Optics + Optoelectronics

Advance Technical Programme

This program is current as of January 2015. Updates are available online: www.SPIE.ORG/OO15PROGRAMME

Conferences: 13–16 April 2015
Exhibition: 14–15 April 2015

Clarion Congress Hotel Prague
Prague, Czech Republic
HEAR THE LATEST TECHNOLOGY ADVANCES IN OPTICS AND OPTOELECTRONICS

Enjoy a world-class conference at the Clarion Congress Hotel, Prague, Czech Republic. Visit the wonderful panorama of Prague up close. Known as the city of hundred spires, it is rich in both history and scenic beauty.

Plan to join us for this exciting meeting in Prague.

While you are here, learn more about the future of the most advanced laser facility—ELI beamlines—the infrastructure of which will be the most multifunctional of its kind. It is designed to serve researchers specialised in laser science but also researchers from other fields like material sciences and engineering, medicine, biology, chemistry, and astrophysics.

SPIE Optics + Optoelectronics provides the opportunity to hear firsthand the new developments in intense laser-matter interactions and petawatt photonics, triggered and motivated by the Extreme Light Infrastructure, as well as interact with the researchers and academics involved in this ground-breaking research.
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#### 700 PRESENTATIONS ON:
- Metamaterials
- Nonlinear Optics
- Photon Counting
- Quantum Optics
- Optical Sensors
- Optical Fibres
- Holography
- Relativistic Plasma Waves
- EUV and X-ray Optics
- Damage to VUV, EUV, and X-ray Optics
- Advances in X-ray Free-Electron Lasers
- High-Power and High-Energy Lasers
- Medical Applications of Laser-Generated Beams
- Laser Acceleration of Electrons, Protons, and Ions
- Research Using Extreme Light with PW-Class Lasers
- Integrated Optics: Physics and Simulations
- Laser Energy Workshop

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

It is our pleasure to welcome your attendance at the SPIE 2015 International Symposium on Optics & Optoelectronics. An excellent technical programme has been prepared, focusing on recent advances in petawatt photonics, high-power and high-repetition rate systems, diode-pumped laser systems, and FELs, along with the latest research in optical sensing, holography, x-ray optics, metamaterials, and nonlinear and quantum optics.

Close to 700 presentations prove that this event is recognised as an important forum for science, government, and industry to access and share information on optical technologies. The event’s focus is especially on the research aspects of optics and optoelectronics, with a concentration on European and international science and technology.

The symposium features a special plenary session, and seventeen conferences including a special Workshop on Laser Energy, each incorporating oral and poster presentations. The program promises an exciting week, with excellent science and technology in a setting conducive to international interchange, networking, and exchanging ideas.

Be sure to take the opportunity to attend this event and join us to celebrate the International Year of Light and Light-based Technologies in Prague in 2015!

2015 Symposium Chairs:

Jiri Homola
Institute of Photonics and Electronics of the ASCR, Czech Republic

Chris Edwards
Central Laser Facility, Science and Technology Facilities Council, United Kingdom

Mike Dunne
SLAC National Accelerator Lab./Linac Coherent Light Source, United States

Ivo Rendina
CNR/Istituto per la Microelettronica e Microsistemi, Italy

Honorary Chair:

Miroslav Miler
Institute of Photonics and Electronics of the ASCR, Czech Republic
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10:00 to 16:00

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Conf. 9510 EUV and X-ray Optics: Synergy between Laboratory and Space (Pina, Hudec), p. 29
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Conf. 9502 Metamaterials (Kuzmiak, Markos, Szoplik), p. 11
Conf. 9505 Quantum Optics and Quantum Information Transfer and Processing (Banaszek, Silberhorn), p. 17
Conf. 9507 Micro-structured and Specialty Optical Fibres (Kalli, Kanka, Mendez), p. 23
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Conf. 9516 Integrated Optics: Physics and Simulations (Cheben, Ctyroky, Molina-Fernandez), p. 45

DON’T MISS THE EXHIBITION

Tuesday 14 April · 10:00 to 17:00
Wednesday 15 April · 10:00 to 16:00

SEE THE LATEST IN:
- Optical components
- Lasers and light sources
- Lenses and coatings
- Optical sensors and fibre sensors
- Custom optics
- Materials and chemicals
- Metrology and testing equipment
- Nano- and microtechnology
- X-ray optics and devices
- Optoelectronic components and systems

This exhibition gives you exposure to the latest innovations from around the world, including an emphasis on Central Europe’s leading R&D companies. Come to Prague to make connections with suppliers and project partners. Learn what’s possible via face-to-face dicusions.
Monday 13 April · 16:00 to 17:45
HOT TOPICS PLENARY SESSION I

16:00 to 16:10
OPENING REMARKS
Jiří Homola, Institute of Photonics and Electronics of the ASCR, v.v.i., Czech Republic
Chris Edwards, Central Laser Facility, Science and Technology Facilities Council, United Kingdom
Mike Dunne, Lawrence Livermore National Lab., United States
Ivo Rendina, CNR/Istituto per la Microelettronica e Microsistemi, Italy

16:10 to 16:25
WELCOME
Jiří Drahoš, President of the Academy of Sciences of the Czech Republic

16:25 to 17:10
NEXT GENERATION FEMTOSECOND AND ATTOSECOND TECHNOLOGY

Ferenc Krausz
Director, Max-Planck-Institute of Quantum Optics and Chair, Experimental Physics at the Ludwig-Maximilians-Universität, Germany

Recent advances in laser science have opened the door to watching and controlling the fastest dynamics in nature (outside the atomic core), the motion of electrons. Key tools include waveform-controlled few-cycle laser light and attosecond pulses of extreme ultraviolet and soft-X-ray light. They provide a force capable of steering electrons inside and between atoms as well as means of tracking their motion. Next-generation femtosecond technology will dramatically advance these tools and push the frontiers of exploring and controlling the microcosm.

Biography: Ferenc Krausz studied electrical engineering at the Budapest University of Technology and theoretical physics at the Eötvös-Loránd University in Budapest. In 1991 he received his doctoral degree in Quantum Electronics at the Vienna University of Technology. In 1998 he was appointed full professor at the Vienna University of Technology and in 2000 he became director at the centre for “Advanced Light Sources”. In 2003 Dr. Krausz was offered the position of director at the Max-Planck-Institute of Quantum Optics, where he leads the “Attosecond Physics” Division. In 2004, he took over a Chair of Experimental Physics at the LMU Munich; in 2006 he was appointed a Director of the Munich-Centre for Advanced Photonics.

Professor Krausz’ research is focused on ultrashort-pulse lasers, ultrafast spectroscopy, high-field physics, attosecond physics: control and real-time observation of atomic-scale motion of electrons, development of compact laser-driven sources of brilliant X-ray and particle beams for medical applications.

Professor Krausz has been the recipient of numerous scientific awards and prizes and is a member of many scientific societies and academies such as the Austrian and Hungarian Academy of Sciences and the European Academy of Sciences and Arts in Salzburg (Austria).
PLenary SESSION

17:10 to 17:55

ENGINEERING METALLIC NANOSTRUCTURES FOR PLASMONICS AND OPTOELECTRONICS

Sang-Hyun Oh
Univ. of Minnesota, United States
Recent technological advances by many researchers have enabled investigations of ultra-strong light-matter interactions at the nanometer or even sub-nanometer regime. Modeling and fabrication of optical nanostructures are challenging partly because of the vastly different length scales involved. For example, a recent experiment demonstrated that a metallic waveguide as narrow as 1 nm in width can interact resonantly with an incident beam with the wavelength as long as 1 millimeter. Such enormous mismatch in length scales (5-6 orders of magnitude) push the limits of computational electromagnetics as well as nanofabrication. This presentation will describe new approaches to overcome such multi-scale challenges and manufacture plasmonic waveguides and modulators with Angstrom-scale critical dimension control and wafer-scale throughput. The resulting ultra-flat and ultra-small optical nanostructures can boost the interactions of visible, infrared, and even millimeter waves with molecules and 2D materials in unprecedented ways.

Biography: Sang-Hyun Oh obtained his B.S. in Physics from KAIST, Korea, and Ph.D. in Applied Physics from Stanford University, in 1996 and 2001, respectively. After postdoctoral research at Bell Laboratories and the University of California at Santa Barbara, he joined the ECE department at the University of Minnesota, Twin Cities in 2006. He is currently an Associate Professor of ECE and runs a lab focused on plasmonics, nanofabrication, and optical biosensing. He is a recipient of young faculty awards from DARPA, U.S. Office of Naval Research, NSF CAREER, American Chemical Society, and 3M. He is a visiting professor at Imperial College London and ETH Zurich.

Tuesday, 14 April, 9:00 to 9:50
HOT TOPICS PLENARY SESSION II

9:00 to 9:05
INTRODUCTION

9:05 to 9:50
ON THE COMPLEXITY LIMITS OF PHOTONIC INTEGRATED CIRCUITS

Andrea Melloni
Politecnico di Milano, Italy
Photonic technologies enable today to generate, manipulate and detect photons by means of miniaturized optical devices integrated onto the same optical chip. However, compared to electronics, the Achilles’ heel of photonics is the lack of essential tools enabling the aggregation of hundreds of optical functional elements into large-scale circuits. The talk focuses on the complexity limits and how to boost the photonic architectures. Non-perturbative probes, algorithmic intelligence, switching materials and techniques are the way to turn photonic devices into controllable systems.

Biography: Andrea Melloni, is Full Professor at Politecnico di Milano, where he leads the group of Photonic Devices. With a background in microwaves, his field of research is in the analysis, design, characterization and exploitation of passive integrated optical devices for telecom and sensing. He has been one of the pioneers of the slow light concept and its exploitation in the linear and nonlinear domain. He is currently contributing to define the new schemes of generic photonic foundries in Europe. In 2008 he founded the company Filarete, for the development and commercialization of the first circuit simulator for integrated optical circuits, ASPIC (http://www.aspicdesign.com). He holds 13 international patents in the field of integrated optics and components and he is author of over 70 publications on the major international journals. http://home.dei.polimi.it/melloni/Research

Wednesday, 15 April, 9:00 to 9:50
HOT TOPICS PLENARY SESSION III

9:00 to 9:05
INTRODUCTION

9:05 to 9:50
ULTRA HIGH-PEAK-POWER LASER SYSTEMS

Peter Moulton
Principal Research Scientist, Q-Peak, United States
We consider some of the fundamental materials issues in the development of ultra-high-peak-power laser systems that utilize relatively moderate energies combined with ultrashort pulses to generate peak powers capable of producing highly nonlinear effects. Included is a comparison of the architectures of all-solid-state vs. hybrid solid-state/OCPAs where we consider limits to the operation of both.

Biography: Peter F. Moulton has worked for more than 35 years to develop and commercialize solid state laser and nonlinear optical devices. In 1982, while at MIT Lincoln Laboratory, he invented the Titanium sapphire tunable solid state laser, which revolutionized the field of ultrafast lasers and helped enable a number of significant scientific and engineering advances. These continue, notably in the area of high-harmonic and attosecond-pulse generation. He helped found what evolved into Q-Peak, Incorporated, in Bedford, Massachusetts, and he led a team of researchers that has transitioned many novel materials and devices out of the laboratory for use in a wide variety of applications, including science, medicine, and defense. His efforts in the development of high-power visible-wavelength sources led to a VC-funded spin-out company, Laser Light Engines, now working to enable large-screen, laser-based digital projectors. Peter continues to innovate, concentrating now on high-power, fiber lasers and ultrafast, mid-infrared laser systems. An IEEE Life Fellow, OSA Fellow and member of the U.S. National Academy of Engineering, Peter recently retired as the vice-president and chief technology officer of Q-Peak, and remains there as a Principal Scientist. In 1997, he was awarded OSA’s R.W. Wood Prize and the IEEE William Streifer Scientific Achievement Award.
Welcome Reception  
Monday 13 April 2015, 18:45 to 21:00  
All attendees are invited to relax, socialise, and enjoy light refreshments. Please remember to wear your conference registration badges. Dress is casual.

Poster Session and Reception  
Wednesday 15 April 2015, 17:45 to 19:15  
All symposium attendees are invited to attend the Wednesday poster session provided as an opportunity to enjoy networking and refreshments while reviewing poster papers. The poster sessions are designed to promote opportunities for networking with colleagues in your field. Attendees are encouraged to review the high-quality papers that are presented in this alternate format and to interact with the poster authors. Poster presenters may post their poster papers starting at 10:00 hrs on Wednesday in the Meridian Room. Any papers left on the boards following the end time of the poster session will be considered unwanted and will be discarded. SPIE assumes no responsibility for posters left up after the end of the poster session. Attendees are requested to wear their conference registration badges to the poster sessions.

Laser Energy Workshop  
Wednesday - Thursday 15 - 16 April 2015, 13:30 to 17:30  
Laser Energy, based on repetitively pulsed fusion of inertially confined D-T fuel capsules is one of the few potential solutions to closing the gap between global energy demand and supply. Along with magnetic fusion energy (MFE) and advanced “Gen IV” fission reactors, laser energy avoids damaging environment and provides long term security of energy supply, addressing the need for substantial increase in baseload capacity. The mission of the HiPER project is to enable Europe to respond to the Laser Energy opportunity. HiPER completed its Preparatory Phase Project in 2013 and has now commenced a programme of technology development, experiments, and simulations on the physics of ignition. The workshop will include invited and contributed presentations from HiPER and from the wider Laser Energy community. It will include updates on recent progress towards ignition at the National Ignition Facility (NIF) at Lawrence Livermore National Laboratory in the U.S., the latest experimental and computational results from the community, and news of the opportunities for experimental campaigns at Laser Megajoule (LMJ) in Bordeaux. Detailed program can be viewed at: http://spie.org/EOO/conferencedetails/laser-energy

Best Student Paper Awards  
As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE conferences across the globe. In addition to cash prizes and award certificates, winners receive SPIE Digital Library downloads and complimentary SPIE Student Membership. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations. Best student papers will be recognized within each of the Optics + Optoelectronics conferences.  

In order to be considered for this award, the student must meet the following requirements:  
- Student must be the presenting author at the conference and must make their oral presentation as scheduled  
- Student must be the leading author of the manuscript  
- Papers submitted by graduate and undergraduate students are eligible  
- Student must enter the best student paper award by responding to an award announcement e-mail

A panel of experts will evaluate the papers, both for quality and content.
Laser Energy, based on repetitively pulsed fusion of inertially confined D-T fuel capsules is one of the few potential solutions to closing the gap between global energy demand and supply. Along with magnetic fusion energy (MFE) and advanced “Gen IV” fission reactors, laser energy avoids damaging environment and provides long term security of energy supply, addressing the need for substantial increase in baseload capacity.

The mission of the HiPER project is to enable Europe to respond to the Laser Energy opportunity. HiPER completed its Preparatory Phase Project in 2013 and has now commenced a programme of technology development, experiments, and simulations on the physics of ignition.

The workshop will include invited and contributed presentations from HiPER and from the wider Laser Energy community. It will include updates on recent progress towards ignition at the National Ignition Facility (NIF) at Lawrence Livermore National Laboratory in the U.S., the latest experimental and computational results from the community, and news of the opportunities for experimental campaigns at Laser Megajoule (LMJ) in Bordeaux.

The workshop will feature the following sessions and presentations:

**LASER ENERGY OVERVIEW SESSION**
- HIPER status update (Chris Edwards, Science and Technology Facilities Council, United Kingdom)

**LASER TECHNOLOGY SESSION**
- Laser overview and Lucia laser prototype (Jean-Christophe F. Chanteloup, Ecole Polytechnique, France)
- Progress with DPSSL laser engineering at the Central Laser Facility DPSSL technology (Martin Divoky, Institute of Physics of the ASCR, v.v.i., Czech Republic)

**FUSION PHYSICS: THEORY AND SIMULATION SESSION**
- Design and modelling of shock ignition studies
  - Collisionless shock acceleration of ions for fast ignition (R. A. Cairns, Univ. of St. Andrews, United Kingdom, R. Bingham, Rutherford Appleton Lab., United Kingdom)
  - Influence of lattice structure on fast electron transport in layered solid targets (Rachel J. Dance, Univ. of Strathclyde, United Kingdom)
  - Integrated simulation approach for laser-driven fast ignition and its application (Wei-Min Wang, Forschungszentrum Jülich GmbH, Germany)

**FACILITIES AND EXPERIMENTS SESSION**
- Beamtime opportunities at LMJ / PETAL (Thierry Massard, Commissariat à l’Energie Atomique, France)
- Orion: laser and diagnostic development during the first two years of operations (Colin N. Danson, AWE plc, United Kingdom)
- Tailoring intense laser beams using plasma-based photonics devices (Pierre A. Michel, Lawrence Livermore National Lab., United States)
  - PETAL diagnostics and system commissioning (Jean-Luc Miquel, Commissariat à l’Energie Atomique, France)

**FUSION CHAMBER SYSTEMS SESSION**
- Development of target injector and repetition fusion chamber systems for HiPER (José Manuel Perlado Martin, Univ. Politécnica de Madrid, Spain)
- Microtargetry for inertial fusion energy (Martin K. Tolley, Rutherford Appleton Lab., United Kingdom)
- Thermo-optical performance of kJ-class laser fusion systems for HILASE (Ondrej Slezak, Czech Technical Univ. in Prague, Czech Republic)
WEDNESDAY 15 APRIL

PLENARY SESSION III ...................... WED 9:00 TO 9:50
For details, please see pages 7–8.

OPENING REMARKS .......................... 10:10 TO 10:10

SESSION 1 ..................................... WED 10:10 TO 12:00

Hyperbolic and Dielectric Metamaterials
Session Chair: Vladimir Kuzmiak, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Alex V. Bliokh, King’s College London (United Kingdom); Anatoly V. Zayats, King’s College London (United Kingdom)

- Hyperbolic plasmonic metamaterials: engineering nonlinearities and spontaneous emission (Invited Paper), Wayne Dickson, Greg A. Wurtz, Anatoly V. Zayats, King’s College London (United Kingdom) .................................. [9502-1]
- All-dielectric nanophotonics and metamaterials (Invited Paper), Yuri S. Kivshar, The Australian National University (Australia) ................................. [9502-2]
- PT-symmetry related functionalities in metamaterials and plasmonics structures (Invited Paper), Anatole Lupu, Institut d’Électronique Fondamentale (France); Henri Benisty, Institut d’Optique Graduate School (France); Aloysie Degiron, Institut d’Électronique Fondamentale (France) ................................ [9502-3]
- Radiation control of Babinet-inverted optical nanoantenna integrated with plasmonic waveguide, Yeongsang Park, Jinjun Kim, Young-Geun Roh, Chang-Won Lee, Samsung Advanced Institute of Technology (Korea, Republic of) ................. [9502-4]
- Lunch/Exhibition Break ...................... Wed 12:00 TO 13:10

SESSION 2 ..................................... WED 13:10 TO 15:20

Plasmonics: Fundamentals and Applications I
Session Chair: Anatoly V. Zayats, King’s College London (United Kingdom)

- Nanoplasmonics suggests the existence of a new fundamental scale (Invited Paper), Alexander Fglobin, Anatoli Babin, Univ. of California, Irvine (USA)[9502-5]
- Symmetry breaking in the second harmonic field of self assembled metallic nanostructures (Invited Paper), Alessandro Belardini, Alessio Benedetti, Marco Centini, Eugenio Fazio, Mario Bertolotti, Concita Sibilia, Univ. degli Studi di Roma La Sapienza (Italy); Joseph W. Haus, Andrew M. Sarangan, Univ. of Dayton (USA) ----------------------------- [9502-6]
- Resonant nanostructures in graphene for terahertz metamaterials (Invited Paper), Philippe Tassin, Chalmers University (Sweden); Nian-Hai Shen, Thomas Hansen, U. of Virginia (USA); Jaroslav Vlcek, Petr Otipka, Michal Lesnák, VŠB-Technical Univ. of Ostrava (Czech Republic); Ivo Vávra, Institute of Electrical Engineering (Poland); Agnieszka Iwan, Institute of Electronic Engineering (Poland); Aleksandra A. Wronkowska, Andrzej Wronkowski, Univ. of Technology and Life Sciences in Bydgoszcz (Poland); Tomasz Szoplik, Univ. of Warsaw (Poland) .......... [9502-11]
- Bright solitary waves in optical cavities with internal resonances, Vladimir Kuzmiak, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Alex V. Yulin, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) ........................................ [9502-8]
- The effect of geometry on the quality factor of resonance peak from asymmetric nano-antennas at mid-infrared wavelengths, Ifoema G. Mtobson, Univ. of Glasgow (United Kingdom); Scott McMeen, Glasgow Caledonian University (United Kingdom); Radek De La Rue, Gew P. Johnson, Univ. of Glasgow (United Kingdom) ........................................ [9502-39]

SESSION 3 ..................................... WED 15:50 TO 17:40

Plasmonics for Energy Conversion
Session Chair: Alexandre Dmitriev, Chalmers Univ. of Technology (Sweden)

- Near-field thermal memory device (Invited Paper), Min Qin, Zhejiang Univ. (China); Sergey A. Dyakov, Jin Dain, Min Yan, KTH Royal Institute of Technology (Sweden) ............................ [9502-9]
- Hot electron photoemission from plasmonic nanoantennas: photoelectric metamaterials and giant photovoltaic effect, Alexander V. Uskov, Igor E. Protosenko, P. N. Lebedev Physical Institute (Russian Federation) and Advanced Energy Technologies Ltd. (Russian Federation); Igor V. Smetanin, P. N. Lebedev Physical Institute (Russian Federation); Renat S. Ikhansov, The State Atomic Energy Corp. ROSATOM (Russian Federation); Sergei V. Zhukovsky, DTU Fotonik (Denmark); Michael E. Guzhva, National Research Univ. of Information Technologies, Mechanics and Optics (Russia Federation); Andrei B. Elyukhin, Laser Zentrum Hannover e.V. (Germany); Vassilios E. Babicheva, Purdue Univ. (USA); Andrei V. Lavrinenko, DTU Fotonik (Denmark); Philippe Tassin, Chalmers Univ. of Technology and Life Sciences in Bydgoszcz (Poland); Tomasz Szoplik, Univ. of Warsaw (Poland) .......... [9502-10]
- Enhancement of light absorption in polyazomethines due to plasmon excitation on randomly distributed metal nanoparticles, Piotr Wrobel, Tomasz J. Antosiewicz, Tomasz Stefanuk, Arkadiusz Ciesielski, Univ. of Warsaw (Poland); Agnieszka Iwan, Institute of Electrical Engineering (Poland); Aleksandra A. Wronkowska, Andrzej Wronkowski, Univ. of Technology and Life Sciences in Bydgoszcz (Poland); Tomasz Szoplik, Univ. of Warsaw (Poland) .......... [9502-11]
- Optical activity of catalytic elements of hetero-metallic nanostructures, Tomasz J. Antosiewicz, Univ. of Warsaw (Poland) and Chalmers Univ. of Technology (Sweden); S. Peter Apell, Carl Wadell, Christoph Langhammer, Chalmers Univ. of Technology (Sweden) .......... [9502-12]
- Observation of terahertz radiation absorption in CdSe quantum dots, Petr Onushchenko, Institute of Silicate Chemistry (Russian Federation); Mikhail K. Khodzitsky, Alauidi K. Denisultanov, National Research Univ. of Information Technologies, Mechanics and Optics (Russia Federation); Aleksei Onushchenko, S.I. Vavilov State Optical Institute (Russian Federation) .......... [9502-13]

POSTERS ..................................... WED 17:45 TO 19:15

Conference attendees are invited to attend the Optics + Optoelectronics Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 48, and at http://spie.org/x30951.xml.

Effective medium approximation of anisotropic materials with radiative correction, Jaroslav Vlcek, Petr Otipka, Michal Lesnák, VSB-Technical Univ. of Ostrava (Czech Republic); Ivo Vávra, Institute of Electrical Engineering (Slovakia) ......................................................... [9502-31]
- Synthesis, shaping and functionalization of plasmonic gold octahedra, Cheng-An J. Lin, Hans B. Lao, Chen-Li Yang, Tzu-Yun Huang, Tzu-Yin Hou, Chung Yuan Christian Univ. (Taiwan) .............................................. [9502-32]
- Localized surface plasmon resonance with Pt nanorings fabricated by nanosphere lithography, Hee Woong Shin, Tae Hoong Park, Min Ju Kim, Tae-Ho Lee, Byeong Ryong Lee, Kyeong Heon Kim, Tae Geun Kim, Korea Univ. (Korea, Republic of) .............................................. [9502-33]
- Plasmonic nanoantennas for spatial and spectral emissivity engineering, Mathilde Makhlaiyan, ONERA (France) and Lab. de Photonic et de Nanostructures (France); Julien Jaecq, Patrick Bouchon, ONERA (France); Fabrice Pardo, Lab. de Photonic et de Nanostructures (France); Jean-Jacques Greffet, Institut d’Optique Graduate School (France); Jean-Luc Peloard, Lab. de Photonic et de Nanostructures (France); Riad Hajard, ONERA (France) ......................................................... [9502-34]
SESSION 6 ........................ THU 13:40 TO 15:00

**Nanomagnets and Magnetic Field of Light**

**Session Chair:** Yuri S. Kvishar, The Australian National Univ. (Australia)

**Magnetoplasmonics for active control of light** (Invited Paper), Alexandre Dmitriev, Chalmers Univ. of Technology (Sweden) ............................ [9502-22]

**Meta-atoms with tunable response** (Invited Paper), Carsten Rockstuhl, Stefan Nanz, Rasoul Alaeae, Ivan Fernandez-Corbaton, Karilsruher Institut für Technologie (Germany); Mohammad Albooyeh, Aalto Univ. (Finland); Constantin R. Simovski, Aalto Univ. School of Electrical Engineering (Finland) ............................ [9502-23]

**Light polarization control on the femtosecond scale using gyrotropic photonic crystals**, Margarita I. Sharipova, Alexander I. Musorin, Tatyana V. Dolgova, Andrey A. Fedyanin, Lomonosov Moscow State Univ. (Russian Federation) ............................ [9502-24]

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**SESSION 7 ........................ THU 15:30 TO 17:30**

**Metasurfaces and Sub-wavelength Plasmonic DOE**

**Session Chair:** Rafal Kotynski, Univ. of Warsaw (Poland)

*Session is organized in cooperation with EU FP7 - REGPOT Project PhoQuS® UW*

Theoretical analysis of optical and plasmonic metasurfaces, Roman Antos, Charles Univ. in Prague (Czech Republic) and Nagaoka Univ. of Technology (Japan); Martin Veis, Lukas Beran, Charles Univ. in Prague (Czech Republic); Jan Mistrik, Miroslav Vlcek, Univ. Pardubice (Czech Republic) ............................ [9502-25]

**Circular dichroism induced by Fano resonances in planar chiral oligomers**, Ben Hopkins, The Australian National Univ. (Australia); Alexander N. Poddubny, Ioffe Physical-Technical Institute (Russian Federation) and National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Andrey E. Miroshnichenko, 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) ............................ [9502-26]

**Asymmetric and symmetric coupling of surface plasmons on periodically patterned slanted silver columnar thin films**, Jhuma Dutta, Subramaniam Anantha Ramakrishna, Indian Institute of Technology (India) ............................ [9502-27]

**High-field enhancement factor in dielectric photonic structure**, Silvia Romano, Consiglio Nazionale delle Ricerche (Italy); Carlos A. Pina-Hernandez, abeam Technologies, Inc. (USA); Stefano Cabrini, The Molecular Foundry (USA) and Lawrence Berkeley National Lab. (USA); Ivo Rendina, Vito Mocella, Istituto per la Microelettronica e Microsistemi (Italy) ............................ [9502-28]

**Plasmonic planar antenna for spectral and spatial manipulation of the polarization**, Mathilde Makhsyiyan, Quentin Lévesque, ONERA (France) and Lab. de Photonique et de Nanostructures (France); Patrick Bouchon, ONERA (France); Fabrice Pardo, Lab. de Photonique et de Nanostructures (France); Julien Jaekc, Riad Haidar, ONERA (France); Jean-Luc Peltouard, Lab. de Photonique et de Nanostructures (France) ............................ [9502-29]

**Generation of red color and near infrared bandpass filters using nano-scale plasmonic structures**, Ahmed Sokar, Franz X. Hutter, Joachim N. Burghartz, Institut für Mikroelektronik Stuttgart (Germany) ............................ [9502-30]
Nonlinear Optics and Applications

Conference Chairs: Mario Bertolotti, Univ. degli Studi di Roma La Sapienza (Italy); Joseph W. Haus, Univ. of Dayton (USA); Alexei M. Zheltikov, Lomonosov Moscow State Univ. (Russian Federation)

Programme Committee: Javier Aizpurua, Centro de Física de Materiales (Spain); Kiyoshi Asakawa, Univ. of Tsukuba (Japan); Bruno Crosignani, Palacky Univ. (Czech Republic); Mark I. Stockman, Georgia State Univ. (USA); Anatoly V. Zayats, King’s College London (United Kingdom)

MONDAY 13 APRIL

OPENING REMARKS .......................... 8:55 TO 9:00

SESSION 1 .................................... MON 9:00 TO 10:30

Nonlinearities in Semiconductors and Nanostructures
Session Chair: Mario Bertolotti, Univ. degli Studi di Roma La Sapienza (Italy)

Novel mechanisms of optical harmonic generation on excitons in semiconductors (Invited Paper), Dmitri R. Yakovlev, Technische Univ. Dortmund (Germany) ........................................ [9503-1]

Modal method for second-harmonic generation in nanostructures, Sebastien Heron, ONERA (France); Fabrice Pardo, Lab. de Photonique et de Nanosciences (France); Patrick Bouchon, ONERA (France); Jean-Luc Pelouard, Lab. de Photonique et de Nanosciences (France); Raad Haider, ONERA (France) .................... [9503-2]

Degenerate four-wave mixing and two-photon induced gratings in colloidal quantum dots CdSe/ZnS, Alexander M. Smirnov, Maria V. Kozlova, Vladimir S. Dnepronskii, Lomonosov Moscow State Univ. (Russian Federation) . . . [9503-3]

The analytical approach to optimization of active region structure and efficiency of quantum dot laser, Vladimir V. Korenev, Artem V. Savel'ev, St. Petersburg Academic Univ. (Russian Federation); Roman E. Zhukov, St. Petersburg Academic Univ. (Russian Federation) and Ioffe Physical-Technical Institute (Russian Federation); Mikhail V. Maximov, Ioffe Physical-Technical Institute (Russian Federation) and St. Petersburg Academic Univ. (Russian Federation); Alexander V. Omelchenko, St. Petersburg Academic Univ. (Russian Federation) .......................................................... [9503-4]

SESSION 2 .................................... MON 11:00 TO 12:50

Nonlinearities in Composite Structures
Session Chair: Dmitri R. Yakovlev, Technische Univ. Dortmund (Germany)

SHG from artificial metasurfaces (Invited Paper), Concita Sibilia, Univ. degli Studi di Roma La Sapienza (Italy) .......................................................... [9503-5]

Three wave mixing enhancement in metal-insulator-metal resonators, Sebastien Heron, Patrick Bouchon, ONERA (France); Fabrice Pardo, Jean-Luc Pelouard, Lab. de Photonique et de Nanosciences (France); Raad Haider, ONERA (France) .......................................................... [9503-6]

Integrated ring grating nanoplasmonic structure for efficient coupling of propagating and localized surface plasmons, Nancy Rahbany, Wei Gong, Rafael Salas-Montiel, Sylvain Blaise, Renaud J. B. Bachelot, Univ. de Technologie Troyes (France); Christophe Couteau, Univ. de Technologie Troyes (France) and Nanyang Technological Univ. (Singapore) .................................................. [9503-7]

Nonlinear Kerr-type coupled ring resonators with effect of loss, Yasa Eksigolu Ozok, Jiri Petranek, Brno Univ. of Technology (Czech Republic) .......................... [9503-8]

Organic-inorganic planar hybrid materials for spasers, Nikita A. Toropov, Atoyu N. Kamalieva, Tigran A. Vartanyan, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) .................................................. [9503-9]

Lunch Break .................................. Mon 12:50 to 14:00

SESSION 3 .................................... MON 14:00 TO 15:30

Nonlinear Processes
Session Chair: Concita Sibilia, Univ. degli Studi di Roma La Sapienza (Italy)

Nonlinear interaction between single photons (Invited Paper), Bruno Sanguinetti, Univ. de Genève (Switzerland) .................................................. [9503-10]

Slow and fast light switching in ruby, Rajitha P. Rajan, Hans Riesen, UNSW Canberra (Australia) .................................................. [9503-11]

Optical nanofibre facilitated nonlinear optics effects in cold atoms, Sile G. Nic Chormaic, Ravi Kumar, Vandana Gokhroo, OxST Graduate Univ. (India) .................................................. [9503-12]

The design of photonic crystal fiber with novel microstructure for flat supercontinuum generation, Wei Li, Guoying Feng, Shouhuan Zhou, Tian Liang, Sichuan Univ. (China) .................................................. [9503-13]

PLENARY SESSION I ...................... MON 16:00 TO 17:55

For details, please see pages 7–8.

TUESDAY 14 APRIL

PLENARY SESSION II ..................... TUE 9:00 TO 9:50

For details, please see pages 7–8.

SESSION 4 .............................. TUE 10:10 TO 12:00

Plasmonics
Session Chair: Bruno Sanguinetti, id Quantique SA (Switzerland)

Enhanced nonlinear optics in plasmonics and dielectric nanostructures with magnetic response (Invited Paper), Andrey A. Fedyanin, Lomonosov Moscow State Univ. (Russian Federation) .................................................. [9503-14]

Waves in nonlinear plasmonic slot waveguides: stationary states, bifurcation, stability and temporal evolution, Wiktor Walasik, Institut Fresnel (France); Fangwei Ye, Shanghai Jiao Tong Univ. (China); Alejandro W. Rodriguez, Princeton Univ. (USA); Gilles Renuzve, Institut Fresnel (France) and Aix- Marseille Univ. (France) .................................................. [9503-15]

Highly nonlinear sub-micro silicon nitrile trench waveguide coated with gold nanoparticles, Yuewang Huang, Qiancheng Zhao, Nicholas Sharac, Regina Ragan, Ozdal Boyraz, Univ. of California, Irvine (USA) .................................................. [9503-16]

Experimental mapping of nonlinear dynamics in synchronized coupled semiconductor laser networks, Apostolos Argyris, Michail Bourboupis, Dimitris Syrris, National and Kapodistrian Univ. of Athens (Greece) .................................................. [9503-17]

Second harmonic generation from self-organized ZnO-NbWO4 eutectic composite, Alessandro Belardini, Grigore Leahu, Marco Centini, Alessio Benedetti, Emilia Petronijevic, Eugenio Fazio, Concita Sibilia, Univ. degli Studi di Roma La Sapienza (Italy); Pawel Osewski, Institute of Electronic Materials Technology (Poland); Dorota A. Pawlak, Institute of Electronic Materials Technology (Poland) and Univ. of Warsaw (Poland) .................................................. [9503-18]

Lunch/Exhibition Break ..................... Tue 12:00 to 13:20

SESSION 5 .............................. TUE 13:20 TO 15:00

Devices and Applications
Session Chair: Andrey A. Fedyanin, Lomonosov Moscow State Univ. (Russian Federation)

Coherent nonlinear optical microscopy for acquiring structural information of cell cytoskeleton, Hyunsik Lim, Hunter College (USA) .................................................. [9503-20]

Selective multiphoton excitation by parametrically shaped laser pulses, Albrecht Lindinger, Freie Univ. Berlin (Germany) .................................................. [9503-21]

All-optical nonlinear information reconstructing via stochastic resonance in image processing, Hongjun Liu, Qibing Sun, Nan Huang, Xian Institute of Optics and Precision Mechanics (China) .................................................. [9503-22]

Cavity-enhancement realization of the second-harmonic laser at 780nm and the third-harmonic laser at 520nm from a 1560nm EDFA-boosted diode laser with periodically-poled bulk crystals, Junmin Wang, Shanlong Guo, Yulong Ge, Kong Chang, Jun He, Shaxi Univ. (China) .................................................. [9503-23]

Complex dynamics of QD light emitting diode with optoelectronic feedback, Kais A. Al Namie, Istituto Nazionale di Ottica (Italy); Hussein Al Hussein, Univ. of Baghdad (Iraq); Sora F. Abdalha, Istituto Nazionale di Ottica (Italy); Amin Al Khurairi, Thi-Qar Univ. (Iraq); Ali H. Klider, Univ. of Baghdad (Iraq); Riccardo Meucci, F. Tito Areccchi, Istituto Nazionale di Ottica (Italy) .................................................. [9503-24]
SESSION 6 ............................... TUE 15:40 TO 18:00
Theory and Modelling
Session Chair: Mario Bertolotti, Univ. degli Studi di Roma La Sapienza (Italy)
Nonlinear scattering of ultrashort laser pulses on two-level system, Sergey V. Sakhno, Valerie A. Astepenko, Moscow Institute of Physics and Technology (Russian Federation) .................................................. [9503-25]
Explicit solution of FWM problem under the interaction of co-propagating laser beams in medium with cubic nonlinear response, Vyacheslav A. Trofimov, Igor E. Kuchik, Lomonosov Moscow State Univ. (Russian Federation) .................................................. [9503-26]
Propagation of femtosecond pulse with self-similar shape in medium with nonlinear absorption, Vyacheslav A. Trofimov, Irina G. Zakharcheva, Lomonosov Moscow State Univ. (Russian Federation); Swapan Konar, Birla Institute of Technology (India) .................................................. [9503-27]
The time response of nonlinear chalcogenide fiber Bragg gratings, Lubomir Scholtz, Libor Ladanyi, Jarmila Mullerova, Univ. of Zilina (Slovakia) ... [9503-28]
Optical nonlinearities induced by electric fields in nematic liquid crystals, Emil Petrescu, Cristina C. Citroaje, Victor Stoian, Cornelia Motoc, Univ. Politehnica of Bucharest (Romania) .................................................. [9503-29]
The accuracy of the DDA (Discrete Dipole Approximation) method in determining the optical properties of black carbon fractal-like aggregates, Krzysztof Skorupski, Wroclaw Univ. of Technology (Poland) .................................................. [9503-30]
Optical and thermal luminescence properties of lithium potassium borate glasses doped with Eu²⁺ ions, Yasser Alajerami, Al Azhar Univ. (Palestinian Territory, Occupied) .................................................. [9503-31]

WEDNESDAY 15 APRIL
POSTERS ............................... WED 17:45 TO 19:15
Conference attendees are invited to attend the Optics + Optoelectronics Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 48, and at http://spie.org/x30951.xml.

Continuous-wave seeded mid-IR parametric system pumped by the high-average-power picosecond Yb:YAG thin-disk laser, Ondrej Novak, Martin Smrz, Taisuke Miura, Hana Turcicova, Akira Endo, Tomás Mocek, Institute of Physics of the ASCR, v.v.i. (Czech Republic) .................................................. [9503-19]
Investigations on growth, structure, optical properties and laser damage threshold of organic nonlinear optical crystals of Guanidinium L-Ascorbate, Ravi K. Saripalli, Sanath Kumar, Indian Institute of Science (India); H. L. Bhat, Indian Institute of Science (India) and Ctr. for Nano and Soft Matter Sciences (India); Suja Elizabeth, Indian Institute of Science (India) .................................................. [9503-32]
Measurement of nonlinear refractive index based on multiple configuration of generating multiwavelength, Mohd Nizam Abdullah, Sahibdin B. H. Shaar, Abang Anuar Ehsan, P. Suthitha Menon, Univ. Kebangsaan Malaysia (Malaysia) .................................................. [9503-33]
Infrared optical parametric oscillator based on MgO: PPLN crystal and synchronously pumped by femtosecond Yb:KGW laser, Ieva Pipinyte, Karolina Stankeviciute, Rimantas Grigonis, Mangirdas Malinauskas, Valdas Sirutkaitis, Vilnius Univ. (Lithuania) .................................................. [9503-34]
High-quality factor optical resonators for optoelectronics, Patrice Salzenstein, FEMTO-ST (France) .................................................. [9503-35]
Temperature controlled optical resonator process for optoelectronics oscillator application, Mikhail Zabulin, Patrice Salzenstein, FEMTO-ST (France) .................................................. [9503-36]
Synchronously pumped femtosecond optical parametric oscillator with broadband chirped mirrors, Karolina Stankeviciute, Vilnius Univ. (Lithuania); Simas Melnikas, Vilnius Univ. (Lithuania) and Ctr. for Physical Sciences and Technology (Lithuania); Simonas Kicas, Ctr. for Physical Sciences and Technology (Lithuania); Mikas Vengiris, Mangirdas Malinauskas, Valdas Sirutkaitis, Vilnius Univ. (Lithuania) .................................................. [9503-37]
The material properties and geometry of 3D (Si, SiGe,Ge) fin structures determine the second-harmonic generation response, Marten K. Vanbel, Katholieke Univ. Leuven (Belgium); Andreas Schulze, Andrezj Gawlik, Wilfried Vandervorst, Matty Camyax, IMEC (Belgium); Thierry Verbiest, Katholieke Univ. Leuven (Belgium). .................................................. [9503-38]
Laser thermal recording on non-homogeneous medium, Ivan V. Gorbov, Anatoly S. Lapchuk, Andrey A. Kryuchyn, Yuriy O. Borodin, Institute for Information Recording (Ukraine) .................................................. [9503-39]
Analysis of the optoelectronic properties in 1,3-benzoxazole molecule under the effect of electro-acceptor substituent (OH and O₂N) and electro-
MONDAY 13 APRIL

OPENING REMARKS .......................... 10:20 TO 10:30

SESSION 1 ...................................... MON 10:30 TO 12:30
Superconducting Photon Counting I
Session Chair: Roman Sobolewski, Univ. of Rochester (USA)

Real-time single-photon imaging with a 64-pixel WSI superconducting nanowire camera (Invited Paper), Varun B. Verma, Michael S. Allman, Martin J. Stegli, Robert D. F. Federico II (Italy) and CNR-SPIN UOS Naples (Italy) ............................................. [9504-1]

Near-field single photon detection in a scattering NSOM, Qiang Wang, Jelmer Renema, Leiden Univ. (Netherlands); Andreas Engel, Univ. of Zürich (Switzerland); Martin P. van Exter, Michiel J. A. de Dood, Leiden Univ. (Netherlands) ............................................. [9504-2]

Dark counts in superconducting single-photon NbN/NiCu detectors, Loredana Parlato, Umberto Nasti, Univ. degli Studi di Napoli Federico II (Italy); Mikkel Ejmea, CNR-SPIN (Italy); Roberto Cristiano, CNR-SPIN (Italy); Hiroaki Myoren, Saiata Univ. (Japan); Roman Sobolewski, Univ. of Rochester (USA); Giovanni Piero Pepe, Univ. degli Studi di Napoli Federico II (Italy) and CNR-SPIN UOS Naples (Italy) ............................................. [9504-3]

Superconducting and ferromagnetic properties of NbN/NiCu and NbTi/NiCu bilayer nanostructures for photon detection, Andrzej Klimov, Institute of Electron Technology (Poland); Roman Puzniak, Institute of Physics (Poland); Enno Joon, Raivo Stern, National Institute of Chemical Physics and Biophysics (Estonia); Wojtek Szym, Marek Guzwicki, Marcin Juchniwel, Institute of Electron Technology (Poland); Jaroslav Z. Domagala, Institute of Physics (Poland); Roman Sobolewski, Univ. of Rochester (USA) ................................. [9504-4]

YBCO nanowires for optical-photon detection (Invited Paper), Loredana Parlato, Univ. degli Studi di Napoli Federico II (Italy); Giovanni Piero Pepe, Univ. degli Studi di Napoli Federico II (Italy) and CNR-SPIN UOS Naples (Italy); Mikkel Ejmea, CNR-SPIN (Italy); Roberto Cristiano, CNR-SPIN (Italy); Riccardo Arpaia, Floriana Lombardi, Chalmers Univ. of Technology (Sweden); Francesco Tafuri, CNR-SPIN (Italy); Roman Sobolewski, Univ. of Rochester (USA) ................................. [9504-5]

Lunch Break ..................................... Mon 12:30 to 14:10

SESSION 2 ...................................... MON 14:10 TO 15:00
Superconducting Photon Counting II
Session Chair: Roman Sobolewski, Univ. of Rochester (USA)

Single photon imaging with superconducting nanowire single photon detectors (Invited Paper), Robert H. Hadfield, Univ. of Glasgow (United Kingdom) ............................. [9504-6]

The ultrafast SSPD coupled to single-mode fiber, Maria Sidorova, Moscow State Pedagogical Univ. (Russian Federation); Alexander Divoych, CJSC Superconducting Nanotechnology “SCONTUL” (Russian Federation); Yury B. Vakhromin, Moscow State Pedagogical Univ. (Russian Federation) and CJSC Superconducting Nanotechnology “SCONTUL” (Russian Federation); Konstantin Smirnov, Moscow State Pedagogical Univ. (Russian Federation) ........ [9504-7]

PLENARY SESSION I .......................... MON 16:00 TO 17:55
For details, please see pages 7-8.

SESSION 3 ...................................... TUE 10:30 TO 12:00
Solid State Photon Counting
Session Chair: Josef Blazej, Czech Technical Univ. in Prague (Czech Republic)

Active quenching and gating circuit of the photon counting detector for laser time transfer with improved timing resolution and stability (Invited Paper), Ivan Prochazka, Josef Blazej, Jan Kodet, Wojtlick Michalek, Czech Technical Univ. in Prague (Czech Republic) ............................................. [9504-8]

High-performance timing electronics for single photon avalanche diode arrays, Giulia Acconcia, Matteo Crotti, Ivan Rech, Massimo Ghioni, Politecnico di Milano (Italy); Cesare Barbieri, INAF - Osservatorio Astronomico di Padova (Italy) and SERENUM, a.s. (Czech Republic); Ivan Prochazka, Josef Blazej, Czech Technical Univ. in Prague (Czech Republic) ................................. [9504-9]

Aqueyo plus: a new ultrafast single photon counter for optical high time resolution astrophysics, Luca Zampieri, INFN - Osservatorio Astronomico di Padova (Italy); Cesare Barbieri, INAF - Osservatorio Astronomico di Padova (Italy); Giampiero Naletto, Enrico Verro, Univ. degli Studi di Padova (Italy) ................................. [9504-10]

Single-photon level responsivity of asymmetric nanochannel diodes, Yunus E. Akbas, Univ. of Rochester (USA); L. Q. Zhang, Y. Alimi, Aimin M. Song, The Univ. of Manchester (United Kingdom); I. Ilfiquez-de-la-Torre, Javier Mateos, Tomas Gonzalez, Univ. de Salamanca (Spain); Gary W. Wicks, Roman Sobolewski, Univ. of Rochester (USA) ................................. [9504-11]

Lunch/Exhibition Break ........................ Tue 12:00 to 13:10

SESSION 4 ...................................... TUE 13:10 TO 15:00
X-ray Photon Detection
Session Chair: Robert H. Hadfield, Univ. of Glasgow (United Kingdom)

Detectors for counting X- and gamma-rays based on compound semiconductors (Invited Paper), Ralph B. James, Aleksey E. Bolotnikov, Giuseppe S. Camarda, Yonggang Cui, Anwar Hossain, Uttam N. Roy, Ge Yang, Rubi Gul, Brookhaven National Lab. (USA); Wonho Lee, Korea Univ. (Korea, Republic of); George Mahler, Maxwell Maritato, Brookhaven National Lab. (USA); Matthew Petryk, Binghamton Univ. (USA); Uptal N. Roy, Cynthia Salwen, Ge Yang, Emerson Vernon, Ralph B. James, Brookhaven National Lab. (USA) ........................ [9504-12]

Large-volume virtual Frisch-grid CdZnTe detectors for X- and gamma-ray sensors, Aleksey E. Bolotnikov, Kim Ackley, Giuseppe S. Camarda, Carly Cherches, Yonggang Cui, Gianluigi De Geronimo, Jack Fried, Anwar Hossain, Brookhaven National Lab. (USA); Wonho Lee, Korea Univ. (Korea, Republic of); Ivan Prochazka, Josef Blazej, Jan Kodet, Vojtech Michalek, Czech Technical Univ. in Prague (Czech Republic) ........................ [9504-13]

Study of post-growth annealing of CdMnTe X-ray and gamma-ray detectors in Cd-rich atmosphere, Stephen U. Egareewwe, Alabama A&M Univ. (USA); Uttam N. Roy, Brookhaven National Lab. (USA); David K. Kithinji, Julius O. Jow, John O. Mwathi, Alabama A&M Univ. (USA); Ge Yang, Ralph B. James, Brookhaven National Lab. (USA) ........................ [9504-14]

Detect defect analysis of CdZnTe crystals and the related thermal annealing studies, Ge Yang, Alexey E. Bolotnikov, Yonggang Cui, Anwar Hossain, Uttam N. Roy, Ralph B. James, Brookhaven National Lab. (USA) ........................ [9504-15]

Comparative study of the effects of chemo-mechanical polishing and chemical etching on CdZnTe nuclear radiation detectors, Stephen U. Egareewwe, Alabama A&M Univ. (USA); Anwar Hossain, Brookhaven National Lab. (USA); Julius O. Jow, Alabama A&M Univ. (USA); Uttam N. Roy, Ralph B. James, Brookhaven National Lab. (USA) ........................ [9504-16]
SESSION 5 .............................. TUE 15:30 TO 16:40

Photon Counting Applications
Session Chair: Ralph B. James, Brookhaven National Lab. (USA)

Enhancing the fill-factor of CMOS SPaD arrays using microlens integration (Invited Paper), Giuseppe Intermite, Ryan E. Warburton, Aongus McCarthy, Ximing Ren, Heriot-Watt Univ. (United Kingdom); Federica A. Villa, Politecnico di Milano (Italy); Andrew J. Waddie, Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom); Franco Zappa, Alberto Tosi, Politecnico di Milano (Italy); Gerald S. Buller, Heriot-Watt Univ. (United Kingdom) .................. [9504-18]

A conducted laboratory experiment and analysis of mutual interference between LiDAR scanners, Gunzung Kim, Jeongsook Eom, Yongwan Park, Yeungnam Univ. (Korea, Republic of) ....................... [9504-19]

Effects of cytosine methylation on DNA thermal stability: a fluorescence study, Marco Lamperti, Univ. degli Studi dell'Insubria (Italy); Luca Nardo, Univ. degli Studi di Milano Bicocca (Italy); Domenico Salemo, Valeria Cassina, Univ. degli Studi di Milano-Bicocca (Italy); Maria Bondani, Consiglio Nazionale delle Ricerche (Italy); Francesco Mantegazza, Univ. degli Studi di Milano-Bicocca (Italy) ..................... [9504-20]

WEDNESDAY 15 APRIL

POSTERS ..................................... WED 17:45 TO 19:15

Conference attendees are invited to attend the Optics + Optoelectronics Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 48, and at http://spie.org/x30951.xml.

Photon counting LADAR development based on focal plane array Geiger mode avalanche photodiode for range elongation, Min-Sik Jo, J. D. Nam, C. J. Lee, Agency for Defense Development (Korea, Republic of); J. H. Shin, Samsung Thales Co., Ltd. (Korea, Republic of); Y. C. Noh, Gwanju Institute of Science and Technology (Korea, Republic of); S. G. Kang, i3system, Inc. (Korea, Republic of) .................. [9504-21]

Research and experiment of satellite laser ranging with 1064nm wavelength using Si-APD, Wendong Meng, Shanghai Astronomical Observatory (China) .................... [9504-22]

Characterization of thin scintillators for ultrafast hard X-ray imaging, Zhehui Wang, Criw W. Barnes, Jon S, Kapustinsky, Chris L. Morris, Ron O. Nelson, Los Alamos National Lab. (USA); Ren-Yuan Zhu, Liyuan Zhang, Fan Yang, California Institute of Technology (USA) .................. [9504-23]


Simultaneous detection of tissue autofluorescence decay distribution and time-gated photo-bleaching rates, Alexey P. Lihachev, Inesa Ferulova, Univ. of Latvia (Latvia); Mindaugas Tamosiunas, Vytautas Magnus Univ. (Lithuania); Janis Spigulis, Univ. of Latvia (Latvia) .................. [9504-25]

Evaluating the effectiveness of the method extrafocal images when observing low-orbiting space objects, Yuri P. Shumilov, Institute of Informatics Problems of the Russian Academy of Sciences (Russian Federation); V. G. Vygon, Evgeniy A. Grishin, Victor D. Shargrodski, Precision Systems and Instruments Corp. (Russian Federation) .................. [9504-26]

Single photon detectors based on superconducting NbTiN nanostructures, Wojtek Slysz, Marek Guziewicz, Andrii Klimov, Marcin Juchniewicz, Renata Kruszka, Institute of Electron Technology (Poland); Jaroslaw Z. Domagaia, Valery Kokovsky, Institute of Physics (Poland); Maciej Wegrzecki, Jan Bar, Adam Laszcz, Andrzej Czerwinski, Institute of Electron Technology (Poland); Roman Sobolewski, Univ. of Rochester (USA) .................. [9504-27]
Quantum Optics and Quantum Information Transfer and Processing

Conference Chairs: Konrad Banaszek, Univ. of Warsaw (Poland); Christine Silverhorn, Univ. Paderborn (Germany)

Programme Committee: Ulrik Lund Andersen, Technical Univ. of Denmark (Denmark); Marco Bellini, Istituto Nazionale di Ottica (Italy); Nicolas J. Cerf, Univ. Libre de Bruxelles (Belgium); Miloslav Dusek, Palacký Univ. Olomouc (Czech Republic); Jens S. Eiert, Freie Univ. Berlin (Germany); Alexander I. Lvovsky, Univ. of Calgary (Canada); Jeremy L. O'Brien, Univ. of Bristol (United Kingdom); Fabio Sciarrino, Univ. degli Studi di Roma La Sapienza (Italy); Andrew J. Shields, Toshiba Research Europe Ltd. (United Kingdom); Juan P. Torres, ICFO - Institut de Ciencies Fotòniques (Spain)

WEDNESDAY 15 APRIL

OPENING REMARKS ........................................... 10:20 TO 10:30

SESSION 1 ............................................ WED 10:30 TO 12:10

Quantum Cryptography
Session Chair: Eleon Diamanti, Télécom ParisTech (France)
A protocol of quantum key distribution without relying on information-disturbance tradeoff (Invited Paper), Masato Koashi, Univ. of Tokyo (Japan) ..................................................
Quantum key distribution in optical access networks (Invited Paper), Bernd Fröhlich, James F. Dynes, Marco Lucamarini, Andrew W. Sharpe, Simon W. B. Tam, Zhiliang L. Yuan, Andrew J. Shields, Toshiba Research Europe Ltd. (United Kingdom) ..................................................
Faked state attack on realistic round robin DPS quantum key distribution systems and countermeasure, Takehisa Iwakoshi, Tamagawa Univ. (Japan) ..................................................
Bidirectional quantum communication in presence of noise, Anirban Pathak, Kishore Thapliyal, Jaypee Institute of Information Technology (India) :: [9505-8]
Lunch/Exhibition Break .................................. Wed 12:10 to 13:30

SESSION 2 ............................................. WED 13:30 TO 15:30

Quantum Optics
Session Chair: Jaromir Fiurásek, Palacký Univ. Olomouc (Czech Republic)
Quantum memory of spontaneous emission via spin-orbit interaction of light (Invited Paper), Amo Rauschenbeutel, Vienna University of Technology (Austria) ..................................................
Quantum detector tomography on superconducting single photon detectors, Jelmer Renema, Leiden Univ. (Netherlands); Rosalinda Gaudio, Technische Univ. Eindhoven (Netherlands); Qiang Wang, Leiden Univ. (Netherlands); Andreas Engel, Univ. of Zürich (Switzerland); Andrea Fiore, Technische Univ. Eindhoven (Netherlands); Martin P. van Exter, Michiel J. A. de Dood, Leiden Univ. (Netherlands) ..................................................
Pulsed laser irradiation and photostability of quantum dots under pulsed laser irradiation, Victor A. Krivokon, Pavel S. Samokhvalov, Sergey D. Prokhvor, Alexander A. Chistuyakov, National Research Nuclear Univ. MEPhI (Russia); Igor R. Nabiev, National Research Nuclear Univ. MEPhI (Russia) and Univ. de Reims Champagne-Ardenne (France) ..................................................

POSTERS ............................................. WED 17:45 TO 19:15

Conference attendees are invited to visit the Optics + Optoelectronics Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 48, and at http://spie.org/x30905.xml.
Spatial resolution dependence on light polarization in direct laser writing 3D lithography, Sima Rekštyte, Thomas Jonavicius, Mangirdas Malinauskas, Vilnius Univ. (Lithuania) ..................................................

SESSION 3 ............................................. WED 16:00 TO 17:40

Quantum Memories
Session Chair: Bernd Fröhlich, Toshiba Research Europe Ltd. (United Kingdom)
Quantum memories with cold neutral atoms: from free-space to all-fibered implementations (Invited Paper), Julien Laurat, Laboratoire Kastler Brossel (France) ..................................................
Reactivation of quantum repeaters in non-Markovian Gaussian environments (Invited Paper), Stefano Pirandola, Carlo Ottaviani, Gaetana Spedalieri, Samuel L. Braunstein, The Univ. of York (United Kingdom); Tobias Gehring, Christian S. Jacobsen, Ulrik L. Andersen, Technical Univ. of Denmark (Denmark) ..................................................
An integrated source of filtered photon pairs for large scale quantum photonic systems, Nicholas C. Harris, Massachusetts Institute of Technology (USA); Davide Grassani, Angelica Simbula, Matteo Galli, Univ. degli Studi di Padova (Italy); Mihir Pant, Marcella Cattaneo, Massimo Masi and Marco Lucamarini, Toshiba Research Europe Ltd. (United Kingdom); Daniele Bajoni, Univ. degli Studi di Pavia (Italy); Christophe Galland, Stuttgart Univ. (Germany) ..................................................
Building a room temperature quantum processor, Eden Figueroa, Stony Brook Univ. (USA) ..................................................

For details, please see pages 7–8.
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CONFERENCE 9506
Monday–Thursday 13–16 April 2015 • Proceedings of SPIE Vol. 9506

Optical Sensors

Conference Chairs: Francesco Baldini, Istituto di Fisica Applicata Nello Carrara (Italy); Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)

Programme Committee: Loïc J. Blum, Univ. Claude Bernard Lyon 1 (France); Eduard Brynda, Institute of Macromolecular Chemistry of the ASCR, v.v.i. (Czech Republic); Artur Dybko, Warsaw Univ. of Technology (Poland); Günter G. Gauglitz, Eberhard Karls Univ. Tübingen (Germany); Bo Liedberg, Linköping Univ. (Sweden); Aleksandra Lobnik, Univ. of Maribor (Slovenia); Ramaier Narayanaswamy, The Univ. of Manchester (United Kingdom); Claudia Preininger, AIT Austrian Institute of Technology GmbH (Austria); Reinhardt Willsch, Institut für Photonische Technologien e.V. (Germany)

MONDAY 13 APRIL

OPENING REMARKS .............................................. 10:15 TO 10:20

SESSION 1 .................................................. MON 10:20 TO 12:00

Components, Subsystems, Data Processing I

Dilute nitride resonant cavity enhanced photodetector with internal gain for operation at λ=1.286 μm, Naci Balkan, Univ. of Essex (United Kingdom); Ayse Erol, Fahrettin Sarcan, Istanbul Univ. (Turkey); Mohammad S. B. Nordin, Leena F. F. Al-Ghuraibawi, Univ. of Essex (United Kingdom) .............................................. [9506-1]

A high-efficiency nonimaging optical system and detector assembly for improved energy collection in medical instrumentation and other applications, James A. Hand, Elbit Systems of America (USA); Michaelene W. Sprague, Abbott Labs. (USA) ................... [9506-2]

Modeling of CMOS image sensors for time-of-flight applications, Adrian Drewer, Bedrich J. Hosticka, Andreas Speckermann, Holger Vogt, Fraunhofer-Institut für Mikroelektronische Schaltungen und Systeme (Germany) ................................................. [9506-3]

Radiometric calibration of digital cameras using gaussian processes, Martin Schall, Michael Grunwald, Matthias O. Franz, Hochschule Konstanz (Germany) ........................................... [9506-4]

Hyperspectral light field imaging, Raimund Leitner, Andreas Kenda, Andreas Totschaschoff, Carinthian Tech Research AG (Austria); Josef Aztler, Molecular Devices LLC (Austria) ........................................... [9506-5]

Lunch Break ........................................................ Mon 12:00 to 13:30

SESSION 2 .................................................. MON 13:30 TO 15:30

Components, Subsystems, Data Processing II

Φ-OTDR signal amplification, Petr Münster, Brno Univ. of Technology (Czech Republic); Josef Vojtch, CESNET z.s.p.o. (Czech Republic); Petr Sysel, Radim Sfta, Vit Novotny, Tomás Horváth, Brno Univ. of Technology (Czech Republic); Stanislav Sima, CESNET z.s.p.o. (Czech Republic); Miroslav Fikla, Brno Univ. of Technology (Czech Republic) ................... [9506-6]

Real time polarization sensor system processing on an embedded FPGA/ multi-core DSP system, Marcus Bednara, Katarzyna Chuchacz-Kowalczyk, Fraunhofer-Institut für Integrierte Schaltungen und Systeme (Germany) ........................................... [9506-7]

Integrated optics on Lithium Niobate for sensing applications, Cinzia Sada, AnnaMaria Zatrowny, Giacomo Bettella, Univ. degli Studi di Padova (Italy); Gianluca Pozza, Univ degli Studi di Padova (Italy); Michael Etteling, Sebastian Kroesen, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) ........................................... [9506-8]

Onboard compensation technique for misalignment of satellite sensor telescope for Earth observation, Norihide Miyamura, Meisei Univ. (Japan) ........................................... [9506-9]

Blur analysis and removal in under water image using optical priors, Lathamani K. M., The Oxford College of Engineering (India) ................... [9506-10]

Infrared moving target detection algorithm based on multiscale codebook model, Lei Liu, Yayun Zhou, Nanjing Univ. of Science and Technology (China) ........................................... [9506-11]

PLENARY SESSION I .................................. MON 16:00 TO 17:55

For details, please see pages 7–8.

PLENARY SESSION II .................................. TUE 9:00 TO 9:50

For details, please see pages 7–8.

TUESDAY 14 APRIL

SESSION 3 .................................................. TUE 10:20 TO 12:10

Physical Sensors I

A suite of optical fibre sensors for structural condition monitoring (Invited Paper), Tong Sun, City Univ. London (United Kingdom) ........................................... [9506-12]

Photoluminescent temperature sensor based on borate and phosphate glasses doped with copper clusters, Anastasia N. Bakina, Pavel S. Shirshnev, Nikolay V. Nikonovor, Aleksandr I. Sidorov, Elena V. Kolobkova, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) ........................................... [9506-13]

FBG-based novel sensor with low-cost interrogation for high-temperature measurement, Venkata Reddy Mamidi, Sriramarnayana Kamiren, Vengal Rao Pachava, National Institute of Technology, Warangal (India) ................... [9506-14]

Polarimetric and fiber Bragg grating reflective hybrid sensor for simultaneous measurement of strain and temperature in composite material, Marcin S. Bleda, Piotr Leiak, Mateusz Szelag, Michal Kuczkowski, Andrzej W. Domański, Tomasz R. Wolinski, Warsaw Univ. of Technology (Poland); Gerald Farrell, Dublin Institute of Technology (Ireland) ................... [9506-15]

Reflection-type compact photonic displacement sensor tapping into a projected beam, Yong-Geon Lee, Hak-Soon Lee, Sang-Shin Lee, Kwangwoon Univ. (Korea, Republic of) ........................................... [9506-16]

Lunch/Exhibition Break ........................................... Tue 12:10 to 13:20

SESSION 4 .................................................. TUE 13:20 TO 15:00

Physical Sensors II

Compact optical displacement sensing by detection of microwave signals generated from a monolithic passively mode-locked laser under feedback, Christos Simos, Technological Educational Institute of Larisa (Sterea Ellada) (Greece) and National and Kapodistrian Univ. of Athens (Greece); Hercules A. Simos, Technological Educational Institute of Piraus (Greece) and National and Kapodistrian Univ. of Athens (Greece); Thomas Nikas, Dimitris Syvridis, National and Kapodistrian Univ. of Athens (Greece) ........................................... [9506-17]

A compact semiconductor digital interferometer and its applications, Ivan V. Gorov, Aleksander I. Britsky, Vlachavas V. Petrov, Institute for Information Recording (Ukraine) ........................................... [9506-18]

Monitorization of high refractive index edible oils using coated long period fibre grating sensors, Luis Coelho, Diana Viegas, INESC Porto (Portugal); José Luis Campos Oliveira Santos, Univ. do Porto (Portugal); Jose Manuel M. M. de Almeida, Univ. de Trás-os-Montes e Alto Douro (Portugal) and Univ. do Porto (Portugal) ........................................... [9506-19]

Effective application of optical sensing technology for sustainable liquid level sensing and rainfall measurement, Muhammad Hassan Bin Aziz, Univ. of Dhaka (Bangladesh) ........................................... [9506-20]

Microstructure encryption and decryption techniques in optical variable and invariant devices in printed documents for security and forensic applications, Radhakrishna Prabhu, The Robert Gordon Univ. (United Kingdom); Sajan Ambadyil, Jayan K. G., Ctr. For Development of Imaging Technology (India); Veilara Pappukutty Mahadevan Pillai, Univ. of Kerala (India) ................... [9506-21]
WEDNESDAY 15 APRIL

PLATINUM SESSION III .................................................. WED 9:00 TO 9:50

Materials and Functionalizations

Advanced materials for optical gas and biosensing application by using propagating and localized plasmonic and magneto-plasmonic transduction (Invited Paper), Roberto Relia, Istituto per la Microelettronica e Microsistemi (Italy) ........................................ [9506-22]

Label-free optical affinity biosensors for medical applications: fouling problems, Eduardo Rey-Acosta, César Rodriguez-Emmenegger, Andrés Santos Pereira, Tomas Riedel, Institute of Macromolecular Chemistry of the ASCR, v.v.i. (Czech Republic) ........................................ [9506-23]

Diameter control of carbon nanotubes using argon-acetylene mixture and their application as IR sensor, Rana A. Alzali, Umar Manzoor, King Saud Univ. (Saudi Arabia); Abdulrahman A. Alazba, Muhammad T. Amin, King Saud Univ. (Saudi Arabia) ........................................ [9506-24]

UV sensors based on Mg doped ZnO nanoparticles synthesized by water-based chemical method, Mirza S. Alam, COMSATS Institute of Information Technology (Pakistan); Umar Manzoor, Abdulrahman A. Alazba, King Saud Univ. (Saudi Arabia) ........................................ [9506-25]

SESSION 6 ....................................................... WED 10:10 TO 12:00

Plasmonic Sensing I

Plasmonic amplification for fluorescence assays (Invited Paper), Jakub Dostalek,AIT Austrian Institute of Technology GmbH (Austria) ............ [9506-26]

Morphological studies of resonances in plasmonic metasurfaces for SPR sensing, Jakub Letek, Pavel Kwiecien, Ivan Richter, Czech Technical Univ. In Prague (Czech Republic); Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) ..................... [9506-27]

Novel plasmonic sensors using particle-film interactions, Alexander W. Powell, Univ. of Oxford (United Kingdom) .................. [9506-28]

Optical biosensor based on a propagating mode supported by a sparse array of metal nanoparticles, Barbora Spackova, Maria Lara Ermini, Jiri Slaby, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Pavel Kwiecien, Ivan Richter, Czech Technical Univ. In Prague (Czech Republic); Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) ................ [9506-29]

The development of a multi-centre angles and multi-points measurement phase image interrogation surface plasmon resonance system, Jyun Liao, Shu-Sheng Lee, National Taiwan Ocean Univ. (Taiwan) .......... [9506-30]

Lunch/Exhibition Break ........................................ Wed 12:00 to 13:10

SESSION 7 ................................................... WED 13:10 TO 14:50

Plasmonic Sensing II

Nanooptics: new functionalities for biosensing, Jiri Slaby, Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) .................. [9506-31]

Optical sensing with plasmonic and nanomaterials, Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) .................. [9506-32]

Semiconductor based plasmonic sensors for biosensing, Rajesh Pratap Singh, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) .................. [9506-33]

Quantitative detection of bovine and porcine gelatin difference using Fiber Bragg grating sensors as a tool to evaluate the influence of filler on shrinkage of geopolymer matrices, Stefania Cambiaggio, Agostino Iadicicco, Mario M. Palmisano, Yan He, Hong-Bo Sun, Univ. of Napoli Parthenope (Italy); Massimo Della Pietra, Stefania Cambiaggio, Univ. of Napoli Parthenope (Italy) .................. [9506-34]

Quantitative detection of bovine and porcine gelatin difference using surface plasmon resonance based biosensor, Devy P. Wardani, Kamsul Kasilina, Luca De Stefano, Univ. degli Studi di Napoli Federico II (Italy) ........................................ [9506-35]

POSTERS .................................................... WED 17:45 TO 19:15

Conference attendees are invited to attend the Optics + Optoelectronics Poster Session on Wednesday afternoon. Click the poster for more information. Attendees are required to wear their conference registration badge to the poster session.

CONFERENCE 9506
Lunch Break ................................ Thu 12:10 to 13:20

Evolution of blue laser diode spectral lines with applied current in the range 446–448 nm, Watheq Al-Basheer, Abdulaziz Aljalal, Khaled Gasmii, King Fahd Univ. of Petroleum and Minerals (Saudi Arabia) ......................................................[9506-89]
Active differential optical absorption spectroscopy for NO gas pollution using light emitting diodes, Abdulaziz Aljalal, Khaled Gasmii, Watheq Al-Basheer, King Fahd Univ. of Petroleum and Minerals (Saudi Arabia) ......................................................[9506-90]
Volume holographic gratings as optical sensor, Gaetano Bianco, CGS S.p.A. (Italy); Maria Antonietta Ferrara, Istituto per la Microelettronica e Microsistemi (Italy); Fabio Borboli, Federica Zuppardi, Antonio Rovello, Univ. degli Studi di Napoli Federico II (Italy); Valerio Striano, Consorzio Antares S. c. a. r. l. (Italy); Giuseppe Coppola, Istituto per la Microelettronica e Microsistemi (Italy)[9506-91]
Cable television monitoring system based on fiber laser and FBG sensor, Peng-Chen Peng, Jun-Han Huang, National Taipei Univ. of Technology (Taiwan); Shin-Shian Wu, National Chi Nan Univ. (Taiwan); Wei-Yuan Yang, Po-Tso Shen, National Taipei Univ. of Technology (Taiwan) ..........................................................................................................................[9506-92]
Fast correction algorithm for lens array distortion, Chao Li, Qian Chen, Mao Chen, Aijun Shao, Tian Man, Nanjing Univ. of Science and Technology (China) .........................................................................................................................[9506-93]
Magnetopho-plasmonic nanomaterials for biosensing applications, Maria Grazia Manera, Istituto per la Microelettronica e Microsistemi (Italy); Pierpaolo Lupo, Franco Albertini, Consiglio Nazionale delle Ricerche (Italy); Cesar de Julian Fernandez, Istituto dei Materiali per l'Elettromagnetismo (Italy); Adriano Combelli, Roberto Reia, Istituto per la Microelettronica e Microsistemi (Italy) ..............................................................................................................[9506-94]
Forest of silica nanowires decorated with plasmonic nanoparticles for biosensing applications, Maria Grazia Manera, Adriano Combelli, Annalisa Convertino, Antonietta Taurino, Roberto Reia, Istituto per la Microelettronica e Microsistemi (Italy) ..................................................................................................................[9506-95]
Standard turn-around point and sol-gel coated long period fiber gratings as optical platforms for label-free biosensing: a comparative study, Francesco Chiavelli, Istituto di Fisica Applicata Nello Carrara (Italy); Palas Bivas, Central Glass and Ceramic Research Institute (India); Cosimo Tronco, Ambra Giannetti, Sara Tombell, Istituto di Fisica Applicata Nello Carrara (Italy); Sonnath Bandopadhyay, Sumal Jana, Susanta Bera, Arpajith Malik, Central Glass and Ceramic Research Institute (India); Riccardo Falciai, Francesco Baldini, Istituto di Fisica Applicata Nello Carrara (Italy) ..............................................................................................................[9506-96]
Monte Carlo simulation for underwater propagation of a Gaussian beam, Jae-Inh Kim, Hanwha Corp. (Korea, Republic of); Min-Sik Jo, Hyung-Rok Kim, Agency for Defense Development (Korea, Republic of) ..................................................................................................................[9506-97]
A novel ‘Gold on Gold’ biosensing scheme for an on-fiber immunoassay, Nirmal S. Punjabi, Indian Institute of Technology Bombay (India); Jitendra Satija, Velore Institute of Technology (India); Soumyi Mukherji, Indian Institute of Technology Bombay (India) ..................................................................................................................[9506-98]

THURSDAY 16 APRIL

SESSION 8 ..................................THU 09:00 TO 10:10

Raman Spectroscopy
Raman fiber probes for biophotonics (Invited Paper), Juergen Popp, Leibniz-Institut für Photophysikalische Technologie e.V. (Germany) ......................................................[9506-36]
Optofluidic jet waveguide approach for Raman spectroscopy, Gianluca Persichetti, Genni Testa, Davide Bacco, Univ. degli Studi di Padova (Italy); Maria Grazia Manera, Adriano Colombelli, Annalisa Convertino, Antonietta Taurino, Roberto Reia, Istituto per la Microelettronica e Microsistemi (Italy) ..................................................................................................................[9506-37]
Determination of plume temperature distribution based on the ratios of the radiated intensities in the 433-440 and 446-448 nm bands from CO, in a rocket plume, Jana Proboštová, Institute of Chemical Physics, Academy of Sciences of the Czech Republic (Czech Republic) ..............................................................................................................[9506-38]

SESSION 9 ..................................THU 10:40 TO 12:10

Chemical Sensors and Biosensors I
Hydrophilic upconversion nanoparticles for use in biosensing and bioimaging (Invited Paper), Otto S. Wolfbeis, Univ. Regensburg (Germany) ..................................................................................................................[9506-39]
Discrimination and classification of acute lymphoblastic leukemia cells by Raman spectroscopy, Stefano Managò, National Research Council (Italy); Carmen Valente, Institute of Protein Biochemistry (Italy); Piero Minarelli, SDN, Istituto di Ricerca Diagnostica e Nucleare (Italy); Anna Chiara De Luca, Consiglio Nazionale delle Ricerche (Italy) ..................................................................................................................[9506-38]

Study of the grafting of dyes for the design of a pH-optode, Matias Faques, Denis M. G. Doizi, Guy Deniau, Commissariat à l’Energie Atomique (France) ..................................................................................................................[9506-40]

Lunch Break ................................ Thu 12:10 to 13:20

TEL: +44 (0)29 2089 4747 · info@spieeurope.org 21
Chemical Sensors and Biosensors II

Localised hydrogen peroxide sensing for reproductive health, Malcolm S. Purdey, Erik P. Schartner, Jeremy Thompson, The Univ. of Adelaide (Australia) and ARC Ctr. of Excellence for Nanoscale BioPhotonics (Australia); Tanya M. Monro, The Univ. of Adelaide (Australia) and ARC Ctr. of Excellence for Nanoscale BioPhotonics (Australia) and Univ. of South Australia (Australia); Andrew D. Abell, The Univ. of Adelaide (Australia) and ARC Ctr. of Excellence for Nanoscale BioPhotonics (Australia) .................. [9506-43]

Cancer-cells on a chip for label-free optic detection of secreted molecules, Ophélie I. Berthuy, Loïc J. Blum, Christophe A. Marquette, Univ. Claude Bernard Lyon 1 (France) .................. [9506-44]

Studies of excitation of whispering gallery modes in a polymer coated silica cylindrical microresonator, Vithnun Kavungul, Qiang Wu, Gerald Farrell, Yuliya Semenova, Dublin Institute of Technology (Ireland) .................. [9506-45]

Optical micro-bubble resonators as promising biosensors, Ambra Giannetti, Andrea Banucci, Simone Berneschi, Alessandro Cozzi, Franco Cosi, Daniele Farnesi, Gualtiero Nunzi Conti, Istituto di Fisica Applicata Nello Carrara (Italy); Stefano Pelli, Istituto di Fisica Applicata Nello Carrara (Italy) and Ctr. Studi e Ricerche “E. Fermi” (Italy); Silvia Sonia Huguet, Sara Tombelli, Cosimo Trono, Istituto di Fisica Applicata Nello Carrara (Italy); Giancarlo C. Righini, Museo Storico della Fisica e Centro Studi e Ricerche Enrico Fermi (Italy) and Istituto di Fisica Applicata Nello Carrara (Italy); Francesco Baldini, Istituto di Fisica Applicata Nello Carrara (Italy) .................. [9506-46]

Cell internalization of theranostic agents using polymethyl-methacrylate nanoparticles, Ambra Giannetti, Barbara Adinolfi, Istituto di Fisica Applicata Nello Carrara (Italy); Mario Pellegrino, Univ. di Pisa (Italy); Giovanna Sotgiu, Consiglio Nazionale delle Ricerche (Italy); Sara Tombelli, Cosimo Trono, Istituto di Fisica Applicata Nello Carrara (Italy); Greta Varchi, Istituto per la Sintesi Organica e la Fotoreattività (Italy); Francesco Baldini, Istituto di Fisica Applicata Nello Carrara (Italy) .................. [9506-47]

Adapting long gauge vibrofibre to measure fracking activities down well for successful oil and gas exploration and production, Peter Kung, QPS Photonics Inc. (Canada); Maria I. Comanici, McGill Univ. (Canada) .................. [9506-48]

Solid-surface fluorescence of polycyclic aromatic hydrocarbons on polysaccharide fiber matrices, Svetlana M. Rogacheva, Anna V. Strashko, Tamara I. Gubina, Yuri Gagarin State Technical Univ. of Saratov (Russian Federation); Anna Shipovskaya, Yuri Gagarin State Technical Univ. of Saratov (Russian Federation) and N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Elena V. Volkova, Andrey G. Melnikov, Yuri Gagarin State Technical Univ. of Saratov (Russian Federation) .................. [9506-49]
Micro-structured and Specialty Optical Fibres

Conference Chairs: Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus); Jiri Kanka, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Alexis Mendez, MCH Engineering LLC (USA)

Programme Committee: Jean-Luc Adam, Univ. de Rennes 1 (France); Miguel V. Andrs, Univ. de Valncia (Spain); John Ballato, Clemson Univ. (USA); Ole Bang, DTU Fotonik (Denmark); Hartmut Bartelt, Institut für Phototonische Technologien e.V. (Germany); Aurelien Berganzo, Fibercore Ltd. (United Kingdom); Neil G. P. Broderick, The Univ. of Auckland (New Zealand); Benjaigh the Eggleton, Univ. of Sydney Institute of Photonics Technology; Christopher Emslie, Fibercore Ltd. (United Kingdom); Sebastien Fevrier, XLIM Institut de Recherche (France); Jonathan C. Knight, Univ. of Bath (United Kingdom); Hanne Ludvigsen, Aalto Univ. School of Science and Technology (Finland); Walter Margulis, Acreo Swedish ICT AB (Sweden); Saeed Rehman, Fibertronix AB (Sweden); Valerio Romano, Berano Fachhochschule Technik und Informatik (Switzerland); Kay Schuster, Institut für Phototonische 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)
CONFERENCE 9507

THURSDAY 16 APRIL

SESSION 3 .............................. THU 09:00 TO 10:30
Sensors and Devices based on Specialty Fibres

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

Speciality optical fibres for astronomy (Invited Paper), Simon C. Ellis, Australian Astronomical Observatory (Australia); Joss Bland-Hawthorn, The Univ. of Sydney (Australia). [9507-12]

Birefringent optical fiber with dispersive polarization axes for sensing applications, Karol Tarnowski, Alicja Anuszewkiewicz, Wrocław Univ. of Technology (Poland); Krzysztof Potura, Paweł Mergo, Univ. of Maria Curie-Skłodowska (Poland); Waclaw Urbanczyk, Wrocław Univ. of Technology (Poland). [9507-13]

Nanostructured tapered optical fibres for particle trapping, Silé G. Nic Chormaic, Mark Daby, Viet Giang Truong, Kieran Deasy, OIST Graduate Univ. (Japan). [9507-14]

Speciality fibers for high power lasers and amplifiers (Invited Paper), Jayanta K. Sahu, Univ. of Southampton (United Kingdom). [9507-15]

SESSION 4 .............................. THU 11:00 TO 12:30
Fibre Design, Processing and Fabrication

Session Chair: Valerio Romano, Berner Fachhochschule Technik und Informatik (Switzerland)

Soft glass photonic crystal fibres and their applications (Invited Paper), Ryszard Buczyński, Mariusz Klimeczak, Dariusz Pyz, Grzegorz Stepień, Institute of Electronic Materials Technology (Poland); Bartomiej Siwicki, Warsaw Univ. of Technology (Poland); Jaroslaw Cimek, Ireneusz Kujawa, Institute of Electronic Materials Technology (Poland); Bernard Pięchal, Univ. of Warsaw (Poland). [9507-16]

Progress in the fabrication of optical fibers by the sol-gel granulated silica method, Jonas Scheuner, Dereje Etisasa, Univ. Bern (Switzerland); Sönke Pilz, Berner Fachhochschule Technik und Informatik (Switzerland); Manuel Ryser, Univ. Bern (Switzerland); Hossein Najafi, Berner Fachhochschule Technik und Informatik (Switzerland); Woojin Shin, Guangju Institute of Science and Technology (Korea, Republic of); Valerio Romano, Univ. Bern (Switzerland) and Berner Fachhochschule Technik und Informatik (Switzerland). [9507-17]

The fabrication and characterization of the microfiber coated with colloidal crystal, Ying Luo, Jie Ma, Zhe Chen, Yongchun Zhong, Jinan Univ. (China). [9507-18]

Investigation of passive and active silica-tin oxide nanostructured optical fibers fabricated by “inverse dip-coating” and “powder in tube” method based on the chemical sol-gel process and laser emission, Geoffroy Granger, Univ. Stuttgart (Germany); Christine Restoin, Philippe Roy, Raphaël Jamier, Sébastien Rougier, XLIM Institut de Recherche (France); Jean-René Ducrée, Univ. de Limoges (France); André Lecomte, SPCTS (France); Román Dauliat, Leibniz-Institut für Photonische Technologien e.V. (Germany); Jean-Marc Blondy, XLIM Institut de Recherche (France). [9507-19]

Lunch Break ................................... Thu 12:30 to 13:40

SESSION 5 ................................... THU 13:40 TO 15:00
Polymer Optical Fibre Based Sensors and Devices

Session Chair: Alexis Mendez, MCH Engineering LLC (USA)

Fibre Bragg gratings inscribed in low loss CYTOP polymer optical fiber using a femtosecond laser, A. Lacroz, M. Polis, A. Theodosiou, Charalambos Koutsides, Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus). [9507-20]

Experimental investigation of Bragg gratings growth dynamics in polymer fibers of different types, Gabriela Statkiewicz-Barabach, Dominik Kowalski, Wrocław Univ. of Technology (Poland); Paweł Mergo, Univ. of Maria Curie-Skłodowska (Poland); Waclaw Urbanczyk, Wrocław Univ. of Technology (Poland). [9507-21]

Optimisation of polymer optical fibre based interferometric sensors, Andreas Pospori, David J. Webb, Aston Univ. (United Kingdom). [9507-22]

High performance liquid level monitoring system based on polymer fibre Bragg gratings embedded in silicone rubber diaphragm, Carlos A. F. Marques, Aston Institute for Photonics Technologies (United Kingdom); Gang-Ding Peng, The Univ. of New South Wales (Australia); David J. Webb, Aston Univ. (United Kingdom). [9507-23]

SESSION 6 .............................. THU 15:30 TO 17:20
Testing and Characterisation Methods Applied to Special Fibre Types

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

High-precision confocal reflection measurement for two dimensional refractive index mapping of optical fibers (Invited Paper), Philippe R. Raisin, Jonas Scheuner, Univ. Bern (Switzerland); Valerio Romano, Univ. Bern (Switzerland) and Berner Fachhochschule Technik und Informatik (Switzerland); Manuel Ryser, Univ. Bern (Switzerland). [9507-24]

Characterization of double-clad thulium-doped fiber with increased quantum conversion efficiency, Jan Aubrecht, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Jakub Capi, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) and Institute of Chemical Technology (Czech Republic); Pavel Peterka, Pavel Honzatko, Ondrej Podražky, Filip Todorov, Ivan Kašík, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic). [9507-25]

Transmission of red-laser radiation by using Bragg fibers, Vlastimil Matejec, Ondrej Podražky, Ivan Kašík, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Milan Frank, Michal Jelinek M.D., Václav Kubeczek, Czech Technical Univ. in Prague (Czech Republic). [9507-26]

Light-guidance in step-index fibers with rectangular shaped core, Jan C. Heimann, P. Raithe, Tim Tobisch, Technische Hochschule Mittelhessen (Germany); Mathias Belz, TransMIT GmbH (Germany); Karl-Friedrich Klein, Technische Hochschule Mittelhessen (Germany). [9507-27]

Mode field distribution and measuring method of microstructured fiber, Guoying Feng, Sichuan Univ. (China). [9507-28]
Holography: Advances and Modern Trends

Conference Chairs: Miroslav Habrokovsky, Palacky Univ. Olomouc (Czech Republic); John T. Sheridan, Univ. College Dublin (Ireland); Antonio Fimia, Univ. Miguel Hernandez de Elche (Spain)

Programme Committee: Radim Chmelík, Brno Univ. of Technology (Czech Republic); Milos Kopecky, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Libor Kotacka, Optaglio s.r.o. (Czech Republic); Miroslav Miler, Academy of Sciences of the Czech Republic (Czech Republic); Dagmar Senderáková, Comenius Univ. in Bratislava (Slovakia); Mitsu Takeda, Utsunomiya Univ. (Japan); Vladimir Y. Venediktov, St Petersburg Electrotechnical Univ. “LETI” (Russian Federation); Przemyslaw W. Wachulak, Military Univ. of Technology (Poland); Günther K. G. Wernicke, Humboldt-Univ. zu Berlin (Germany)

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PLENARY SESSION III ........................... WED 9:00 TO 9:50
For details, please see pages 7–8.

SESSION 1 ........................................... WED 13:10 TO 15:00

Digital Holography
Session Chair: Miroslav Habrokovsky, Palacky Univ. Olomouc (Czech Republic)

Sparse approximations of phase and amplitude for wave field reconstruction from noisy data (Invited Paper), Vladimir Y. Katkovnik, Tampere Univ. of Technology (Finland) .................................................... [9508-1]

Real-time characterization of the neuronal response to osmotic shock by digital holographic microscopy, Maria Gomariz, Cristina Soto-Sánchez, Isabel García, Gema Martínez-Navarrete, Eduardo Fernández, Antonio Fimia, Univ. Miguel Hernandez de Elche (Spain) .......... [9508-2]

Diffractive digital adaptive optics microscopy, Tiansong Man, Yuhong Wang, Deyong Wang, Beijing Univ. of Technology (China) ... [9508-3]

Dual-wavelength digital holographic microscopy for measuring measurement accuracy, Jiangqi Di, Tiel Xi, Min Xie, Jiwei Zhang, Jianlin Zhao, Northwestern Polytechnical Univ. (China) .................. [9508-5]

SESSION 2 .............................. WED 15:00 TO 15:40

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

Plasmonic spectral filters based on diffraction gratings, Alexander Y. Zherdev, Sergey B. Odinokov, Dmitriy Lushnikov, Maria Ruchkina, Tatiana Zagniy, Bauman Moscow State Technical Univ. (Russian Federation); Andrey V. Smirnov, Krypten (Russian Federation) ................ [9508-6]

Security hologram foil labels with a design facilitating authenticity testing: effects of mechanical bending of the holograms, Ivo Aubrecht, Police presidium CR (Czech Republic) ................................................ [9508-8]

SESSION 3 ............................. WED 16:00 TO 17:50

Holographic Materials and Data Storage
Session Chair: Antonio Fimia, Univ. Miguel Hernandez de Elche (Spain)

Volume holographic gratings: fabrication and characterization (Invited Paper), Gaetano Bianco, CGS S.p.A. (Italy); Maria Antonietta Ferrara, Istituto per la Microelettronica e Microsistemi (Italy); Fabio Borbone, Antonio Roviello, Univ. degli Studi di Napoli Federico II (Italy); Vito Pagliarulo, Simonetta Grilli, Pietro Ferraro, Consiglio Nazionale delle Ricerche (Italy); Valerio Striano, ANTARES S.c.a.r.l. (Italy); Giuseppe Coppola, Istituto per la Microelettronica e Microsistemi (Italy) .................................................. [9508-8]

Theoretical analysis of diffraction characteristics for peristropic multiplexing with spherical reference wave, Shuhe Yoshida, Jun Morii, Manabu Yamamoto, Tokyo Univ. of Science (Japan) .................................... [9508-9]

Humidity and temperature sensitive photopolymer-based transmission holographic gratings, Tatiana Mikulchyk, Suzanne Martin, Izabela Naydenova, Dublin Institute of Technology (Ireland) and Centre for Industrial and Engineering Optics (Ireland) ............................. [9508-10]

Read-out optical schemes for holographic memory system based on multiplexed computer generated 1D Fourier holograms, Sergey S. Donchenko, Sergey B. Odinokov, Vladimir I. Bobrinev, Alexander Y. Zherdev, Gaia Ruchkina, Maik Sagatelyan, Bauman Moscow State Technic Univ. (Russian Federation) ........................................... [9508-11]

Image fusion using bi-directional similarity, Chunshan Bai, Xiaoyuan Luo, BeiHang Univ. (China) .......................... [9508-12]

POSTERS ........................................... WED 17:45 TO 19:15

Conference attendees are invited to attend the Optics + Optoelectronics Poster Session on Wednesday afternoon. 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 badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 48, and at http://spie.org/x30951.xml.

Design and experiments of combined diffractive optical element for virtual displays and indicators, Artem Solomashenko, Sergey B. Odinokov, Alexander Y. Zherdev, Maria Ruchkina, Gaik Sagatelyan, Bauman Moscow State Technical Univ. (Russian Federation) .................................................. [9508-27]

Coping with diffraction effects in protein-based volumetric memories: a possible solution for the case of completely random data, Dragos Trinca, Petreus Prod S.R.L. (Romania); Sanguthevar Rajasekaran, Univ. of Connecticut (USA) .................................................. [9508-3]

Tomographic microscopic imaging with enhanced axial resolution by compressive holography, Yuhong Wang, Fan Wu, Tianlong Man, Xiaole Guo, Beijing Univ. of Technology (China) ............................. [9508-29]

Modeling of effect of LC SLM phase fluctuations on kinoform-based reconstruction quality, Vitaly V. Krasnov, Pavel A. Cheremkhin, Nikolay N. Evtikhiev, Vladislav G. Rodin, Sergey N. Stankov, National Research Nuclear Univ. MEPhI (Russian Federation) .................................. [9508-30]

Retraction of the gingival margins evaluated by holographic methods, Cosmin Sinescu M.D., Merda Lavinia Negruhm M.D., Univ. of Medicine and Pharmacy Victor Babes Timisoara (Romania); Virgil-Florin Duna, Aurel Vlaicu Univ. of Arad (Romania) and Politehnica Univ. of Timisoara (Romania) and Univ. of West Timisoara (Romania) .................................................. [9508-31]

Poteofractive phase-conjugation digital holographic microscopy, Chi-Ching Chang, Huang-Tian Chan, Min-Tzung Shiu, Yang-Kun Chew, MingDao Univ. (Taiwan) ........................................ [9508-32]

Estimation of objects transverse parameters in off-axis and in-line Fresnel digital holography, Pavel A. Cheremkhin, Nikolay N. Evtikhiev, Vitaly V. Krasnov, Vladislav G. Rodin, Sergey N. Stankov, National Research Nuclear Univ. MEPhI (Russian Federation) .................................. [9508-33]

Study of transparent particles in the volume of optical medium using digital holography and singular-optics approach, Tatiana Y. Nikolaeva, Nikolay V. Petrov, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) ............................. [9508-34]

Application of fractal masks with spiral phase distribution for the determination phase discontinuities in transparent objects, Alexander A. Zinchik, Yana B. Muzychenko, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) ............................. [9508-35]

Spectral analysis in overmodulated holographic reflection gratings recorded with BB850 ultraviolet grating, Pedro Mas-Abellán, Roque Madrigal, Antonio Fimia, Univ. Miguel Hernandez de Elche (Spain) ............................. [9508-36]
Amplitude-phase type fractal screens and their application in phase-retrieval method, Yana B. Muzychenko, Alexander A. Zinchik, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) .................................................. [9508-37]

Synthesis of Fourier holograms for recognition of radiation sources with continuous spectra by dispersive correlators, Dmitry Y. Molotovskov, Sergey N. Starkov, Vladislav G. Rodin, National Research Nuclear Univ. MEPhI (Russian Federation) .................................................. [9508-38]

Direct real-time measurement of shrinkage in photopolymer materials during recording of reflection gratings, Petr Vojtšek, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); Milan Kvitěři, Czech Technical Univ. in Prague (Czech Republic) .................................................. [9508-39]

THURSDAY 16 APRIL

SESSION 4 .............................. THU 9:00 TO 10:30
Holographic Materials and Modelling
Session Chair: Miroslav Hrabovský, Palacky Univ. Olomouc (Czech Republic)

3-dimensional nonlocal photo-polymerization driven diffusion model of hologram formation in photopolymer materials (Invited Paper), Haoyu Li, Yue Qi, Ráed Malallah, John T. Sheridan, Univ. College Dublin (Ireland) .................................................. [9508-13]

Photorefractive amplification of dynamic light signals using photoconductive ferroelectric liquid crystals, Takeo Sasaki, Tokyo Univ. of Science (Japan) .................................................. [9508-14]

Formation of dissipative structures at hologram recording in CaF₂ crystals with color centers, Alexander Shcheulin, Aleksandr Angervaks, Andrey Veniaminov, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Pavel P. Fedorov, Sergey Kuznetsov, A. M. Prokhorov General Physics Institute (Russian Federation); Alexander I. Ryskin, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) .................................................. [9508-15]

Advances in photo-thermo-refractive glass composition modifications, Sergey V. Ivanov, Nikolay V. Nikonorov, Alexandr Ignatiev, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation) .................................................. [9508-16]

SESSION 5 .............................. THU 10:50 TO 12:40
Holographic Imaging, Fabrication, and Materials I
Session Chair: John T. Sheridan, Univ. College Dublin (Ireland)

Self-written waveguide in AA/PVA photopolymer material (Invited Paper), Haoyu Li, Yue Qi, Ráed Malallah, Univ. College Dublin (Ireland); James P. Ryle, National Univ. of Ireland, Maynooth (Ireland); John T. Sheridan, Univ. College Dublin (Ireland) .................................................. [9508-17]

2nd harmonics HOE recording in Bayfol® HX, Christian Rewitz, Friedrich-Karl Bruder, Thomas Fäcke, Rainer Hagen, Dennis Hönel, Enrico Orselli, Thomas Röle, Günther Walze, Brita Wewer, Bayer MaterialScience AG (Germany) .................................................. [9508-18]

Lab-level and low-cost fabrication technique of polymer based micro-optical elements and holographic structures, Malik Rahves, Maher Rezem, Christian Kelb, Kristian Boroz, Dina Goedeke, Sebastian Schlangen, Eduard Reithmeier, Berhard Roth, Leibniz Univ. Hannover (Germany) .................................................. [9508-19]

Comparison of erythrosin B with a new photosensitizer for use in a photopolymer, Yue Qi, Haoyu Li, Univ. College Dublin (Ireland); Jean-Pierre Fouassier, Jacques Lalevée, Univ. de Haute Alsace (France); John T. Sheridan, Univ. College Dublin (Ireland) .................................................. [9508-20]

Incoherent holography with the use of Shack-Hartmann wavefront sensor, Vladimir Y. Venediktov, Saint Petersburg Electrotechnical Univ. “LETI” (Russian Federation) .................................................. [9508-21]

Lunch Break ...................................... Thu 12:40 to 13:50

SESSION 6 .............................. THU 13:50 TO 15:40
Holographic Imaging, Fabrication, and Materials II
Session Chairs: Antonio Fimia, Univ. Miguel Hernández de Elche (Spain); John T. Sheridan, Univ. College Dublin (Ireland); Miroslav Hrabovský, Palacky Univ. Olomouc (Czech Republic)


Diffractive optical elements with an increased angular and wavelength range of operation for application in solar collectors, Hoda Akbari, Izabela Naydenova, Suzanne M. Martin, Dublin Institute of Technology (Ireland) .................................................. [9508-24]

Challenges in holographic measurement of aspheric and freeform optical components shape, Vitali Lëdi, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); Petr Psota, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Petr Vojtšek, Roman Doleček, Pavel Mokry, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic) .................................................. [9508-25]

Advanced time average holographic method for measurement in extensive vibration amplitude range with quantitative single-pixel analysis, Pavel Psota, Vitalii Lëdi, Technical Univ. of Liberec (Czech Republic); Petr Vojtšek, TOPTEC (Czech Republic); Jan Václavík, Roman Doleček, Pavel Mokry, Technical Univ. of Liberec (Czech Republic) .................................................. [9508-26]

All-optically controlled light valve assembled by photorefractive crystal and PDLC hybrid structure, Vera Marinova Gospodinova, Ren Chung Liu, Shiu-an Huang, Lin, Yi-Hsin Lin, Shi-Ann Hsu, National Chiao Tung Univ. (Taiwan) .................................................. [9508-26]
Relativistic Plasma Waves and Particle Beams as Coherent and Incoherent Radiation Sources

Conference Chair: Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom)

Programme Committee: Christoph H. Keitel, Max-Planck-Institut für Kernphysik (Germany); Alexander Pukhov, Heinrich-Heine-Univ. Düsseldorf (Germany); Antoine Rousse, Ecole Nationale Supérieure de Techniques Avancées (France); Zheng-Ming Sheng, Shanghai Jiao Tong Univ. (China); Luis O. Silva, Univ. Técnica de Lisboa (Portugal); Toshiki Tajima, Japan Atomic Energy Research Institute (United States); Mark Wiggins, Univ. of Strathclyde (United Kingdom); Victor Zamfir, Horia Hulubei National Institute of Physics and Nuclear Engineering (Romania); Matthew Zepf, Queen’s Univ. Belfast (United Kingdom)

**WEDNESDAY 15 APRIL**

**PLENARY SESSION III .................. WED 9:00 TO 9:50**

For details, please see pages 7–8.

**OPENING REMARKS .................... 12:45 TO 12:50**

**SESSION 1 ................................ WED 12:50 TO 15:20**

Radiation Reaction, Electron Beam Manipulation, and Detection

Session Chair: Jean-Claude Kieffer, Institut National de la Recherche Scientifique (Canada)

Radiation emission in the transition to the radiation cooling regime (Invited Paper), Joana L. Martins, Marjia Vranic, Thomas Grismayer, Ricardo A. Fontecar, Luis O. Silva, Univ. de Lisboa (Portugal) .................. [9509-1]

Femtosecond substructured electron bunches in the laser-plasma wakefield accelerator (Invited Paper), Mohammad R. Islam, Enrico Brunetti, Bernhard Erfseld, Rijco J. Issac, Silvia Cipiccia, Gregor H. Welsh, S. Mark Wiggins, Adam Noble, Univ. of Strathclyde (United Kingdom); Robert A. Cairns, Univ. of St. Andrews (United Kingdom); Gaurav Raj, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) .................. [9509-2]

Positron and electron acceleration in the wake of ultraintense exotic laser pulses (Invited Paper), Jorge M. Veira, José T. Mendonça, Luís O. Silva, Univ. de Lisboa (Portugal) .................. [9509-3]

Cooling of relativistic electron beams in intense laser pulses (Invited Paper), Samuel R. Yoffe, Adam Noble, Univ. of Strathclyde (United Kingdom); Yevgen Kravets, Ecole Polytechnique (France); Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) .................. [9509-4]

Control of self-injection in LWFA using a tailored density profile (Invited Paper), Matthew P. Tooley, Dino A. Jaroszynski, Bernhard Erfseld, Zheng-Ming Sheng, Univ. of Strathclyde (United Kingdom) .................. [9509-5]


**SESSION 2 ................................ WED 15:45 TO 17:50**

Thomson and Compton Scattering for Imaging

Session Chair: Silvia Cipiccia, Univ. of Strathclyde (United Kingdom)

Characterization of the in-line X-ray phase contrast imaging beam line developed at ALS and based on laser-driven betatron radiation (Invited Paper), Jean-Claude Kieffer, Sylvain Fourmaux, Steve MacLean, Institut National de la Recherche Scientifique (Canada); Emil J. Hallin, Canadian Light Source Inc. (Canada); Andrejz Krol, SUNY Upstate Medical Univ. (USA) .................. [9509-7]

High-energy gamma-ray beams from nonlinear Thomson and Compton scattering in the ultraintense regime (Invited Paper), Christopher N. Harvey, Anton Ilderton, Mattias Marklund, Chalmers Univ. of Technology (Sweden) .................. [9509-8]

Nonlinear effects in relativistic all-optical Thomson-backscattering (Invited Paper), Stefan Karsch, Constantin Khrennikov, Johannes Wenz, Ludwig-Maximilians-Univ. München (Germany); Alexander Buck, Jiancai Xu, Laszlo Vesz, Max-Planck-Institut für Quantenoptik (Germany) .................. [9509-9]

**THURSDAY 16 APRIL**

**SESSION 3 .............................. THU 9:00 TO 10:40**

Betatron Radiation and High Harmonic Generation in Plasma

Session Chair: Stefan Karsch, Ludwig-Maximilians-Univ. München (Germany)

Betatron radiation from density tailored plasma (Invited Paper), Kim Th Phuc, Andreas Döpp, Cédric Thaury, Emilian Guillaume, Julien Gautier, Pascal Rousseau, Jean-Philippe Goddet, Fabien Tissandier, Amir Taloo, Antoine Rousse, Ecole Nationale Supérieure de Techniques Avancées (France) .................. [9509-12]

Laser-wakefield betatron radiation for biological imaging (Invited Paper), Nelson C. Lopes, Imperial College London (United Kingdom) and Univ. de Lisboa (Portugal) .................. [9509-13]

Resonant betatron radiation in bubble regime (Invited Paper), Silvia Cipiccia, Bernhard Erfseld, Mohammad R. Islam, Enrico Brunetti, Gregor H. Welsh, Gregory Vieux, Xue Yang, S. Mark Wiggins, David Rebrodo-Gil, Peter A. Grant, David W. Grant, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) .................. [9509-14]

High harmonic generation from relativistic plasma surfaces in ultrasteeke plasma density gradients (Invited Paper), Christian Roedel, Friedrich-Schiller-Univ. Jena (Germany) and SLAC National Accelerator Lab. (USA); Erich Eckner, Friedrich-Schiller-Univ. Jena (Germany); Jana Bierbach, Friedrich-Schiller-Univ. Jena (Germany) and Helmholtz Institute Jena (Germany); Mark Yeung, Helmholtz Institute Jena (Germany); Brendan H. Drome, Queen’s Univ. Belfast (United Kingdom); Thomas Hahn, Dirk Hemmers, Georg Pretzler, Heinrich-Heine-Univ. Düsseldorf (Germany); Matthew Zepf, Helmholtz Institute Jena (Germany) and Queen’s Univ. Belfast (United Kingdom); Gerhard G. Paulus, Friedrich-Schiller-Univ. Jena (Germany) and Helmholtz Institute Jena (Germany) .................. [9509-15]

**SESSION 4 .............................. THU 11:00 TO 12:40**

Raman Amplification in Plasma

Session Chair: Min Sup Hur, Ulsan National Institute of Science and Technology (Korea, Republic of)

High intensity regimes for resonant Raman compression (Invited Paper), Nathaniel J. Fisch, Vladimir M. Malkin, Princeton Univ. (USA); Zeew Toroker, Technion-Israel Institute of Technology (Israel) .................. [9509-16]

Raman amplification in plasma: towards higher efficiencies (Invited Paper), John P. Farmer, Alexander Pukhov, Heinrich-Heine-Univ. Düsseldorf (Germany) .................. [9509-17]

Particle in cell code and the Raman instability (Invited Paper), Rachel Nuter, Vladimir T. Tikhonovskh, Univ. Bordeaux 1 (France) .................. [9509-18]

Study of saturation mechanisms in short laser pulse amplification by stimulated Raman backscattering in warm plasma (Invited Paper), Gregory Vieux, Xue Yang, Enrico Brunetti, Bernhard Erfseld, Univ. of Strathclyde (United Kingdom); John P. Farmer, Heinrich-Heine-Univ. Düsseldorf (Germany); Min Sup Hur, Ulsan National Institute of Science and Technology (Korea, Republic of); Rijco J. Issac, Mar Athanasius College (India); Gaurav Raj, S. Mark Wiggins, Gregor H. Welsh, Samuel R. Yoffe, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) .................. [9509-19]

Lunch Break .............................. Thu 12:40 to 13:40
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SESSION 5 .............................. THU 13:40 TO 15:20
Coherent Emission from Laser-driven Plasma

Session Chair: Donald P. Umstadter, Univ. of Nebraska-Lincoln (USA)

A realizable optical free-electron laser with Traveling-wave Thomson-scattering (Invited Paper), Klaus Steiniger, Richard Pausch, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) and Technische Univ. Dresden (Germany); Alexander Debus, Fabian Röser, Michael Bußmann, Ulrich Schramm, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) ............. [9509-20]

Undulator radiation driven by laser-wakefield accelerator electron beams (Invited Paper), S. Mark Wiggins, David W. Grant, Maria Pia Anania, Gregor H. Welsh, Enrico Brunetti, Silvia Cipiccia, Peter A. Grant, David Reboredo-Gil, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) .................. [9509-21]

Practical considerations for the ion channel free-electron laser (Invited Paper), Bernhard Ersfeld, Sijia Chen, Rodolfo Bonifacio, Mohammad R. Islam, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) and Scottish Univ. Physics Alliance (United Kingdom) ........................... [9509-22]

SESSION 6 .............................. THU 15:40 TO 17:45
Transition and Cherenkov Emission from Plasma

Session Chair: S. Mark Wiggins, Univ. of Strathclyde (United Kingdom)

Quasi-continuous, high-power terahertz emission from colliding laser pulses in a magnetized plasma (Invited Paper), Min Sup Hur, Myung-Hoon Cho, Young-Kuk Kim, Ulsan National Institute of Science and Technology (Korea, Republic of); Hyyong Suk, Gwangju Institute of Science and Technology (Korea, Republic of); Bernhard Ersfeld, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) .................. [9509-24]

The SPaRC lab high intensity THz radiation source: different methods of generation and applications, Flavio Giorgianni, Istituto Nazionale di Fisica Nucleare (Italy) and Univ. degli Studi di Roma La Sapienza (Italy); Enrica Chiadroni, Istituto Nazionale di Fisica Nucleare (Italy); Stefano Lupi, Univ. degli Studi di Roma La Sapienza (Italy); Alessandro Cianchi, Riccardo Pompei, Fabio Villa, Domenico Di Giovenale, Marco Bellavergia, Massimo Ferrario, Istituto Nazionale di Fisica Nucleare (Italy) ........................... [9509-25]

New opportunities for strong-field LPI studies in mid-IR spectral domain, Igor V. Pogorelsky, Ilan Ben-Zvi, John Skaritka, Markus Babzien, Mikhail N. Polyanskiy, Brookhaven National Lab. (USA) .................. [9509-26]

Coherent effects in backward EUV and X-Ray transition radiation of a bunch of electrons from thin wires, Alexey Tishchenko, Daria Sergeeva, Mikhail Strikhanov, National Research Nuclear Univ. MEPhI (Russian Federation) ........................... [9509-27]

XUV Cherenkov and diffraction radiation from femtosecond electron bunch, Daria Sergeeva, Alexey Tishchenko, Mikhail Strikhanov, National Research Nuclear Univ. MEPhI (Russian Federation) ............. [9509-28]

X-ray transition, parametric and Cherenkov radiation sources driven by ultrashort laser pulses, Alexey Tishchenko, National Research Nuclear Univ. MEPhI (Russian Federation); Karo Ispirian, Yerevan Research Institute (Armenia) .................. [9509-29]
EUV and X-ray Optics: Synergy between Laboratory and Space

**Conference Chairs:** René Hudec, Astronomical Institute of the ASCR, v.v.i. (Czech Republic); Czech Technical Univ. in Prague (Czech Republic); Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic)

**Programme Committee:** Webster Cash, Univ. of Colorado at Boulder (USA); Henryk Fiedorowicz, Military Univ. of Technology (Poland); René Hudec, Czech Technical Univ. in Prague (Czech Republic); Ali M. Khounsary, X-ray Optics, Inc. (USA); Randall L. McIntaffer, The Univ. of Iowa (USA); Stephen L. O’Dell, NASA Marshall Space Flight Ctr. (USA); Giovanni Pareschi, INAF - Osservatorio Astronomico di Brera (Italy); Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic); Yuuri Ya Platonov, Rigaku Innovative Technologies, Inc. (USA); Paul B. Reid, Harvard-Smithsonian Ctr. for Astrophysics (USA); Bedrich Rus, ELI Beamlines (Czech Republic), Institute of Physics of the ASCR, v.v.i. (Czech Republic); Anatoly Snigirev, ESRF - The European Synchrotron (France); Peter Z. Takacs, Brookhaven National Lab. (USA); Melville P. Ulmer, Northwestern Univ. (USA); David L. Windt, Reflective X-Ray Optics LLC (USA); William W. Zhang, NASA Goddard Space Flight Ctr. (USA)

**MONDAY 13 APRIL**

**SESSION 1 | MON 8:50 TO 10:20**

**Astronomical X-ray Optics I**

**TBA (Invited Paper)**  .................................................. [9510-1]

**X-ray optics at NASA Marshall Space Flight Center, Stephen L. O’Dell, NASA Marshall Space Flight Ctr. (USA); Carolyn Atkins, The Univ. of Alabama in Huntsville (USA); David M. Broadway, Ronald F. Elsner, Jessica A. Gaskin, Mikhail V. Gubarev, NASA Marshall Space Flight Ctr. (USA); Kranmamee Kilawan, University Space Research Association (USA); Jeffery J. Kolodziezak, Brian D. Ramsey, Jacqueline M. Roche, NASA Marshall Space Flight Ctr. (USA); Douglas A. Swartz, Universities Space Research Association (USA); Allyn F. Tennant, Martin C. Weisskopf, Rigaku Innovative Technologies, Inc. (USA); William W. Zhang, NASA Goddard Space Flight Ctr. (USA)**  .................................................. [9510-2]

Alternativ technologies and arrangements for future space x-ray telescopes, René Hudec, Astronomical Institute of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic)  .................................................. [9510-3]

Scattering light of EUV optical components of space telescope: multilayer coating and thin metal filters, Xueyin Zhang, Frederic Aichiere, Institut d’Astrophysique Spatiale (France); Franck Delmotte, Evgheni Melchkov, Raymond F. Mercier, Institut d’Optique Graduate School (France)  .................................................. [9510-4]

**SESSION 2 | MON 10:50 TO 12:30**

**Astronomical X-ray Optics II**

**X-ray monitoring for astrophysical applications on Cubesat, Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic); René Hudec, Astronomical Institute of the ASCR, v.v.i. (Czech Republic); Adolf J. Innerman, Rigaku Innovative Technologies Europe (Czech Republic); Jan Jakubek, V. Daniel, Czech Technical Univ. in Prague (Czech Republic); Daniela Cerna, Rigaku Innovative Technologies Europe (Czech Republic); L. Steiger, Czech Technical Univ. in Prague (Czech Republic)  .................................................. [9510-5]

Curved crystals for hard X-ray astronomy, Elisa Buffagni, Consiglio Nazionale delle Ricerche (Italy) and MIST E-R S.C.R.L. (Italy); Elisa Bonnini, Claudio Ferrari, Consiglio Nazionale delle Ricerche (Italy); Stefano Nannarone, Consiglio Nazionale delle Ricerche (Italy)  .................................................. [9510-6]


Polarizers for a spectral range centered at 121.6 nm operating by reflectance or by transmittance, Juan I. Laruquuet, Consejo Superior de Investigaciones Cientificas (Spain); A. Maroz Malvezzi, Univ. degli Studi di Pavia (Italy); Angelo Giglia, Consiglio Nazionale delle Ricerche (Italy); José A. Aznárez, Luis Rodriguez-de Marcos, Jose A. Méndez, Consejo Superior de Investigaciones Cientificas (Spain); Paolo Miotti, Fabio Frassetto, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Giuseppe Massone, Gerardo Capobianco, Silvano Fineschi, INAF - Osservatorio Astronomico di Torino (Italy); Stefano Nannarone, Consiglio Nazionale delle Ricerche (Italy)  .................................................. [9510-8]

Transverse X-ray scattering on random rough surfaces, Ping Zhao, Harvard-Smithsonian Ctr. for Astrophysics (USA)  .................................................. [9510-9]

Lunch Break  ........................................... Mon 12:30 to 13:30

**SESSION 3 | MON 13:30 TO 15:10**

**Astronomical X-ray Optics III**

Applications of lobster eye optics, René Hudec, Astronomical Institute of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic)  .................................................. [9510-10]

He+ ions damage on optical coatings for solar missions, Sara Zuccon, IFN-CNR LUXOR Lab. (Italy); Enrico Napolitano, CNR - IMM (Italy); Enrico Tessaario, Paul Happe, Alain J. Corso, Francesca Gerlin, Marco Marcocchi, Marion G. Pelizzo, IFN-CNR Padova (Italy)  .................................................. [9510-11]

Mathematical modeling of multifoil optical systems, Vladimir Tichy, Czech Technical Univ. in Prague (Czech Republic)  .................................................. [9510-12]

Optical study of nanosatellite X-ray monitor, Vladimir Tichy, Czech Technical Univ. in Prague (Czech Republic); David N. Burrows, The Pennsylvania State Univ. (USA); René Hudec, Czech Technical Univ. in Prague (Czech Republic); Zachary R. Pierskorn, The Pennsylvania State Univ. (USA)  .................................................. [9510-13]

Techniques for achieving zero stress in thin films of iridium, chromium, and nickel, David M. Broadway, Stephen L. O’Dell, Brian D. Ramsey, NASA Marshall Space Flight Ctr. (USA); Jeffrey J. Weimer, The Univ. of Alabama in Huntsville (USA)  .................................................. [9510-28]

**SESSION 4 | MON 15:10 TO 15:30**

**Various and Integrated Devices and Systems**

Does X-ray flux data variation reciprocate to the H component and proportionate to D components of geomagnetism observed by airborne magneto-gram and characterize for the seismic event?, Umesh P. Verma, Madhurenda N. Sinha, Patna Science College (India)  .................................................. [9510-15]

**PLENARY SESSION I | MON 16:00 TO 17:55**

For details, please see pages 7-8.

**TUESDAY 14 APRIL**

**SESSION 5 | TUE 10:10 TO 12:10**

**Diffractive and Refractive X-ray Optics**

Self standing curved crystals for gamma ray focusing, Claudio Ferrari, Consiglio Nazionale delle Ricerche (Italy); Elisa Bonnini, Consiglio Nazionale delle Ricerche (Italy) and Univ., degli Studi di Parma (Italy); Elisa Buffagni, Consiglio Nazionale delle Ricerche (Italy); Stefano Nannarone, Consiglio Nazionale delle Ricerche (Italy)  .................................................. [9510-16]

Dynamical diffraction approach of deformed crystals using FEM, Vito Mocella, Istituto per la Microelettronica e Microsistemi (Italy); Claudio Ferrero, Jean-Pierre Guigay, ESRF - The European Synchrotron (France)  .................................................. [9510-17]

3-dimensional profiling for diffraction optical elements, Anatoly Firsov, Alexander Firsov, Heike Loechel, Jürgen Probst, Panagiotis Loukas, Frank Siewert, Alexei Erko, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany)  .................................................. [9510-18]

Transmittance filters for the FUV range, Luis Rodriguez-de Marcos, Juan I. Laruquuet, José A. Méndez, José A. Aznárez, Consejo Superior de Investigaciones Cientificas (Spain); Liping Fu, Ctr. for Space Science and Applied Research (China)  .................................................. [9510-19]
CONFERENCE 9510

SESSION 6 ................. TUE 13:10 TO 14:10

X-ray Microscopes and Active X-ray Optics
A compact “water-window” microscope with 60nm spatial resolution based on a double stream gas-puff target and Fresnel zone plate optics, Przemyslaw W. Wachulak, Alfo L. Torrisi, Andrzej S. Bartnik, Daniel Adjei, Jerzy Kostecki, Lukasz Wegzynski, Tomasz Fok, Roman Jarocki, Miroslaw Szczurek, Henryk Fiedorowicz, Military Univ. of Technology (Poland) ................................. [9510-21]

Nanoscale imaging using a compact “water window” SXR microscope: signal to noise ratio measurements for optimization of acquisition parameters, Alfo L. Torrisi, Przemyslaw W. Wachulak, Military Univ. of Technology (Poland); Muhammad Fahad Nawaz, Czech Technical Univ. in Prague (Czech Republic); Andrzej S. Bartnik, Daniel Adjei, Jerzy Kostecki, Lukasz Wegzynski, Roman Jarocki, Miroslaw Szczurek, Henryk Fiedorowicz, Military. Univ. of Technology (Poland) ................................. [9510-22]

Performance testing of a novel off-plane reflection grating and silicon pore optic spectrograph at Panter, Hannah R. Marlowe, The Univ. of Iowa (USA); Ryan Allured, Harvard-Smithsonian Ctr. for Astrophysics (USA); Casey T. DeRoo, Benjamin D Donovan, Drew M. Miles, James H. Tutt, The Univ. of Iowa (USA); Vadim Burwitz, Benedikt Menz, Gisela Hartner, Max-Planck-Institut für extraterrestrische Physik (Germany); Randall L. McIntaffer, The Univ. of Iowa (USA). ................................. [9510-37]

SESSION 7 ................. TUE 14:10 TO 15:10

Coherent Radiation/Lasers
Photoionized plasmas in laboratory: a connection to astrophysics and planetary sciences, Andrzej S. Bartnik, Military Univ. of Technology (Poland); Tadeusz Piszarczyk, Institute of Plasma Physics and Laser Microfusion (Poland); Przemyslaw W. Wachulak, Military Univ. of Technology (Poland); Tomasz Chodukowski, Institute of Plasma Physics and Laser Microfusion (Poland); Tomasz Fok, Lukasz Wegzynski, Military Univ. of Technology (Poland); Zofia Kalinowska, Institute of Plasma Physics and Laser Microfusion (Poland); Henryk Fiedorowicz, Roman Jarocki, Miroslaw Szczurek, Military. Univ. of Technology (Poland); Edward Krousky, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); Miroslav Pfeifer, Jiri Skala, Institute of Physics (Czech Republic); Jiri Ulischmied, Jan Dostal, Roman Dudzak, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); Jakub Cikhardt, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Daniel Kr, Karel Rezac, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic). ................................. [9510-24]

Laser plasma sources of soft X-rays and extreme ultraviolet (EUV) for application in science and technology, Henryk Fiedorowicz, Military Univ. of Technology (Poland) ................................. [9510-25]

Problems and prospects of laboratory reflectometry in soft X-ray and EUV ranges, Nikolay Chkhalo, Nikolay N. Salashchenko, Alexander Scherbakov, Sergey Y. Zuev, Institute for Physics of Microstructures (Russian Federation) ................................. [9510-26]

SESSION 8 ................. TUE 15:40 TO 18:00

Multilayer X-ray Optics
Diffraction gratings based on asymmetric-cut multilayers, Mauro Prasciolu, Deutsches Elektronen-Synchrotron (Germany); Anton Hasse, Victor Soltwisch, Physikalisch-Technische Bundesanstalt (Germany); Henry N. Chapman, Deutsches Elektronen-Synchrotron (Germany) and Univ. Hamburg (Germany); Sahaj Bisht, Defu Chu, Shanghai Synchrotron Radiation Facility (China); Igor V. Kozhevnikov, A.V. Shubnikov Institute of Crystallography (Russian Federation); Zsolt Bona, Csilla Szele, Hungarian Academy of Sciences (Hungary). ................................. [9510-29]

Optical and structural characterization of CeO2/B4C multilayers near the Boron absorption edge, Mewael Giday Sertsu, Univ. degli Studi di Padova (Italy) and RWTH Aachen Univ. (Germany); Angelo Giglia, Consiglio Nazionale delle Ricerche (Italy); Zhanzhan Wang, Tongji Univ. (China); Larissa Juschkin, RWTH Aachen Univ. (Germany); Piergiorgio Nicolosi, Univ. degli Studi di Padova (Italy) ................................. [9510-30]

Overview of the multilayer-Fresnel zone plate and the kinoform lens development at MPI for intelligent systems, Umut Tunca Sanli, Kahraman Keskinbora, Corinne Grevent, Max-Planck Institut für Intelligente Systeme (Germany). ................................. [9510-38]

Combined EUV and X-ray analysis of periodic multilayer structures, Igor A. Makhotkin, Konstantin Nikolaev, Univ. Twente (Netherlands); Sergey N. Yakunin, Russian Research Ctr. Kurchatov Institute (Russian Federation); Robbert W. E. van de Kruis, Fred Blikker, Univ. Twente (Netherlands). ................................. [9510-31]

Multilayer optical elements based on beryllium, Vladimir N. Polikovnikov, Nikolay N. Salashchenko, Nikolay Chkhalo, Nikolay N. Tsybin, Sergey V. Zuev, Institute for Physics of Microstructures (Russian Federation). ................................. [9510-31]

Periodic Co/C, Cr/C, and CoCr/C soft X-ray multilayers prepared by N reactive sputtering, Mingyu Wen, Li Jiang, Zhong Zhang, Qiushi Huang, Zhanzhan Wang, Tongji Univ. (China); Mingcai Cui, Beijing Synchrotron Radiation Facility (China); Rongqing Yi, China Academy of Engineering Physics (China). ................................. [9510-32]

Development of XUV multilayer gratings with high resolution and high efficiency, Qianyun Liu, Qingheng Xie, Synchrotron Light Research Inst. (China); Igor V. Kozhevnikov, A.V. Shubnikov Institute of Crystallography (Russian Federation); Zhanzhan Wang, Tongji Univ. (China). ................................. [9510-33]

WEDNESDAY 15 APRIL

POSTERS ................. WED 17:45 TO 19:15

Conference attendees are invited to attend the Optics + Optoelectronics Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 48, and at http://spie.org/x30951.xml.

Characterization of TiO2 thin films in the EUV and soft X-ray region, Antonella Comiso, Piergiorgio Nicolosi, Univ. degli Studi di Padova (Italy) ................................. [9510-34]

Radiometric modelling of a space optical instrument: an example of application to PHEBUS, Alain J. Corso, Paola Zuppella, IFN-CNRLUXOR Lab. (Italy); Enrico Tessarollo, Univ. degli Studi di Padova (Italy) and IFN-CNRLUXOR Lab. (Italy); Francesca Gerlin, Sara Zuccon, IFN-CNRLUXOR Lab. (Italy); Davide Baccio, Marco Nardello, Univ. degli Studi di Padova (Italy) and IFN-CNRLUXOR Lab. (Italy); Piergiorgio Nicolosi, Univ. degli Studi di Padova (Italy); Jean Francois Mariscal, Nicolas Rouanet, Eric Quémerais, LATMOS (France); Maria G. Pelizzo, IFN-CNRLUXOR Lab. (Italy). ................................. [9510-38]

EUV ablation: a study of the process, Chiara Liberatore, HiLASE Ctr. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Andrzej S. Bartnik, Military Univ. of Technology (Poland); Martina Toufarová, Ludek Vyšin, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jorge J. Rocca, Colorado State Univ. (USA); Ladišlav Pina, Czech Technical Univ. in Prague (Czech Republic); Akira Endo, Tomás Mocek, HiLASE Ctr. (Czech Republic); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic). ................................. [9510-36]
Damage to VUV, EUV, and X-ray Optics V (XDamp5)

Conference Chairs: Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Saša Bajt, Deutsches Elektronen-Synchrotron (Germany);
Richard London, Lawrence Livermore National Lab. (USA)

Programme Committee: Fred Bijkerk, Univ. Twente (Netherlands); Jaromir Chalupsky, Institute of Physics of the ASCR, v.v.i. (Czech Republic);
Henrik Fiederowicz, University of Technology (Poland); Jacek Krzyszewski, SLAC National Accelerator Lab. (USA); Klaus Mann, Laser-Lab. Göttingen e.V. (Germany); Tomáš Mocek, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic); Jorge J. Rocca, Colorado State Univ. (USA); Harald Sinn, European XFEL GmbH (Germany); Michael Stöhrer, Helmholtz-Zentrum Geesthacht (Germany); Philippe Zeitoun, Ecole Nationale Supérieure de Techniques Avancées (France); Beata Zlazaj-Motyka, Deutsches Elektronen-Synchrotron (Germany)

PLENARY SESSION III ................. WED 09:00 TO 09:50

For details, please see pages 7–8.

SESSION 1 ........................................ WED 15:20 TO 17:50

Facilities and their Optics
Session Chair: Regina Soufi, Lawrence Livermore National Lab. (USA)
The hard x-ray optics for the study on matter in extreme conditions at LCLS (Invited Paper), Hani Alibhaisi, Robert Nagler, Eduard Gudimov, Bruce Arnold, SLAC National Accelerator Lab. (USA); R. Curiel, SLAC (USA); Justin A. Garofoli, Western Washington Univ. (USA); Jerome B. Hastings, Greg R. Hays, Philip A. Heimann, Richard W. Lee, Despina Milathianaki, Andreas Scheppe, SLAC National Accelerator Lab. (USA); Franz Tavols, Deutsches Elektronen-Synchrotron (Germany); Marc Welch, Jing Yin, SLAC National Accelerator Lab. (USA); Ulf Zastrau, Friedrich-Schiller-Univ. Jena (Germany) ................................................ [9511-1]


Damage limitations to scientific experiments at the European XFEL (Invited Paper), Viktor Lamysayev, European XFEL GmbH (Germany) ........................................ [9511-3]

ARAMIS beamline at SwissFEL: optics and photon diagnostics (Invited Paper), Luc Pattrhey, Uwe Flechsig, Rolf Follath, Pavle Juranic, Christian David, Milan Radovic, Claude Pradvendar, Bruce D. Patterson, Rafael Abeila, Paul Scherrer Institut (Switzerland) ........................................ [9511-4]

Towards compact high-repetition free-electron lasers: basic principles, potential schemes, expected output parameters, and optics requirements (Invited Paper), Sandra G. Biedron, Colorado State Univ. (USA); Stephen V. Milton, Element Aero, LLC (USA) ........................................ [9511-5]

POSTERS ........................................... WED 17:45 TO 19:15

Conference attendees are invited to attend the Optics + Optoelectronics Poster Session on Wednesday afternoon. Conference attendees who 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 register for their registration badge to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 48, and at http://spie.org/x20051.xml.

Material properties of lithium fluoride for predicting XUV laser ablation rate and threshold fluence, Tomáš Blejchar, Vlasta Nevrlý, VSB-Technical Univ. of Ostrava (Czech Republic); Michal Dostál, VSB-Technical Univ. of Ostrava (Czech Republic) and J. Heyrovský Institute of Physical Chemistry of the ASCR, v.v.i. (Czech Republic); Jakub Drábek, Martin Stachoň, VSB-Technical Univ. of Ostrava (Czech Republic); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Petr Píra, VSB-Technical Univ. of Ostrava (Czech Republic); Zdeněk Zelingar, J. Heyrovský Institute of Physical Chemistry of the ASCR, v.v.i. (Czech Republic); Peter Píra, Charles Univ. in Prague (Czech Republic) and Institute of Physics of the ASCR, v.v.i. (Czech Republic); Charalampos Pitsavos, Ctr. for Free-Electron Laser Science (Czech Republic) ........................................ [9511-20]

Compact laser plasma soft X-ray source for contact microscopy experiments, Mesfin G. Ayele, Military Univ. of Technology (Poland) ........................................ [9511-21]

X-ray induced electron cascades in dielectrics: application for FEL-pulse-duration monitor, Nikita A. Medvedev, Ctr. for Free-Electron Laser Science (Germany) ........................................ [9511-23]

X-ray free-electron laser induced ablation of lead iodide, Vera Hálková, Institute of Physics of the ASCR v.v.i. (Czech Republic) ........................................ [9511-24]

Responses of molecular and covalent carbonaceous solids to a single ultra-shot pulse of extreme ultraviolet and soft x-ray radiation, Martina Tofanova, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ........................................ [9511-25]

Irradiation of low energy ions damage analysis on multilayers, Mewael Giday Sertau, Univ. degli Studi di Padova (Italy) and RWTH Aachen Univ. (Germany); Angelo Giga, IOM - CNR (Italy); Larissa Juschkew, RWTH Aachen Univ. (Germany); Piergiorgio Nicolosi, Univ. degli Studi di Padova (Italy) ........................................ [9511-19]

Development and preliminary application of a desktop laser-produced plasma soft X-ray to induce single- and double strand breaks in plasmid DNA irradiated in vacuum, Daniel Adje, Military Univ. of Technology (Poland) and Ghana Atomic Energy Commission (Ghana); Mesfin G. Ayele, Military Univ. of Technology (Poland); Ludek Vyšín, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Przemysław W. Wachulak, Military Univ. of Technology (Poland); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Andrzej S. Bartnik, Henrik Fiederowicz, Łukasz Węgrzynski, Military Univ. of Technology (Poland); Anna Wiehecz, Janusz Lekki, Wójciej M. Kwiatek, Institute of Nuclear Physics (Poland); Marie Davidková, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ........................................ [9511-26]

THURSDAY 16 APRIL

SESSION 2 ....................................... THU 08:30 TO 10:20

Damage to Materials I
Session Chair: Martin Precek, Institute of Physics of the ASCR, v.v.i. (Czech Republic)

Damage to inorganic materials illuminated by the focused beam of X-ray free-electron laser radiation (Invited Paper), Takahisa Koyama, Hirokatsu Yamuro, Kensuke Tono, Tadasahi Togashi, Yuichi Inubushi, Tetsuo Katayama, Japan Synchrotron Radiation Research Institute (Japan); Jangwoo Kim, Satoshi Matsuyama, Osaka Univ. (Japan); Makina Yabashi, RIKEN (Japan); Kazuto Yamauchi, Osaka Univ. (Japan); Hanhiko Ohashi, Japan Synchrotron Radiation Research Institute (Japan) ........................................ [9511-6]

Electronic energy transport in c-Si irradiated with X-ray beam under grazing incidence angles (Invited Paper), Ryszard Sobierajski, Institute of Physics (Poland) ........................................ [9511-7]

Mass spectra of ions emitted from monocrystalline lithium fluoride irradiated by focused 46.9-nm laser radiation, Tomaš Burian, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Ilya Kuznetsov, Carmen S. Menoni, Jorge J. Rocca, Colorado State Univ. (USA); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ........................................ [9511-8]

Nonacuseq pulse EUV irradiation of Pt/Cu/Pt trilayer: structural, morphological and magnetic changes (Invited Paper), Iosif Sveklo, Univ. of Bialystok (Poland); Andrzej S. Bartnik, Military Univ. of Technology (Poland); Ivana Yatsyna, Dorota Klinger, Jerzy B. Peika, Ryszard Sobierajski, Marcin Klepka, Piotr Dlużewski, Andrzej Wawro, Institute of Physics (Poland); Jan Kisielewski, Zbigniew Kurant, Andrzej Mazięwski, Univ. of Bialystok (Poland) ........................................ [9511-9]
SESSION 3 ............................. THU 10:50 TO 11:50

Damage to Materials II
Session Chair: Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic)

Response of polydimethylsiloxane (PDMS) to extreme ultraviolet light emitted from laser produced plasma (Invited Paper), Tetsuya Makimura, Shuichi Torii, Univ. of Tsukuba (Japan); Daisuke Nakamura, Akihiko Takahashi, Kyushu Univ. (Japan); Hiroyuki Niino, National Institute of Advanced Industrial Science and Technology (Japan); Tatsuo Okada, Kyushu Univ. (Japan) [9511-10]

Damage formation on fused silica illuminated with ultraviolet-infrared femtosecond pulse pairs (Invited Paper), Xiaoming Yu, Kansas State Univ. (USA); Zenghu Chang, Univ. of Central Florida (USA); Paul B. Corkum, National Research Council Canada (Canada) and Univ. of Ottawa (Canada); Shuting Lei, Kansas State Univ. (USA) [9511-11]

SESSION 4 ............................. THU 11:50 TO 12:40

Damage to Optics
Session Chair: Ryszard Sobierajski, Institute of Physics (Poland)

Physics of corrosion-resistant Mg/SiC multilayer coatings for EUV sources (Invited Paper), Regina Souffli, Lawrence Livermore National Lab. (USA); Monica Fernandez-Perea, Consejo Superior de Investigaciones Científicas (Spain); Christopher C. Walton, Lawrence Livermore National Lab. (USA); Manuela Vidal-Dasilva, Consejo Superior de Investigaciones Científicas (Spain); Jeffrey C. Robinson, Sherry L. Baker, Jennifer B. Alameda, Lawrence Livermore National Lab. (USA); Luis Rodriguez-de Marcos, José Antonio Méndez, Juan Ignacio Larruquert, Consejo Superior de Investigaciones Científicas (Spain); Eric M. Gullikson, Lawrence Berkeley National Lab. (USA) [9511-12]

X-ray filter degradation by high-energy laser plasma target debris and shrapnel, James E. Andrew, AWE plc (United Kingdom) [9511-13]

Lunch Break ................................ Thu 12:40 to 13:40

SESSION 5 ............................. THU 13:40 TO 15:00

Damage to Samples
Session Chair: Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)

Outrunning radiation damage with X-ray FEL pulses (Invited Paper), Henry N. Chapman, Deutsches Elektronen-Synchrotron (Germany) [9511-14]

The role of dose rate effects in fluorescence chemical dosimetry of aqueous solutions, Martin Precek, Petr Kubelik, Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Ulrich Schmidhammer, Lab. de Chimie Physique (France); Jun Ma, Pierre Jeunesse, Alexandre Demarque, Jean-Philippe Labbre, Mehran Mostafavi, Univ. Paris-Sud 11 (France) [9511-15]

Electronic damage effects at high intensity free-electron laser radiation (Invited Paper), Lorenzo Galli, Ctr. for Free-Electron Laser Science (Germany) [9511-16]

SESSION 6 ............................. THU 15:30 TO 16:20

Theory of Damages
Session Chair: Beata Ziaja-Motyka, Deutsches Elektronen-Synchrotron (Germany)

Thermal and nonthermal melting of silicon exposed to femtosecond pulses of X-ray laser irradiation (Invited Paper), Nikita A. Medvedev, Zheng Li, Ctr. for Free-Electron Laser Science (Germany); Beata Ziaja, Ctr. for Free-Electron Laser Science (Germany) and Institute of Nuclear Physics (Poland) [9511-17]

FEL excited plasmas, Beata Ziaja-Motyka, Ctr. for Free-Electron Laser Science (Germany) and Deutsches Elektronen-Synchrotron (Germany) [9511-18]

SESSION 7 ............................. THU 16:30 TO 18:50

COST Action Meeting: Damage to First Walls
Session Chair: Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic)

The session “Damage to First Walls in Fusion Reactors” is co-organized by COST Actions MP1203 (Advanced X-ray Spatial and Temporal Metrology) and MP1208 (Developing the Physics and the Scientific Community for Inertial Confinement Fusion at the Time of NIF Ignition). The main goal of this meeting is to estimate a relevance of radiation damage data obtained during the study of behaviour of XUV/x-ray optics exposed to high fluxes of energetic photons for the durability assessments of materials suggested for the first walls of ICF reactors and optical elements exposed to intense XUV/x-ray radiation in a laser-plasma interaction chamber. The session will incorporate invited lectures and a round-table discussion.
Advances in X-ray Free-Electron Lasers Instrumentation

Conference Chair: Sandra B. Biedron, Colorado State Univ. (USA)

Programme Committee: John M. Byrd, Lawrence Berkeley National Lab. (USA); Carlo Callegari, Eletra-Sincrotrone Trieste S.C.p.A. (Italy); Enrica Chiadroni, Istituto Nazionale di Fisica Nucleare (Italy); Marie-Emmanuelle Couprie, Synchrotron SOLEIL (France); Eugenio Ferrari, Univ. degli Studi di Trieste (Italy); Raffaella Geometrante, Kyma s.r.l. (Italy); Kirsten Hacker, Deutsches Elektronen-Synchrotron (Germany); Timothy J. Maxwell, SLAC National Accelerator Lab. (USA); Giuseppe Penco, Eletra-Sincrotrone Trieste S.C.p.A. (Italy); David A. Reis, SLAC National Accelerator Lab. (USA); Siegfried Schreiber, Deutsches Elektronen-Synchrotron (Germany); Pierpaolo Stabile, CERN (Switzerland); Alan M. M. Todd, Advanced Energy/Tower Electronics (USA); Zhentang Zhao, Shanghai Institute of Applied Physics (China)

MONDAY 13 APRIL

OPENING REMARKS ............................. 8:00 TO 8:05

SESSION 1 ........................................... MON 8:05 TO 10:35

Magnets I
Session Chairs: Raffaella Geometrante, Kyma S.r.l. (Italy); Marie-Emmanuelle Couprie, Synchrotron SOLEIL (France)
Pulsed wire measurement for insertion devices, Alex D’Audney, Colorado State Univ. (USA) ......................... [9512-1]
Linear polarizing undulator and optical alignment system for a THz-FEL test facility, Bin Qin, Kailfeng Liu, Lei Yang, Xiang Lei, Yangbing Wang, Xu Liu, Ping Tan, Yongqiang Xiong, Huaizhong Univ. of Science and Technology (China) ......................... [9512-2]
Segmented undulator operation at the SPARC-FEL test facility, Franco Ciocci, ENEA (Italy) ......................... [9512-3]
Cryogenic undulator (Invited Paper), Marie-Emmanuelle Couprie, Synchrotron SOLEIL (France) ......................... [9512-4]
Construction of CHESS Compact Undulator magnets at Kyma, Alexander B. Temnykh, Aaron Lyndaker, Cornell Univ. (USA); Mirko Kokole, T. Miharcic, J. Pockar, Kyma Technologija d.o.o. (Slovenia); Raffaella Geometrante, Kyma s.r.l. (Italy) ......................... [9512-5]
Status of the PAL-XFEL undulator program (Invited Paper), Dong-Eon Kim, Ki-Hyeon Park, Heung-Sik Kang, In-Soo Ko, Moo Hyun Cho, Pohang Univ. of Science and Technology (Korea, Republic of) and Pohang Accelerator Lab. (Korea, Republic of); Joachim Pflueger, European XFEL GmbH (Germany) ......................... [9512-6]
Advances in undulator design for free electron lasers (Invited Paper), Soren Prestemon, Lawrence Berkeley National Laboratory (USA) ......................... [9512-7]

SESSION 2 ........................................... MON 11:00 TO 12:20

Magnets II
Session Chairs: Raffaella Geometrante, Kyma S.r.l. (Italy); Marie-Emmanuelle Couprie, Synchrotron SOLEIL (France)
Characterization of partially coherent ultrashort XUV pulses, Charles Bourassin-Bouchet, Marie-Emmanuelle Couprie, Synchrotron SOLEIL (France) ......................... [9512-8]
Design and characterization of the ep10xk: a high dynamic range integrating pixel ASIC for LCLS detectors, Pietro Caragulio, Angelo Dragone, Bojan Markovic, Ryan Herbst, Kurtis Nishimura, Benjamin A. Reese, Sven C. Herrmann, Philip A. Hart, Gabriel Blaj, Julie Segal, Alistair Tomada, Jasmine Hasi, Gabriella A. Carini, Christopher J. Kenney, Gunther Halter, SLAC National Accelerator Lab. (USA) ......................... [9512-9]
Measure of the transverse coherence of a self amplified spontaneous emission of a free electron laser with the heterodyne speckles method, Marco Alberto Carlo Potenza, Univ. degli Studi di Milano (Italy) ......................... [9512-10]
Comparing various techniques for characterization of focused FEL beams: wavefront sensors, knife-edge scanning, scintillators, pyrography, and desorption/abloration imprints, Jaromir Chalupsky, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ......................... [9512-11]
Lunch Break ............................ Mon 12:20 to 13:20

SESSION 3 ........................................... MON 13:20 TO 15:35

Diagnostics, Controls, Timing and Synchronization I
Session Chairs: Timothy J. Maxwell, SLAC National Accelerator Lab. (USA); John M. Byrd, Lawrence Berkeley National Lab. (USA); Pierpaolo Stabile, CERN (Switzerland)
The new design of the THz streak camera at PSI (Invited Paper), Ishkhan Gorgisyian, Paul Scherrer Institut (Switzerland) and Ecole Polytechnique Federale de Lausanne (Switzerland); Pavle Juranic, Rasmus Ischebeck, Andrey Stepanov, Volker Schiott, Claude Pradervand, Luc Pattthey, Milan Radovic, Rafael Abela, Paul Scherrer Institut (Switzerland); Christoph P. Hauri, Paul Scherrer Institut (Switzerland) and Ecole Polytechnique Federale de Lausanne (Switzerland); Balazs Monoszlai, Paul Scherrer Institut (Switzerland) and Univ. of Pecs (Hungary); Rosen Ikonov, Peter Peier, Deutsches Elektronen-Synchrotron (Germany); Jia Liu, European XFEL GmbH (Germany); Tadashi Togashi, Japan Synchrotron Radiation Research Institute (Japan); Shigeki Owada, RIKEN (Japan); Kanade Ogawa, RIKEN (Japan); Makina Yabashi, RIKEN (Japan); Leonid Rivkin, Paul Scherrer Institut (Switzerland) and Ecole Polytechnique Federale de Lausanne (Switzerland) ......................... [9512-12]
6D electron beam diagnostics at SPARC LAB (Invited Paper), Alessandro Cianchi, Univ. degli Studi di Roma “Tor Vergata” (Italy) and Istituto Nazionale di Fisica Nucleare (Italy); Maria Pia Anania, Marco Bellaveglia, Michele Castellano, Enrica Chiadroni, Domenico Di Giovenale, Gianmarco D’Orazio, Matteo Ferrario, Stein Widmann, Pierpaolo Stabile, CERN (Switzerland)
Diagnostic for a high-repetition rate electron photo-gun and first measurements (Invited Paper), Daniele Filippetto, Fernando Sannibale, Lawrence R. Doolittle, Gang Huang, Houjun Qian, Lawrence Berkeley National Lab. (USA) ......................... [9512-13]
Diagnostics for temporal and transverse beam size diagnostics for femtosecond bunches at the LCLS, Patrick Krejcik, Yuanfeng Ding, Henrik Loos, Timothy J. Maxwell, SLAC National Accelerator Lab. (United States) ......................... [9512-14]
Longitudinal diagnostics results and future challenges for FERMI, Eugenio Ferrari, Eletra-Sincrotrone Trieste S.C.p.A. (Italy) and Univ. degli Studi di Trieste (Italy); Marco Veronese, Enrico M. Allaria, Paolo Sigalotti, Paolo Cini, Mario Ferrari, Elettra-Sincrotrone Trieste S.C.p.A. (Italy) ......................... [9512-15]
Development of noninvasive monitoring system to measure bunch-by-bunch charge density distribution in 6D phase space, Hiromitsu Tomizawa, RIKEN SPring-8 Center (RSC) (Japan) ......................... [9512-17]

PLENARY SESSION I ............................ MON 16:00 TO 17:55
For details, please see pages 7-8.
SESSION 4 .............................. TUE 8:10 TO 9:50
FEL Instrumentation and Novel Experimental Techniques I
Session Chairs: Carlo Callegari, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); David A. Reis, SLAC National Accelerator Lab. (USA)
Temporal properties of XFEL for X-ray nonlinear optics, Kenji Tamasaku, RIKEN (Japan) ............................ [9512-18]
Optically induced Fe magnetization reversal in Fe/MnAs/GaAs(001), Carlo Spezzani, Laboratoire de Physique des Solides (France) ............................ [9512-19]
Current status and perspective of SACLA. Yuichi Inubushi, Kinki University, Tadashi Togashi, Tetsuo Katayama, Japan Synchrotron Radiation Research Center (Japan); Shigeki Owada, Makina Yabashi, RIKEN (Japan) ............................ [9512-20]
The hard X-ray instrument for matter in extreme conditions studies at LCLS. Hae Ja Lee, SLAC National Accelerator Lab. (USA) ............................ [9512-21]
Covariance mapping of multiply-ionized atoms and molecules exposed to strong X-radiation fields. Raimund A. Feifel, Uppsala Univ. (Sweden) [9512-22]

SESSION 5 .............................. TUE 10:10 TO 12:15
Status of Operational and Planned FEL Facilities I
Session Chairs: Giuseppe Penco, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); Zhentang Zhao, Shanghai Institute of Applied Physics (China)
Instrumentation challenges for the European XFEL (Invited Paper), Thomas Tschentscher, European XFEL GmbH (Germany) ............................ [9512-23]
FLASH: the first soft X-ray FEL operating two undulator beamlines simultaneously (Invited Paper), Katja Honkavaira, Deutsches Elektronen-Synchrotron (Germany) ............................ [9512-24]
Present status of SACLA (Invited Paper), Tetsuya Ishikawa, RIKEN (Japan) ............................ [9512-25]
Status of PAL-XFEL (Invited Paper), In Soo Ko, Pohang Univ. of Science and Technology (Korea, Republic of) ............................ [9512-26]
Status of operational and planned FEL facilities (Invited Paper), Dong Wang, Shanghai Institute of Applied Physics (China) ............................ [9512-27]
Lunch/Exhibition Break ............................ Tue 12:15 to 13:15

SESSION 6 .............................. TUE 13:15 TO 14:20
Status of Operational and Planned FEL Facilities II
Session Chairs: Giuseppe Penco, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); Zhentang Zhao, Shanghai Institute of Applied Physics (China)
Status of SwissFEL, the X-ray free electron laser at PSI (Invited Paper), Marco Pedrozi, Paul Scherrer Institut (Switzerland) ............................ [9512-28]
Operation of FERMI FELs for users. Michele Svidandrlik, Elettra-Sincrotrone Trieste S.C.p.A. (Italy) ............................ [9512-29]
Seeded FEL with two energy level electron beam distribution at SPARC. Lab. Fabio Villa, David Alessi, Maria Pia Anania, Marco Bellavigna, Michele Castellano, Enrica Chiadroni, Domenico Di Giowne, Giampiero Di Pirro, Massimo Ferrari, Alessandro Gallo, Giancarlo Gatti, Riccardo Pompili, Stefano Romeo, Vladimir Shpakov, Cristina Vaccarezza, Istituto Nazionale di Fisica Nucleare (Italy); Mariano Carpanese, Franco Ciocci, Giuseppe Dattoli, Emanuele Di Palma, Luca Giannessi, Alberto Petralia, Elio Sabia, Ivan P. Spasovsky, Marcello Artioli, ENEA (Italy); Alessio Cianchi, Francesco Filippi, Anna Gribonno, Istituto Nazionale di Fisica Nucleare (Italy); Julietta V. Ra, Istituto di Struttura della Materia (Italy); Alberto Bacci, Andrea Renato Rossi, Istituto Nazionale di Fisica Nucleare (Italy); Najeh Sada Mirian, Istituto Nazionale di Fisica Nucleare (Italy) and Univ. of Studi di Roma La Sapienza (Italy); Luca Innocenti, Istituto Nazionale di Fisica Nucleare (Italy) and Univ. degli Studi di Roma La Sapienza (Italy); Riccardo Cucini, Miltcho B. Danailov, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); Raimund A. Feifel, Univ. of Gothenburg (Sweden); Michele Di Fraia, Luca Giannessi, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); Alti Kivimäki, Istituto Officina dei Materiali (Italy); Torremaso Mazzolo, Michael Meyer, European XFEL GmbH (Germany); Oksana Piekans, Kevin C. Prince, Robert Richter, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); Richard Squibb, Univ. of Gothenburg (Sweden); Stefano Stranges, Univ. degli Studi di Roma La Sapienza (Italy); Riccardo Ueda, Tohoku Univ. (Japan); Marco Zangrando, Istituto Nazionale di Fisica Nucleare (Italy); Filippo Zanzotto, Elettra-Sincrotrone Trieste S.C.p.A. (Italy) ............................ [9512-30]

SESSION 7 .............................. TUE 14:20 TO 15:10
Diagnostics, Controls, Timing and Synchronization II
Session Chairs: John M. Byrd, Lawrence Berkeley National Lab. (USA); Pierpaoa Stable, CERN (Switzerland); Timothy J. Maxwell, SLAC National Accelerator Lab. (USA)
A single-shot, high-repetition rate scheme for electro-optic detection of short pulses (Invited Paper), Eléonore Roussel, Elettra-Sincrotrone Trieste S.C.p.A. (Italy) and Univ. des Sciences et Technologies de Lille (France) and Ctr. d'Etudes et de Recherches Lasers et Applications (France); Marc Le Parquier, Ctr. d'Etudes et de Recherches Lasers et Applications (France); Christophe Szajw, Univ. des Sciences et Technologies de Lille (France) and Ctr. d'Etudes et de Recherches Lasers et Applications (France); Laurent Manceron, Jean-Blaise Brubach, Marie-Agnès Tordeux, Jean-Paul Raicu, Lodovico Cassaini, Marie Labat, Marie-Emmanuelle Coupir, Pascale Roy, Synchrotron SOLEIL (France); Serge Bielawski, Univ. des Sciences et Technologies de Lille (France) and Ctr. d'Etudes et de Recherches Lasers et Applications (France) ............................ [9512-31]
The SPARC LAB femtosecond synchronization for electron and photon pulsed beams (Invited Paper), Marco Bellavigna, Alessandro Gallo, Istituto Nazionale di Fisica Nucleare (Italy); Luca Piersanti, Istituto Nazionale di Fisica Nucleare (Italy) and Univ. of Studi di Roma La Sapienza (Italy); Riccardo Pompili, Giancarlo Gatti, Maria Pia Anania, Massimo Petracchi, Fabio Villa, Enrica Chiadroni, Istituto Nazionale di Fisica Nucleare (Italy) ............................ [9512-32]
SESSION 10 .................................. WED 13:30 TO 15:20

Novel Source Developments I

Session Chairs: Enrica Chiadroni, Istituto Nazionale di Fisica Nucleare (Italy); Daniel F. Ratner, SLAC National Accelerator Lab. (USA)

Gamma-ray production from resonant betatron oscillations of accelerated electrons in a plasma wake (Invited Paper), Silva Cipiccia, Mohammad R. Islam, Bernhard Ensfileld, Gregor H. Welsh, Enrico Brunetti, Gregory Vieux, Xue Yang, S. Mark Wiggins, Peter A. Grant, David Reboredo-Gil, David W. Grant, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) ........................................... [9512-48]

Generation of femtosecond to sub-femtosecond x-ray pulses in free-electron lasers (Invited Paper), Yuyao Ding, SLAC National Accelerator Lab. (USA) ................................................... [9512-49]

Crossed-planar undulators technique for free-electron laser polarization switching, Xiaodong Heng, Shanghai Institute of Applied Physics (China)[9512-50]

Longitudinal space charge assisted echo seeding, Kirsten Hacker, Deutsches Elektronen-Synchrotron (Germany) .................................................. [9512-51]

Dual color x rays from Thomson or Compton sources, Vittoria Petrolli, Univ. degli Studi di Milano (Italy) .................................................... [9512-52]

SESSION 11 .......................... WED 15:40 TO 17:40

Novel Source Developments II

Session Chairs: Enrica Chiadroni, Istituto Nazionale di Fisica Nucleare (Italy); Daniel F. Ratner, SLAC National Accelerator Lab. (USA)

Super-radiant high-field THz sources operating at quasi-cw rep rates, Michael Gensch, Sergey Kovalev, Bertram Green, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) .................................................. [9512-53]

Experiment preparation towards a demonstration of laser-plasma-based free electron laser amplification, Alexandre Louergue, Synchrotron SOLEIL (France) .......................................................... [9512-54]

A free-electron laser design for four-wave mixing experiments with soft x-ray pulses, George Marcus, Stanford Univ. (USA); Gregory Penn, Alexander A. Zholents, Lawrence Berkeley National Lab. (United States) .................................................. [9512-55]

CONFERENCE 9512

WEDNESDAY 15 APRIL

PLENARY SESSION III .................. WED 9:00 TO 9:50

For details, please see pages 7–8.

SESSION 9 ............................... WED 10:10 TO 12:30

Electron Beam Effects on FEL Emission Including Emission Efficiency

Session Chairs: Kirsten Hacker, Deutsches Elektronen-Synchrotron (Germany); Eugenio Ferrari, Elettra-Sincrotrone Trieste S.C.p.A. (Italy)

Applications of the transverse gradient undulators on high-gain FELs in China, Bo Liu, Tong Zhang, Haixiao Deng, Chao Feng, Wei Zhang, Dong Wang, Zhenzhu Zhao, Shanghai Institute of Applied Physics (China) ........................................ [9512-41]


A light source for EUV lithography, Alex Chao, SLAC National Accelerator Lab. (USA) ................................................... [9512-43]

Using a transverse gradient undulator to improve the FEL performance in a laser plasma accelerator, Zhirong Huang, SLAC National Accelerator Lab. (USA) .................................................. [9512-44]

Experimental characterization of the FERMI laser heater and its impact on the FEL operating characteristics, Eugenio Ferrari, Elettra-Sincrotrone Trieste S.C.p.A. (Italy) and Univ. degli Studi di Trieste (Italy); Enrico M. Allaria, Luca Giannessi, Giovanni De Ninno, Giuseppe Penco, Elettra-Sincrotrone Trieste S.C.p.A. (Italy) .................................................. [9512-45]

Circular polarization control by reverse undulator tapering, Evgeny A. Schneidmiller, Mikhaiyl V. Yurkov, Deutsches Elektronen-Synchrotron (Germany) .................................................. [9512-46]

The universal method for optimization of undulator tapering in FEL amplifiers, Mikhaiyl V. Yurkov, Evgeny A. Schneidmiller, Deutsches Elektronen-Synchrotron (Germany) .................................................. [9512-47]

Lunch/Exhibition Break. .................................. Wed 12:30 to 13:30

SESSION 10 ................................ WED 13:30 TO 15:20

Novel Source Developments I

Session Chairs: Enrica Chiadroni, Istituto Nazionale di Fisica Nucleare (Italy); Daniel F. Ratner, SLAC National Accelerator Lab. (USA)

Gamma-ray production from resonant betatron oscillations of accelerated electrons in a plasma wake (Invited Paper), Silva Cipiccia, Mohammad R. Islam, Bernhard Ensfileld, Gregor H. Welsh, Enrico Brunetti, Gregory Vieux, Xue Yang, S. Mark Wiggins, Peter A. Grant, David Reboredo-Gil, David W. Grant, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) ........................................... [9512-48]

Generation of femtosecond to sub-femtosecond x-ray pulses in free-electron lasers (Invited Paper), Yuyao Ding, SLAC National Accelerator Lab. (USA) ................................................... [9512-49]

Crossed-planar undulators technique for free-electron laser polarization switching, Xiaodong Heng, Shanghai Institute of Applied Physics (China)[9512-50]

Longitudinal space charge assisted echo seeding, Kirsten Hacker, Deutsches Elektronen-Synchrotron (Germany) .................................................. [9512-51]

Dual color x rays from Thomson or Compton sources, Vittoria Petrolli, Univ. degli Studi di Milano (Italy) .................................................... [9512-52]

SESSION 11 .......................... WED 15:40 TO 17:40

Novel Source Developments II

Session Chairs: Enrica Chiadroni, Istituto Nazionale di Fisica Nucleare (Italy); Daniel F. Ratner, SLAC National Accelerator Lab. (USA)

Super-radiant high-field THz sources operating at quasi-cw rep rates, Michael Gensch, Sergey Kovalev, Bertram Green, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) .................................................. [9512-53]

Experiment preparation towards a demonstration of laser-plasma-based free electron laser amplification, Alexandre Louergue, Synchrotron SOLEIL (France) .......................................................... [9512-54]

A-free-electron laser design for four-wave mixing experiments with soft x-ray pulses, George Marcus, Stanford Univ. (USA); Gregory Penn, Alexander A. Zholents, Lawrence Berkeley National Lab. (United States) .................................................. [9512-55]
High-Power, High-Energy, and High-Intensity Laser Technology
Conference Chair: Joachim Hein, Friedrich-Schiller-Univ. Jena (Germany)

Programme Committee: Jean-Christophe Francis Chanteloup, Ecole Polytechnique (France); Leonida A. Gizzi, Consiglio Nazionale delle Ricerche (Italy); Marc Hanna, Lab. Charles Fabry (France); Bruno J. Le Garrec, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jens Limpert, Friedrich-Schiller-Univ. Jena (Germany); Antonio Lucianetti, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Paul D. M. Rutherford Appleton Lab. (United Kingdom); Mathias Siebold, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany)

TUESDAY 14 APRIL

PLENARY SESSION II ....................... TUE 9:00 TO 9:50
For details, please see pages 7–8.

OPENING REMARKS .................................. 10:15 TO 10:20

SESSION 1 .................................. TUE 10:20 TO 12:10
High Energy and High Power DPSSL
Session Chair: Joachim Hein, Friedrich-Schiller-Univ. Jena (Germany)


High-energy picosecond hybrid crystal/liquid thin films solar cell micromachining, Jean-Bernard Le court, Anthony Bertrand, Didier Lekeme, Yves Hernandez, Multitel A.S.B.L. (Belgium) ....................................................... [9513-2]

Amplification of picosecond pulses to 100 W by an Yb:YAG thin disk with CBVG compressor, Martin Smrz, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Michal Chyla, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Ondrej Novak, Taisuke Miura, Akira Endo, Tomáš Mocek, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ................. [9513-3]

High average power picosecond and nanosecond laser operating at 134nm, Aleksey M. Rodin, Ctr. for Physical Sciences and Technology (Lithuania); Mikhail Grishin, Andrejus Michailovas, Ctr. for Physical Sciences and Technology (Lithuania) and EKSPLA UAB (Lithuania) ................ [9513-4]

Design and experiment research of a helium gas cooled Yb:YAG laser, Xing-yang Jiang, China Academy of Engineering Physics (China) ................................................... [9513-5]

Lunch/Exhibition Break .................................. Tue 12:10 to 13:20

SESSION 2 .................................. TUE 13:20 TO 15:10
Short Pulse and High Peak Power Lasers
Session Chair: Paul D. Mason, STFC Rutherford Appleton Lab. (United Kingdom)

Full ASE characterisation of high-power laser-systems with various laser materials: a comparative study (Invited Paper), Sebastian Keppeler, Jörg Köhler, Alexander Sävert, Marco Hornung, Hartmut Liebetrau, Joachim Hein, Malte C. Kaluza, Friedrich-Schiller-Univ. Jena (Germany) .......................................................... [9513-6]

Alignment method of a four-grating compressor for the petawatt-class PEARL-X laser system, Ivan V. Yakovlev, Institute of Applied Physics (Russian Federation) .................................................. [9513-7]

Current status of the PENEL0E-project, Markus Loeser, Daniel Albach, Fabian Röser, Mathias Siebold, Harald Nehring, Gunter Harzendorf, Igor Tsybin, Ulrich Schramm, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) ..................................................... [9513-8]

Multi PW laser design for the SHENGUANG II laser facility, Xionglong Xie, Jianguang Zhu, Qingwei Yang, Hai dong Zhu, Jun Kang, Ailin Guo, Ping Zhu, Shanghai Institute of Optics and Fine Mechanics (China) .................................................. [9513-9]

Timing jitter measurement and stabilization of mode-locked ytterbium fiber laser, Jakub Miseck, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Jure Lermernar, Martin Smrz, Taisuke Miura, Akira Endo, Tomáš Mocek, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ........................................ [9513-10]

SESSION 3 .................................. TUE 15:40 TO 17:50
Front Ends, Devices, Pump Sources
Session Chair: Sebastian Keppeler, Friedrich-Schiller-Univ. Jena (Germany)

Industrial mj-class all-fiber front end with spatially coherent top-hat beam output used as seeder for high-power laser (Invited Paper), Jean-François Gleyze, Pierre Calvet, Pierre Gourou, Florent Scoi, Commissariat à l’Energie Atomique (France); Constance Valentin, Géraud Bouvmons, Univ. des Sciences et Technologies de Lille (France); Emmanuel Hugonnot, Commissariat à l’Energie Atomique (France) .................................................. [9513-11]

Ultra high contrast seed pulses for a petawatt-scale diode-pumped solid state laser, Hartmut Liebetrau, Marco Hornung, Andreas Seidel, Sebastian Keppeler, Joachim Hein, Malte C. Kaluza, Friedrich-Schiller-Univ. Jena (Germany) .................................................. [9513-12]

Reliable pump sources for high-energy class lasers, Martin Wölz, Agnieszka Pietrzak, JENOPTIK Diode Lab GmbH (Germany); Alex Kindsevater, Jens Meusel, JENOPTIK Diode Lab GmbH (Germany) .................................................. [9513-13]

Multifunctional lens arrays for beam shaping and pumping sources, Thomas Mitra, Udo Forndahl, Manfred Jarczynski, Jens Meusel, Lutz Aschke, LIMO Lissotschenko Mikrooptik GmbH (Germany) .................................................. [9513-14]

AOM optimization with ultra stable high power CO2 lasers for fast laser engraving, Markus Bohrer, Dr. Bohrer Lasertechnik (Australia) .................................................. [9513-15]
SESSION 5 ............................. WED 13:30 TO 15:30

Novel Laser Materials
Session Chair: Laurent Ropert, ISIP System (France)
YbLu3SiO8 crystal : characterization of the laser emission along the three optical axes, Guido Toci, Istituto Nazionale di Ottica (Italy); Angela Pirri, Istituto di Fisica Applicata Nello Carrara (Italy); Martín Nikl, Alena Beletierová, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Yasuhiro Shoji, Akira Yoshikawa, Tohoku Univ. (Japan); Matteo Vannini, Istituto Nazionale di Ottica (Italy) ...........[9513-22]
Tb:CaF2 new promising medium for multi-kWatt-class high power Faraday isolators, Dmitry S. Zheltov, Alexsey V. Stanobor, Oleg V. Palashov, Institute of Applied Physics (Russian Federation) ...........[9513-23]
Calcium fluoride, a low n2 material for high aperture windows in high-power laser systems, Gordon von der Goenna, Thomas Toepfer, Hellma Materials GmbH (Germany) ...........[9513-24]
Graded Yb:YAG ceramic structures: design, fabrication and characterization of the laser performances, Guido Toci, Antonio Lapuconi, Marco Ciofini, Istituto Nazionale di Ottica (Italy); Laura Esposito, Consiglio Nazionale delle Ricerche (Italy); Jan Hostaláka, Consiglio Nazionale delle Ricerche (Italy) and Institute of Chemical Technology (Czech Republic); Leonida A. Giuzzi, Luca Labate, Paolo Ferrara, Istituto Nazionale di Ottica (Italy); Angela Pirri, Istituto di Fisica Applicata Nello Carrara (Italy); Matteo Vannini, Istituto Nazionale di Ottica (Italy) ...........[9513-25]
Investigation of Yb3+-doped alumino-silicate glasses for high energy class diode-pumped solid state lasers, Jörn Körner, Joachim Hein, Mirko Tiegel, diode-pumped solid state lasers, Gordon von der Goenna, Thomas Toepfer, Hellma Materials GmbH (Germany) ...........[9513-24]
SESSION 6 ............................. WED 16:00 TO 17:10
Frequency Conversion
Session Chair: Magdalena Sawicka-Chyla, HILASE Ctr. (Czech Republic)
Multi-mJ, kHz picosecond deep UV source based on a frequency-quadrupled cryogenic Yb:YAG laser (Invited Paper), Kyung-Han Hong, Chun-Lin L. Chang, Peter Krogen, Houkun Liang, Gregory J. Stein, Jeffrey Moses, Kyung-Han Hong, Chun-Lin L. Chang, Peter Krogen, Houkun Liang, Gregory J. Stein, Jeffrey Moses, Chien-Jen Lai, Massachusetts Institute of Technology (USA); Franz X. Kärtner, Massachusetts Institute of Technology (USA) and Cfr. for Free-Electron Laser Science (Germany) and Univ. Humburg (Germany) ..................[9513-28]
Picosecond pulses in deep ultraviolet produced by a 100-kHz solid-state thin disk laser, Hana Turcovicova, Onjre Novak, Martin Smrz, Taisuke Miura, Akira Endo, Tomas Moczek, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ..................[9513-29]
Large-aperture and noncritically phase-matched fourth harmonic generation experiments, Fang Wang, Fuquan Li, Wei Wang, Bin Feng, Wei Han, China Academy of Engineering Physics (China) ..................[9513-30]
POSTERS ............................. WED 17:45 TO 19:15
Conference attendees are invited to attend the Optics + Optoelectronics Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 48, and at http://spie.org/x30951.xml.
Experimental benchmarking of the code for Yb:YAG multislabs gas-cooled laser system operating at cryogenic temperatures, Magdalena Sawicka-Chyla, Martin Divoky, Antonio Lucianetti, Martin Fibich, Bedrich Rus, Tomas Moczek, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ..................[9513-19]
Thermal distortion real-time detection and correction of a high-power Laser beam-splitter mirror based on double Shack-Hartmann wavefront sensors, Yu Ning, Quan Sun, Hongyan Wang, Wuming Wu, Shaojun Du, Xiaojun Xu, National Univ. of Defense Technology (China) ..................[9513-31]
Wavelength-tunable Erbium-doped fiber laser using silicon-on-insulator (SOI) based microcavity with narrow laser linewidth, Ling-Gang Yang, Chi-Wai Chow, National Chiao Tung Univ. (Taiwan); Chien-Hung Yeh, Feng Chia Univ. (Taiwan); Hon Tsang, The Chinese Univ. of Hong Kong (Hong Kong, China) ..................[9513-32]
Active mode control of solid state laser using an intra-cavity beam shaper, Wenguang Liu, Qiong Zhou, Baozhu Yan, Zongfu Jiang, National Univ. of Defense Technology (China) ..................[9513-33]
Temperature dependent absorption measurement of various transition metal doped laser materials, Lucie Horackova, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Jan Sulc, Helena Jelinkova, Czech Technical Univ. in Prague (Czech Republic); Venkatesan Jambunathan, Antonio Lucianetti, Tomas Moczek, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ...........[9513-34]
Development of a mode-locked fiber laser system for a high finesse enhancement cavity, Rika Suzuki, Takanori Kobayashi, Kazuyuki Sakaue, Masakazu WASHI, Akira ENDO, Waseda Univ. (Japan) ..................[9513-36]
Demonstration of an optical enhancement cavity with 10 micron wavelength, Kazuyuki Sakaue, Masakazu WASHI, Akira ENDO, Waseda Univ. (Japan) ..................[9513-37]
Multiple pulses and harmonic mode locking from passive mode-locked Ytterbium doped fiber in anomalous dispersion region, Jia-Hong Lin, Hung-Yi Lee, National Taipei Univ. of Technology (Taiwan) ...........[9513-38]
Thermal effects of liquid direct cooled split disk laser, Huomu Yang, Guoying Feng, Shouhuan Zhou, Sichuan Univ. (China) ..................[9513-39]
Sub-picosecond laser induced damage test facility for petawatt reflective optical components characterizations, Martin Sozet, Jerôme Nevejap, Nadja Roquin, Commissariat à l'Energie Atomique (France); Laurent Gallais, Institut Fresnel (France); Laurent Lamaignère, Commissariat à l’Energie Atomique (France) ...........[9513-40]
Generation of 1.6 ns Q-switched pulses based on Yb:YAG/Cr:YAG microchip laser, Jan Sulc, Helena Jelinkova, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Vaclav Skoda, CRYTUR spol s.r.o. (Czech Republic) ..................[9513-41]
Research on thermal effects of beam-splitter mirror in high-power laser system, Quan Sun, Yu Ning, Zongfu Jiang, Jun Shao Du, National Univ. of Defense Technology (China) ..................[9513-42]
Optical properties of laser crystal Cr2+ : ZnSe, Yuqin Zhang, Guoying Feng, Jiayu Yi, Sichuan Univ. (China) ..................[9513-43]
Different mode-locking methods in high-energy all-normal dispersion Yb femtosecond fiber lasers, Jan A. Szczepanek, Warsaw Univ. of Technology (Poland); Maria Michalska, Military Univ. of Technology (Poland); Yuriy Stepanenko, Univ. of Warsaw (Poland) and Institute of Physical Chemistry (Poland) ..................[9513-44]
An intra-cavity device with a discharge-driven CW DF chemical laser, Baozhu Yan, Wenguang Liu, Qiong Zhou, Shengfu Yuan, QiSheng Lu, National Univ. of Defense Technology (China) ..................[9513-46]
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Laser Acceleration of Electrons, Protons, and Ions

Conference Chairs: Eric Esarey, Lawrence Berkeley National Lab. (USA); Carl B. Schroeder, Lawrence Berkeley National Lab. (USA); Florian J. Grünner, Ludwig-Maximilians-Univers. München (Germany)

Programme Committee: Sergei V. Bulanov, Japan Atomic Energy Agency (Japan); Min Chen, Shanghai Jiao Tong Univ. (China); Thomas E. Cowan, Helmholtz-Zentrum DresdenRossendorf e. V. (Germany); Brigitte Cros, Univ. Paris-Sud 11 (France); Antonio Giuliani, Consiglio Nazionale delle Ricerche (Italy); Florian J. Grünner, Ludwig-Maximilians-Univers. München (Germany); Björn Manuel Hegelich, Los Alamos National Lab. (USA); Simon M. Hooker, Univ. of Oxford (United Kingdom); Stefan Karasch, Max-Planck-Institut für Quantenoptik (Germany); Karl M. Krushelnick, Univ. of Michigan (USA); Wim Leemans, Lawrence Berkeley National Lab. (USA); Victor Malka, Ecole Nationale Supérieure de Techniques Avancées (France); Zulfikar Najmudin, Imperial College London (United Kingdom); Zheng-Ming Sheng, Shanghai Jiao Tong Univ. (China); Luis O. Silva, Univ. Técnica de Lisboa (Portugal); Vladimir T. Tikhonchuk, Univ. Bordeaux 1 (France); Antonio C. Ting, U.S. Naval Research Lab. (USA); Claes-Goran Wahlström, Lund Univ. (Sweden); Matthew Zepf, Queen’s Univ. Belfast (United Kingdom)

MONDAY 13 APRIL

OPENING REMARKS .............................. 8:55 TO 9:00

SESSION 1 ............................. MON 09:00 TO 10:30

Electron Acceleration I

Session Chair: Carl B. Schroeder, Lawrence Berkeley National Lab. (USA)

Laser-accelerator scheme in wakefield acceleration: towards practical accelerators (Invited Paper), Tomonosho Hosokai, Osaka Univ. (Japan). [9514-1]

Direct measurement of the electron dephasing in laser wakefield acceleration, Daniel E. Cardenas, Shao-wei Chou, Laszlo Veisz, Max-Planck-Institut für Quantenoptik (Germany). [9514-2]

Observation of collective deceleration of electrons from laser wakefield acceleration, Shao-wei Chou, Max-Planck-Institut für Quantenoptik (Germany); Jürgen Xu, Shanghai Institute of Optics and Fine Mechanics (China); Konstantin Khrennikov, Ludwig-Maximilians-Univers. München (Germany); Daniel E. Cardenas, Laszlo Veisz, Max-Planck-Institut für Quantenoptik (Germany); Stefan Karasch, Ludwig-Maximilians-Univers. München (Germany). [9514-3]

Independent control of laser wakefield-accelerated electron-beam parameters, Donald P. Umstadter, Grigory Golovin, Shouyuan Chen, Univ. of Nebraska-Lincoln (USA); Nathan Powers, KLA-Tencor Corp. (USA); Cheng Liu, Sudeep Banerjee, Jun Zhang, Baozhen Zhao, Kevin Brown, Jared B. Mills, Lawrence Berkeley National Lab. (USA); Min Chen, Shanghai Jiao Tong Univ. (China); Anthony J. Gonsalves, Kei Nakamura, Daniel E. Mittelberger, Joost Daniels, Sven Steinke, Jeroen van Driel, Lawrence Berkeley National Lab. (USA). [9514-4]

Divergence reduction by adiabatic matching in laser plasma accelerators (Invited Paper), Irene Dornmair, Univ. Hamburg (Germany); Klaus Fießtmann, Deutsches Elektronen-Synchrotron (Germany); Andreas R. Maier, Univ. Hamburg (Germany). [9514-6]

Thermal emittance from laser ionization-induced trapping in plasma accelerators, Carl B. Schroeder, Jean-Luc Vay, Eric Esarey, Stepan Bulanov, Carlo Benedetti, Lawrence Berkeley National Lab. (USA); Andrew D. Roberts, Minnesota State Univ. (USA); Lule Yu, Min Chen, Shanghai Jiao Tong Univ. (China); Cameron C. G. R. Geddes, Wim P. Leemans, Lawrence Berkeley National Lab. (USA). [9514-7]

Phase-space dynamics of ionization injection in plasma-based accelerators, Xinlu Xu, Fei Li, Wei Liu, Tsinghua Univ. (China); Yoshihisa Ueno, Warren B. Mori, Univ. of California, Los Angeles (USA). [9514-8]

Lunch Break ...................................... Mon 12:30 to 13:40

SESSION 2 ............................. MON 10:50 TO 12:30

Electron Acceleration II

Session Chair: Eric H. Esarey, Lawrence Berkeley National Lab. (USA)

Staging of laser-plasma accelerators (Invited Paper), Sven Steinke, Jeroen van Tilborg, Nicholas H. Mattis, Brian H. Shaw, Cameron C. G. R. Geddes, Anthony J. Gonsalves, Kei Nakamura, Daniel E. Mittelberger, Joost Daniels, Lawrence Berkeley National Lab. (USA); Andrew D. Roberts, Minnesota State Univ. (USA); Jean-Luc Vay, Eric H. Esarey, Carl B. Schroeder, Carlo Benedetti, Csaba Toth, Wim P. Leemans, Lawrence Berkeley National Lab. (USA). [9514-5]

Ion Acceleration I

Session Chair: Anatoly M. Maksimchuk, Univ. of Michigan (USA)

Laser accelerated ions from near critical gaseous targets (Invited Paper), Michael Helle, Daniel Gordon, Dmitri Kaganovich, U.S. Naval Research Lab. (USA); Yu-Hsin Chen, Anthony Jiang, Research Support Instruments, Inc. (USA); Antonio Ting, U.S. Naval Research Lab. (USA). [9514-9]

Laser ion acceleration in underdense plasmas (Invited Paper), Alessandro Flacco, Lab. d’ Optique Appliquée (France). [9514-10]

Longitudinal laser ion acceleration in gas jets: experimental optimization on the Titan laser facility and numerical investigation of the ultrahigh intensity limit, Emmanuel d’Humières, Univ. Bordeaux 1 (France); Sophia N. Chen, Ecole Polytechnique (France); Patrizio Antić, INRS Univ. (Canada); Mathieu Bally-Grandvaux, Univ. Bordeaux 1 (France); Thomas Gangorf, Ecole Polytechnique (France); Mathieu Lobet, Commissariat à l’Energie Atomique (France); Guilhem Revet, Ecole Polytechnique (France); Joao J. Santos, Univ. Bordeaux 1 (France); Anna Marie Schroer, Heinrich-Heine-Univ. Düsseldorf (Germany); Vladimir T. Tikhonchuk, Univ. Bordeaux 1 (France); Henri Pepin, Institut National de la Recherche Scientifique (Canada); Unier Fuchs, Ecole Polytechnique (France). [9514-11]

Observation of monoenergetic protons from a near-critical gas target tailored by a hydrodynamic shock, Yu-Hsin Chen, Research Support Instruments, Inc. (USA); Michael Helle, Antonio Ting, Daniel Gordon, U.S. Naval Research Lab. (USA); Mikhail Polyanovsky, Igor Pogorelov, Marcus Babzien, Brookhaven National Lab. (USA); Zulfikar Najmudin, Imperial College London (United Kingdom). [9514-12]

Laser propagation effects on ion acceleration in near-critical density plasma, Martin King, Haydn W. Powell, Ross J. Gray, David A. Macellari, Bruno Gonzalez-Izquierdo, Univ. of Strathclyde (United Kingdom); Luca C. Stockhausen, Univ. de Salamanca (Spain); George Hicks, Nicholas P. Doer, Imperial College London (United Kingdom); Dean R. Rusby, Univ. of Strathclyde (United Kingdom) and STFC Rutherford Appleton Lab. (United Kingdom); David C. Carol, STFC Rutherford Appleton Lab. (United Kingdom); Ricardo Torres, Univ. de Salamanca (Spain); Satyabrata Kar, Queen’s Univ. Belfast (United Kingdom); Zulfikar Najmudin, Imperial College London (United Kingdom); Marco Borghesi, Queen’s Univ. Belfast (United Kingdom); David Neely, STFC Rutherford Appleton Lab. (United Kingdom); Paul McKenna, Univ. of Strathclyde (United Kingdom). [9514-13]

PLENARY SESSION I .......................... MON 16:00 TO 17:55

For details, please see pages 7–8.

Tuesday 14 April

PLENARY SESSION II .......................... TUE 09:00 TO 09:50

For details, please see pages 7–8.

SESSION 4 ............................. TUE 10:10 TO 12:20

Ion Acceleration II

Session Chair: Sven Steinke, Lawrence Berkeley National Lab. (USA)

Radiation pressure acceleration enhanced by carbon nanotube foams: the optimization problem in laser-ion acceleration (Invited Paper), Jörg Schreiber, Ludwig-Maximilians-Univers. München (Germany). [9514-14]

High-repetition laser-driven proton sources, Thomas Sokollik, Noaman Haq, Feng Liu, Xueli Ge, Lulu Yu, Shanghai Jiao Tong Univ. (China); Zheng-Ming Sheng, Shanghai Jiao Tong Univ. (China) and Univ. of Strathclyde (United Kingdom); Jie Zhang, Shanghai Jiao Tong Univ. (China). [9514-15]
Lunch/Exhibition Break ................................ Tue 12:20 to 13:30

H. Glenzer, SLAC National Accelerator Lab. (USA) and Stanford Institute for
Maxence Gauthier, Luke B. Fletcher, Alessandra Ravasio, Rohini Mishra,
Friedrich-Schiller-Univ. Jena (Germany); Sebastian Goede, Will Schumaker,
Christian Roedel, SLAC National Accelerator Lab. (USA) and
hydrogen jets
Proton acceleration in high-intensity laser-plasma interactions from liquid
Positron acceleration in the doughnut blowout regime
Jorge M. Vieira, José H. Esarey, Carlo Benedetti, Carl Schroeder, Wim Leemans, Lawrence Berkeley
Plasma wakefields driven by an incoherent combination of laser pulses
Lifschitz, Julien Gautier, Victor Malka, Ecole Polytechnique (France) and Univ. de Salamanca (Spain); Kim Ta Phuoc, Ecole Polytechnique (France); Andreas Döpp, Ecole Polytechnique (France);
Observing the dynamics of a laser-driven plasma electron accelerator
M. Schreiter, Wim Peelman, Salvatore De Silvestri, Lawrence Berkeley National Lab. (USA) .................................. [9514-25]
Optimisation of plasma mirror reflectivity and optical quality using double laser pulses, Graeme G. Scott, Central Laser Facility (United Kingdom)(9514-19)
Lunch/Exhibition Break ................................ Tue 12:20 to 13:30

SESSION 5 ........................................... TUE 13:30 TO 15:40
Electron Acceleration III
Session Chair: Florian J. Grüner, Ludwig-Maximilians-Univ. München (Germany)
Observing the dynamics of a laser-driven plasma electron accelerator (Invited Paper), Malte C. Kulaçu, Abbe School of Photonics (Germany) .................................................. [9514-20]
A laser-plasma lens for laser-plasma accelerators, Cédric Thaury, Remi Lehe, Emielien Guillaume, Ecole Polytechnique (France); Andreas Döpp, Ecole Polytechnique (France) and Univ. de Salamanca (Spain); Kim Ta Phuoc, Ecole Polytechnique (France); Agustin Litschitz, Victor Malka, Ecole Polytechnique (France) ............................................................. [9514-21]
Experimental demonstration of a tapped laser-plasma accelerator, Emilien Guillaume, Andreas Döpp, Cédric Thaury, Kim Ta Phuoc, Agustin Litschitz, Julien Gautier, Victor Malka, Lab. d’Optique Appliquée (France) .................................................. [9514-22]
Plasma wakefields driven by an incoherent combination of laser pulses, Eric H. Esarey, Carlo Benedetti, Carl Schroeder, Wim Peelmann, Lawrence Berkeley National Lab. (USA) .................................................. [9514-23]
Positron acceleration in the doughnut blowout regime, Jorge M. Vieira, José T. Mendoza, Luis O. Silva, Univ. Técnica de Lisboa (Portugal) ................................. [9514-24]
Emittance control of electron and positron beams in laser plasma accelerators, Lule Yu, Shanghai Jiao Tong Univ. (China), Lawrence Berkeley National Lab. (USA) (Invited Paper); Carl B. Schroeder, Eric H. Esarey, Carlo Benedetti, Lawrence Berkeley National Lab. (USA); Feiyu Li, Min Chen, Suning Weng, Zheng-Ming Sheng, Shanghai Jiao Tong Univ. (China); Cameron C. G. R. Geddes, Wim P. Peelmann, Lawrence Berkeley National Lab. (USA) ..................... [9514-25]

SESSION 6 ........................................... TUE 16:00 TO 18:10
Laser-driven Acceleration
Session Chair: Michael Helle, U.S. Naval Research Lab. (USA)
Laser-driven proton and electron acceleration in high-field plasmonic regime, Tiberio Cecotti, CEA-Dir. de SACLAY (France); Andrea Macchi, Andrea Sgattoni, Luca Fedeli, Istituto Nazionale di Ottica (Italy); Giada Cantono, Fabrice Reau, David Garzella, CEA-Dir. de SACLAY (France) .................................................. [9514-27]
Proton acceleration in high-intensity laser-plasma interactions from liquid hydrogen jets, Christian Roedel, SLAC National Accelerator Lab. (USA) and Friedrich-Schiller-Univ. Jena (Germany); Sebastiano Goede, Will Schumaker, Maxence Gauthier, Luke B. Fletcher, Alessandra Ravasio, Rohini Mishra, Philipp Sperling, SLAC National Accelerator Lab. (USA) and Stanford Institute for Materials and Energy Sciences (USA); Frederico Fluco, Lawrence Livermore National Lab. (USA) and SLAC National Accelerator Lab. (USA); Siegfried H. Gienzer, SLAC National Accelerator Lab. (USA) and Stanford Institute for Materials and Energy Sciences (USA) .................................................. [9514-28]
Low-temperature resistivity effects on fast electron transport in solids, Paul McKenna, David A. MacLellan, Univ. of Strathclyde (United Kingdom); David C. Carroll, STFC Rutherford Appleton Lab. (United Kingdom); Ross J. Gray, Univ. of Strathclyde (United Kingdom); Alex P. L. Robinson, STFC Rutherford Appleton Lab. (United Kingdom); Michael Desjarlais, Sandia National Labs. (USA); Haydn W. Powell, Univ. of Strathclyde (United Kingdom); Nicola Booth, Graeme G. Scott, STFC Rutherford Appleton Lab. (United Kingdom); Matthias Burza, Lund Univ. (Sweden); Xiaohui Yuan, Shanghai Jiao Tong Univ. (China); David Neely, STFC Rutherford Appleton Lab. (United Kingdom); Claes-Goran Wahlström, Lund Univ. (Sweden) .................. [9514-29]
Investigation of collective electron dynamics in relativistically transparent laser-foil interactions, Ross J. Gray, David A. Mcclellan, Bruno Gonzalez-Izquierdo, Haydn W. Powell, Univ. of Strathclyde (United Kingdom); David C. Carroll, Central Laser Facility (United Kingdom); Christopher D. Murphy, The Univ. of York (United Kingdom); Luca C. Stockhausen, The Ctr. for Ultrafast Ultraintense Pulsed Lasers (Spain); Dean R. Rusby, Graeme G. Scott, Central Laser Facility (United Kingdom); Robbie Wilson, Univ. of Strathclyde (United Kingdom); Nicola Booth, Daniel R. Symes, Steven J. Hawkes, Central Laser Facility (United Kingdom); Ricardo Torres, The Ctr. for Ultrafast Ultraintense Pulsed Lasers (Spain); Marco Borgesi, Queen’s Univ. Belfast (United Kingdom); David Neely, STFC Rutherford Appleton Lab. (United Kingdom); Paul McKenna, Univ. of Strathclyde (United Kingdom) .................. [9514-30]
Analytical nonlinear model of the relativistic laser-ion acceleration, Yongsheng Huang, China Institute of Atomic Energy (China) .................. [9514-31]
POSTERS ........................................... WED 17:45 TO 19:15

Conference attendees are invited to attend the Optics + Optoelectronics Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 48, and at http://spie.org/x30951.xml

Comparison of plasmas of ruthenium, rhodium, palladium and molybdenum produced with nanosecond and picosecond laser pulses, Ragava Lokasani, Czech Technical Univ. in Prague (Czech Republic); Elaine Long, Fergal O’Reilly, Padraig Dunne, Univ. College Dublin (Ireland); Akira Endo, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jiri Limpouch, Czech Technical Univ. in Prague (Czech Republic); Gerard D. O’Sullivan, Univ. College Dublin (Ireland); Paul Sheridan, UCD (Ireland). ......................... [9514-38]


Simulations of ion acceleration from ultrathin targets with the VEGA Petawatt laser, Luca C. Stockhausen, The Ctr. for Ultrafast Ultraintense Pulsed Lasers (Spain); Ricardo Torres, Enrique Conejero, Univ. de Salamanca (Spain) ...................... [9514-40]

Bunch modulation in LWFA blowout regime, Jiří Vyskočil, Czech Technical Univ. in Prague (Czech Republic) and Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jorge M. Vieira, Luis O. Silva, Univ. Técnica de Lisboa (Portugal); Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic) .................................................. [9514-41]

High-repetition rate relativistic electron beam generation from intense laser solid interactions, Thomas G. Batson, John A. Nees, Bixue X. Hou, Alexander G. R. Thomas, Karl M. Krushelnick, Univ. of Michigan (USA) .... [9514-42]

Computer simulation of PIC method of intense laser pulse interaction with multicluster-plasma targets, Evgenia Echkina, Lomonosov Moscow State Univ. (Russian Federation); Sergei V. Bulanov, Japan Atomic Energy Agency (Japan); Igor Inovenkov, Lomonosov Moscow State Univ. (Russian Federation); Timur Z. Esirkepov, Yuji Fukuda, Koichi Yamakawa, James Koga, Japan Atomic Energy Agency (Japan) ........................................... [9514-43]
Medical Applications of Laser-Generated Beams of Particles: Review of Progress and Strategies for the Future

Conference Chairs: Kenneth W. D. Ledingham, Univ. of Strathclyde (United Kingdom); Klaus Spohr, Univ. of the West of Scotland (United Kingdom); Paul McKenna, Univ. of Strathclyde (United Kingdom); Paul R. Bolton, Japan Atomic Energy Agency (Japan)

Programme Committee: Sergei V. Bulanov, Japan Atomic Energy Agency (Japan); Thomas E. Cowan, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Wolfgang Enghardt, Technische Univ. Dresden (Germany); Jean-Claude Kieffer, Institut National de la Recherche Scientifique (Canada); Chang-Ming C. Ma, Fox Chase Cancer Ctr. (USA); Victor Malka, Ecole Nationale Supérieure de Techniques Avancées (France); Franz Pfeiffer, Technische Univ. München (Germany); Markus Roth, Kiepenheuer-Institut für Sonnenphysik (Germany); Akifumi Yogo, Japan Atomic Energy Agency (Japan)

MONDAY 13 APRIL

OPENING REMARKS .............................................. 9:00 TO 9:05

SESSION 10 ................................ MON 09:05 TO 10:30

Laser-driven Proton Acceleration I

Session Chair: Paul McKenna, Univ. of Strathclyde (United Kingdom)

Solid hydrogen target for laser driven proton acceleration (Invited Paper), Jean-Paul Perin, CEA Grenoble (France) ................................................ [9514-50]

Innovative beam transport solutions and dosimetry for laser-driven ion beams, Pablo G. Cirrone, Istituto Nazionale di Fisica Nucleare (Italy); Valentina Scuderi, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Istituto Nazionale di Fisica Nucleare (Italy); Giacomo Cuttone, Francesco P. Romano, Istituto Nazionale di Fisica Nucleare (Italy); Marco Borghesi, Queen’s Univ. Belfast (United Kingdom); Giacomo Candiano, Istituto Nazionale di Fisica Nucleare (Italy); Domenico Doria, Queen’s Univ. Belfast (United Kingdom); Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Dario Giove, Tiziana Licciardello, Mario Maggiore, Rosanna Manna, Istituto Nazionale di Fisica Nucleare (Italy); Lorenzo Manti, Univ. degli Studi di Napoli Federico II (Italy) and Complesso Univ. di Monte Sant’Angelo (Italy); Valentina Marchese, Istituto Nazionale di Fisica Nucleare (Italy); Daniele Margarone, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Giuliana Miluzzo, Agatino Musumarrà, Istituto Nazionale di Fisica Nucleare (Italy) and Complesso Univ. di Monte Sant’Angelo (Italy); Pietro Picciotta, Francesco Sibilia, Antonella Tramontana, Istituto Nazionale di Fisica Nucleare (Italy) ........................................................ [9514-51]

DNA repair dynamics following irradiation using laser-driven ion beams with ultra-high dose rates, Fiona M. Hanton, Domenico Doria, Deborah Gywnne, Claret Scullion, Kealan Naughton, Pankaj Chaudhary, Queen’s Univ. Belfast (United Kingdom); Lorenzo Romagnani, Ecole Polytechnique (France); Satyabrata Kar, Queen’s Univ. Belfast (United Kingdom); Giuseppe Schettino, National Physical Lab. (United Kingdom); Paul McKenna, Univ. of Strathclyde (United Kingdom) ................................................ [9514-52]

SESSION 11 ................................ MON 11:00 TO 12:00

Laser-driven Proton Acceleration II

Session Chair: Klaus Spohr, Univ. of the West of Scotland (United Kingdom)

Development of the pulse powered gantry system for laser driven proton therapy (Invited Paper), Umar Masood, Oncoray - National Ctr. for Radiation Research in Oncology (Germany); Michael Bussmann, Thomas E. Cowan, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Wolfgang Enghardt, Oncoray - National Ctr. for Radiation Research in Oncology (Germany) and Technische Univ. Dresden (Germany); Thomas Herrmannsdörfer, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany). Thomas E. Cowan, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Kerstin M. Hofmann, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Leonhard Karsch, Oncoray - National Ctr. for Radiation Research in Oncology (Germany) and Technische Univ. Dresden (Germany); Michael Schürer, Oncoray - National Ctr. for Radiation Research in Oncology (Germany) and Technische Univ. Dresden (Germany); Jan J. Wilkens, Technische Univ. München (Germany); Jörg Pawelke, Oncoray - National Ctr. for Radiation Research in Oncology (Germany) and Technische Univ. Dresden (Germany) ................................................ [9514-53]

Pulsed power magnets for laser-driven proton therapy gantry systems, Leonhard Karsch, Technische Univ. Dresden (Germany) and Oncoray - National Ctr. for Radiation Research in Oncology (Germany); Michael Bussmann, Thomas E. Cowan, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Wolfgang Enghardt, Oncoray - National Ctr. for Radiation Research in Oncology (Germany); Thomas Herrmannsdörfer, Florian Krott, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Umar Masood, Michael Schürer, Oncoray - National Ctr. for Radiation Research in Oncology (Germany); Jörg Pawelke, Technische Univ. Dresden (Germany) and Oncoray - National Ctr. for Radiation Research in Oncology (Germany) ................................................ [9514-54]

SESSION 12 ................................ MON 12:00 TO 12:50

Laser Accelerators for Medical Imaging

Session Chair: Klaus Spohr, Univ. of the West of Scotland (United Kingdom)

Laser-wakefield accelerators for medical phase contrast imaging: Monte Carlo simulations and experimental studies, Silvia Cicippio, David Reboredo-Gil, Univ. of Strathclyde (United Kingdom); Fabio A. Vittoria, Univ. College London (United Kingdom); Gregor H. Welsh, Peter A. Grant, David W. Grant, Enrico Brunetti, S. Mark Wiggins, Univ. of Strathclyde (United Kingdom); Alessandro Olivo, Univ. College London (United Kingdom); Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) ................................................ [9514-55]

TBA

MONDAY 14 APRIL

SESSION 13 ................................ MON 14:10 TO 15:10

Laser Accelerated Electron Beams and Applications

Session Chair: Paul R. Bolton, Japan Atomic Energy Agency (Japan)

Production (γ, np) of copper-62 medical radioisotope using monoenergetic electron beams from a laser-plasma wakefield accelerator (Invited Paper), Panos Lepipas, Univ. of Strathclyde (United Kingdom) and Univ. of Glasgow (United Kingdom); Sally L. Pilnott, Univ. of Glasgow (United Kingdom) and NHS (United Kingdom); Silvia Cicippio, S. Mark Wiggins, Peter A. Grant, David Reboredo-Gil, David W. Grant, Univ. of Strathclyde (United Kingdom); David O’Donnell, Univ. of Glasgow (United Kingdom); Gregor H. Welsh, Univ. of Strathclyde (United Kingdom); Dima Maneuski, Univ. of Glasgow (United Kingdom); Gregory Vieu, Enrico Brunetti, Univ. of Strathclyde (United Kingdom); David G. Ireland, David J. Wyper, Univ. of Glasgow (United Kingdom); Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) ................................................ [9514-57]

Methodology to improve resolution in multiple configuration sensors, Hua Liu, Science and Technology on Electro-Optic Control Lab. (China) ................................................ [9514-58]

SESSION 14 ................................ MON 15:10 TO 15:30

PANEL DISCUSSION

Open Discussion on Laser-driven Medical Applications

Moderator: Ken Ledingham, Univ. of Strathclyde (United Kingdom)

A small international team of experts from multiple research communities will promote and guide establishment of an international centre dedicated to advancing medical applications of laser-generated secondary sources. On a convergent path toward this objective this special group would then highlight and help advance pivotal research in this exciting field at operating and developing laser facilities. The Panel Discussion will address the key aspects and how to proceed with such a mission and team.

PLENARY SESSION I ................................ MON 16:00 TO 17:55

For details, please see pages 7–8.
Research Using Extreme Light: Entering New Frontiers with Petawatt-Class Lasers

Conference Chairs: Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Luis O. Silva, Univ. Técnica de Lisboa (Portugal)

Programme Committee: Sergei V. Bulanov, Japan Atomic Energy Agency (Japan); Thomas E. Cowan, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Todd Ditmire, The Univ. of Texas at Austin (USA); Dimitrios Charalambidis, Foundation for Research and Technology-Hellas (Greece), ELI Alpes (Hungary); Cristina Hernandez-Gomez, Rutherford Appleton Lab. (United Kingdom); Nelson C. Lopes, Univ. Técnica de Lisboa (Portugal); Mattias Marklund, Umeå Univ. (Sweden); Nikolay Narozhny, National Research Nuclear Univ. MEPhI (Russian Federation); David Neely, Rutherford Appleton Lab. (United Kingdom); Johann Rafelski, The Univ. of Arizona (USA); Bedřich Rus, Institute of Physics of the ASCR, v.v.i. (Czech Republic), ELI Beamlines (Czech Republic); Stefan Weber, ELI Beamlines (Czech Republic); Matthew Zepf, Queen’s Univ. Belfast (United Kingdom); Victor Zamfir, Horia Hulubei National Institute of Physics and Nuclear Engineering (Romania)

MONDAY 13 APRIL

OPENING REMARKS ........................................ 8:55 TO 9:00

SESSION 1 ........................................... MON 9:00 TO 10:10

Keynote Session

The Nexawatt (Invited Presentation), Christopher Barty, Lawrence Livermore National Lab. (USA) ................................................... [9515-1]

TBA (Keynote Presentation), Gérard A. Mourou, Ecole Polytechnique (France) .......................................................... [9515-2]

SESSION 2 ........................................... MON 10:35 TO 12:15

Extreme Light Sources and Facilities I

ELI Beamlines: status of user facility development (Invited Paper), Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ........................................... [9515-4]

ELI ALPS status (Invited Paper), Károly Osvay, ELI-HU Nonprofit Kft. (Hungary) .......................................................... [9515-5]


TBA (Invited Paper), Wolfgang Sandner, ELI Delivery Consortium International Association (AISBL) (Belgium) ................................................... [9515-7]

Lunch Break ........................................ Mon 12:15 to 13:15

SESSION 3 ........................................... MON 13:15 TO 15:35

Secondary Sources Generated by High Power Lasers

Laser-based nuclear photonics (Invited Paper), Christopher Barty, Lawrence Livermore National Lab. (USA) ................................................... [9515-3]

PW-class lasers as future drivers: from medical imaging to compact XFELs (Invited Paper), Florian J. Grüner, Ludwig-Maximilians-Univ. München (Germany) ................................................... [9515-8]

Laser-wakefield betatron radiation for biological imaging (Invited Paper), Nelson C. Lopes, Instituto Superior Técnico (Portugal) ................................................... [9515-9]

High field physics at ALLS: from electron acceleration to X-ray coherent imaging (Invited Paper), Jean-Claude Kieffer, Institut National de la Recherche Scientifique (Canada) ................................................... [9515-10]

High order harmonics from relativistic laser plasmas, Sergei V. Bulanov, Japan Atomic Energy Agency (Japan) ................................................... [9515-11]

Laser driven pulsed ‘X-ray radar’ for penetrative imaging, Lucy A. Wilson, STFC Rutherford Appleton Lab. (United Kingdom); Robert M. Deas, Defence Science and Technology Lab. (United Kingdom); Dean R. Rusby, Univ. of Strathclyde (United Kingdom); Aaron Alejo, Queen’s Univ. Belfast (United Kingdom); Peter P. Black, Sarah E. Black, Defence Science and Technology Lab. (United Kingdom); Robert J. Clarke, John L. Collier, Justin Greenhalgh, Cristina Hernandez-Gomez, STFC Rutherford Appleton Lab. (United Kingdom); Marco Borghesi, Queen’s Univ. Belfast (United Kingdom); Ceri M. Brenner, STFC Rutherford Appleton Lab. (United Kingdom); Jonathan Bryant, Imperial College London (United Kingdom); Robert J. Clarke, John L. Collier, Justin Greenhalgh, Cristina Hernandez-Gomez, STFC Rutherford Appleton Lab. (United Kingdom); Satyabrata Kar, Queen’s Univ. Belfast (United Kingdom); David Lockley, Defence Science and Technology Lab. (United Kingdom); Robert M. Moss, Defence Science and Technology Lab. (United Kingdom) and Univ. College London (United Kingdom); Zulfikar Najmudin, Imperial College London (United Kingdom); Matt Whittle, Defence Science and Technology Lab. (United Kingdom); Jonathan J. Wood, Imperial College London (United Kingdom); Paul McKenna, Univ. of Strathclyde (United Kingdom); David Neely, STFC Rutherford Appleton Lab. (United Kingdom) and Univ. of Strathclyde (United Kingdom) ................................................... [9515-12]

PLENARY SESSION I ...................... MON 16:00 TO 17:55

For details, please see pages 7–8.
CONFERENCE 9515

TUESDAY 14 APRIL

PLENARY SESSION II ........................ TUE 9:00 TO 9:50

For details, please see pages 7–8.

Please Note: Session 4 runs concurrently with Session 5

SESSION 4 .............................. TUE 10:10 TO 12:50

High-Power Intense Laser Sources with Enhanced Repetition Rates

Technology development toward rep-rated, KJ-class, 10 PW lasers (Invited Paper), Todd Ditmire, The Univ. of Texas at Austin (USA) .................................................. [9515-13]

ELI Beamlines laser systems: design progress and status update (Invited Paper), Bedrich Rus, Institute of Physics of the ASCR, v.v.i. (Czech Republic) .................................................. [9515-14]

Scaling high energy petawatt laser systems to high repetition rate (Invited Paper), Constantin L. Haefner, Lawrence Livermore National Lab. (USA) [9515-15]

High-field sciences explored with the upgraded J-KAREN-P: current status and perspective, Masaki Kando, Sergei V. Bulanov, Timur Zh. Esirkepov, Yuji Fukuda, Yukio Hayashi, Masato Kanasaki, Hiromitsu Kiriya, James K. Koga, Akira Kon, Kininori Kondo, Hideyuki Kotaki, Yuji Mashiba, Michiaki Mori, Mamiko Nishiuchi, Koichi Ogura, Alexander S. Pirozhkov, Akito Sagisaka, Hiroo Sakai, Hirotaka Tanaka, Japan Atomic Energy Agency (Japan) .................................................. [9515-16]

Focal spot of femtosecond laser pulse under tight focusing condition, Tae Moon Jeong, Gwangju Institute of Science and Technology (Korea, Republic of) and ELI Beamlines (Czech Republic); Stefan Weber, Bruno J. Le Garrec, Daniele Margarone, ELI Beamlines (Czech Republic); Tomás Mocek, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Georg Korn, ELI Beamlines (Czech Republic) .................................................. [9515-17]

Final edp Ti:sapphire amplifiers for ELI Project, Vladimir Chvykov, ELI - ALPS (Hungary); Mikhail Kalashnikov, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Károly Osay, ELI-HU Nonprofit Kft. (Hungary) .................................................. [9515-18]

Technology development and prospects for multi-10PW OPCPA pumped by OMEGA EP (Invited Paper), Jonathan D. Zuegel, Univ. of Rochester (USA) .................................................. [9515-19]

Lunch/Exhibition Break ........................................ TUE 12:50 to 13:50

SESSION 5 .............................. TUE 10:10 TO 12:10

High-field Physics and Simulations I

Spin dynamics in relativistic light-matter interaction, Heiko Bause, Max-Planck-Institut für Kernphysik (Germany); Sven Arents, Max-Planck-Institut für Kernphysik (Germany) .................................................. [9515-20]

Gamma-ray generation in the interaction of two tightly focused laser pulses with a low-density target composed of electrons, Martin Jirká, Ondřej Klímo, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Stefan Weber, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Sergei V. Bulanov, Timur Zh. Esirkepov, Japan Atomic Energy Agency (Japan); Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic) .................................................. [9515-21]

Analytical solution of the strong-field Klein-Gordon equation in the presence of plasma, Erz Rachier, The Hebrew Univ. of Jerusalem (Israel); Shalom Eliezer, Univ. Politécnica de Madrid (Spain) and Soreq Nuclear Research Ctr. (Israel); Arie Zigler, The Hebrew Univ. of Jerusalem (Israel) .................................................. [9515-22]

Proposal for an LSW experiment (light shining through walls) at ELI-Beamlines, Bruno J. Le Garrec, Institute of Physics of the ASCR, v.v.i. (Czech Republic) .................................................. [9515-23]

Influence of the radiation reaction force on ultraintense laser driven ion acceleration in the classical radiation dominated regime, Remi Capdessus, Paul McKenna, Univ. of Strathclyde (United Kingdom) .................................................. [9515-24]

Optimized multibeam configuration for observation of OED cascades, Evgeny G. Gelfer, Alexander M. Fedotov, Nikolay Narozhny, Arseny Mironov, National Research Nuclear Univ. MEPhI (Russian Federation); Igor Kostyukov, Vladimir Bashmakov, Institute of Applied Physics (Russian Federation) .................................................. [9515-25]

Lunch/Exhibition Break ........................................ TUE 12:10 to 13:50

SESSION 6 .............................. TUE 13:50 TO 15:30

Extreme Light Sources and Facilities II

Status of European XFEL and plans for start of operation (Invited Paper), Thomas Tsentschers, European XFEL GmbH (Germany) .................................................. [9515-26]

World’s largest high energy petawatt laser LFXE as a users facility (Invited Paper), Hiroshi Azechi, Osaka Univ. (Japan) .................................................. [9515-27]

Bella Laser: status update (Invited Paper), Wim P. Leemans, Lawrence Berkeley National Lab. (USA) .................................................. [9515-28]

Research activities on high-intensity laser and high-field physics at CoRoLS (Invited Paper), Tae Moon Jeong, Gwangju Institute of Science and Technology (Korea, Republic of) .................................................. [9515-29]

SESSION 7 .............................. TUE 15:55 TO 18:20

High-field Physics and Simulations II

High-energy processes in extremely strong laser pulses (Invited Paper), S. Meuren, Jian Xing Li, Matteo Tamburini, Karen Z. Hatsagortsyan, Carsten Müller, Antonio Di Piazza, Christoph H. Keitel, Max-Planck-Institut für Kernphysik (Germany) .................................................. [9515-30]

Robust signatures of quantum radiation reaction and ultrashort gamma-ray pulses with an electron beam in a focused laser pulse, Jian Xing Li, Karen Z. Hatsagortsyan, Christoph H. Keitel, Max-Planck-Institut für Kernphysik (Germany) .................................................. [9515-31]

High-energy recollision processes of laser-generated electron-positron pairs, S. Meuren, Karen Z. Hatsagortsyan, Christoph H. Keitel, Antonio Di Piazza, Max-Planck-Institut für Kernphysik (Germany) .................................................. [9515-32]

The effect of QED processes on ion acceleration and other applications of 10PW-class lasers, Christopher P. Ridders, The Univ. of York (United Kingdom) .................................................. [9515-33]

Lepton plasma diagnostics and antimatter physics: challenges for PW-class facilities, Ladislav Drska, Czech Technical Univ. in Prague (Czech Republic) .................................................. [9515-34]
Compton scattering: exploring the weakly quantum regime with 1-10 PW lasers, Marija Vranic, Thomas Grismayer, Joana L. Martins, Instituto Superior Técnico (Portugal); Ricardo A. Fonseca, Instituto Superior Técnico (Portugal) and Univ. de Lisboa (Portugal); Luis O. Silva, Instituto Superior Técnico (Portugal).  

Motion of a charge in a superstrong electromagnetic standing wave, Timur Zh. Esirkepov, Sergei V. Bulanov, Japan Atomic Energy Agency (Japan).  

SESSION 9 ............... WED 12:50 TO 15:10  

Acceleration of Particles Using High-Power PW Class Lasers I  

Particle acceleration with the Dresden PW lasers (Invited Paper), Ulrich Schramm, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany).  

Laser plasma accelerators for near-term applications (Invited Paper), Victor Malka, Ecole Nationale Supérieure de Techniques Avancées (France); Cédric Thaury, Ecole Polytechnique (France); Emilien Guillaume, Lab. d’Optique Appliquée (France); Andreas Döpp, Ctr. de Lasers Pulsesd (Spain); Remi Lehe, Ecole Nationale Supérieure de Techniques Avancées (France); Agustin Litschitz, Ecole Polytechnique (France); L. Truong Phuoc, Ecole supérieure de Chimie, Polymères et Matériaux (France).  

Recent development and future perspectives in laser-driven ion acceleration (Invited Paper), Marco Borghesi, Queen’s Univ. Belfast (United Kingdom).  

Petaawatt laser pulses for proton-boron high gain fusion without problem of nuclear radiation (Invited Paper), Heinrich Hora, The Univ. of New South Wales (Australia).  

Design and development of the user station of HELL: beam transport, characterization and shielding, Gabriele Maria Grittani, Alberto Fasso, Miroslav Krus, Tadzio Levato, Daniele Margarone, Martin Precek, Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and ELI Beamlines (Czech Republic).  

Stabilization of laser-driven accelerators and scaling to higher energies, Victor Malka, Ecole Nationale Supérieure de Techniques Avancées (France).  

SESSION 10 ............... WED 15:40 TO 17:50  

Acceleration of Particles Using High-Power PW Class Lasers II  

Plasmas at the extreme with ultraintense lasers and beams (Invited Paper), Luis O. Silva, Univ. Tecnicas de Lisboa (Portugal).  

Photonuclear reactions and radiography with laser-accelerator-based Thomson X-rays (Invited Paper), Donald P. Umstadter, Sudeep Banerjee, Grigory Golovin, Univ. of Nebraska-Lincoln (USA); Ping Zhang, Daniel Haden, Univ. of Nebraska-Lincoln (USA); Shouyuan Chen, Cheng Liu, Jun Zhang, Baozhao Zhao, Kevin Brown, Jared B. Mills, Univ. of Nebraska-Lincoln (USA); Chad Petersen, Cameron Miller, Univ. of Nebraska-Lincoln (USA); Shaun Clarke, Sara A. Pozzi, Univ. of Michigan (USA).  

Laser-driven multicharged heavy ion beam acceleration, Mamiko Nishiuchi, Hirohito Saita, Univ. Osaka (Japan); Katsuyahisa Nishio, Riccardo Orlandi, Tatiana A. Pikuz, Anatoly Ya. Frenov, Hiroiuki Sako, Alexander S. Pirozhkov, Akito Sagisaka, Koichi Ogura, Akira Kon, Masamoto Kanasaki, Hirotsugu Kiriyama, Yuji Fukuda, Hiroki Koura, Masaki Kando, Japan Atomic Energy Agency (Japan); Tomoya Yamauchi, Kobe Univ. (Japan); Yukinobu Watanebay, Kyushu Univ. (Japan); Sergei V. Bulanov, Kiminori Kondo, Kenichi Imai, Japan Atomic Energy Agency (Japan); Shojo Nagamiya, RIKEN (Japan).  

Numerical investigations on a compact magnetic fusion device for studying the effect of external applied magnetic field oscillations on the nuclear burning efficiency of D-T and p-11B fuels, Stavros Mousazais, Technical Univ. of Creta (Greece); Paraskevas Lalouas, Foundation for Research and Technology-Hellas (Greece); Heinrich Hora, The Univ. of New South Wales (Australia); Jean Laupre, Philippe Auvray, Ecole Polytechnique (France); Philippe Balcou, Jean-Eric Ducrot, Univ. Bordeaux 1 (France); Philippe Martin, Commissariat à l’Energie Atomique (France).  

Reduction of angular divergence of laser-driven ion beams during their acceleration and transport, Martina Záková, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Jan Páškal, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Daniele Margarone, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Mario Maggione, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Istituto Nazionale di Fisica Nucleare (Italy).  

Enhanced ion acceleration by using femtosecond laser pulses at the third harmonic frequency, Jan Páškal, Ondrej Klimo, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Stefan Weber, Daniele Margarone, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jiri Limpouch, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic).  

POSTERS .................. WED 17:45 TO 19:15  

Magnetic reconstruction research with petawatt-class lasers, Yanjun Gu, Ondrej Klimo, Deeapak Kumar, Stefan Weber, Yue Liu, Sushil Singh, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Sergei V. Bulanov, Timur Zh. Esirkepov, Japan Atomic Energy Agency (Japan); Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic).  

Evolution of relativistic solitons in plasmas, Yue Liu, Ondrej Klimo, Stefan Weber, Yanjun Gu, Deeapak Kumar, Sushil Singh, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Sergei V. Bulanov, Timur Zh. Esirkepov, Japan Atomic Energy Agency (Japan); Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic).  

Radiochromic film diagnostics for laser-driven ion beams, Jan Kaufman, Daniele Margarone, Jan Páškal, Institute of Physics of the ASCR, v.v.i. (Czech Republic); I Jong Kim, Tae Moon Jeong, Gwangju Institute of Science and Technology (Korea, Republic of); Alberto Fasso, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Giacomo Ciancardi, Istituto Nazionale di Fisica Nucleare (Italy); Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic).  

Quadrupole lens free multiple profile monitor emittance measurement method, Miroslav Krus, Institute of Physics of the ASCR, v.v.i. (Czech Republic).
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Integrated Optics: Physics and Simulations

Session Chair: Jiří Čtyroký, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)
Towards an automated design framework for large-scale photonic integrated circuits (Invited Paper), André Richter, VPl Photonics GmbH (Germany); Sergey Mingaleev, VPI Development Ctr. (Belarus); Cristina Arellano, VPl Photonics GmbH (Germany).

Passive and electro-optic polymer photonics and InP electronics integration (Invited Paper), Ziyang Zhang, Alejandro Maese Novo, David de Felipe, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Vasillis Katopodis, Panos Groumas, National Technical University of Athens (Greece); Agnieszka Konczykowska, III-V Lab. (France) and Thales Research and Technology (France) and CEA-LETI (France); Jean-Yves Dupuy, III-V Lab. (France) and Thales Research and Technology (France) and CEA-LETI (France); Antonio Beretta, Alberto Dede, LINKRA S.r.l. (Italy); Eric R. Miller, Raluca Dinu, Giulio Cancini, GigOptix, Inc. (USA); Antonello Vannucci, LINKRKA S.r.l. (Italy); Norbert Keil, Fraunhofer-Institut für Nachrichtentechnik Heinrich--Hertz-Institut (Germany); Heracleas Avramopoulos, Christos Kouloumentas, National Technical Univ. of Athens (Greece).

Rethinking the surface of optical waveguides (Invited Paper), Andrea I. Melloni, Politecnico di Milano (Italy).

Simulation of self-organized waveguides for self-aligned coupling between micro- and nano-scale devices, Tetsuzo Yoshimura, Yokohama National Univ. (Japan).

New CMOS compatible platforms for integrated nonlinear optics (Invited Paper), David J. Moss, RMIT Univ. (Australia).

High-speed and low-power silicon-organic hybrid modulators for advanced modulation formats (Invited Paper), Matthias Lauermann, Stefan Wolf, Robert Palmer, Sebastian Köber, Philipp C. Schindler, Karlsruher Institut für Technologie (Germany); Thorsten Walihrbrink, Jens Bolten, Anna Lena Giesecke, AMO GmbH (Germany); Michael Koenigsmann, Matthias Kohler, Dimitri Malisam, Keylight Technologies Deutschland GmbH (Germany); Delwin L. Elder, Larry R. Dalton, Univ. of Washington (USA); Juerg Leuthold, Karlsruher Institut für Technologie (Germany) and Swiss Federal Institute of Technology (Switzerland); Wolfgang Freude, Christian Koos, Karlsruher Institut für Technologie (Germany).

A numerical investigation of silicon-based optical sampling, Mahmoud Jazayerifar, Daniel Bross, Technische Univ. Berlin (Germany); Kambiz Jamshidi, Daniel Bross, Technische Univ. Dresden (Germany).

Lunch Break.

MONDAY 13 APRIL

SESSION 1. MON 8:45 TO 10:35

Photic Integration

SESSION 2. MON 11:00 TO 12:20

Devices and Circuits I

SESSION 3. MON 13:30 TO 15:30

Devices and Circuits II

SESSION 4. TUE 10:20 TO 12:20

Photonic Crystals and Plasmonic Devices
SESSION 5 ............................... TUE 13:30 TO 15:10
Subwavelength Structures
Session Chair: Marko Loncar, Harvard School of Engineering and Applied Sciences

High-efficiency fully etched fiber-chip grating couplers with subwavelength structures for datacom and telecom applications, Daniel Benedikovic, Univ. of Žilina (Slovakia); Pavel Cheben, Jens H. Schmid, Dan-Xia Xu, Jean Lapointe, Siegfried Janz, National Research Council Canada (Canada); Robert Halir, Alejandro Ortega-MorfuX, Univ. de Málaga (Spain); Milan Dado, Univ. of Žilina (Slovakia) ...................................................... [9516-17]

High efficiency blazed fiber-chip grating coupler based on interleaved troughs, Carlos A Alonso Ramos, Univ. de Málaga (Spain) and Univ. Paris-Sud 11 (France); Daniel Benedikovic, Univ. of Žilina (Slovakia); Pavel Cheben, Sharul Wang, National Research Council Canada (Canada); Robert Halir, Univ. de Málaga (Spain); Jean-Marc Fédelé, CEA-LETI (France); Alejandro Ortega-MorfuX, Univ. de Málaga (Spain); Jens H. Schmid, Dan-Xia Xu, National Research Council Canada (Canada); Milan Dado, Univ. of Žilina (Slovakia); Iligo Molina-Fernández, Univ. de Málaga (Spain) ...................................................... [9516-18]

Highly efficient fiber-chip edge coupler with large mode size for silicon photonic wire waveguides, Martin Papes, VSB-Technical Univ. of Ostrava (Czech Republic); Pavel Cheben, National Research Council Canada (Canada); Winnie N. Ye, Carleton Univ. (Canada); Jens H. Schmid, Dan-Xia Xu, Siegfried Janz, National Research Council Canada (Canada); Daniel Benedikovic, Univ. of Žilina (Slovakia); Carlos A. Ramos, Robert Halir, Alejandro Ortega-MorfuX, Univ. de Málaga (Spain); André Delage, National Research Council Canada (Canada); Vladimír Vašinek, VSB-Technical Univ. of Ostrava (Czech Republic) .................. [9516-19]

A subwavelength structured multimode interference coupler for the 3-μm mid-infrared band, Alejandro Sánchez-Postigo, Juan Gonzalo Wangiernet-Pérez, Robert Halir, Alejandro Ortega-MorfuX, Carlos A. Alonso Ramos, Iligo Molina-Fernández, Univ. de Málaga (Spain); Jordi Soler Penadés, Univ. of Southampton (United Kingdom); Milos Nedeljkovic, Optoelectronics Research Ctr. (United Kingdom); Goran Z. Mashanovich, Univ. of Southampton (United Kingdom); Pavel Cheben, National Research Council Canada (Canada) [9516-20]

Simulations of quasiperiodic subwavelength grating structures for filtering and other applications, Pavel Kwiecien, Czech Technical Univ. in Prague (Czech Republic); Junja Wang, McGill Univ. (Canada); Ivan Richter, Czech Technical Univ. in Prague (Czech Republic); Jiří Czyrik, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Ivan Glesk, Univ. of Strathclyde (United Kingdom); Lawerence R. Chen, McGill Univ. (Canada) .......................................................... [9516-21]

SESSION 6 ............................... TUE 15:40 TO 17:20
Theory, Simulation, and Design
Session Chair: Min Qiu, KTH Royal Institute of Technology (Sweden)

Circuit modeling based optimization of high-speed carrier depletion silicon modulators, Seyyedeh Hosseini, Kambiz Jamshidi, Technische Univ. Dresden (Germany) .................................................................................. [9516-22]

Modeling of anisotropic grating structures with active dipole layers, Kamil Postava, VSB-Technical Univ. of Ostrava (Czech Republic); Tibor Fordos, Ecole Polytechnique (France) and Univ. Paris-Sud 11 (France) and VSB-Technical Univ. of Ostrava (Czech Republic); Jenifer Jaffres, Unité Mixte de Physique CNRS/Thales (France) and Univ. Paris-Sud 11 (France); Lukas Halagaca, VSB-Technical Univ. of Ostrava (Czech Republic); Henri-Jean Drouhin, Ecole Polytechnique (France); Jaromír Pistora, VSB-Technical Univ. of Ostrava (Czech Republic) .................. [9516-23]

Nonlinear apriori rigorous coupled wave analysis: algorithm and applications, Pavel Kwiecien, Ivan Richter, Czech Technical Univ. in Prague (Czech Republic); Jiri Petrášek, Brno Univ. of Technology (Czech Republic) .................................................. [9516-24]

Enhanced radiation amplitude by current-driven diffusing-growing mechanism of electromagnetic field near cutoff in a waveguide, Min Sup Hur, Ulsan National Institute of Science and Technology (Korea, Republic of) .................................................. [9516-25]

Algorithm applying a modified BRDF function in \nridge concentrator solar radiation, Kamil Plachta, Wroclaw Univ. of Technology (Poland) ........... [9516-26]

SESSION 7 ............................... WED 10:10 TO 12:50
Materials and Fabrication
Session Chair: Toshihiko Baba, Yokohama National Univ. (Japan)

Femtosecond laser 3D writing: from smart catheters to distributed lab-in-fibre sensors, Invited Paper, Peter H. Hemmings, Univ. of Toronto (Canada) .......................................................... [9516-27]

Diamond nanophotonics (Invited Paper), Marko Loncar, Harvard School of Engineering and Applied Sciences (USA) .......................................................... [9516-28]

Epitaxially grown vertical junction phase shifters for improved modulation efficiency in Silicon depletion-type Mach-Zehnder modulators, Saeed Sharif Azadeh, Sebastian Romero-Garcia, Florian Menget, Alvaro Moscoso-Maung, Jeremy Witzens, RWTH Aachen Univ. (Germany) .................................................. [9516-29]


Photoluminescence and NIR detection by graphene-like materials integrated with silicon substrates, Maurizio Casalino, Consiglio Nazionale delle Ricerche (Italy); Ilaria Rea, Istituto per la Microelettronica e Microsistemi (Italy); Lucia Sansone, Consiglio Nazionale delle Ricerche (Italy); Monica Terracciano, Luca De Stefano, a subwavelength Si nanowire based electro-optic 1*2 switch for the Microelettronica e Microsistemi (Italy); Michele Giordano, Anna Borriello, Consiglio Nazionale delle Ricerche (Italy); Giuseppe Coppola, Univ. of Cambridge (United Kingdom); Ugo Sassi, Ilya Goykhman, Domenico De Fazio, Univ. of Cambridge (United Kingdom); Ivo Rendina, Istituto per la Microelettronica e Microsistemi (Italy) .................. [9516-31]

Pixel isolation in Type-II InAs/GaSb superlattice photodiodes by femtosecond laser annealing, Sona Das, Utpal Das, Indian Institute of Technology Kanpur (India); Nutan Gautam, Sanjaya Krishna, The Univ. of New Mexico (USA) .......................................................... [9516-32]

The effect of substrate temperature on femtosecond laser induced nanoostructures on silicon, Guoqiang Deng, Xianheng Yang, Guoying Feng, Shouhuan Zhou, Sichuan Univ. (China) .................................................. [9516-33]

POSTERS ............................... WED 17:45 TO 19:15

Conference attendees are invited to attend the Optics + Optoelectronics Poster Session on Wednesday afternoon. 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. Posters are to be brought in poster presentation guidelines and set-up instructions on page 48, and at http://spie.org/x30951.xml

Design of a compact spectrophotogoniometer based on a Cardan joint, Karolina Maciuchova, Zdenek Novak, Josef Zicha, Czech Technical Univ., in Prague (Czech Republic) .................................................. [9516-34]

Efficient ultrafast optical parametric amplification and wavelength conversion in silicon waveguides, Hongliu Liu, Giling Sun, Nan Huang, Xian Institute of Optics and Precision Mechanics (China) .................................................. [9516-35]

Research on optimization design of pulse compression multilayer dielectric gratings, Shuwei Fan, Shenli Jia, Liang Bai, Xian Jiaotong Univ. (China) .................................................. [9516-36]

Ultralong photonic nanofiber formed by dielectricubes, Cheng-Yang Liu, Liu-Jen Chang, Tamkang Univ. (Taiwan) .................................................. [9516-37]

Numerical calculation of DOS in nanoratting layers using method of auxiliary sources, Vitali Ghoghoberidze, SoftMaster Co. Ltd. (Georgia); Sergey Petroyan, Mikhail Melikova, Iliia State Univ. (Georgia); D. Kakulja, Iv. Jakovshvili Tbilisi State Univ. (Georgia); Avdo Tavkhelidze, Iliia State Univ. (Georgia) .................................................. [9516-38]

Development of hybrid polymer/silicon-on-insulator electro-optical intensity modulator, Edgars Nilss, Martins A. Rutkis, Univ. of Latvia (Latvia) .................................................. [9516-39]

Electrooptic 1/2 switch based on proton-exchanged channel waveguides in LiNbO3, Sergey M. Kostrikitski, Yuri N. Vorkshko, Vyacheslav A. Fedorov, Optomlink RPC (Russian Federation) .................................................. [9516-40]

Surface photovoltaic and field effect on lateral conductivity in structures with Ge-nanonclusters grown on Si (001) surface, Yuriy Hryka, National Taras Shevchenko Univ. of Kyiv (Ukraine) .................................................. [9516-41]

Estimation of the sinusoidal oscillation parameters in the photonicics system based on the example of the photovoltaic system, Dariluz Kania, Wroclaw Univ. of Technology (Poland) .................................................. [9516-42]
Integrated optical design for dynamic laser beam shaping with membrane deformable mirrors, Oliver Pütsch, Andreas Olk, RWTH Aachen Univ. (Germany); Peter Loosen, RWTH Aachen Univ. (Germany) and Fraunhofer-Institut für Lasertechnik (Germany) ......................................................... [9516-43]

Terahertz material characterization for nonreciprocal integrated optics, Martin Mičica, VŠB-Technical Univ. of Ostrava (Czech Republic); Mathias Vanwolleghem, Institut d’Electronique de Microélectronique et de Nanotechnologie (France) and Univ. des Sciences et Technologies de Lille (France); Jamal Ben-Youssef, Univ. de Bretagne Occidentale (France); Jean-François Lampin, Univ. des Sciences et Technologies de Lille (France) and Institut d’Electronique de Microélectronique et de Nanotechnologie (France); Kamil Postava, Jaromír Pištora, VŠB-Technical Univ. of Ostrava (Czech Republic) ................................................. [9516-44]

Magnetoplasmonic waveguiding structure with nonreciprocal dispersion of guided TM modes, Lukas Halagac, Kamil Postava, VŠB-Technical Univ. of Ostrava (Czech Republic); Mathias Vanwolleghem, Beatrice Dagens, Institut d’Electronique Fondamentale (France); Jaromír Pištora, VŠB-Technical Univ. of Ostrava (Czech Republic) ................................................. [9516-45]

Light trap with reactive sun tracking for high-efficiency spectrum-splitting photovoltaic conversion, Harry N. Apostoleris, Matteo Chiesa, Masdar Institute of Science & Technology (United Arab Emirates); Marco Stefancich, Consiglio Nazionale delle Ricerche (Italy) ......................................................... [9516-46]

Transparent-reflective switching for light-trapping applications, Harry N. Apostoleris, Matteo Chiesa, Masdar Institute of Science & Technology (United Arab Emirates); Marco Stefancich, Consiglio Nazionale delle Ricerche (Italy) ......................................................... [9516-47]

Side band suppression for wide-band optical RoF systems, Hraghi Abir, SUP’COM (Tunisia); Samir Ben Abid, Ecole Nationale d’Ingénieurs de Tunis (Tunisia); Mourad Menif, SUP’COM (Tunisia) ......................................................... [9516-48]

Femtosecond writing of depressed cladding waveguides in strongly cumulative regime, Mikhail A. Bukharin, Moscow Institute of Physics and Technology (Russian Federation) and Physics Instrumentation Ctr. of the General Physics Institute (Russian Federation) and Optosystems Ltd. (Russian Federation); Dmitriy V. Khudyakov, Sergey K. Vartapetov, Physics Instrumentation Ctr. (Russian Federation) and Optosystems Ltd. (Russian Federation) ......................................................... [9516-49]
GENERAL INFORMATION

REGISTRATION

ONSITE REGISTRATION AND BADGE PICK-UP HOURS
Conference Floor Foyer
Sunday 12 April, 16:00 to 18:00 hrs.
Monday 13 April, 07:45 to 17:30 hrs.
Tuesday 14 April, 07:45 to 17:00 hrs.
Wednesday 15 April, 08:00 to 17:00 hrs.
Thursday 16 April, 08:00 to 16:00 hrs.

EXHIBITION HOURS
Tuesday 14 April, 10:00 to 17:00 hrs.
Wednesday 15 April, 10:00 to 16:00 hrs.

CONFERENCE REGISTRATION
Includes admission to all conference sessions, plenaries, panels, and poster sessions, admission to the Exhibition, Welcome Reception, coffee breaks, and a choice of proceedings. Student pricing does not include proceedings.

SPECIAL EVENT PRICING
Welcome Reception Guest Ticket (one guest per attendee)
EUR 30/ US $40

EXHIBITION REGISTRATION
Exhibition-Only visitor registration is complimentary.

EARLY REGISTRATION PRICING AND DATES
Conference registration prices increase by €110 after 6 April 2015. The online form will automatically display the increased prices.

SPIE MEMBER, SPIE STUDENT MEMBER, AND STUDENT PRICING
• SPIE Members receive conference registration discounts. Discounts are applied at the time of registration.
• Student registration rates are available only to undergraduate and graduate students who are enrolled full time and have not yet received their Ph.D. Post-docs may not register as students. A student ID number or proof of student status is required with your registration.

PRESS REGISTRATION
For credentialed press and media representatives only. Please email contact information, title, and organization to media@spie.org.

CASHIER SERVICES

Registration Area. Open during registration hours.

REGISTRATION PAYMENTS
If you are paying by cash or cheque as part of your onsite registration, wish to add a course, workshop, or special event requiring payment, or have questions regarding your registration, visit the SPIE Cashier.

RECEIPTS AND CERTIFICATE OF ATTENDANCE
Preregistered attendees who did not receive a receipt or attendees who need a Certificate of Attendance may obtain those from the SPIE Cashier.

BADGE CORRECTIONS
Badge corrections can be made by the SPIE Cashier. Please have your badge removed from the badge holder and marked with your changes before approaching the counter.

REFUND INFORMATION
There is a €40 service charge for processing refunds. Requests for refunds must be received by 2 April 2015; all registration fees will be forfeited after this date. Membership dues, SPIE Digital Library subscriptions or Special Events purchased are not refundable.

U.S. GOVERNMENT CREDIT CARDS
U.S. Government credit card users: have your purchasing officer contact the credit card company and get prior authorization before attempting to register. Advise your purchasing agent that SPIE is considered a 5968 company for authorization purposes.

AUTHOR / PRESENTER INFORMATION

SPEAKER CHECK-IN
Monday through Thursday, 08:00 to 17:00 hrs.

All conference rooms have a computer workstation, projector, screen, lapel microphone, and laser pointer. All presenters are requested to come to their conference room during the breaks with their memory devices or laptops to confirm their presentation display settings.

POSTER SESSION AND RECEPTION
Wednesday 15 April 2015, 17:45 to 19:15

All symposium attendees are invited to attend the Wednesday poster session provided as an opportunity to enjoy networking and refreshments while reviewing poster papers. The poster sessions are designed to promote opportunities for networking with colleagues in your field. Attendees are encouraged to review the high-quality papers that are presented in this alternate format and to interact with the poster authors.

Poster presenters may post their poster papers starting at 10:00 hrs on Wednesday in the Meridian Room. Any papers left on the boards following the end time of the poster session will be considered unwanted and will be discarded. SPIE assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:45 to 19:15 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.
ONSITE SERVICES

INTERNET ACCESS
Complimentary Internet will be available. Connection speeds will depend on the number of users. Please read the SPIE Wireless Internet Service Policy.

SPIE CONFERENCE APP
Download the free SPIE Conference App, available for iPhone and Android phones. Search and browse the programme, special events, participants, exhibitors, and more.

SPIE PUBLICATIONS
Opposite the SPIE Registration Desk
Browse the latest SPIE Press Books and Proceedings.

MESSAGE CENTER
Messages for attendees can be left by calling the Clarion Hotel and Congress Centre and asking for the Conference Partners Conference and Registration Desk. Messages will be taking during registration hours Monday - Thursday. It is the attendees’ responsibility to check the message boards on a daily basis.

FOOD AND BEVERAGE SERVICES

COFFEE BREAKS
Conference Foyer
Complimentary coffee will be served twice daily, at 10:00 and 15:00 hrs. Check individual conference listings for exact times and locations.

FOOD & REFRESHMENTS FOR PURCHASE
Food Court in Shopping Centre
There are a number of food outlets in the food court belonging to the adjacent shopping centre. Furthermore, the hotel restaurant will be open for lunch.

HOTELS

The hotel reservation process is carried out by:
Conference Partners s.r.o.
K namesti 799/10, 182 00 Praha 8
Czech Republic
Email: accommodation@conference.cz
Phone: + 420 224 262 109
Fax: + 420 226 531 809
Website: https://www.conference.cz/spieEOO2015

Reserve Online: Check availability and book online for the Clarion Congress Hotel. The hotel only accepts credit card bookings.

Please contact the Conference Partners directly for any of the following reasons:
• If payment is made by means other than credit card
• If you are having difficulty with the online form
• If you would prefer to stay at another hotel

Conference Partners will be pleased to assist you with these or any other problems. The deadline for early bird pricing is 13 February 2015. Hotel Deposits will only be guaranteed after receipt of the first night deposit.

SPIE EUROPE BLOCK ROOMS
SPIE Europe has made every effort to secure the best possible group nightly room rate(s) for you at this event. We recommend participants book before 15 March to avoid disappointment. Should the hotel rooms be sold out, please contact Conference Partners who will be able to help with accommodations in other hotels.
PRESENT TO HUNDREDS, PUBLISH TO MILLIONS.

Publish your work in SPIE Proceedings.

www.spie.org/proceedings

Helping engineers and scientists stay current and competitive

Find the answer
SPIEDigitalLibrary.org
GENERAL INFORMATION

TRAVEL

All applicable travel links can be found at www.spie.org/oo on the Travel to Prague page.

AIR TRAVEL
Czech Airlines is the national carrier operating from many European and some international destinations to Prague. There are also many inexpensive direct flights operated by budget airlines such as EasyJet, Ryanair, SmartWings, Air Lingus, or Sky Europe. Further information on destinations can be found on the airport’s website. For alternative travel, Prague is also connected by rail to a number of European cities.

Prague Airport www.prg.aero/en

PUBLIC TRANSPORT
Prague has a network of public transport routes including bus, tram and metro links. For further information on the network, please visit the website of the Prague Public Transport Company.

http://dpp.cz/en

TRAVEL TO VENUE

BY BUS
The majority of travel links in the city terminate at the Florenc station, which is about 15 minutes away from the Clarion by metro. Board the metro at the Florenc station and get off at the Vysočanská stop (metro line B). (Fifth stop from Florenc). The Clarion Congress Hotel is located right atop Vysočanská stop. (Czech pronunciation: ['visotchanska:])

BY TRAIN
Having once arrived at the Prague Main Railway Station (Hlavní Nádraží), take the metro from the Hlavní Nádraží stop running in the direction of Letňany (metro line C), travel one stop to Florenc and then transfer to metro line B in the direction of Černý Most. Get off at the Vysočanská stop (fifth stop from Florenc). The Clarion Congress Hotel is located right atop the stop. For further information on the train network, please visit: http://jizdnirady.idnes.cz/vlaky/spojeni

PUBLIC TRANSPORT
For using public transportation from the Vaclav Havel International Airport in Prague (formerly known as the Ruzyne Airport) to the Clarion Congress Hotel Prague, please take bus number 100 located in front of the airport terminal directly to metro station Zličín (B line terminus), and then continue by metro to Vysočanská station. Clarion Congress Hotel is located directly atop the Vysočanská metro station. A shopping centre is adjacent to the hotel. Public transport tickets can be purchased from vending machines installed in Prague Airport or tobacco shops. Single journey public transport ticket (basic 90-minute fare) costs CZK 32,-. Other ticket options are also available depending on your travel needs.

PARKING
The venue has ample car parking facilities. Please follow the link on the Clarion Congress Hotel web site for more contact, travel directions and details.
SPIE EVENT POLICIES

Acceptance of Policies and Registration Conditions

The following Policies and Conditions apply to all SPIE Events. As a condition of registration, you will be required to acknowledge and accept the SPIE Registration Policies and Conditions contained herein.

Granting Attendee Registration and Admission

SPIE, or their officially designated event management, in their sole discretion, reserves the right to accept or decline an individual’s registration for an event. Further, SPIE, or event management, reserves the right to prohibit entry or remove any individual whether registered or not, be they attendees, exhibitors, representatives, or vendors, who in their sole opinion are not, or whose conduct is not, in keeping with the character and purpose of the event. Without limiting the foregoing, SPIE and event management reserve the right to remove or refuse entry to any attendee, exhibitor, representative, or vendor who has registered or gained access under false pretenses, provided false information, or for any other reason whatsoever that they deem is cause under the circumstances.

Misconduct Policy

SPIE is a professional, not-for-profit society committed to providing valuable conference and exhibition experiences. SPIE is dedicated to equal opportunity and treatment for all its members and meeting attendees. Attendees are expected to be respectful to other attendees, SPIE staff, and contractors. Harassment and other misconduct will not be tolerated; violators will be asked to leave the event.

Identification

To verify registered participants and provide a measure of security, SPIE will ask attendees to present a government-issued Photo ID at registration to collect registration materials.

Individuals are not allowed to pick up badges for attendees other than themselves. Further, attendees may not have some other person participate in their place at any conference-related activity. Such other individuals will be required to register on their own behalf to participate.

Capture and Use of a Person’s Image

By registering for an SPIE event, I grant full permission to SPIE to capture, store, use, and/or reproduce my image or likeness by any audio and/or visual recording technique (including electronic/digital photographs or videos), and create derivative works of these images and recordings in any SPIE media now known or later developed, for any legitimate SPIE marketing or promotional purpose.

By registering for an SPIE event, I waive any right to inspect or approve the use of the images or recordings or of any written copy. I also waive any right to royalties or other compensation arising from or related to the use of the images, recordings, or materials. By registering, I release, defend, indemnify and hold harmless SPIE from and against any claims, damages or liability arising from or related to the use of the images, recordings or materials, including but not limited to claims of defamation, invasion of privacy, or rights of publicity or copyright infringement, or any misuse, distortion, blurring, alteration, optical illusion or use in composite form that may occur or be produced in taking, processing, reduction or production of the finished product, its publication or distribution.

Payment Method

Registrants for paid elements of the event, who do not provide a method of payment, will not be able to complete their registration. Individuals with incomplete registrations will not be able to attend the conference until payment has been made. SPIE accepts VISA, MasterCard, American Express, Discover, Diner’s Club, checks and wire transfers. Onsite registrations can also pay with Cash.

Authors/Coauthors

By submitting an abstract, you agree to the following conditions:

- An author or coauthor (including keynote, invited, and solicited speakers) will register at the author registration rate, attend the meeting, and make the presentation as scheduled.
- A manuscript (minimum 6 pages) for any accepted oral or poster presentation will be submitted for publication in the SPIE Digital Library, printed conference Proceedings, and CD. (Some SPIE events have other requirements that the author is made aware of at the time of submission.)
- Only papers presented at the conference and received according to publication guidelines and timelines will be published in the conference Proceedings and SPIE Digital Library (or via the requirements of that event).

Audio, Video, Digital Recording Policy

Conferences, courses, and poster sessions: For copyright reasons, recordings of any kind are prohibited without prior written consent of the presenter or instructor. Attendees may not capture or use the materials presented in any meeting/course room or in course notes on display without written permission. Consent forms are available at Speaker Check-In. Individuals not complying with this policy will be asked to leave a given session and/or asked to surrender their recording media.

EXHIBITION HALL: For security and courtesy reasons, recordings of any kind are prohibited unless one has explicit permission from on-site company representatives. Individuals not complying with this policy will be asked to surrender their recording media and to leave the exhibition hall.

Your registration signifies your agreement to be photographed or videotaped by SPIE in the course of normal business. Such photos and video may be used in SPIE marketing materials or other SPIE promotional items.

Laser Pointer Safety Information/Policy

SPIE supplies tested and safety-approved laser pointers for all conference meeting rooms. For safety reasons, SPIE requests that presenters use provided laser pointers.

Use of a personal laser pointer represents user’s acceptance of liability for use of a non-SPIE-supplied laser pointer. If you choose to use your own laser pointer, it must be tested to ensure <5 mW power output. Laser pointers in Class II and IIIa (<5mW) are eye safe if power output is correct, but output must be verified because manufacturer labeling may not match actual output. Come to Speaker Check-In and test your laser pointer on our power meter. You are required to sign a waiver releasing SPIE of any liability for use of potentially non-safe, personal laser pointers. Misuse of any laser pointer can lead to eye damage.
Access to Technical and Networking Events
Persons under the age of 18 including babies, carried or in strollers, and toddlers are not allowed in technical or networking events. Anyone 18 or older must register as an attendee. All technical and networking events require a valid conference badge for admission.

Underage Persons on Exhibition Floor Policy
For safety and insurance reasons:
• No persons under the age of 18 will be allowed in the exhibition area during move-in and move-out.
• Children 14 and older, accompanied by an adult, will be allowed in the exhibition area during open exhibition hours only.
• All children younger than 14, including babies in strollers and toddlers, are not allowed in the exhibition area at any time.

Unauthorized Solicitation Policy
Unauthorized solicitation in the Exhibition Hall is prohibited. Any non-exhibiting manufacturer or supplier observed to be distributing information or soliciting business in the aisles, or in another company's booth, will be asked to leave immediately.

Unsecured Items Policy
Personal belongings should not be left unattended in meeting rooms or public areas. Unattended items are subject to removal by security. SPIE is not responsible for items left unattended.

Wireless Internet Service Policy
At SPIE events where wireless is included with your registration, SPIE provides wireless access for attendees during the conference and exhibition but cannot guarantee full coverage in all locations, all of the time. Please be respectful of your time and usage so that all attendees are able to access the internet.

Excessive usage (e.g., streaming video, gaming, multiple devices) reduces bandwidth and increases cost for all attendees. No routers may be attached to the network. 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. SPIE is not responsible for computer viruses or other computer damage.

Mobile Phones and Related Devices Policy
Mobile phones, tablets, laptops, pagers, and any similar electronic devices should be silenced during conference sessions. Please exit the conference room before answering or beginning a phone conversation.

Smoking
For the health and consideration of all attendees, smoking, including e-cigarettes, is not permitted at any event elements, such as but not limited to: plenaries, conferences, workshops, courses, poster sessions, hosted meal functions, receptions, and in the exhibit hall. Most facilities also prohibit smoking and e-cigarettes in all or specific areas. Attendees should obey any signs preventing or authorizing smoking in specified locations.

Hold Harmless
Attendee agrees to release and hold harmless SPIE from any and all claims, demands, and causes of action arising out of or relating to your participation in the event you are registering to participate in and use of any associated facilities or hotels.

Event Cancellation
If for some unforeseen reason SPIE should have to cancel the event, registration fees processed will be refunded to registrants. Registrants will be responsible for cancellation of travel arrangements or housing reservations and the applicable fees.

Confidential Reporting of Unethical or Inappropriate Behavior
SPIE is an organization with strong values of responsibility and integrity. Our Ethics Statement and Code of Professional Conduct contain general guidelines for conducting business with the highest standards of ethics. SPIE has established a confidential reporting system for staff & other stakeholders to raise concerns about possible unethical or inappropriate behavior within our community. Complaints may be filed by phone or through the website, and, if preferred, may be made anonymously. The web address is www.SPIE.ethicspoint.com and the toll free hotline number is 1-888-818-6898.
Conference Registration

Registration includes admission to all conference sessions, plenaries, panels, technical groups, poster sessions, admission to the exhibition, welcome reception, coffee breaks, and choice of Proceedings (excluding student registration).

To register for the symposium, use one of the following ways:

• Use the online electronic registration form at www.conference.cz/spieEOO2015. When registering online, only payment by credit card (VISA or EC/MC) is accepted.

• Return the registration form by mail or fax to:
  Conference Partners s.r.o.
  K namesti 799/10
  182 00 Praha 8
  Czech Republic
  Phone: +420 224 262 109
  Fax: +420 226 531 809
  E-mail: conference@conference.cz

Proceedings of SPIE

Full paid registration includes your choice of Proceedings of SPIE (excluding student registrations). See the attached list for product order numbers for proceedings options from this meeting. You will need a product order number when you make your proceedings choice on the registration form.

Available as part of registration:

- Symposium CD Collection—a searchable CD of one or multiple proceedings volumes. Available within 8 weeks of the meeting.
- Symposium Online Collection—online access to multiple related proceedings volumes via the SPIE Digital Library. Available as papers are published.
- Online Proceedings Volume—online access to a single proceedings volume via the SPIE Digital Library. Available as papers are published.

Payment

This form will NOT be processed if payment is not included or if your signature is not included when paying by credit card. Please complete all information.

The payment can be made by:

• Credit card (VISA, EUROCARD/MASTER CARD)
  Please fill in the corresponding paragraph in the registration form.

• Bank transfer specifying the name of the delegate to the following account:
  Bank account holder's name: Conference Partners s.r.o., Tausigova 1170/5, 182 00 Prague 8
  Bank name: Ceskoslovenská obchodní banka a.s.
  Address of the bank: Anglická 20, 120 00 Prague 2, Czech Republic
  BIC code of the bank: CEKOCZPP
  IBAN code of the account: CZ49 0300 0000 0001 7701 0335

If money is transferred by bank transfer, a copy of the money order must be attached to the form. Please note that the registrant must take care of all bank charges for the bank draft. Only payment received before 6 April 2015 will be accepted as early registration. Those registering or paying after 6 April 2015 must add €110 to the total registration fee (students €40).

A receipt will be sent to those who have payed the registration fee, as confirmation of registration. Forms not accompanied by payment will not be accepted as an early registration.

Refund Policy for Preregistration

There is a €50 service charge for processing refunds. Requests for refunds must be received by 2 April 2015; all registration fees will be forfeited after this date. Membership dues, online access to Proceedings, SPIE Digital Library subscriptions, or Special Events purchased are not refundable.
## Name and Address

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- Check this box if you do not wish to receive relevant information from organizations other than SPIE.

## Conference Registration

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- EXHIBITOR VISITOR ONLY
- FREE

- Welcome Reception Guest Ticket (13 April 2015)
- €30

(Guest admittance requires ticket purchase. Maximum one guest per attendee.)

## Payment Method

- Credit card payments will be charged in USD and converted to your local currency by your card company or bank.

- Check #: ________ Amount €__________ (payable to SPIE)

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Security Code: __________

Expiration Date: Month / Year

Signature: ____________________________

By registering for this event, I acknowledge that I’ve read and will abide by SPIE Event Policies (www.spie.org/spiepolicies.xml).
Proceedings.

Full paid registration includes your choice of Proceedings of SPIE (excluding student registrations). See the attached list for product order numbers for proceedings options from this meeting. You will need a product order number when you make your proceedings choice on the registration form.

Available as part of registration:
- Symposium CD Collection—a searchable CD of one or multiple proceedings volumes. Available within 8 weeks of the meeting.
- Symposium Online Collection—online access to multiple related proceedings volumes via the SPIE Digital Library. Available as papers are published.
- Online Proceedings Volume—online access to a single proceedings volume via the SPIE Digital Library. Available as papers are published.

You may also purchase additional proceedings products beyond what you choose with your registration plan. (Note: Online proceedings volumes not available for separate purchase). See below for pricing and product order numbers.

Accessing Online Proceedings
Access to purchased online proceedings will be ongoing using your SPIE login credentials; papers are available as they are published.

To access your purchased proceedings:
- Go to https://spiedigitallibrary.org to sign in with your SPIE account credentials. If you do not have an SPIE account, create one using the email address you used to register for the conference.
- Once you have signed in, click the My Account link at the top of the page. You can access your proceedings in the My Conference Proceedings tab.

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