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Don’t miss these world-class speakers discussing the latest directions and most promising breakthroughs.

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Join your colleagues at these relaxed events, including the Welcome Reception and Interactive Poster Session.
Plan to Attend

It is our pleasure to welcome your attendance at SPIE’s 2017 International Symposium on Optics & Optoelectronics. An excellent technical programme has been prepared, focusing on cutting edge topics, recent advances in petawatt photonics, high-power and high-repetition rate systems, diode-pumped laser systems, FELs and X-ray lasers, along with the latest research in optical sensing, holography, X-ray optics, metamaterials, nonlinear and quantum optics.

Over 700 presentations prove that this event is recognized as an important forum for science, government, and industry to access and share information on optical technologies. The event focuses specifically on the research aspects of optics and optoelectronics science and technology, with a special emphasis on the existing and upcoming European and international laser infrastructures.

The symposium features specialty plenary sessions, seventeen conferences and a workshop on Intense, High Average Power Lasers, each incorporating oral and poster presentations. The programme promises an exciting week, with excellent science and technology in a setting conducive to international interchange, networking, and exchanging ideas.

We invite you to share the most recent developments and applications at SPIE Optics + Optoelectronics 2017. Join us for this exciting meeting in the beautiful city of Prague!

General Chairs

Jiri Homola, Institute of Photonics and Electronics of the CAS, v.v.i. Czech Republic

Bedřich Rus, ELI Beamlines, Institute of Physics, CAS v.v.i. Czech Republic

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

Mike Dunne, SLAC National Accelerator Lab. United States

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

Miroslav Habrovský, Palacky Univ. (Czech Republic)

Miroslav Hrabovský, Palacky Univ. (Czech Republic)

Jiri Homola, Institute of Photonics and Electronics of the CAS, v.v.i. Czech Republic

Ivano Molina Fernandez, Univ. de Málaga (Spain)

Luc Patthey, Paul Scherrer Institut (Switzerland)

Pavel Peterka, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic)

Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic)

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### DAILY EVENT SCHEDULE

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**Exhibition**
PLENARY SESSION I: Welcome Address
Monday, 24 April  16:00 to 17:55

16.00 to 16.25
Opening Remarks
Jiří Homola, Institute of Photonics and Electronics of the CAS, v.v.i., Czech Republic

Welcome Address
Eva Zažímalová, President of the Czech Academy of Sciences, Czech Republic

SPIE Welcome and Introduction and Presentation of SPIE Fellowship
to
Nigel Johnson, Univ of Glasgow, United Kingdom
For his achievements in photonic crystals and metamaterials.
and
Inmaculada Pascual, Univ de Alicante, Spain
For her achievements in holographic materials, optical storage diffractive optics and visual optics.

In Memoriam of Wolfgang Sandner
2011 Symposium Chair, Member of the Symposium Steering Committee and 20011-2015 Steering Committee Member
Tribute presented by Carlo Rizzuto, Director General of the Extreme Light Infrastructure Delivery Consortium International, Belgium

Introduction to Hot Topics
Jiří Homola, Institute of Photonics and Electronics of the CAS, v.v.i., Czech Republic

16.25 to 17.10
Next generation of lasers generating 100-PW and beyond peak power: prospects and challenges
Jonathan D. Zuegel, Univ. of Rochester, Laboratory for Laser Energetics, United States

Optical parametric chirped-pulse amplification (OP-CPA) pumped by multikilojoule, Nd:glass lasers is a promising approach to produce ultra-intense pulses (<10^23 W/cm²) that can be used to study ultrarelativistic phenomena. Scalable technologies are being developed and demonstrated to prepare for a future upgrade of the OMEGA EP Laser System to pump an optical parametric amplifier line (EP OPAL) and realize a high-energy, 100-PW-class system. The goal is a system capable of achieving ultrahigh intensities (1.5 kJ, 20 fs, 75 PW, ~10^24 W/cm²) for experiments that can also integrate picosecond infrared and/or nanosecond ultraviolet laser pulses from OMEGA EP beamlines.

OPAL technology development is underway that will: demonstrate an ultra-broadband seed source with ultrahigh temporal contrast, develop nanosecond-pumped OPCPA amplifiers that can be scaled to kilojoule pulse energies; and prove optical and diagnostic systems for transporting, compressing, focusing, and measuring pulses to achieve nearly transform-limited and diffraction-limited performance with the required damage thresholds. These efforts are being accomplished in a mid-scale OPCPA system (7.5 J, 15 fs) that will serve as a prototype front end for EP OPAL.

This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944, the University of Rochester, and the New York State Energy Research and Development Authority. The support of DOE does not constitute an endorsement by DOE of the views expressed in this article.

Biography: Dr. Jonathan D. Zuegel is Laser Development and Engineering Division Director and a Senior Scientist at the University of Rochester’s Laboratory for Laser Energetics. He joined LLE in 1996 after receiving his Ph.D. in Optics from The Institute of Optics at the University of Rochester. He received his B.S. (1983) and Masters of Engineering (1984) in Electrical Engineering from Cornell University and served in the U.S. Navy in the Department of Energy Division of Naval Reactors.

Dr. Zuegel is an author of more than 100 publications and a Fellow of the Optical Society of America.
17:10 to 17:55

Advanced optical manipulation exploiting materials science

Kishan Dholakia, School of Physics and Astronomy, Univ. of St. Andrews, United Kingdom

In science fiction, one is quite familiar with the idea of moving objects using laser beams, evoking concepts such as a “tractor beam.” In the laboratory science fiction turns into science fact: a powerful technique known as “optical tweezers” (OT) shows that micrometre-sized particles (and even biological material and atoms) can be grabbed, moved and generally manipulated without any physical contact using optical forces. This is a powerful demonstration of the optical dipole or gradient force in action. Such “optical tweezers”, based primarily on Newton’s laws and fundamental optics have enabled unprecedented insight about biological molecules such as DNA and molecular motors. In the microscopic world of optical tweezers, researchers are now harnessing these systems to study a host of science: this includes advanced colloidal interactions, dynamics of particles in various potentials (with strong analogues to atomic systems), insights into superconductivity, optically bound matter, studies of the optical angular momentum of light, magnetic flux line pinning, thermodynamics, microfluidics and motor protein transport. The list is ever growing.

This talk will give a perspective of emergent studies in manipulation using materials science. This includes the use of particles with specific properties for new studies. This can include the rotation of particles in liquid and vacuum using vaterite\[1\] and nanovaterite particles\[2\]. These particles exhibit a birefringence that allows them to spin when using circularly polarised trapping beams. Such studies can lead to very high rotation rates and exhibit new features that link to optomechanical cooling of the particle motion and potential future studies of quantum friction. This work may be extended to study the rotation of two particles in vacuum in co- and counter-rotating geometries\[3\]. The use of these latter types of particles can lead to new studies in optomechanics\[4\].

---


Biography: Kishan Dholakia is Professor at the University of St Andrews, Scotland and an honorary adjunct Professor at the Centre for Optical Sciences at the University of Arizona, USA and at Chiba University, Japan. He works on advanced imaging, beam shaping and optical manipulation. He has published over 275 journal papers. His work is cited in the Guinness book of Records 2015 for the fastest man-made rotation. He is a Fellow of the Royal Society of Edinburgh, OSA and SPIE. In 2008 he was awarded a Wolfson Merit Award from the Royal Society. In 2016 he won the R.W. Wood Prize of the Optical Society.
PLENARY SESSION II
Tuesday, 14 April, 9:00 to 9:50

9:00 to 9:05
Introduction
Jiří Homola, Institute of Photonics and Electronics of the CAS, v.v.i., Czech Republic

Presentation of Yuri Denisyuk Medal to
Miroslav Miler, Institute of Photonics and Electronics of the CAS, v.v.i., Czech Republic
for his achievements in the field of holography.
The medal is awarded on behalf of the Rozhdestvensky Optical Society Saint Petersburg, Russia

9:05 to 9:50
Optical systems implemented with multimode fibers
Demetri Psaltis, Ecole polytechnique fédérale de Lausanne, Optics Laboratory, Switzerland

Holography and phase conjugation were proposed in the middle 1960’s for correcting the distortions in imaging systems due to aberrating or scattering media. These early methods have been revisited in recent years and successful experimental demonstrations have been reported with digital holographic methods in which the recording and reconstruction of the hologram is done with the help of a digital computer. The digital holographic methods offer a lot more flexibility and control compared to the all-optical methods of the past making holographic imaging much more practical. In addition, adaptive wavefront shaping techniques have been recently developed providing a set of related and synergistic methods for imaging in complex media. In this presentation we will focus on the application of the modern tools of holography to light transmission through multi-mode fibers (MMF’s) [1]. The modal dispersion that severely scrambles images propagating through MMF’s can be compensated allowing us to exploit the many degrees of freedom available for imaging and sensing.

A wide variety of functionalities that are usually implemented with lenses have been demonstrated with MMF’s combined with wavefront shaping. These include focusing and scanning light through a MMF, leading to novel endoscopes. Projection of arbitrary images through a MMF has been demonstrated with potential applications in display and structured illumination. The demonstration of ultrashort transmission of laser pulses through MMF’s allows multi-photon excitation with potential applications in imaging, ablation and photopolymerisation. The main advantage of MMF’s compared to lenses is that the MMF is a digitally controlled endoscope and is therefore able to reach places that are difficult to access with lenses. The advantage of MMF’s over other endoscopes is the large number of spatial and temporal degrees of freedom which can be digitally controlled leading to high resolution in a very compact implementation. The main disadvantage of MMF’s is their sensitivity to bending and therefore currently they only work as rigid probes. However, there are interesting new results that show promise for the future implementation of flexible MMF endoscopes.


Biography: Demetri Psaltis is professor of optics and the director of the Optics Laboratory at the Ecole Polytechnique Federale de Lausanne (EPFL). He was educated at Carnegie-Mellon University where he received the Bachelor of Science in Electrical Engineering and Economics in 1974, the Master’s in 1975, and the PhD in Electrical Engineering in 1977. In 1980, he joined the faculty at the California Institute of Technology, in Pasadena, California where he held the Thomas G. Myers Chair in Electrical Engineering. He served as Executive Officer for the Computation and Neural Systems department from 1992-1996. From 1996 until 1999 he was the Director of the National Science Foundation research center on Neuromorphic Systems Engineering at Caltech. In 2004 he established at Caltech the Center for Optofluidic Integration and he served as the director until he moved to EPFL in 2006 where he established his research lab and served as dean of the engineering school for 10 years. His research interests are imaging, holography, biophotonics, nonlinear optics, and optofluidics. He has over 400 publications in these areas. Dr. Psaltis is a fellow of the IEEE, the Optical Society of America, the European Optical Society and the Society for Photo-optical Systems Engineering (SPIE). He received the International Commission of Optics Prize, the Humboldt Award, the Leith Medal, the Gabor Prize and the Joseph Fraunhofer Award/Robert M. Burley Prize.
High peak power laser systems with intensities exceeding $10^{18}$W/cm$^2$ are being developed to push the boundaries of scientific research and industrial applications. These systems, often referred to as Petawatt lasers, are capable of generating ultra-short pulses that can be used for a variety of tasks, including laser fusion drivers. The peak power of a laser defines the science that can be performed in a given amount of time. The time it takes to perform a particular task is determined by the laser's average power or enables a particular industrial process, whereas the average power determines the time it takes to perform the particular task. Recent developments in laser technology now allow the combination of high peak power and high average power for the first time. This opens up a whole new world of science and industrial applications with far reaching benefits for society. This panel discussion will express and debate some of these exciting new opportunities and provide a catalyst for new ideas and concepts.

To introduce the technology and set the context a short introductory talk “Combining high peak power with high average power- opening a whole world of science and applications from materials hardening to space debris” will precede the panel discussion.

High average power, diode pumped Petawatt laser systems: a new generation of lasers enabling precision science and commercial applications

Constantin L. Haefner, NIF and Photon Science Directorate, Lawrence Livermore Lab., United States

High peak power laser systems with intensities exceeding 1018W/cm² allow for driving compact and versatile secondary sources such as particle beam generation and coherent and incoherent x-ray sources. Previous drive lasers have primarily relied on flashlamp technology, and therefore have been constrained to access industrial applications that require average power levels of typically kilowatt and beyond, or exploratory research that requires highest pulse fidelity and repeatability. A new generation of diode pumped, high intensity laser systems with innovative technologies for thermal management, new optical materials and pulse compressor gratings have recently been demonstrated. In particular, the High-repetition-rate Advanced Petawatt Laser System (HAPLS) recently completed a momentous milestone of delivering continuously laser pulses with energy exceeding 15 J, pulse duration 28 fs, at 3.3 Hz – equivalent to a peak power of ~0.5 PetaWatt/pulse delivered at high rep rate. When complete and ramped to its final design performance HAPLS will be the world’s highest average power Petawatt laser system. Next generation high intensity laser systems such as HAPLS open the door for transforming today’s proof-of-principle experiments into viable real-world applications.

Biography: Prof. Dr. Constantin L. Haefner is the Program Director for Advanced Photon Technologies (APT) in the NIF & Photon Science Directorate at Lawrence Livermore National Laboratory. He received his Diploma degree in Physics from the University Of Constance, Germany in 1999, and his Ph.D. in 2003 from the University of Heidelberg. Dr. Haefner joined Lawrence Livermore National Laboratory and has since led the research and development of high peak power laser technologies. In 2010 he was appointed Chief Scientist on the kilojoule-Petawatt NIF Advanced Radiographic Capability laser system and in 2013 became the Program Director for APT; the key mission areas of APT are the research and development of laser systems relevant to scientific research and commercial applications, as well as laser technology advancement for laser fusion drivers.
Welcome Reception
Monday, 24 April, 18:30 to 21:00
All attendees are invited to relax, socialize, and enjoy light refreshments. Please remember to wear your conference registration badges. Dress is casual.

LAB TOUR
Optical Fibre Technology at the Institute of Photonics and Electronics
Tuesday 25 April, 18:00 to 21:00
Registered attendees are invited to visit the laboratory for fabrication of specialty optical fibres for fibre lasers and optical fibre sensors. The laboratory is part of the Institute of Photonics and Electronics (ÚFE) of the Czech Academy of Sciences. Shuttle bus will be provided.
Registration for the tour will be possible as part of the conference registration process. Some seats may be available onsite at the SPIE registration desk. Information about the departure location and any departure time updates will be available at the SPIE registration desk. Tour duration: 2 hours (excludes travel time).

PLEASE NOTE: The number of participants is limited.

LAB TOUR
HiLASE Laser Centre and ELI Beamlines
Friday 28 April, 9:00 to 13:00
Registered attendees are invited to visit the recently inaugurated HiLASE Laser Centre and ELI Beamlines in nearby Dolní Brezany. Shuttle bus will be provided.
The HiLASE project focuses on development high-repetition lasers and laser systems that will find use in industry, in small- and medium-scale research laboratories and in the future European large-scale facilities that will be part of the European Research Area (ERA). The project will specifically focus on diode pumped solid state laser systems (DPSSLs) and on the development of associated technologies.
ELI Beamlines will create a new generation of secondary sources for interdisciplinary applications in physics, medicine, biology and material sciences. It will enable research projects covering the interaction of light with matter at intensity being 10 times higher than currently achievable values. ELI will provide ultra-short laser pulses of a few femtoseconds (10–100 fs) duration and give performance up to 10 PW.

Registration for the tour will be possible as part of the conference registration process. Some seats may be available onsite at the SPIE registration desk. Information about the departure location and any departure time updates will be available at the SPIE registration desk. Tour duration: 2-3 hours (excludes travel time).

PLEASE NOTE: The number of participants is limited.

PANEL DISCUSSION
Conference 10239: Medical Applications of Laser-Generated Beams of Particles: Review of Progress and Strategies for the Future

Importance of Hadrons in Cancer Therapy
Tuesday 25 April, 10:15 to 12:30 pm
Open Discussion on Importance of Hadrons in Cancer Therapy
A small international team of experts from multiple research communities will examine the following questions:
• Is hadron therapy better than existing therapies and for which tumours?
• Is it cost effective?
• Could laser driven hadron beams compete potentially with accelerator beams in cost and size?

ROUND TABLE DISCUSSION
Conference 10236: Damage to VUV, EUV, and X-ray Optics (XDam6)

Damage Mechanisms: Theory and Experiments
Tuesday 25 April, 14:55 to 15:35
Co-organized by the Czech Academy of Sciences within its Strategy 21 Programme, the session “Damage Mechanisms: Theory and Experiments” will be focused on further development of the theory and computer simulations of processes responsible for transient and irreversible changes in irradiated solids to get a good agreement with experimental results obtained and to help in planning prospective experiments at new facilities, esp. European XFEL. The session will incorporate invited contributions and a round-table discussion.

ROUND TABLE DISCUSSION
Conference 10236, Damage to VUV, EUV, and X-ray Optics (XDam6)

XUV/X-ray Lasers in Radiation Chemistry and Radiobiology
Tuesday 25 April 2017, 16:00 to 17:50
Co-organized by the Czech Academy of Sciences within its Strategy 21 Program, the session will be dealing with a prospective utilization of new short-wavelength lasers in radiation sciences, esp. radiation chemistry and radiobiology. The session will incorporate invited contributions and a round-table discussion.
PLENARY PANEL DISCUSSION

Prospects of new generation of high-repetition high-peak power laser systems: implications to research and industrial applications

Wednesday 26 April, 14:35 to 15:15

The peak power of a laser defines the science that can be performed or enables a particular industrial process, whereas the average power determines the time it takes to perform the particular task. Recent developments in laser technology now allow the combination of high peak power and high average power for the first time. This opens up a whole new world of science and industrial applications with far reaching benefits for society. This panel discussion will express and debate some of these exciting new opportunities and provide a catalyst for new ideas and concepts.

IN MEMORIAM

Wolfgang Sandner
ELI-DC Director and Laser Scientist

The 2017 Symposium will be dedicated to honoring Wolfgang Sandner, 2011 Optics + Optoelectronics symposium chair and the symposium steering committee member.

Through his involvement, Wolfgang made considerable contributions to the success of the event. We will greatly miss our dear friend and colleague.

Poster Session

Wednesday 26 April, 17:45 to 19:30

All symposium attendees are invited to attend 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.

Poster presenters may post their poster papers starting at 10:00 hrs on Tuesday. 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 19:30 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

WORKSHOP

Technology and Applications of Intense, High Average Power Lasers Workshop (WS100)

Thursday, 27 April • 8:50 to 17:00

This workshop will discuss recent advances in the laser technology, emerging applications, enablers, the performance and economic system requirements necessary to exploit that technology within industry and the new scientific opportunities available from facilities offering this new capability to users. For full programme, please see p. 55.

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 Remote Sensing 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
• The best student award announcement will follow the acceptance notification and will include all details necessary to enter and qualify for the competition
• A panel of experts will evaluate the papers, both for quality and content.
CONFERENCE 10227

Wednesday–Thursday 26–27 April 2017 • Proceedings of SPIE Vol. 10227

Metamaterials

Conference Chairs: Vladimir Kuzmiak, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Peter Marks, Comenius Univ. in Bratislava (Slovakia); Tomasz Szoplik, Univ. of Warsaw (Poland)

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WEDNESDAY 26 APRIL

OPENING REMARKS ................................. 8:25 TO 8:30

SESSION 1 ........................................... WED 8:30 TO 10:20

Metasurfaces

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

All-dielectric resonant nanophotonics and high-efficient metasurfaces (Invited Paper), Yuri S. Kivshar, Australian National Univ. (Australia). [10227-1]

Tunable spin-directional coupling for surface localized waves with anisotropic metasurface, Oleh Y. Yermakov, Andrey A. Bogdanov, Ivan V. Lorsch, ITMO Univ. (Russian Federation); Konstantin Y. Blokh, RIKEN Ctr. for Emergent Matter Science (Japan); Yuri S. Kivshar, ITMO Univ. (Russian Federation) and The Australian National Univ. (Australia). [10227-2]

Dynamical pixel manipulation of metasurfaces, Jin-Qian Zhong, National Tsing Hua Univ. (Taiwan). [10227-3]

Generation of isocromatic coherent optical beams by binary geometrical phase on metasurface, Xiang Xiong, Zhenghan Wang, Mu Wang, Ruwen Peng, Nanjing Univ. (China). [10227-4]

Plasmon-induced transparency-like behavior at terahertz region via dipole oscillation detuning in a hybrid planar metamaterial, Zhenyu Zhao, Shanghai Normal Univ. (China). [10227-5]

SESSION 2 ........................................... WED 10:50 TO 12:40

Metamaterials Theory

Session Chair: Yuri S. Kivshar, Australian National Univ. (Australia)

Light-matter interaction in planar plasmonic and metamaterial systems: equilibrium and non-equilibrium effects (Invited Paper), Kurt Busch, Humboldt University Berlin (Germany). [10227-6]

Hyperbolic waveguide for long-range heat transport, Svend-Age Blehs, Carl von Ossietzky Univ. Oldenburg (Germany); Philippe Ben-Abdallah, Lab. Charles Fabry (France) andCtr. National de la Recherche Scientifique (France) and Univ. Paris-Saclay (France). [10227-7]


Enhanced fluorescence emission using bound states in continuum in a photonic crystal membrane, Silvia Romano, Istituto per la Microelettronica e Microsistemi, Consiglio Nazionale delle Ricerce (Italy); Gianluigi Zito, Stefano Managò, Anna Chiara De Luca, Istituto di Biochimica delle Proteine, Consiglio Nazionale delle Ricerce (Italy); Stefano Cabrini, The Molecular Foundry (United States); Vito Mocella, Istituto per la Microelettronica e Microsistemi, Consiglio Nazionale delle Ricerce (Italy). [10227-10]

Lunch/Exhibition Break .......................... Wed 12:40 to 13:30

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

Optics + Optoelectronics 2017: Plenary Session III

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

SESSION 3 ......................................... WED 15:40 TO 18:00

Hyperbolic Metamaterials

Session Chair: Kurt Busch, Humboldt-Univ. zu Berlin (Germany)

New pathways for solitons and rogue waves in double negative and hyperbolic metamaterials (Invited Paper), Allan D. Boardman, Univ. of Salford (United Kingdom); Jim McNiff, Original Perspectives Ltd. (United Kingdom). [10227-11]

PT-asymmetric VCSELs (Invited Paper), Muriel Botev, Univ. Politecnică de Cataluny (Spain); Waqas Ahmed, Politecnica de Catalunya (Spain); Ramon Herrero, Univ. Politecnică de Catalunya (Spain); Kestutis Staliunas, Inst. Catalana de Researca i Estudis Avançats (ICREA) (Spain). [10227-12]

Wafer scale hypersprints for real-time super-resolution biomolecular imaging, Junsku Rho, Dasao Lee, Minkyung Kim, Jungho Mun, Duc Minh Nguyen, Pohang Univ. of Science and Technology (Korea). [10227-13]

Experimental demonstration of the surface state and optical topological phase transition of one dimensional hyperbolic metamaterial in Otto configuration, Chih Chung Wei, Leng-Wai Un, Tai-Yen Yen, National Tsing Hua Univ. (Taiwan). [10227-14]

Quasimode computation in structures including several dispersive materials, Guillaume Demévy, André Nicolet, Frédéric Zolla, Mauricio Garcia-Vergara, Institut Fresnel (France). [10227-15]

Spectral features of the Borrmann effect in 1D photonic crystals in the Laue geometry, Vladimir B. Novikov, Boris I. Mantysyov, Tatiana V. Murzina, M.V. Lomonosov Moscow SU (Russia). [10227-16]

POSTER SESSION .............................. WED 17:45 TO 19:30

Conference attendees are invited to attend the Optics + Optoelectronics Symposium 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 11, and at http://spie.org/x30951.xml.

Plasmonic scattering nanostructures for efficient light trapping in flat CZTS solar cells, Omar A. M. Abdelraouf, Nageh K. Allam, The American Univ. in Cairo (Egypt). [10227-36]

Ferroelectric lithographic microscale assembly of a noble metal nanoparticles applied as a single molecule sensor, Rusul Allshammar, Nebras E. Al-Attar, Univ. College Dublin (Ireland); Michele Manzo, Katia Gallo, KTH Royal Institute of Technology (Sweden); Brian J. Rodriguez, James H. Rice, Univ. College Dublin (Ireland). [10227-37]

Photonic band gap and defect states calculation of 2D octagonal structures, Gulsen Kosoglu, Mehmet Naci Inci, Bogazici Univ (Turkey). [10227-38]
THURSDAY 27 APRIL

SESSION 4 .......................... THU 8:30 TO 10:20

Metamaterials

Session Chair: Nigel Johnson, Univ. of Glasgow (United Kingdom)

Zero index metamaterial for enhanced transmission and beaming (Invited Paper), Humeyra Caglayan, Hodjat Hajian, EKREM OZBAY, EKILANT UNI (Turkey) .......................................................... [10227-17]

Magnetic Fano-response in toroidal metamaterials, Maria V. Kozhokar, Univ. Turkey (Turkey) ............................................ [10227-18]

Planar toroidal metamaterials: the role of losses, tunability and applications, Nikita Voisky, National Univ. of Science and Technology “MISIS” (Russian Federation) .................................................. [10227-19]

All-dielectric perforated metamaterials with toroidal dipolar response, Ivan Stenischchev, Alexey A. Basharin, National Univ. of Science and Technology “MISIS” (Russian Federation) ...................... [10227-20]

Optical meta-milms of alumina nanowire arrays for solar evaporation and optoelectronic devices, Kyounghik Kim, Kiyoungyong Bae, Gumin Kang, Seunghwa Baek, YONSEI UNIV. (Korea, Republic of) ... [10227-21]

SESSION 5 .......................... THU 10:50 TO 12:40

Plasmonics

Session Chair: Kestutis Staliunas, The Institució Catalana de Reserca i Estudis Avançats (ICREA) (Spain)

LIQUID-LIKE 2D PLASMONIC WAVES (Invited Paper), Baile Zhang, Nanyang Technological University (Singapore) ....................... [10227-22]

COLLECTIVE DYNAMICS OF ATOMS EMBEDED INTO NEGATIVE INDEX MATERIALS, Zbigniew Ficek, King Abdulaziz City for Science and Technology (Saudi Arabia); Fang Wei, Gao X. Li, Central China Normal Univ. (China) ............................... [10227-23]

NONLOCAL RESONANCES IN NANOPLASMONICS: ANALYSIS AND SIMULATIONS, Milan Burda, Pavel Kwiecien, Jan Fiala, Ivan Richter, Czech Technical Univ. in Prague (Czech Republic) .......................... [10227-24]

HYBRID METAL-ORGANIC CONDUCTIVE NETWORK WITH PLASMONIC NANOPARTICLES AND FLUORENE, Laura Fontana, Ilaria Fratoddi, Roberto Matassa, Giuseppe Familiari, Iole Venditti, Sapienza Univ. di Roma (Italy); Chiara Balucchio, Univ. degli Studi di Roma Tre (Italy); Elena Magnano, Silvia Nappini, Istituto Officina dei Materiali (Italy); Grigore Leahu, Alessandro Belardini, Roberto Li Voti, Concita Sibilia, Sapienza Univ. di Roma (Italy) .............................. [10227-25]

GENERAL RULES FOR INCORPORATING NOBLE METAL NANOPARTICLES IN ORGANIC SOLAR CELLS, Arkadiusz S. Ciesielski, Dominika Sliwlik, Tomasz Szoplik, Univ. of Warsaw (Poland) .......................................................... [10227-26]

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

SESSION 6 .......................... THU 13:50 TO 15:40

Nanolasers

Session Chair: Baile Zhang, Nanyang Technological Univ. (Singapore)

PHOTONIC MICROCHIROP DAYaser (Invited Paper), Kristustis Staliunas, Univ. Catalana de Reserca i Estudis Avancats (ICREA) (Spain); Darius Galievičius, Vytautas Purlys, Martynas Peckus, Vilnius Univ. (Lithuania); Volodymyr Koliadenko, Victor B. Taranenko, Institute of Applied Optics, NAS of Ukraine (Ukraine) ......................... [10227-27]

ALL-DIELECTRIC SLOW LIGHT NANOLASER BASED ON METAMATERIALS, Yu-Hung Hsieh, Shih Yu Fu, Tsung-Yu Huang, Ta-Jen Yen, National Tsing Hua Univ. (Taiwan) .................................................. [10227-28]

DIODE-ONLY NANOLASER INDUCED BY MI RESONANCE, Shih Yu Fu, Yu-Hung Hsieh, Tsung-Yu Huang, Ta-Jen Yen, National Tsing Hua Univ. (Taiwan) .................................................. [10227-29]

PLASMA PHASE SEPARATION IN BISMUTH AND ANTIMONY CHALCOCENIDE CRYSTALS, Nadezda P. Netesova, M.V. Lomonosov Moscow SU (Russian Federation) .......................... [10227-30]

STUDY OF RESONANT PROCESSES IN PLASMONIC NANOSTRUCTURES FOR SENSOR APPLICATIONS, Jiří Pirunčík, Pavel Kwiecien, Jan Fiala, Ivan Richter, Czech Technical Univ. in Prague (Czech Republic) .......................... [10227-31]

SESSION 7 ............................ THU 16:00 TO 17:50

Applications in Metamaterials

Session Chair: Tomasz Szoplik, Univ. of Warsaw (Poland)

MAGNETIC TERATHERZ METAMATERIALS BASED ON DIELECTRIC MICROSPHERES (Invited Paper), Christina Kadic, Michael S. Shur, Rensselaer Polytechnic Institute (United States); Michael S. Shur, Rensselaer Polytechnic Institute (United States) .......................... [10227-32]

DETECTION OF TERATHERZ RADIATION IN METAMATERIALS: GIANT PLASMONIC RATCHET EFFECT, Sergey Rudin, Greg Rupper, U.S. Army Research Lab. (United States); Valentin Korchovskiy, Ioffe Institute (Russian Federation); Michael S. Shur, Rensselaer Polytechnic Institute (United States) .......................... [10227-33]

DEPOSITION OF ORGANIC MOLECULES ON GOLD NANANTENNAS FOR SENSING, Jharna Paul, Univ. of Glasgow (United Kingdom); Scott G McMeekin, Caledonian University (United Kingdom); Richard M De La Rue, Nigel P Johnson, Univ. of Glasgow (United Kingdom) ........................................ [10227-34]

POLARIZATION-CONTROLLED HIGH-EFFICIENCY COLOR FILTERS USING Si NANANTENNAS, Vishal Vashistha, Adam Mickiewicz Univ. (Poland); Andriy E. Serebryannikov, Adam Mickiewicz Univ. (Poland); Maciej Krawczyk, Adam Mickiewicz Univ. (Poland) .......................... [10227-35]

THE COUPLED NCs BASED METAMATERIAL FOR ULTRA-BROADBAND PERFECT ABSORBER, Soo-Jung Kim, Heon Lee, Korea Univ. (Korea, Republic of); Sung Hoon Hong, ETRI (Korea, Republic of) .......................... [10227-36]
CONFERENCE 10228

Monday–Tuesday 24–25 April 2017 • Proceedings of SPIE Vol. 10228

Nonlinear Optics and Applications

Conference Chairs: Mario Bertolotti, Univ. degli Studi di Roma La Sapienza (Italy); Joseph W. Haus, Univ. of Dayton (United States); 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, Univ. dell’Aquila (Italy); Reinhard Kienberger, Max-Planck-Institut für Quantenoptik (Germany); Yuri S. Kivshar, The Australian National Univ. (Australia); Jan Perina, Palacky Univ. (Czech Republic); Mark I. Stockman, Georgia State Univ. (United States); Anatoly V. Zayats, King’s College London (United Kingdom)

THIS PROGRAMME IS CURRENT AS OF 30 JANUARY 2017

MONDAY 24 APRIL

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

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

Nonlinear Materials

Session Chair: Mario Bertolotti, Sapienza Univ. di Roma (Italy)
Integration of nonlinear and switchable metamaterials with fiber technology (Invited Paper), Viktor L. Krutyanskiy, Tatiana V. Murzina, University of Southampton (United Kingdom) and Nanyang Technological Univ. (Singapore); Eric Plum, Kevin Macdonald, Univ. of Southampton (United Kingdom).

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

Nonlinearities at Femtosecond I

Session Chair: Nikolay I. Zheludev, Optoelectronics Research Ctr. (United Kingdom)
Nonlinear optics in the mid-infrared: new filamentation physics (Invited Paper), Dmitrii A. Sidorov-Biryukov, M.V. Lomonosov Moscow SU (Russian Federation); Alexander V. Mitrofanov, P.N. Lebedev Physical Institute (Russian Federation); A. A. Voronin, National Research Tomsk Polytechnic Univ. (Russian Federation); Alexander Lanin, M.V. Lomonosov Moscow SU (Russian Federation); Audrius Pugzlys, Technische Univ. Wien (Austria); Eugene V. Stepanov, A. M. Prokhorov General Physics Institute of the Russian Academy of Sciences (Russian Federation); Andrei B. Fedotov, M.V. Lomonosov Moscow SU (Russian Federation); Andrius Baltuska, Technische Univ. Wien (Austria); Alexei M. Zheltikov, M.V. Lomonosov Moscow SU (Russian Federation).

Nonlinearly enhanced linear absorption under filamentation in mid-infrared, Danil Shpilo, Nicolay Panov, Vera Andreeva, Olga G. Kosareva, Alexander M. Saletski, M.V. Lomonosov Moscow SU (Russian Federation); Hua-Liang Xu, Jilin Univ. (China); Pavel Polyynkin, The Univ. of Arizona (United States).

Optical harmonic generation enhanced due to ultrafast intensity fluctuations, Denis A. Kopylov, M.V. Lomonosov Moscow SU (Russian Federation); Kirill Y. Spasibko, Max-Planck-Institut für die Physik des Lichts (Germany) and Friedrich-Alexander-Universität Erlangen-Nürnberg (Germany); Viktor L. Krutyanskiy, Tatiana V. Murzina, M.V. Lomonosov Moscow SU (Russian Federation); Gerd Leuchs, Max-Planck-Institut für die Physik des Lichts (Germany) and Friedrich-Alexander-Universität Erlangen-Nürnberg (Germany); Maria V. Chekhova, Max-Planck-Institut für die Physik des Lichts (Germany) and M.V. Lomonosov Moscow SU (Germany) and M.V. Lomonosov Moscow SU (Russian Federation).

Forming of supercontinuum in the visible upon filamentation of a femtosecond pulse in the air, Valery F. Losev, Nikolay G. Ivanov, Vladimir E. Prokopiev, Kirill A. Sitnik, Institute of High Current Electronics (Russian Federation).

SESSION 3 .................................................. MON 14:00 TO 15:40

Nonlinearities at Femtosecond II

Analysis of THG modes for femtosecond laser pulse, Vyacheslav A. Trofimov, Pavel S. Sidorov, M.V. Lomonosov Moscow SU (Russian Federation).

Nonlinear effects during interaction of femtosecond doughnut-shaped laser pulses with glasses: overcoming intensity clumping, Nadezhda M. Bulgakova, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Institute of Thermophysics, SB RAS (Russian Federation); Vladimir P. Zhukov, Institute of Computational Technologies, SB RAS (Russian Federation) and Novosibirsk State Technical Univ., RAS (Russian Federation); Mikhail P. Fedoruk, Institute of Computational Technologies SB RAS (Russian Federation) and Novosibirsk State Univ. (Russian Federation); Alexander M. Rubenchik, Lawrence Livermore National Lab. (United States).

Asymmetry of light absorption upon propagation of focused femtosecond laser pulses with spatiotemporal coupling through glass materials, Vladimir P. Zhukov, Institute of Computational Technologies, SB RAS (Russian Federation) and Novosibirsk State Technical Univ. (Russian Federation); Nadezhda M. Bulgakova, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Institute of Thermophysics, SB RAS (Russian Federation); Yagiz Morova, Selcuk Akturk, Istanbul Technical Univ. (Turkey).

Modeling the ultrafast electron dynamics upon femtosecond laser-irradiation silicon: transient plasmonics, current generation, and subsequent matter modification, Thibault J. Y. Derrien, HILASE Ctr. (Czech Republic); Nadezhda M. Bulgakova, HILASE Ctr. (Czech Republic) and Institute of Thermophysics, SB RAS (Russian Federation).

Spectral narrowing in gases using femtosecond laser pulses, Tanki Karpate, Manipal Univ. (India); Aditya K. Dharmadhikari, Tata Institute of Fundamental Research (India); Jayashree A. Dharmadhikari, Tata Institute of Fundamental Research (India) and Manipal Univ. (India); Deepak Mathur, Tata Institute of Fundamental Research (India).

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

Optics + Optoelectronics 2017: Plenary Session I

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml
Tuesday 25 April

Optics + Optoelectronics 2017: Plenary Session II
For details, please see pages 6–9 in the printed program or visit http://spie.org/x25077.xml

SESSION 4 .............................. TUE 10:10 TO 12:40
Nanooptics and Plasmonics
Session Chair: Nikolay I. Zheludev, Optoelectronics Research Ctr. (United Kingdom)
Multimodal nonlinear nanophotonics (Invited Paper), Yuri S. Kvishar, Australian National Univ. (Australia) ........................................ [10228-15]
Highly directional second-harmonic generation from ALGAs nanoparticles, Maria del Rocío Camacho Morales, Mohsen Rahmani, Sergey S. Kruk, Lei Wang, The Australian National Univ. (Australia); Lei Xu, The Australian National Univ. (Australia); and Nankai University (China); Daria A. Smirnova, Alexander S. Solntsev, Andrey E. Miroshnichenko, Hark Hoe Tan, Fouad Karoua, Shagufa Naureen, Kaushal D. Vora, The Australian National Univ. (Australia); Luca Carletti, Costantino De Angelis, Univ. degli Studi di Brescia (Italy); Chennupati Jagadish, Yuri S. Kvishar, Dragomir N. Neshev, The Australian National Univ. (Australia). .............................................................. [10228-16]
Low power symmetry breaking and improved figure of merit for metasurface far-field plasmonic nanodipsolar resonances, Mahmoud M. R. Elsawy, Institut Fresnel (France) and Aix-Marseille Univ. (France). ........................................ [10228-17]
Nonlinear optical effects in organic microstructures, Vladimir B. Novikov, Evgeniy A. Mamovon, Irina A. Kolmychek, Denis A. Kopilov, Tatiana V. Murzina, M.V. Lomonosov Moscow SU (Russian Federation); Dasari Venkatkrishnarao, YSLV Narayana, Rajadurai Chandrasekar, Univ. of Hyderabad (India). .......................................................... [10228-18]
All-optically tunable EIT-like dielectric metasurfaces hybridized with thin-phase change material layers, Emilija Petrinovic, Concita Sibilia, Sapienza Univ. di Roma (Italy). .......................................................... [10228-19]
Second harmonic generation on self-assembled GaAs/Au nanowires with thickness gradient, Alessandro Belardini, Grigore Leahu, Marco Centini, Roberto Li Voti, Eugenio Fazio, Concita Sibilia, Sapienza Univ. di Roma (Italy); Diego Repetto, Francesco Buatier de Mongeot, Univ. degli Studi di Genova (Italy). .......................................................... [10228-20]
Ultrafast UV absorption spectroscopy of 2D crystals, Felice Guseule, Carlo Altucci, Univ. degli Studi di Napoli Federico II (Italy). .......................................................... [10228-21]
Lunch/Exhibition Break ........................... Tue 12:40 to 13:40

SESSION 5 .............................. TUE 13:40 TO 15:00
Fibres
Session Chair: Yuriy S. Kvishar, Australian National Univ. (Australia)
Thermal optical nonlinearity in photonic crystal fibers filled with nematic liquid crystals doped with gold nanoparticles, Piotr Lesiak, Daniel Budaszewski, Karolina Bednarska, Piotr Sobotka, Milosz S. Chyłkowski, Tomasz R. Woliński, Warsaw Univ. of Technology (Poland) .......................................................... [10228-22]
Route to high-energy dissipative soliton resonance pulse in a dual amplifier figure-of-eight fiber laser, Mohamed Salhi, Georges Semaan (Taiwan); and Jieying Wang, Jiandong Bai, Jun He, Université Paris-Saclay, CNRS (France) .......................................................... [10228-23]
Bright-dark rogue wave in mode-locked fibre laser, Hani Khashi, Aston Univ. (United Kingdom); Stanislav A. Kolpakov, Arndt Martens, Aston Institute for Photonics Technologies, Aston Univ. (United Kingdom); Chengbo Mou, Shanghai Univ. (China); Sergey V. Sergeyev, Aston Institute for Photonics Technologies, Aston Univ. (United Kingdom). .......................................................... [10228-24]
Rogue waves driven by polarization instabilities in a long ring fiber oscillator, Stanislav A. Kolpakov, Hani Khashi, Sergey V. Sergeyev, Aston Univ. (United Kingdom). .......................................................... [10228-25]

Wednesday 26 April

Conference 10228 continued

SESSION 6 .............................. TUE 15:30 TO 18:10
Applications
Session Chair: Mario Bertolotti, Sapienza Univ. di Roma (Italy)
Photoinduced second harmonic generation in stoichiometric silicon nitride waveguides, Marco A. G. Porcel, Univ. Twente (Netherlands); Jörn P. Epping, Marcel Hoeckman, Arne Leinse, René G. Heideman, Twente BV (Netherlands); Klaus-Jochen Boller, Peter J. M. van der Slot, Univ. Twente (Netherlands). .......................................................... [10228-26]
Stimulated Raman microscopy: Implementation and investigation of annulosa, Annalisa D’Arco, Maria Antonietta Ferrara, Maurizio Indolfi, Vitaliano Tufano, Istituto per la Microelettronica e Microsistemi, Consiglio Nazionale delle Ricerche (Italy); Luigi Zeni, Seconda Univ. degli Studi di Napoli (Italy); Luigi Sirieto, Istituto per la Microelettronica e Microsistemi, Consiglio Nazionale delle Ricerche (Italy). .......................................................... [10228-27]
Laser-induced periodic surface structure formation: investigation of the effect of nonlinear absorption of laser energy in different materials, Yoann Levy, Thibault J. Y. Derrien, HILASE Ctr. (Czech Republic); Nadezhdra M. Bulgakova, HILASE Ctr. (Czech Republic), Institute of Thermophysics, SB RAS (Russian Federation); Evgeny L. Gurevich, Ruhr-Univ. Bochum (Germany); Tomáš Mocek, HILASE Ctr. (Czech Republic). .......................................................... [10228-28]
Harmonically mode-locked quantum cascade lasers for mid-infrared frequency comb generation, Marco Piccardo, Harvard School of Engineering and Applied Sciences (United States); Dmitry Kazakov, Paul Chevallier, Harvard Univ. (United States); Tobias Mansuripur, Pender Technologies (United States); Feng Xie, Kevin M. Lascola, Chung-en Zho, Thorlabs Quantum Electronics (United States); Alexey A. Belyanin, Texas A&M Univ. (United States); Federico Capasso, Harvard School of Engineering and Applied Sciences (United States). .......................................................... [10228-29]
Parametric Raman anti-Stokes laser at 503 nm with phase-matched collinear beam interaction of orthogonally polarized Raman components in calcite under 532 nm 20 ps laser pumping, Sergei Smetanin, A. M. Prokhorov General Physics Institute of the Russian Academy of Sciences (Russian Federation); Michal Jelinek, Václav Kubáček, Czech Technical Univ. in Prague (Czech Republic). .......................................................... [10228-30]
Numerical simulation and comparison of nonlinear self-focusing based on iteration and ray tracing, Xiaotong Li, Weiwei Wang, Zhaofeng Cen, Zhejiang Univ. (China). .......................................................... [10228-31]
Graphene quantum dots with nitrogen-doped content dependence for highly efficient dual-modality photodynamic antimicrobial therapy and bioimaging, Wen-Shuo Kuo, China Medical Univ. (Taiwan). .......................................................... [10228-32]
All-optical variable-length packet router with contention resolution based on wavelength conversion, Rim Farhat, Ecole Supérieure des Communications de Tunis (Tunisia); Mourad Menif, SUPCOM (Tunisia); Amel Farhat, Ecole Supérieure des Communications de Tunis (Tunisia). .......................................................... [10228-33]
Conference 10228 continued

**Tunneling current emission spectrum of biased impurity in the presence of electron-phonon interaction.** Vladimir N. Mantsevich, Natalya Maslova, M.V. Lomonosov Moscow SU (Russian Federation); Petr Arsevey, P.N. Lebedev Physical Institute (Russian Federation). \[10228-37\]

**Dynamic photonic crystals dimensionality tuning by laser beams polarization changing.** Vladimir N. Mantsevich, Alexander M. Smirnov, Yana V. Valchuk, Yulia V. Stebakova, Ivan V. Tikhonov, M.V. Lomonosov Moscow SU (Russian Federation). \[10228-38\]

**Interplay between convection and bistability in a pattern forming system.** Nicolas Marsal, Lionel Weicker, Delphine Woltersberger, Marc Sciamanna, CentraleSupélec (France). \[10228-39\]

**Smooth spectral broadening in single-mode fiber.** Viktor Pajer, ELI-HU Nonprofit Kft. (Hungary); Ester Smygel, Benjamin Percsille, Ctr. Lasers Intenses et Applications (France), Jean-Christophe Delages, Eric Cormier, Ctr. Lasers Intenses et Applications, Univ. Bordeaux 1 (France). \[10228-40\]

**Photo-induced nonlinear absorption in carbon nanostructures.** Rimma S. Zatrudina, Vladislav Y. Gribkov, Volgograd State Univ. (Russian Federation). \[10228-41\]

**Poling dynamics of an EO active material using parallel-plate electrodes.** Eliza Linina, Edgars Nitis, Martins A. Rutkis, Institute of Solid State Physics, Univ. of Latvia (Latvia). \[10228-42\]

**Measuring dispersion in nonlinear crystals beyond detectors’ spectral range.** Maria Misiaszek, Andrzej Gajewski, Piotr L. Kolenderski, Nicolaus Copernicus Univ. (Poland). \[10228-43\]

**Generation of intensive surface plasmon polariton pulses due to the induced modulation instability effect.** Sergey Moiseev, Ulyanovsk State Univ. (Russian Federation) and Institute of Radio Engineering and Electronics (Russian Federation); Dmitry A. Korobko, Igor O. Zolotovskii, Ulyanovsk State Univ. (Russian Federation); Andrei Fotiadis, Ulyanovsk State Univ. (Russian Federation) and Univ. de Mons (Belgium). \[10228-44\]

**Generation of wide spectrum and pedestal-free pulse compression in highly nonlinear dispersion increasing fiber.** Dmitry A. Korobko, Ulyanovsk State Univ. (Russian Federation); Andrei Fotiadis, Ulyanovsk State Univ. (Russian Federation) and Univ. de Mons (Belgium); Dmitrii A. Stoliarov, Ulyanovsk State Univ. (Russian Federation); Alex A. Sysolyatin, Ulyanovsk State Univ. (Russian Federation) and A. M. Prokhorov General Physics Institute of the Russian Academy of Sciences (Russian Federation); Igor O. Zolotovskii, Ulyanovsk State Univ. (Russian Federation). \[10228-45\]

**Modulation instability of wave packets propagating in inhomogeneous nonlinear fiber.** Vichtor A. Lapin, Ulyanovsk State Univ. (Russian Federation); Andrei Fotiadis, Ulyanovsk State Univ. (Russian Federation) and Univ. de Mons (Belgium); Dmitry Igorevich Sementsov, Igor O. Zolotovskii, Ulyanovsk State Univ. (Russian Federation). \[10228-46\]

**The impact of dispersion of the ultrashort light pulses on the THz radiation formation from asymmetric air plasma.** Krisztina Sárosi, ELI-ALPS Research Institute (Hungary); Roland Flender, Univ. of Szeged (Hungary); Ádám Börzsönyi, ELI-ALPS Research Institute (Hungary) and Univ. of Szeged (Hungary); Viktor Chikan, ELI-ALPS Research Institute (Hungary) and Kansas State Univ. (United States). \[10228-47\]

**Creation technique and nonlinear optics of dynamic one-dimensional photonic crystals in colloidal solution of quantum dots.** Alexander M. Smirnov, Anastasiya D. Golinskaya, M.V. Lomonosov Moscow SU (Russian Federation); Kseniia V. Ezhova, ITMO Univ. (Russian Federation); Yuliya V. Stebakova, Maria V. Koziowa, Yana V. Valchuk, Vladimir N. Mantsevich, Vladimir S. Dneprovskii, M.V. Lomonosov Moscow SU (Russian Federation). \[10228-48\]

**Automatic method for features extraction for images achieved by stimulated Raman scattering microscopy.** Nadia Brancati, ICAR CNR (Italy); Annalisa D’Arco, Maria Antonietta Ferrara, Maurizio Indolfi, Vittalino Tufano, Istituto per la Microelettronica e Microsistemi, Consiglio Nazionale delle Ricerche (Italy); Luigi Zeni, Seconda Univ. degli Studi di Napoli (Italy); Luigi Sirleto, Istituto per la Microelettronica e Microsistemi, Consiglio Nazionale delle Ricerche (Italy); Maria Frucci, ICAR CNR (Italy). \[10228-49\]

**TiN Nanoparticles for enhanced THz generation from LT-GaAs-based photoconductive antennas.** Oday Abdulmunem, Khaleel Hassoon, Philipps-Univers. Marburg (Germany); Mahmoud Gaafar, Technische Univ. Hamburg-Harburg (Germany); Arash Rahimi-Iman, Jan C. Balzer, Philipps-Univers. Marburg (Germany). \[10228-50\]
CONFERENCE 10229

Monday–Tuesday 24–25 April 2017 • Proceedings of SPIE Vol. 10229

Photon Counting Applications

Conference Chairs: Ivan Prochazka, Czech Technical Univ. in Prague (Czech Republic); Roman Sobolewski, Univ. of Rochester (United States); Ralph B. James, Savannah River National Lab. (United States)

Programme Committee: Josef Blazej, Czech Technical Univ. in Prague (Czech Republic); Ulrich Schreiber, Technische Univ. München (Germany); Valery Zwiller, KTH Royal Institute of Technology (Sweden)

MONDAY 24 APRIL

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

SESSION 1 ................................... MON 10:30 TO 12:20

Superconducting Photon Counting I

Session Chair: Roman Sobolewski, Univ. of Rochester (United States)

Energy-efficient superconducting single flux quantum technology for integration with optical circuits (Invited Paper), Oleg A. Mukhanov, HYPRE, Inc. (United States) .................................................. [10229-1]

Superconducting nanowire single-photon detectors: recent advances (Invited Paper), Xiaolong Hu, Xiaotian Zhu, Chao Gu, Yuhao Cheng, Hao Wu, Haiyi Liu, Qianli Liu, Kun Yin, Zuzeng Lin, Tianjin Univ. (China) .................................................. [10229-2]

SNSPD with parallel nanowires (Invited Paper), Mikkel Ejrnaes, CNR-SPIN (Italy); Loredana Parlato, CNR-SPIN (Italy) and Univ. degli Studi di Napoli Federico II (Italy); Alessandro Gaggero, Francesco Mattioli, Roberto Leoni, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Gianpiero Pepe, CNR-SPIN (Italy) and Univ. degli Studi di Napoli Federico II (Italy); Roberto Cristiano, CNR-SPIN (Italy) .................................................. [10229-3]

Amplitude distributions of dark counts and photon counts in NbN superconducting single-photon detectors integrated with the HEMT readout, Wojtek Slysz, Institute of Electron Technology (Poland); Jennifer Kitsygorsky, Univ. of Rochester (United States) and Technische Univ. Delft (Netherlands); Raymond N. Schouten, Sander N. Dorenbos, Jennifer Kitaygorsky, Univ. of Rochester (United States) and Technische Univ. Delft (Netherlands); Elisabeth Reiger, Valery Zwiller, Technische Univ. Delft (Netherlands); Roman Sobolewski, Univ. of Rochester (United States) .................................................. [10229-4]

Lunch Break .................................. Mon 12:20 to 13:40

SESSION 2 .................................. MON 13:40 TO 15:30

X-ray Photon Detection

Session Chair: Ralph B. James, Savannah River National Lab. (United States)

Position-sensitive CdZnTe detectors with virtual Frisch-grid design for X- and gamma-ray sensors (Invited Paper), Aleksey E. Bolotnikov, Giuseppe S. Camarda, Brookhaven National Lab. (United States); Soren Chang, NYU Tandon School of Engineering (United States); Carly Cherches, Yonggang Cui, Rubi Gu, Gianluigi De Geronimo, Jack Fried, Brookhaven National Lab. (United States); Deidra Hodges, The Univ. of Texas at El Paso (United States); Anwar Hossain, Brookhaven National Lab. (United States); Anna McGilloway, The City College of New York (United States); Matthew Petryk, Binghamton Univ. (United States); Madisen Siegel, Brookhaven National Lab. (United States); Luis Ocampo, The Pennsylvania State Univ. (United States) and Brookhaven National Lab. (United States); Ge Yang, Emerson Vernon, Brookhaven National Lab. (United States); Vally Vidal, The Univ. of Texas at El Paso (United States); Ralph B. James, Savannah River National Lab. (United States) .................................................. [10229-5]

Achieving subpixel resolution with time-correlated transient signals in pixelated CdZnTe gamma-ray sensors using a focused laser beam, Luis A. Ocampo Giraldo, The Pennsylvania State Univ. (United States); Aleksey E. Bolotnikov, Giuseppe S. Camarda, Yonggang Cui, Gianluigi De Geronimo, Rubi Gu, Jack Fried, Anwar Hossain, Brookhaven National Lab. (United States); Kenan Unlu, The Pennsylvania State Univ. (United States); Emerson Vernon, Ge Yang, Brookhaven National Lab. (United States); Ralph B. James, Savannah River National Lab. (United States) .................................................. [10229-6]

(Cd,Mg)Te and (Cd,Mn)Te single crystals for time-resolved detection of x-ray photons, John Serafini, Univ. of Rochester (United States); Sudhir B. Trivedi, Bramrose Corp. of America (United States); Dominika Kochanowska, Marta Witkowska-Baran, Andrzej Mycielski, The Institute of Physics (Poland); James P. Knauer, Roman Sobolewski, Univ. of Rochester (United States) .................................................. [10229-7]

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

Optics + Optoelectronics 2017: Plenary Session I

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

TUESDAY 25 APRIL

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

Optics + Optoelectronics 2017: Plenary Session II

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

SESSION 3 ............................... TUE 10:10 TO 12:00

Solid State Photon Counting and Its Applications I

Session Chair: Ivan Prochazka, Czech Technical Univ. in Prague (Czech Republic)

High-performance integrated pick-up circuit for SPAD arrays in time-correlated single photon counting (Invited Paper), Giulia Acconcia, Alessandro Cominelli, Pietro Peronio, Ivan Rech, Massimo Ghioni, Politecnico di Milano (Italy) .................................................. [10229-9]

High-efficiency dynamic routing architecture for the readout of single photon avalanche diode arrays in time-correlated measurements, Alessandro Cominelli, Giulia Acconcia, Pietro Peronio, Ivan Rech, Massimo Ghioni, Politecnico di Milano (Italy) .................................................. [10229-10]

Photon counting detector package optimized for laser time transfer with sub-picosecond limiting precision and stability, Ivan Prochazka, Josef Blazej, Czech Technical Univ. in Prague (Czech Republic); Jan Kodet, Czech Technical Univ. in Prague (Czech Republic) and Technische Univ. München (Germany) .................................................. [10229-11]

Development of a high-performance multichannel system for time-correlated single photon counting, Pietro Peronio, Alessandro Cominelli, Giulia Acconcia, Ivan Rech, Massimo Ghioni, Politecnico di Milano (Italy) .................................................. [10229-12]

Development and characterization of an 8x8 SPAD-array module for gigacount per second applications, Francesco Ceccarelli, Angelo Guinatti, Ivan Labanca, Ivan Rech, Massimo Ghioni, Politecnico di Milano (Italy) .................................................. [10229-13]

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

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THIS PROGRAMME IS CURRENT AS OF 30 JANUARY 2017
SESSION 4 .......................... TUE 13:20 TO 15:00

Superconducting Photon Counting II

Session Chair: Oleg A. Mukhanov, HYPRES, Inc. (United States)

High performance single photon detectors: where is the limit? (Invited Paper), Valery Zwiller, Technische Univ. Delft (Netherlands); Iman Esmaili Zadeh, Gabriele Bulgariini, Niels Loos, Sergiy Dobrovolskiy, Single Quantum (Netherlands); Julien R. Zichi, KTH Royal Institute of Technology (Sweden); Sander Dorenbos, Single Quantum (Netherlands). [10229-14]

Superconducting nanowire single photon detector for coherent detection of weak signals (Invited Paper), Gregory N. Goltisman, Mikhail Shcherbatenko, Yury V. Lobanov, Vadim V. Kovalyuk, Alexander A. Korneev, Moscow State Pedagogical Univ. (Russian Federation); Oliver Kahl, Karlsruher Institut für Technologie (Germany); Simone Ferrari, Wolfram H. P. Pernice, Karlsruher Institut für Technologie (Germany) and Fachhochschule Münster (Germany). [10229-15]

Superconducting order parameter fluctuations in NbN/NiCu and NbTIN/NiCu bilayer nanostripes for photon detection. Wolfgang Lang, Bernd Alchner, Georg Zechner, Florian Jausrer, Univ. Wien (Austria); Andrii Klimov, Institute of Electron Technology (Poland); Roman Puźniak, The Institute of Physics (Poland); Wojciech Słysz, Marek Guziewicz, Renata Krużak, Maciej Wegrzański, Institute of Electron Technology (Poland); Roman Sobolewski, Univ. of Rochester (United States). [10229-16]

Investigation of dark counts in innovative materials for superconducting nanowire single photon detector applications. Loredana Parlato, CNR-SPIN (Italy) and Univ. degli Studi di Napoli Federico II (Italy); Mikkel Eijnaes, CNR-SPIN (Italy); Umberto Nasti, Univ. degli Studi di Napoli Federico II (Italy); Riccardo Arpaia, Chalmers Univ. of Technology (Sweden); Thoivo Taino, Saitama Univ. (Japan); Thilo Bauch, Chalmers Univ. of Technology (Sweden); Hiroaki Myoren, Saitama Univ. (Japan); Roman Sobolewski, Institute of Electron Technology (Poland) and Univ. of Rochester (United States); Francesco Tafuri, Univ. degli Studi di Napoli Federico II (Italy) and CNR-SPIN (Italy); Floriana Lombardi, Chalmers Univ. of Technology (Sweden); Roberto Cristiano, CNR-SPIN (Italy); Giampero P. Pepe, Istituto SPIN - CNR (Italy) and Univ. degli Studi di Napoli Federico II (Italy). [10229-17]

SESSION 5 ............................ TUE 15:30 TO 17:20

Solid State Photon Counting and Its Applications II

Session Chair: Josef Blazej, Czech Technical Univ. in Prague (Czech Republic)

Satellite laser ranging in the near-infrared regime (Invited Paper), Johann Eckl, Bundesamt für Kartographie und Geodäsie (Germany); K. Ulrich Schreiber, Technische Univ. München (Germany); Torben Schüler, Bundesamt für Kartographie und Geodäsie (Germany). [10229-18]

Satellite and Lunar laser ranging in infrared. Clement Courde, Jean-Marie Torre, Observatoire de la Côte d'Azur (France). [10229-19]


Quantum state characterization by photon-number-resolving detectors, Maria Bondani, Consiglio Nazionale delle Ricerche (Italy); Alessia Allevi, Univ. degli Studi dell'Insubria (Italy). [10229-21]

Ultrahigh optical responsivity of semiconducting asymmetric nanochannel diodes for photon detection. Roman Sobolewski, Yunus E. Akbas, Gary W. Wicks, Univ. of Rochester (United States); Tomas Plecenik, Pavel Durina, Andrej Plecenik, Comenius Univ. in Bratislava (Slovakia). [10229-22]
Quantum Optics and Quantum Information Transfer and Processing

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

Programme Committee: Uliik Lund Andersen, Technical Univ. of Denmark (Denmark); Marco Bellini, Istituto Nazionale di Ottica (Italy); Nicolas J. Cerf, Univ. Libre de Bruxelles (Belgium); Miloslav Dusek, Palacky Univ. Olomouc (Czech Republic); Jens S. Elser, Freie Univ. Berlin (Germany); Alexander I. Lvovsky, Univ. of Calgary (Canada); Fabio Sciarrino, Univ. degli Studi di Roma La Sapienza (Italy); Andrew J. Shields, Toshiba Research Europe Ltd. (United Kingdom); Juan P. Torres, IFCO - Institut de Ciencias Fotóniques (Spain)

SESSION 1 ............................ THU 11:00 TO 13:00

Quantum Communication Systems and Components

Session Chair: Konrad Banaszek, Univ. of Warsaw (Poland)

Recent experimental progress towards global quantum communication (Invited Paper), Qiang Zhang, USTC (China) … [10230-1]

Quantum relays using semiconductor entangled light sources (Invited Paper), Jan Huwer, Toshiba Research Europe Ltd (United Kingdom); Martin Felle, Toshiba Research Europe Ltd (United Kingdom) and Electrical Division, Department of Engineering, University of Cambridge (United Kingdom); Mark Stevenson, Joanna Skiba-Szymanska, Martin B. Ward, Toshiba Research Europe Ltd (United Kingdom); Ian Farrer, Cavendish Laboratory, University of Cambridge (United Kingdom); Richard V. Penty, Electrical Division, Department of Engineering, University of Cambridge (United Kingdom); David A. Ritchie, Cavendish Laboratory, University of Cambridge (United Kingdom); Andrew J. Shields, Toshiba Research Europe Ltd (United Kingdom) … [10230-2]

Spectroscopy of non-interfering photons through nonlinear integrated optics Mach-Zehnder interferometer, Marco Chiari, Gian Giuseppe Benenti, Agostino Desalvo, Istituto per la Microelettronica e Microsistemi Consiglio Nazionale delle Ricerche (Italy) … [10230-3]

Reducing detection noise of a photon pair in a dispersive medium by controlling its spectral entanglement, Mikołaj Lasota, Karolina Sedziak, Piotr L. Kolenderski, Nicolaus Copernicus Univ. (Poland) … [10230-4]

SESSION 2 .............................. THU 14:00 TO 15:30

Quantum Communication Protocols

Session Chair: Jan Huwer, Toshiba Research Ltd. (United Kingdom)

Quantum digital signatures in optical fiber networks (Invited Paper), Gerald S. Buller, Heriot-Watt Univ. (United Kingdom) … [10230-5]

Device-independent quantum key distribution with single-photon sources (Invited Paper), Alejandro Mattar, Dani Cavalcanti, Jan Kolodynski, IFCO - Institut de Ciencias Fotóniques (Spain); Paul Skrzypczyk, Univ. of Bristol (United Kingdom); Antonio Acín, IFCO - Institut de Ciencies Fotóniques (Spain); Konrad Banaszek, Univ. of Warsaw (Poland) … [10230-6]

High fidelity spin-orbit transduction of an entangled photonic qubit in vortex fibers, Brian T. Kirby, Michael Brodsky, U.S. Army Research Lab (United States); Soner Atalay (Russoi); Bedoin Univ. (United States) and Berkeley Lights, Inc. (United States); Siddharth Ramachandran, Boston Univ. (United States) … [10230-7]

Homodyne-like detection with photon-number resolving detectors for coherent-state discrimination, Alessia Allevi, Univ. degli Studi dell’Insubria (Italy); Matteo Bina, Stefano Olivares, Univ. degli Studi di Milano (Italy); Maria Bondani, Institute for Photonics and Nanotechnologies, Consiglio Nazionale delle Ricerche (Italy) … [10230-8]

Quantum fingerprinting without a shared phase reference, Michal Lipka, Michal Jachura, Marcin Jarzyna, Konrad Banaszek, Univ. of Warsaw (Poland) … [10230-9]

Lunch Break …… Thu 13:00 to 14:00

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

Quantum Technologies with Atomic and Solid State Systems

Session Chair: Jan Kolodynski, Univ. of Warsaw (Poland)

Highly-stable optical frequency generation based on laser cooled and trapped ions (Invited Paper), Ondrej Cip, Minh Tuan Pham, Adam Lešundak, Václav Hucí, Martin Cízek, Petr Jedlička, Jan Hrabina, Simon Reburia, Josef Lazar, Institute of Scientific Instruments of the ASCR, v.v.i. (Czech Republic); Petr Obšíl, Palacky Univ. Olomouc (Czech Republic); Radim Filip, Institute of Scientific Instruments of the ASCR, v.v.i. (Czech Republic); Palacky Univ. Olomouc (Czech Republic); Lukáš Slodkova, Palacky Univ. Olomouc (Czech Republic) … [10230-10]

Dynamics of entanglement near periodic plasmonic nanostructures, Nikos Ilipoulos, Andreas F. Terzis, Univ. of Patras (Greece); Vassilios Yannopapas, National Technical Univ. of Athens (Greece); Emmanuel Paspalakis, Univ. of Patras (Greece) … [10230-11]

852nm triggered single-photon source based on single cesium atoms trapped in a microscopic optical tweezer, Junmin Wang, Bei Liu, Gang Jin, Guang Yang, Kong Zhang, Dongliang Pei, Jun He, Shanxi Univ. (China) … [10230-12]

Large photocurrent gain in the type II n-GaSb/InAs/p-GaSb heterostructure with a single quantum well, Maya P. Měihálová, Igor A. Andreiev, Gleb G. Konovalov, Leonid Danilov, Eduard V. Ivanov, Natalia Ilniskaya, Ioffe Institute, Russian Academy of Sciences (Russian Federation); Roman Levin, Boris Pushnyi, Ioffe Institute, Russian Academy of Sciences (Russian Federation); Maksym Yakovenko, Ioffe Institute, Russian Academy of Sciences (Russian Federation) … [10230-13]

THIS PROGRAMME IS CURRENT AS OF 30 JANUARY 2017
CONFERENCE 10231
Monday–Thursday 24–27 April 2017 • Proceedings of SPIE Vol. 10231

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); Robert A. Lieberman, Lumoptix, LLC (United States)

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); Stefania Campopiano, Univ. degli Studi di Napoli Parthenope (Italy); Artur Dybko, Warsaw Univ. of Technology (Poland); Günter G. Gauglitz, Eberhard Karls Univ. Tübingen (Germany); Pedro Jorge, INESC Porto (Portugal); Aleksandra Lobnik, Univ. of Maribor (Slovenia); Ramaler Narayanaswamy, The Univ. of Manchester (United Kingdom); Claudia Preininger, AIT Austrian Institute of Technology GmbH (Austria); Terro Soukka, Univ. of Turku (Finland); Reinhardt Willsch, Insttitut für Photonische Technologien e.V. (Germany)

MONDAY 24 APRIL

OPENING REMARKS
SESSION 1 MON 9:20 TO 10:30
Raman Spectroscopy
Tip-enhanced Raman spectroscopy for nanoscale chemical analysis and imaging (Invited Paper), Renato Zenobi, ETH Zürich (Switzerland) ...................................................... [10231-1]
SERS substrates for in-situ biosensing, Priyamvada Venugopalan, Austrian Institute of Technology GmbH (Austria); Nester Quilis, Dostalek Jakub, Knoll Wolfgang, AIT Austrian Institute of Technology GmbH (Austria) ................................................. [10231-2]
SERS investigations and electrical recording of neuronal networks with three-dimensional plasmonic nanoantennas, Francesco De Angelis, Istituto Italiano di Tecnologia (Italy) ........................................ [10231-3]

SESSION 2 MON 11:00 TO 12:30
Plasmonic Sensing I
TBD-Plasmonic Sensing (Invited Paper), Wolfang Fritzspehr, Leibniz-Institut für Photonische Technologie e.V. (Germany) ........................................ [10231-4]
Silicon-based high-index contrast sensing surface, Muhammad Umar Khan, John Justice, Pierre P. Lovera, Brian Corbett, Tyndall National Institute (Ireland) .......................................................... [10231-5]
Plasmonically enhanced fluorescence biosensor with aptamer ligand, Khulan Sergelen, Daria Kotlarek, Jakub Dostalek, AIT Austrian Institute of Technology GmbH (Austria) ........................................ [10231-6]
Wide-field surface plasmon microscopy of nano- and microparticles: features, benchmarking, limitations, and bioanalytical applications, Shvakin Nizamov, Vitali Scherbahn, Vladimir M, Miskev, Brandenburgische Technische Universität Cottbus (Germany) ................. [10231-7]
Lunch Break .................................................................. Mon 12:30 to 13:50

SESSION 3 MON 13:50 TO 15:30
Plasmonic Sensing II
Nanostructure-enhanced surface plasmon resonance imaging, Barbora Špašková, Nicholas Scott Lynn, Jiří Slabý, Markéta Bocková, Jiri Homola, Institute of Photonics and Electronics (Czech Republic) ....................................................... [10231-8]
Fabrication of optical nanopore on the Au membrane by using electron beam treatment for next-generation nanobio sensor device, Seong Soo Choi, Sun Moon Univ. (Korea, Republic of) and Sungkyunkwan Univ. (Korea, Republic of); Myoung Jin Park, Chul Hee Han, Sae-Joong Oh, Sun Moon Univ. (Korea, Republic of); Yong-Sang Kim, Sungkyunkwan Univ. (Korea, Republic of); Dooh Jae Park, Hallym Univ. (Korea, Republic of); Nam Kyou Park, Seoul National Univ. (Korea, Republic of) ......................................................... [10231-9]
Au-based thin film metallic glasses for plasmonic sensor applications, Cheng Wang, Li-Wei Nien, Y.-Chen Lai, Han-Chia Ho, Chun-Hway Hsieh, National Taiwan Univ. (Taiwan) .................................................. [10231-10]
Investigation of plasmonic transmission in UT shaped grating arrays, Yasa Eksioglu Ozok, Istanbul Kemerburgaz Univ. (Turkey); Arif E. Cetin, Massachusetts Institute of Technology (United States) ............................................ [10231-11]
Control of plasmonic properties in thermally oxidized gallium nanowires, Sergio R. Gómez, Andrés Redondo-Cubero, Univ. Autónoma de Madrid (Spain); Emilio Nogales Díaz, Univ. Complutense de Madrid (Spain); Luis Vázquez Burgos, Javier Palomares, Instituto de Ciencia de Materiales de Madrid (Spain); José Luis Pau, Univ. Autónoma de Madrid (Spain) .............................................................. [10231-12]

PLENARY SESSION MON 16:00 TO 17:55
Optics + Optoelectronics 2017: Plenary Session I
For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

TUESDAY 25 APRIL

PLENARY SESSION TUE 9:00 TO 9:50
Optics + Optoelectronics 2017: Plenary Session II
For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

SESSION 4 TUE 10:20 TO 12:00
Components, Subsystems, Data Processing I
A new concept for noninvasive optical sensing: random lasing, Federico Tommasi, Emilno Igesti, Lorenzo Fini, Fabrizio Martelli, Stefano Cavalleri, Univ. degli Studi di Firenze (Italy) .................. [10231-13]
Use of VLC for indoors navigation with RGB LEDs and a SiGe photodetector, Paula Louro, Instituto de Engenharia de Lisboa (Portugal) and Ctr. of Technology and Systems, UNINOVA (Portugal); J. Costa, Manuel Augusto Vieira, Manuela Vieira, Instituto Superior de Engenharia de Lisboa (Portugal) and Ctr. of Technology and Systems, UNINOVA (Portugal) .................................................. [10231-14]
Coupled data transmission and indoor positioning by using transmitting trichromatic white LEDs and a SiC/MIMX mobile receiver, Manuela Vieira, Instituto Superior de Engenharia de Lisboa (Portugal); Manuel Augusto Vieira, Ctr. of Technology and Systems, UNINOVA (Portugal); Pedro Vieira, Instituto de Telecomunicacões, Instituto Superior Técnico (Portugal); Paula Louro, Ctr. of Technology and Systems, UNINOVA (Portugal) ........ [10231-15]
Interrogation of super-structured FBG sensors based on discrete prolateral sequences, Cristian Andres Triana Infante, Univ. Politécnica de València (Spain) and Univ. Nacional de Colombia (Colombia); Daniel Pastor, Univ. Politécnica de València (Spain) .......................................................... [10231-16]
Smart image selection algorithm in analysis plane of the optical-electronic angle measuring sensor, Anton A. Nogin, Igor A. Konyakhin, ITMO Univ. (Russian Federation) .......................... [10231-17]

SESSION 5 TUE 13:20 TO 15:00
Components, Subsystems, Data Processing II
GeSn/Ge quantum well photodetectors for short-wave infrared photodetection: experiments and modeling, Chia-Ho Tsai, Guo-En Chang, National Chung Cheng Univ. (Taiwan) .................. [10231-18]
Compressive spectroscopy by spectral modulation, Yaniv Oiknine, Isaac Y. August, Adrian Stern, Ben-Gurion Univ. of the Negev (Israel) .................. [10231-19]
Speckle tracking approaches in speckle correlation sensing, Thomas O. H. Charrett, Cranfield Univ. (United Kingdom); Krzysztof Kowalski, Cranfield Univ. (United Kingdom) and Silesian Univ. of Technology (Poland); Ralph P. Tatam, Cranfield Univ. (United Kingdom) .................. [10231-20]
The research of the possibility of the dispersion method sensitivity increase for the horizontal temperature gradient determination by analyzing the diffraction pattern.

Ivan S. Nekrylov, ITMO Univ. (Russian Federation); Alexander N Timofeev, Maksim A Kleshchenok, Univ of ITMO (Russian Federation). [10231-21]

Laser imaging through turbid media via speckle correlation.

Guowei Li, Dayan Li, Guohai S itu, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences (China). [10231-22]

**WEDNESDAY 26 APRIL**

**SESSION 6** .......................... WED 9:00 TO 10:20

### Chemical Sensors I

**Analysis of mineral composition by infrared spectral imaging using quantum dot focal plane array sensor**, Chenhui Huang, Tomo Tanaka, NEC Corp. (Japan); Sota Kagami, NEC Corp. (Japan) and Institute for Nano Quantum Information Electronics, The Univ. of Tokyo (Japan); Yoshiki Nominya, National Institute of Advanced Industrial Science and Technology (Japan); Masahiro Kakuda, Institute for Nano Quantum Information Electronics, The Univ. of Tokyo (Japan); Katsuyuki Watanabe, Institute of Industrial Science, The Univ. of Tokyo (Japan); Sei Inoue, Kenji Nanba, NEC Corp. (Japan); Yuichi Igarashi, NEC Corp. (Japan) and Institute for Nano Quantum Information Electronics, The Univ. of Tokyo (Japan); Yuichiro Arakawa, Institute for Nano Quantum Information Electronics, The Univ. of Tokyo (Japan); Yashuhiro Arakawa, Institute for Nano Quantum Information Electronics, The Univ. of Tokyo (Japan); Kaoru Nakahara, NEC Corp. (Japan); Shin-ichi Yorozu, NEC Corp. (Japan) and Institute for Nano Quantum Information Electronics, The Univ. of Tokyo (Japan). [10231-23]

**Analysis of nanoparticles with an optical sensor based on carbon nanotubes**, Julia Stäb, Dominik Furin, Eberhard Karls Univ. Tübingen (Germany); Peter Fechner, Günther Proll, Biametrics GmbH (Germany); M. Laura Soriano Dotor, Celia Ruiz-Palomo, Miguel Valcárcel, Univ. de Córdoba (Spain); Günter Gauglitz, Eberhard Karls Univ. Tübingen (Germany). [10231-24]

**Oxygen sensing with an absolute optical sensor based on bluminescence**, Caterin Salas Redondo, Sebastian Reinke, TU Dresden (Germany). [10231-25]

**Long-period grating sensor-based detection of kerosene for monitoring of water contamination: a novel approach**, Siddharth Kaushik, Central Scientific Instrumentation Organisation (India); Umesh K. Tiwari, Rajesh Rajesh, Central Scientific Instruments Organisation (India); Ashok K. Paul, DAV Univ. (India); Ravindra K. Sinha, Central Scientific Instruments Organisation (India). [10231-26]

**SESSION 7** .......................... WED 10:50 TO 12:10

### Chemical Sensors II

**Discrimination of trace nitroaromatics using linear discriminant analysis on aerosol jet printed fluorescent sensor arrays**, Nico Bolse, Karlsruher Institut für Technologie (Germany); Ralph Eckstein, Karlsruher Institut für Technologie (Germany) and InnovationLab (Germany); Martin Schend, Anne Habermehl, Karlsruher Institut für Technologie (Germany); Gerardo Hernandez-Sosa, Carsten Eschenbaum, Uli Lemmer, Karlsruher Institut für Technologie (Germany) and InnovationLab GmbH (Germany). [10231-27]

**Infrared sensor for water pollution detection and monitoring**, Emeline Baudet, Univ. Pardubice (Czech Republic). [10231-28]

**A robust and reliable optical trace oxygen sensor**, Gary R. McDowell, A. Sheila Holmes-Smith, Mahesh Uyttendaele, Glasgow Caledonian Univ. (United Kingdom); Craig Mitchell, Patrick H. Shannon, SST Sensing Ltd (United Kingdom). [10231-29]

**Pocket size pH reader system using smart phone and fluorescent indicator paper**, Abbas Madani, Stefan M. Harazim, Vladimir Bolanos, IFW Dresden (Germany); Mortiz Kleineit, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Andreas Finn, TU Dresden (Germany); Ehsan Saei Gherehnezh, Libo Ma, Oliver G. Schmidt, IFW Dresden (Germany). [10231-30]

**Lunch/Exhibition Break** .......................... Wed 12:10 to 13:30

**SESSION 8** .......................... WED 13:30 TO 15:15

### Plenary Session

**Optics + Optoelectronics 2017: Plenary Session III**

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

### Physical Sensors

**Active optical remote sensing (AORS) sensors/instrumentations for NASA’s future Earth science missions (Invited Paper)**, Upendra N. Singh, NASA Langley Research Ctr. (United States). [10231-31]

**Monolithically integrated arrays of 3D microtubular vertical ring resonators on photonic waveguides for optofluoridal applications**, Abbas Madani, Stefan M. Harazim, Vladimir Bolanos, IFW Dresden (Germany); Mortiz Kleineit, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Andreas Finn, TU Dresden (Germany); Ehsan Saei Gherehnezh, Libo Ma, Oliver G. Schmidt, IFW Dresden (Germany). [10231-32]

**Black silicon n-type photodiodes with high response over wide spectral range**, Mikko A. Junutinen, Ville Vähnänsi, Päivikki Repo, Juha Heinonen, Timo Dönsberg, Hele I. Savin, Aalto Univ. (Finland). [10231-33]

**Acoustic waves in tilted fiber Bragg gratings for sensing applications**, Carlos A. F. Marques, Instituto de Telecomunicacões (Portugal) and Univ. de Aveiro (Portugal); Nélia J. Alberto, Instituto de Telecomunicacões (Portugal); Paulo Antunes, Instituto de Telecomunicacões (Portugal) and Univ. de Aveiro (Portugal); Catía J. Leitão, Univ. de Aveiro (Portugal); Fátima Fonseca Domingues, Instituto de Telecomunicacões (Portugal) and Univ. de Aveiro (Portugal); João Lemos Pinto, Univ. de Aveiro (Portugal); Paulo S. André, Instituto de Telecomunicacões (Portugal). [10231-34]

**Low-temperature oxidation in air of iron thin films monitored with long-period fiber gratings**, Luís Coelho, INESC TEC (Portugal) and Univ. do Porto (Portugal); Pedro Alberto da Silva Jorge, INESC TEC (Portugal); José Manuel Marques Martins de Almeida, INESC TEC (Portugal) and Univ. de Trás-os-Montes e Alto Douro (Portugal). [10231-35]

**Surface plasmon resonance prism coupler for enhanced circular dichroism/ birefringence sensing**, Quoc-Hung Phan, Yu-Lung Lo, National Cheng Kung Univ. (Taiwan). [10231-36]

### Poster Session

**Plenary Session** .......................... WED 17:45 TO 19:30

Conference attendees are invited to attend the Optics + Optoelectronics Symposium 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 7, and at http://spie.org/x25077.xml

**Vacuum temperature field simulation and experiments of four-mode differential laser gyroscope**, Xudong Yu, National Univ. of Defense Technology (China); Guangfeng Lu, College of Optoelectronic Science and Engineering, National Univ. of Defense Technology (China); Luo Hui, National Univ. of Defense Technology (China). [10231-44]

**Influence of the substrate layer and fixation materials for measuring the deformation of a standard telecommunication fiber G.652.D with a distributed system BOTDR**, Jan Nedoma, Marcel Fajkus, Jan Jargus, Karel Witas, Lukas Hajek, Vladimir Vašinek, VSB-Technical Univ. of Ostrava (Czech Republic). [10231-45]

**Analysis of the detection materials as resonant pads for attaching the measuring arm of the interferometer when sensing mechanical vibrations**, Jan Nedoma, Marcel Fajkus, VSB-Technical Univ. of Ostrava (Czech Republic); Karel Witas, VSB Technical Univ of Ostrava (Czech Republic); Vladimir Vašinek, VSB-Technical Univ. of Ostrava (Czech Republic). [10231-46]

**Analysis encapsulation of fiber Bragg gratings into polydimethylsiloxane for the needs of dynamic weighing**, Marcel Fajkus, Jan Nedoma, Martin Novak, Vladimir Vašinek, VSB-Technical Univ. of Ostrava (Czech Republic). [10231-47]

**Photovoltaic optical sensors for high-por power conversion and information transmission**, Emeline Baudet, National Cheng Kung Univ. (Taiwan); Svetlana Kozhuhovskaya, Maxim Z. Shvarts, Ioffe Institute (Russian Federation). [10231-48]
Conference 10231 continued

Autocollimation sensor to control the angular deformation with increased measurement ranges. Dmitriy Zagolov, Inna S. Kukaev, Daniil V. Safronov, Saint Petersburg Electrotechnical Univ. “LETI” (Russian Federation). ...............[10231-49]

Rydberg atom-based RF field measurements: spectroscopy of cesium Rydberg atoms in strong radio-frequency fields. Jianming Zhao, Sunbang Jia, Shanxi Univ. (China) .................[10231-50]

Detection of trace amount of NO₂ gas using tunable blue laser diode. Abdulrahman Aljalal, Wahedeh Al-Basheer, Khaled Gasm, Morad Hamada, King Fahd Univ. of Petroleum & Minerals (Saudi Arabia) ....[10231-51]

The increase in the starting torque of BLDC motor by applying of optical sensors. Kamil Plachta, Wroclaw Univ. of Science and Technology (Poland) ..................[10231-52]

A high resolution hand-held focused beam profiler. Jennyfer Zapata, Univ. Nac. Autónoma de Mexico (Mexico); Jesus Gardunio-Mejia, Jennyfer Zapata, Carolina Saravia, Universidad de Guadalajara (Mexico). ....[10231-53]

Simulation and research of the gamma-ray detectors based on the CsI crystals and silicon photomultipliers. Galina E. Romanova, Andrey V. Radilov, ITMO Univ. (Russian Federation); Viktor M. Denisov. Flagman Geo Ltd (Russian Federation); Aleksander B. Titov, Peter the Great St.Petersburg Polytechnic Univ. (Russian Federation); Ilya O. Bokaty, ITMO Univ. (Russian Federation). ..................[10231-54]

Evaluating inner surface roughness of inline/picoliter fiber optic spectrometer fabricated by an NUV femtosecond laser drilling. Masahiko Ishi, Shouichi Kubo, Kazuhiro Watanabe, Soka Univ. (Japan) ..........[10231-55]

Autocollimation sensor for measuring the angular deformations with the pyramidal prism reflector. Phong Hoang, Igor A. Konyakin, ITMO Univ. (Russian Federation). ............[10231-56]

Multiagent robotic systems’ ambient light sensor. Radda A. Iureva, Oleg S. Maslenitskov, Igor I. Komarov, ITMO Univ. (Russian Federation) .....................[10231-57]

Optical choppers with rotational elements: modeling, design and prototypes. Virgil-Floren Duma, Aurel Vlaicu Univ. of Arad (Romania); Silviu Cepoiu, Politehnica Univ. of Timisoara (Romania); Dorin Demian, Octavian Cira, Aurel Vlaicu Univ. of Arad (Romania) ..........[10231-58]

Optical signal processing for smart vehicle lighting system using a-HIN chalcogenide alloy. Chuanxin Teng, Fangda Yu, Yue Ding, Jie Zheng, Jilin Univ. (China). ..................[10231-59]

Novel techniques for optical sensor using single core multimode interferometer for fiber optic detection. Abdurahman Aljalal, Abdulrahman Aljalal, Shanxi Univ. (China); Shouzhuang Zhou, Shanxi Univ. (China) and North China Research Institute of Electro-Optics (China). ...............[10231-60]

Distributed acoustic sensing for surface and down-hole seismic monitoring. Wenhui Sun, Gaosheng Fang, China Electronics Technology Group Corp. No. 38 Research Institute (China) .................[10231-61]

Fiber point diffraction interferometer for beam propagation factor measurements. Bin Lan, Guoying Feng, Tao Zhang, Sichuan Univ. (China); Shouzhuang Zhou, Sichuan Univ. (China) and North China Research Institute of Electro-Optics (China). ...............[10231-62]

Green upconversion fluorescence temperature sensor based on erbium-doped phosphor. Edwin Pun, City Univ. of Hong Kong (Hong Kong, China). ..................[10231-63]

Construction, laboratory test of the fiber optic rotational seismograph FOSEm for rotational seismology area of interest. Anna Kurzych, Leszek R. Jaroszewicz, Leszek R. Jaroszewicz, Military Univ. of Technology (Poland); Jerzy K. Kowalski, m-Soft Sp. z oo (Poland) ..........[10231-64]

CO₂ sensing at atmospheric pressure using fiber Fabry-Perot interferometer. Wenwen Ma, Ruohui Wang, Xueguang Qiao, Northwest Univ. (China); Wenwen Ma, Ruohui Wang, Xueguang Qiao, Northwest Univ. (China). ..................[10231-65]

Experimental study of laser-trimmed surface acoustic wave delay line sensors. Flavio Nucciarelli, Encarnación Lorenzo, Iria Bravo, Eduardo Ruiz, José García Juan, ITMO Univ. (Russian Federation); Sergey M. Shkolnikov, Saint Petersburg Electrotechnical Univ. “LETI” (Russian Federation). ...............[10231-66]


Design of an optical sun sensor for a space application: a reliable passive sun tracking device for the SOLAR/SOLSPEC instrument. Nuno Pereira, David Boitel, Michel Berger, Ctr. of Technology and Systems, UNINOVA (Portugal). ....[10231-68]

Temperature sensing setup based on an aluminum coated Mach-Zehr interferometer. Eliana I. Pacheco, Univ. de Guanajuato (Mexico) ..........[10231-69]

Shack-Hartmann wavefront sensor using a Raspberry Pi embedded system. Ramiro Contreras-Martínez, Jesús Garduño-Mejía, Martha Rosete-Aguilar, Carlos J. Román-Moreno, Ctr. de Ciencias Aplicadas y Desarrollo Tecnológico (Mexico) ............[10231-70]

Splicing and shading of the special optical fibers. Michal Jelinek, Vaclav Hlavaty, Jan Hrabina, Bretislav Mikle, Institute of Scientific Instruments of the ASCR, v.v.i. (Czech Republic) ..........[10231-71]

Optical fibers sensors preparation. Bretislav Mikle, Michal Jelinek, Institute of Scientific Instruments of the ASCR, v.v.i. (Czech Republic); Radek Helan, Network Group, s.r.o. (Czech Republic); Vladimir Kolarik, Ondřej Cíp, Institute of Scientific Instruments of the ASCR, v.v.i. (Czech Republic) ..........[10231-72]

The using of fiber-guided multichannel pyrometer for diagnostics of laser aided metal deposition process. Katarzyna Nowak, Leszek R. Jaroszewicz, Military Univ. of Technology (Poland); Jerzy K. Kowalski, m-Soft Sp. z oo (Poland) ..............[10231-73]

Plasmonically-enhanced fluorescence for biosensor applications. Stefan Fossati, Simone Hagender, AIT Austrian Institute of Technology GmbH (Austria); Jiri Slaby, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Jakub Dostalek, AIT Austrian Institute of Technology GmbH (Austria) ..........[10231-74]

Overview of field gamma spectrometries based on Si photomultiplier. Maksim A. Kleshchenok, ITMO Univ. (Russian Federation); Victor M. Denisov, Flagman-geo Ltd. (Russian Federation); Valery V. Korotaev, ITMO Univ. (Russian Federation); Aleksandr B. Titov, Geomash Inzhinirying Ltd. (Russian Federation). ....[10231-75]

An experimental sample of the field gamma-spectrometer based on solid state Si-photomultiplier. Maksim A. Kleshchenok, Valery V. Korotaev, ITMO Univ. (Russian Federation); Victor M. Denisov, Flagman-geo Ltd. (Russian Federation); Aleksandr B. Titov, Geomash Inzhinirying Ltd. (Russian Federation). ....[10231-76]

Improved vibration sensor based on a biconical tapered singlemode fiber, using in-fiber Mach-Zehnder interferometer. Renata Wonko, Military Univ. of Technology (Poland). ..........[10231-77]

Development of an algorithm of the decision of the inverse ellipsometry problem for multilayer structure of the matrix receiver of optical radiation. Anastasiya Lobanova, Valery V. Korotaev, Victoria A. Ryzhova, ITMO Univ. (Russian Federation); Victor M. Denisov, Flagman-geo Ltd. (Russian Federation). ....[10231-78]

Photonic crystal fiber transducers filled with nanoparticle mixtures for temperature sensing application. Natalia Przybylsz, Institute of Technical Physics (Poland); Pawel Marc, Leszek R. Jaroszewicz, Military Univ. of Technology (Poland); Emilia Tomaszewska, Jaroslaw Grobelny, Univ. of Lodz (Poland) ..........[10231-79]

Temperature and pressure fiber sensor based on air microcavity in PDMS. Daniel Kacik, Ivan Martinicek, Norbert Tarjanyi, Univ. of Zilina (Slovakia) ..........[10231-80]

Optical features of zinc selenide and silver iodide nanostructures. Alexander M. Smirnov, M.V. Lomonosov Moscow SU (Russian Federation); Vladimir A. Polischuk, ITMO Univ. (Russian Federation); Vladimir V. Tomaev, Saint Petersburg State University (Russian Federation) and Saint Petersburg Mining Institute (Russian Federation); Maria V. Kozlova, Julia Stetkova, Jana V. Valkuch, M.V. Lomonosov Moscow SU (Russian Federation); Vladimir A. Polischuk, ITMO Univ. (Russian Federation); Evgenii Borisov, Saint Petersburg State University (Russian Federation). ....[10231-81]

Revisiting the biosensing potential of a plasmonic metamaterial supporting a guided mode. Barbara Spackova, Nicholas S. Lynn, Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) ... [10231-102]

Fabrication of arc-induced long-period gratings in different silica fibers. Rajeev Ranjan, Flavio Esposito, Stefania Campopiano, Agostino Iadicicco, Univ. degli Studi di Napoli Parthenope (Italy) ... [10231-102]

Effects of thermal and mechanical loads on the star sensor baffle. Javad Haghshenas, Behzad Mohasel Afshari, Satellite Research Institute (Iran, Islamic Republic of) ... [10231-103]

Surface functionalization for extreme localization of biological events and sub-protein tracking. Antonio Garcia Marin, Institute of Photonics and Electronics (Czech Republic); Kristyna Holanová, Lukáš Bujak, Institute of Photonics and Electronics (Czech Republic); Marek Pilarič, Institute of Photonics and Electronics (Czech Republic) ... [10231-104]

On-board TDI stage estimation and calibration using SNR analysis. Javad Haghshenas, Satellite Research Institute (Iran, Islamic Republic of) ... [10231-105]

Solid-state multiplexing for an optoelectronic sensor. Belkis Gödelüt, Mehmert Naci Inci, Bocagizi Unv. (Turkey) ... [10231-106]

Heat transfer measurements with a four-core optical fiber. Sema Güvenç, Mehmert Naci Inci, Bocagizi Univ. (Turkey) ... [10231-107]

Correlation of optical crosstalk performance of proximity-sensing device to the module's absolute package height. Jefferson Abrenica, amgs (Philippines) ... [10231-108]

Optical sensors of bulk refractive index using optical fiber resonators. Mustafa Eryurek, Yasin Karadag, Moeen Ghafoor, Nima Bavili, Koç Univ. (Turkey); Kenan Cicek, Igdir Univ. (Turkey); Alper Kiraz, Koç Univ. (Turkey) ... [10231-109]

High-resolution investigation of longitudinal modes of a GaN-based blue laser diode. Waheq Al-Basheer, Abdulaziz Aljalal, Khaled Gasmi, Taofeek O. Adigun, King Fahd Univ. of Petroleum & Minerals (Saudi Arabia) ... [10231-110]

THURSDAY 27 APRIL

SESSION 9 .................................................. Thu 9:00 to 10:30

Biosensors I

Remote detection of buried explosives by fluorescent and bioluminescent microbial bioreporters (Invited Paper), Shimhon Belkin, Sharon Yagur-Kroll, Chaim Zohar, Zahar Rabinovitz, Amos Nussinovitch, Yossi Kabessa, Aharon J. Agrawat, The Hebrew Univ. of Jerusalem (Israel) ... [10231-37]

A POC platform for sepsis biomarkers. Francesco Baldini, Barbara Adinolfi, Simon Barbieri, ETS, Institute of Fisica Applicata “Nello Carrara” (Italy); Romeo Bernini, Istituto per il Rilevamento Elettromagnetico dell‘Ambiente (Italy); Ambra Giannetti, Istituto di Fisica Applicata “Nello Carrara” (Italy); Filippo Garzotto, Istituto per il Rilevamento Elettromagnetico dell‘Ambiente (Italy); Sara Tombelli, Cosimo Tron, Istituto di Fisica Applicata “Nello Carrara” (Italy) ... [10231-38]

Optical coherence tomography technique for glucose sensing. Tseng-Chun Lin, Yu-Lung Lo, National Cheng Kung Univ. (Taiwan) ... [10231-39]

Cholic acid optical sensor based on liquid crystal droplets. Dan Luo, South Univ. of Science and Technology of China (China) ... [10231-40]

SESSION 10 .................................................. Thu 11:00 to 12:30

Biosensors II

Advanced bio/sensors: molecules, materials and light (Invited Paper), Sabato D’Auria, Consiglio Nazionale delle Ricerche (Italy) ... [10231-41]

U-bent plastic optical fiber-based planar DNA biosensor. Govri Annasamy, V. V. Raghavendra Sai, Indian Institute of Technology Madras (India) ... [10231-42]

Study of inertial hydrodynamic focusing in sheath-driven flows for lab-on-a-chip flow cytometry. Nishtha Panwar, Peiyi Song, Ken-Tye Yong, Nee Soon University of Science and Technology (Singapore) ... [10231-43]
CONFERENCE 10232

Wednesday–Thursday 26–27 April 2017 • Proceedings of SPIE Vol. 10232

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 (United States); Pavel Peterka, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)

Programme Committee: Jean-Luc Adam, Univ. de Rennes 1 (France); John Ballato, Clemson Univ. (United States); Ole Bang, DTU Fotonik (Denmark); Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany); Neil G. R. Broderick, The Univ. of Auckland (New Zealand); Benjamin J. Eggleton, The Univ. of Sydney (Australia); Christopher Emslie, Fibercore Ltd. (United Kingdom); Sebastien Fevrier, XLIM Institut de Recherche (France); Karl-Friedrich Klein, Technische Hochschule Mittelhessen (Germany); Jonathan C. Knight, Univ. of Bath (United Kingdom); Michael Komodoros, Friedrich-Universität Berlin (Germany); Hanne Ludvigsen, Hasso Plattner Institute of Digital Engineering (Germany); Saeed Rehman, Fibercore Ltd. (United Kingdom); David J. Webb, Aston Univ. (United Kingdom); Sébastien Février, XLIM Institute de National Lab. (United States); Nicolas Ducros, NOVAE (France); Ammar A. Hideur, CORIA (France); Richard J. Ramzi, Imperial College London (United Kingdom); Christophe L. Sandt, Univ de Reims (Invited Paper); Ryszard Buczyński, Univ. of Warsaw (Poland); Andreas Pospori, Univ. of Warwick (United Kingdom); Pawel Mergo, Univ. of Maria Curie-Sklodowska (Poland); Pavel Peterka, Institute of Photonics and Electronics of the ASCR, v.v.i., The Czech Academy of Sciences (Czech Republic); Pavel Honzatko, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Marcel Fajkus, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)

Programme:

Wednesday 26 April

OPENING REMARKS .......................... 10:25 TO 10:30

SESSION 1 ............................ WED 10:30 TO 12:20
Mid-Infrared and Infrared Fibres and Coherent Sources
Session Chair: Pavel Honzátko, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)

Diffraction limited mid infrared spectromicroscopy with a supercontinuum laser source (Invited Paper), Laure Lavoute, Univ. of Bath (United Kingdom); Christophe L. Sandt, Univ. de Reims (France); Frédéric Désévédavy, Jean-Charles Jules, Thomas Nemec, Dmitry Suslov, Matej Komamec, Czech Technical Univ. in Prague (Czech Republic); Pavel Peterka, Institute of Photonics and Electronics of the ASCR, v.v.i., The Czech Academy of Sciences (Czech Republic).

Mid-IR supercontinuum in a step index tellurite fibre operating between 1 and 5 μm, Paul Froidevaux, Clément Strutynski, Arnaud Lemiére, Bertrand Kübler, Frédéric Desévedavy, Jean-Charles Jules, Pierre Mathey, Pierre Bépot, Frédick Billard, Olivier Faucher, Frédéric Smektala, Univ. de Bourgogne (France).

Development and characterization of highly-nonlinear multicomponent glass photonic crystal fibers for mid-infrared applications, Tomas Nemec, Dmitry Suslov, Matej Komamec, Czech Technical Univ. in Prague (Czech Republic); Pavel Peterka, Institute of Photonics and Electronics of the ASCR, v.v.i., The Czech Academy of Sciences (Czech Republic); Danusz Pysz, Institute of Electronic Materials Technology (Poland); Ryszard Buczyński, Univ. of Warsaw (Poland); Bryan L. Nelsen, Westäschische Hochschule Zwickau (Germany).

Spectral properties of thulium and holmium doped optical fibers for fiber lasers around 2 micrometers, Michal Komarek, Jan Aubrecht, Pavel Peterka, Ondrej Podrazky, Pavel Honzatko, Jakub Cajzl, Jan Mrázek, Ivan Kasik, Institute of Photonics and Electronics of the ASCR, v.v.i., The Czech Academy of Sciences (Czech Republic).

Fe³⁺:ZnSe saturable absorber mirror passively Q-switched fluoride fiber laser at 2.8 μm, Tao Zhang, Guoning Feng, Bin Lan, Sichuan Univ. (China); Shouhuan Zhou, Sichuan Univ. (China) and North China Research Institute of Electro-optics (China).

Lunch/Exhibition Break ............... Wed 12:20 TO 13:30

PLENARY SESSION .................... WED 13:30 TO 15:15
Optics + Optoelectronics 2017: Plenary Session III
For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml.

SESSION 2 ............................ WED 15:40 TO 17:30
Fiber Bragg Gratings and Polymer Optical Fibres
Session Chair: Jiri Ctyroky, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)

Fiber Bragg filters for laser and multicore fibers (Invited Paper), Martin Becker, Manfred Rothhardt, Tino Elsner, University of Lübeck, University of Lübeck, Institute for Photonic Technologies (Germany).


Bandpass transmission filters based on phase shifted fiber Bragg gratings in microstructured polymer optical fibers, Beatriz Ortega, Univ. Politécnica de Valencia (Spain); Rui Min, David Sáez-Rodriguez, Yang Mi, Univ. Politécnica de Valencia (Spain); Kristian Nielsen, Ole Bang, DTU Fotonik (Denmark).

Impact of thermal pretreatment on preforms for fast Bragg gratings inscription using undoped PMMA POFs, Carlos A. F. Marques, Aston Univ. (United Kingdom) and Instituto de Telecomunicações (Portugal); Andreas Pospori, Aston Univ. (United Kingdom); Pawel Mergo, Univ. of Maria Curie-Slodowska (Poland); Paulo S. André, Instituto de Telecomunicações (Portugal) and Instituto Superior Técnico, Univ. Técnica de Lisboa (Portugal); David J. Webb, Aston Univ. (United Kingdom).

Chirped polymer optical fiber Bragg grating sensors, Carlos A. F. Marques, Instituto de Telecomunicações (Portugal) and Univ. de Aveiro (Portugal); Paulo Antunes, Instituto de Telecomunicações (Portugal); Pawel Mergo, Univ. of Maria Curie-Slodowska (Poland); David J. Webb, Aston Univ. (United Kingdom); João Lemos Pinto, Instituto de Telecomunicações (Portugal) and Univ. de Aveiro (Portugal); Paulo S. André, Instituto de Telecomunicações (Portugal) and Instituto Superior Técnico, Univ. Técnica de Lisboa (Portugal).

POSTER SESSION .................... WED 17:45 TO 19:30
Conference attendees are invited to attend the Optics + Optoelectronics Symposium 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 24, and at http://spie.org/x30951.xml.

Measurement of spectral characteristics and CCT mixture of PDMS and the luminophore depending on the geometric parameters and the concentration of the samples of the special optical fibers, Jan Jargus, Jan Nedoma, Marcel Fajkus, Institute of Photonics and Electronics of the ASCR, v.v.i., The Czech Academy of Sciences (Czech Republic).

Enhanced linear photonic nanojet generated by core-shell optical microfibers, Cheng-Yang Liu, Tzu-Ping Yen, Chien-Wen Chen, Tamkang Univ. (Taiwan).

Realization of optical multimode TSV waveguides for Si-Interposer in 3D-chip-stacks, Sebastian Kilge, Institut für Halbleiter- und Mikrosystemtechnik, TU Dresden (Germany); Sujay Charania, Karola Richter, Niels Neumann, Zaid Al-Husseini, Johann W. Bartha, TU Dresden (Germany).
**Conference 10232 continued**

SESSION 5 ................................. THU 14:00 TO 15:40

**Fibre Design, Fabrication and Measurement**

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

Spectroscopic studies of the influence of the aluminum concentration in heated Yb-doped optical fibers. Christoph Bacher, Jonas Scheuner, University of Bern (Switzerland); Sönke Pilz, Bern University of Applied Sciences (Switzerland); Manuel Ryser, University of Bern (Switzerland); Valerio Romano, University of Bern (Switzerland) and Bern University of Applied Sciences (Switzerland) .................................. [10232-21]

Broadband infrared emission from Er:Nd/Bi/Al doped fibers produced by the sol-gel-based granulated silica method. Sönke Pilz, Hossein Najafi, David Kummer, Berner Fachhochschule Technik und Informatik (Switzerland); Ali F. El Sayed, Berner Fachhochschule Technik und Informatik (Switzerland) and Univ. of Bern (Switzerland); Jonas Scheuner, Manuel Ryser, Univ. Bern (Switzerland); Stefan Berger, ReseChem GmbH (Switzerland); Georgios Karametaxas, SoSens GmbH (Switzerland); Valerio Romano, Berner Fachhochschule Technik und Informatik (Switzerland) and Univ. of Bern (Switzerland) .... [10232-22]

Comparative investigation of methods to determine the group velocity dispersion of an endlessly single-mode photonic crystal fiber. Tobias Baselt, Westsächsische Hochschule Zwickau (Germany) and Fraunhofer IWS Dresden (Germany); Tobias Poppe, Bryan L. Nielsen, Westsächsische Hochschule Zwickau (Germany); Andrés Fabián Lasagui, TU Dresden (Germany); Peter Hartmann, Fraunhofer IWS Dresden (Germany) and Westsächsische Hochschule Zwickau (Germany) .... [10232-23]

Unique method to determine the differential mode delay of specialty multimode fibers. Marcus Wittig, Westsächsische Hochschule Zwickau (Germany); Tobias Baselt, Westsächsische Hochschule Zwickau (Germany) and Fraunhofer IWS Dresden (Germany) .... [10232-24]

Toward investigation of Brillouin scattering in multimode polymer and silica optical fibers. Alexander Wosniuk, Andy Schreier, Katerina Krebber, Bundesanstalt für Materialforschung und -prüfung (Germany) .................. [10232-25]

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**SESSION 2** ............................... THU 8:50 TO 10:30

**Sensors and Devices Based on Specialty Fibres**

Session Chair: Martin Becker, Leibniz-Institut für Photonische Technologien e.V. (Germany)

Realisation of optically resilient fiber tip 3D microoptics. Linas Jonušauskas, Vilnius Univ. (Lithuania); Femtika (Lithuania); Mangirdas Malinauskas, Vilnius Univ. (Lithuania) ........ [10232-11]

Optical fiber-based frequency references. Jan Hrabina, Břetislav Krebber, Bundesanstalt für Materialforschung und -prüfung (Germany); Peter Hartmann, Fraunhofer IWS Dresden (Germany) and Westsächsische Hochschule Zwickau (Germany) .... [10232-12]

Analysis of optical properties of special fibers of polydimethylsiloxane (PDMS) depending on the different methods of mixing PDMS and curing agent. Martin Novak, Jan Nedoma, Marcel Fajkus, Jan Hrabina, Vladimír Vašinek, VŠB-Technical Univ. of Ostrava (Czech Republic) .................. [10232-13]

Fabrication of long linear arrays of plastic optical fibers with squared ends for the use of code mark lithography. Toshiyuki Horiiuchi, Jun Watanabe, Jun-ya Iwasaki, Yuta Suzuki, Tokyo Denki Univ. (Japan) ............ [10232-14]

Making compact bundle fiber for laser-assisted surgery. Seung Sik Ham, Jae Sung Park, Ho Lee, Richard M. Boulter, Kyungpook National Univ. (Korea, Republic of) ............ [10232-15]

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**SESSION 4** ............................... THU 11:00 TO 12:50

**Modelling and Analysis of Specialty Fibres and Components**

Session Chair: Sébastien Février, XLIM Institut de Recherche (France)

Enhancement of pump absorption efficiency by bending and twisting of double clad rare earth doped fibers (Invited Paper). Pavel Koška, Pavel Peterka, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Valérie Doya, Univ. de Nice Sophia Antipolis (France); Jan Aubrecht, Ivan Kasik, Ondřej Podrazký, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) .... [10232-16]

An 8-channel wavelength demultiplexer based on photonic crystal fiber. Dror Malka, Holon Institute of Technology (Israel) .... [10232-17]

Moving chirped soliton under laser pulse interaction with gold nanorods. Vyacheslav A. Trofimov, Tatiana M. Lysak, M.V. Lomonosov Moscow SU (Russian Federation) ........ [10232-18]

Three-dimensional light bullets in anisotropic microdispersive media. Sergey Sazonov, National Research Center Kurchatov Institute (Russian Federation); Alexander Bugay, Joint Institute for Nuclear Research (Russian Federation); Maria Komissarova, Irina Zakharova, Lomonosov Moscow State University (Russian Federation) .... [10232-19]

Engineering ultra-flattened normal dispersion photonic crystal fiber with silica material. Mohamed Lamine Ferhat, Lynda A. Cherbi, Lyes Bahloul, Hariz Abdelatif, Univ. des Sciences et de la Technologie Houari Boumediene (Algeria) .......... [10232-20]

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

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**SESSION 3** ............................... THU 8:50 TO 10:30

**Sensors and Devices Based on Specialty Fibres**

Session Chair: Martin Becker, Leibniz-Institut für Photonische Technologien e.V. (Germany)

Realisation of optically resilient fiber tip 3D microoptics. Linas Jonušauskas, Vilnius Univ. (Lithuania); Femtika (Lithuania); Mangirdas Malinauskas, Vilnius Univ. (Lithuania) ........ [10232-11]

Optical fiber-based frequency references. Jan Hrabina, Břetislav Krebber, Bundesanstalt für Materialforschung und -prüfung (Germany); Peter Hartmann, Fraunhofer IWS Dresden (Germany) and Westsächsische Hochschule Zwickau (Germany) .... [10232-12]

Analysis of optical properties of special fibers of polydimethylsiloxane (PDMS) depending on the different methods of mixing PDMS and curing agent. Martin Novak, Jan Nedoma, Marcel Fajkus, Jan Jargus, Vladimir Vašinek, VSB-Technical Univ. of Ostrava (Czech Republic) .................. [10232-13]

Fabrication of long linear arrays of plastic optical fibers with squared ends for the use of code mark lithography. Toshiyuki Horiiuchi, Jun Watanabe, Jun-ya Iwasaki, Yuta Suzuki, Tokyo Denki Univ. (Japan) ............ [10232-14]

Making compact bundle fiber for laser-assisted surgery. Seung Sik Ham, Jae Sung Park, Ho Lee, Richard M. Boulter, Kyungpook National Univ. (Korea, Republic of) ............ [10232-15]

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**SESSION 4** ............................... THU 11:00 TO 12:50

**Modelling and Analysis of Specialty Fibres and Components**

Session Chair: Sébastien Février, XLIM Institut de Recherche (France)

Enhancement of pump absorption efficiency by bending and twisting of double clad rare earth doped fibers (Invited Paper). Pavel Koška, Pavel Peterka, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Valérie Doya, Univ. de Nice Sophia Antipolis (France); Jan Aubrecht, Ivan Kasik, Ondřej Podrazký, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) .... [10232-16]

An 8-channel wavelength demultiplexer based on photonic crystal fiber. Dror Malka, Holon Institute of Technology (Israel) .... [10232-17]

Moving chirped soliton under laser pulse interaction with gold nanorods. Vyacheslav A. Trofimov, Tatiana M. Lysak, M.V. Lomonosov Moscow SU (Russian Federation) ........ [10232-18]

Three-dimensional light bullets in anisotropic microdispersive media. Sergey Sazonov, National Research Center Kurchatov Institute (Russian Federation); Alexander Bugay, Joint Institute for Nuclear Research (Russian Federation); Maria Komissarova, Irina Zakharova, Lomonosov Moscow State University (Russian Federation) .... [10232-19]

Engineering ultra-flattened normal dispersion photonic crystal fiber with silica material. Mohamed Lamine Ferhat, Lynda A. Cherbi, Lyes Bahloul, Hariz Abdelatif, Univ. des Sciences et de la Technologie Houari Boumediene (Algeria) .......... [10232-20]
CONFERENCE 10233


Holography: Advances and Modern Trends

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

Programme Committee: Augusto Beléndez, Univ. de Alicante (Spain); Andrea Bianco, INAF - Osservatorio Astronomico di Brera (Italy); Hans I. Bjelkøgen, HANSOLO (United Kingdom); Friedrich-Karl Bruder, Covestro AG (Germany); Christiane Carre, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France), CNRS FOTON (France), Univ. de Rennes 1 (France); Radim Chmelik, Brno Univ. of Technology (Czech Republic); Daniel Claus, Univ. Stuttgart (Germany); Claas Falldorf, Bremer Institut für angewandte Strahltechnik GmbH (Germany); Martin Fally, Univ. Wien (Austria); Tigran Galstian, Ctr. d’Optique, Photonique et Laser, Univ. Laval (Canada); Unnikrishnan Gopinathan, Instruments Research & Development Establishment (India); John J. Healy, College Dublin (Ireland); Bryan M. Hennelly, National Univ. of Ireland, Maynooth (Ireland); Ken Yuh Hsu, National Chiao Tung Univ. (Taiwan); Damien P. Kelly, Oryx Consulting (Germany); Milos Kopec, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Raymond K. Kostuk, The Univ. of Arizona (United States); Libor Kotacka, Optaglio s.r.o. (Czech Republic); Malgorzata Kujawa, Warsaw Univ. of Technology (Poland); Jacques Lalévé, Univ. de Haute Alsace (France); Robert R. McLeod, Univ. of Colorado Boulder (United States); Miroslav Miler, Academy of Sciences of the Czech Republic (Czech Republic); David Samuel Monaghan, Trinity College Dublin (Ireland); Christoph Neipp, Univ. de Alicante (Spain); Takanori Nomura, Wakayama Univ. (Japan); Inmaculada Pascual, Univ. de Alicante (Spain); Rainer Riesenberg, Leibniz-Institut für Photonische Technologien e.V. (Germany); Dagmar Senderáková, Comenius Univ. in Bratislava (Slovakia); Guohai Situ, Shanghai Institute of Optics and Fine Mechanics (China); Mitsuo Takeda, Utsunomiya Univ. (Japan); Yasuo Tomita, The Univ. of Electro-Communications (Japan); Vladimir V. Venediktov, St. Petersburg Electrotechnical Univ. “LETI” (Russian Federation); Przemyslaw W. Wachułak, Military Univ. of Technology (Poland); Dayong Wang, Beijing Univ. of Technology (China); Günther K. G. Wernick, Humboldt-Univ. zu Berlin (Germany); Stanislavas J. Zacharovas, Geola Digital lab (Lithuania)

MONDAY 24 APRIL

WELCOME AND INTRODUCTION .................. 12:55 TO 13:00

SESSION 1 ....................................... MON 13:00 TO 15:30

Holography Overview
Session Chairs: John T. Sheridan, Univ. College Dublin (Ireland); Miroslav Hrabovsky, Palacky Univ. Olomouc (Czech Republic)

Analysis of higher order harmonics with holographic reflection gratings, Pedro Masi-Abellán, Roque F. Madrigal, Antonio Fimia, Univ. Miguel Hernández de Elche (Spain) .................................................. [10233-1]

Holographic recording in two-stage networks, Robert R. McLeod, Univ. of Colorado Boulder (United States); Hayaan Peng, Guangzhou Institute of Photonics Technologies (China); Christopher N. Bowman, Univ. of Colorado at Denver and Health Sciences Ctr. of Colorado Boulder (United States); Benjamin A. Kowalski, Univ. of Electro-Communications (France), CNRS FOTON (France), Univ. de Rennes 1 (France); Radim Chmelik, Brno Univ. of Technology (Czech Republic); Daniel Claus, Univ. Stuttgart (Germany); Claas Falldorf, Bremer Institut für angewandte Strahltechnik GmbH (Germany); Martin Fally, Univ. Wien (Austria); Tigran Galstian, Ctr. d’Optique, Photonique et Laser, Univ. Laval (Canada); Unnikrishnan Gopinathan, Instruments Research & Development Establishment (India); John J. Healy, College Dublin (Ireland); Bryan M. Hennelly, National Univ. of Ireland, Maynooth (Ireland); Ken Yuh Hsu, National Chiao Tung Univ. (Taiwan); Damien P. Kelly, Oryx Consulting (Germany); Milos Kopec, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Raymond K. Kostuk, The Univ. of Arizona (United States); Libor Kotacka, Optaglio s.r.o. (Czech Republic); Malgorzata Kujawa, Warsaw Univ. of Technology (Poland); Jacques Lalévé, Univ. de Haute Alsace (France); Robert R. McLeod, Univ. of Colorado Boulder (United States); Miroslav Miler, Academy of Sciences of the Czech Republic (Czech Republic); David Samuel Monaghan, Trinity College Dublin (Ireland); Christoph Neipp, Univ. de Alicante (Spain); Takanori Nomura, Wakayama Univ. (Japan); Inmaculada Pascual, Univ. de Alicante (Spain); Rainer Riesenberg, Leibniz-Institut für Photonische Technologien e.V. (Germany); Dagmar Senderáková, Comenius Univ. in Bratislava (Slovakia); Guohai Situ, Shanghai Institute of Optics and Fine Mechanics (China); Mitsuo Takeda, Utsunomiya Univ. (Japan); Yasuo Tomita, The Univ. of Electro-Communications (Japan); Vladimir V. Venediktov, St. Petersburg Electrotechnical Univ. “LETI” (Russian Federation); Przemyslaw W. Wachułak, Military Univ. of Technology (Poland); Dayong Wang, Beijing Univ. of Technology (China); Günther K. G. Wernick, Humboldt-Univ. zu Berlin (Germany); Stanislavas J. Zacharovas, Geola Digital lab (Lithuania)

TUESDAY 25 APRIL

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

Optics + Optoelectronics 2017: Plenary Session II
For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml
SESSION 3  ............................ TUE 13:30 TO 15:20
Holographic Materials II
Session Chairs: Robert R. McLeod, Univ. of Colorado Boulder (United States); Martin Fally, Univ. Wien (Austria)

Performance optimization in mass production of volume holographic optical elements (vHOEs) using Bayfol® HX photopolymer film (Invited Paper), Friedrich-Karl Bruder, Thomas Facke, Fabian Grote, Rainer Hagen, Dennis Hoene, Eberhard Koch, Christian Rewitz, Guenther Walze, Brita Wewer, Covestro AG (Germany). [10233-14]

Photopolymers for holographic optical elements in astronomy, Alessio Zanutta, Andrea Bianco, INAF - Osservatorio Astronomico di Brera (Italy); Enrico Orselli, Thomas Facke, Covestro AG (Germany). [10233-15]

Analysis of holographic photopolymers for integrated optical systems via quantitative phase microscopy, David J. Glugla, Marvin D. Alim, Univ. of Colorado Boulder (United States); Madeline B. Chosy, Carleton College (United States); Amy C. Sullivan, Robert R. McLeod, Univ. of Colorado Boulder (United States). [10233-16]

Optimisation and coupling of high-performance photocyllic initiating systems for efficient holographic materials, Christian Ley, Univ. de Haute Alsace (France); Christian Carre, Ecole Nationale Superieure des Sciences Appliquees et de Technologie (France); Ahmad Ibrahim, Xavier Allonas, Univ. de Haute Alsace (France). [10233-17]

Synthetic holograms based on photochromic diaryliithiengenes, Giorgio Pariani, Luca Oggoni, Letizia Coella, INAF - Osservatorio Astronomico di Brera (Italy); Chiara Bertarelli, Politecnico di Milano (Italy); Andrea Bianco, INAF - Osservatorio Astronomico di Brera (Italy); Romain Alata, Patrick Lanzoni, Frédéric Zamkotsian, Lab. d'Astrophysique de Marseille (France). [10233-18]

SESSION 4  ............................ TUE 15:30 TO 17:40
Holographic Materials III
Session Chairs: Yasuo Tomita, The Univ. of Electro-Communications (Japan); Friedrich-Karl Bruder, Covestro AG (Germany)

New photosensitive systems for volume phase holography (Invited Paper), Mario Muratore, Enrico Orselli, Fabio Pinna, INAF - Osservatorio Astronomico di Brera (Italy); Paola Galli, Politecnico di Milano (Italy); Alessio Zanutta, INAF - Osservatorio Astronomico di Brera (Italy); Chiara Bertarelli, Politecnico di Milano (Italy); Andrea Bianco, INAF - Osservatorio Astronomico di Brera (Italy). [10233-19]

Novel gratings for next-generation instruments of astronomical observations, Noboru Ebizuka, RIKEN (Japan). [10233-20]

Predictive modeling of two-component holographic photopolymers, Benjamin A. Kowalski, Air Force Research Lab, (United States); Amy C. Sullivan, Marvin D. Alim, Robert R. McLeod, Univ. of Colorado Boulder (United States). [10233-21]


Effect of rare-earth-dopants on Bragg gratings recording in PIR glasses, Nikolay V. Nikonorov, Sergei A. Ivanov, Sergei A. Ivanov, Darya Kozlova, Iliya Zakharov, Boris Volodin, Natalya Fridovich, Beijing Univ. of Technology (China); John J. Healy, Univ. College Dublin (Ireland); Dayong Wang, Beijing Univ. of Technology (China); John T. Sheridan, Univ. College Dublin (Ireland). [10233-23]

SESSION 5  ............................ WED 08:30 TO 10:20
Digital Holography and Signal Processing I
Session Chairs: Andrea Bianco, INAF - Osservatorio Astronomico di Brera (Italy); John T. Sheridan, Univ. College Dublin (Ireland)

Holographic 3D imaging through diffuse media by compressive sampling of the mutual intensity (Invited Paper), Claas Falldorf, Thorsten Klein, Bremer Institut für angewandte Strahltechnik GmbH (Germany); Mostafa Agour, Bremer Institut für angewandte Strahltechnik GmbH (Germany) and Asian Univ. (Egypt); Ralf B. Bergmann, Bremer Institut für angewandte Strahltechnik GmbH (Germany) and Univ. Bremen (Germany). [10233-24]

Speckle noise reduction in single-shot holographic two-wavelength contouring, Mostafa Agour, Reiner Klattenhoff, Claas Falldorf, Ralf B. Bergmann, Bremer Institut für angewandte Strahltechnik GmbH (Germany). [10233-25]

SESSION 6  ............................ WED 10:50 TO 12:30
Digital Holography and Signal Processing II
Session Chairs: Dayong Wang, Beijing Univ. of Technology (China); Inmaculada Pascual, Univ. de Alicante (Spain)

Analysis of data recorder optical scheme impact on quality of computer generated Fourier holograms in holographic memory system, Sergey S. Donchenko, Sergey B. Odinokov, Bauman Moscow State Technical Univ. (Russian Federation); Evgeny V. Zlokazov, National Research Nuclear Univ. MEPhI (Russian Federation); Alexander L. Betin, Pavel P. Titov, Bauman Moscow State Technical Univ. (Russian Federation). [10233-29]

Algorithms used for read-out optical system pointing to multiplexed computer generated 1D-Fourier holograms and decoding the encrypted information, Sergey S. Donchenko, Sergey B. Odinokov, Bauman Moscow State Technical Univ. (Russian Federation); Evgeny V. Zlokazov, National Research Nuclear Univ. MEPhI (Russian Federation); Sergey Semishko, Pavel Hanevich, Bauman Moscow State Technical Univ. (Russian Federation). [10233-30]

Comparison of two methods for equalising the diffraction efficiency of different spatial frequency components of holographic optical elements, Sanjay K. Keshri, Kevin Murphy, Vincent Toal, Izabela Naydenova, Suzanne M. Martin, The Ctr. for Industrial and Engineering Optics, Dublin Institute of Technology (ireland). [10233-31]

Hybridization of phase retrieval and off-axis digital holography for high-resolution imaging of complex shape objects, Fengpeng Wang, Gannan Normal Univ. (China); Dayong Wang, Lu Rong, Yunxin Wang, Jie Zhao, Beijing Univ. of Technology (China). [10233-32]

Advanced holographic wavefront sensors, Vladimir Y. Venediktov, Saint Petersburg Electrotechnical Univ. “LETI” (Russian Federation); Sergey B. Odinokov, Bauman Moscow State Technical Univ. Russian Federation). [10233-33]

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

PLENARY SESSION  .................... WED 13:30 TO 15:15
Optics + Optoelectronics 2017: Plenary Session III
For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077t.xml

SESSION 7  ............................ WED 15:40 TO 17:50
Digital Holography and Signal Processing III
Session Chairs: Claas Falldorf, Bremer Institut für angewandte Strahltechnik GmbH (Germany); Xinjin Guo, The Univ. of Electro-Communications (Japan)

Properties of diffraction gratings holographically recorded in polyethylene glycol/dimethacrylate-ionic liquid composites (Invited Paper), Martin Fally, Univ. Wien (Austria); Mostafa Ellabban, Tanta Univ. (Egypt) and Taibah Univ. (Saudi Arabia); Gasper Glavan, Univ. of Ljubljana (Slovenia); Jürgen Klepp, Univ. Wien (Austria). [10233-34]

Inline quality control of micro-parts using digital holography, Alexandar Simic, Bremer Institut für angewandte Strahltechnik GmbH (Germany); Hendrik Freihet, Univ. Bremen (Germany); Mostafa Agour, Claas Falldorf, Bremer Institut für angewandte Strahltechnik GmbH (Germany); Ralf B. Bergmann, Bremer Institut für angewandte Strahltechnik GmbH (Germany) and MAPEX, Univ. Bremen (Germany). [10233-35]
Conference 10233 continued

Hologram calculation technique for viewing-zone scanning holographic display employing MEMS SLM. Yasushi Takali, Tokyo Univ. of Agriculture and Technology (Japan) .................. [10233-36]

Stereo-hologram in discrete depth of field. Kwang-hoon Lee, Korea Photonics Technology Institute (Korea, Republic of); Min-Chul Park, Korea Institute of Science and Technology (Korea, Republic of) .................................................. [10233-37]

Comparison of the different approaches to generate holograms from data acquired with a Kinect sensor. Ji-Hoon Kang, Korea Institute of Science and Technology (Korea, Republic of) and Korea Univ. (Korea, Republic of); Thibault Leportier, Min-Chul Park, (Korea Institute of Science and Technology (Korea, Republic of) and Univ. of Science & Technology (Korea, Republic of); Byeong-Kwon Ju, Korea Univ. (Korea, Republic of); Kwang-hoon Lee, Korea Photonics Technology Institute (Korea, Republic of) ........................................... [10233-38]


POSTER SESSION ....................... WED 17:45 TO 19:30

Posters Conference attendees are invited to attend the Optics + Optoelectronics Symposium 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 11, and at http://spie.org/x30951.xml.

Design and optimization of a dispersive unit based on cascaded volume phase holographic gratings, Eduard R. Muslimov, Aix-Marseille Univ. (France) and Kazan National Research Technical Univ. named after A.N. Tupolev (Russian Federation); Gennady G. Valyvin, Sergey N. Fabrika, Special Astrophysical Observatory (Russian Federation); Nadezhda K. Pavlycheva, Kazan National Research Technical Univ. named after A.N. Tupolev (Russian Federation). ........................................ [10233-55]

Use of a freeform-shaped holographic grating in a scheme of multislit astronomical spectrograph. Eduard R. Muslimov, Aix-Marseille Univ. (France) and Kazan National Research Technical Univ. named after A.N. Tupolev (Russian Federation); Emmanuel Hugot, Aix-Marseille Univ. (France). .................................................. [10233-56]

Holography from Venus de Milo to cultural performance, science and technology: A French and Chinese quest. Patrice Salzenstein, FEMTO-ST (France); Eric Lee, John Lyn, Dave Zhou, Leafun (China). ................ [10233-57]

Multiplexed holograms recorded in a low toxicity biophotopolymer photopolymer. Victor Navarro-Fuster, Manuel Ortuzo, Sergey Gallego, Roberto Fernández, Francisco J. Martínez-Guardiola, Andrés Márquez, Inmaculada Pascual, Univ. de Alicante (Spain). .................. [10233-58]

Defractive axicon with tunable fill factor for focal ring splitting. Svetlana N. Khonina, Alexey P. Porfirev, Andrew V. Ustinov, Samara photopolymer, Víctor Navarro-Fuster, Manuel Ortuño, Sergi Gallego, Andrew V. Ustinov, Saint Petersburg State Univ. (Russian Federation); Eric Lee, John Lyn, Dave Zhou, Leafun (China). .......................................... [10233-64]

A digital holographic approach for the analysis of phase patterns in photochromic polyurethanes. Giuseppe Coppola, Maria Antonietta Ferrara, Istituto per la Microelettronica e Microsistemi, Consiglio Nazionale delle Ricerche (Italy); Giorgio Pariani, INAF - Osservatorio Astronomico di Brera (Italy); Chiara Bertarelli, Politecnico di Milano (Italy); Andrea Bianco, INAF - Osservatorio Astronomico di Brera (Italy). .................................................. [10233-65]

Holographic Applications II

THURSDAY 27 APRIL

SESSION 8 ...................... THU 8:30 TO 10:20

Holographic Applications I

Session Chairs: Sergi Gallego, Univ. de Alicante (Spain); Dmitry V. Venediktov, Saint Petersburg State Univ. (Russian Federation)

Light amplification by photorefractive ferroelectric liquid crystal blends containing quarter-thiophene photocoductive chiral dopant (Invited Paper). Takeo Sasaki, Takuya Hara, Yuuta Yamamoto, Yumiko Naka, Khoa V. Le, Tokyo Institute of Science and Technology (Japan). .................. [10233-40]

Energy analysis of holographic lenses for solar concentration. Julia Marin-Sáez, Univ. de Lleida (Spain); Maria Victoria Collados, Univ. de Zaragoza (Spain); Daniel Chemisana, Univ. de Lleida (Spain); Jesús Atencia, Univ. de Zaragoza (Spain). .................................. [10233-41]

Full-color large-scale computer-generated holograms for physical and nonphysical objects. Kyōji Matsushima, Yasuhiro Tsuchiyama, Noriaki Sonobe, Masaya Masui, Kansai Univ. (Japan); Massahiro Yamaguchi, Tokyo Institute of Technology (Japan); Yui Sakamoto, Hokkaido Univ. (Japan). ........................................ [10233-42]

High quality digital holographic reconstruction on analog film. Bryan L. Nelsen, Westsächsische Hochschule Zwickau (Germany); Peter Hartmann, Westsächsische Hochschule Zwickau (Germany) and Fraunhofer IWS Dresden (Germany). .......................... [10233-43]

Information recovery in propagation-based diffraction imaging with decoherence effects. Heinrich Froese, Lars Lötgering, Thomas Wilhite, Hochschule Koblenz Univ. of Applied Sciences (Germany). .................................. [10233-44]

SESSION 9 ..................... THU 10:50 TO 12:30

Holographic Applications II

Session Chairs: Antonio Fimia, Univ. Miguel Hernández de Elche (Spain); Miroslav Hrabovský, Palacký Univ. Olomouc (Czech Republic)


Test of VPHGs in SHSG for use at cryogenic temperatures. Maidur Insausti Mugica, Instituto de Astrofísica de Canarias (Spain); Pedro Mas-Abellan, Antonio Fimia, Roque F. Madrigal, Univ. Miguel Hernández de Elche (Spain); Francisco Garzón López, Instituto de Astrofísica de Canarias (Spain). .................................. [10233-46]


Clustering of red blood cells using digital holographic microscopy. Keyvan Jaferzadeh, Inkyu Moon, Chosun Univ. (Korea, Republic of). .................................. [10233-48]
Terahertz-computed tomography in 3D using a pyroelectric array detector, Bin Li, Dayong Wang, Beijing Univ. of Technology (China); Lu Rong, Haohong Huang, Min Wan, Yunxin Wang, Beijing Univ. of Technology (China) .................................................[10233-49]

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

SESSION 10 .......................... THU 13:40 TO 15:20

Digital Holographic Applications
Session Chairs: Miroslav Hrabovsky, Palacký Univ. Olomouc (Czech Republic); John T. Sheridan, Univ. College Dublin (Ireland)

Phyllotactic arrangements of optical elements, Miroslav Horacek, Petr Meluzin, Stanislav Kratky, Milan Matejka, Vladimir Kolarik, Institute of Scientific Instruments of the ASCR, v.v.i., The Czech Academy of Sciences (Czech Republic) ......................... [10233-50]

Fast calculation of computer-generated spherical hologram by spherical harmonic transform, Yusuke Sando, Technology Research Institute of Osaka Prefecture (Japan); Daisuke Barada, Boaz J. Jackin, Toyohiko Yatagai, Utsunomiya Univ. (Japan) ............... [10233-51]

Optical position encoder based on four-section diffraction grating, Alexander Y. Zherdev, Oleg A. Gurylev, Maria V. Shishova, Dmitrii S. Lushnikov, Vladimir V. Markin, Sergey B. Odinokov, Bauman Moscow State Technical Univ. (Russian Federation) .................. [10233-52]

The schemes and methods for producing of the visual security features used in the color hologram stereography, Dmitrii S. Lushnikov, Alessander Y. Zherdev, Sergey B. Odinokov, Vladimir V. Markin, Bauman Moscow State Technical Univ. (Russian Federation); Andrey V. Smirnov, Krypten (Russian Federation) ..........................[10233-53]

Compressive self-interference Fresnel digital holography with faithful reconstruction, Yuhong Wan, Tianlong Man, Ying Han, Hongqiang Zhou, Dayong Wang, Beijing Univ. of Technology (China) ............ [10233-54]
CONFERENCE 10234
Thursday 27 April 2017 • Proceedings of SPIE Vol. 10234

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-Universität Düsseldorf (Germany); Antoine Rousse, École 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 (Japan); Univ. of California Irvine (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)

THURSDAY 27 APRIL

OPENING REMARKS ............................. 8:25 TO 8:30

SESSION 1 ............................ THU 08:30 TO 11:00

Betatron Radiation and Ion Channel Lasers
Session Chair: Adam Noble, Univ. of Strathclyde (United Kingdom)

Betatron x-ray radiation in the self-modulated regime of laser-wakefield acceleration, Felicie Albert, Lawrence Livermore National Lab. (United States) ...........................................[10234-1]

Investigation of electron dynamics in a ionization-injection laser-wakefield accelerator via betatron radiation, Alexander Koehler, Jurjen P. Couperus, Omid Zarini, Richard Pausch, Jakob M. Krämer, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) and TU Dresden (Germany); Alexander Debus, Michael Bussmann, Arie Irman, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Ulrich Schramm, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) and TU Dresden (Germany) .........................................................[10234-2]

Generation of stable and polarized x-rays for application to femtosecond spectroscopy, Benoît Mahieu, Andreas S. Döpp, Agustin Lifschitz, Antoine Doche, Cédric Thaury, Sébastien Corde, Julien Gautier, Emilien Guillaume, Victor Malka, Antoine Rousse, Lab. d’Optique Appliquée, École Nationale Supérieure de Techniques Avancées (France); Noémie Jourdain, Ludovic Lecherbourg, Commissariat à l’Énergie Atomique (France); Fabien Dorchies, Ctr. Lasers Intenses et Applications, Univ. Bordeaux 1 (France); Kim Ta Phuoc, Lab. d’Optique Appliquée, École Nationale Supérieure de Techniques Avancées (France). ...........................................[10234-3]

Experimental measurements of x-ray radiation due to betatron oscillations in a laser wakefield accelerator, Lewis R Reid, Enrico Brunetti, Gregory Vieux, Gregor H Welsh, Samuel M Wiggins, Bernhard Ersfeld, Matthew P Tooley, Samuel R Yoffe, Adam Noble, Dino A Jaroszynski, Univ. of Strathclyde (United Kingdom) .........................[10234-4]

Spatio-temporal description of the ion channel free-electron laser, Bernhard Ersfeld, Univ. of Strathclyde (United Kingdom) and Scottish Univ. Physics Alliance (United Kingdom); Siijia Chen, Univ. of Strathclyde (United Kingdom); Adam Noble, Samuel R Yoffe, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) and Scottish Univ. Physics Alliance (United Kingdom) .........................[10234-5]

SESSION 2 ............................. THU 11:30 TO 13:00

Thomson, Compton, and Raman Scattering
Session Chair: MinSup Hur, Ulsan National Institute of Science and Technology (Korea, Republic of)

An ultrahigh gain amplifier based on Raman amplification in plasma, Gregory Vieux, Univ. of Strathclyde (United Kingdom), Institute of Physics of the ASCR, v.v.i. (Czech Republic), ELLI Beamlines (Czech Republic); Silvia Cipiccia, Univ. of Strathclyde (United Kingdom); Nuno R. C. Lemos, Lawrence Livermore National Lab. (United States); Cristian Ciocarlan, Peter A. Grant, David W. Grant, Bernhard Ersfeld, Univ. of Strathclyde (United Kingdom); MinSup Hur, Ulsan National Institute of Science and Technology (Korea, Republic of); Panagiotis Lepias, Grace Manahan, David Reboredo Gil, Anna Subiel, Gregor H. Welsh, S. Mark Wiggins, Samuel R. Yoffe, Univ. of Strathclyde (United Kingdom); John P. Farmer, Heinrich-Heine-Universität Düsseldorf (Germany); Constantin Aniculaesei, Enrico Brunetti, Xue Yang, Univ. of Strathclyde (United Kingdom); Robert Heathcote, STFC Rutherford Appleton Lab. (United Kingdom); Gagik Nersisyan, Ciaran L. S. Lewis, Queen’s Univ. Belfast (United Kingdom); Alexander Pukhov, Heinrich-Heine-Universität Düsseldorf (Germany); João Mendanha Dias, Instituto Superior Técnico (Portugal); Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom). ........................................................................[10234-6]

Redshift and harmonic radiation of nonlinear Laser-Thomson scattered X-rays, Jakob M. Krämer, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) and TU Dresden (Germany) and Danfysik A/S (Denmark); Arie Irman, Axel Jochmann, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Michael P. Couperus, Alexander Köhler, Omid Zarini, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) and TU Dresden (Germany); Joseph Heathcote, STFC Rutherford Appleton Lab. (United Kingdom); Michael Kuntzsch, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Michael Buddle, Danfysik A/S (Denmark); Ulf Lehnert, Andreas Wagner, Michael Bussmann, Thomas E. Cowan, Ulrich Schramm, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) .................................[10234-7]

Scaling EUV and X-ray Thomson sources to optical free-electron laser operation with traveling-wave Thomson scattering, Klaus Steiniger, Daniel Albach, Alexander Debus, Markus Löser, Richard Pausch, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Fabian Röser, TOPTICA Photonics AG (Germany); Ulrich Schramm, Matthias Siebold, Michael Bussmann, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) .................................[10234-8]

Lunch Break ..................................... Thu 13:00 to 14:00
SESSION 3 ............................ THU 14:00 TO 15:00

**Terahertz Radiation**

Session Chair: **David A. Burton**, Lancaster Univ. (United Kingdom)

A new method to obtain narrowband emission from a broadband current using increased impedance of plasma-like media, Min Sup Hur, Ulsan National Institute of Science and Technology (Korea, Republic of); Bernhard Ersfeld, Adam Noble, Univ. of Strathclyde (United Kingdom) and Scottish Univ. Physics Alliance (United Kingdom); Hyyong Suk, Gwangju Institute of Science and Technology (Korea, Republic of); Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) and Scottish Univ. Physics Alliance (United Kingdom) ..........................[10234-9]

High-power terahertz radiation from laser-produced plasmas, Zheng-Ming Sheng, Univ. of Strathclyde (United Kingdom) ........... [10234-10]

SESSION 4 ............................ THU 15:00 TO 18:00

**High Field Physics**

Session Chair: **Zheng-Ming Sheng**, Univ. of Strathclyde (United Kingdom)

Plasma-based wakefield acceleration in strong fields, David A. Burton, Lancaster Univ. (United Kingdom) ............................[10234-11]

Modelling electron and photon dynamics in intense laser pulses, Adam Noble, Samuel R. Yoffe, Alexander J. Macleod, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) ............................[10234-12]

Electron beam cooling in intense focussed laser pulses, Samuel R. Yoffe, Adam Noble, Alexander J. Macleod, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) ............................[10234-13]

On the momentum of light and the quantum vacuum, Alexander J Macleod, Adam Noble, Dino A. Jaroszynski, University of Strathclyde (United Kingdom) ............................[10234-14]

Some problems with the ponderomotive force, David A. Burton, Lancaster Univ. (United Kingdom); Robert A. Cairns, Lancaster Univ. (United Kingdom); Bernhard Ersfeld, Adam Noble, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) ............................[10234-15]
**CONFERENCE 10235**

**Wednesday–Thursday 26–27 April 2017 • Proceedings of SPIE Vol. 10235**

**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 (United States); Henryk Fiedorowicz, Military Univ. of Technology (Poland); René Hudec, Czech Technical Univ. in Prague (Czech Republic); Ali M. Khounsary, X-ray Optics, Inc. (United States); Randall L. McEntaffer, The Univ. of Iowa (United States); Stephen L. O’Dell, NASA Marshall Space Flight Ctr. (United States); Giovanni Pareschi, INAF - Osservatorio Astronomico di Brera (Italy); Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic); Yuriy Ya Platunov, Rigaku Innovative Technologies Europe (Czech Republic); Paul B. Reid, Harvard-Smithsonian Ctr. for Astrophysics (United States); Bedrich Rus, ELI Beamlines (Czech Republic); Institute of Physics of the ASCR, v.v.i. (Czech Republic); Anatoly Snigirev, Brookhaven National Lab. (United States); Melville P. Ulmer, Northwestern Univ. (United States); David L. Windt, Reflective X-Ray Optics LLC (United States); William W. Zhang, NASA Goddard Space Flight Ctr. (United States)

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**WEDNESDAY 26 APRIL**

**OPENING REMARKS** ……………. WED 10:15 TO 10:20

**SESSION 1** ………………. WED 10:20 TO 12:30

**Astronomical X-ray Optics I**

Lobster eye optics on suborbital rockets (Invited Paper), James Tutt, The Pennsylvania State Univ. (United States) ……………. [10235-1]

The Water Recovery X-ray Rocket (WRX-R), Drew M. Miles, Pennsylvania State Univ. (United States) ……………. [10235-35]

X-ray Lobster Eye All-sky Monitor for Rocket Experiment, V. Dániel, Aerospace Research and Test Establishment (Czech Republic); L. Pina, A. Innenman, Rigaku Innovative Technologies Europe (Czech Republic); V. Zadražil, Aerospace Research and Test Establishment (Czech Republic); T. Băcă, V. Stehlíková, O. Nentvich, M. Urban, Czech Technical Univ. Prague (Czech Republic); R. McEntaffer, J. Tutt, T. Schulz, Pennsylvania State Univ. (United States) ……………. [10235-36]

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

An assessment of the optical performance of a thin-glass segment coated with a low-stress iridium thin-film, David M. Broadway, Kiranmayee Kilaru, NASA Marshall Space Flight Ctr. (United States); Danièle N. Gurgew, The Univ. of Alabama in Huntsville (United States); Stephen L. O’Dell, Brian D. Ramsey, NASA Marshall Space Flight Ctr. (United States) ……………. [10235-2]

Prototyping iridium coated mirrors for X-ray astronomy, Thorsten Döhring, Anne-Catherine Probst, Manfred Stollenwerk, Hochschule Aschaffenburg (Germany); Veronika Stehlíková, Adolfs J. Innenman, Czech Technical Univ. in Prague (Czech Republic) ……………. [10235-3]

Study of lobster eye optics with iridium coated X-ray mirrors for a rocket experiment, Veronika Stehlíková, Martin Urban, Ondrěj Nentvich, Adolf J. Innenman, Czech Technical Univ. in Prague (Czech Republic); Thorsten Döhring, Anne-Catherine Probst, Hochschule Aschaffenburg (Germany) ……………. [10235-4]

Recent advances in reflective optics for EUV/X-ray sources at Thales SESO, Monique Ide, Thales SESO S.A.S. (France); Luca Peverini, ESRF - The European Synchrotron (France); Denis Fappani, Thales SESO S.A.S. (France) ……………. [10235-5]

**PLENARY SESSION** ……………. WED 13:30 TO 15:15

**Optics + Optoelectronics 2017:** Plenary Session III

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

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**SESSION 2** ………………. WED 15:40 TO 17:50

**Astronomical X-ray Optics II**

TBA (Invited Paper) ……………. [10235-6]

Current developments and tests of small X-ray optical systems for space applications, Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic); Adolf J. Innenman, T. Baca, Rigaku Innovative Technologies Europe (Czech Republic); Ladislav Sieger, Czech Technical Univ. in Prague (Czech Republic); Veronika Stehlíková, Daniela Doubravová, Czech Technical Univ. in Prague (Czech Republic); Vladimir Dániel, VZLU, a.s. (Czech Republic); René Hudec, Astronomical Institute of the ASCR, v.v.i. (Czech Republic) ……………. [10235-7]

Application of biomimetics in X-ray optics, René Hudec, Astronomical Institute of the ASCR, v.v.i., The Czech Academy of Sciences of Czech Republic and Czech Technical Univ. in Prague (Czech Republic); Katerina Remisova, Astronomical Institute of the ASCR, v.v.i., The Czech Academy of Sciences of Czech Republic and Charles Univ. in Prague (Czech Republic) ……………. [10235-8]

Optimization of microroughness of replicated X-ray optics, Lenka Mikulíková, TTS s. r. o. (Czech Republic), Institute of Chemical Technology in Prague, Univ. of Chemistry and Technology, Prague (Czech Republic); Ladislav Pina, Adolf J. Innenman, Czech Technical Univ. in Prague (Czech Republic); Rigaku Innovative Technologies Europe (Czech Republic); Veronika Stehlíková, Ondrěj Nentvich, Martin Urban, Ladislav Sieger, Czech Technical Univ. in Prague (Czech Republic); Daniela Doubravová, Czech Technical Univ. in Prague (Czech Republic); Rigaku Innovative Technologies Europe (Czech Republic) ……………. [10235-9]

Joint observations of solar corona in space projects ARCA and KORTES, Eugene A. Vishnyakov, Sergey A. Bogachev, Alexey S. Kirichenko, Anton A. Reva, Ivan P. Loboda, P.N. Lebedev Physical Institute, Russian Academy of Sciences (Russian Federation); Ilya V. Malyshiev, Institute for Physics of Microstructures Russian Academy of Sciences (Russian Federation); Artem S. Ulyanov, Sergey Y. Dyatkov, Natalya F. Erkova, Sergey V. Kuzin, P.N. Lebedev Physical Institute, Russian Academy of Sciences (Russian Federation) ……………. [10235-10]

Deformation-free rim for the primary mirror of telescope having sub-second resolution, Ilya Malyshiev, Nikolay I. Chkhhalo, Institute for Physics of Microstructures Russian Academy of Sciences (Russian Federation); Mikhail N. Toropov, Nikolay N. Salashchenko, Institute of Applied Physics of the Russian Academy of Sciences (Russian Federation); Alexey E. Pestov, Institute for Physics of Microstructures Russian Academy of Sciences (Russian Federation); Sergey V. Kuzin, P.N. Lebedev Physical Institute (Russian Federation); Vladimir N. Poltovnikov, Institute for Physics of Microstructures Russian Academy of Sciences (Russian Federation) ……………. [10235-11]
Conference 10235 continued

POSTER SESSION ............................... WED 17:45 TO 19:30
Conference attendees are invited to attend the Optics + Optoelectronics Symposium 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 congress badges to register for the poster session. Please ask authors, view poster presentation guidelines and set-up instructions on page 11, and at http://spie.org/x30951.xml.

Data processing from lobster eye optics, Ondrej Nentvich, Martin Urban, Veronika Stehlíková, Blanár Balint, Czech Technical Univ. in Prague (Czech Republic) ................................ [10235-24]

New design of spectrometer for X-ray astrophysics, Martin Urban, Ondrej Nentvich, Veronika Stehlíková, Ladislav Sieger, Czech Technical Univ. in Prague (Czech Republic); Jan Jakubeck, Advacam s.r.o. (Czech Republic) ................ [10235-25]

Development and demonstration of a water-window soft X-ray microscope using a Z-pinchning capillary discharge source, Muhammad Fahad Nawaz, Alexandr Jancarek, Michal Nenvrka, Ladislav Plna, Czech Technical Univ. in Prague (Czech Republic) ........ [10235-26]

Diffraction/refraction optics for “hard” X-ray radiation: from 10 keV to 100 keV, Alexander Fisor, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); Anatoly Fisor, Institute of Microelectronics Technology and High Purity Materials, Russian Academy of Sciences (Russian Federation) (Russian Federation); Irina Snigireva, ESRF - The European Synchrotron (France); Anatoliy Snigirev, Immanuel Kant Baltic Federal Univ. (Russian Federation) .......... [10235-27]

Development of laboratory metrology for X-ray refractive lenses, Dmitrii Zverev, Anton Narkovich, Ivan Lyatun, Immanuel Kant Baltic Federal Univ. (Russian Federation); Irina Snigireva, ESRF - The European Synchrotron (France); Anatoly Snigirev, Immanuel Kant Baltic Federal Univ. (Russian Federation) ........ [10235-28]

The influence of internal beryllium microstructure on the optical properties of compound refractive lenses, Ivan Lyatun, Peter Ershov, Anatoly Snigirev, Immanuel Kant Baltic Federal Univ. (Russian Federation); Irina Snigireva, ESRF - The European Synchrotron (France) .......... [10235-29]

High-resolution X-ray computed tomography as a diagnostic method of compound refractive lenses, Anton Narkovich, Peter Ershov, Dimitry Zverev, Immanuel Kant Baltic Federal Univ. (Russian Federation); Irina Snigireva, ESRF - The European Synchrotron (France); Anatoly Snigirev, Immanuel Kant Baltic Federal Univ. (Russian Federation) ............... [10235-30]

Pd/Y multilayer mirrors with a Mo barrier, Mingui Cui, Institute of High Energy Physics, Chinese Academy of Sciences (China); Dechao Dong, Qiushi Huang, Zhanhuan Wang, Tongji Univ, China (China) ........ [10235-31]

Development of fidar for remote sensing of the Martian surface, Leonid Smirnov, Victoria A. Ryzhova, Alexandre S. Grishkanich, ITMO Univ. (Russian Federation) ................................ [10235-32]

High-aperture monochromator-reflector-microscope and its usefulness for CO2 calibration, Eugene A. Vishnyakov, P.N. Lebedev Physical Institute, Russian Academy of Sciences (Russian Federation); Andrey A. Pertsov, P.N. Lebedev Physical Institute, Russian Academy of Sciences (Russian Federation); Vladimir N. Polkovnikov, Alexey E. Pestov, Dmitry E. Pariev, Nikolay I. Chihalo, Institute for Physics of Microstructures Russian Academy of Sciences (Russian Federation) ................ [10235-33]

Optical performances of aluminum based phase retardor in EUV and FUV range, Ahmed E. H. Gaballah, Paola Zuppella, Alain J. Corso, Piergiorgio Nicolosi, Univ. degli Studi di Padova (Italy) .... [10235-34]

SESSION 4 ............................... THU 9:10 TO 10:30
Multilayer and Refractive X-ray Optics

High-energy photoelectron spectroscopy combined to x-ray standing waves to study Pd/Y multilayers, Meiyi Wu, Vila Ilkovac, Jean-Michel André, Karine Le Guen, Univ. Pierre et Marie Curie (France) and Ctr. National de la Recherche Scientifique (France); Angelo Gill, Istituto Officina dei Materiali, Consiglio Nazionale delle Ricerche (Italy) and Consiglio Nazionale delle Ricerche (Italy); Jean-Pascal Rueff, Synchrotron SOLEIL (France); Qiushi Huang, Zhanhuan Wang, Tongji Univ. (China); Philippe Jonnard, Univ. Pierre et Marie Curie (France) and Ctr. National de la Recherche Scientifique (France) ........ [10235-15]

Multilayers on sculptured surfaces, Dmitrii L. Voronov, Farhad H. Salmassi, Lawrence Berkeley National Lab. (United States); Peter Gawlitta, Fraunhofer IWS Dresden (Germany); Eric M. Gullikson, Lawrence Berkeley National Lab. (United States); Stefan Braun, Fraunhofer IWS Dresden (Germany); Howard A. Padmore, Lawrence Berkeley National Lab. (United States) ........................................ [10235-16]

Development of depth-graded W/Si multilayer mirrors for X-ray focusing telescope application, Zhihui Huang, Runze Qi, Yang Yang, Zhong Zhang, Zhanhuan Wang, Tongji Univ. (China) ........ [10235-17]

Spectral X-ray glitches in monocrystalline diamond refractive lenses, Maxim Polikarpov, Nataliya Klimova, Immanuel Kant Baltic Federal Univ. (Russian Federation); Irina Snigireva, Hermann Emerich, ESRF - The European Synchrotron (France); Anatoly Snigirev, Immanuel Kant Baltic Federal Univ. (Russian Federation) .......... [10235-23]

SESSION 5 .................................. THU 11:00 TO 11:40
Coherent Radiation/Lasers

Lens-coupled tunable Young's double pinhole system for hard x-ray soft-x-ray coherence characterization, Michael Lyubomirskiy, Deutsches Elektronen-Synchrotron (Germany); Anatoly Snigirev, Immanuel Kant Baltic Federal Univ. (Russian Federation); Irina Snigireva, ESRF - The European Synchrotron (France) .......... [10235-18]

Metrology studies of soft X-ray and EUV grazing incidence optics using compact laser plasma light sources, Henryk Fiedorowicz, Andrzej S. Bartnik, Przemyslaw W. Wachulak, Military Univ. of Technology (Poland). .......... [10235-19]

SESSION 6 ............................... THU 11:40 TO 12:40
Integrated and Other Various Devices

Polarizers tuned at key far-UV spectral lines for space instrumentation, Juan I. Larrouquet, Consejo Superior de Investigaciones Científicas (Spain); A. Marco Malvecci, Univ. degli Studi di Pavia (Italy); Angelo Giglia, Istituto Officina dei Materiali, Consiglio Nazionale delle Ricerche (Italy) and Consiglio Nazionale delle Ricerche (Italy); Luis Rodriguez-de Morales, Nuria Gutiérrez-Luna, Lucía Espinosa-Yáñez, Carlos Horando-Benetiz, José A. Aznárez, Consejo Superior de Investigaciones Científicas (Spain); Giuseppe Massone, Gerardo Capobianco, Silvano Mineschi, INAF - Osservatorio Astrofisico di Torino (Italy); Stefano Nanarone, Istituto Officina dei Materiali, Consiglio Nazionale delle Ricerche (Italy) and Consiglio Nazionale delle Ricerche (Italy) [10235-20]

Flat-field VLS spectrometers for laboratory applications, Evgeny N. Ragozin, Alexei O. Kolesnikov, Alexey N. Shatkohin, P.N. Lebedev Physical Institute, Russian Academy of Sciences (Russian Federation) and Moscow Institute of Physics and Technology (Russian Federation); Eugene A. Vishnyakov, P.N. Lebedev Physical Institute, Russian Academy of Sciences (Russian Federation) ........ [10235-21]

Effect of ion beam etching on the surface roughness of bare and silicon covered beryllium, Alexey E. Pestov, Nikolay I. Chihalo, Mikhail S. Mikhaylenko, Institute for Physics of Microstructures Russian Academy of Sciences (Russian Federation); Nikolay N. Tsybin, Institute of Applied Physics of the Russian Academy of Sciences (Russian Federation); Igor L. Strulea, OAO “Kompozit” (Russian Federation); Maria V. Zorina, Sergei Y. Zuev, Institute of Applied Physics of the Russian Academy of Sciences (Russian Federation) ........ [10235-22]

THURSDAY 27 APRIL

SESSION 3 ............................... THU 8:30 TO 9:10
Active X-ray Optics and X-ray Microscopes

Reflective optics for effective collection of X-ray and EUV radiation: use for creation of hologramized planar, and detection of weak signals, Andrzej S. Bartnik, Wojciech Skrzeczanski, Przemyslaw W. Wachulak, Ismail Saber, Henryk Fiedorowicz, Tomasz Fok, Lukasz Wegrzynski, Military Univ. of Technology (Poland) ........ [10235-12]

Micro-x-ray fluorescence spectrometer with X-ray single bounce metalic capillary optics for light element analysis, Robert Mrózcka, Grzegorz Żukociński, Rafał Łopucki, The John Paul II Catholic Univ. of Lublin (Poland) .......... [10235-13]

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**CONFERENDE 10236**

Monday–Tuesday 24–25 April 2017 • Proceedings of SPIE Vol. 10236

**Damage to VUV, EUV, and X-ray Optics (XDam6)**

*Conference Chairs: Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Sasa Bajt, Deutsches Elektronen-Synchrotron (Germany)*

**MONDAY 24 APRIL**

**WELCOME AND INTRODUCTION ................... 8:30 TO 8:40**

**SESSION 1 ........................... MON 8:40 TO 10:10**

**Damage to Optics I**

*Session Chair: Jaromír Chalupský, Institute of Physics of the ASCR, v.v.i. (Czech Republic)*

**Single-shot damage of Ru thin film induced by XUV FEL fs pulses (Invited Paper), Igor Milov, Igor A. Makhotkin, MESA+ Institute for Nanotechnology, Univ. Twente (Netherlands); Ryszard Sobierajski, The Institute of Physics (Poland); Jaromír Chalupský, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Kai Tiedtke, Deutsches Elektronen-Synchrotron (Germany); Martin Hermann, Sebastian Strobel, Carl Zeiss SMT GmbH (Germany); Han-Kwang Nienhuys, ASML Netherlands B.V. (Netherlands); Hartmut Enkisch, Carl Zeiss SMT GmbH (Germany); Bart Faatz, Deutsches Elektronen-Synchrotron (Germany); Gosse C. de Vries, ASML Netherlands B.V. (Netherlands); Libor Juha, Vera Hájková, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Luís Teixeira,酿, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jaromír Juha, Vera Hájková, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Kai Tiedtke, Deutsches Elektronen-Synchrotron (Germany); Martin Hermann, Sebastian Strobel, Carl Zeiss SMT GmbH (Germany); Han-Kwang Nienhuys, ASML Netherlands B.V. (Netherlands); Tomas Burián, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); Robbert W. E. van de Kruis, Rico Keim, MESA+ Institute for Nanotechnology, Univ. Twente (Netherlands); Henk van Wolferen, MESA+ Institute for Nanotechnology, Univ. Twente (Netherlands); Eric Louis, MESA+ Institute for Nanotechnology, Univ. Twente (Netherlands); Ivanna Jáchynová, The Institute of Physics (Poland); Jaromír Klinger, Ivanna Jacyna, The Institute of Physics (Poland); Hartmut Enkisch, Carl Zeiss SMT GmbH (Germany); Bart Faatz, Deutsches Elektronen-Synchrotron (Germany); Libor Juha, Vera Hájková, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Marek Jurek, The Institute of Physics (Poland); Robbert W. E. van de Kruis, MESA+ Institute for Nanotechnology, Univ. Twente (Netherlands); Eric Louis, MESA+ Institute for Nanotechnology, Univ. Twente (Netherlands); Kai Tiedtke, Sven Toleikis, Deutsches Elektronen-Synchrotron (Germany); Gosse C. de Vries, ASML Netherlands B.V. (Netherlands).* 

**SESSION 2 ........................... MON 10:40 TO 12:35**

**Laser-Matter Interaction**

*Session Chair: Ryszard Sobierajski, The Institute of Physics (Poland)*

**Ultrafast laser-induced confined microexplosion: a new way to create new material phases (Invited Paper), Andrei V. Rode, Australian National Univ. (Australia); Ludovic Rapp, FEMTO-ST (France); Eugene G. Gamaly, Australian National Univ. (Australia); Remo Giust, Luca Furfaro, Pierre-Ambroise Lacourt, John M. Dudley, FEMTO-ST (France); Saulius Juodkazis, Swinburne Univ. of Technology (Australia); Francois Courvoisier, FEMTO-ST (France).**
Surface modification of BaF$_2$ induced by focused 46.9-nm laser beam. Hualyu Cui, Harbin Institute of Technology (China); Vera Hâjková, Tomáš Burian, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Karel Kolacek, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic)...................................................................................................................................................[10236-9]

Lunch Break ...........................................................................................................................................Mon 12:35 to 13:50

SESSION 3 ...............MON 13:50 TO 15:30

Damage to Samples
Session Chair: Marie Davidková, Nuclear Physics Institute of the ASCR, v.v.i. (Czech Republic)

Multiscale modelling of radiation chemistry: from picosecond processes to observable endpoints (Invited Paper), Gregory P. Horne, California State Univ., Long Beach (United States); Thomas A. Donofrio, The Univ. of Manchester (United Kingdom); Jay A. LaVerne, Univ. of Notre Dame (United States); Stephen P. Mozgy, California State Univ., Long Beach (United States); Simon Pimböltt, The Univ. of Manchester (United Kingdom)........................................................................................................[10236-10]

Investigating laser-induced damage process in nanoparticles using femtosecond XFEL pulses (Invited Paper), Changyong Song, POSTECH (Korea) ........................................................................................................[10236-11]

Is there any dose-rate effect in breaking DNA strands by short pulses of extreme ultraviolet and soft x-ray radiation? Ludek Vysl, Tomáš Burian, Egor Ukraintsev, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Marie Davidková, Nuclear Physics Institute of the ASCR, v.v.i. (Czech Republic); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Michael E. Grisham, Stable Laser Systems (United States); Scott C. Heinbuch, Jorge J. Rocca, Colorado State Univ. (United States); Simon Pimböltt, Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ........................................................................................................................................[10236-12]

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

Optics + Optoelectronics 2017: Plenary Session I
For details, please see page 5-6 in the printed programme or visit http://spie.org/x25077.xml

Tuesday 25 April

Optics + Optoelectronics 2017: Plenary Session II
For details, please see page 5-6 in the printed programme or visit http://spie.org/x25077.xml

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

Damage to Optics II
Session Chair: Igor A. Makhotkin, Univ. Twente (Netherlands)

Growth of nanodots on the grazing incidence mirror surface under FEL irradiation (Invited Paper), Igor V. Kozevnikov, AV Shubnikov Institute of Crystallography (Russian Federation); Harald Sinn, Liubov Samoylova, European XFEL, GmbH (Germany); Aleksey Buzmakov, AV Shubnikov Institute of Crystallography (Russian Federation); Frank Siewert, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); Kai Tiedtke, Deutsches Elektronen-Synchrotron DESY (Germany)........................................................................................................[10236-13]

Low-pressure RF remote plasma cleaning of carbon-contaminated 4B4-coated optics. Harri Moreno Fernandez, CELLS - ALBA (Spain); Muriel Thomasset, Synchrotron SOLEIL (France); Guillaume Sauthier, Institut Català de Nanociència i Nanotecnologia (ICN2) (Spain); Daniela Rogler, Reiner Dietzsch, AXO DRESDEN GmbH (Germany); Raymond Barrett, ESRF - The European Synchrotron (France); Vincent L. Carlino, ibss Group, Inc. (United States); Eric J. Pellegrin, CELLS - ALBA (Spain) ........................................................................................................[10236-14]

Study of performance loss of Lyman alpha filters due to chemical contamination. Deaphine Faye, Ctr. National d’Études Spatiales (France); Xueyan Zhang, Inst. d’Astrophysique Spatiale (France); Pierre Etcheto, Ctr. National d’Études Spatiales (France); Frédéric Auzière, Institut d’Astrophysique Spatiale (France) ........................................................................................................[10236-15]

Optical and structural characterization of Nb, Zr, Nb/Zr thin films on Si3N4 membranes used as windows. Kety M. Jimenez Tejeda, Univ. degli Studi di Padova (Italy); Piergiorgio Nicolosi, Univ. degli Studi di Padova (Italy) and LUXOR-CNR-IFN (Italy); Paola Zuppella, CNR-IFN UoS Padova (Italy); Ahmed El Hamed Gaballah, Mawasf G. Sertsu, Univ. degli Studi di Padova (Italy) ........................................................................................................[10236-16]

Conference 10236 continued

Non-thermal damage to lead tungstate induced by intense short-wavelenght laser radiation. Voltech Vozdva, Charles Univ. in Prague (Czech Republic), Institute of Physics of the ASCR, v.v.i. (Czech Republic); Pavel Boháček, Tomáš Burian, Jaromír Chalupský, Vera Hâjková, Libor Juha, Ludek Vysl, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jérôme Gaudin, European XFEL GmbH (Germany); Philip A. Heimann, Lawrence Berkeley National Lab. (United States); Stefan P. Hau-Riege, Lawrence Livermore National Lab. (United States); Marek Jurek, Doreta Klinger, The Institute of Physics (Poland); Jack Krzywiński, Marc Messerschmidt, Stefan P. Moeller, Robert Nagler, SLAC National Accelerator Lab. (United States); Jerzy B. Pelka, The Institute of Physics (Poland); Michael Rowen, William F. Schlitter, Michele L. Swiggers, SLAC National Accelerator Lab. (United States); Harald Sinn, European XFEL GmbH (Germany); Ryszard Sobierajski, The Institute of Physics (Poland); Karel Sákal, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Maria V. Kozlova, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Sam M. Vinko, Thomas Whittcher, Univ. of Oxford (United Kingdom); Thomas Dzelzains, Queen’s Univ. Belfast (United Kingdom); Oldrich Renner, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Karel Sákal, Institute of Materials Research SAS (Slovakia); Roland R. Fäustlin, Deutsches Elektronen-Synchrotron (Germany); Ali R. Khorsand, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Marta Fajardo, Instituto de Plasmas y Fusión Nacional (Portugal); Bianca S. Iwan, Jakob Andreason, Janos Hajdu, Nicusor Timoneanu, Uppsala Univ. (Sweden); Justin S. Stair, Univ. of Oxford (United Kingdom); David Riley, Queen’s Univ. Belfast (United Kingdom); Richard W. Lee, Lawrence Livermore National Lab. (United States); Mitsuji Nagasono, Makina Yabashi, RIKEN Harima Branch (Japan) ........................................................................................................[10236-17]

Lunch/Exhibition Break ..........................................................................................Tue 12:20 to 13:30

SESSION 5 ..................TUE 13:30 TO 14:55

Theory of Damage
Session Chair: Stéphane Guizard, Commissariat à l’Energie Atomique (France)

Thermalization of X-ray-generated electron cascades in diamond and silicon (Invited Paper), Vladimir S. Ivanov, Alexander Zeiger, IEO Dresden (Germany) ........................................................................................................[10236-18]

Analysis of various damage channels in FEL irradiated solids. Nikita A. Medvedev, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic) ........................................................................................................[10236-19]

Panel Discussion ..................14:55 TO 15:35

Round Table Discussion: Damage Mechanisms-Theory and Experiments
Session Chair: Nikita A. Medvedev, Institute of Physics of the ASCR, v.v.i. (Czech Republic)

Co-organized by the Czech Academy of Sciences within its Strategy 21 Programme, the session “Damage Mechanisms: Theory and Experiments” will be focused on further development of the theory and computer simulations of processes responsible for transient and irreversible changes in irradiated solids to get a good agreement with experimental results obtained and to help in planning prospective experiments at new facilities, esp. European XFEL. The session will incorporate invited contributions and a round-table discussion.

Panel Discussion ..................16:00 TO 17:50

Round Table Discussion: XUV/X-ray Lasers in Radiation Chemistry and Radiobiology
Session Chair: Simon Pimböltt, Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic)

Co-organized by the Czech Academy of Sciences within its Strategy 21 Programme, the session will be dealing with a prospective utilization of new short wavelength lasers in radiation chemistry and radiobiology. The session will incorporate invited contributions and a round-table discussion.
X-Ray Free-Electron Lasers: Advances in Source Development and Instrumentation

Conference Chairs: Thomas Tschentscher, European XFEL GmbH (Germany); Luc Patthey, Paul Scherrer Institut (Switzerland)

Program Committee: Robert Aymeric, SLAC National Accelerator Lab. (United States); Sven Reiche, Paul Scherrer Institut (Switzerland); Rolf Treusch, Deutsches Elektronen-Synchrotron (Germany); Makina Yabashi, Japan Synchrotron Radiation Research Institute (JASRI) (Japan); Mikhail V. Yurkov, Deutsches Elektronen-Synchrotron (Germany); Marco Zangrando, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); Philippe Zeitoun, Lab. d’Optique Appliquée (France)

TUESDAY 25 APRIL

JOINT SESSION 1  .................................................. TUE 13:10 TO 15:20

Scientific Applications of Laser- and Accelerator-based X-ray Sources

Session Chair: Thomas Tschentscher, European XFEL GmbH (Germany)

Joint Session with Conferences 10237 and 10243

X-ray absorption spectroscopy of warm dense matter with betatron x-ray radiation (Invited Paper), Felicie Albert, Lawrence Livermore National Lab (United States) ........................................ [10245-18]
Investigating pathways of biological specimen on fs to kHz timescales (Invited Paper), Richard Neutze, Göteborgs Univ. (Sweden) .... [10237-1]
Nonlinear X-ray spectroscopy: needs and prospects (Invited Paper), Nina Rohringer, DESY (Germany) ................................. [10237-2]
The EIS beamline at the seeded free-electron laser FERMI, Alberto Simoniccig, Riccardo Mincigrucci, Emiliano Principi, Filippo Bencivenga, Laura Foglia, Andrea Calvi, Claudio Masciovecchio, Gabor Kurdi, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); Alessia Matruglio, Simone Dal Zilio, Valentina Masciotti, Istituto Officina dei Materiali (Italy) .... [10243-20]

JOINT SESSION 2  .................................................. TUE 14:30 TO 17:30

Temporal, Spatial and Coherence Diagnostics of Ultrashort X-ray Pulses

Session Chair: Carmen S. Menoni, Colorado State Univ. (United States)

Joint Session with Conferences 10237 and 10243

Advanced time-domain diagnostics using photoelectrons (Invited Paper), Wolfram Helm, Technische Univ. München (Germany); Nick Hartmann, SLAC National Accelerator Lab. (United States); Rupert Heider, Martin S. Wagner, Technische Univ. München (Germany); Gregor Hartmann, Deutsches Elektronen-Synchrotron (Germany); Markus Ichen, European XFEL GmbH (Germany); Jens Buck, Deutsches Elektronen-Synchrotron (Germany); Anton O. Lindahl, Qamcom Research & Technology AB (Sweden); Craig Benko, JILA (United States); Jan Grönter, European XFEL GmbH (Germany); Jacek Krzywinski, SLAC National Accelerator Lab. (United States); Jia Liu, European XFEL GmbH (Germany); Alberto Lutman, Agostino Marinelli, Timothy J. Maxwell, Ali reza A. Miahnahri, Stefan P. Moeller, SLAC National Accelerator Lab. (United States); Marc Planas, European XFEL GmbH (Germany); Joseph S. Robinson, SLAC National Accelerator Lab. (United States); Jens Viefhaus, Deutsches Elektronen-Synchrotron (Germany); Thomas Feurer, Univ. Bern (Switzerland); Reinhard Kienberger, Technische Univ. München (Germany); Ryan N. Coffee, SLAC National Accelerator Lab. (United States) ................. [10237-3]
Temporal diagnostics from photons: the experience with the PALM (Invited Paper), Pavle Juricic, Ishkhan Gorgisyan, Christian Fritz, Rasmus Ischebeck, Luc Patthey, Claude Pradervand, Christopher J. Milne, H. Lemke, Paul Scherrer Institut (Switzerland); Andreas Dai, Yale Univ. (United States); Milan Radovic, Christoph P. Haury, Paul Scherrer Institut (Switzerland); Shigeki Owada, Tadashi Togashi, Tsukasa Katayama, Makina Yabashi, RIKEN Harima Branch (Japan) .... [10237-4]
Single-shot linear autocorrelation of partially coherent XUV laser pulses, Andréa Le Marec, Institut des Sciences Moléculaires d’Orsay (France); Olivier A. Guibaud, Moana Pittman, Elsa Baynard, Univ. Paris-Sud 11 (France); Julien Demaillé, Olivier Neveu, Lab. de Physique des Gaz et des Plasmas (France); Sophie Kazamias, Univ. Paris-Sud 11 (France); Bruno Lucas, Fabrice Sanson, Lab. de Physique des Gaz et des Plasmas (France); David Ros, Annie Klinsick, Univ. Paris-Sud 11 (France) ................. [10243-21]

WEDNESDAY 26 APRIL

Opening Remarks ................................. 8:25 TO 8:30

SESSION 1 .................................................. WED 8:30 TO 12:20

Status and Development Plans of Planned and Operational VUV, EUV, Soft X-ray and X-ray FEL Facilities

Session Chair: Rolf Treusch, Deutsches Elektronen-Synchrotron (Germany)

Overview of optics, photon diagnostics and experimental instruments at SACLA: development, operation and scientific applications (Invited Paper), Kenuke Tono, Japan Synchrotron Radiation Research Institute (Japan) ................................................ [10237-5]
Opportunities and challenges for photon diagnostics at the soft X-ray FEL FLASH in simultaneous operation mode (Invited Paper), Marion Kuhlmann, Rolf Treusch, Elke Plöns-Palm, Bart Faatz, Kai Tiedtke, Markus Braune, Barbara Keitel, Deutsches Elektronen-Synchrotron (Germany) ........................................ [10237-6]
Commissioning for the European XFEL facility (Invited Paper), Dirk Nöll, DESY (Germany) ............................................... [10237-7]
Starting up Swiss FEL (Invited Paper), Luc Patthey, Paul Scherrer Institut (Switzerland)

Commissioning results of PAL-XFEL, Heung-Sik Kang, Pohang Accelerator Lab. (Korea, Republic of) ................................. [10237-9]
Attosecond Interferometry at FLASH (Invited Paper), Tim Laarmann, DESY (Germany) and The Hamburg Centre for Ultrafast Imaging CUI (Germany) ................................. [10237-10]
Four-wave-mixing experiments and beyond: the TIMER/mini-TIMER setups at FERMI (Invited Paper), Laura Foglia, Filippo Bencivenga, Riccardo Mincigrucci, Alberto Simoniccig, Andrea Calvi, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); Riccardo Cucini, Istituto Officina dei Materiali (Italy); Emiliano Principi, Emanuele Pedersoli, Flavio Capotondi, Maya Kiskinova, Claudio Masciovecchio, Elettra-Sincrotrone Trieste S.C.p.A. (Italy) .... [10237-11]
Lunch/Exhibition Break ................................ Wed 12:20 to 13:30

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

Optics + Photoelectronics 2017: Plenary Session III

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml
POSTER SESSION  .................. WED 17:45 TO 19:30
Conference attendees are invited to attend the Optics + Optoelectronics Symposium 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 11, and at http://spie.org/x39051.xml.

Magnetic force study of the delta undulator for the EuXFEL SASE3 afterburner. Peng Li, Yuhui Li, Tao Wei, Joachim Pflüger, European XFEL GmbH (Germany) .......................... [10237-34]

Frequency doubler and two-color mode of operation at free electron laser FLASH2. Mikhail V. Yurkov, Evgeny A. Schneidmiller, Deutsches Elektronen-Synchrotron (Germany) .......................... [10237-35]

Application of statistical techniques for characterization of SASE FEL radiation. Mikhail V. Yurkov, Evgeny A. Schneidmiller, Deutsches Elektronen-Synchrotron (Germany). .................. [10237-36]

A soft x-ray split-and-delay unit for FLASH II. Sebastian Roling, Matthias Rollnik, Westfälische Wilhelms-Univ. Münster (Germany); Marion Kuhlmann, Elke Plöns-Palm, Deutsches Elektronen-Synchrotron (Germany); Frank Wahletz, Helmut Zacharias, Westfälische Wilhelms-Univ. Münster (Germany). .......................... [10237-37]

A hard x-ray split-and-delay unit for the HED instrument at the European XFEL. Victor Kaercher, Westfälische Wilhelms-Univ. Münster (Germany); Liubov Samoylova, Karen Appel, European XFEL GmbH (Germany); Stefan Braun, Peter Gawlitzka, Fraunhofer IWS Dresden (Germany); Frank Siewetz, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); Ulf Zsarra, European XFEL GmbH (Germany); Matthias Rollnik, Frank Wahletz, Helmut Zacharias, Westfälische Wilhelms-Univ. Münster (Germany). .......................... [10237-37]

Duty-cycle dependence of the filamentation effect in gas devices for high-repetition rate x-ray FELs. Yiping Feng, SLAC National Accelerator Lab. (United States). .......................... [10237-38]

High-repetition rate experiments at the European XFEL. Thomas Tschentscher, European XFEL GmbH (Germany). .......................... [10237-40]

Grating monochromator with ultrafast response for FLASH II at DESY. Fabio Frascetto, CNR-IFN UoS Padova (Italy); Günter Brenner, Marion Kuhlmann, Elke Plöns-Palm, Deutsches Elektronen-Synchrotron (Germany); Luca Polletto, CNR-IFN Padova (Italy). .......................... [10237-41]
Conference 10237 continued

SESSION 5 ............................ THU 14:00 TO 15:40

X-ray Optics and Beam Transport Issues Including Propagation of Coherent X-ray FEL Radiation and Simulation of X-ray FEL II

Session Chair: Luc Patthey, Paul Scherrer Institut (Switzerland)

A hard x-ray split-and-delay optics with wavefront dividing crystals at SACLA (Invited Paper), Taito Osaka, RIKEN SPring-8 Center (Japan) and Osaka University (Japan) .................................................. [10237-25]

Hard X-ray split-delay development at the Linac Coherent Light Source, Diling Zhu, Donald W. Schafer, SLAC National Accelerator Lab. (United States); Yanwen Sun, SLAC National Accelerator Lab. (United States) and Stanford Univ. (United States); Ted O. Osier, Andrew H. Barada, Josep Nicolas, Lin Zhang, Robert Aymeric, SLAC National Accelerator Lab. (United States) .................................................. [10237-26]

Simulations of ultrafast x-ray laser experiments in EUCALL (Invited Paper), Carsten Fortmann-Grote, European XFEL GmbH (Germany); Alexander A. Andreev, Max-Born-Institut für Nichtlineare Optik und Kurzzeitpektroskopie (Germany) and ELI-ALPS Research Institute (Hungary); Richard Briggs, ESRF - The European Synchrotron (France); Michael Bussmann, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Alexey V. Buzmakov, FSRC “Crystallography and Photonics”, Russian Academy of Sciences (Russian Federation); Marco Garten, Alexander Grund, Axel Hübl, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Zoltan Jurek, Ctr. for Free-Electron Laser Science (Germany) and The Hamburg Ctr. for Ultrafast Imaging (Germany); Nete D. Loh, National Univ. of Singapore (Singapore); Liubov Samoylova, European XFEL GmbH (Germany); Robin Santra, Ctr. for Free-Electron Laser Science (Germany) and The Hamburg Ctr. for Ultrafast Imaging (Germany) and Univ. Hamburg (Germany); Evgeny A. Schneidmiller, Deutsches Elektronen-Synchrotron (Germany); Ashutosh Sharma, ELI-ALPS Research Institute (Hungary); Thomas Tschentscher, European XFEL GmbH (Germany); Michael V. Yurkov, Deutsches Elektronen-Synchrotron (Germany); Chun Hong Yoon, SLAC National Accelerator Lab. (United States); Adrian P. Mancuso, European XFEL GmbH (Germany) .................................................. [10237-27]

Design of compressors for free-electron-laser pulses using deformable gratings, Stefano Bonora, Nicola Fabris, Fabio Frassetto, Ennio Giovine, Paolo Miotti, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Martino Quintavalla, Luca Poletto, CNR-IFN Padova (Italy) .......................... [10237-28]

SESSION 6 ............................ THU 16:00 TO 18:20

Advanced Instrumentation for FEL Experiments in the Areas of Special X-ray Techniques, Sample Environment, Detectors and Lasers

Session Chair: Thomas Tschentscher, European XFEL GmbH (Germany)

Fast refreshing target delivery systems for new generation light sources (Invited Paper), Daniele Margarone, Institute of Physics of the ASCR, v.v.i. (Czech Republic) .................................................. [10237-29]

Detectors for intense, femtosecond X-ray sources (Invited Paper), Bernd Schmidt, Paul Scherrer Institut (Switzerland) ................................ [10237-30]

Detector sustainability improvements at LCLS, Philip A. Hart, SLAC National Accelerator Lab. (United States) .......................... [10237-31]

Bringing PW-class lasers to FELs (Invited Paper), Hiromitsu Tomizawa, The Institute of Physical and Chemical Research (RIKEN Harima/SPRING-8) (Japan) .................................................. [10237-32]

Integrating high-repetition rate high-energy/high-intensity laser to FEL experiments (Invited Paper), Gerd Priebe, Karen Appel, European XFEL GmbH (Germany); Carsten Baethz, Helmholtz-Zentrum Dresden-Rossendorf e.V. (Germany); Thomas E. Cowan, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Sebastian Goede, Zuzana Konopkova, Max J. Lederer, Motoaki Nakatsutsumi, European XFEL GmbH (Germany); Alexander Pelka, Toma Tomican, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Thomas Tschentscher, Ulf Zastrau, European XFEL GmbH (Germany); Bolun Chen, China Academy of Engineering Physics (China) .................................................. [10237-33]
CONFERENCE 10238

Wednesday - Thursday 26–27 April 2017 • Proceedings of SPIE Vol. 10238

High-Power, High-Energy, and High-Intensity Laser Technology

Conférence Chair: Joachim Hein, Friedrich-Schiller-Universität Jena (Germany)

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

WEDNESDAY 26 APRIL

OPENING REMARKS ........................................... 8:25 TO 8:30

SESSION 1 ..................................................... WED 8:30 TO 10:40

High Energy Lasers

Session Chair: Joachim Hein, Friedrich-Schiller-Universität Jena (Germany)

A 100 J-level nanosecond DPSSL for high-energy density experiments (Invited Paper), Thomas J. Butter, Paul D. Mason, Saumyabrata Banerjee, Klaus G. Ertel, P. Jonathan Phillips, Jodie M. Smith, Maristefania De Vido, Oleg V. Chekhlov, STFC Rutherford Appleton Lab. (United Kingdom); Martin Divoky, Jan Pilar, HILASE Ctr. (Czech Republic); Waseem Shaikh, Chris J. Hooker, STFC Rutherford Appleton Lab. (United Kingdom); Gerd Priebe, European XFEL GmbH, Hamburg; James T. Heisler, Axel Jochmann, Gilles Chériaux, Michael E. Donovan, Toma Tomcian, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Cristina Hernandez-Gomez, STFC Rutherford Appleton Lab. (United Kingdom); Tomáš Hocek, HILASE Ctr. (Czech Republic); Chris Edwards, John L. Collier, STFC Rutherford Appleton Lab. (United Kingdom) . . . [10238-1]

Performance results and design criteria of the power amplifiers in the L4 laser system, Axel Joachmann, Gilles Chériaux, Michael E. Donovan, Gavin Friedman, Erhard Gaul, Doug Hammond, James T. Heisler, Matt Kepler. National Energetics (United States); Daniel Kramer, Bedrich Rus, ELI Beamlines (Czech Republic); T. Green, ELI Beamlines (Czech Republic); Doug Hammond, James T. Heisler, Axel Joachmann, Gilles Chériaux, Michael E. Donovan, Toma Tomcian, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) . . . [10238-2]

Solution for testing large high-power laser lenses having long focal length, Denis Fappani, Monique IDE, Thales SESG (France) . . . [10238-3]

All diode-pumped 4 Joule S27nm Nd: YLF laser for pumping Ti:Sapphire lasers, Faming Xu, Christopher J. Briggs, Jay Doster, Ryan Feeler, Edward F. Stephens, Northrop Grumman Cutting Edge Optonics (United States) . . . [10238-4]

A novel “gain chip” concept for high-power lasers, Min Li, Mingzhong Li, Zhenguang Xiao, Xiongwei Yan, Xinying Jiang, Jiangang Zheng, Xudong Cui, Xiaomin Zhang, China Academy of Engineering Physics (China). . . . [10238-5]

10J water-cooled DPSSL system based on Yb:YAG crystal edge-cladded by Cr:YAG ceramics, Jian-Gang Zheng, China Academy of Engineering Physics (China) and Shanghai Jiao Tong Univ. (China); Xiongwei Yan, Xinying Jiang, Zhenguang Wang, Mingzhong Li, Jun Zhang, China Academy of Engineering Physics (China); Qihu Zhu, Wangguo Zheng, China Academy of Engineering Physics (China) and Shanghai Jiao Tong Univ. (China) . . . [10238-6]

SESSION 2 ..................................................... WED 11:10 TO 12:20

Ultrashort Pulses and High Peak Power I

Session Chair: Mikhail P. Kalashnikov, Max-Born-Institut für Nichtlineare Optik und Kurzzeitoptikspiele (Germany)

5 Hz high-energy, ultrahigh contrast OPCPA frontend for the L4 laser system (Invited Paper), Gilles Chériaux, National Energetics (United States); Roman Antipenkov, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Teddy Borger, The Univ. of Texas at Austin (United States); Martin Divoky, Jan Pilar, HILASE Ctr. (Czech Republic); Jun Kang, ENSCM, Univ. of Angers (France); Jonathan T. Green, ELI Beamlines (Czech Republic); Doug Hammond, James T. Heisler, Axel Joachmann, Mirmala Kandalai, Matt Kepler, National Energetics (United States); Daniel Kramer, Bedrich Rus, ELL Beamlines (Czech Republic); Erhard Gaul, Todd Ditmire, National Energetics (United States) . . . [10238-7]

Active spectral pre-shaping with polarization encoded amplifiers, Huabao Cao, ELI-ALPS Research Institute (Hungary); Mikhail P. Kalashnikov, ELI-ALPS Research Institute (Hungary) and Max-Born-Institut für Nichtlineare Optik und Kurzzeitoptikspiele (Germany); Károly Osval, ELI-ALPS Research Institute (Hungary); Nikita Khodakovskiy, Max-Born-Institut für Nichtlineare Optik und Kurzzeitoptikspiele (Germany); Roland S. Nagymihály, Vladimir V. Chvykov, ELI-ALPS Research Institute (Hungary) . . . . [10238-8]

Dispersion measurement on chirped mirrors at arbitrary incidence angle and polarization state, Máté Kovács, ELI-HU Nonprofit Kft. (Hungary); Tomas Somosko, Imre Seres, Univ. of Szeged (Hungary); Adámad Börzsönyi, ELI-ALPS Research Institute (Hungary); Áron Sipos, Biological Research Ctr. (Hungary); Károly Osval, ELI-HU Nonprofit Kft. (Hungary) . . . . [10238-9]

Lunch/Exhibition Break ................................. Wed 12:20 to 13:30

PLENARY SESSION ........................................... 13:30 TO 15:15

Optics + Optoelectronics 2017:
Plenary Session III

For details, please see page 5-6 in the printed programme or visit http://spie.org/x25077.xml

SESSION 3 ..................................................... WED 15:40 TO 17:30

Ti:Sapphire Lasers and OPCPA

Session Chair: Thomas J. Butter, STFC Rutherford Appleton Lab. (United Kingdom)

Picosecond temporal contrast of Ti:Sapphire lasers (Invited Paper), Mikhail P. Kalashnikov, Nikita Khodakovskiy, Max-Born-Institut für Nichtlineare Optik und Kurzzeitoptikspiele (Germany) . . . [10238-10]

Thin Disk Ti:Sapphire amplifiers for Joule-class ultrashort pulses with high repetition rate, Roland S. Nagymihály, Huabao Cao, ELI-ALPS Research Institute (Hungary); Mikhail P. Kalashnikov, ELI-ALPS Research Institute (Hungary) and Max-Born-Institut für Nichtlineare Optik und Kurzzeitoptikspiele (Germany); Nikita Khodakovskiy, Lutz Ehrentraut, Max-Born-Institut für Nichtlineare Optik und Kurzzeitoptikspiele (Germany); Károly Osval, ELI-HU Nonprofit Kft. (Hungary); Vladimir V. Chvykov, ELI-ALPS Research Institute (Hungary) . . . . [10238-11]

Measurement of spectral phase noise in a cryogenically cooled Ti:Sa amplifier, Roland S. Nagymihály, ELI-ALPS Research Institute (Hungary); Péter Jójárt, Adámad Börzsönyi, ELI-ALPS Research Institute (Hungary) . . . . [10238-12]

Femtosecond optical parametric amplification in BBO and KTA driven by a Ti:Sapphire laser for LIDT testing and diagnostic development, Alexander R. Meadows, Josef Cupal, Petr Hríbek, Daniel Kramer, Bedrich Rus, ELI Beamlines (Czech Republic) . . . . [10238-13]

Theoretical and experimental study of 808nm OPCPA amplifier by using a DKDP crystal, Xinlong Xie, Meizhi Sun, Jianqiang Zhu, Xiaolong Liang, Jun Kang, Qingwei Yang, Haidong Zhu, Ailin Guo, Qi Gao, Shanghai Institute of Optics and Fine Mechanics (China) . . . . [10238-14]
Conference 10238 continued

POSTER SESSION ........................................... WED 17:45 TO 19:30

Conference attendees are invited to attend the Optics + Optoelectronics Symposium 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 session. Please, authors, view poster presentation guidelines and set-up instructions on page 11, and at http://spie.org/x30951.xml.

Experimental study on the long-running ablation resistance of new/gain generators with film cooling for combustion driven DF/HF chemical lasers, Jitendra, Wei Hong, Huayin, National Univ. of Defense Technology (China). .................................................. [10238-34]

Influence of resonator length on catastrophic optical damage in high-power AlGaNp broad-area lasers, Marwan Bou Sanayeh, Notre Dame Univ., Louaize (Lebanon). .................................................. [10238-35]

Development of few cycle Ti:Sapphire and NOPA amplifiers at 80MHz repetition rate, Attila Andrásik, Univ. of Szeged (Hungary); Szabolcs Toth, Roland S. Nagymihály, Péter Jójtár, ELI-HU Nonprofit Kft. (Hungary); and Univ. of Szeged (Hungary); Roland Flender, Univ. of Szeged (Hungary); Ádám Börzsönyi, Károly Osay, ELI-HU Nonprofit Kft. (Hungary) and Univ. of Szeged (Hungary). .................................................. [10238-36]

Temperature influence on diode pumped Yb:GGAG laser, Karel Veselísky, Czech Technical Univ. in Prague (Czech Republic); Pavel Boháček, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jan Šulc, Helena Jelínková, Czech Technical Univ. in Prague (Czech Republic); Bohumír Trunda, Lubomír Havlák, Jan Kurek, Martin Nikl, Institute of Physics of the ASCR, v.v.i. (Czech Republic). .................................................. [10238-37]

Interferometric phase noise measurement of water-cooled mirrors for highpower-pumped lasers, Karel Jójtár, Janátka Štůhler, ELI-HU Nonprofit Kft. (Hungary); University of Szeged (Hungary); Roland S. Nagymihály, ELI-HU Nonprofit Kft. (Hungary); University of Szeged (Hungary); Roland Flender, University of Szeged (Hungary); Ádám Börzsönyi, Károly Osay, ELI-HU Nonprofit Kft. (Hungary). .................................................. [10238-38]

6 kW peak power of quasi-CW Yb-doped fiber laser, Hoon Jeong, Minjeon Jeon, Yeji Jeong, Korea Institute of Industrial Technology (Korea Republic of); Hong Seok Seo, Electronics and Telecommunications Research Institute (Korea, Republic of); Ji Won Kim, Hanyang Univ. (Korea Republic of). .................................................. [10238-39]

Diode-side-pumped monolithic Nd:YAG slab laser, Jan Šulc, Michal Jelínek, Václav Kubec, Helena Jelínková, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Václav Skoda, CRYTUR sro. (Czech Republic). .................................................. [10238-40]

Development of 2.7 μm Er:ZGO ceramic laser operated at room temperature, Ryan Leiter, ELI-Ctr. (Czech Republic); Tino Eidam, Active Fiber Systems GmbH (Germany); Jens Limpert, Friedrich-Schiller-University, Jena (Germany); Martin Smrž, Michal Chyla, Tomáš Mocék, HILASE Ctr. (Czech Republic); Károly Osay, ELI-HU Nonprofit Kft. (Hungary). .................................................. [10238-41]

Preliminary simulation results of the ESA QOMA II project: A new Q-switched ultrafast laser technology, Stefan Steimer, Steve McIlwrath, Robert Martinez, Ralf Wüst, NLH Power Laser GmbH (Germany); Antonio Lucianetti, Helmholtz-Centre Berlin (Germany); Tristan Schomberg, NLH Power Laser GmbH (Germany). .................................................. [10238-42]

LIDT test station for optical elements testing under cryogenic conditions, Jindrich Olehlela, Josef Lazar, Institute of Scientific Instruments of the ASCR, v.v.i. (Czech Republic). .................................................. [10238-43]

Room temperature CW and QCW operation of Ho:CaF2 laser pumped by Ti:sapphire laser, Michal Jelínek, Václav Kubec, Czech Technical Univ. in Prague (Czech Republic); Beibei Zhao, Weiwei Ma, Dapeng Huang, National Defense University of China (CAS). .................................................. [10238-44]

Precision control of mirror-grating phasing for a laser pulse compressor, Stepan Vyhlídka, Pavel Trojek, Daniel Kramer, David Snopk, Martin Solc, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Marek Zeman, Erhard Gaul, National Energetics (USA); Bedrich Rus, Institute of Physics of the ASCR, v.v.i. (Czech Republic). .................................................. [10238-45]

InAs/GaSb superlattice photodiode/phototransistor array for high-energy neodymium lasers, Sona Das, Upal Das, Indian Institute of Technology Kanpur (India). .................................................. [10238-46]

SESSION 4 .................................................... THU 08:25 TO 10:30

New Amplifier Approaches

Session Chair: Fedor V. Potemkin, M.V. Lomonosov Moscow SU (Russian Federation)


Intracavity stretcher for high-power chirped-pulse amplification (Invited Paper), Hartmut Liebetrau, Friedrich-Schiller-Universität Jena (Germany); Marco Hornung, Helmholtz-Institute Jena (Germany); Sebastian Keplar, Helmholtz-Institute Jena (Germany); and Franke Schorcht, Alexander Kessler, Helmholtz-Institute Jena (Germany); Joachim Hein, Malte C. Kaluza, Friedrich-Schiller-Universität Jena (Germany). .................................................. [10238-15]

Commissioning of a kW-class nanosecond pulsed DPSSL operating at 105 J, 10 Hz (Invited Paper), Paul D. Mason, STFC Rutherford Appleton Lab. (United Kingdom); Martin Divoky, HILASE Ctr. (Czech Republic); Thomas J. Butcher, STFC Rutherford Appleton Lab. (United Kingdom); Jan J. M. D. van Westen, HILASE Ctr. (Czech Republic); Ryo Yasuhara, National Institute for Quantum and Radiological Science and Technology (Japan); and Jiří Mužík, HiLASE Ctr. (Czech Republic). .................................................. [10238-16]

Active cavity stabilization for high-energy thin disk regenerative amplifier, Robert Boge, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jakub Horáček, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Technical Univ. of Liberec (Czech Republic); Petr Mazurek, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jakub Novák, František Batysta, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Czech Technical Univ. in Prague (Czech Republic); Roman Antipenkov, Jonathan T. Green, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Zbyněk Hubka, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Czech Technical Univ. in Prague (Czech Republic); Jack A. Naylon, Pavel Bakule, Bedrich Rus, Institute of Physics of the ASCR, v.v.i. (Czech Republic). .................................................. [10238-17]

Latest developments on fibered MOPA in mJ range with hollow-core fiber beam delivery and fiber beam shaping used as seed for large scale facilities, Jacek Kacprzak, Czełaszewko, Florent Scoi, Arnaud Perrin, Pierre Gouriou, Commissariat à l‘Energie Atomique (France); Constance Valentin, Gérard Bouwman, Lab. de Physique des Lasers, Atomes et Molécules (France); Emmanuel Hugonnot, Commissariat à l‘Energie Atomique (France). .................................................. [10238-18]

SESSION 5 .................................................... THU 11:00 TO 12:50

Mid-IR Lasers, Laser Materials and Thermal Effects in Amplifiers

Session Chair: Paul D. Mason, STFC Rutherford Appleton Lab. (United Kingdom)

Gigawatt mid-IR (4-5 μm) femtosecond amplifier of OPA seed pulse in monocrystalline Fe:2+:ZnSe optically pumped by solid-state 3 μm laser (Invited Paper), George Tsaknakis, National Technical Univ. of Athens (Greece); Zhiyong Liu, Zhejiang University (China); Jay Peng, Delft University of Technology (The Netherlands). .................................................. [10238-49]

Temperature dependent spectroscopic characterization of Tm:YAG and Tm:YAP crystals as potential laser media for pulsed high-energy laser amplifiers, M. V. Lomonosov Moscow SU (Russian Federation); Konstantin, P. Jonathan Philips, Jodie M. Smith, Ian Hollingham, STFC Rutherford Appleton Lab. (United Kingdom); M.V. Lomonosov Moscow SU (Russian Federation); Mirjana Zdravkovic, STFC Rutherford Appleton Lab. (United Kingdom); and Alexander Pushkin, Institute of Physics of the ASCR, v.v.i. (Czech Republic). .................................................. [10238-19]

Temperature dependent spectroscopic characterization of Tm:YAG and Tm:YAP crystals as potential laser media for pulsed high-energy laser amplifiers, M. V. Lomonosov Moscow SU (Russian Federation); Konstantin, P. Jonathan Philips, Jodie M. Smith, Ian Hollingham, STFC Rutherford Appleton Lab. (United Kingdom); M.V. Lomonosov Moscow SU (Russian Federation); Mirjana Zdravkovic, STFC Rutherford Appleton Lab. (United Kingdom); and Alexander Pushkin, Institute of Physics of the ASCR, v.v.i. (Czech Republic). .................................................. [10238-19]
Ultrashort Pulses and High Peak Power II

Session Chair: Mikhail P. Kalashnikov, Max-Born-Institut für Nichtlineare Optik und Kurzzeitpektroskopie (Germany)


TW-class hollow-fiber compressor with tunable pulse duration, Frederik Böhle, Aline Vernier, Lab. d’Optique Appliquée (France); Martin Kretschmar, Leibniz Universität Hannover (Germany); Aurélien Jullien, Ecole Nationale Supérieure de Techniques Avancées (France); Máté Kovács, ELI-ALPS Research Institute (Hungary); Rosa M. Romero, Sphere UltraFast Photonics (Portugal) and Univ. do Porto (Portugal); Heider M. Crespo, Univ. do Porto (Portugal); Peter Simon, Laser-Lab. Göttinngen e.V. (Germany); Tamás Nagy, Laser-Lab. Göttinngen e.V. (Germany) and Leibniz Universität Hannover (Germany); Rodrigo López-Martens, Ecole Polytechnique (France) and Ecole Nationale Supérieure de Techniques Avancées (France) and Ctr. National de la Recherche Scientifique (France). [10238-25]

Performance tests of the 5 TW, 1 kHz, passively CEP-stabilized ELI ALPS SYLOS few-cycle laser system, Tomas Stanislauskas, Rimantas Budriunas, Gediminas Vaitas, Darius Gadonas, Light Conversion Ltd. (Lithuania); Jonas Adamonis, Aidas Aleknavičius, Gėgėžas Masian, Zenonas Kuprionis, EKSPLA uab (Lithuania); Dominik Hoff, Gerhard G. Paulus, Friedrich-Schiller-Universität Jena (Germany); Adám Bőrzönyi, Szabolcs Toth, Máté Kovács, János Csontos, ELI-HU Nonprofit Kft. (Hungary); Elio dipascali, Istituto di Fisica della Materia, CNR, (Italy); Bence Pintér, Institute of Applied Physics of RAS (Russian Federation); Alexandre Cezar, Instituto de Física de São Carlos, UNICAMP (Brazil); Máté Kovács, ELI-ALPS Research Institute (Hungary); Gábor Jendrzejczyk, Laser-Lab. Göttinngen e.V. (Germany) and Leibniz Universität Hannover (Germany); Ádám Bőrzönyi, Zenonas Kuprionis, EKSPLA uab (Lithuania); Dominik Hoff, Gerhard G. Paulus, Friedrich-Schiller-Universität Jena (Germany); Adám Bőrzönyi, Szabolcs Toth, Máté Kovács, János Csontos, ELI-HU Nonprofit Kft. (Hungary); Anna Skoblikova, Institute of Optics and Laser Technology (Czech Republic). [10238-26]

The optimization of a grating pulse stretcher for a 150 fs 10PW laser system, Stepan Vyhildoka, Daniil Kramer, Institute of Physics of the ASCR v.v.i. (Czech Republic); Matt Kepler, Erhard Gaul, National Energetics (United States); Bedrich Rus, Institute of Physics of the ASCR v.v.i. (Czech Republic). [10238-27]
CONFERENCE 10239

Monday–Tuesday 24–25 April 2017 • Proceedings of SPIE Vol. 10239

Medical Applications of Laser-Generated Beams of Particles: Review of Progress and Strategies for the Future

Conference Chair: Kenneth W. D. Ledingham, Univ. of Strathclyde (United Kingdom)

Conference Co-Chairs: Paul R. Bolton, Ludwig-Maximilians-Univers. München (Germany); Antonio Giuillietti, Consiglio Nazionale delle Ricerche (Italy); Paul McKenna, Univ. of Strathclyde (United Kingdom); Klaus Sophr, Univ. of the West of Scotland (United Kingdom)

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. Ha, Fox Chase Cancer Ctr. (United States); Victor Malka, Ecole Nationale Superieure de Techniques Avancees (France); Franz Pfeiffer, Technische Univ. München (Germany); Markus Roth, Kiepenheuer-Institut für Sonnenphysik (Germany); Akifumi Yogo, Japan Atomic Energy Agency (Japan)

MONDAY 24 APRIL

SESSION 1 ............................ MON 8:30 TO 10:40

Have Lasers a Part to Play in Proton Therapy?

Session Chair: Kenneth W. D. Ledingham, Univ. of Strathclyde (United Kingdom)

Accelerator development for hadron therapy, Simon Jolly, College London (United Kingdom) .................................................. [10239-1]

Proton therapy accelerator research in the UK, Hywel Owen, Univ. of Manchester (United Kingdom) .................................................. [10239-2]

Laser-driven particle acceleration for radiobiology and radiotherapy: where we are and where we are going, Antonio Giuillietti, Consiglio Nazionale delle Ricerche (Italy) .................................................. [10239-3]

The integrated laser-driven ion accelerator system and laser-driven ion beam radiotherapy, Paul R. Bolton, Ludwig-Maximilians-Univers. München (United States); Jörg Schreiber, Katia Parodi, Ludwig-Maximilians-Univers. München (Germany) .................................................. [10239-4]

Recent progress in laser-driven proton acceleration from ultrathin foils, Paul McKenna, Univ. of Strathclyde (United Kingdom) .................................................. [10239-5]

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

Medical Applications of Laser-Generated Beams of Particles I

Session Chair: Paul R. Bolton, Ludwig-Maximilians-Univers. München (Germany)

Applications of laser-wakefield-based x-ray sources: from bio-medical to global food security, Jean-Claude Kieffer, Sylvain Fourmaux, Institut National de la Recherche Scientifique (Canada); Emil Hallin, Global Institute for Food Security, Univ. of Saskatchewan (Canada) .......................... [10239-6]

Recent advances in laser medical applications: promising approaches in the prethermal regime, Yann A. Gauduel, Ecole Nationale Superieure de Techniques Avancees (France) .................................................. [10239-7]

A comparative study of the biological effectiveness of MeV energy laser-driven electron bunches, Luca Labate, Consiglio Nazionale delle Ricerche (Italy); Monia Cresci, Istituto di Fisiologia Clinica, Consiglio Nazionale delle Ricerche (Italy); Andrea Borghini, Maria Grazia Andreassi, Istituto di Fisiologia Clinica, Consiglio Nazionale delle Ricerche (Italy); Arnoldo A. Gizzetti, Istituto di Fisiologia Clinica, Consiglio Nazionale delle Ricerche (Italy); Fabio Di Martino, Azienda Ospedaliero-Univers. Pisana (Italy); Lorenzo Fulginiti, Antonio Giuillietti, Petra Koester, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy); Debra Lamia, Istituto di Bioimmagini e Fisiologia Molecolare, Consiglio Nazionale delle Ricerche (Italy); Daniele Panetta, Silvia Pulignani, Istituto di Fisiologia Clinica, Consiglio Nazionale delle Ricerche (Italy); Giorgio Russo, Istituto di Bioimmagini e Fisiologia Molecolare, Consiglio Nazionale delle Ricerche (Italy); Claudio Traino, Azienda Ospedaliero-Univers. Pisana (Italy); Maria Trippodi, Cecilia Vecoli, Istituto di Fisiologia Clinica, Consiglio Nazionale delle Ricerche (Italy); Leonida A. Gizzi, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy) .................................................. [10239-8]

SESSION 3 ............................ MON 14:10 TO 15:30

Medical Applications of Laser-Generated Beams of Particles II

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

Raman spectroscopy for oral cancer: a new diagnostic tool, Luis Felipe Chagas e Silva Carvalho D.D.S., Airton Abrahão Martin, Univ. do Vale do Paraíba (Brazil) .................................................. [10239-9]

Ion acceleration with kJ, multi-ps laser pulses on LFEX, Fabio Di Martino, Italy; Giuseppe A. Gizzi, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy); Andrea Borghini, Consiglio Nazionale delle Ricerche (Italy); Fabio Di Martino, Azienda Ospedaliero-Univers. Pisana (Italy); Lorenzo Fulginiti, Antonio Giuillietti, Petra Koester, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy); Debra Lamia, Istituto di Bioimmagini e Fisiologia Molecolare, Consiglio Nazionale delle Ricerche (Italy); Daniele Panetta, Silvia Pulignani, Istituto di Fisiologia Clinica, Consiglio Nazionale delle Ricerche (Italy); Giorgio Russo, Istituto di Bioimmagini e Fisiologia Molecolare, Consiglio Nazionale delle Ricerche (Italy); Claudio Traino, Azienda Ospedaliero-Univers. Pisana (Italy); Maria Trippodi, Cecilia Vecoli, Istituto di Fisiologia Clinica, Consiglio Nazionale delle Ricerche (Italy); Leonida A. Gizzi, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy) .................................................. [10239-10]

Guided post-acceleration of laser driven protons for medical applications, Satyabrata Kar, Queen's Univ. Belfast (United Kingdom) .................................................. [10239-11]

SESSION 4 ............................ MON 16:00 TO 18:00

New applications in medical treatment with laser-driven ionizing radiation (LDIR), Katalin Hideghéty, Univ. of Szeged (Hungary); Robert Polianek, Tünde Tokés, Rita Emilia Szabó, Zoltán Szabó, ELI-ALPS Research Institute (Hungary) .................................................. [10239-12]

On the potential of laser driven PET isotope production at ELI-NP, Andi S. Cucoanes, Dimitar Balabanaki, ELI-NP, Horia Hulubei National Institute of Physics and Nuclear Engineering (Romania); Fedorico Canova, ELI-DC International Association AISBL (France); Pham Cuong, Florin Negoita, ELI-NP, Horia Hulubei National Institute of Physics and Nuclear Engineering (Romania); Kazzu A. Tanaka, ELI-NP, Horia Hulubei National Institute of Physics and Nuclear Engineering (Romania); Osakadai, Un. (Japan) .................................................. [10239-13]

International Clinical Translation of ELI-ALPS PET, György Schettino, Strathclyde Institute of Pharmacy and Biomedical Sciences (United Kingdom); Colleen DesRosiers, Indiana Univ. School of Medicine (United States); Dino A. Jaroszynski, Univ. of Yale (United States); Colleen DesRosiers, Indiana Univ. School of Medicine (United States); Dino A. Jaroszynski, Univ. of Yale (United States) .................................................. [10239-14]
PLENARY SESSION .................. MON 16:00 TO 17:55

Optics + Optoelectronics 2017:
Plenary Session I
For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

TUESDAY 25 APRIL

PANEL DISCUSSION .................. TUE 10:15 TO 12:30

Open Discussion on Importance of Hadrons in Cancer Therapy
Moderator: Ken Ledingham, Univ. of Strathclyde (United Kingdom)
A small international team of experts from multiple research communities will examine the following questions:
• Is hadron therapy better than existing therapies and for which tumours?
• Is it cost effective?
• Could laser driven hadron beams compete potentially with accelerator beams in cost and size?

WEDNESDAY 26 APRIL

POSTER SESSION ..................... WED 17:45 TO 19:30

Conference attendees are invited to attend the Optics + Optoelectronics Symposium 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 11, and at http://spie.org/x30951.xml.

Autofluorescence diagnosis method in endoscopy for investigation mucosal structure in gastrointestinal tract, Dmitrii Abramov, Larisa Varlamova, Ivan Chavkin, ITMO Univ. (Russian Federation) ............................................. [10239-15]
The study of efficiency laser parameter for nondamaged biostimulation, Byeong Kwon Kim, Seong-Seon Shin, Gu-In Jung, Soo Ho Choi, Kyungpook National Univ. (Korea, Republic of); Ji-Sun Kim, Jae-Hoon Jun, Konkuk Univ. (Korea, Republic of) ......................... [10239-16]
Simulation of the skin temperature changes induced by 809 nm laser irradiation, Seong-Seon Shin, Gu-In Jung, Byeong Kwon Kim, Jun-Ho Hwang, Kyungpook National Univ. (Korea, Republic of); Jae-Hoon Jun, Ji-Sun Kim, Konkuk Univ. (Korea, Republic of) .............. [10239-17]
Modeling of the laser device for the stress therapy, Nikolai V. Matveev, Sergey A. Shcheglov, Galina E. Romanova, Tatiana A. Koneva, ITMO Univ. (Russian Federation) ................................. [10239-18]
The meat product quality control by a polarimetric method, Anastasia A. Blokhina, Victoria A. Ryzhova, ITMO Univ. (Russian Federation) ....................................................... [10239-19]
Study of biological effects of femtosecond IR laser beam filamentation for cancer therapy, Robert Polanek, Emilia Szabó, Tünde Tokés, Zoltán Szabó, Máté Kovács, ELI-ALPS Research Institute (Hungary); Roland Flender, Univ. of Szeged (Hungary); Bálint Kiss, Bettina Ughy, Ádám Börzsönyi, ELI-ALPS Research Institute (Hungary); Emese Huzsár, Varinia Körti, Univ. of Szeged (Hungary); Katalin Hideghéd, Károly Osvay, ELI-ALPS Research Institute (Hungary) .......................... [10239-20]
CONFERENCE 10240

Monday–Wednesday 24–26 April 2017 • Proceedings of SPIE Vol. 10240

Laser Acceleration of Electrons, Protons, and Ions

Conference Chairs: Eric Esarey, Lawrence Berkeley National Lab. (United States); Carl B. Schroeder, Lawrence Berkeley National Lab. (United States); Florian J. Gruber, Ludwig-Maximilian-(Univ. München (Germany)

Programme Committee: Sergei V. Bulanov, Japan Atomic Energy Agency (Japan); Min Chen, Shanghai Jiao Tong Univ. (China); Thomas E. Cowan, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Brigitte Cros, Univ. Paris-Sud 11 (France); Leonida A. Gizzlo, Consiglio Nazionale delle Ricerche (Italy); Björn Manuel Hegelich, Los Alamos National Lab. (United States); Simon M. Hooker, Univ. of Oxford (United Kingdom); Stefan Karsch, Max-Planck-Institut für Quantenoptik (Germany); Karl M. Krushelnick, Univ. of Michigan (United States); Wim Leemans, Lawrence Berkeley National Lab. (United States); Victor Malka, Ecole Nationale Supérieure de Techniques Avancées (France); Zulfikar Namudin, Imperial College London (United Kingdom); Peter N. Tavartkiladze, Tbilisi State University (Georgia); Rachel Energetic ion bunches produced in under-dense plasmas by an intense laser pulse, Julien Guillaume Moreau, Emmanuel d’Humieres, Rachel Nutter, Vladimir T. Tikhonchuk, Ctr. Lasers Intenses et Applications (France).
Conference 10240 continued

SESSION 5 ................................. TUE 13:30 TO 15:00
Electron Acceleration II
Session Chair: Carl B. Schroeder,
Lawrence Berkeley National Lab. (United States)

Application of a laser heater for enhanced guiding of tightly focused laser pulses at low densities (Invited Paper), Joost Daniels, Lawrence Berkeley National Lab. (United States) and Technische Univ. Eindhoven (Netherlands); Anthony J. Gonsalves, Lawrence Berkeley National Lab. (United States); Christopher V. Pieronek, Lawrence Berkeley National Lab. (United States) and Lawrence Livermore National Lab. (United States); Carla Benedett Jr., Carl B. Schroeder, Stepan S. Bulanov, Hann-Shin Mao, Kei Nakamura, Eric H. Esarey, Wim P. Leemans, Lawrence Berkeley National Lab. (United States) ................................. [10240-22]

Nested Rogowski coils for measuring the electron emission of a laser driven plasma in a capillary. Johannes Grunwald, Danila Khakhluha, Dariusz Kocon, Lukas Pribyl, ELI Beamlines (Czech Republic)[10240-23]


Wide-angle electron beams from laser-wavefield accelerators. Enrico Brunetti, Xue Yang, David Reboredo-Gil, Gregory H. Welsh, Feiyu Li, Silvia Cipiccia, Bernhard Ersfeld, David W. Grant, Peter A. Grant, Mohammad R. Islam, Matthew P. Tooley, Gregory Vieux, S. Mark Wiggins, Zheng-Ming Sheng, Dino A. Jarošzynski, Univ. of Strathclyde (United Kingdom) ................................. [10240-25]

SESSION 6 ................................. TUE 15:30 TO 17:20
Particle and Radiation Sources
Session Chair: Florian J. Grün, Ludwig-Maximilians-Uni. München (Germany)

Acceleration of relativistic electrons with kilohertz single-cycle laser pulses (Invited Paper), Jérôme Faure, Diego Guénot, Lab. d’Optique Appliquée (France); Dominykas Gustas, Lab. d’Optique Appliquée (France); Aline Vernier, Benoît Beaurepaire, Frederik Böhle, Lab. d’Optique Appliquée (France); Rodrigo López-Martens, Lab. d’Optique Appliquée (France); Agustin Lifschitz, Lab. d’Optique Appliquée (France) ................................. [10240-26]

Laser-driven electron beam generation for secondary photon sources with few terawatt laser pulses, Karel Bohacek, ELI Beamlines (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); Uddhab Chaulagain, ELI Beamlines (Czech Republic); Vojtěch Horny, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); Michaela Kozlová, Institute of Physics of the ASCR, v.v.i. (Czech Republic), Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic), Institute of Physics of the ASCR, v.v.i. (Czech Republic), Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic) and Istituto Nazionale di Fisica Nucleare (Italy); Pasquale Londrillo, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy); Enrico Cipiccia, Bernhard Ersfeld, David W. Grant, Peter A. Grant, Mohammad R. Islam, Matthew P. Tooley, Gregory Vieux, S. Mark Wiggins, Zheng-Ming Sheng, Dino A. Jarošzynski, Univ. of Strathclyde (United Kingdom) ................................. [10240-27]

First experimental results from the LUX Beamline for plasma-driven undulator radiation. Andreas R. Maier, Univ. Hamburg (Germany) ................................. [10240-28]

High quality electron bunch production for high brilliance sources. Paolo Tomassini, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy); Renato Fedele, Univ. degli Studi di Napoli Federico II (Italy) and Istituto Nazionale di Fisica Nucleare (Italy); Luca Labate, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy) and Istituto Nazionale di Fisica Nucleare (Italy); Pasquale Londrillo, Istituto Nazionale di Fisica Nucleare (Italy); Davide Terzani, Univ. degli Studi di Napoli Federico II (Italy) and Istituto Nazionale di Fisica Nucleare (Italy); Leonardo A. Gizi, Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy) and Istituto Nazionale di Fisica Nucleare (Italy) ................................. [10240-29]

Conference 10240 continued

**WEDNESDAY 26 APRIL**

**SESSION 7  ............................ WED 9:00 TO 10:20**

**Plasma Acceleration**

Session Chair: Jorge M. Vieira, Instituto Superior Técnico (Portugal)

Direct laser acceleration of electrons from underdense plasma channeling using picosecond laser pulses *(Invited Paper)*, Louise Willingale, Lancaster Univ. (United Kingdom); Alexey Arfeev, The Univ. of Texas at Austin (United States); Thomas G. Batson, Amina Hussein, Univ. of Michigan (United States); Philip M. Nilson, Lab. for Laser Energetics, Univ. of Rochester (United States); Hui Chen, Lawrence Livermore National Lab. (United States); Robert S. Craxton, T. Craig Sangster, Daniel Habergerger, Lab. for Laser Energetics, Univ. of Rochester (United States); Calvin A. Zulick, U.S. Naval Research Lab. (United States); Karl M. Krushelnick, Univ. of Michigan (United States).

Research towards hybrid accelerators *(Invited Paper)*, Max F. Gilljamann, Hao Ding, Johannes Göttzfried, Sabine Schindler, Ludwig-Maximilians-Universität München (Germany); Johannes Wenz, Matthias Heigoldt, Konstantin Khrennikov, Ludwig-Maximilians-Universität München (Germany) and Max-Planck-Institut für Quantenoptik, München (Germany); Stefan Karsch, Ludwig-Maximilians-Universität München (Germany) and Max-Planck-Institut für Quantenoptik, München (Germany).

Plasma acceleration activities at SPARC-LAB, Maria Pia Anania, Istituto Nazionale di Fisica Nucleare (Italy).

**SESSION 8  ............................ WED 10:50 TO 12:40**

**Wakefield Excitation and Particle Dynamics**

Session Chair: Wei Lu, Tsinghua Univ. (China)

Ultra-intense lasers with high orbital angular momentum for structured wakefield excitation *(Invited Paper)*, Jorge M. Vieira, Instituto Superior Técnico (Portugal).

Dynamics of boundary electrons around a laser wakefield bubble, Min Chen, Shanghai Jiao Tong Univ. (China).

High-brightness high-energy electron beams from a laser wakefield accelerator via energy chirp control, Wentao Wang, Shanghai Institute of Optics and Fine Mechanics (China).

Short energetic electron bunches from laser wakefield accelerator with orthogonally polarized perpendicularly crossed laser beams, Vojtech Horny, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); Michal Kozlov, ELI Beamlines (Czech Republic); Andreas R. Maier, Ctr. for Free-Electron Laser Science (Germany).

**PLENARY SESSION  ............................ WED 13:30 TO 15:15**

**Optics + Optoelectronics 2017: Plenary Session III**

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml.

**POSTER SESSION  ............................ WED 17:45 TO 19:30**

Conference attendees are invited to attend the Optics + Optoelectronics 2017: Plenary Session on Wednesdays morning. Come see 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 7, and at http://spie.org/x30951.xml.

The error analysis for laser wakefield acceleration simulations, Danila Khabliukha, ELI Beamlines (Czech Republic); Niel Deibos, Ctr. for Free-Electron Laser Science (Germany); Vincent Leroux, Ctr. for Free-Electron Laser Science (Germany) and The Czech Academy of Sciences (Czech Republic); Lukas Pribyl, The Czech Academy of Sciences (Czech Republic); Andreas R. Maier, Ctr. for Free-Electron Laser Science (Germany).

X-ray phase contrast imaging of biological samples using a pulsed X-ray generated in a compact laser wakefield accelerator, Uddhab Chaulagain, ELI Beamlines (Czech Republic); Karel Bohacek, ELI Beamlines (Czech Republic); Michaela Kozlov, ELI Beamlines (Czech Republic); Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); Miroslav Kruš, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); Vojtěch Horny, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); ELI Beamlines (Czech Republic); Jaroslav Nejd, ELI Beamlines (Czech Republic); Institute of Plasma Physics ASCR, v.v.i. (Czech Republic); Kim Ta Phuoc, Lab. d’Optique Appliquée (France), ELI Beamlines (Czech Republic); Benoît Ehrentraut, Lab. d’Optique Appliquée (France).

Requirements on the LWFA electron beam for the user-oriented photon source, Alexander Molodozhentsev, Lukas Pribyl, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Andreas R. Maier, Deutsches Elektronen-Synchrotron (Germany); Paul Winkler, Ctr. for Free-Electron Laser Science (Germany).

XUV generation under the action of pico- and nanosecond laser pulses on nanostructured targets, Ellie Floyd A. Barte, Ragava Lokasani, Czech Technical Univ. in Prague (Czech Republic); Univ. College Dublin (Ireland); Jan Proška, Lucie Stolcova, Czech Technical Univ. in Prague (Czech Republic); Ondřej Klimo, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jaroslav Nejd, Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); Jiří Limpouch, Czech Technical Univ. in Prague (Czech Republic).

Toward 10-GeV laser electron acceleration using 4 PW laser pulses, Hyung Taek Kim, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); Vishwa Bandhu Pathak, Institute for Basic Science (Korea, Republic of); Ki Hong Pae, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); Constant Aniculaesei, Jung Hun Shin, Institute for Basic Science (Korea, Republic of); Calvin Hofbauer, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); Raja Ramana Ctr. for Advanced Technology (India); Seong Ku Lee, Institute for Basic Sciences (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); Jae Hee Sung, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); KwangYoung Lee, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); Chang Hoon Ham, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of).

Direct acceleration in intense laser fields used for bunch amplification of relativistic electrons, Julia Braenzel, Alexander A. Andreev, Lutz Ehrentraut, Matthias Schnuerer, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany).

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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); Dimitrios Charalambidis, Foundation for Research and Technology-Hellas (Greece); Cristina Hernandez-Gomez, Rutherford Appleton Lab. (United Kingdom); Mattias Marklund, Umeå Univ. (Sweden); Matthew Zepf, Queen’s Univ. Belfast (United Kingdom); Victor Zamfir, Horia Hulubei National Institute of Physics and Nuclear Engineering (Romania)

MONDAY 24 APRIL

WELCOME AND INTRODUCTION .............. 8:25 TO 8:30

SESSION 1 ............................. MON 8:30 TO 10:35
Special Session Honoring
Prof. Wolfgang Sandner: Extreme Light Sources and Facilities I

OPENING REMARKS
Carlo Rizzuto, Director General of the Extreme Light Infrastructure Delivery Consortium International, Belgium

The future action of ELI under the ERIC umbrella (Invited Paper), Carlo Rizzuto, Elettra-Sincrotrone Trieste S.C.p.A. (Italy) and Extreme Light Infrastructure Delivery Consortium International (Belgium) ........................................... [10241-1]

ELI Beamlines: status of user facility development (Invited Paper), Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic). .......................................................... [10241-2]

Status of ELI-ALPS implementation (Invited Paper), Károly Osyav, Dimitris Charalambidis, Patrizio Antici, Péter Dombi, Lajos J. Fulop, Franch Lepine, Gergo Mészáros, Giuseppe Sansone, Katalin G. Varju, ELI-HU Nonprofit Kft. (Hungary) .......................................................... [10241-3]

Status of the construction of the 2x10PW laser system at ELI-NP (Invited Paper), Daniel Ursescu, National Institute for Laser, Plasma and Radiation Physics (Romania) ........................................ [10241-4]

Latest results from BELLA (Invited Paper), Wim P. Leemans, Lawrence Berkeley National Lab. (United States) .......................................................... [10241-5]

SESSION 2 ............................. MON 10:55 TO 12:45
High Field Physics and Simulations I

Extreme Light: going beyond the horizon, Jonathan Wheeler, Ecole Polytechnique (France) .......................................................... [10241-6]

Ultraintense lasers and beams: plasmas at the extreme (Invited Paper), Luis O. Silva, Instituto Superior Técnico (Portugal) .......................................................... [10241-7]

Simulate what is measured: next steps towards predictive simulations (Invited Paper), Michael Bussmann, Thomas Kluge, Alexander Debus, Axel Hübl, Marco Garten, Malte Zacharias, Jan Vorberger, Richard Pausch, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); René Widera, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany); Ulrich Schramm, Thomas E. Cowan, Arie Iman, Karl Zeil, Dominik Kraus, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) .......................................................... [10241-8]

Electron-positron pair production from electron-laser scattering, the effect of the long pulse, Marija Vranic, Ondrej Klimo, Georg Korn, Stefan Weber, ELI beamlines, Fyzikální ústav ČVUT, v.v.i. (Czech Republic). .......................................................... [10241-9]

Electrons in strong electromagnetic fields: spin effects and radiation reaction, Heiko Bauke, Meng Wen, Christoph H. Keitel, Max-Planck-Institut für Kernphysik (Germany) .......................................................... [10241-10]

Lunch Break ..................................... Mon 12:45 to 13:45

SESSION 3 ............................. MON 13:45 TO 15:35
Acceleration of Particles Using High Power PW Class Lasers I

Key physical concepts for laser plasma accelerators (Invited Paper), Víctor Malaka, Ecole Nationale Supérieure de Techniques Avancées (France) .......................................................... [10241-11]

Design and development of the HELL User Station for multidisciplinary experiments, Gabriele Maria Grittani, ELI Beamlines (Czech Republic); Tadzio Levato, Georg Korn, ELI Beamlines, Institute of Physics of the ASCR, v.v.i. (Czech Republic) .......................................................... [10241-12]

Scaling of proton-boron nuclear fusion rate using high power lasers and advanced targets, Lorenzo Giaudfrida, Institute of Physics of the ASCR, v.v.i. (Czech Republic) .......................................................... [10241-13]

Ultra-stable pointing experiments in LWFA and expected performance in the HELL project, Tadzio Levato, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Marcin Rosinski, Institute of Plasma Physics and Laser Microfusion (Poland); Gabriele Maria Grittani, ELI Beamlines (Czech Republic); Michal Nevrklia, Czech Technical Univ. in Prague (Czech Republic); Carlo Maria Lazzarini, Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic) .......................................................... [10241-14]

First Draco-PW particle acceleration results (Invited Paper), Ulrich Schramm, Helmholtz-Zentrum Dresden-Rossendorf e. V. (Germany) .......................................................... [10241-15]

PLENARY SESSION ..................... MON 16:00 TO 17:55
Optics + Optoelectronics 2017:
Plenary Session I

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

TUESDAY 25 APRIL

PLENARY SESSION ................... TUE 9:00 TO 9:50
Optics + Optoelectronics 2017:
Plenary Session II

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

SESSION 4 ............................. TUE 10:10 TO 12:15
Extreme Light Sources and Facilities II

Starting up European XFEL (Invited Paper), Thomas Tschentscher, European XFEL GmbH (Germany) .......................................................... [10241-16]

ELI-Beamlines: next-generation short-pulse laser systems (Invited Paper), Bedrich Rus, ELI Beamlines (Czech Republic) .......................................................... [10241-17]

10 PW commissioning experiments plans at ELI-NP (Invited Paper), Dan Slutman, Extreme Light Infrastructure-Nuclear Physics (Romania) .......................................................... [10241-18]

TBC (Invited Paper) .......................................................... [10241-19]

Status update of multi-kilojoule, multi-petawatt laser LFEX (Invited Paper), Junji Kawanaka, Osaka Univ. (Japan) .......................................................... [10241-20]

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Progress on the 10PW laser project SULF at Shanghai (Invited Paper), Xiaoyan Liang, Shanghai Institute of Optics and Fine Mechanics (China). ................................. [10241-21]
High contrast high intensity petawatt J-KAREN-P Laser facility at QST, Hiroyuki Hidaka, Japan Atomic Energy (Japan). ................................. [10241-22]
Models and simulations of capillary discharges (Invited Paper), Vladimir Gasilov, M. V. Keldysh Institute of Applied Mathematics (Russian Federation); Pavel V. Sasorov, M. V. Keldysh Institute of Applied Mathematics (Russian Federation); Gennady Bagdasarov, M. V. Keldysh Institute of Applied Mathematics (Russian Federation). ................................. [10241-23]
Generation and characterization of laser matter interaction at intensity 1022 W/cm2, Deepak Kumar, ELI Beamlines (Czech Republic). ................................. [10241-24]

SESSION 6 ............................. TUE 15:20 TO 17:10
High Power Intense Laser Sources with Enhanced Repetition Rates
Development of high-energy kW-class picosecond thin-disk laser systems (Invited Paper), Thomas Nubbemeyer, Ludwig-Maximilians-Univ. München (Germany). ................................. [10241-26]
New advanced characterization tools for PW-class lasers, Fabien Quéré, Commissariat à l’Energie Atomique (France). ................................. [10241-27]
Technology development for multi-PW CPA and OPCPA-based laser systems, Ian Musgrave, Steve P. Blake, Alexis Boyle, Ole V. Chekhlov, John L. Collier, STFC Rutherford Appleton Lab. (United Kingdom); R. J. Clark, Science and Technology Facilities Council (United Kingdom); Steve Hancock, Robert Heathcote, Cristina Hernandez-Gomez, Chris J. Hooker, Marco Galimberti, Pavel Matousek, David Neely, Peter A. Norreys, B. T. Parry, Rajeev Paramel Pattathil, Waseem Shalik, Daniel R. Symes, Y. Tang, Trevor B. Winstone, Brian E. Wyborn, STFC Rutherford Appleton Lab. (United Kingdom). ................................. [10241-28]
Development of high energy, sub-15 fs OPCPA system operating at 1 kHz repetition rate for ELI-Beamlines facility, Pavel Bakule, Roman Antipenkov, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jonathan T. Green, Institute of Physics of the AVCR, v.v.i. (Czech Republic); Jakub Novák, František Batysta, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Vladimir Bublik, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Bedrich Rus, Robert Boge, Zbynek Hubka, Institute of Physics of the AVCR, v.v.i. (Czech Republic); Jack A. Naylor, Martin Horácek, Jakub Horáček, Petr Strkula, David Snopek, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Lukáš Indra, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Filip Grun, Institute of Physics of the ASCR, v.v.i. (Czech Republic). ................................. [10241-29]

SESSION 7 ............................. TUE 13:40 TO 17:30
High Field Physics and Simulations II
Modelling the effect of radiation reaction on the absorption of ultra-intense laser pulses in overdense targets, Matthew Duff, Remi Capdessus, Martin King, Paul McKenna, Univ. of Strathclyde (United Kingdom). ................................. [10241-30]
Study of L4 nanosecond pedestal effect on pre-plasma using nonlocal hydrodynamic simulations and consequences for high-field interaction, Milan Holec, Jan Pšíkal, Czech Technical Univ. in Prague (Czech Republic); Robert Liska, Technische Univ. Wien (Austria); Stefan A. Weber, Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic). ................................. [10241-31]
3D simulation in the lambda-cube regime of the petawatt-class laser with plasma slab, Natalia Naumova, Ecole Polytechnique (France). ................................. [10241-32]
Evolution of relativistic electron vortices in laser plasmas, Krill V. Lezhnin, Princeton Plasma Physics Lab. (United States); Alexey R. Kniarez, Sergey V. Soloviev, Fedor F. Kamenev, Moscow Institute of Physics and Technology (Russian Federation); Stefan A. Weber, Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Alexey Petrov, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Timur Z. Esirkepov, Japan Atomic Energy Agency (Japan); Sergei V. Bulanov, Japan Atomic Energy Agency (Japan) and A. M. Prokhorov General Physics Institute of the Russian Academy of Sciences (Russian Federation). ................................. [10241-33]
Gamma beams generation with high-intensity lasers for the study of two photon Breit-Wheeler pair production, Emmanuel d’Humières, Xavier Ribeyre, Oliver Jansen, Univ. Bordeaux 1 (France); Alexey Arfeiev, Toma Tomican, The Univ. of Texas at Austin (United States); Mathieu Lobet, Sophie Jequier, Sébastien Hulin, Univ. Bordeaux 1 (France); Yasuhiko Sentoku, Univ. of Nevada, Reno (United States); Vladimir T. Tikhonchuk, Univ. Bordeaux 1 (France). ................................. [10241-34]
A kinetic model for the high energy synchrotron radiation in ultra-strong laser-matter interactions, Remi Capdessus, Univ. of Strathclyde (United Kingdom). ................................. [10241-35]
Emission of γ rays in laser-solid interactions, Jiri Vyskocil, Czech Technical Univ. in Prague (Czech Republic); Ondrej Klimo, Stefan A. Weber, Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic). ................................. [10241-36]
Particle dynamics and pair production in tightly focused standing wave, Martin Jirka, Ondrej Klimo, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Marja Vranic, Instituto Superior Técnico (Portugal); Stefan A. Weber, Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic). ................................. [10241-37]
On an impact of radiation reaction on plasma waves induced by ultra-intense laser pulse, Evgeny G. Gelfer, Alexander M. Fedotov, National Research Nuclear Univ. MEPhI (Russian Federation); Nina V. Elkon, Ludwig-Maximilians-Universität München (Germany). ................................. [10241-38]

SESSION 8 ............................. TUE 17:10 TO 18:10
Secondary Sources Generated by High Power Lasers I
Extreme laser pulses for possible development of boron fusion power reactors for clean and lasting energy, Heinrich Hora, The Univ. of New South Wales (Australia); Paraskevas Lalousis, Foundation for Research and Technology-Hellas (Greece); Stavros D. Moustazis, Technical Univ. of Crete (Greece). ................................. [10241-40]
Attosecond gamma-ray pulses and angle-resolved-stochastic photon emission in the quantum-radiation-dominated regime, Jianxing Li, Yuri Lezhnev, Karen Z. Hatsagortsyan, Christoph H. Keitel, Max-Planck-Institut für Kernphysik (Germany). ................................. [10241-41]
Tertiary particle physics with ELI: from challenge to chance, Ladislav Drska, Czech Technical Univ in Prague (Czech Republic). ................................. [10241-42]
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Secondary Sources Generated by High Power Lasers II

GeV laser-plasma acceleration and betatron radiation (Invited Paper), Nelson C. Lopes, Instituto Superior Técnico (Portugal) ........................ [10241-52]

ELIMAIA: laser driven ion beamline for multidisciplinary applications at ELI (Invited Paper), Daniele Margarone, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ........................................................................ [10241-53]

Ion acceleration with radiation pressure in quantum electrodynamic regimes (Invited Paper), Dario Del Sorbo, David Blackman, Univ. of York (United Kingdom); Remi Capdessus, Univ. of Strathclyde (United Kingdom); Kristina Small, Cody Slade-Lowther, Christopher P. Ridgers, Univ. of York (United Kingdom) .......................................................... [10241-54]

Generation of attosecond electron pulses using petawatt lasers, Katarzyna Krajewska, Felipe Cajiao Velez, Jerzy Z. Kaminski, Univ. of Warsaw (Poland) ................................................................. [10241-55]

Ultra-intense laser interaction with specially-designed targets as a source of energetic protons, Jan Pšikal, Martin Matys, Czech Technical Univ. in Prague (Czech Republic); Martina Žáková, ELI Beamlines (Czech Republic); Lorenzo Giumfrida, ELI Beamlines (Czech Republic); Jan Grym, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Jan Proška, Czech Technical Univ. in Prague (Czech Republic); Daniele Margarone, ELI Beamlines (Czech Republic) .......................................................... [10241-56]

Numerical studies on alpha production from high-energy proton beam interaction with Boron, Stavros D. Moustazis, Technical Univ. of Crete (Greece); Paraskevas Lalousis, Foundation for Research and Technology-Hellas (Greece) and Institute of Electronic Structure and Laser (Greece); Heinrich Hora, The Univ. of New South Wales (Australia); Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic); ELI Beamlines (Czech Republic); Daniele Margarone, ELI Beamlines (Czech Republic) .......................................................... [10241-57]

POSTER SESSION  ...........................  WED 17:45 TO 19:30
Conference attendees are invited to attend the Optics + Optoelectronics Symposium 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 11, and at http://spie.org/x30951.xml.

Multiparametric PIC simulations of electron vortices in laser plasma, Alexey R. Kniazev, Moscow Institute of Physics and Technology (Russian Federation) and P.N. Lebedev Physical Institute (Russian Federation); Kyril V. Leznin, Princeton Plasma Physics Lab. (United States); Sergei V. Soloviev, Moscow Institute of Physics and Technology (Russian Federation); Sergei V. Bulanov, National Institutes for Quantum and Radiological Science and Technology (Japan); Fedor F. Kamenets, Moscow Institute of Physics and Technology (Russian Federation); Timur Z. Esirkepov, National Institutes for Quantum and Radiological Science and Technology (Japan) .................. [10241-58]

SESSION 9  ...........................  WED 8:30 TO 10:30
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High-energy quantum processes in extremely intense laser pulses (Invited Paper), Christoph H. Keitel, Max-Planck-Institut für Kernphysik (Germany) .......................... [10241-43]
Aspects of QED in laser-matter interactions (Invited Paper), Matthias Marklund, Umeå Univ. (Sweden) ........................ [10241-44]

QED cascades and vacuum birefringence with new PW-class lasers (Invited Paper), Thomas Grismayer, Instituto Superior Técnico (Portugal) .......................... [10241-45]

Plasma physics and ultra-high intensity interaction at ELI-Beamlines (Invited Paper), Stefan A. Weber, Institute of Physics of the ASCR, v.v.i. (Czech Republic) ................. [10241-46]

New frontiers in numerical modeling of PW laser plasma interaction, Ricardo A. Fonseca, Instituto Superior Técnico (Portugal) ........................ [10241-47]

SESSION 10  ...........................  WED 10:55 TO 12:30
Acceleration of Particles Using High Power PW Class Lasers II
Ion acceleration experiments employing PW-class systems (Invited Paper), Marco Borghesi, Queen’s Univ. Belfast (United Kingdom) ............................. [10241-48]

Radiation reaction revisited (Invited Paper), Hartmut Ruhl, Ludwig-Maximilians-Univ. München (Germany) ........................ [10241-49]

Radiation reaction revisited (Invited Paper), Hartmut Ruhl, Ludwig-Maximilians-Univ. München (Germany) ........................ [10241-50]

Controlled acceleration of cryogenic layered deuterium ion beams (Invited Paper), David Neely, STFC Rutherford Appleton Lab. (United Kingdom) ........................ [10241-51]

Plasma formation in noncircular capillary discharges, Gennadiy Bagdasarov, Pavel Saporov, Alexey Boldarev, Olga Olikhovskaya, Vladimir Gasilov, M. V. Keldysh Institute of Applied Mathematics, RAS (Russian Federation); Danila Khiikhukha, ELI Beamlines (Czech Republic); Daniele Margarone, Georg Korn, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Sergey V. Bulanov, National Institutes for Quantum and Radiological Science and Technology (Japan); Stepan S. Bulanov, Carlo Benedetti Jr., Anthony J. Gonsalves, Wim P. Leemans, Lawrence Berkeley National Lab. (United States) ........................ [10241-52]

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

SESSION 10  ...........................  WED 10:55 TO 12:30
Acceleration of Particles Using High Power PW Class Lasers II

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Plenary Session III
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Programme Committee: Roel G. Baets, Univ. Gent (Belgium); Trevor Mark Benson, The Univ. of Nottingham (United Kingdom); Hung-Chun Chang, National Taiwan Univ. (Taiwan); Christopher R. Doerr, Acacia Communications Inc. (United States); Romuald Houdré, École Polytechnique Fédérale de Lausanne (Switzerland); Raman Kashyap, École Polytechnique de Montréal (Canada); Christophe Kazmierski, III-V Lab. (France); Philippe Lalanne, Institut d’Optique Graduate School (France); Xaveer J. M. Leijtens, Technische Univ. Eindhoven (Netherlands); Gorgan Z. Mashanovich, Univ. of Southampton; Andrea I. Melloni, Politecnico di Milano (Italy); Jarmila Müllerová, Univ. of Zilina (Slovakia); Martin Schell, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Laurent Vivien, Institut d’Electronique Fondamentale (France); Lech Wosinski, KTH Royal Institute of Technology (Sweden); Dan-Xia Xu, National Research Council Canada (Canada)

MONDAY 24 APRIL

WELCOME AND INTRODUCTION ......................... 8:25 TO 8:30

SESSION 1 .......................... MON 8:30 TO 10:30

Nano, Plasmonics, and Sensing

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

- Nanophotonics and hybrid plasmonics: different technologies and applications (Invited Paper), Lech Wosinski, KTH Royal Institute of Technology (Sweden) and JORCEP, The Joint Research Ctr. of Photonics (China); Xu Sun, KTH Royal Institute of Technology (Sweden); Lars Thylen, KTH Royal Institute of Technology (Sweden); and JORCEP, The Joint Research Ctr. of Photonics (China). [10242-1]
- Biosensing using long-range surface plasmon waveguides (Invited Paper), Oleksiy Krupin, Maryam Khodami, Hui Fan, Pierre Berini, Univ. of Ottawa (Canada). [10242-2]
- Plasmonic integrated circuit comprising metal waveguides, multiplexer/demultiplexer, detectors, and logic circuits on a silicon substrate. Mitsuo Fukuda, Masashi Ota, Asahi Sumimura, Shinya Okahara, Motoki Ito, Yuuya Ishii, Takeshi Ishiyama, Toyohashi Univ. of Technology (Japan). [10242-3]
- Gas sensing with a high-quality-factor photonic crystal ring resonator. Reyhanee Jannesary, Institute for Microelectronics and Microsensors, Johannes Kepler Univ. Linz (Austria); Christian Ranacher, Cristina Consani, CTR Carinthian Tech Research AG (Austria); Thomas Grille, Infineon Technologies Austria AG (Austria); Bernhard Jakoby, Institute for Microelectronics and Microsystems, Johannes Kepler Univ. Linz (Austria). [10242-4]
- Temperature-drift-secure wavelength meter based on an integrated micro ring resonator. Caterina Taballione, Univ. of Toscana (Italy); Tiziotope E. Agbana, Gleb V. Vdovin, Univ. de Málaga (Spain); Milos Nedeljkovic, Gorgan Z. Mashanovich, Univ. of Southampton (United Kingdom); and Pavel Cheben, National Research Council Canada (Canada). [10242-5]

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

Reconfigurable Devices

Session Chair: Laurent Vivien, Ctr. de Nanosciences et de Nanotechnologies (France)

- Intra-band indirect photonic transition in a silicon low light photonic crystal waveguide, Mahmoud Gaafar, Technische Univ. Hamburg-Harburg (Germany); Menoufa Univ. (Egypt); Dirk Jallas, Technische Univ. Hamburg-Harburg (Germany); Lian O’Faolain, Univ. of St. Andrews (United Kingdom); Juntao Li, Sun Yat-Sen Univ. (China); Thomas F. Krauss, Univ. of York (United Kingdom); Alexander Yu. Petrov, Manfred Eich, Technische Univ. Hamburg-Harburg (Germany). [10242-8]
- Nonlinearly integrated self-heterodyne tunable THz laser, Mu-Chieh Lo, Robinson C. Guzmán Martínez, Muhsin Ali, Univ. Carlos III de Madrid (Spain); Shintaro Hisatake, Tadao Nagatsuma, Osaka Univ. (Japan); Guillermo Carpenterio, Univ. Carlos III de Madrid (Spain). [10242-9]

Lunch Break: MON 12:30 TO 13:30

SESSION 3 .......................... MON 13:30 TO 14:20

PT Symmetry

Session Chair: Pierre Berini, Univ. of Ottawa (Canada)

- Parity-time symmetry optics for modal selection in transverse and longitudinal waves (Invited Paper), Henri Benisty, Institute Optique Graduate School (France); Anatole Lupu, Centre de Nanosciences et de Nanotechnologies (France) and CNRS (France) and Paris-Saclay (France). [10242-9]
- Active functional devices using parity-time symmetry optics. Vincent Brac de la Perriere, Ctr. de Nanosciences et de Nanotechnologies (France); Henri Benisty, Lab. Charles Fabry (France); Abdderrahim Ramdane, Anatole Lupu, Ctr. de Nanosciences et de Nanotechnologies (France). [10242-10]

SESSION 4 .......................... MON 14:20 TO 15:30

Subwavelength Structures

Session Chair: Pierre Berini, Univ. of Ottawa (Canada)

- Design of optical metamaterial waveguide structures (Invited Paper), Alejandro Ortega-Moñux, Robert Halir, Alejandro Sánchez-Postigo, Univ. de Málaga (Spain); Jordi Soler-Penadés, Univ. of Southampton (United Kingdom); Jiří Čtyroký, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); José Manuel Luque-González, José Darío Sarmiento-Merenguel, Juan Gonzalo Wangüemert-Pérez, Univ. de Málaga (Spain); Jens H. Schmid, Dan-Xia Xu, Sigfried Janz, Jean Lapointe, National Research Council Canada (Canada); Ifigo Molina-Fernández, Univ. de Málaga (Spain); Milos Nedeljkovic, Gorgan Z. Mashanovich, Univ. of Southampton (United Kingdom); Pavel Cheben, National Research Council Canada (Canada). [10242-11]
- Broadband high-efficiency zero-order surface grating coupler for the near- and mid-infrared wavelength ranges, Alejandro Sánchez-Pérez, Juan Gonzalo Wangüemert-Pérez, José M. Luque-González, Ifigo Molina-Fernández, Univ. de Málaga (Spain); Pavel Cheben, National Research Council Canada (Canada); Carlos A. Alonso-Ramos, Univ. Paris-Sud (France) and Univ. Paris-Saclay (France); Robert Halir, Univ. de Málaga (Spain); Jens H. Schmid, National Research Council Canada (Canada); Alejandro Ortega-Moñux, Univ. de Málaga (Spain). [10242-12]
- Possibilities of Bragg filtering structures based on subwavelength grating guiding mechanism. Pavel Kwicien, Czech Technical Univ. in Prague (Czech Republic); Ján Litvík, University of Zilina, Faculty of Electrical Engineering (Slovakia); Ivan Richter, Czech Technical Univ. in Prague (Czech Republic); Jiří Čtyroký, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Pavel Cheben, National Research Council Canada (Canada). [10242-13]

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

Optics + Optoelectronics 2017: Plenary Session I

For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml
SESSION 5 .......................... TUE 10:30 TO 12:30
Nonlinear Devices and Modulators
Session Chair: Francesco Morichetti, Politecnico di Milano (Italy)
Nonlinear dynamics of optical frequency combs (Invited Paper), Stefan Wabnitz, Univ. degli Studi di Brescia (Italy); Tobias Hansson, Institut National de la Recherche Scientifique (Canada); Francois Leo, Univ. Libre de Bruxelles (Belgium); Isolanda Ricciardi, Maurizio De Rosa, Istituto Nazionale di Ottica (Italy); Stephane Coen, Miro Erkintalo, The Univ. of Auckland (New Zealand) .................. [10242-14]

On-chip frequency combs for complex quantum state preparation (Invited Paper), Piotr Roztocki, Michael Kues, Christian Reimer, Benjamin Wetzelt, Fabio Giazioso, Institut National de la Recherche Scientifique (Canada); Brent E. Little, Xi’an Institute of Optics and Precision Mechanics, CAS (China); Sai T. Chu, City Univ. of Hong Kong (Hong Kong, China); Tudor Wyatt Johnston, INRS-Energie et Matériaux (Canada); Yaron Bracha, Tel Aviv Univ. (Israel); Lucia Caspani, Heriot-Watt Univ. (United Kingdom); David J. Moss, Swinburne Univ. of Technology (Australia); Roberto Morandotti, Institut National de la Recherche Scientifique (France) .................. [10242-15]

Simplified model enabling optimization of silicon modulators, Diego Pérez-Galacho, Delphine Marris-Morini, Ctr. de Nanosciences et de Nanotechnologies (France); Remco Stoffer, PhoeniX B.V. (Netherlands); Eric Cassan, Ctr. de Nanosciences et de Nanotechnologies (France); Charles Baudot, STMicroelectronics (France); Twan Korthorst, PhoeniX B.V. (Netherlands); Frédéric Bœuf, STMicroelectronics (France); Laurent Vivien, Ctr. de Nanosciences et de Nanotechnologies (France) .......... [10242-16]

Continuous-wave second and third harmonic generation in high-Q gallium nitride photonic crystal cavities on silicon (Invited Paper), Mohamed Sabry Mohamed, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Angelica Simbula, Univ. degli Studi di Pavia (Italy); Jean-François Carlin, Monchil Minkov, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Dario Gerace, Univ. degli Studi di Pavia (Italy); Vincenzo Savona, Nicolas Grandjean, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Matteo Galli, Univ. degli Studi di Pavia (Italy); Romuald Houdré, Ecole Polytechnique Fédérale de Lausanne (Switzerland) ........ [10242-17]

Silicon and germanium free carrier injection modulators for the mid-infrared (Invited Paper), Milos Nedeljkovic, Goran Z. M Shanovitch, Univ. of Southampton (United Kingdom) .......... [10242-18]

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

SESSION 6 .......................... TUE 13:30 TO 15:30
Novel Effects and Applications
Session Chair: Henri Benisty, Institut d’Optique Graduate School (France)
Nanoantenna enhanced terahertz radiation: matter interaction (Invited Paper), Luca Razzari, Institut National de la Recherche Scientifique (Canada) .......... [10242-19]

Pockels effect in strained silicon photonic (Invited Paper), Laurent Vivien, Mathias Berciano, Pedro Damas, Guillaume Marcaud, Eric Cassan, Alexandre Bertrand, Politecnico di Milano (Italy) .......... [10242-20]


Distributed meandering waveguides for novel photonic circuits, Ceren B. Dag, Univ. of Michigan (United States); Mehmet Ali Anil, Istanbul Technical Univ. (Turkey); Ali Serpengüzel, Koc Univ. (Turkey) .......... [10242-22]

Poster Session ....................... WED 17:45 TO 19:30
Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, 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 are expected to be present and follow guidelines and set-up instructions on page 11, and at http://spie.org/x30951.xml

Localised photonic nanojets formed by core-shell diffraction gratings, Cheng-Yang Liu, Li-Jen Chang, Chung-Yi Wang, Tamkang Univ. (Taiwan) .......... [10242-30]

Small-signal analysis of ultrahigh speed 30 GHz VCSELs using an advanced multimode approach, Vahid Hamad, Technische Universität Berlin (Germany); Marwan Bou Sanayeh, Hassan Hamad, Mustapha Hamad, Semaan Georges, Notre Dame Univ., Louaize (Lebanon); Werner H. Hofmann, Technische Univ. Berlin (Germany) .......... [10242-32]

High transmittance and broaden bandwidth through the morphology of interreflecive layer of micropillar with Si nano-hole, Nai-Chen Chi, Ting-Yang Yu, Hsin-Cheng Tsai, National Chiao Tung Univ. (Taiwan); Shiang-Yu Wang, Inst. of Astronomy and Astrophysics - Academia Sinica (Taiwan); Chi-Wei Luo, Kuan-Heng Chen, National Chiao Tung Univ. (Taiwan) .......... [10242-33]

The behavior of the geometrical parameters of optical beam of optical passive components in the thermal load, Frantisek Perecar, Lukas Bencarek, Lukas Hajek, Aleš Vanderka, Jakub Jaros, David Sypra, Vladimír Vášinek, VSB-Technical Univ. of Ostrava (Czech Republic) .......... [10242-34]

Design of silicon electro-optic modulator based on the epsilon-near-zero effect of graphene, Jin Tae Kim, Electronics and Telecommunications Research Institute (Korea, Republic of) .......... [10242-35]

Small-signal analysis of ultrahigh speed 30 GHz VCSELs using an advanced multimode approach, Vahid Hamad, Technische Universität Berlin (Germany); Marwan Bou Sanayeh, Hassan Hamad, Mustapha Hamad, Semaan Georges, Notre Dame Univ., Louaize (Lebanon); Werner H. Hofmann, Technische Univ. Berlin (Germany) .......... [10242-32]

Self-assembly organic molecular micron-sized tubular structures for active and passive waveguiding regimes, Nebras E. Al-Attar, Univ. College Dublin (Ireland) and University of Technology Baghdad (Iraq); Aisling Kerr, Rusul Al-Shammari, Univ. College Dublin (Ireland); Saqibakranish Ramadurai, Dublin City Univ. (Ireland); Brian J. Rodriguez, Univ. College Dublin (Ireland); Tia E. Keyes, Dublin City Univ. (Ireland); James H. Rice, Univ. College Dublin (Ireland) .......... [10242-36]

Experimental analysis of silicon oxycarbide thin films and waveguides, Faisal Ahmed Memon, Politecnico di Milano (Italy); Mehran Univ. of Engineering & Technology (Pakistan); Francesco Morichetti, Giussepe Iseri, Claudio Somaschini, Andrea I. Melloni, Politecnico di Milano (Italy) .......... [10242-39]
X-Ray Lasers and Coherent X-Ray Sources: Development and Applications

Conference Chairs: Annie Klisnick, CNRS, Univ. Paris-Sud 11 (France); Carmen S. Menoni, Colorado State Univ. (United States)

Programme Committee: Jens Biegert, IFCO - Instituto de Ciencias Fotónicas (Spain); Hiroyuki Daido, Japan Atomic Energy Agency (Japan); Yasin Eikinci, Paul Scherrer Institut (Switzerland); Sylvie Jacquemot, Ecole Polytechnique (France); Do-Kyeong Ko, Gwangju Institute of Science and Technology (Korea, Republic of); Giara L. S. Lewis, Queen’s Univ. Belfast (United Kingdom); Stefan P. Moeller, SLAC National Accelerator Lab. (United States); Peter Viktor Nickles, Gwangju Institute of Science and Technology (Korea, Republic of); Joseph Nilsen, Lawrence Livermore National Lab. (United States); Jorge J. Rocca, Colorado State Univ. (United States); Regina Souffi, Lawrence Livermore National Lab. (United States); Szymon Suckerwe, Princeton Univ. (United States); Gregory J. Talents, The Univ. of York (United Kingdom); Alexander Vladimirovich Vinogradov, P.N. Lebedev Physical Institute (Russian Federation); Marco Zangrando, Sincrotrone Trieste S.C.p.A. (Italy)

MONDAY 24 APRIL

OPENING REMARKS .......................... 8:40 TO 8:45

SESSION 1 ....................................... MON 08:45 TO 10:25
Laboratory-scale Soft X-ray Lasers and Coherent X-ray Sources
Session Chair: Jorge J. Rocca, Colorado State Univ. (United States)

Progress on ultra-intense soft x-ray lasers (Invited Paper), Stéphane Sebban, Lab. d’Optique Appliquée (France) ........................................... [10243-1]

DAGON: a 3D Maxwell-Bloch code, Eduardo Oliva, Univ. Politécnica de Madrid (Spain) .................. [10243-2]

Highly coherent lab-scale soft x-ray laser using multistage amplifier, Thanh-Hung Dinh, Noboru Hasegawa, Maki Kishimoto, National Institutes for Quantum and Radiological Science and Technology (Japan); Shin-Ichi Namba, Hiroshima Univ. (Japan); Jozsef Seres, Technische Univ. Wien (Austria); Masaharu Nishikino, Tetsuya Kawachi, National Institutes for Quantum and Radiological Science and Technology (Japan) ........................................... [10243-3]

Laser-driven coherent sources of short-wavelength radiation at PALS and ELI Beamlines (Invited Paper), Jaroslav Nejdl, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Michaela Kozlová, Viktoria Nefedova, Martin Albrecht, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Julien Gautier, Stéphane Sebban, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Lab. d’Optique Appliquée (France) .................. [10243-4]

SESSION 2 ....................................... MON 10:50 TO 12:30
Soft X-Ray Applications I
Session Chair: Michal Kozlova, Institute of Physics of the ASCR, v.v.i. (Czech Republic)

High-spatial-resolution X-ray bio imaging with liquid-metal-jet sources (Invited Paper), Hans M. Hertz, KTH Royal Institute of Technology (Sweden) ........................................... [10243-5]

Thomson laser-electron x-ray source: towards k-edge millisecond coronary angiography, Nikolay Dyachkov, P.N. Lebedev Physical Institute (Russian Federation); Anastasiya V. Polunina, N.V. Sklifosovsky’s Scientific Research Institute of Emergency Medicine (Russian Federation); Sergey L. Vinogradov, Alexander V. Vinogradov, P.N. Lebedev Physical Institute (Russian Federation) ........................................... [10243-6]

Single shot NEXAFS spectroscopy using a soft x-ray laser-produced plasma source, Ioanna Mantouvalou, Katharina Witte, Adrian Jonas, Wjatcheslav Martyanov, Daniel Grötzsch, Technische Uni. Berlin (Germany); Robert Jung, Holger Stiel, Max-Born-Institut für Nichtlineare Optik und Kurzzeitpektroskopie (Germany); Birgit Kanggesser, Technische Uni. Berlin (Germany) ........................................... [10243-7]

SESSION 3 ....................................... MON 13:50 TO 15:40
New Concepts for High-Brightness X-ray Sources
Session Chair: Gregory J. Talents, Univ. of York (United Kingdom)

Development of ultrashort x-ray/gamma-ray sources using ultrahigh power lasers (Invited Paper), Hyung Taek Kim, Ctr. for Relativistic Laser Science at Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); Kazuhiro Nakajima, Institute for Basic Science (Korea, Republic of); Calin Hojibota, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); Jong Ho Jeon, Yong-Joo Rhee, Kyung Hwan Lee, Institute for Basic Science (Korea, Republic of); Seong Ku Lee, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); Jae Hee Sung, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); Hwang Woon Lee, Vishwa B. Pathak, Institute for Basic Science (Korea, Republic of); Khong Pae, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of); Hojin Gwak, Institute for Basic Science (Korea, Republic of); Stéphane Sebban, Lab. d’Optique Appliquée (France); Fabien Tissandier, Lab. d’Optique Appliquée (France); Julien Gautier, Kim Ta Phuc, Lab. d’Optique Appliquée (France); Victor Malka, Lab. d’Optique Appliquée (France) and Weizmann Institute of Science (Israel); Chang Hee Nam, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of) ........................................... [10243-9]

Generation of intense attosecond soft x-ray pulses by IR-field dressed x-ray lasers, Timur R. Akhmedzhanov, Texas A&M Univ. (United States); Vladimir A. Antonov, Institute of Applied Physics of the Russian Academy of Sciences (Russian Federation); Olga Kocharovskykh, Texas A&M Univ. (United States) ........................................... [10243-10]

Using the XFEL to drive gain in L-shell systems using photoionization processes, Joseph Nilsen, Lawrence Livermore National Lab. (United States); Alberto Simoncig, Alessandro Gessini, Riccardo Mincigrucci, Claudio Masciovecchio, Elettra-Sincrotrone Trieste S.C.p.A. (Italy); Ollivier Peyrusse, Aix-Marseille Univ. (France) ................................. [10243-11]

Amplified spontaneous and stimulated Mg L emissions from MgO pumped by FEL pulses, Philippe Jonnard, Jean-Michel André, Karine Le Guen, Meyi Wu, Univ. Pierre et Marie Curie (France); Emiliano C. Pierobello, Calin Hojibota, Institute for Basic Science (Korea, Republic of) and Gwangju Institute of Science and Technology (Korea, Republic of) ........................................... [10243-12]

Prospects of quantum X-ray lasers pumped by X-ray free electron lasers, Karol A. Janulewicz, Institute of Optoelectronics, Military; Catholic University of Technology (Poland) ................................. [10243-13]

Soft X-ray nanoscale imaging using highly brilliant laboratory sources and new detector concepts (Invited Paper), Holger Stiel, Max-Born-Institut für Nichtlineare Optik und Kurzzeitpektroskopie (Germany) and Berlin Lab. for Innovative X-ray Technologies (Germany); Julia Braenzel, Max-Born-Institut für Nichtlineare Optik und Kurzzeitpektroskopie (Germany); Aurélie Dehlinger, Robert Jung, Max-Born-Institut für Nichtlineare Optik und Kurzzeitpektroskopie (Germany) and Berlin Lab. for Innovative X-ray Technologies (Germany); Andrea Luebecke, Matthias Schnuerer, Johannes F. Tümmler, Max-Born-Institut für Nichtlineare Optik und Kurzzeitpektroskopie (Germany); Martin Regelsberg, Holger Stiel, greateyes GmbH (Germany) ........................................... [10243-8]

Lunch Break .......................................................... Mon 12:30 to 13:50
TUESDAY 25 APRIL

SESSION 4 .................. TUE 10:20 TO 12:00
Laboratory-scale Soft X-ray Lasers and Applications

Session Chair: Sylvie Jacquemot, Lab. pour l’Utilisation des Lasers Intenses (France)

High repetition rate and shorter wavelengths: progress in soft x-ray laser development and applications at Colorado State University (Invited Paper), Jorge J. Rocca, Brendan A. Reagen, Yong Wang, Cory M. Baumgarten, Alex Rockwood, Shoujun Wang, Michael A. Pedicone, Mark Berrill, Vyacheslav N. Shiyaaptev, Chan Kyaw, Liang Yin, Hanchen Wang, Mario C. Marconi, Carmen S. Menoni, Colorado State Univ. (United States). [10243-14]


Applications of an extreme ultraviolet capillary discharge laser, Gregory J. Tallents, Univ. of York (United Kingdom). [10243-16]


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

JOINT SESSION 1 .................. TUE 13:10 TO 15:20
Scientific Applications of Laser- and Accelerator-based X-ray Sources

Session Chair: Thomas Tsentscher, European XFEL GmbH (Germany)

Joint Session with Conferences 10237 and 10243

X-ray absorption spectroscopy of warm dense matter with betatron x-ray radiation, Davide Bleiner, Albrecht Hoffmann, Lawrence Livermore National Lab (United States). [10243-18]

Investigating pathways of biological specimen on fs to 35 timescales (Invited Paper), Richard Neutze, Göteborgs Univ. (Sweden). [10237-1]

Nonlinear X-ray spectroscopy: needs and prospects (Invited Paper), Nina Rohringer, DESY (Germany). [10237-2]


The EIS beamline at the seeded free-electron laser FERMI. Alberto Simoncig, Riccardo Minicigruduci, Emiliano Principi, Filippo Bencivenga, Laura Foglia, Andrea Calvi, Claudio Masciocchini, Gabor Kuri, Elettro-Sinchrotrone Trieste S.c.p.a. (Italy); Alessia Matriglione, Simone Dal Zilio, Valentina Masciotti, Istituto Officina dei Materiali (Italy). [10243-20]

Conference 10243 continued

JOINT SESSION 2 .................. TUE 15:40 TO 17:30
Temporal, Spatial and Coherence Diagnostics of Ultrashort X-ray Pulses

Session Chair: Carmen S. Menoni, Colorado State Univ. (United States)

Joint Session with Conferences 10237 and 10243

Advanced time-domain diagnostics using photoelectrons (Invited Paper), Wolfram Heiml, Technische Univ. München (Germany); Nick Hartmann, SLAC National Accelerator Lab. (United States); Michael Kühn, DESY (Germany); Alexander Konev, Deutsches Elektronen-Synchrotron (Germany); David Rehbein, European XFEL GmbH (Germany); Jens Buck, Deutsches Elektronen-Synchrotron (Germany); Anton O. Lindahl, Gamcom Research & Technology AB (Sweden); Craig Benko, JILA (United States); Jan Grünert, European XFEL GmbH (Germany); Jacek Krzywinski, SLAC National Accelerator Lab. (United States); Jia Liu, European XFEL GmbH (Germany); Alberto Lutman, Agostino Marinelli, Milano (Italy); Timothy J. Maxwell, Alireira A. Miahnahaf, Stefan P. Moeller, SLAC National Accelerator Lab. (United States); Marc Planas, European XFEL GmbH (Germany); Johannes Robinson, SLAC National Accelerator Lab. (United States); Jens Viefhaus, Deutsches Elektronen-Synchrotron (Germany); Thomas Feurer, Univ. Bern (Switzerland); Reinhard Kienberger, Technische Univ. München (Germany); Ryan N. Coheff, SLAC National Accelerator Lab. (United States). [10237-3]

Temporal diagnostics from photons: the experience with the PALM (Invited Paper), Pavle Juramic, Iskhan Gorgisyan, Christian Erny, Rasmus Ischebeck, Luc Patthey, Claude Pradervand, Christopher J. Milne, H. Lemke, Paul Scherrer Institut (Switzerland); Andreas Dax, Yale Univ. (United States); Milan Radovic, Christoph P. Hauri, Paul Scherrer Institut (Switzerland); Shigeaki Owada, Tadashi Togashi, Tsukasa Katayama, Makina Yabashi, RIKEN Harima Branch (Japan). [10237-4]

Single-shot linear autocorrelation of partially coherent XUV laser pulses, Andréa Le Marec, Institut des Sciences Moléculaires d’Orsay (France); Olivier A. Guillaud, Moana Pittaman, Elsa Baynard, Univ. Paris-Sud (France); Julia Demay, Olvivier Labro, Lab. de Physique des Gaz et des Plasmas (France); Sophie Kazamias, Univ. Paris-Sud 11 (France); Bruno Lucas, Fabrice Sanson, Lab. de Physique des Gaz et des Plasmas (France); David Ross, Annie Klisnick, Univ. Paris-Sud 11 (France). [10237-21]

Nanofabrication of diffractive X-ray optics for synchrotrons and XFELs (Invited Paper), Christian David, Paul Scherrer Institut (Switzerland). [10237-22]

WEDNESDAY 26 APRIL

SESSION 5 .................. WED 08:30 TO 10:40
Soft X-Ray Applications II

Session Chair: Hyung Taek Kim, Gwangju Institute of Science and Technology (Korea, Republic of)

Soft x-ray imaging with incoherent sources (Invited Paper), Przemyslaw W. Wachulak, Atsushi Inogamov, Russian Academy of Sciences (Russia); Andreas Dax, Yale Univ. (United States); Masaharu Nishikino, Noboru Hasegawa, Observation of femtosecond laser spallative ablation dynamics by soft x-ray laser probe, Masaharu Nishikino, Noboru Hasegawa, Thanh-Hung Dinh, National Institutes for Quantum and Radiological Science and Technology (Japan); Atsushi M. Ito, National Institute for Fusion Science (Japan); Tohru Suemoto, Toyota Physical and Chemical Research Institute (Japan); Anthony Y. Faenov, Osaka Univ. (Japan); Niall A. Ingamov, Russian Academy of Sciences (Russian Federation). [10237-23-24]

X-ray absorption spectroscopy probing hydrogen in metals, Andreas Borgschulte, EMPA (Switzerland) and Univ. Zürich (Switzerland); Olga Sambalova, Yunieski Arbelo Pena, Claire Cirelli, Davide Bleiner, EMPA (Switzerland). [10243-24]

Laser plasma soft X-ray source based on cryogenic target (Invited Paper), Sho Amano, Univ. of Hyogo (Japan). [10237-25-26]

Observation of femtosecond laser spallative ablation dynamics by using soft x-ray laser probe, Masaharu Nishikino, Noboru Hasegawa, Thanh-Hung Dinh, National Institutes for Quantum and Radiological Science and Technology (Japan); Atsushi M. Ito, National Institute for Fusion Science (Japan); Tohru Suemoto, Toyota Physical and Chemical Research Institute (Japan); Anthony Y. Faenov, Osaka Univ. (Japan); Niall A. Ingamov, Russian Academy of Sciences (Russian Federation). [10237-26]
Conference 10243 continued

Soft x-ray laser ablation of metals and dielectrics (Invited Paper), Anatoly V. Faenov, Tatiana A. Pikuz, Osaka Univ. (Japan); Masahiko Ishino, National Institutes for Quantum and Radiological Science and Technology (Japan); Nai A. Inogamov, L.D. Landau Institute for Theoretical Physics (Russian Federation); Vassily V. Zhakhovsky, Dukhov All-Russia Research Institute of Automatics (Russian Federation); Sergei Starikov, Igor Skobelev, Joint Institute for High Temperatures (Russian Federation); Noboru Hasegawa, Masaharu Nishikino, Masaki Kando, National Institutes for Quantum and Radiological Science and Technology (Japan); Ryo Suzuki Kodama, Osaka Univ. (Japan); Tetsuya Kawachi, National Institutes for Quantum and Radiological Science and Technology (Japan)............. [10243-27]

SESSION 6 .............................. WED 11:00 TO 12:20
High-order Harmonics and Applications
Session Chair: Joseph Nilsen,
Lawrence Livermore National Lab. (United States)
Spectrally resolved lensless imaging with ultrabroadband high-harmonic generation sources (Invited Paper), Stefan Witte, Matthias Jansen, Denis Rudolf, Lars Freisem, Kjeld S. E. Eikema, Advanced Research Ctr. for Nanolithography (Netherlands) ............. [10243-28]
Ultrafast nanoscale imaging using high harmonic generation (Invited Paper), Hamed Merdji, CEA (France) ........ [10243-29]
Tunable orbital angular momentum beams in the extreme ultraviolet/soft x-ray regimes, Carlos Hernandez-Garcia, Laura Rego, Univ. de Salamanca (Spain); Alejandro Turpin, Univ. Autònoma de Barcelona (Spain); Antonio Picón, Julio San Román, Luis Plaza, Univ. de Salamanca (Spain).......... [10243-30]
Lunch/Exhibition Break .......................... Wed 12:10 to 13:30

PLENARY SESSION .................... WED 13:30 TO 15:15
Optics + Optoelectronics 2017: Plenary Session III
For details, please see pages 6-9 in the printed programme or visit http://spie.org/x25077.xml

JOINT SESSION 3 ..................... WED 15:40 TO 17:30
High Brightness and Ultrashort X-ray and EUV Sources
Session Chair: Annie Kiśnick, Univ. Paris-Sud 11 (France)
Joint Session with Conferences 10237 and 10243
Development of free-electron laser at 30nm based on laser wake field accelerators (Invited Paper), Ruxin Li, Wentao Wang, Jiansheng Liu, Yuxin Leng, Zhizhan Xu, Shanghai Institute of Optics and Fine Mechanics (China) ............... [10243-12]
X-ray production schemes from laser driven plasmas at the PALS and ELI Beamlines, Michaela Kozlová, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic) ...................... [10243-31]
Towards sub-femtosecond X-ray FEL pulses (Invited Paper), Agostino Marinelli, SLAC National Accelerator Lab. (United States) ... [10243-13]
High-quality electron beams for high-quality FEL (Invited Paper), Enrico M. Allaria, Elettra-Sincrotrone Trieste (Italy) ........ [10243-14]

POSTER SESSION ..................... WED 17:45 TO 19:30
Conference attendees are invited to attend the Optics + Optoelectronics Symposium Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Attendees are required to wear their conference registration badges at the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions on page 11, and at http://spie.org/x30951.xml.

Resolution of X-ray parabolic compound refractive diamond lens defined at the home laboratory, Sergey Zhuludev, Technological Institute for Superhard and Novel Carbon Materials (Russian Federation); Sergey Gasilov, Karlsruhe Institut für Technologie (Germany); Sergey Polyakov, Stefan Martyushov, Victor Denisov, Sergey A. Terentiev, Vladivir D. Blank, Technological Institute for Superhard and Novel Carbon Materials (Russian Federation). [10243-32]
Evaluation of laser-electron x-ray source and related optics for X-rayimaging and X-ray diffraction analysis, Sergey Polyakov, Technological Institute for Superhard and Novel Carbon Materials (Russian Federation); Igor A. Artuykov, P.N. Lebedev Physical Institute (Russian Federation); Vladimir D. Blank, Sergey Zhuludev, Technological Institute for Superhard and Novel Carbon Materials (Russian Federation); Ruslan M. Feshchenko, Nikolay L. Popov, P.N. Lebedev Physical Institute (Russian Federation); Sergey A. Terentiev, Technological Institute for Superhard and Novel Carbon Materials (Russian Federation); Alexander V. Vinogradov, P.N. Lebedev Physical Institute (Russian Federation) .......... [10243-33]

XUV-frequency control and the cut-off law for high harmonics generated using the optical gating, Jan Vábek, Univ. Bordeaux 1 (France) and Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Fabrice Catoire, Univ. Bordeaux 1 (France) ................ [10243-34]

Radiation properties of Ni-like molybdenum x-ray laser at PALS, Martin Albrecht, ELI Beamlines (Czech Republic); Jaroslav Nejdl, Michaela Kozlová, ELI Beamlines (Czech Republic) and Institute of Physics of the ASCR, v.v.i. (Czech Republic) .......... [10243-35]
Laser-driven X-ray generation with Al tape target and its application to X-ray fluorescence, Jungu Kang, Gwangju Institute of Science and Technology (Korea, Republic of) ........ [10243-36]

An approach to reflection X-ray microscopy below critical angles, Nikola L. Popov, Igor A. Artuykov, Alexander S. Busarov, Alexander V. Vinogradov, P.N. Lebedev Physical Institute (Russian Federation) ................ [10243-37]

Ultrafast x-ray fluorescence of L3 line of selenium atoms for drug candidates screening, Jungu Kang, Il Woo Choi, Do Young Nah, Doyoung Ko, Gwangju Institute of Science and Technology (Korea, Republic of) ........ [10243-38]

Development of high-flux high-order harmonic generation at PALS and ELI-Beamlines, Viktoria Nefedova, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Jaroslav Nejdl, Institute of Physics of the ASCR, v.v.i. (Czech Republic) and Institute of Plasma Physics of the ASCR, v.v.i. (Czech Republic); Martin Albrecht, ELI Beamlines (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic) .......... [10243-39]

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Technology and Applications of Intense, High Average Power Lasers Workshop

Conference Chairs: Tomas Mocek, HiLASE Ctr. (Czech Republic); Ric M. Allott, STFC Rutherford Appleton Lab. (United Kingdom); Chris Edwards, Science and Technology Facilities Council (United Kingdom)

POSTER SESSION ............................... WED 17:45 TO 19:30

An all reflective polarisation rotator, János Bohus, Mikhail P. Kalashnikov, ELI-ALPS Research Institute, ELI-HU Non-Profit Ltd. (Hungary); Károly Osay, ELI-ALPS Research Institute, ELI-HU Non-Profit Ltd. (Hungary) and Univ. of Szeged (Hungary) ........................... [WS100-18]

Pulse compression optimization of a picosecond high average power thin-disk laser, Michal Vylečka, HILASE Ctr., Institute of Physics ASCR, v.v.i (Czech Republic); Charles Univ. in Prague (Czech Republic); Jitka Černohorská, Jiří Můžik, HILASE Ctr., Institute of Physics ASCR, v.v.i (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); Ondřej Novák, Martin Smrž, Akira Endo, Tomáš Mocek, HILASE Ctr., Institute of Physics ASCR, v.v.i (Czech Republic) ........................ [WS100-19]

Light hydraulic effect in laser nanodiamond synthesis, optimizing parameters for the output increase, Boris Zoussman, Olga Levinson, Ray Techniques Ltd. (Israel), Stanislav A. Kolpakov, Sergey V. Sergeyev, Aston Univ. (United Kingdom) .......................... [WS100-20]

An approach to stabilization of a laser beam by using a modified Stewart platform, Yuri V. Fedosov, Maxim Y. Afanasev, ITMO Univ. (Russian Federation) .......................... [WS100-21]

A design of an optical fiber delivery system for technological equipment, Yuri V. Fedosov, Maxim Y. Afanasev, Galina E. Romanova, ITMO Univ. (Russian Federation) ........................ [WS100-22]

An application of genetic algorithm methods for optimization the moving trajectory during laser processing, Yuri V. Fedosov, Maxim Y. Afanasev, ITMO Univ. (Russian Federation); Sergey V. Akimov, The Bonch-Bruevich Saint-Petersburg State Univ. of Telecommunications (Russian Federation) ........................ [WS100-23]

Design of the compact temporal coherent beam combining module for high power femtosecond pulse laser, Ki-Nam Joo, Hee Won Jung, Chosun Univ. (Korea, Republic of) ................................. [WS100-24]

On the multiscale 3D modeling of laser melting of metal powders, Alexander V. Dubrov, Fikret K. Mirzade, Institute on Laser and Information Technologies (Russian Federation); Vladimir D Dubrov, ILIT RAS - Branch of the FSRC “Crystallography and Photonics” RAS (Russian Federation) ........................ [WS100-25]

A phase field study of stress effects on microstructure formation during laser sintering of powders, Fikret K. Mirzade, Institute on Laser and Information Technologies (Russian Federation) ........................ [WS100-26]
Workshop WS100 continued

SESSION 3 ............................ THU 13:50 TO 15:30

Technology I

Session Chair: Chris Edwards, STFC Rutherford Appleton Lab. (United Kingdom)

4-mJ, 50-kHz picosecond pulses from PERLA C thin-disk laser platform.
Jiri Mužík, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); Martin Smrž, Michal Chyla, HiLASE Ctr., Institute of Physics ASCR, v.v.i. (Czech Republic); Onďej Novák, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic); Václav Kubeček, Czech Technical Univ. in Prague (Czech Republic); Akira Endo, Tomáš Mocék, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic) ............................. [WS100-9]

1 kW operation of the HiLASE slab laser system, Thomas J. Butcher, STFC Rutherford Appleton Lab. (United Kingdom) .......................... [WS100-10]

Extension of application potential of a picosecond 100 kHz high-average power Yb:YAG thin-disk laser by harmonic generation into VIS, UV, and DUV.
Hana Turcicova, Ondřej Novák, HiLASE Ctr. (Czech Republic); Lukas Roskot, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); Martin Smrž, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic); Jiri Mužík, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); Akira Endo, Tomáš Mocék, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic) ........ [WS100-11]

High-energy burst pulse amplification in PERLA B thin-disk laser platform.
Michal Chyla, Siva Sankar Nagisetty, Huang Zhou, Martin Smrž, Akira Endo, Tomáš Mocék, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic) .......................... [WS100-12]

Targetry solutions for high-repetition rate lasers, Martin Tolley, STFC Rutherford Appleton Lab. (United Kingdom) .......................... [WS100-13]

SESSION 4 ............................ THU 15:50 TO 17:30

Technology II

Session Chair: Antonio Lucianetti, HiLASE Ctr. (Czech Republic)

Wavelength tunable parametric mid-IR source pumped by a high-power picosecond thin-disk laser, Michal Vyvlecka, HiLASE Ctr., Institute of Physics ASCR, v.v.i. (Czech Republic); Charles Univ. in Prague (Czech Republic); Onďej Novák, Martin Smrž, Akira Endo, Tomáš Mocék, HiLASE Ctr., Institute of Physics ASCR, v.v.i. (Czech Republic) .......................... [WS100-14]

Design of a telescopic zoom system for electron acceleration, Bruno J. Le Garrec, Ecole Polytechnique (France) .......................... [WS100-15]

High-repetition-rate few-cycle laser for attosecond pulse generation at ELI-ALPS, Tino Eidam, Steffen Hadrích, Florian Just, Active Fiber Systems GmbH (Germany); Evgeny Shestaev, Nils Becker, Friedrich-Schiller-Universit. Jena (Germany); Arno Klenke, Marco Kienel, Friedrich-Schiller-Universit. Jena (Germany) and Helmholtz Institute Jena (Germany); Michael Müller, Friedrich-Schiller-Universit. Jena (Germany); Jan Rothhardt, Friedrich-Schiller-Universit. Jena (Germany) and Helmholtz Institute Jena (Germany); Andreas Drozdzy, Péter Jójtárt, Aron Szabo, ELI-HU Nonprofit Kft. (Hungary); Zoltan Varallyay, ELI-HU Non-Profit Ltd. (Hungary); Eric Cormier, ELI-HU Nonprofit Kft. (Hungary) and Université Bordeaux 1 (France); Károly Osyav, ELI-ALPS Research Institute (Hungary) and ELI-HU Non-Profit Ltd. (Hungary); Andreas Tünnemann, Friedrich-Schiller-Universit. Jena (Germany) and Helmholtz Institute Jena (Germany) and Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Jens Limpert, Friedrich-Schiller-Universit. Jena (Germany) and Helmholtz Institute Jena (Germany) and Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) .......................... [WS100-16]

100-W 1-MHz operating Yb-rods fiber front-end for seeding of a 1-kW thin-disk amplifier, Alina Pranovich, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic), Czech Technical Univ. in Prague (Czech Republic); Yasuhiro Kamba, Gigaphoton Inc. (Japan); Martin Smrž, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic); Michal Němec, Czech Technical Univ. in Prague (Czech Republic); Akira Endo, Tomáš Mocék, HiLASE Ctr., Institute of Physics ASCR v.v.i. (Czech Republic) .......................... [WS100-17]
GENERAL INFORMATION

REGISTRATION

Onsite Registration and Badge Pick-up Hours
Conference Floor Foyer
Sunday 23 April ............................... 15:00 to 17:00 hrs.
Monday 24 April .............................. 7:45 to 17:00 hrs.
Tuesday 25 April ............................. 7:45 to 17:00 hrs.
Wednesday 26 April ........................ 8:00 to 17:00 hrs.
Thursday 27 April ........................... 8:00 to 16:00 hrs.

Exhibition Hours
Tuesday, 25 April ............................ 10:00 to 17:00 hrs
Wednesday, 26 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 online proceedings.

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Poster Setup Instructions
Wednesday 26 April ............................ 17:45 to 19:30
All symposium attendees are invited to attend 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.
Poster presenters may post their poster papers starting at 10:00 hrs on Tuesday. 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 19:30 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

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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 27 February 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.
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Prague Airport www.prg.aero/en
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