, Denis Andrienko, Max-Planck-Institut für Polymerforschung (Germany) [8435-21]
- 12.15: **Influence of defects in organic materials for organic solar cells**, Kwan H. Lee, Almantas Pivrikas, Ajay K. Pandey, The Univ. of Queensland (Australia); Nikos Kopidakis, National Renewable Energy Lab. (United States); Marappan Velusamy, Paul Meredith, Paul L. Burn, The Univ. of Queensland (Australia) [8435-22]
- 12.30: **Comparing the degree of molecular order in P3HS and P3HT-based photovoltaic films: resonant Raman spectroscopy as a unique structural probe**, Wing Chung Tsoi, David T. James, Ester Buchaca-Domingo, Jong-Soo Kim, Mohammed Al-Hashimi, Imperial College London (United Kingdom); Craig E. Murphy, National Physical Lab. (United Kingdom); Martin J. Heeney, Natalie Stingelin-Stutzmann, Ji-Seon Kim, Imperial College London (United Kingdom) [8435-23]
- Lunch/Exhibition Break 12.45 to 14.00

SESSION 5

Room: The Arc Tues. 14.00 to 16.00

OPV Device Development

Session Chair: Enrico Da Como, Ludwig-Maximilians-Univ. München (Germany)

- 14.00: **Thermodynamic efficiency limit of molecular donor-acceptor solar cells and its application to diindenoperylene (DIP)-based devices** (*Invited Paper*), Wolfgang Brütting, Mark Gruber, Julia Wagner, Ulrich Hörmann, Univ. Augsburg (Germany); Andreas Opitz, Humboldt-Univ. zu Berlin (Germany) [8435-24]
- 14.30: **Small molecular organic photovoltaic cells with exciton blocking layer at anode interface for improved device performance**, Chihaya Adachi, Masaya Hirade, Kyushu Univ. (Japan) [8435-25]
- 14.45: **Novel methods for morphology control of small molecule organic thin films**, Jaron G. Van Dijken, Nathanael Wu, Univ. of Alberta (Canada); Michael D. Fleischauer, National Institute for Nanotechnology (Canada); Jillian M. Buriak, Michael J. Brett, Univ. of Alberta (Canada) [8435-26]
- 15.00: **Modelling of organic triple-junction solar cells**, Ben Minnaert, Peter Veelaert, Hogeschool Gent (Belgium) [8435-27]
- 15.15: **Solution processed graded absorber layers for a fast and material-saving layer thickness optimization in polymer photovoltaic devices**, Felix Nickel, Christian Sprau, Nico S. Christ, Uli Lemmer, Alexander Colsmann, Karlsruher Institut für Technologie (Germany) [8435-28]
- 15.30: **Visualizing vertical phase separation in films of polymer: fullerene blends**, Ellen Moons, Ana Sofia Anselmo, Andrzej Dzwilewski, Krister Svensson, Jan van Stam, Karlstad Univ. (Sweden) [8435-29]
- 15.45: **Crystallization kinetics and morphology relations on thermally annealed bulk heterojunction solar cell blends studied by rapid heat cool calorimetry (RHC)**, Fatma Demir, Niko Van den Brande, Vrije Univ. Brussel (Belgium); Sabine Bertho, Univ. Hasselt (Belgium); Eszter Voroshazi, IMEC (Belgium); Jean Manca, Dirk Vanderzande, Univ. Hasselt (Belgium); Paul L. Heremans, IMEC (Belgium); Bruno Van Mele, Guy Van Assche, Vrije Univ. Brussel (Belgium) [8435-30]
- Coffee Break 16.00 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 6

Room: The Arc Wed. 08.30 to 10.15

Thin Film Optics and Electrodes for OLEDs and OPV

Session Chair: Barry P. Rand, IMEC (Belgium)

- 08.30: **Dielectric-metal-dielectric multilayer transparent electrodes for versatile transparent organic electronics** (*Invited Paper*), Seunghyup Yoo, Hyunsu Cho, Dong-Geon Han, Hanul Moon, Hoyeon Kim, KAIST (Korea, Republic of) [8435-31]
- 09.00: **Ray-optical light trapping in organic solar cells** (*Invited Paper*), Changsoon Cho, Jung-Yong Lee, KAIST (Korea, Republic of) [8435-32]
- 09.15: **A simple way to trap photons: textured films on the back side of organic solar cells**, Hoyeon Kim, Changsoon Cho, Jung-Yong Lee, Seunghyup Yoo, KAIST (Korea, Republic of) [8435-33]
- 09.30: **Combined effects of organic capping layer and enhanced micro-cavity on bi-directional organic light-emitting diodes**, Jonghee Lee, Simone Hofmann, Mauro Furno, Yong Hyun Kim, Technische Univ. Dresden (Germany); Jeong-Ik Lee, Hye Yong Chu, Electronics and Telecommunications Research Institute (Korea, Republic of); Björn Lüssem, Karl Leo, Technische Univ. Dresden (Germany) [8435-34]
- 09.45: **Semi-transparent small molecule organic solar cells with laminated carbon nanotube top electrodes**, Yong Hyun Kim, Lars Müller-Meskamp, Alexander A. Zakhidov, Christoph Sachse, Jan Meiss, Technische Univ. Dresden (Germany); Julia Bikova, Alexander Cook, Anvar A. Zakhidov, The Univ. of Texas at Dallas (United States); Karl Leo, Technische Univ. Dresden (Germany) [8435-35]
- 10.00: **Solid state efficient low-power photon up-conversion in bicomponent organic systems**, Angelo Monguzzi, Univ. degli Studi di Milano-Bicocca (Italy); Michel Frigoli, Univ. de Versailles Saint-Quentin-en Yvelines (France); Francesco Bianchi, Riccardo Tubino, Univ. degli Studi di Milano-Bicocca (Italy); Chantal Larpent, Univ. de Versailles Saint-Quentin-en Yvelines (France); Francesco Meinardi, Univ. degli Studi di Milano-Bicocca (Italy) [8435-36]
- Coffee Break 10.15 to 10.55

SESSION 7

Room: The Arc Wed. 10.55 to 12.30

Physics and Optics of OLEDs

Session Chair: Paul W. M. Blom, Univ. of Groningen (Netherlands)

- 10.55: **Development and experimental validation of a predictive OLED model** (*Invited Paper*), Reinder Coehoorn, Philips Research Nederland B.V. (Netherlands); Peter A. Bobbert, Technische Univ. Eindhoven (Netherlands) [8435-37]
- 11.25: **Non-isotropic emitter orientation and its implications for comprehensive efficiency analysis of organic light-emitting diodes**, Tobias D. Schmidt, Univ. Augsburg (Germany); Michael Flämmich, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Bert J. Scholz, Univ. Augsburg (Germany); Dirk Michaelis, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Christian Mayr, Univ. Augsburg (Germany); Norbert Danz, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Wolfgang Brütting, Univ. Augsburg (Germany) [8435-38]
- 11.40: **Scaling theory for percolative charge transport in disordered molecular semiconductors**, Jeroen Cottaar, Technische Univ. Eindhoven (Netherlands); Lambert Jan Anton Koster, Univ. of Groningen (Netherlands); Reinder Coehoorn, Philips Research Nederland B.V. (Netherlands); Peter A. Bobbert, Technische Univ. Eindhoven (Netherlands) [8435-62]
- 12.00: **Experimental and theoretical study of the optical and electrical properties optimization of an OLED in a microcavity**, Anthony Coens, Alexis P. Fischer, Min W. Lee, Mahmoud Chakaroun, Azzedine Boudrioua, Jeanne Solard, Univ. Paris 13 (France); Bernard Geffroy, Denis Tondelier, Ecole Polytechnique (France); Michel Lequime, Institut Fresnel (France) [8435-40]
- 12.15: **OLED light extraction improvement with surface nano-micro texturation based on speckle lithography**, Jérôme J. D. Loicq, Univ. de Liège (Belgium); Philippe Guaino, ArcelorMittal Liège (Belgium); Pascal Viville, Materia Nova ASBL (Belgium); Karl Fleury-Frenette, Univ. de Liège (Belgium) . . [8435-41]
- Lunch/Exhibition Break 12.25 to 13.35

SESSION 8

Room: The Arc Wed. 13.35 to 15.20

OLEDs and OLETs

Session Chair: Volker van Elsbergen, Philips Research (Germany)

13.35: **Charge transport and recombination in organic light-emitting diodes** (*Invited Paper*), Paul W. M. Blom, Univ. of Groningen (Netherlands) and TNO Science and Industry (Netherlands); Martijn Kuik, Gert-Jan Wetzelaer, Herman Nicolai, Univ. of Groningen (Netherlands) [8435-42]

14.05: **Charge carrier dynamics in hybrid organic-inorganic light emitting devices**, Eugenia Martinez-Ferrero, Cetemmsa (Spain) and ICIQ - Institut Català d'Investigació Química (Spain); Amparo Forneli, Univ. Politècnica de Valencia (Spain); Emilio J. Palomares, ICIQ - Institut Català d'Investigació Química (Spain) [8435-43]

14.20: **Investigation of transfer mechanisms between two adjacent phosphorescent emission layers**, Carola C. Diez, Thilo C. G. Reusch, OSRAM Opto Semiconductors GmbH (Germany); Wolfgang Bruetting, Univ. Augsburg (Germany) [8435-44]

14.35: **Thermally activated delayed fluorescence in a spiro acridane molecule that enhances the EL efficiency in OLEDs**, Gabor Mehes, Hiroko Nomura, Tetsuya Nakagawa, Chihaya Adachi, Kyushu Univ. (Japan) . . [8435-45]

14.50: **Charge recombination and quenching mechanisms in organic field effect light-emitting transistors**, Wouter W. A. Koopman, Stefano Toffanin, Michele Muccini, Istituto per lo Studio dei Materiali Nanostrutturati (Italy) [8435-46]

15.05: **Electroluminescence from organic nanocrystals**, Jakob Kjelstrup-Hansen, Luciana Tavares, Per Baunegaard W. Jensen, Horst-Günter Rubahn, Univ. of Southern Denmark (Denmark) [8435-47]

Coffee Break 15.20 to 16.00

SESSION 9

Room: The Arc Wed. 16.00 to 17.30

Organic-based Laser Studies

Session Chair: Chihaya Adachi, Kyushu Univ. (Japan)

16.00: **InGaN LED pumped polymer laser explosive sensor**, Yue Wang, Univ. of St. Andrews (United Kingdom); Alexander L. Kanibolotsky, Peter J. Skabara, Martin D. Dawson, Univ. of Strathclyde (United Kingdom); Graham A. Turnbull, Ifor D. Samuel, Univ. of St. Andrews (United Kingdom) [8435-48]

16.15: **Demonstration of broadly tunable laser emission and study of photodegradation issues in vertical external cavity surface-emitting organic lasers**, Oussama Mhibik, Tatiana Leang, Sébastien V. Chenais, Hadi Rabbani-Haghighi, Alain Siove, Sébastien Forget, Univ. Paris 13 (France) [8435-49]

16.30: **High-power CW tunable solid state dye lasers: from the visible to UV**, Rainer Bornemann, Erwin Thiel, Peter G. Haring Bolivar, Univ. Siegen (Germany) [8435-50]

16.45: **Whispering gallery modes microcavities with J-aggregates and plasmonic hot spots**, Yuri P. Rakovich, Centro de Fisica de Materiales (Spain); Dzmitry Melnikau, CIC nanoGUNE Consolider (Spain); Diana Savateeva, Centro de Fisica de Materiales (Spain); Andrey Chuvilin, Rainer Hillenbrand, CIC nanoGUNE Consolider (Spain) [8435-51]

17.00: **Evaluation of amplified spontaneous emission from photopumped thiophene/phenylene co-oligomers in polycrystalline states**, Hiroyuki Mochizuki, Yoshizo Kawaguchi, Fumio Sasaki, National Institute of Advanced Industrial Science and Technology (Japan); Shu Hotta, Kyoto Institute of Technology (Japan) [8435-52]

17.15: **Study of two-dimensional photonic crystals cavity using organic gain materials**, Francois Gourdon, Nathalie Fabre, Mahmoud Chakaroun, Univ. Paris 13 (France); Sophie Bouchoule, Ctr. National de la Recherche Scientifique (France); Bernard Geffroy, Ecole Polytechnique (France); Alexis P. Fischer, Azzedine Boudrioua, Univ. Paris 13 (France) [8435-53]

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Optics, Photonics and Digital Technologies for Multimedia Applications

Conference Chairs: **Peter Schelkens**, Vrije Univ. Brussel (Belgium); **Touradj Ebrahimi**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Gabriel Cristóbal**, Consejo Superior de Investigaciones Científicas (Spain); **Frédéric Truchetet**, Univ. de Bourgogne (France); **Pasi Saarikko**, Nokia Research Ctr. (Finland)

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Tuesday 17 April

Keynote Presentation

Room: 215 Tues. 08.20 to 09.00

Session Chair: **Gabriel Cristóbal**,

Consejo Superior de Investigaciones Científicas (Spain)

08.20: **The light field camera: extended depth of field, aliasing, and superresolution** (Keynote Presentation), Paolo Favaro, Heriot-Watt Univ. (United Kingdom) [8436-01]

SESSION 2

Room: 215 Tues. 09.00 to 10.20

Visual Quality Assessment

Session Chair: **Gabriel Cristóbal**,

Consejo Superior de Investigaciones Científicas (Spain)

09.00: **Subjective speckle perception tests evaluated with standardized speckle measurement method**, Stijn Roelandt, Youri Meuret, Gordon Craggs, Guy Verschaffelt, Hugo Thienpont, An Jacobs, Vrije Univ. Brussel (Belgium) [8436-02]

09.20: **Comparison of the astronomical and multimedia image quality criteria**, Petr Páta, Karel Fliegel, Milos Klima, Czech Technical Univ. in Prague (Czech Republic) [8436-03]

09.40: **Measuring image quality in overlapping areas of panoramic composed images**, Carles Mitià, Toni Bover, Jaume Escofet, Univ. Politècnica de Catalunya (Spain) [8436-04]

10.00: **Packet-header based no-reference quality metrics for H.264/AVC video transmission**, Hudson Cruz, Patricia Dias, João M. Ascenso, Instituto Superior de Engenharia de Lisboa (Portugal) [8436-05]

Coffee Break 10.20 to 11.00

SESSION 3

Room: 215 Tues. 11.00 to 12.50

High Dynamic Range Imaging

Session Chairs: **Luis Gonzaga Mendes Magalhaes**, INESC Porto (Portugal); **Maximino Bessa**, INESC Porto (Portugal)

11.00: **A survey on HDR visualization on mobile devices** (Invited Paper), Luis G. M. Magalhaes, INESC Porto (Portugal) and Univ. de Trás-os-Montes e Alto Douro (Portugal); Maximino Bessa, INESC Porto (Portugal); António C. Urbano, Instituto Politécnico de Leiria (Portugal); Miguel Melo, INESC Porto (Portugal); Emanuel Peres, Univ. de Trás-os-Montes e Alto Douro (Portugal); Alan Chalmers, The Univ. of Warwick (United Kingdom) [8436-06]

11.30: **Perceptual colour spaces for high dynamic range image compression**, Eran A. Edirisinghe, Loughborough Univ. (United Kingdom); Vladimir Dolzhenko, Apical Ltd. (United Kingdom) and Loughborough Univ. (United Kingdom) [8436-07]

11.50: **Full high-dynamic range images for dynamic scenes**, Raissel Ramirez Orozco, Ignacio Martin, Univ. de Girona (Spain); Celine Loscos, Univ. de Reims Champagne-Ardenne (France); Pere Pau Vasquez, Univ. Politècnica de Catalunya (Spain) [8436-08]

12.10: **High-dynamic range video acquisition with a multi-view camera**, Jennifer Bonnard, Celine Loscos, Gilles Valette, Jean-Michel Nourrit, Laurent Lucas, Univ. de Reims Champagne-Ardenne (France) [8436-09]

12.30: **Speed up of optimization-based approach to local backlight dimming of HDR displays**, Nino Burini, Ehsan Nadernejad, Jari Korhonen, Soren Forchhammer, Technical Univ. of Denmark (Denmark); Xiaolin Wu, McMaster Univ. (Canada) [8436-10]

Lunch/Exhibition Break 12.50 to 14.00

SESSION 4

Room: 215 Tues. 14.00 to 15.30

Industrial and Medical Processing

Session Chair: **María S. Millán García-Varela**, Univ. Politècnica de Catalunya (Spain)

14.00: **Image analysis in modern ophthalmology: from acquisition to computer assisted diagnosis and telemedicine** (Invited Paper), Andrés G. Marrugo, María S. Millán García-Varela, Univ. Politècnica de Catalunya (Spain); Gabriel Cristóbal, Salvador Gabarda, Consejo Superior de Investigaciones Científicas (Spain); Michal Sorel, Filip Sroubek, Institute of Information Theory and Automation (Czech Republic) [8436-11]

14.30: **Evaluating the effectiveness of treatment of corneal ulcers via computer based automatic image analysis**, Nesreen A. Otoum, Eran A. Edirisinghe, Loughborough Univ. (United Kingdom); Harminder Dua, Lana Faraj, The Univ. of Nottingham, Queens Medical Ctr. (United Kingdom) [8436-12]

14.50: **A comprehensive study of texture analysis based on local binary patterns**, Gabriel Cristóbal, Consejo Superior de Investigaciones Científicas (Spain); Uriel R. Nava, Boris Escalante-Ramírez, Univ. Nacional Autónoma de México (Mexico) [8436-13]

15.10: **Fast texture evaluation of textiles using the GLBP technique in GPU architecture**, Jennifer Triana Martinez, Jose Armando Fernandez Gallego, Jorge Alvarez, Benhur Ortiz-Jaramillo, Antonio Nariño Univ. (Colombia); Sergio Orjuela Vargas, Wilfried Philips, Univ. Gent (Belgium) [8436-14]

Coffee Break 15.30 to 16.10

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 5

Room: 215 Wed. 08.20 to 10.00

Sensors and Display

Session Chair: **Pasi Saarikko**, Vuzix (Finland)

08.20: **New high-speed CMOS image sensor including linear and non-linear functions in the focal plane**, Purnawarman Musa, Univ. de Bourgogne (France) and University of Gunadarma (Indonesia); Philippe Pfister, Michel Paindavoine, Univ. de Bourgogne (France) [8436-15]

08.40: **Precise and effective fixed-pattern correction for logarithmic high dynamic range CMOS image sensors achieving low-noise equivalent contrast over illumination**, Markus Strobel, Institut für Mikroelektronik Stuttgart (Germany) [8436-16]

09.00: **A new approach for system level active vision sensor**, Julien Bezine, Mathieu Thevenin, Renaud Schmit, Commissariat à l'Énergie Atomique (France); Michel Paindavoine, Univ. de Bourgogne (France) [8436-17]

09.20: **Multi target tracking implementation in the high data throughput ebCMOS camera system: LUSIPHER prototype**, Quang Tuyen Doan, Institut de Physique Nucléaire de Lyon (France); Rémi Barbier, Univ. de Lyon (France) and Institut de Physique Nucléaire de Lyon (France); Agnès Dominjon, Institut de Physique Nucléaire de Lyon (France); Thomas Cajgfinger, Univ. de Lyon (France) and Institut de Physique Nucléaire de Lyon (France); Cyrille Guérin, Institut de Physique Nucléaire de Lyon (France) [8436-18]

09.40: **Composed filter for attenuating bi-frequential noise on LCD-generated ronchigrams**, Miguel Mora-González, Roger Chiu-Zarate, Jesús Muñoz-Maciel, Univ. de Guadalajara (Mexico); Julio C. Martínez-Romo, Instituto Tecnológico de Aguascalientes (Mexico); Javier Salinas-Luna, Univ. del Mar (Mexico); Juan Campos, Univ. Autònoma de Barcelona (Spain); Francisco Luna-Rosas, Instituto Tecnológico de Aguascalientes (Mexico) [8436-19]

Coffee Break 10.00 to 10.40

SESSION 6

Room: 215 **Wed. 10.40 to 12.10**

Visual Attention

Session Chairs: **Matei Mancas**, Faculté Polytechnique de Mons (Belgium); **Olivier Le Meur**, Technicolor S.A. (France)

- 10.40: **Visual attention: low-level and high-level viewpoints** (*Invited Paper*), Fred W. M. Stentiford, Univ. College London (United Kingdom) [8436-20]
- 11.10: **Motion statistics at the saccade landing point: attentional capture by spatiotemporal features in a gaze-contingent reference**, Anna Belardinelli, Univ. of Tübingen (Germany); Andrea Carbone, Univ. Pierre et Marie Curie (France) [8436-21]
- 11.30: **Data-driven approach to change- and motion-based visual attention modelling**, Dubravko Culibrk, Univ. of Novi Sad (Serbia); Matei Mancas, Faculté Polytechnique de Mons (Belgium); Srdjan Sladojevic, Vladimir Crnojevic, Univ. of Novi Sad (Serbia) [8436-22]
- 11.50: **Real-time computational attention model for dynamic scenes**, Vincent Courboulay, Univ. de La Rochelle (France); Matthieu Pereira Da Silva, Polytech' Nantes (France) [8436-23]
- Lunch/Exhibition Break 12.10 to 13.20

SESSION 7

Room: 215 **Wed. 13.20 to 15.00**

Image Processing Applications

Session Chair: **Laurent Jacques**, Univ. Catholique de Louvain (Belgium)

- 13.20: **Use of subpixel techniques in pocket cameras to measure vibrations and displacements**, David Mas, Julian Espinosa, Ana B. Roig, Belen Ferrer, Jorge Perez, Univ. de Alicante (Spain) [8436-24]
- 13.40: **Subjectively optimised multi-exposure and multi-focus image fusion with compensation for camera shake**, Alexis L. Lluís Gomez, Sara Saravi, Eran Edirisinghe, Loughborough Univ. (United Kingdom) [8436-25]
- 14.00: **Subjectively optimised H.264 multi-view video coding for viewing in auto-stereoscopic displays**, Eran A. Edirisinghe, Mohamad Ismail, Loughborough Univ. (United Kingdom) [8436-26]
- 14.20: **Data driven identification and aberration correction for model-based sensorless adaptive optics**, Jacopo Antonello, Rufus Fraanje, Technische Univ. Delft (Netherlands); Hong Song, Zhejiang Univ. (China) and Technische Universiteit Delft (Netherlands); Michel Verhaegen, Technische Univ. Delft (Netherlands); Hans Gerritsen, Christoph Keller, Tim van Werkhoven, Utrecht Univ. (Netherlands) [8436-27]
- 14.40: **Video surveillance for monitoring driver fatigue and distraction**, Robinson Jimenez Moreno, Univ. Antonio Nariño (Colombia); Sergio Orjuela Vargas, Wilfried Philips, Univ. Gent (Belgium) [8436-28]
- Coffee Break 15.00 to 15.40

SESSION 8

Room: 215 **Wed. 15.40 to 17.30**

Challenges in Signal Processing for Forensics

Session Chairs: **Jana Dittmann**, Otto-von-Guericke-Univ. Magdeburg (Germany); **Athanassios N. Skodras**, Hellenic Open Univ. (Greece)

- 15.40: **First proposal for a general description model of forensic traces** (*Invited Paper*), Ina Lindauer, Fachhochschule Brandenburg (Germany); Martin Schäler, Otto-von-Guericke-Univ. Magdeburg (Germany); Claus Vielhauer, Fachhochschule Brandenburg (Germany); Gunter Saake, Mario Hildebrandt, Otto-von-Guericke-Univ. Magdeburg (Germany) [8436-29]
- 16.10: **Advanced techniques for latent fingerprint detection and validation using a CWL device**, Andrey Makrushin, Mario Hildebrandt, Otto-von-Guericke-Univ. Magdeburg (Germany); Robert Fischer, Tobias Kiertscher, Fachhochschule Brandenburg (Germany); Jana Dittmann, Otto-von-Guericke-Univ. Magdeburg (Germany); Claus Vielhauer, Fachhochschule Brandenburg (Germany) . [8436-30]
- 16.30: **Gait recognition under carrying condition: a static dynamic fusion method**, Guan Yu, Chang-Tsun Li, Yongjian Hu, The Univ. of Warwick (United Kingdom) [8436-31]
- 16.50: **Performance analysis of digital cameras versus chromatic white light (CWL) sensors for the localization of latent fingerprints in crime scenes**, Mathias Jankow, Mario Hildebrandt, Otto-von-Guericke-Univ. Magdeburg (Germany); Jennifer Sturm, Fachhochschule Brandenburg (Germany); Stefan Kiltz, Otto-von-Guericke-Univ. Magdeburg (Germany); Claus Vielhauer, Fachhochschule Brandenburg (Germany) [8436-32]
- 17.10: **Environmental impact to multimedia systems on the example of fingerprint traces aging behavior at crime scenes**, Ronny Merkel, Andy Breuhan, Otto-von-Guericke-Univ. Magdeburg (Germany); Claus Vielhauer, Fachhochschule Brandenburg (Germany); Mario Hildebrandt, Otto-von-Guericke-Univ. Magdeburg (Germany); Anja Braeutigam, State Police Headquarters Saxony-Anhalt (Germany) [8436-33]

POSTERS—WEDNESDAY

Grand Hall **Wed. 17.40 to 19.10**

A poster session will be held on Wednesday 17.40 to 19.10. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Wednesday. 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 at <http://spie.org/x34963.xml>.

- Legally compatible design of digital dactyloscopy in future surveillance scenarios**, Maik Schott, Otto-von-Guericke-Univ. Magdeburg (Germany); Matthias Pocs, Univ. Kassel (Germany); Mario Hildebrandt, Otto-von-Guericke-Univ. Magdeburg (Germany) [8436-34]
- The design of equipment for optical power measurement in FSO link beam cross-section**, Jan Látal, Tomas David, Frantisek Hanacek, Petr Koudełka, Jan Vitasek, Petr Siska, Jan Skapa, Vladimir Vasinek, Technical Univ. of Ostrava (Czech Republic) [8436-35]
- Improvement method of the optical MTF by using Bayes theorem and application results to a rod lens optical system**, Kotaro Okada, Shuma Horiuchi, Shuhei Yoshida, Zenta Ushiyama, Manabu Yamamoto, Tokyo Univ. of Science (Japan) [8436-36]
- Development of large capacity holographic memory using blue laser**, Kaito Okubo, Hideki Akamatsu, Shougei Ozawa, Manabu Yamamoto, Tokyo Univ. of Science (Japan) [8436-37]
- Optical correlator optimized for medical applications**, Kenta Moriyama, Hirotohi Kuboyama, Shinichi Arai, Mitsuo Fukuda, Toyohashi Univ. of Technology (Japan); Makoto Katoh, Tadahiko Kawaguchi, PaPaLaB Co., Ltd. (Japan); Seiji Yamamoto, Hamamatsu Univ. School of Medicine (Japan); Mitsuteru Inoue, Toyohashi Univ. of Technology (Japan) [8436-38]
- Spectral characteristics of fiber couplers for FTTx networks**, Jan Vitasek, Jan Latal, Petr Koudełka, Jiri Bocheza, Stanislav Hejduk, Vladimir Vasinek, Technical Univ. of Ostrava (Czech Republic) [8436-39]
- Change image detection under unknown affine transformations of intensity**, Pascuala Garcia-Martínez, Univ. de València (Spain); Henri H. Arsenault, Univ. Laval (Canada) [8436-40]
- View-through characterization of translucent fabrics based on opto-digital image analysis**, Jaume Escofet Soteras, Carles Mitjà Caballé, Miquel Ralló Capdevila, Maria S. Millán García-Varela, Univ. Politècnica de Catalunya (Spain) . [8436-42]
- Measuring image quality performance on image versions saved with different file format and compression ratio**, Carles Mitjà, Jaume Escofet, Toni Bover, Univ. Politècnica de Catalunya (Spain) [8436-43]
- Process simulation in digital camera system**, Florin Toadere, National Institute for Research and Development of Isotopic and Molecular Technologies (Romania) [8436-45]
- Texture analysis based on the Hermite transform for image classification and segmentation**, Alfonso Estudillo-Romero, Boris Escalante-Ramírez, Jesus Savage-Carmona, Univ. Nacional Autónoma de México (Mexico) [8436-46]
- Separation of high-resolution samples of overlapping latent fingerprints using relaxation labeling**, Kun Qian, Maik Schott, Werner Schöne, Mario Hildebrandt, Otto-von-Guericke-Univ. Magdeburg (Germany) [8436-48]
- High speed image techniques for construction safety net monitoring in outdoor conditions**, Belen Ferrer, Juan Carlos Pomares, Ramon Irlas, Julian Espinosa, David Mas, Univ. de Alicante (Spain) [8436-49]
- Surface classification and detection of latent fingerprints based on 3D surface texture parameters**, Stefan Gruhn, Robert Fischer, Claus Vielhauer, Fachhochschule Brandenburg (Germany) [8436-50]
- High dynamic range video transmission and display using standard dynamic range technologies**, Andrew N. Leonce, Tao-i Hsu, Dhammike S. Wickramanayake, Loughborough Univ. (United Kingdom); Eran A. Edirisinghe, Loughborough Univ. (United States) [8436-51]
- Segmentation of 4D cardiac computer tomography images using active shape models**, Barba J. Leiner, Jimena Olveres, Boris Escalante-Ramírez, Univ. Nacional Autónoma de México (Mexico) [8436-52]
- Filtering and detection of low contrast structures on ultrasound images**, Lorena P. Vargas Quintero, Boris Escalante-Ramírez, Univ. Nacional Autónoma de México (Mexico) [8436-53]
- Arbitrary micro phase-step digital holographic microscopy**, Chi-Ching Chang, MingDao Univ. (Taiwan); Min-Tzung Shiu, National Defense Univ. (Taiwan) [8436-54]
- Fabrication of chalcogenide glass molding lens for thermal imaging applications**, Du Hwan Cha, Yeon Hwang, Jae Cheol Jeong, Hye-Jeong Kim, Jeong-Ho Kim, Korea Photonics Technology Institute (Korea, Republic of) [8436-56]

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Real-time portable system for fabric defect detection using an ARM processor, Jose Armando Fernandez Gallego, Juan Pablo Yañez Puentes, Benhur Ortiz-Jaramillo, Jorge Alvarez, Univ. Antonio Nariño (Colombia); Sergio Orjuela Vargas, Wilfried Philips, Univ. Gent (Belgium) [8436-57]

Response of human visual system to various methods of stereoscopic projection, Stanislav Vitek, Czech Technical Univ. in Prague (Czech Republic) [8436-58]

Can state-of-the-art HVS based objective image quality criteria be used for image reconstruction techniques based on ROI analysis?, Petr Dostal, Czech Technical Univ. in Prague (Czech Republic) [8436-59]

Real-time interactive projection system based on infrared structured-light method, Xiaorui Qiao, Qian Zhou, Kai Ni, Liang He, Guan hao Wu, Xuemin Cheng, Jianshe Ma, Leshan Mao, Tsinghua Univ. (China) [8436-60]

Intra-Oral OCT: an in vivo assessment of ceramic inlays, Roxana O. Rominu D.D.S., Mihai Rominu D.D.S., Meda Negrutiu D.D.S., Cosmin Sinescu D.D.S., Daniela M. Pop, Emanuela L. Petrescu, Florin Topala, Alin Gabor, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian G. Podoleanu, Univ. of Kent (United Kingdom) [8436-61]

Bone regeneration evaluation by optical coherence tomography and microCT methods, Meda-Lavinia Negrutiu, Cosmin Sinescu D.D.S., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian Manescu, Univ. Politecnica delle Marche (Italy); Florin I. Topala, Bogdan Hoinoiu, Giacomo E. Armani, Mihai Rominu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian G. Podoleanu, Univ. of Kent (United Kingdom) [8436-62]

Don't miss the Photonics Europe Exhibition

Location: Grand Hall

Monday 16 April 15.00 to 19.10

Tuesday 17 April 10.00 to 16.00

Wednesday 18 April 10.00 to 19.30

Real-Time Image and Video Processing

Conference Chairs: **Nasser Kehtarnavaz**, The Univ. of Texas at Dallas (United States); **Matthias F. Carlsohn**, Computer Vision and Image Communication in Bremen (Germany)

Programme Committee: **Mohamed Akil**, École Supérieure d'Ingénieurs en Electronique et Electrotechnique (France); **Philip P. Dang**, Intel Corp. (United States); **Barak Fishbain**, Univ. of California, Berkeley (United States); **Christos Grecos**, Univ. of the West of Scotland (United Kingdom); **Sergio R. Goma**, Qualcomm Inc. (United States); **Reinhard Koch**, Christian-Albrechts-Univ. zu Kiel (Germany); **Rastislav Lukac**, Epsom Canada Ltd. (Canada); **Mehrube Mehrubeoglu**, Texas A&M Univ. Corpus Christi (United States); **Antonio J. Plaza**, Univ. de Extremadura (Spain); **Volodymyr I. Ponomaryov**, Instituto Politécnico Nacional (Mexico); **Luis Salgado**, Univ. Politécnica de Madrid (Spain); **Jorge Santos**, European Commission (Belgium); **Mukul V. Shirvaikar**, The Univ. of Texas at Tyler (United States); **Athanasios N. Skodras**, Hellenic Open Univ. (Greece); **Stephan C. Stilkerich**, EADS Deutschland GmbH (Germany); **Leonid P. Yaroslavsky**, Tel Aviv Univ. (Israel)

Wednesday 18 April

POSTERS—WEDNESDAY

Grand Hall **Wed. 17.40 to 19.10**

A poster session will be held on Wednesday 17.40 to 19.10. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Wednesday. 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 at <http://spie.org/x34963.xml>.

MTF measurements on real time for performance analysis of electro-optical systems, Jose A. Stuchi, Elisa S. Barbarini, Flavio P. Vieira, Fatima M. Yasuoka, Daniel Santos, Mario Stefani, Jarbas C. Castro, Opto Eletrônica S.A. (Brazil); Evandro L. Rodrigues, Univ. de São Paulo (Brazil) [8437-16]

Real-time shrinkage studies in photopolymer films using holographic interferometry, Mohesh Moothanchery, Viswanath Bavigadga, Izabela Naydenova, Vincent Toal, Dublin Institute of Technology (Ireland) [8437-17]

GPU-based real-time structure light 3D scanner at 500 fps, Hao Gao, Takeshi Takaki, Idaku Ishii, Hiroshima Univ. (Japan) [8437-18]

FPGA-based computer vision for laser materials processing, Christoph Franz, Fraunhofer-Institut für Lasertechnik (Germany); Holger Singpiel, Johannes Trein, SILICONSFTWARE GmbH (Germany) [8437-19]

Invariant methods for real-time object recognition and image understanding, Peter F. Stiller, Texas A&M Univ. (United States) [8437-21]

Selection of bilevel image compression methods for reduction of communication energy in wireless visual sensor networks, Khursheed Khursheed, Muhammad Imran, Naeem Ahmad, Mattias O'Nils, Mid Sweden Univ. (Sweden) [8437-22]

Real-time implementation of a color video processing to contrast enhancement using a DSP DaVinci, Alberto J. Rosales-Silva, Volodymyr Ponomaryov, Francisco Gallegos, Mario Dehesa, Instituto Politécnico Nacional (Mexico) [8437-23]

Movement detection using an order statistics algorithm, Alberto J. Rosales-Silva, Volodymyr Ponomaryov, Francisco Gallegos, José Portillo, Instituto Politécnico Nacional (Mexico) [8437-24]

Real-time FPGA implementation of recursive wavelet transform, Chandrasekhar Patiolla, V. Gopalakrishna, Nasser Kehtarnavaz, The Univ. of Texas at Dallas (United States); Matthias Carlsohn, Computer Vision and Image Communication (Germany) [8437-25]

High throughput rendering of optically acquired holograms, Michael Atlan, Benjamin Samson, Max Lesaffre, Nicolas Verrier, Ecole Supérieure de Physique et de Chimie Industrielles (France) [8437-26]

Real-time visual communication to aid disaster recovery in a multi-segment hybrid wireless networking system, Tawfik Al Hadhrami, Qi Wang, Christos Grecos, Univ. of the West of Scotland (United Kingdom) [8437-27]

Real-time video streaming in mobile cloud over heterogeneous wireless networks, Saleh Abdallah-Saleh, Qi Wang, Christos Grecos, Univ. of the West of Scotland (United Kingdom) [8437-28]

Real-time 3D object topography using the Talbot effect, Arezoo Movaghar, Khosro Madanipour, Reza Safabakhsh, Amirakbar Univ. of Technology (Iran, Islamic Republic of) [8437-29]

Cost optimization of a sky surveillance visual sensor network, Naeem Ahmad, Khursheed Khursheed, Muhammad Imran, Najeem Lawal, Mattias O'Nils, Mid Sweden Univ. (Sweden) [8437-30]

Fast repurposing of high-resolution stereo video content for mobile use, Atanas R. Boev, Tampere Univ. of Technology (Finland); Bong Ho Lee, Electronics and Telecommunications Research Institute (Korea, Republic of); Ali Karaoglu, Tampere Univ. of Tehnology (Finland); Won-Sik Cheong, Electronics and Telecommunications Research Institute (Korea, Republic of); Atanas P. Gotchev, Tampere Univ. of Technology (Finland) [8437-31]

Multi-resolution model-based traffic sign detection and tracking, Javier Marinas Mateos, Luis Salgado, Massimo Camplani, Univ. Politécnica de Madrid (Spain) [8437-32]

Robust point and small target detection algorithm based on selective double structuring element morphology, Ram Saran, Instruments Research & Development Establishment (India); Anil K. Sarje, Indian Institute of Technology Roorkee (India); Hari S. Srivastava, Instruments Research & Development Establishment (India) [8437-34]

Imaging enhanced with StIlli, Mikhail Y. Loktev, S. Kryukov, Gleb V. Vdovin, Svyatoslav Savenko, Oleg A. Soloviev, Flexible Optical B.V. (Netherlands) [8437-35]

Real-time machine vision system using FPGA and soft-core processor, Malik A. Waheed, Benny Thörnberg, Xiaozhou Meng, Khurram Shahzad, Muhammad Imran, Mid Sweden Univ. (Sweden) [8437-36]

Thursday 19 April

Hot Topics III

Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall

For details, please see page 13

Welcome and Introduction

Room: 215 **Thurs. 10.40 to 10.45**

Matthias F. Carlsohn,

Computer Vision and Image Communication in Bremen (Germany)

SESSION 1

Room: 215 **Thurs. 10.45 to 12.25**

Real-Time Algorithms

Session Chair: **Matthias F. Carlsohn**, Computer Vision and Image Communication at Bremen (Germany)

10.45: **GePaRDT, a framework for massively parallel processing of dataflow graphs**, Alexander Schöch, Sabine Linz-Dittrich, Carlo Bach, Andreas Etemeyer, Interstaatliche Hochschule für Technik Buchs NTB (Switzerland) [8437-01]

11.05: **Image segmentation in wavelet transform space implemented on DSP**, Volodymyr I. Ponomaryov, Heydy Castillejos, Instituto Politécnico Nacional (Mexico); Ricardo Peralta, Univ. Nacional Autónoma de México (Mexico) [8437-02]

11.25: **A contourlet transform based algorithm for real-time video encoding**, Stamos Katsigiannis, National and Kapodistrian Univ. of Athens (Greece); Georgios Papaioannou, Athens Univ. of Economics and Business (Greece); Dimitris Maroulis, National and Kapodistrian Univ. of Athens (Greece) . [8437-03]

11.45: **Capturing reading patterns through a real-time smart camera iris tracking system**, Mehrube Mehrubeoglu, Evan Ortlieb, Texas A&M Univ. Corpus Christi (United States); Lifford McLauclan, Texas A&M Univ.-Kingsville (United States); Linh M. Pham, Texas A&M Univ. Corpus Christi (United States) [8437-04]

12.05: **Video-based realtime IMU-camera calibration for robot navigation**, Arne Petersen, Reinhard Koch, Christian-Albrechts-Univ. zu Kiel (Germany) [8437-05]

Lunch Break 12.35 to 13.50

SESSION 2

Room: 215 Thurs. 13.40 to 15.00

Real-Time Hardware

Session Chair: Jorge Santos, European Commission (Belgium)

13.40: **GPU acceleration towards real-time image reconstruction in 3D tomographic diffractive microscopy**, Jonathan Bailleul, Bertrand Simon, Matthieu Debailleul, Hui Liu, Olivier Haeberlé, Univ. de Haute Alsace (France) [8437-06]

14.00: **A flexible software architecture for scalable real-time image and video processing applications**, Rubén Usamentiaga, Julio Molleda, Daniel F. García, Francisco G. Bulnes, Univ. de Oviedo (Spain) [8437-07]

14.20: **Dense real-time stereo matching using memory efficient semi-global-matching based on FPGAs**, Maximilian Buder, German Aerospace Ctr. (Germany) [8437-08]

14.40: **Embedded smart vision system based on CogniMem neural processor: application to person detection**, Michel Paindavoine, Univ. de Bourgogne (France); Guillaume Camenen, Xavier Bruneau, GlobalSensing Technologies France (France); Guy Paillet, Anne Menendez, General Vision, Inc. (United States) [8437-09]

Coffee Break 15.00 to 15.40

SESSION 3

Room: 215 Thurs. 15.40 to 17.40

Real-Time Implementation

Session Chair: Antonio J. Plaza, Univ. de Extremadura (Spain)

15.40: **Real-time video breakup detection for multiple HD video streams on a single GPU**, Jakub Rosner, Silesian Univ. of Technology (Poland); Hannes Fassold, Martin Winter, Peter Schallauer, JOANNEUM RESEARCH Forschungsgesellschaft mbH (Austria) [8437-10]

16.00: **Complexity analysis of vision functions for implementation of wireless smart cameras using system taxonomy**, Muhammad Imran, Khursheed Khursheed, Naeem Ahmad, Malik A. Waheed, Mattias O'Nils, Najeem Lawal, Mid Sweden Univ. (Sweden) [8437-11]

16.20: **Benchmarking real-time HEVC streaming**, James M. Nightingale, Qi Wang, Christos Grecos, Univ. of the West of Scotland (United Kingdom) [8437-12]

16.40: **2000-fps multi-object tracking based on color histogram**, Gu Qingyi, Takaki Takeshi, Ishii Idaku, Hiroshima Univ. (Japan) [8437-13]

17.00: **Image noise reduction in Bayer RAW domain optimized for real-time implementation and subjective quality**, Eran A. Edirisinghe, Loughborough Univ. (United Kingdom); Ilya Romanenko, Apical Ltd. (United Kingdom) and Loughborough University (United Kingdom) [8437-14]

17.20: **Real-time lossy compression of hyperspectral images using iterative error analysis on GPUs**, Sergio Sanchez, Antonio J. Plaza, Univ. de Extremadura (Spain) [8437-15]

Photonics for Solar Energy Systems

Conference Chairs: **Ralf Wehrspohn**, Martin-Luther Univ. Halle-Wittenberg (Germany); **Andreas Gombert**, Soitec S.A. (Germany)

Programme Committee: **Benedikt Bläsi**, Fraunhofer-Institut für Solare Energiesysteme (Germany); **Christoph J. Brabec**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Mark L. Brongersma**, Stanford Univ. (United States); **Gion Calzaferrì**, Univ. Bern (Switzerland); **Martin P. Pfeiffer**, heliatek GmbH (Germany); **Bryce S. Richards**, Heriot-Watt Univ. (United Kingdom); **Geoffrey B. Smith**, Univ. of Technology, Sydney (Australia); **Hiroo Yugami**, Tohoku Univ. (Japan)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

SESSION 1

Room: 300 Hall. Mon. 13.00 to 15.00

Spectral Conversion

Session Chair: **Ralf Wehrspohn**,
Fraunhofer-Institut für Werkstoffmechanik (Germany)

13.00: **Up- and down-conversion materials for photovoltaic devices** (*Invited Paper*), Bryce S. Richards, Heriot-Watt Univ. (United Kingdom) [8438-01]

13.30: **Fluorescent borate glass superstrates for high efficiency CdTe solar cells** (*Invited Paper*), Stefan Schweizer, Franziska Steudel, Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany); Marcel Dyrba, Martin-Luther-Univ. Halle-Wittenberg (Germany) [8438-02]

14.00: **Strategies to tailor the UV absorption band of Eu³⁺:La₂O₃ down-shifting nanocrystals**, Joan Josep Carvajal Marti, Maria Méndez, Yolanda Cesteros, L. F. Marsal, Pilar Salagre, Pilar Formentin, Josep Pallarès, Magdalena Aguiló, Francesc Díaz, Univ. Rovira i Virgili (Spain) [8438-03]

14.20: **Organic wavelength selective mirrors for luminescent solar concentrators**, Paul Verbunt, Technische Univ. Eindhoven (Netherlands); Dick de Boer, Philips Research Nederland B.V. (Netherlands); Dick Broer, Technische Univ. Eindhoven (Netherlands); Cees Bastiaansen, Technische Univ. Eindhoven (Netherlands) and Queen Mary Univ. of London (United Kingdom); Michael Debije, Technische Univ. Eindhoven (Netherlands) [8438-04]

14.40: **Concepts to enhance the efficiency of upconversion for solar applications**, Stefan Fischer, Heiko Steinkemper, Fraunhofer-Institut für Solare Energiesysteme (Germany); Karl W. Krämer, Univ. Bern (Germany); Jan C. Goldschmidt, Fraunhofer-Institut für Solare Energiesysteme (Germany) [8438-05]

Coffee Break 15.00 to 15.40

SESSION 2

Room: 300 Hall. Mon. 15.40 to 17.50

Integral Photon Management

Session Chair: **Benedikt Bläsi**,
Fraunhofer-Institut für Solare Energiesysteme (Germany)

15.40: **Solar light trapping and harvesting with 3D photonic crystals** (*Invited Paper*), Sajeev John, Univ. of Toronto (Canada) [8438-06]

16.10: **Opto-electronic reciprocity and its implications for solar cells** (*Invited Paper*), U. Rau, Forschungszentrum Jülich GmbH (Germany) . . [8438-07]

16.40: **Efficient light trapping in thin-film Si solar cells using Mie resonators** (*Invited Paper*), Albert Polman, FOM Institute for Atomic and Molecular Physics (Netherlands) [8438-08]

17.10: **Angularly selective filters for solar cells**, Oliver Höhn, Marius Peters, Benedikt Bläsi, Fraunhofer-Institut für Solare Energiesysteme (Germany); Carolin Ulbrich, Forschungszentrum Jülich GmbH (Germany) [8438-09]

17.30: **Tuning the color of highly efficient, semitransparent organic photovoltaic devices**, Jens Czolk, Andreas Pütz, Jan Mescher, Henry Vogeler, Dimitar Kutsarov, Uli Lemmer, Alexander Colsmann, Karlsruher Institut für Technologie (Germany) [8438-10]

POSTERS—MONDAY

Grand Hall Mon. 17.45 to 19.15

A poster session will be held on Monday 17.45 to 19.15. Posters will be on display after 10.00 Monday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Monday. 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 at <http://spie.org/x34963.xml>.

Propagation of white light through optical fibres for CPV systems, Georgios E. Arnaoutakis, Jose Marques-Hueso, Bryce S. Richards, Tapas K. Mallick, Heriot-Watt Univ. (United Kingdom) [8438-33]

Meso-porous films of conductive polymer, Takuya Okamoto, Chitose Institute of Science and Technology (Japan) [8438-37]

Improved efficiencies of organic solar cells by integration of light-trapping gratings, Roana M. de Oliveira Hansen, Morten Madsen, Horst-Günter Rubahn, Univ. of Southern Denmark (Denmark) [8438-38]

The effect of ligand substitution and water co-adsorption on the adsorption dynamics and energy level matching of amino-phenyl acid dyes on TiO₂, Sergei Manzhos, Hiroshi Segawa, Koichi Yamashita, The Univ. of Tokyo (Japan) [8438-39]

The negative effect of gold nanoparticles on the efficiency of P3HT:PCBM solar cell, Sedigheh Mirzaei, Univ. Paul Sabatier (France); Gabi Hager, Alexandre Brolo, Univ. of Victoria (Canada); Guy Ablart, Univ. Paul Sabatier (Canada) [8438-40]

The influence of particle size in printed TiO₂ z-layers on the efficiency of dye sensitized solar cells, Jeroen Stryckers, Univ. Hasselt (Belgium) and Xios Univ. College Limburg (Belgium); Krishna Thalluri, Bertie Souvereyns, Wouter Moons, Univ. Hasselt (Belgium); Marlies Van Bael, An Hardy, Univ. Hasselt (Belgium) and IMEC (Belgium); Wim Deferme, Univ. Hasselt (Belgium) and Xios Univ. College Limburg (Belgium); Jean Manca, Univ. Hasselt (Belgium) and IMEC (Belgium) [8438-41]

Black silicon for solar cell applications, Matthias Kroll, Thomas Käsebier, Friedrich-Schiller-Univ. Jena (Germany); Martin Otto, Martin-Luther-Univ. Halle-Wittenberg (Germany); Kevin Füchsel, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Ralf Wehrspohn, Martin-Luther-Univ. Halle-Wittenberg (Germany) and Fraunhofer Institute for Mechanics of Materials, Halle (Germany); Ernst-Bernhard Kley, Friedrich-Schiller-Univ. Jena (Germany); Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) and Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Thomas Pertsch, Friedrich-Schiller-Univ. Jena (Germany) [8438-42]

Mc-Si nanowire fabricated by metal assisted chemical etching for solar energy conversion, Xiaopeng Li, Martin-Luther-Univ. Halle-Wittenberg (Germany) [8438-43]

Optical characterization of TCO films on fluorescent borate glasses for high-efficiency solar cells, Franziska Steudel, Paul-Tiberiu Miclea, Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany); Nico Teuscher, Andreas Heilmann, Fraunhofer-Institut für Werkstoffmechanik (Germany); Stefan Schweizer, Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany) and Martin Luther Univ. of Halle-Wittenberg (Germany) [8438-44]

An LED-based solar simulator, Laura L. Tobin, Dominic Zerulla, John T. Sheridan, Univ. College Dublin (Ireland) and SFI-Strategic Research Cluster in Solar Energy Conversion (Ireland) [8438-45]

Impact of laser ablated Al₂O₃ passivation layers from black Si surfaces on the optical surface properties, Martin Otto, Katharina Widder, Tino Rublack, Martin-Luther-Univ. Halle-Wittenberg (Germany); Thomas Käsebier, Matthias Kroll, Friedrich-Schiller-Univ. Jena (Germany); Roland Salzer, Fraunhofer-Institut für Werkstoffmechanik (Germany); Ralf B. Wehrspohn, Fraunhofer-Institut für Werkstoffmechanik (Germany) and Martin-Luther-Univ. Halle-Wittenberg (Germany) [8438-47]

Optical properties of lanthanide-organic dyes for spectral conversion encapsulated in porous silica nanoparticles, Paolo Pizzol, Jose Marques-Hueso, Neil Robertson, Heriot-Watt Univ. (United Kingdom); Isidora Freris, Luca Bellotto, Univ. Ca' Foscari di Venezia (Italy); Thomas J. J. Meyer, Teknova AS (Norway); Bryce S. Richards, Heriot-Watt Univ. (United Kingdom) [8438-48]

Effects of photonic structures on upconversion, Barbara Herter, Sebastian Wolf, Stefan Fischer, Marius Peters, Benedikt Bläsi, Jan Christoph Goldschmidt, Fraunhofer-Institut für Solare Energiesysteme (Germany) [8438-49]

Characterization of microcrystalline I-layer for solar cells prepared in low temperature: plastic compatible process, Rafal Sliz, Univ. of Oulu (Finland); Arman Ahnood, Arokia Nathan, Univ. College London (United Kingdom); Risto Myllyla, Univ. of Oulu (Finland); Ghassan Jabbour, KAUST, Solar and Alternative Energy Engineering Research Ctr. (Saudi Arabia) [8438-50]

Laser thermoreflectance for semiconductor thin films metrology, Patrick Gailly, Juri Hastanin, Univ. de Liège (Belgium); Charles Duterte, Yves Hernandez, Jean-Bernard Lecourt, Multitel A.S.B.L. (Belgium); Axel Kupisiewicz, Paul-Etienne Martin, Laser Engineering Applications S.A. (Belgium); Karl Fleury-Frenette, Univ. de Liège (Belgium) [8438-51]

Ligand exchange and photoluminescence quenching in organic-inorganic blends poly(3-hexylthiophene) P3HT:PbS, Yuliar Firdaus, Adis Khetubol, Katholieke Univ. Leuven (Belgium); Suleyman Kudret, Hanne Dillien, Dirk Vanderzande, Univ. Hasselt (Belgium); Mark van der Auweraer, Katholieke Univ. Leuven (Belgium) [8438-52]

Correlation between surface topography and short circuit current density for thin film silicon solar cells, Andre Hoffmann, Gabrielle Jost, Karsten Bittkau, Reinhard Carius, Forschungszentrum Jülich GmbH (Germany) [8438-53]

Structural and electrophysical properties of femtosecond laser exposed hydrogenated amorphous silicon films, Andrey Emelyanov, Pavel Forsh, Kazansky Andrey, Pavel Kashkarov, Lomonosov Moscow State Univ. (Russian Federation) [8438-55]

Conductive and protective diamond like carbon coatings on Si and glass substrates, Armen S. Gharibyan, State Engineering Univ. of Armenia (Armenia); David B. Hayrapetyan, Russian-Armenian State Univ. (Armenia); Zhozef R. Panosyan, State Engineering Univ. of Armenia (Armenia) [8438-56]

Spectral down-conversion efficiency in Sm-doped borates glasses, Marcel Dyrba, Martin-Luther-Univ. Halle-Wittenberg (Germany); Katharina Baumgartner, Forschungszentrum Jülich GmbH (Germany); Paul-Tiberiu Miclea, Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany); Reinhard Carius, Forschungszentrum Jülich GmbH (Germany); Stefan Schweizer, Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany) and Martin-Luther-Univ. Halle-Wittenberg (Germany) [8438-57]

Improved photovoltaic performance of Si nanowire solar cells integrated with ZnSe quantum dots, Jin-Young Jung, Jin Ho Bang, Jung-Ho Lee, Hanyang Univ. (Korea, Republic of) [8438-58]

Solar cell degradation: an experimental study, Saumyata Singh, Pradipta Panigrahi, Indian Institute of Technology Kanpur (India) [8438-59]

Nanoplasmonics for photovoltaic applications, Eliyas D. Mammo, Jose Marques-Hueso, Bryce S. Richards, Heriot-Watt Univ. (United Kingdom) [8438-60]

Simulation of optical properties of percolation type electrode for thin film solar cells with silver nanowires, Shuai Yan, Johannes Krantz, Christoph Pflaum, Christoph J. Brabec, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [8438-61]

Emission of Rhodamine B in PMMA opals for luminescent solar concentrators, Johannes Gutmann, Fraunhofer-Institut für Solare Energiesysteme (Germany) and Albert-Ludwigs-Univ. Freiburg (Germany); Janina Posdziech, Fraunhofer-Institut für Solare Energiesysteme (Germany); Marius Peters, Fraunhofer-Institut für Solare Energiesysteme (Singapore) and Fraunhofer-Institut für Solare Energiesysteme ISE (Germany); Lorenz Steidl, Rudolf Zentel, Johannes Gutenberg Univ. Mainz (Germany); Hans Zappe, Albert-Ludwigs-Univ. Freiburg (Germany); Jan Christoph Goldschmidt, Fraunhofer-Institut für Solare Energiesysteme (Germany) [8438-62]

Optical properties of AlTiO selective transmitting layers for transparent solar cell applications, Seung-Yun Lee, So Jeong, Ki Bang, Hanbat National Univ. (Korea, Republic of); Jung Lim, Electronics and Telecommunications Research Institute (Korea, Republic of) [8438-63]

Absorption enhancement due to grating structures for ultrathin silicon solar cells, Martin Theuring, Jürgen Lacombe, Kambalakwao Chakanga, Next Energy (Germany); Ruben Hüning, Klaus Huska, Karlsruher Institut für Technologie (Germany); Martin Vehse, Karsten von Maydell, Next Energy (Germany); Uli Lemmer, Karlsruher Institut für Technologie (Germany); Carsten Agert, Next Energy (Germany) [8438-64]

Novel method of forming micro random pattern from polystyrene gel deposition, Yuji Kiyono, Chitose Institute of Science and Technology (Japan) [8438-65]

Tuesday 17 April

SESSION 3

Room: 300 Hall. Tues. 08.20 to 10.30

Thin Film Solar Cell Photon Management I

Session Chair: Benedikt Bläsi, Fraunhofer-Institut für Solare Energiesysteme (Germany)

08.20: Light trapping in thin film solar cells: towards the Lambertian limit (Invited Paper), Lucio C. Andreani, Angelo Bozzola, Marco Liscidini, Univ. degli Studi di Pavia (Italy) [8438-11]

08.50: Simulation of light-trapping in thin film solar cells by high-performance computing (Invited Paper), Christoph Pflaum, Christine Jandl, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [8438-12]

09.20: Light harvesting schemes in thin film silicon solar cells (Invited Paper), Matthieu Despeisse, Mathieu Boccard, Corsin Battaglia, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Jordi Escarre, Univ. de Barcelona (Spain); Karin Söderström, Laura Ding, Sylvain Nicolay, Linus Löfgren, Gregory Bugnon, Simon Hänni, Michael Stuckelberger, Jan Willem Schüttauf, Fanny Meillaud, Christophe Ballif, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8438-13]

09.50: Comparison of periodic and random structures for scattering in thin film crystalline silicon solar cells, Marius Peters, Fraunhofer-Institut für Solare Energiesysteme (Germany) and Solar Energy Research Institute of Singapore (SERIS) (Singapore); Benedikt Bläsi, Fraunhofer-Institut für Solare Energiesysteme (Germany); Cangming Ke, Karen Forberich, National Univ. of Singapore (Singapore) [8438-14]

10.10: Optimization of thin film amorphous silicon solar cells using rigorous electromagnetic simulation techniques, Mark Blome, Konrad-Zuse-Zentrum für Informationstechnik Berlin (Germany); Kevin McPeak, ETH Zurich (Switzerland); Sven Burger, Frank Schmidt, Konrad-Zuse-Zentrum für Informationstechnik Berlin (Germany) [8438-15]

Coffee Break 10.30 to 11.10

SESSION 4

Room: 300 Hall. Tues. 11.10 to 12.40

Thin Film Solar Cell Photon Management II

Session Chair: Christoph Pflaum, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

11.10: Nanostructured micron-thin crystalline-silicon solar cells: towards tailored and integrated light-management schemes (Invited Paper), Valerie Depauw, IMEC (Belgium); Ounsi El Daif, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium); Christos Trompoukis, Kris Van Nieuwenhuysen, Frederic Dross, Ivan Gordon, Jef Poortmans, IMEC (Belgium) [8438-16]

11.40: Influence of texture modifications in silicon solar cells on absorption in the intrinsic layers, Markus Ermes, Karsten Bittkau, Reinhard Carius, Forschungszentrum Jülich GmbH (Germany) [8438-17]

12.00: Intermediate and backside reflectors in thin film silicon solar cells based on 3D photonic crystals, Ralf B. Wehrspohn, Martin-Luther Univ. Halle-Wittenberg (Germany); Reinhard Carius, Uwe Rau, Forschungszentrum Jülich GmbH (Germany); Johannes Üpping, Martin-Luther Univ. Halle-Wittenberg (Germany); Thorsten Beckers, Forschungszentrum Jülich GmbH (Germany) [8438-18]

12.20: Photocurrent enhancement with photoemission from metal nanoparticles, Claudia Gritti, Andrey Novitsky, Radu Malureanu, Andrei Lavrinenko, Technical Univ. of Denmark (Denmark); Beata Kardynal, Forschungszentrum Jülich (Germany); Alexander Uskov, P.N. Lebedev Physical Institute (Russian Federation) [8438-19]

Lunch/Exhibition Break 12.40 to 13.50

SESSION 5

Room: 300 Hall. Tues. 13.50 to 16.00

New Technological Concepts

Session Chair: Bryce S. Richards, Heriot-Watt Univ. (United Kingdom)

13.50: **Optimal antireflective design for light harvesting in silicon nanowire solar cells** (*Invited Paper*), Jung-Ho Lee, Hanyang Univ. (Korea, Republic of) [8438-20]

14.20: **Black silicon photovoltaics** (*Invited Paper*), Kevin Füchsel, Friedrich-Schiller-Univ. Jena (Germany) and Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Matthias Kroll, Thomas Käsebier, Friedrich-Schiller-Univ. Jena (Germany); Martin Otto, Martin-Luther-Univ. Halle-Wittenberg (Germany); Thomas Pertsch, Ernst-Bernhard Kley, Friedrich-Schiller-Univ. Jena (Germany); Ralf Wehrspohn, Martin-Luther Univ. Halle-Wittenberg (Germany); Norbert Kaiser, Andreas Tünnermann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [8438-21]

14.50: **Nanostructured black silicon anti-reflection in both high-current photocathodes for hydrogen production and 18.2%-efficient photovoltaics** (*Invited Paper*), Howard M. Branz, Todd G. Deutsch, Hao-Chih Yuan, Jihun Oh, National Renewable Energy Lab. (United States) [8438-22]

15.20: **Analysis of surface recombination in nanowire array solar cells**, Shuqing Yu, Friedhard Roemer, Bernd Witzigmann, Univ. Kassel (Germany) [8438-23]

15.40: **Electron recombination dynamics in CdSe/P3HT hybrid heterojunctions**, Josep Albero, Eugenia Martinez-Ferrero, Emilio J. Palomares, ICIQ - Institut Català d'Investigació Química (Spain) [8438-24]
Coffee Break 16.00 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 6

Room: 300 Hall. Wed. 08.20 to 10.10

Microstructure Technologies

Session Chair: Stefan L. Schweizer, Martin-Luther-Univ. Halle-Wittenberg (Germany)

08.20: **Photon management structures for solar cells** (*Invited Paper*), Benedikt Bläsi, Hubert Hauser, Christian Walk, Bernhard Michl, Fraunhofer-Institut für Solare Energiesysteme (Germany); Alexander Mellor, Univ. Politécnica de Madrid (Spain); Aron Guttowski, Sabrina Jüchter, Christine Wellens, Volker Kübler, Andreas J. Wolf, Fraunhofer-Institut für Solare Energiesysteme (Germany) [8438-25]

08.50: **Enhanced light trapping in crystalline silicon solar cells by nanoimprint lithography**, Christos Trompoukis, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium); Aline Herman, Facultes Univ. Notre Dame de la Paix (Belgium); Ounsi El Daif, Valerie Depauw, Dries Van Gestel, Kris Van Nieuwenhuysen, IMEC (Belgium); Olivier Deparis, Facultes Univ. Notre Dame de la Paix (Belgium); Jef Poortmans, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium) [8438-26]

09.10: **Preparation of periodically arranged metallic nanostructures using nanoimprint lithography**, Sabrina Jüchter, Hubert Hauser, Christine Wellens, Marius Peters, Jan Christoph Goldschmidt, Fraunhofer-Institut für Solare Energiesysteme (Germany); Ulrich T. Schwarz, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Benedikt Bläsi, Fraunhofer-Institut für Solare Energiesysteme (Germany) [8438-27]

09.30: **Thin film surface processing by ultrashort laser pulses (USLP)**, Davide Scorticati, J. Skolski, Gert-Willem R. B. E. Roemer, Bert Huis in 't Veld, Univ. Twente (Netherlands); M. J. Workum, Mirjam Theelen, Miro Zeman, Technische Univ. Delft (Netherlands) [8438-28]

09.50: **Investigation of CIS/CIGS and CdTe solar cells scribing with high-power fibre short pulse lasers**, Yves Hernandez, Multitel A.S.B.L. (Belgium); Erwin Lotter, Zentrum für Sonnenenergie- und Wasserstoff-Forschung (Germany); Veronica Bermudez, NEXCIS (France); Alessio Bosio, Univ. degli Studi di Parma (Italy); François Salin, EOLITE Systems (France); Marc Hueske, LPKF Laser & Electronics AG (Germany); Stefano Selleri, Univ. degli Studi di Parma (Italy); Anthony Bertrand, Charles Duterte, Multitel A.S.B.L. (Belgium) [8438-29]

Coffee Break 10.10 to 10.50

SESSION 7

Room: 300 Hall. Wed. 10.50 to 13.00

Module Light Management

Session Chair: Uwe Rau, Forschungszentrum Jülich GmbH (Germany)

10.50: **Advanced resonance-shifting approaches to increase the efficiency of luminescent concentrators** (*Invited Paper*), Noel C. Giebink, The Pennsylvania State Univ. (United States); Gary P. Wiederrecht, Argonne National Lab. (United States) [8438-30]

11.20: **New low-cost high-efficiency solar module: diffracting deflector module**, Valentin Gâté, Lab. Hubert Curien (France) and Lab. des Matériaux et de Génie Physique (France); Yves Jourlin, Lab. Hubert Curien (France); Michel Langlet, Institut National Polytechnique de Grenoble (France); Francis Vocanson, Colette Veillas, Anthony Cazier, Lab. Hubert Curien (France) [8438-31]

11.40: **Light-guide-based diffractive solar concentrators**, Ties M. de Jong, Technische Univ. Eindhoven (Netherlands); Dick K. G. de Boer, Philips Research Nederland B.V. (Netherlands); Cees W. M. Bastiaansen, Technische Univ. Eindhoven (Netherlands) and Queen Mary Univ. of London (United Kingdom) [8438-32]

12.00: **Broadband excitation of upconversion in lanthanide doped fluorides for enhancement of Si solar cells**, Sean K. W. MacDougall, Jose Marques-Hueso, Heriot-Watt Univ. (United Kingdom); Daqin Chen, Yuansheng Wang, Fujian Institute of Research on the Structure of Matter (China); Bryce S. Richards, Heriot-Watt Univ. (United Kingdom) [8438-46]

12.20: **Neodymium-doped glasses as fluorescent concentrators for the infrared spectral range**, Marie-Christin Wiegand, Univ. Paderborn (Germany); Marcel Dyrba, Martin-Luther-Univ. Halle-Wittenberg (Germany); Bernd Ahrens, Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany); Manuela Miclea, Martin-Luther-Univ. Halle-Wittenberg (Germany); Stefan Schweizer, Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany) [8438-34]

12.40: **Planar lightguide solar concentrator**, Shu-Chun Chu, National Cheng Kung Univ. (Taiwan); Hung-Yu Wu, National Cheng-Kung Univ. (Taiwan); Hui-Hsiung Lin, Instrument Technology Research Ctr. (Taiwan) [8438-36]

Optical Sensing and Detection

Conference Chairs: **Francis Berghmans**, Vrije Univ. Brussel (Belgium); **Anna Grazia Mignani**, Istituto di Fisica Applicata Nello Carrara (Italy); **Piet De Moor**, imec (Belgium)

Programme Committee: **Francesco Baldini**, Istituto di Fisica Applicata Nello Carrara (Italy); **Hartmut Bartelt**, Institut für Photonische Technologien e.V. (Germany); **Brian Culshaw**, Univ. of Strathclyde (United Kingdom); **Thomas Geernaert**, Vrije Univ. Brussel (Belgium); **Jiri Homola**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Leszek R. Jaroszewicz**, Military Univ. of Technology (Poland); **Elfed Lewis**, Univ. of Limerick (Ireland); **Alexis Mendez**, MCH Engineering LLC (United States); **Luc Thévenaz**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Moshe Tur**, Tel Aviv Univ. (Israel); **Waclaw Urbanczyk**, Wroclaw Univ. of Technology (Poland); **Jan Van Roosbroeck**, FOS&S Inc (Belgium); **David J. Webb**, Aston Univ. (United Kingdom)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall

For details see pages 10-11

SESSION 1

Room: 315 Mon. 13.00 to 15.10

Optical Fibre Sensors: Fibre Bragg Gratings

Session Chair: **Francis Berghmans**, Vrije Univ. Brussel (Belgium)

13.00: **Characterization of fiber Bragg grating-based sensor array for high-resolution manometry** (*Invited Paper*), Martin Becker, Manfred Rothhardt, Kerstin Schöder, Institut für Photonische Technologien e.V. (Germany); Sebastian Voigt, Jan Mehner, Technische Univ. Chemnitz (Germany); Thomas Lüpke, Christoph Thieroff, Kunststoff-Zentrum in Leipzig gGmbH (Germany); Matthias Krüger, Technische Univ. Ilmenau (Germany); Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany) [8439-01]

13.30: **Dental composite resins: measuring the polymerization shrinkage using optical fiber Bragg grating sensors**, Heidi Ottevaere, Marc Tabak, Vrije Univ. Brussel (Belgium); Karima Chah, Patrice Mégret, Univ. de Mons (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8439-02]

13.50: **Macromolecular detection of streptavidin with gold-coated tilted FBG refractometers**, Valérie Voisin, Julie Pilate, Pascal Damman, Philippe Dubois, Patrice Mégret, Christophe Caucheteur, Univ. de Mons (Belgium) [8439-03]

14.10: **Highly sensitive temperature and strain sensor based on all-fiber 45 degree-TFG Lyot filter**, Zhijun Yan, Aston Univ. (United Kingdom); Adebayo Adedotun, Kaiming Zhou, Aston Univ. (United States); Hushan Wang, Xi'an Institute of Optics and Precision Mechanics (China); Lin Zhang, Aston Univ. (United States) [8439-04]

14.30: **Toward the implementation of flexible sensing sheet with fibre Bragg grating sensing elements**, Chunxiao Yan, Eleonora Ferraris, Dominiek Reynaerts, Katholieke Univ. Leuven (Belgium) [8439-05]

14.50: **Fiber Bragg grating for distributed fiber sensor with millimeter spatial resolution**, Sanghoon Chin, Ecole Polytechnique Fédérale de Lausanne (Switzerland) and Univ. Politécnica de Valencia (Spain); Juan Sancho-Dura, David Barrera-Villar, Salvador Sales, Univ. Politécnica de Valencia (Spain); Luc Thevenaz, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . [8439-06]

Coffee Break 15.10 to 15.40

SESSION 2

Room: 315 Mon. 15.40 to 17.40

Optical Fibre Sensors: Distributed Sensors

Session Chair: **Luc Thévenaz**, Ecole Polytechnique Fédérale de Lausanne (Switzerland)

15.40: **Brillouin distributed sensing using localized and stationary dynamic gratings**, Nikolay Primerov, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Yair Antman, Bar-Ilan Univ. (Israel); Juan Sancho, Univ. Politécnica de Valencia (Spain); Avi Zadok, Bar-Ilan Univ. (Israel); Luc Thévenaz, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8439-07]

16.00: **Fiber optic Brillouin distributed sensing using phase-shift keying modulation techniques**, Birgit Stiller, Min Won Lee, FEMTO-ST (France); Jérôme Hauden, Alexandre Mottet, Photline Technologies (France); Duc Minh Nguyen, Hervé Maillotte, Thibaut Sylvestre, FEMTO-ST (France) [8439-08]

16.20: **High-resolution Raman-assisted Brillouin sensor based on differential pulsewidth pair technique**, Xabier Angulo-Vinuesa, Sonia Martin-Lopez, Pedro Corredera, Consejo Superior de Investigaciones Científicas (Spain); Miguel González-Herráez, Univ. de Alcalá (Spain) [8439-09]

16.40: **Optical time-domain reflectometer-based multiplexed sensing scheme for environmental sensing**, Joel P. Carvalho, Carlos de Jesus Gouveia, INESC Porto (Portugal); José L. Santos, Univ. do Porto (Portugal); Pedro A. S. Jorge, INESC Porto (Portugal); José M. Baptista, Univ. da Madeira (Portugal) [8439-10]

17.00: **Distributed optical fibre temperature measurements in a low dose-rate radiation environment based on Rayleigh backscattering**, Alexey Faustov, Andrei I. Gussarov, SCK CEN (Belgium); Marc Wuilpart, Univ. de Mons (Belgium); Andrei A. Fotiadi, Faculté Polytechnique de Mons (Belgium); Leonid B. Liokumovich, Oleg I. Kotov, St. Petersburg State Polytechnical Univ. (Russian Federation); I. O. Zolotovskiy, Ulyanovsk State Univ. (Russian Federation); Alexander L. Tomashuk, A. M. Prokhorov General Physics Institute (Russian Federation); T. de Schoutheete, Laborelec (Belgium); Patrice Mégret, Univ. de Mons (Belgium) [8439-11]

17.20: **Development of a Jones vector-based model for the measurement of a plasma current in a thermonuclear fusion reactor with a POTDR setup**, Matthieu Aerssens, Univ. de Mons (Belgium); Andrei Gussarov, SCK CEN (Belgium); Philippe Moreau, Commissariat à l'Énergie Atomique (France); Vincent Massaut, SCK CEN (Belgium); Patrice Mégret, Marc Wuilpart, Univ. de Mons (Belgium) [8439-12]

POSTERS—MONDAY

Grand Hall Mon. 17.45 to 19.15

A poster session will be held on Monday 17.45 to 19.15. Posters will be on display after 10.00 Monday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Monday. 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 at <http://spie.org/x34963.xml>.

Challenges and mitigation methods for diode laser absorption spectroscopy-based sensor implementation for power plant diagnostics, Rachit Sharma, Abhijeet Kulkarni, Sandip Maity, Chayan Mitra, Sameer Vartak, GE India Technology Ctr. Pvt. Ltd. (India) [8439-57]

Optoelectronic phase noise measurement system with wideband analysis, Patrice Salzenstein, Abdelhamid Hmima, Nathalie Chollet, Ctr. National de la Recherche Scientifique (France) [8439-58]

The optic-electronic autocollimation sensor for measurement of the three-axis angular deformation of industry objects, Igor A. Konyakhin, Tatyana N. Kopylova, Aleksey Konyakhin, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [8439-59]

Design and implementation of IR microspectrometers based on linearly-volatile optical filters, Arvin Emadi, Huaiwen Wu, Ger de Graaf, Reinoud F. Wolffenbuttel, Technische Univ. Delft (Netherlands) [8439-60]

Noise analysis of a CCD-based ultraviolet spectrometry system, John J. Davenport, Jane Hodgkinson, Cranfield Univ. (United Kingdom); John R. Saffell, Alphasense (United Kingdom); Ralph P. Tatam, Cranfield Univ. (United Kingdom) [8439-61]

Silicon-on-insulator (SOI) nanobeam optical cavities for refractive index-based sensing, Muhammad Ghazali Abdul Rahman, Philippe Velha, Richard M. De La Rue, Nigel P. Johnson, Univ. of Glasgow (United Kingdom) [8439-62]

Characterization of MRI-compatible PET detector modules by optical excitation of the scintillator material, Balázs Játékos, Zoltán Kolozsi, Eموke Lorincz, Ferenc Ujhelyi, Gábor Erdei, Attila Barócsi, Budapest Univ. of Technology and Economics (Hungary) [8439-63]

Polarization dependence of the strain sensitivity of fibre Bragg gratings inscribed in highly birefringent optical fibres, Paul Singh, Florian Jülich, Johannes Roths, Hochschule München für Angewandte Wissenschaften (Germany) [8439-64]

Field testing of a low-cost self-referenced all-fibre polarimetric current sensor for the monitoring of current in the high-speed railway catenary, Massimo L. Filograno, Pedro Corredera, Consejo Superior de Investigaciones Científicas (Spain); Miguel González-Herráez, Univ. de Alcalá (Spain) [8439-65]

Precise fiber optic sensors with pulse modulation of intensity, Petro O. Demyanenko, National Technical Univ. of Ukraine (Ukraine) [8439-66]

Optical comparison of detector arrays from modulation transfer function measurements with laser speckle patterns, Alicia Fernández-Oliveras, Antonio Manuel Pozo Molina, Manuel Rubiño López, Univ. de Granada (Spain) [8439-67]

Carrier removal method based on the principle of shearing, Fan Rao, Xiaofan Qian, Chao Lin, Bin Li, Xinghua Li, Kunming Univ. of Science and Technology (China) [8439-68]

Optical and structural properties of sol-gel immobilized laccase: a first step for its use in optical biosensing, Ines Delfino, Univ. degli Studi della Tuscia (Italy); Marianna Portaccio, Bartolomeo Della Ventura, Gianluigi Manzo, Gustavo D. Mita, Maria Lepore, Seconda Univ. degli Studi di Napoli (Italy) [8439-69]

Low-power proximity electronics for dust analyzers based on light scattering, Cesare Molfese, Francesca Esposito, INAF - Osservatorio Astronomico di Capodimonte (Italy) [8439-70]

The experimental characterization of the absorption and scatter properties of photopolymers, Wendy Meulebroeck, Youri Meuret, Stefaan Heyvaert, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8439-71]

The study of vegetation indices for the monitoring of differences in chlorophyll and carotenoid composition in green vegetables, Wendy Meulebroeck, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8439-72]

Calibration-free 1f and 2f wavelength modulation spectroscopy with background RAM nulling, Arup L. Chakraborty, Indian Institute of Technology, Gandhinagar (India); Walter Johnstone, Univ. of Strathclyde (United Kingdom) [8439-73]

In-line optical fiber sensors based on low-loss semi-reflective in-fiber mirrors, Edvard Cibula, Denis Donlagic, Univ. of Maribor (Slovenia) [8439-74]

High concentration measurement of mixed particle suspensions using simple multiple-angle light scattering system, Somporn Buapraphoom, Stephen J. Sweeney, Steve Pedley, Andrew Prins, Univ. of Surrey (United Kingdom) [8439-75]

Signal amplification of surface plasmon resonance detection based on a large-area subwavelength dielectric grating, Woo Kyung Jung, Kyung Min Byun, Nak-Hyeon Kim, Tae-Seong Kim, Min Hyoung Cho, Soo Yeol Lee, Kyung Hee Univ. (Korea, Republic of) [8439-76]

Air-bridge high-speed InGaAs/InP waveguide photodiode, Hua Yang, Chris L. Daunt, Wei Han, Corbett Brian, Tyndall National Institute (Ireland); Frank H. Peters, Tyndall National Institute (Ireland) and Univ. College Cork (Ireland) [8439-77]

Surface functionalisation of TiO₂ evanescent waveguide sensor for E. coli monitoring, Agung Purniawan, Gregory Pandraud, Paddy French, Lina Sarro, Technische Univ. Delft (Netherlands) [8439-78]

Simulation of surface plasmon fiber optic sensor including the effect of oxide overlayer thickness change, Dalibor Ciprian, Petr Hlubina, Technical Univ. of Ostrava (Czech Republic) [8439-79]

NIR diode laser-based QEPAS for acetylene detection, Yingchun Cao, Wei Jin, Hoi Lut Ho, The Hong Kong Polytechnic Univ. (Hong Kong, China) [8439-80]

Design of a demodulation scheme for a hybrid fiber sensor system for composite materials, Manjusha Ramakrishnan, Ginu Rajan, Yuliya Semenova, Dublin Institute of Technology (Ireland); Tomasz R. Wolinski, Warsaw Univ. of Technology (Poland); Gerald Farrell, Dublin Institute of Technology (Ireland) [8439-81]

Remote optical fiber sensor based on an LPG sensor head with Raman amplification optimized by numerical methods, Thiago V. Nogueira Coelho, Maria José Pontes, Univ. Federal do Espírito Santo (Brazil); Joel Carvalho, Ariel Guerreiro, INESC Porto (Portugal); José L. Santos, Univ. do Porto (Portugal) [8439-82]

Demodulation of FBG sensors embedded in a fiber optic Sagnac loop, Hyun-Jin Kim, Chonbuk National Univ. (Korea, Republic of); Jong-kil Lee, Andong National Univ. (Korea, Republic of); JuneHo Lee, Hoseo Univ. (Korea, Republic of); Minh Song, Chonbuk National Univ. (Korea, Republic of) [8439-83]

The sensitivity improvement of FBG temperature sensor, Hanchul Kang, Deagil Kim, Minh Song, Chonbuk National Univ. (Korea, Republic of) [8439-84]

Performance of 2D array of magnesium diboride (MgB₂) detectors for mid- and far-infrared imaging: update on new results, Brook Lakew, John C. Brasunas, NASA Goddard Space Flight Ctr. (United States) .. [8439-85]

Diffuse-light absorption spectroscopy for beer classification and prediction of alcoholic content, Leonardo Ciaccheri, Istituto di Fisica Applicata Nello Carrara (Italy); Edgar E. Samano Baca, Vrije Univ. Brussel (Belgium); Mariateresa Russo, Univ. Mediterranea di Reggio Calabria (Italy); Heidi Ottveaere, Hugo Thienpont, Vrije Univ. Brussel (Belgium); Anna Grazia G. Mignani, CNR Istituto di Fisica Applicata Nello Carrara (Italy) [8439-87]

An etched fiber optic vibration sensor to monitor the simply supported beam, Kishore Putha, Dantala Dinakar, Pachava V. Rao, Dipankar Sengupta, National Institute of Technology, Warangal (India) [8439-89]

Development of high-sensitivity pressure sensor using reduced clad FBG, Pachava V. Rao, Srimannarayana Kamineni, D. Sengupta, P. Kishore, Madhuvarasu Sai Shankar, Parne Saidi Reddy, National Institute of Technology, Warangal (India) [8439-90]

Polarization dependency in metal oxide coated tilted FBG refractometers, Jean-Michel Renoirt, Marc Debliquy, Christophe Caucheteur, Marie-Georges Olivier, Patrice Mégret, Univ. de Mons (Belgium) [8439-91]

Volatile organic compounds detection with tilted fiber Bragg gratings coated by ZnO nanoparticles, Marc Debliquy, Jean-Michel Renoirt, Christophe Caucheteur, Patrice Megret, Marie-Georges Olivier, Univ. de Mons (Belgium) [8439-92]

Optimisation of the design of fibre optic pH sensor based on layer-by-layer coating, Nahid Raoufi, Azad Univ. (United Kingdom) and City Univ. London (United Kingdom); Frederic Surre, Tong Sun, Rajarajan Muttukrishnan, Kenneth T. V. Grattan, City Univ. London (United Kingdom) [8439-93]

Plasma surface reflectance spectroscopy for non-invasive and continuous monitoring of extracellular component of blood, Daisuke Sakota, Setsuo Takatani, Institute of Biomaterials and Bioengineering (Japan) [8439-94]

200 ps FWHM and 100 MHz repetition rate ultrafast gated camera for optical medical functional imaging, Wilfried Uhring, Patrick Poulet, Institut d'Électronique du Solide et des Systèmes (France); Walter Hanselmann, montena emc (Switzerland); René J. Glazenborg, PHOTONIS Netherlands B.V. (Netherlands); Chantal-Virginie Zint, Institut d'Électronique du Solide et des Systèmes (France); Benoît Dubois, FEMTO-ST (France); Werner Hirschi, montena emc (Switzerland) [8439-96]

Elaboration of fluorescent sensitive coatings for gas chemical sensors by the sol-gel process, Natacha Oudot, Chrystel Ambard, F. Pereira, D. Autissier, Commissariat à l'Énergie Atomique (France); Clement Sanchez, Collège de France (France); Karine Vallé, Commissariat à l'Énergie Atomique (France) [8439-97]

Comparison of macrobend seismic optical fiber accelerometer and ferrule-top cantilever fiber sensor for vibration monitoring, T. Poczesny, K. Prokopczuk, A. W. Domanski, Warsaw Univ. of Technology (Poland) [8439-98]

Tuesday 17 April

SESSION 3

Room: 315 Tues. 08.30 to 12.50

Optical Fibre Sensors: Point Sensors

Session Chair: Thomas Geernaert, Vrije Univ. Brussel (Belgium)

08.30: **Development of fiber optic ferrule-top cantilevers for sensing and beam-steering applications** (*Invited Paper*), Grzegorz Gruca, Dhvajal Chavan, Kier Heeck, Jan H. Rector, Davide Iannuzzi, Vrije Univ. Amsterdam (Netherlands) [8439-13]

09.00: **Optical fiber sensor for pressure measurement based on elastomeric membrane and macrobending loss**, Livia Ribeiro, Joao Rosolem, Danilo Dini, Claudio Florida, Edson Bezerra, Eduardo F. da Costa, Claudio A. Hortencio, Rivaël S. Penze, Ariovaldo A. Leonardi, CpqD Foundation (Brazil); Marcelo Loichate, Anderson Durelli, DME Distribution S/A (Brazil) [8439-14]

09.20: **Monitoring of gamma-irradiated Yb-doped optical fibers through pump-induced refractive index changes**, Andrei A. Fotiadi, Faculté Polytechnique de Mons (Belgium) and Ioffe Physical Technical Institute (Russian Federation) and Ulyanovsk State Univ. (Russian Federation); Irina Petukhova, Patrice Mégret, Faculté Polytechnique de Mons (Belgium); Alexey V. Shubin, Alexander L. Tomashuk, A. M. Prokhorov General Physics Institute (Russian Federation); Sergey G. Novikov, Kristina V. Borisova, Igor O. Zolotovskiy, Ulyanovsk State Univ. (Russian Federation); Oleg L. Antipov, Institute of Applied Physics (Russian Federation); Krassimir Panajotov, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [8439-15]

09.40: **Gold-coated optical fiber micro-tapers for sensor applications based on the surface plasmon resonance effect**, Torsten Wieduwilt, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany) [8439-16]

10.00: **Monte Carlo simulation of surface plasmon polariton excitation on U-bent multimode optical fibers**, Rudolf Klepacek, Czech Technical Univ. in Prague (Czech Republic) [8439-17]

Coffee Break 10.20 to 11.00

11.00: **First demonstration of a 12 DFB fiber laser array on a 100 GHz ITU grid, for underwater acoustic sensing application** (*Invited Paper*), Yohann Léguillon, Kenny Hey Tow, Pascal Besnard, Ctr. National de la Recherche Scientifique (France) and Univ. Européenne de Bretagne (France); Alain Mugnier, David Pureur, Quantel Group (France); Martine Doisy, Thales Underwater Systems (France) [8439-18]

11.30: **DFB laser-based electrical dynamic interrogation for optical fiber sensors**, Joel P. Carvalho, Orlando Frazão, INESC Porto (Portugal); José M. Baptista, Univ. da Madeira (Portugal); José L. Santos, Univ. do Porto (Portugal); Andres L. Barbero, Univ. Federal Fluminense (Brazil) [8439-19]

11.50: **A novel highly birefringent fiber loop mirror using a 3x3 coupler**, Ricardo Silva, INESC Porto (Portugal); António R. Lobo, Univ. Fernando Pessoa (Portugal); José L. Santos, Univ. do Porto (Portugal); Orlando Frazão, INESC Porto (Portugal) [8439-20]

12.10: **Design of a mechanical transducer for an optical-fiber accelerometer based on polarization variation**, Pierre Tihon, Nicolas Linze, Olivier Verlinden, Marc Wuilpart, Patrice Mégret, Univ. de Mons (Belgium) [8439-21]

12.30: **Ellipsometry with an undetermined polarization state**, Feng Liu, Chris J. Lee II, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Juequan Chen, ASML Netherlands B.V. (Netherlands); Eric Louis, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Peter J. M. van der Slot, Klaus J. Boller, Univ. Twente (Netherlands); Fred Bijkerk, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands) [8439-22]

Lunch/Exhibition Break 12.50 to 14.00

SESSION 4

Room: 315 Tues. 14.00 to 15.40

Sensor Systems for Aeronautics and Space

Session Chair: Piet De Moor, imec (Belgium)

14.00: **Design and integration of vision-based navigation sensors for unmanned aerial vehicles navigation and guidance**, Roberto Sabatini, Anish Kharkar, Tehseen Shahid, David Zammit-Mangion, Huamin Jia, Cranfield Univ. (United Kingdom) [8439-23]

14.20: TBA

14.40: **Tilted pressure-tuned field-widened Michelson interferometer for high spectral resolution lidar**, Dong Liu, Chris Hostetler, Anthony L. Cook, NASA Langley Research Ctr. (United States); Ian Miller, LightMachinery Inc. (Canada); Jonathan Hair, NASA Langley Research Ctr. (United States) [8439-25]

15.00: **Automatic detection of small debris on airport runways using a simple innovative long-range optical-based solution**, Aurélie Montmerle Bonnefois, Laurent Mugnier, Bruno Fleury, Thierry Fusco, Joseph Montri, Clelia Robert, Béatrice Sorrente, Fabrice Jabez, Frédéric Champagnat, ONERA (France); Christian De Roux, Vincent Dufour, Aeromecanic (France) ... [8439-26]

15.20: **Night vision imaging systems integration into the Italian TORNADO IDS and ECR aircraft**, Roberto Sabatini, Cranfield Univ. (United Kingdom) [8439-27]

Coffee Break 15.40 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Wednesday 18 April

SESSION 5

Room: 315 Wed. 08.30 to 12.20

Microtechnology-based Sensors

Session Chair: Hugo Thienpont, Vrije Univ. Brussel (Belgium)

08.30: **Nanophotonic sensors** (*Invited Paper*), Nigel P. Johnson, Univ. of Glasgow (United Kingdom); Basudev Lahiri, National Institute of Standards and Technology (United States); Graham J. Sharp, Ali Z. Khokhar, Ghazali A. Rahman, Philippe Velha, Richard M. De La Rue, Univ. of Glasgow (United Kingdom); Scott G. McMeekin, Glasgow Caledonian Univ. (United Kingdom) [8439-28]

09.00: **Whispering gallery mode pressure sensing**, Thomas Weigel, Cemal Esen, Gustav Schweiger, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany) ... [8439-29]

09.20: **Cavity optomechanical magnetometer**, Joachim Knittel, Stefan Forstner, Stefan Prams, Eikbert van Ooijen, Jon Swaim, Alex Szorkovszky, Glen Harris, Warwick P. Bowen, Halina Rubinsztein-Dunlop, The Univ. of Queensland (Australia) [8439-30]

09.40: **Design, fabrication and measurements with a UV linear-variable optical filter microspectrometer**, Arvin Emadi, Huaiwen Wu, Ger de Graaf, Reinoud F. Wolffenbuttel, Technische Univ. Delft (Netherlands) [8439-31]

10.00: **Roughness sensor based on a compact optoelectronic emitter-receiver modules**, Matthias Will, CiS Forschungsinstitut für Mikrosensorik und Photovoltaik GmbH (Germany) [8439-32]

Coffee Break 10.20 to 11.00

11.00: **Polarization effects in epoxy channel waveguides fabricated for sensing applications using UV lithography**, Marcin K. Szczurowski, Maciej Napiórkowski, Wrocław Univ. of Technology (Poland); Uwe Hollenbach, Heinrich Sieber, Jürgen Mohr, Karlsruher Institut für Technologie (Germany); Waclaw Urbanczyk, Wrocław Univ. of Technology (Poland) [8439-33]

11.20: **Fluorescence-based optochemical sensor on flexible foils**, Sandeep Kalathimekkad, Jeroen Missinne, Univ. Gent (Belgium); Juan Diego Arias Espinoza, Holst Centre (Netherlands); Bram Van Hoe, Erwin Bosman, Univ. Gent (Belgium); Edsger Smits, Holst Centre (Netherlands); Rajesh Mandamparambil, Holst Ctr. (Netherlands); Geert Van Steenberge, Jan Vanfleteren, Univ. Gent (Belgium) [8439-34]

11.40: **Micromirror-based sending and detection optical assembly for time-of-flight laser scanners**, Britta Satzer, Claudia Baulig, Fraunhofer-Institut für Physikalische Messtechnik (Germany) [8439-35]

12.00: **Selectivity of spatial filtering velocimetry of objective speckles for measuring out-of-plane motion**, Michael L. Jakobsen, Steen G. Hanson, Technical Univ. of Denmark (Denmark); Harold T. Yura, The Aerospace Corp. (United States) [8439-36]

Lunch/Exhibition Break 12.20 to 13.20

SESSION 6

Room: 315 Wed. 13.20 to 17.50

Chemical and Biological Sensors

Session Chair: **Anna Grazia Mignani**,
Istituto di Fisica Applicata Nello Carrara (Italy)

13.20: **Detection limits in whispering gallery mode biosensors with plasmonic enhancement** (*Invited Paper*), Joachim Knittel, Jon D. Swaim, Warwick P. Bowen, The Univ. of Queensland (Australia) [8439-37]

13.50: **Molecular detection via quasi-phase matched second harmonic in the whispering gallery modes**, Diana C. Urbanek, Jorge L. Domínguez-Juárez, ICFO - Institut de Ciències Fotòniques (Spain); Gregory Kozyreff, Univ. Libre de Bruxelles (Belgium); Jordi Martorell, ICFO - Institut de Ciències Fotòniques (Spain); Soroush Abbasizargaleh, Multimedia Univ. (Malaysia) [8439-38]

14.10: **Protein detection system based on 32x32 SPAD pixel array**, Lucio Pancheri, Laura Pasquardini, Elisa Morganti, Nicola Massari, David Stoppa, Cristian Collini, Leandro Lorenzelli, Lorenzo Lunelli, Cecilia Pederzolli, Fondazione Bruno Kessler (Italy) [8439-39]

14.30: **Differentiation of microstructures of sugar foams by means of spatially resolved spectroscopy**, Nghia Nguyen Do Trong, Rodrigo Watte, Ben Aernouts, Eva Verhoelst, Katholieke Univ. Leuven (Belgium); Mizuki Tsuta, Agriculture, Forestry and Fisheries Research Council (Japan); Pieter Verboven, Bart M. Nicolai, Wouter Saeys, Katholieke Univ. Leuven (Belgium) [8439-40]

14.50: **Hybrid spectroscopic instrument for in-line nanoparticle detection and characterization**, Marijn Sandtke, Maria Sovago, Ernst-Jan Buis, TNO (Netherlands) [8439-41]

Coffee Break 15.10 to 15.50

15.50: **Functionalised planar Bragg grating sensor for the detection of BTX in solvent vapour**, Maiko Girschikofsky, Manuel Rosenberger, Stefan Belle, Univ. of Applied Sciences Aschaffenburg (Germany); Malte Brutschy, Siegfried R. Waldvogel, Johannes Gutenberg Univ. Mainz (Germany); Ralf Hellmann, Univ. of Applied Sciences Aschaffenburg (Germany) [8439-42]

16.10: **Absolute refractive index and thickness measurement of ultrathin films in liquid environments with Bloch surface waves**, Vincent Paeder, Sara Santi, Valeria Musi, Lubos Hvozدارa, Hans Peter Herzig, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8439-43]

16.30: **Normal incident detection of chemical bonds at infrared wavelengths through extraordinary optical transmission of metallic membranes**, Andrea Dunbar, Rolf Eckert, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Edward Threfall, Photon Design (United Kingdom); Sylvia Angeloni, Ross Stanley, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland) [8439-44]

16.50: **A low-cost, optically efficient carbon dioxide sensor based on nondispersive infrared (NDIR) measurement at 4.2µm**, Jane Hodgkinson, Cranfield Univ. (United Kingdom); Richard Smith, Wah On Ho, John R. Saffell, Alphasense (United Kingdom); Ralph P. Tatam, Cranfield Univ. (United Kingdom) [8439-45]

17.10: **Data-driven models for predicting the flame spectral behaviour in industrial combustion processes**, Jorge E. Pezoa, Luis Arias, Sr., Univ. de Concepción (Chile) [8439-46]

17.30: **Fluorescence spectroscopy: a promising tool for gear-oil condition monitoring**, Daniel G. Dorigo, Benjamin R. Wiesent, Özlem Simsek, Ana Pérez Grassi, Alexander W. Koch, Technische Univ. München (Germany) ... [8439-47]

Thursday 19 April

Hot Topics III

Thursday 19 April, 08.40 to 10.05 hrs · Gold Hall

For details, please see page 13

SESSION 7

Room: 315 Thurs. 10.40 to 12.10

Detector Technologies I

Session Chair: **Piet De Moor**, imec (Belgium)

10.40: **Trends in (CMOS) image sensors** (*Invited Paper*), Albert J. P. Theuwissen, Harvest Imaging (Belgium) [8439-48]

11.10: **A novel JFET readout structure applicable for pinned and lateral drift-field photodiodes**, Andreas Süß, Bedrich J. Hosticka, Fraunhofer-Institut für Mikroelektronische Schaltungen und Systeme (Germany) [8439-49]

11.30: **A 64 single photon avalanche diode array in 0.18 µm CMOS standard technology with versatile quenching circuit for quick prototyping**, Wilfried Uhring, Norbert Dumas, Chantal-Virginie Zint, Jean-Pierre Le Normand, Imane Malasse, Jeremy Scholz, Foudil Dadouche, Institut d'Électronique du Solide et des Systèmes (France) [8439-50]

11.50: **Vulnerability of optical detection systems to megajoule class laser radiative environment**, Adrien Rousseau, Stephane Darbon, Sylvain Girard, Philippe Paillet, Jean-Luc Bourgade, Commissariat à l'Énergie Atomique (France); Vincent Goiffon, Pierre Magnan, Valerian Lалуca, Institut Supérieur de l'Aéronautique et de l'Espace (France); Matthieu Hamel, Commissariat à l'Énergie Atomique (France); Jean Larour, Ecole Polytechnique (France) [8439-51]

Lunch Break 12.10 to 13.30

SESSION 8

Room: 315 Thurs. 13.30 to 15.10

Detector Technologies II

Session Chair: **Piet De Moor**, imec (Belgium)

13.30: **Novel pyroelectric infrared sensors for PIR motion detectors**, Volkmar Norkus, Marco Schossig, Gerald Gerlach, Agnes Eydam, Technische Univ. Dresden (Germany) [8439-52]

13.50: **PbTe(In) films with variable microstructure for photodetection in IR and terahertz range**, Ludmila I. Ryabova, Vladimir Chernichkin, Alexandr Dobrovolsky, Lomonosov Moscow State Univ. (Russian Federation); Vladimir Kasiyan, Zinovi Dashevsky, Ben-Gurion Univ. of the Negev (Israel); Vasily V. Bel'kov, Ioffe Physico-Technical Institute (Russian Federation); Sergey G. Danilov, Sergei Ganichev, Univ. Regensburg (Germany); Dmitry R. Khokhlov, Lomonosov Moscow State Univ. (Russian Federation) [8439-53]

14.10: **Multispectral InAs/GaAs-based quantum dot infrared photodetector with quaternary (InAlGaAs) capping layer operates at low bias voltage**, Saumya Sengupta, Indian Institute of Technology Bombay (India) and Georgia State Univ. (United States); Subhananda Chakrabarti, Indian Institute of Technology Bombay (India); Yigit Aytac, Unil A. Perera, Georgia State Univ. (United States) [8439-54]

14.30: **Characterization of InSb QDs grown on InAs (100) substrate by MOCVD and MBE for infrared photodetectors**, Amir Karim, Acreo AB (Sweden); Oscar Gustafsson, Laiq Hussain, Royal Institute of Technology (Sweden); Qin Wang, Acreo AB (Sweden) [8439-55]

14.50: **Hybrid graphene-quantum dot phototransistors with ultra-high gain**, Louis Gaudreau, Gerasimos Konstantatos, Michela Badioli, Johann Osmond, Maria Bernechea, Francisco Pelayo Garcia de Arquer, Fabio Gatti, F. H. L. Koppens, ICFO - Institut de Ciències Fotòniques (Spain) [8439-56]

CLOSING REMARKS: Thurs. 15.10 to 15.15

Quantum Optics

Conference Chairs: **Thomas Durt**, Ecole Centrale Marseille (France); **Victor N. Zadkov**, Lomonosov Moscow State Univ. (Russian Federation)

Programme Committee: **Alain Aspect**, Institut d'Optique Graduate School (France); **Victor Balykin**, Institute of Spectroscopy (Russian Federation); **Immanuel Bloch**, Max-Planck-Institut of Quantum Optics (Germany); **Vladimir Buzek**, Slovak Academy of Sciences (Slovakia); **Berthold-Georg Englert**, National Univ. of Singapore (Singapore); **Gerard J. Milburn**, The Univ. of Queensland (Australia); **Arno Rauschenbeutel**, Vienna Ctr. for Quantum Science and Technology (Austria); **Alexander V. Sergienko**, Boston Univ. (United States); **Paolo Tombesi**, Univ. degli Studi di Camerino (Italy); **Vlatko Vedral**, Univ. of Oxford (United Kingdom) and National Univ. of Singapore (United Kingdom); **Anton Zeilinger**, Univ. Wien (Austria)

Monday 16 April

Hot Topics Session I

Monday 16 April, 08.30 to 11.55 hrs · Gold Hall
For details see pages 10-11

Welcome and Introduction

Room: 316 **Mon. 13.00 to 13.10**

Thomas Durt, Ecole Centrale Marseille (France);
Victor N. Zadkov, Lomonosov Moscow State Univ. (Russian Federation)

SESSION 1

Room: 316 **Mon. 13.10 to 15.10**

Quantum Optics I

Session Chair: **Victor N. Zadkov**,
Lomonosov Moscow State Univ. (Russian Federation)

13.10: **Quantum optomechanics: a mechanical platform for quantum foundations and quantum information processing** (*Keynote Presentation, Invited Paper*), Markus Aspelmeyer, Univ. Wien (Austria) [8440-01]

14.10: **Probabilistic heralded phase-insensitive optical squeezer**, Christos N. Gagatsos, Evgueni Karpov, Nicolas J. Cerf, Univ. Libre de Bruxelles (Belgium) [8440-02]

14.30: **Reconstruction of multiphoton Bell states using 3D quantum polarization tomography**, Bhaskar Kanseri, Timur Iskhakov, Maria Chekhova, Max Planck Institute for the Science of Light (Germany); Gerd Leuchs, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [8440-03]

14.50: **Biphoton ququarts as mixed states**, Mikhail Fedorov, A. M. Prokhorov General Physics Institute (Russian Federation) [8440-04]

Coffee Break 15.10 to 15.50

SESSION 2

Room: 316 **Mon. 15.50 to 17.20**

Quantum Optics II

Session Chair: **Markus Aspelmeyer**, Univ. Wien (Austria)

15.50: **Exploring mechanisms for correlated atom pair production using BEC's** (*Invited Paper*), C. I. Westbrook, National Institute of Standards and Technology (United States) [8440-05]

16.20: **Quantum aspects of optical energy transfer in cavities and layered media**, Teppo Häyrynen, Jani Oksanen, Jukka Tulkki, Aalto Univ. School of Science and Technology (Finland) [8440-06]

16.40: **Schmidt number for X-entanglement of photon pairs**, Dmitri Horoshko, Univ. des Sciences et Technologies de Lille (France) and B.I. Stepanov Institute of Physics (Belarus); Giuseppe Patera, Univ. des Sciences et Technologies de Lille (France); Alessandra Gatti, Univ. degli Studi dell'Insubria (Italy); Mikhail Kolobov, Univ. des Sciences et Technologies de Lille (France) [8440-07]

17.00: **Realization and application of strong coupling of single cesium atoms with TEM₀₀ and TEM₁₀ modes of a high-finesse Fabry-Perot cavity**, Junmin Wang, Pengfei Zhang, Gang Li, Tiancai Zhang, Shanxi Univ. (China) [8440-09]

POSTERS—MONDAY

Grand Hall **Mon. 17.45 to 19.15**

A poster session will be held on Monday 17.45 to 19.15. Posters will be on display after 10.00 Monday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Monday. 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 at <http://spie.org/x34963.xml>.

Jaynes-Cumming model of an indirect gap semiconductor cavity, Jose M. Escalante Fernandez, Univ. Politécnica de Valencia (Spain) [8440-24]

The control of entropy via interdot tunneling parameter in a quantum-dot molecule, Sahar Goharshenasan Esfahani, Ali Mortezaipour, Zanjan Univ. (Iran, Islamic Republic of) [8440-25]

Magic-wavelength optical dipole trap of cesium and rubidium atoms, Junmin Wang, Yongjie Cheng, Shanlong Guo, Baodong Yang, Jun He, Shanxi Univ. (China) [8440-28]

Theoretical study about the behaviour of two-level systems inside of optomechanical cavity where mechanical oscillations are induced, Jose M. Escalante Fernandez, Univ. Politécnica de Valencia (Spain) [8440-29]

Probability density function for representing quantum states of polarized optical field in the basis of linearly polarized photons, Lukasz Michalik, Andrzej W. Domanski, Warsaw Univ. of Technology (Poland) [8440-30]

Quantum unicity distance, Chong Xiang, Li Yang, Graduate Univ. of the Chinese Academy of Sciences (China) [8440-32]

An electromagnetically induced grating in medium with tripod configuration, Maxim Y. Gordeev, Saint-Petersburg State Univ. (Russian Federation); Ekaterina A. Efremova, Saint-Petersburg State Univ. (Russian Federation) and National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Yuri V. Rozhdstvensky, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [8440-33]

Tight binding approximation for a two-level atom Kapitza-Dirac diffraction, Lilit Hovhannisyanyan, Gevorg Muradyan, Yerevan State Univ. (Armenia) . [8440-35]

Tuesday 17 April

SESSION 3

Room: 316 Tues. 08.30 to 10.20

Quantum Optics III

Session Chair: C. I. Westbrook,

National Institute of Standards and Technology (United States)

- 08.30: **Coherent dynamics in energy migration at room temperature: evidence for subtle quantum-mechanical strategies for energy transfer optimization** (*Invited Paper*), Elisabetta Collini, Univ. di Padova (Italy); Gregory D. Scholes, Univ. of Toronto (Canada) [8440-10]
- 09.00: **Engineering quantum communication systems**, Armando N. Pinto, Álvaro J. Almeida, Nuno A. Silva, Nelson J. Muga, Luis M. Martins, Univ. de Aveiro (Portugal) [8440-11]
- 09.20: **Entanglement swapping with two and three pairs of entangled qubits in the presence of noise**, Roman Korobka, Ivan Dotsenko, National Taras Shevchenko Univ. of Kyiv (Ukraine) [8440-34]
- 09.40: **Integrated devices for quantum information and simulation with polarization encoded qubits**, Linda Sansoni, Univ. degli Studi di Roma La Sapienza (Italy); Fabio Sciarrino, Paolo Mataloni, Univ. degli Studi di Roma La Sapienza (Italy) and Istituto Nazionale di Ottica (Italy); Andrea Crespi, Roberta Ramponi, Roberto Osellame, Istituto di Fotonica e Nanotecnologie (Italy) and Politecnico di Milano (Italy) [8440-13]
- 10.00: **Quantum public-key encryption protocols with information-theoretic security**, Li Yang, Biyao Yang, Jiangyou Pan, Graduate Univ. of the Chinese Academy of Sciences (China) [8440-31]
- Coffee Break 10.20 to 11.00

SESSION 4

Room: 316 Tues. 11.00 to 12.50

Quantum Optics IV

Session Chair: Elisabetta Collini, Univ. di Padova (Italy)

- 11.00: **Orbital angular momentum for quantum information processing** (*Invited Paper*), Fabio Sciarrino, Eleonora Nagali, Vincenzo D'Ambrosio, Univ. degli Studi di Roma La Sapienza (Italy); Lorenzo Marrucci, Univ. degli Studi di Napoli Federico II (Italy) [8440-15]
- 11.30: **Spatially entangled 4-photon states from periodically poled KTiOPO₄**, S. Cigdem Yorulmaz, Alexander J. H. van der Torren, Jelmer J. Renema, Martin P. van Exter, Michiel J. A. de Dood, Leiden Univ. (Netherlands) [8440-16]
- 11.50: **A scaling-limit approach to the theory of laser transition**, Paul Gartner, Univ. Bremen (Germany) [8440-17]
- 12.10: **Geometric phases in adiabatic Markovian dynamics**, Ognyan Oreshkov, Univ. Libre de Bruxelles (Belgium) [8440-18]
- 12.30: **Two-photon experiments in the frequency domain**, Ismaël Mbodji, Univ. de Franche-Comté (France); Laurent Ollislager, Erik Woodhead, Univ. Libre de Bruxelles (Belgium); Johann Cussey, Auréa Technology (France); Luca Furfaro, Univ. de Franche-Comté (France); Philippe Emplit, Serge Massar, Univ. Libre de Bruxelles (Belgium); Kien Phan Huy, FEMTO-ST (France); Jean-Marc Merolla, Univ. de Franche-Comté (Belgium) [8440-19]
- Lunch/Exhibition Break 12.50 to 14.10

SESSION 5

Room: 316 Tues. 14.10 to 15.40

Quantum Optics V

Session Chair: Thomas Durt, Ecole Centrale Marseille (France)

- 14.10: **Macroscopic entangled state of light** (*Invited Paper*), Timur S. Iskhakov, Maria V. Chekhova, Gerd Leuchs, Max Planck Institute for the Science of Light (Germany) [8440-12]
- 14.40: **Public-key encryption and authentication of quantum information**, Min Liang, Li Yang, Graduate Univ. of the Chinese Academy of Sciences (China) [8440-14]
- 15.00: **Raman laser cooling below a photon recoil with alkali-earth elements**, Ekaterina A. Efremova, Saint-Petersburg State Univ. (Russian Federation) and National Research Univ. of Information Technologies, Mechanics and Optics. (Russian Federation); Vladimir Ivanov, Saint-Petersburg State Univ. (Russian Federation); Yuri V. Rozhdestvensky, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) [8440-22]
- 15.20: **Towards linear optical detection with single photon sensitivity at telecom wavelengths**, Saeedeh Jahanmirinejad, Andrea Fiore, Technische Univ. Eindhoven (Netherlands) [8440-23]
- Coffee Break 15.40 to 16.30

Hot Topics II

Tuesday 17 April, 16.30 to 18.30 hrs · Gold Hall

For details, please see page 12

Don't miss the
**Photonics Europe
Exhibition**

Location: Grand Hall

Monday 16 April 15.00 to 19.10

Tuesday 17 April 10.00 to 16.00

Wednesday 18 April 10.00 to 19.30

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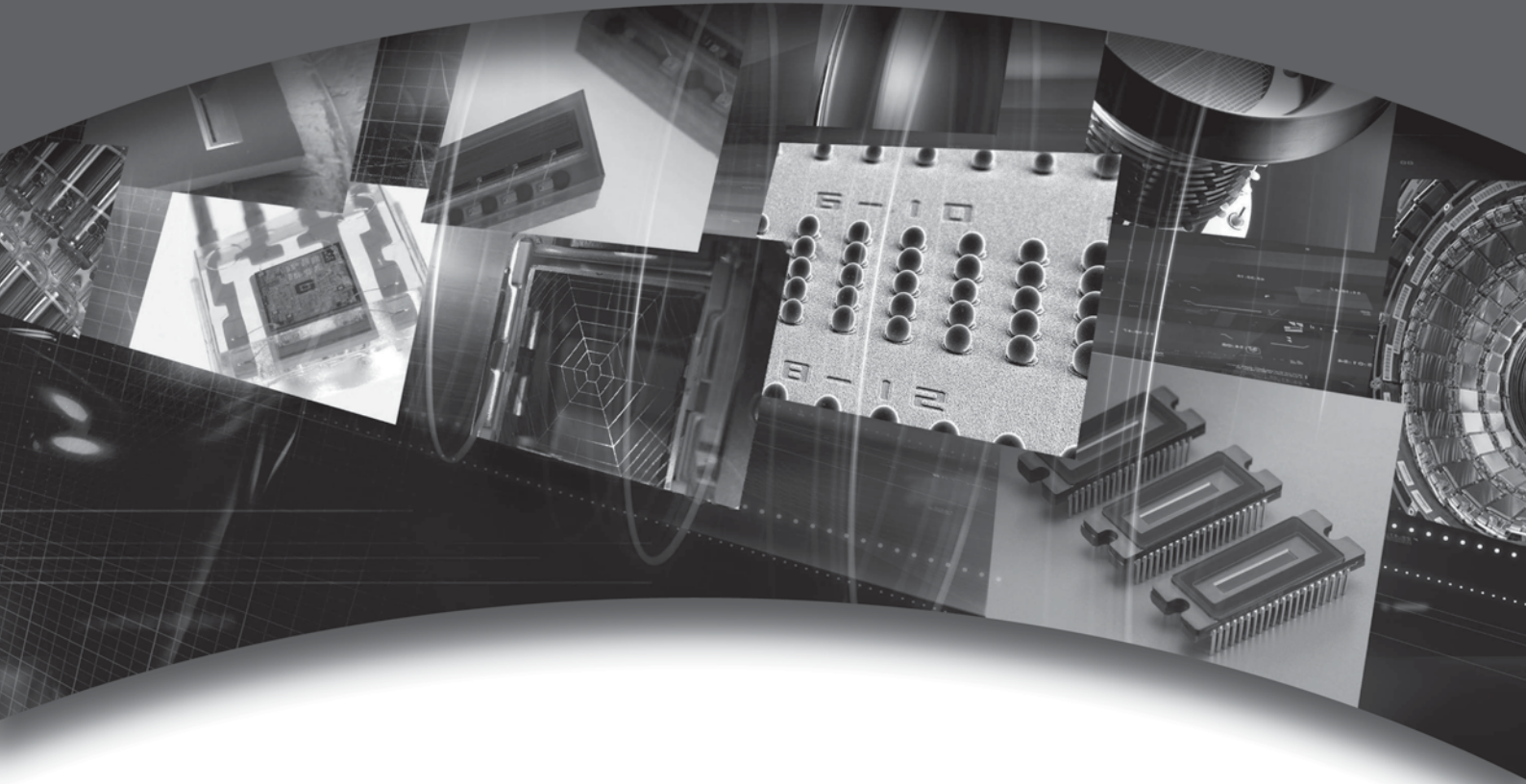
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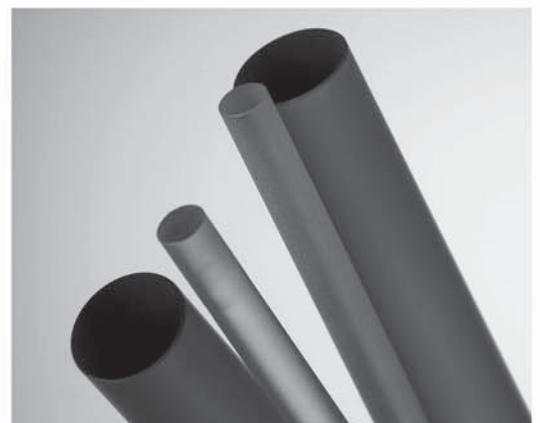
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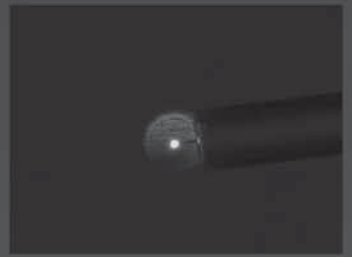
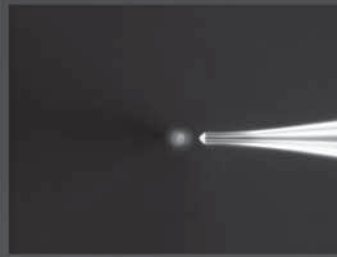
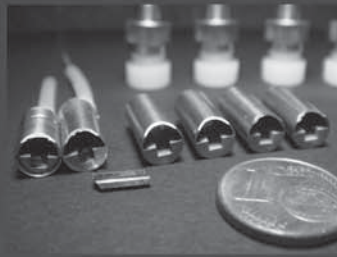
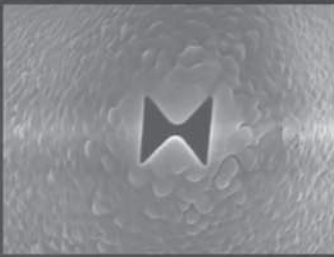
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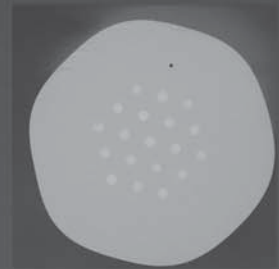
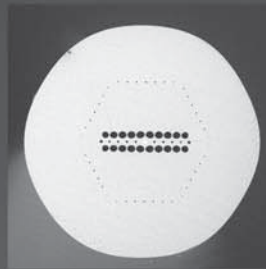
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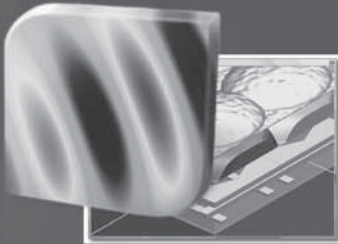
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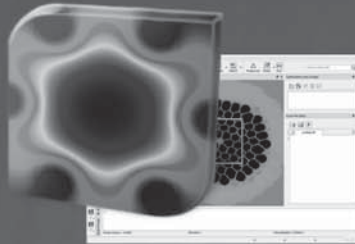
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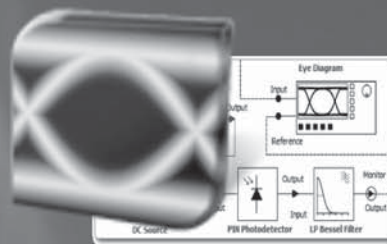
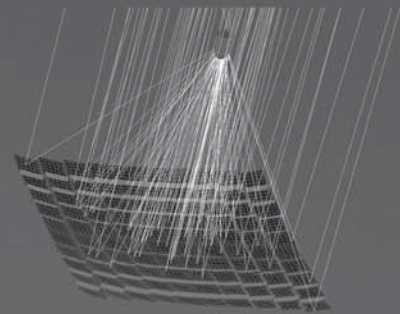
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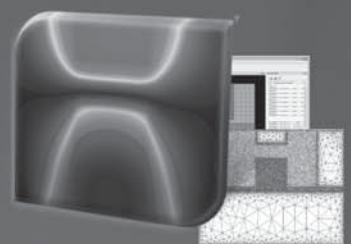
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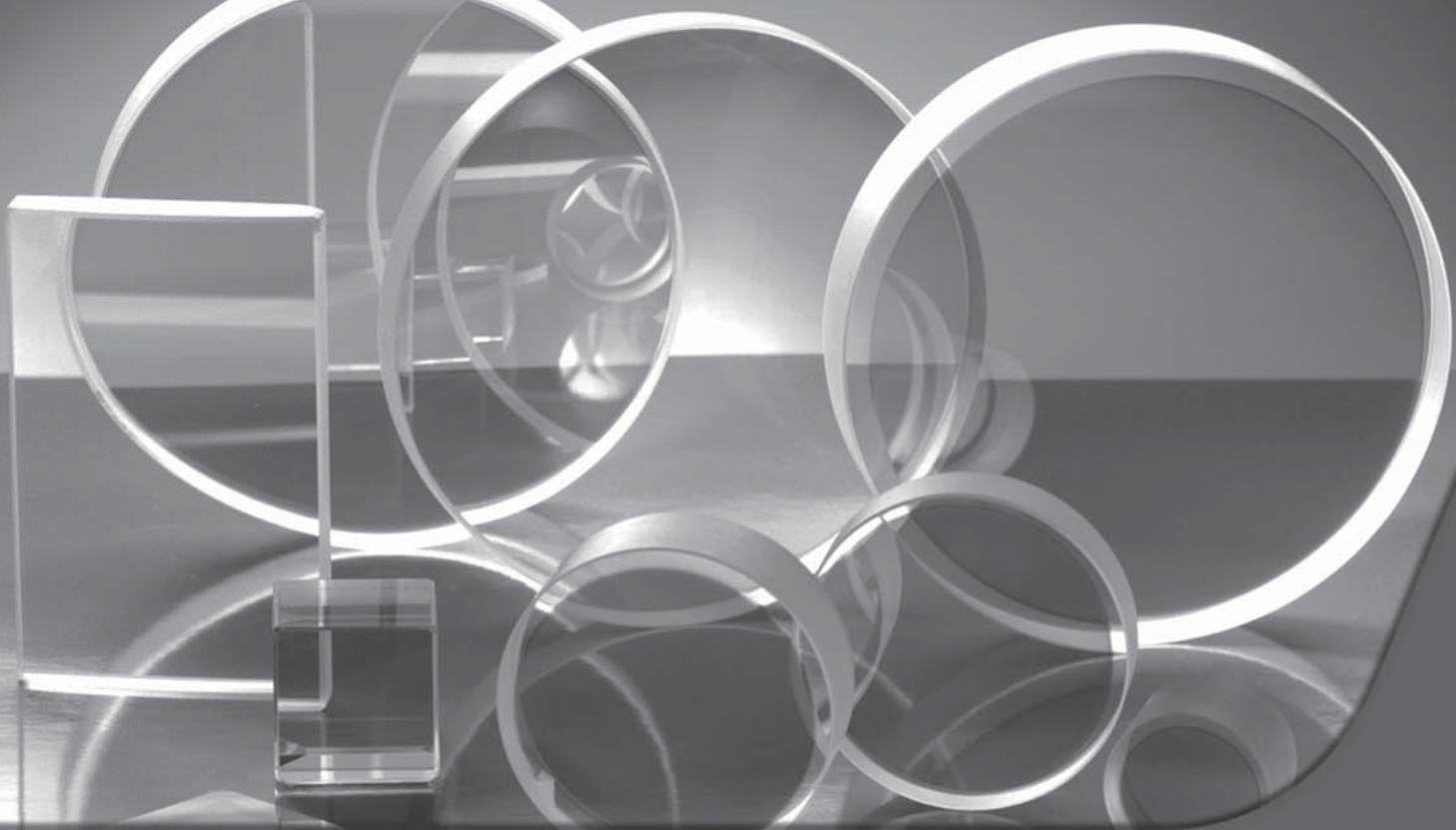
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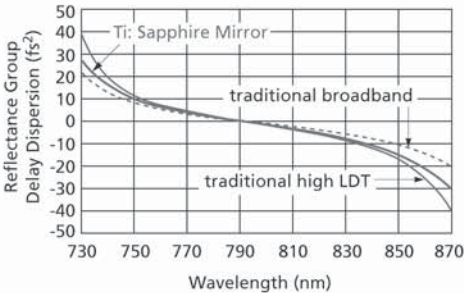
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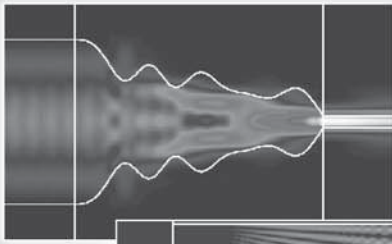
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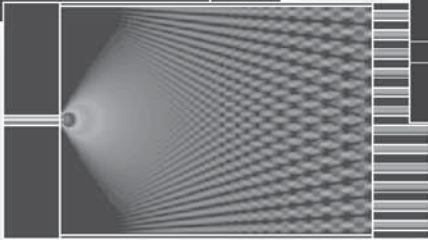
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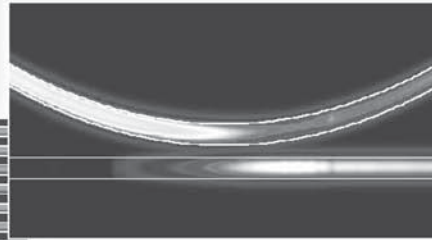
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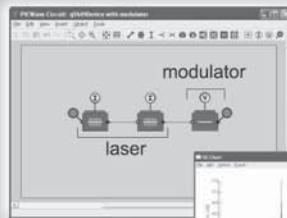
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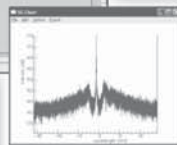
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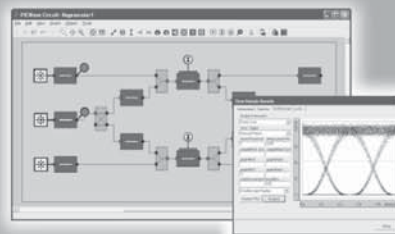
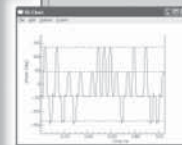
- SOAs
- Q-switched lasers
- DFB lasers
- SG-DBR tunable lasers
- Electro-absorption modulators
- AM/FM modulators
- Phase-shift keying (PSK)
- Active regenerators
- Fibre Bragg gratings
- Ring resonator circuits
- Optical noise modelling
- Import of FIMMPROP components



$\lambda/4$ shifted DFB laser
with output spectrum



RZ-QPSK transmitter
and self-homodyne
receiver with QPSK
signal phase plot
in the time-domain

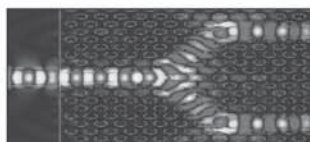
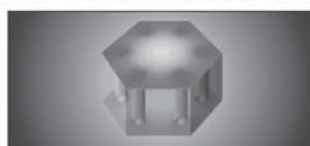


Active regenerator circuit
with SOAs showing the
eye diagram response
including noise



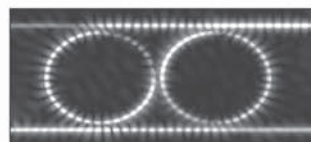
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Registration

Registration

Full symposium registration includes: Admittance to the conferences ,Hot Topics, Industry workshops, the exhibition, welcome reception, poster receptions, coffee breaks, and Proceedings of SPIE as applicable under the specific registration plans (see registration form for details).

Proceedings of SPIE and CDs purchased as part of your registration plan include shipping charges. Student author registration plans do not include Proceedings of SPIE.

Registration Hours

Square Conference Centre, Registration Hall

Sunday 15 April08.00 to 17.00 hrs.
Monday 16 April08.00 to 17.00 hrs.
Tuesday 17 April08.00 to 17.00 hrs.
Wednesday 18 April08.00 to 17.00 hrs.
Thursday 19 April08.00 to 16.00 hrs.

Exhibition Hours

Square Conference Centre, Grand Hall

Monday 16 April15.00 to 19.10 hrs.
Tuesday 17 April10.00 to 16.00 hrs.
Wednesday 18 April10.00 to 16.00 hrs.

Speaker Check-In Desk / Audiovisual

SPIE Receipts, Badge Corrections, Cashier

Cashier

Located in the SPIE Europe Registration Area
Open during registration hours

Registration Payments

Registration Payments - If you are paying by cash or check as part of your onsite registration, wish to add a 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.

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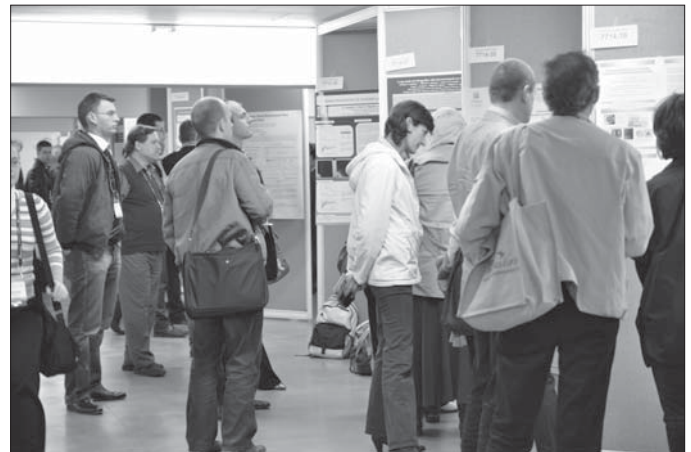
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Author/Presenter Information

Preview Station

Sunday through Thursday, open during Registration Hours
Silver Foyer

All Conference rooms will have a computer workstation, LCD projector, screen, microphone, and laser pointer. All presenters are requested to come to the Self-Service Speaker Preview Desk to confirm display settings of their presentations from their memory devices or laptops with the audiovisual equipment being used at this symposium.



Interactive Poster Sessions Setup Instructions

Exhibition Hall

Monday poster presenters may post their poster papers starting at 10.00 hrs on Monday. Wednesday poster presenters may post their poster papers starting at 10.00 hrs on Wednesday. Any papers left on the boards at the close of the poster session will be considered unwanted and will be discarded.

SPIE Europe assumes no responsibility for posters left up after the designated end of each of the poster sessions. Poster authors should be at their papers during their respective session on Tuesday or Thursday to answer questions from attendees.

Attendees are requested to wear their conference registration badges to the poster sessions. Supplies for posting papers will be available in those areas. The viewable size of the poster board is 1x1 m. Note that poster presenters are not supplied with any audio visual equipment, authors requiring such equipment should refrain from requesting the poster presentation format.

General Information

Onsite Services

Messages for Attendees

SPIE has an urgent message line available during registration hours Monday through Thursday: Tel +32 (0)2 515 9520

Internet Access/WiFi

Internet Pavilion

SPIE will have a complimentary Internet Pavilion at The Square on Monday through Thursday during registration hours. Attendees can use provided workstations or hook up their laptop to an Ethernet connection to access the Internet.

Complimentary Internet Wireless Access

SPIE and the Brussels Region are pleased to provide complimentary wireless access to the Internet for all conference attendees bringing 802.11b wireless-enabled laptops or PDAs. Coverage will be available Sunday through Thursday.

Properly secure your computer before accessing the public wireless network. Failure to do so may allow unauthorized access to your laptop as well as potentially introduce viruses to your computer and/or presentation.

Luggage Storage and Coat Check

Registration Hall · Complimentary

Monday	08.00 to 20.00 hrs.
Tuesday	08.00 to 18.30 hrs.
Wednesday	08.00 to 20.00 hrs.
Thursday	08.00 to 17.00 hrs.

SPIE Information

Silver Foyer

SPIE is your source for the latest information, professional development tools, and industry connections. Visit the SPIE Information booth and learn about SPIE Events, Membership, Publications, the Digital Library, Education Services, optics.org, and the Career Center.

SPIE Membership Lounge

Open Monday-Thursday during registration hours
Magritte Foyer

All SPIE Members are invited to relax, socialize with colleagues, and recharge your laptop in the comfort of the SPIE Member lounge.

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Press Room

Lounge Magritte

Open Monday through Thursday during registration hours

The onsite 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.

Food and Beverage Services

Coffee Breaks

Complimentary coffee will be served twice each day of the conference at approximately 10.00 and 15.00. Please check the individual technical conference listings for exact times and locations.

Monday	Silver and Magritte Foyer
Monday pm – Wednesday	Exhibition Hall
Thursday	Silver and Magritte Foyer

Meals and Refreshments for Purchase

A cash food outlet will be available in the Exhibition Hall.

Tuesday	11.00 to 14.00 hrs.
Wednesday	11.00 to 14.00 hrs.

Visit the food outlet located in the back of the Exhibition halls Tuesday-Thursday. They will serve hot and cold snacks, beverages, deli-type sandwiches, salads, hot entrees, and pastries and will be open during exhibition hours.

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, 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 SPIE Speaker 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 exhibit hall.

Laser Pointer Safety Information

SPIE Europe supplies tested and safety approved laser pointers for all conference meeting rooms. For safety reasons, SPIE Europe requests that presenters use our provided laser pointers available in each meeting room. Use of a personal laser pointer at an SPIE Europe 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.

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

Any manufacturer or supplier who is not an exhibitor and is observed to be soliciting business in the aisles, or in another company's booth, will be asked to leave immediately. Unauthorized solicitation in the Exhibition Hall is prohibited.

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.

Travel

Wellkom in Brussels! Bienvenue à Bruxelles!

Brussels is the thriving centre of Europe, and as the new venue of SPIE Photonics Europe, THE SQUARE Conference Centre is right in the heart of it. It is just a short stroll from all of the historic city's major attractions with over 13,000 hotel rooms just around the corner, plus the pick of the city's restaurants, bars, and shops. Brussels is home to the European Commission, Parliament and NATO, a buzzing, influential city where history is made. The city is a key European commercial hub, too, and a base for many progressive international companies. But more than that, Brussels is a diverse and rich cultural centre, steeped in history, yet always ready to embrace the new, as its eclectic architecture demonstrates. Galleries and museums of all sorts abound, and there's a thriving comic-book scene built on the legacy of Hergé, the creator of Tintin.

THE SQUARE is located in Mont des Arts, the lively cultural quarter. For further information on things to do and events, please contact the Belgian Tourist Office at:
 Belgian Tourist Office 30,
 Rue Saint-Bernard B - 1060 Brussels
 Phone: +32 (0) 70 221 021
 Fax: +32 (0) 2 513 04 75
www.belgiumtheplaceto.be

Car Rentals

Visit www.hertz.com to make an online booking.

Parking

There are 600 parking spaces right underneath SQUARE. It can be accessed via Place del a Justice-Gerechtsplein, and Stuiversstaat – rue des Sols and then walk straight into the building.

City Transport

There are numerous metro links, bus and tram stops close by: www.mivb.be

**Brussels-National Airport
(located at Zaventem)**

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Nonattendee nonmember price: \$430; €326 euros

Photonics Europe 2012: Optical Engineering, Imaging, and Applications
(Includes Vols. 8427-8430, 8436-8437, 8439)
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Meeting attendee: \$165 USD; €125 euros
Nonattendee member price: \$495; €375 euros
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2014 Photonics Europe

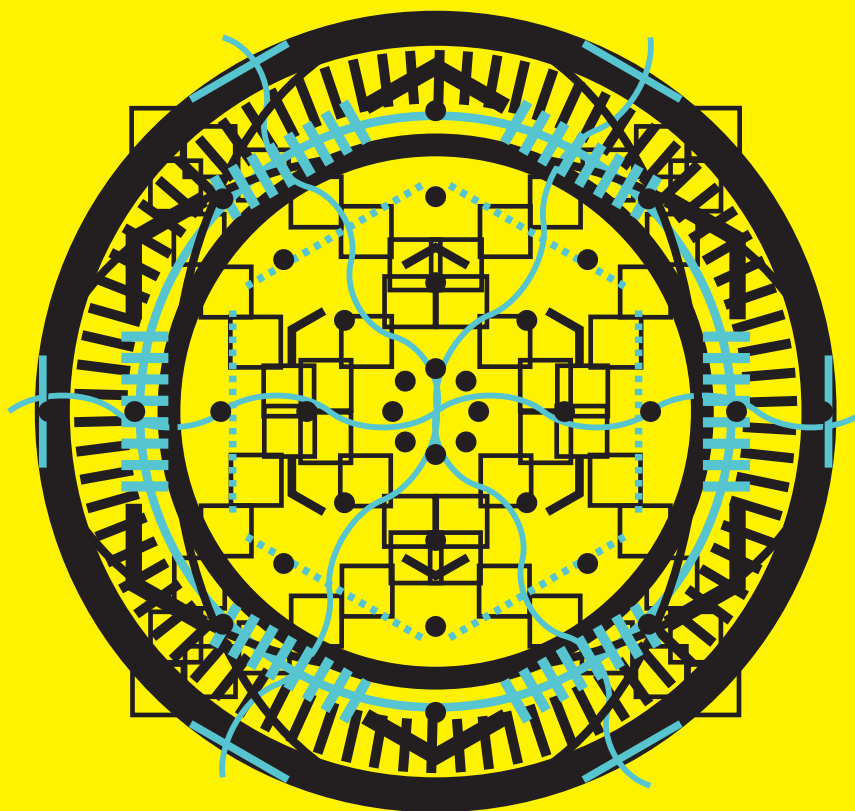
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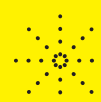
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