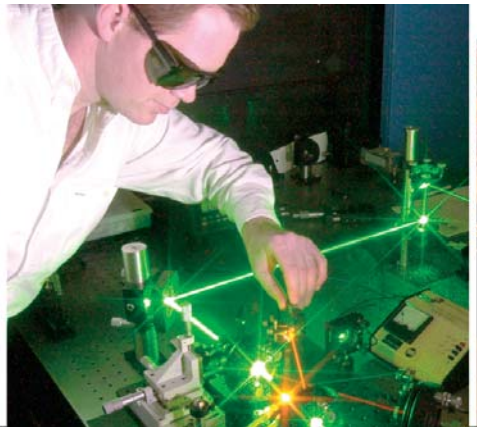
Technical Programme

SPIE Europe

Photonics Europe

Conferences: 7–10 April 2008
Exhibition: 8–10 April 2008
Industry Perspectives Programme: 8–10 April 2008

Palais de la Musique et des Congrès
Strasbourg, France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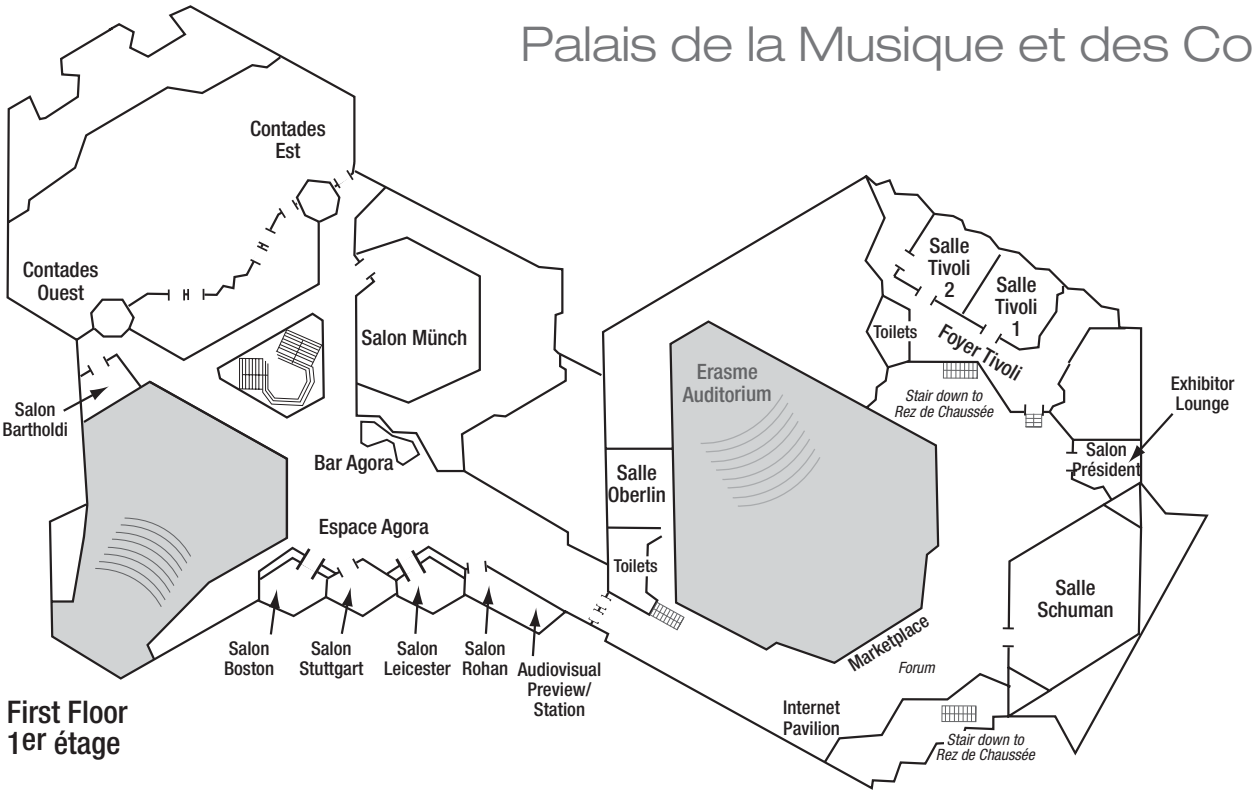

First Floor
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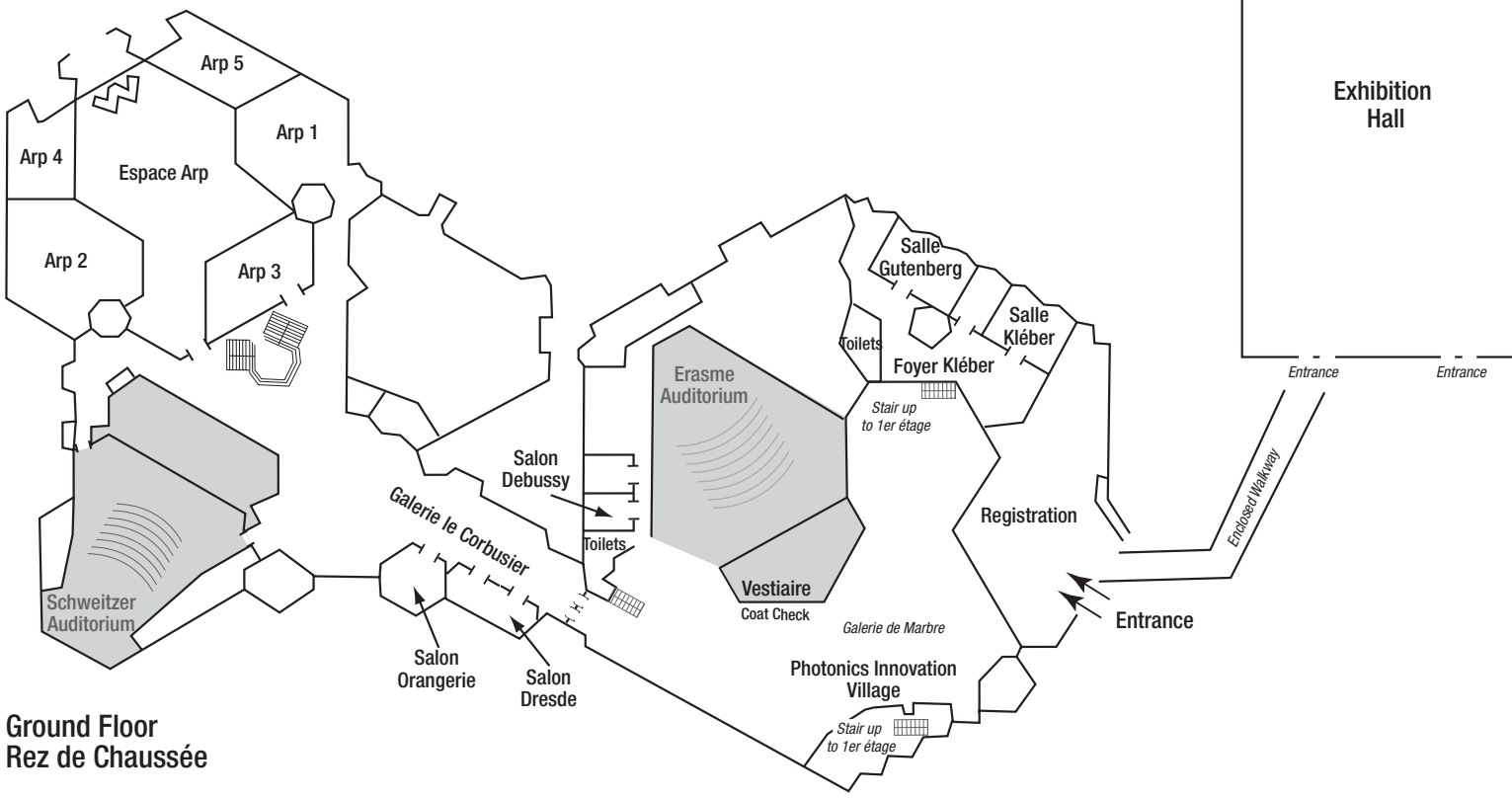

Ground Floor
Rez de Chaussée

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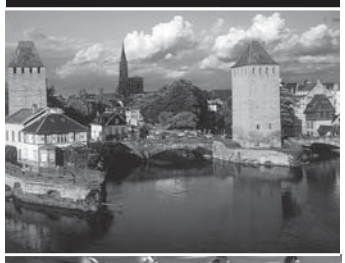
Free
EXHIBITION
8–10 April 2008



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cnop Comité National d'Optique et de Photonique France

EOS European Optical Society

EPIC

ePIXnet

IOP Institute of Physics

NEMO Network of Excellence on Micro-Optics

EU - IST QLAS

OPERA 2015

PhOREMOST

Photonics Cluster (UK) "Making Light Work in Industry"

photonics 4 life

PHOTONICS 21

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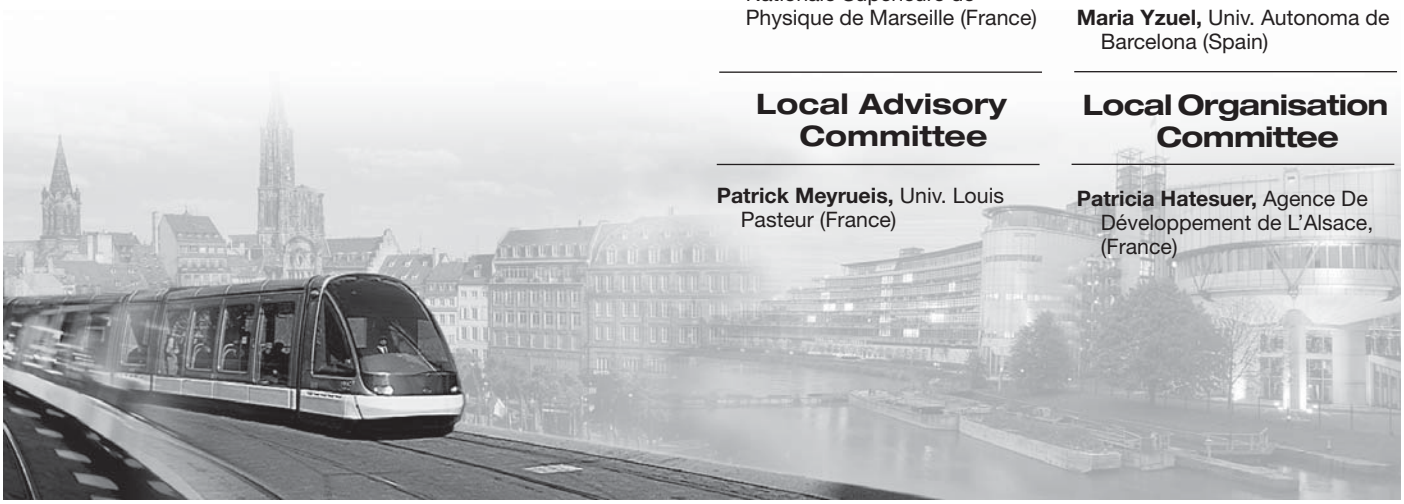


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Welcome to Photonics Europe 2008!

Photonics Europe brings together different disciplines, technologies, and perspectives from across Europe and around the world. As a participant, you are among the leaders who are presenting research, developing new contacts, and learning about the latest funding opportunities.

- Photonics Europe is composed of conferences, workshops, seminars, and an exhibition that combine into a dynamic learning environment
- Photonics Europe has programmes and experts on industry and new business development
- Photonics Europe serves as the platform for new information and updates on the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (FP7) in the ICT theme
- Photonics Europe features three comprehensive “Hot Topics” sessions, and includes a unique welcoming reception, daily coffee breaks, plus other technical and social events to maximize networking opportunities
- Photonics Europe presents the Photonics Innovation Village to provide a window on creative products developed by universities and research centres.
- The casual ambience of historical Strasbourg provides a backdrop of comfortable facilities, quick and easy transportation and excellent restaurants.

The leadership of Photonics Europe 2008 has selected many of the toughest issues facing optical and photonics technologies today as the basis for their programme. These current research issues will drive the development of new products for years to come.

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Daily Schedule

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6988 **Nanophotonics** *(Andrews/Nunzi/Ostendorf)*, p. 21			
	6989 **Photonic Crystal Materials and Devices** *(De La Rue/López/Midrio/Viktorovitch)*, p. 24		
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6992 **Micro-Optics** *(Thienpont/Van Daele/Mohr/Taghizadeh)*, p. 33		6993 **MEMS, MOEMS and Micromachining** *(Ürey)*, p. 36	
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6996 **Silicon Photonics and Photonic Integrated Circuits** *(Righini/Honkanen/Pavesi/Vivien),* p. 41			
6997 **Semiconductor Lasers and Laser Dynamics** *(Panayotov/Sciamanna/Valle/Michalzik)*, p. 44			
	6998 **Solid State Lasers and Amplifiers** *(Terry/Graf/Jelínková)*, p. 47		
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7003B **Photonics in the Automobile** *(Meyrueis, Pearsall)*, p. 66			
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SC787 Diffractive Optics Technology for Product Develop-ment, etc. 13.30 to 17.30, p. 13	**Welcome Reception**, 17.30 to 19.30, p. 10		
Interactive Session and Reception (Posters), 17.30 to 19.00 p. 10			
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Entrepreneurship Workshop Dinner, 17.30 to 19.00 hrs., p. 12	WS897 **Effective Technical Presentations**, 08.30 to 12.30 hrs., p. 13	**SPIE Student Chapter Breakfast**, 07.30 to 09.00 hrs., p.12	**SPIE Fellows Luncheon**, 12.00 to 13.30 hrs., p. 10
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		Women in Optics Reception and Presentation, 18.30 to 20.00, p. 10	**Friday** · 11 April
			Product Tutorial: **Optical Sensing**, 08.30 to 17.00 hrs., p. 11
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Hot Topics I

Location: Contades Ouest

Monday 7 April . . . . . 8.45 to 10.30

08.45 to 8.50

Opening Remarks

Hugo Thienpont
Vrije Univ. Brussel, Belgium

08.50 to 9.10

Photonics^{21} - Top priorities for European Photonics Research

Photonics^{21} is a voluntary association of industrial enterprises and other stakeholders in the field of photonics in Europe. It unites the majority of the leading Photonics industries and relevant R&D stakeholders along the whole economic value chain throughout Europe. Photonics^{21} undertakes to establish Europe as a leader in the development and deployment of Photonics in five industrial areas (Information and Communication, Lighting and Displays, Manufacturing, Life Science and Security) as well as in Education and Training.

Its mission is the coordination of the research and development activities in Europe among all the contributing partners from education, basic research, applied research and development to manufacturing and all relevant applications. The presentation at SPIE Photonics Europe - Hot Topics will highlight the platform research priorities for the FP7 work programme.

09.10 to 9.20

SPIE *Europe* Recognition Award

Recipient: **Henri Rajbenbach**
European Commission, Belgium

Henri Rajbenbach joined the European Commission (EC) in 1997 as a Scientific Project Manager in the areas of microelectronic integration, sensors and displays. In 2000, he launched the initiative on "Optics and Opto-electronics" in the IST programme (Information Society Technologies). Under his coordination, the application coverage expanded from telecommunication to include component research for health care, life science, environment and security, hence setting the grounds for the increased EC support of photonic technologies in the current ICT programme (Information and Communication Technologies).

More recently, Henri took over a project portfolio in the area of Micro and Nanosystems, supporting multidisciplinary research for the integration of core technologies (nanoelectronics, microfluidics, micromechanics, photonics…) and associated materials (Silicon, compound semiconductors, polymers, organics…). Applications address biochips and biosensors, microdisplays, large-area organic devices and miniaturised smart system sensors and actuators.

Prior to joining the EC, Henri conducted research in image processing and lasers for biometrics, security and defence applications at Thomson-CSF (now Thales), France (1987-1997) and in optical signal processing and computing at the University of California, San Diego, USA (1984-1987).

Henri has published some 50 conference and journal publications, 2 text book chapters and few patents in the areas of information processing, biometrics, photorefractive materials, semiconductor lasers, real-time holography, optical storage, image processing and target recognition.

His teaching experience includes the opto-electronics graduate course (DEA) at University of Paris XI, Summer schools classes in Europe and undergraduate courses in the USA. Henri graduated from the Ecole Supérieure de Physique et Chimie Industrielles, ESPCI (1983) and received his PhD from the Université de Paris VI (1984). He is a SPIE member since 1984.

SPIE A. E. Conrady Award

Recipient: **Adolf W. Lohmann,** Friedrich-Alexander-Universitaet Erlangen-Nuernberg, Germany

The A. E. Conrady Award is presented annually in recognition of exceptional contributions in design, construction, and testing of optical systems and instrumentation, without which the technology would not have progressed to its present state.

The 2008 recipient is Adolf W. Lohmann in recognition of his invention of the computer-generated hologram (CGH) which revolutionized the world of optical testing and design.

09.20 to 9.55

European Photonics: Challenges and Opportunities

Ronan Burgess
European Commission, Photonics Unit, Belgium

Photonics is a key enabling technology and this has been recognised in the European research programme (Framework Programme 7: 2007-2013) where photonics has been given a significantly higher profile. The speaker will give an overview of the outcome of the first funding round and expectations for future directions. He will also discuss the challenges for the photonics community and the European strategy.

Ronan Burgess is currently a Scientific Project Manager at the European Commission in the area of Photonics in the Information Communication Technologies (ICT) programme. He graduated with a Masters degree in Microelectronics from Trinity College, Dublin, Ireland, in 1986. From 1986 to 1997 he worked at Philips, The Netherlands, as a scientific researcher in the areas of stochastic optimisation and low power circuit design and later as a project manager in the areas of Video on Demand and Digital Broadcasting. He joined the European Commission in 1997. He worked in the area of Technology for Disabled and Elderly and later in the area of Microelectronics Design. He has been working in the area of Photonics since 2002.

09.55 to 10.30

European Photonics: Taking a Glorious Legacy into a Challenging Future

Eugene Arthurs
SPIE *Europe*, United Kingdom

The legacy of Newton, Abbe, Fresnel, Fraunhofer, Planck and many other giants of European optics is a proud one, but what of the future? With the light powered internet and relentless advances in communications and processing speeds enabled by lithography, the photonics community have been responsible for what Cairncross called "the death of distance". Friedman popularized the notion that the earth is now "flat", and pointed out some of the new realities of global competition. What will this mean for European photonics? Are we facing the end of the era when Europe, (including Russia), and the US dominated scientific and technological advances, or will the synergy of the nations in the EU lead to a renaissance of creativity and commerce in photonics? This presentation looks at some of the trends in photonics invention and innovation in a changed world where Asian "tigers" have so successfully taken foreign ideas to market and are now moving to generate IP in the sector.

Eugene G. Arthurs has been the SPIE Executive Director since November 1999. His previous affiliations include Cleveland Crystals, Inc (President and CEO), the Board of Gooch & Housego, PLC, Oriel Corporation in Connecticut, Andor Technology Ltd. (Belfast, N.Ireland- founder), Quantronix Corp., Smithtown, NY, and Barr & Stroud Ltd. in Glasgow, Scotland. An SPIE member since 1972 or so, Eugene has also been active in the American Society for Lasers in Medicine of which he was a founding member, the Council for Optical Radiation Measurement, and OSA at a local and national level. He is currently a member of SPIE, OSA, CORM, CESSE, ASAE and the Advisory Board to the Photochemical Research Center at Bowling Green State University. His technical background includes design and manufacturing of solid state lasers for medical applications and gas and dye lasers for scientific and industrial applications, as well as development of UV and gas lasers and frequency conversion techniques. Eugene received his B.Sc. (1st class honours) in 1969 in Physics, and his Ph.D. in 1972 in Applied Physics from Queens University Belfast, N.Ireland. His Ph.D. research was in generation and measurement of tunable ultrashort (1-2 ps in those days) pulses, and in 1973, he taught the M.Sc. class in optoelectronics at Queens while continuing his research.

Plenary Hot Topics

Hot Topics II

Location: Contades Ouest

Tuesday 8 April . . . . . 16.00 to 17.30

16.00 to 16.45

Status of Photonics Polymers for "Fibre to the Display"

Yasuhiro Koike
Keio Univ., Japan

The Conventional assumption that polymers are not suitable as optical materials is beginning to change gradually. From the fundamental researches, photonics polymers with new optical functions for application in photonics fields were born. We have proposed novel photonics polymers; Graded-Index Plastic Optical Fiber (GI POF) that achieved more than 10 Gbps data transmission, Highly Scattered Optical Transmission (HSOT) Polymer for LCD backlight of which brightness is almost twice as that of conventional "transparent" backlight ,and zero-birefringence optical polymer. As the birefringence disturbs polarized waves, it is an undesirable phenomenon for high performance optical devices that handle polarized light. We have noted this phenomenon and proposed the zero-birefringence optical polymers. The concept of "Fiber to the Display" is based on these photonics polymers. As GI POF network is directly connected to the high-definition display of homes and offices, the real time face to face communication with clear motion picture can be realized.

Yasuhiro Koike's main research focus is on the fundamental principles of various photo-functions and functional design spanning the field from dimensions of atom system to macroscopic inhomogeneous structure from a perspective of interaction between light and macromolecular substance. He has the worldwide reputation for being the inventor/researcher of High-Output Polymer Optical Fiber Amplifiers and Laser, Zero-Birefringence Optical Polymer, Highly Scattering Optical Transmission (HSOT) Polymer, and High-Speed POF. Prof. Koike's research efforts aim to develop the GI-POF that would enable communication surpassing High-Speed gigabits transmission as well as to organize High-Speed POF Networks using these technologies. Specifically, Dr. Koike looks to fabricate perfluorinated polymer-based GI-POF with almost no absorption loss from the visible to near infrared region and to achieve less than 10 dB/km transmission loss. He is also looking at concentrating his efforts on developing GI-POF capable of broadband transmission at over 10 Gbps by designing molecular structures.

16.45 to 17.30

The Slow and Fast Light in Optical Fibres

Miguel González-Herráez
Univ. of Alcalá, Spain

The search for variable time-delay/phase-shift lines for photonic and microwave applications has fostered numerous studies in recent years in what is known as slow and fast light research. For practical reasons, one of the most convenient media to perform this light speed control, are optical fibres. The group velocity of the optical signals in the fibre can be controlled by some nonlinear optical phenomena (stimulated Brillouin and Raman interactions, parametric amplification). We will review the techniques used to make slow and fast light in optical fibres, and we will summarize some of the most recent results available. The talk will address the crucial issues, the ultimate limits and the real perspectives for the applications of these techniques in practical devices.

Miguel González-Herráez received the M.Eng. and D.Eng. degrees from the Polytechnic University of Madrid, Madrid, Spain, in 2000 and 2004, respectively. While working toward the D.Eng. degree, he was a Research Fellow, and then a Postdoctoral Fellow with the Applied Physics Institute, Spanish Council for Research, and had several long stays in the Nanophotonics and Metrology Laboratory, Ecole Polytechnique Federale de Lausanne, Switzerland. While at Ecole Polytechnique Federale de Lausanne, he, together with Prof. Luc Thévenaz, developed the first experiments on slow light using Stimulated Brillouin Scattering. In October 2004, he was appointed Assistant Professor with the Department of Electronics, University of Alcala, Madrid, where he was promoted to Associate Professor in June 2006. He is the Author or Coauthor of over 100 papers in international refereed journals and conference contributions and has given several invited talks at international conferences. His research interests cover the wide field of nonlinear interactions in optical fibers.

Hot Topics III

Location: Contades Ouest

Thursday 10 April . . . . . 09.00 to 10.30

09.00 to 09.45

Deoxyribonucleic Acid (DNA)-Based Biopolymers for Photonics and Electronics Biotronics

James G. Grote
Air Force Research Lab. (USA)

Biotronics is the development and implementation of a new class of polymers that possess unique optical and electromagnetic properties that no other known polymer has. They have already demonstrated significant improvements in electronic and optoelectronic device performance. These non-fossil fuel-based photonic and electronic biopolymer materials, derived from deoxyribonucleic acid (DNA) biowaste and silk, are abundant, inexpensive and green materials that will not deplete our natural resources or harm the environment. They have the potential to compete with, or maybe someday even replace, fossil fuel-based plastics for applications ranging from eyeglasses to the higher technology applications light emitting diodes, transistors and solar cells. Preliminary in-house research in this area started around 1999, and since then low optical losses of <0.5dB/cm over a broad wavelength have been achieved, electrical conductivities 3-10 orders of magnitude higher than other polymer materials have also been achieved, and they are tunable. Their microwave losses are also lower than other polymers, making them very attractive for high speed electro-optic devices. Used as cladding layers in nonlinear polymer-based electro optic modulators a significant reduction in the overall optical insertion loss of these devices has been achieved, dropping from 15 dB to 10 dB, or a 3X improvement. The first all-DNA electro-optic modulator with significantly lower losses than current polymer EO modulators has also been demonstrated and has the potential for operating at significantly lower power. Using another DNA-based biopolymer for an electron-blocking layer in an organic light emitting diode (OLED), the first red, blue and green bio-organic LEDs were demonstrated that were as much as 30X brighter and operated at 10X higher efficiency and 3X longer lifetimes compared with OLEDs without the biopolymer electron-blocking layer. Using a DNA-based biopolymer for the gate dielectric layer in an organic field effect transistor (OFET), the first bio-organic FET was demonstrated that operated at nearly an order of magnitude lower gate voltage compared with OFETs using the commonly used dielectric polymers for the gate dielectric. Using biopolymers as host materials, a significant increase the photoluminescence of fluorescent materials by as much as 100 times has been achieved, when compared with other commonly used polymer hosts. This suggests significantly increased device efficiencies, higher outputs, lower operating powers and longer lifetimes. The first organic thin film transistor (OTFT) using a conductive polymer doped biopolymer for the semiconductor region (Bio-Organic TFT) has been demonstrated with a competitive carrier mobility of other organic semiconductor devices but at 10X lower cost. This new biotronics technology shows great promise for a number of both photonic and electronic applications, with demonstrated increase in device performance. This opens up a whole new field for bioengineering, in addition to the current genomic sequencing and clinical diagnosis and treatment applications. Where silicon is today's fundamental building block for inorganic electronics and photonics, biopolymers hold promise to become tomorrow's fundamental building block for organic photonics and electronics.

Dr. James G. Grote is a Senior Electronics Research Engineer with the Air Force Research Laboratory, Materials and Manufacturing Directorate at Wright-Patterson Air Force Base, Ohio, where he conducts research in polymer and biopolymer based opto-electronics. He is also an adjunct professor at the University of Dayton and University of Cincinnati. Dr. Grote received his BS degree in Electrical Engineering from Ohio University and both his MS and Ph.D. degrees in Electrical Engineering from the University of Dayton, with partial study at the University of California, San Diego. He was a visiting scholar at the Institut d'Optique, Universite de Paris, Sud, in the summer of 1995 and a visiting scholar at the University of Southern California, the University of California in Los Angeles and the University of Washington in 2001. Dr. Grote is a Fellow of SPIE, a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE), and a member of the Optical Society of America (OSA) and the European Optical Society (EOS). He has co-authored more than 80 journal and conference papers, including a book chapter, and has served as editor for more than 15 conference proceedings and journal publications. Dr. Grote has presented over 100 papers and seminars, many of which have been keynote or invited. He has also co-authored seven patents. Dr. Grote has served as Chair for numerous international symposiums and conferences.

09.45 to 10.30

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators

Haisheng Rong
Intel Corp., USA

Silicon photonics technology offers promising low-cost optoelectronic solutions for many applications ranging from optical communications to emerging areas such as optical sensing and analysis. In recent years, rapid progress has been made in developing various silicon-based photonics building blocks. In particular, third-order nonlinear optical effects such as stimulated Raman scattering and four-wave mixing in silicon waveguides have been successfully applied to demonstrate light amplification, lasing, wavelength conversion, and dispersion compensation. Taking advantage of the high optical nonlinearity and strong light confinement in silicon waveguides, efficient chip-scale nonlinear optical devices and lasers can be fabricated using CMOS compatible process. This talk will give an overview of research being done at Intel in silicon photonics, and focus on the recent results and application examples of these devices.

Dr. Haisheng Rong is a senior research scientist in the Photonics Technology Lab of Intel's Corporate Technology Group. He leads the research and development effort exploring nonlinear optical effects in silicon based photonics devices such as Raman silicon lasers and amplifiers, wavelength converters, and dispersion compensators for applications ranging from sensing to communications. He has worked in many areas of optical and laser technologies during his career including optical information processing, high-resolution laser spectroscopy, large scale laser interferometer, and optical communications and interconnects. He has published numerous scientific papers including two in Nature and given over 20 invited and keynote presentations at major international conferences and meetings including SPIE conferences, CLEO, OFC, IEEE LEOS. He has won numerous Intel awards including the highest Intel Achievement Award. In November 2005, he was recognized by Scientific American as one of the top 50 research leaders in science and technology for his work on development of silicon Raman lasers. He received his Ph.D. degree in physics from the University of Heidelberg, Germany, M.S., and B.S. degrees from Nankai University, China. Prior to joining Intel Corporation, he held research positions at MIT and Caltech developing optical subsystems for the world's largest laser interferometer LIGO.

Industry Perspectives Programme

Included with Conference registration.
Individual Sessions can be purchased at the Cashier. Individual sessions, €100.

As a new addition to Photonics Europe, the Industry Perspectives Programme will provide a series of executive briefings covering key technologies and sectors.

Come hear key members of Europe's photonics industry discuss their successes, future plans and the way in which they intend to maximize their market penetration and growth. Hear reviews of the European Innovation landscape highlighting geographical areas of strengths in areas such as business R&D, knowledge transfer and demonstrate the outcomes from recent successful European-funded industry programmes.

The sessions will deliver a strategic perspective into each application area, allowing you to uncover and confirm the future prospects for your business. Benchmark your aspirations for your business and technology against some of Europe's leading companies and engage with them as a potential supplier or partner. You will hear presentations from Philips, Audi, PCO, Coherent Scotland, GlaxoSmithKline, Carl Zeiss, Yole Development, Koheras and Fraunhofer on their successes and strategic priorities.

Tuesday 8 April

Morning Session

Photovoltaics

10.15 to 10.45 hrs.

Photovoltaics - Market and Technology Trends
Gaëtan Rull, Market Analyst for New Energy Technologies, Yole Développement

10.45 to 11.15 hrs.

High Throughput Manufacturing for Bulk Heterojunction PVs
Markus Scharber, Head of Materials Group, Konarka

11.15 to 11.45 hrs.

Managing Growth in the Production of Thin Films
Dr. Immo Kotschau, Director of Research and Development, Centrotherm GmbH (TBC)

11.45 to 12.30 hrs.

End to End Mass Production of Silicon Thin Film Modules
Detlev Koch, Head of BU Solar Thin Films & Senior Vice President, O C Oerlikon Balzers AG

Break – *12.30 to 14.00 hrs.*

Afternoon Session

MEMS/MOEMS

14.00 to 14.30 hrs.

Market Trends and Technical Advances in M(O)EMS
Dr. Eric Mounier, Manager for MEMS & Optoelectronics and Micronews Chief Editor, Yole Développement

14.30 to 15.00 hrs.

Inorganic/Organic Hybrid Polymers (ORMOCER) for Optical Interconnects
Dr. Michael Popall, Head of Microsystems and Portable Power Supply, Fraunhofer ISC

15.00 to 15.30 hrs.

Future MOEMS and Photonic Microsystems
Dr. Thomas Hessler, Director Axetris, Leister Process Technologies

15.30 to 16.15 hrs.

Innovations in MOEMS product development
Prof. Hubert Karl, Director, Fraunhofer IPMS

Wednesday 9 April

Morning Session

Multimedia, Displays and Lighting

10.15 to 10.45 hrs.

Plasmonics for Photonics: Challenges and Opportunities
Ross Stanley, Section Head: MOEMS & Nanophotonics, CSEM

10.45 to 11.15 hrs.

Photonic Microsystems for Displays
Edward Buckley, VP Business Development, Light Blue Optics Ltd.

11.15 to 11.45 hrs.

Matrix-Beam – the antiglaring LED-high beam
Benjamin Hummel, Research for Concept Lighting Technologies, Audi

11.45 to 12.30 hrs.

High Brightness OLEDs for Next Generation Lighting
Peter Visser, Project Manager, OLLA Project, The Netherlands

Break – *12.30 to 14.00 hrs.*

Wednesday 9 April

Afternoon Session

OPERA 2015: European Photonics - Corporate and Research Landscape

13.30 to 13.45 hrs.

Optics and Photonics in the 7th Framework Programme
Gustav Kalbe, Head of Sector - Photonics, Information Society and Media, Directorate General, European Commission

13.45 to 14.00 hrs.

OPERA 2015: Aims, Results and link to Photonics[21]
Markus Wilkens, VDI

14.00 to 14.20 hrs.

European Photonics Industry Landscape
Bart Snijders, TNO

14.20 to 14.40 hrs.

European Photonics Research Landscape
Marie-Joëlle Antoine, Optics Valley

14.40 to 15.00 hrs.

Resources for Photonics Development
Peter Van Daele, IMEC

Break – *15.00 to 15.15 hrs.*

15.15 to 15.35 hrs.

Towards the Future on Optics and Photonics Research
Dr. Eugene Arthurs, SPIE Europe (UK)

15.35 to 16.15 hrs.

Strategic Opportunities for R&D in Europe
Mike Wale, Bookham, UK

16.15 to 16.45 hrs.

A Sustainable Business Model for Optics and Photonics
David Pointer, Managing Director, Point Source (Pending)

16.45 to 17.15 hrs.

Final Open Discussion
Chaired by: **Gustav Kalbe,** Head of Sector - Photonics, Information Society and Media, Directorate General, European Commission

Thursday 10 April

Morning Session

Imaging

10.15 to 10.45 hrs.

High Resolution Imaging detectors for invisible light–Development and Industrialisation
Hans Hentzell, CEO, Acreo

10.45 to 11.15 hrs.

TBD

11.15 to 11.45 hrs.

Raman Spectroscopy, Raman Imaging and Future Trends
Sopie Morel, Sales Manager, Molecular & Microanalysis Division, HORIBA Jobin Yvon

11.45 to 12.30 hrs.

World Markets for Lasers and Their Application
Steve Anderson, Associate Publisher/Editor-in-Chief, *Laser Focus World*

Break – *12.30 to 14.00 hrs.*

Afternoon Session

Biomedical and Healthcare Photonics

14.00 to 14.30 hrs.

Photonic Systems for Biotechnology Research
Karin Schuetze, Director of R&D, Carl Zeiss Microimaging

14.30 to 15.00 hrs.

Photonics 4 Life
Prof. Jürgen Popp, Director, IPHT Germany

15.00 to 15.30 hrs.

Laser System Development for Biophotonics
Chris Dorman, Managing Director, Coherent Scotland

15.30 to 16.15 hrs.

Supercontinuum Light - a paradigm shift in laser sources for biophotonics
Jakob Dahlgren Skov, CEO, Koheras
Husain Imam, Business Development Manager, Koheras

Interactive Poster Sessions and Receptions

Contades Est

Monday 7 April . . . . . .17.30 to 19.00 hrs.

Wednesday 9 April . . . . . .17.30 to 19.00 hrs.

Attendees can preview the posters during the day before the formal reception. Poster viewing will culminate in the formal interactive poster session with light refreshments starting at 17.30 hrs. Attendees are requested to wear their conference registration badge to gain access to the interactive poster session and reception.

Author Poster Setup: see p. 81 for full instructions.

Welcome Reception

Exhibition Hall

Tuesday 8 April 2008. . . . . 17.30 to 19.30 hrs.

Join all conference participants and personnel from exhibiting companies for a social gathering following the conference sessions and exhibition hours. Meet new friends and renew relationships with your colleagues in this relaxed atmosphere.

Women in Optics Reception and Presentation

Salon Stuttgart

Wednesday 9 April . . . . . 18.30 to 20.00 hrs.

Open to all symposium attendees. Please register at the onsite registration desk for this event. Attendance is free.

18.30: **Networking Reception**

19.00 to 19.15: **Ambition without future, Elke van den Brandt,** NEMO

This talk presents an update to an international comparative study addressing the issues: why do women leave their research career?

19.15 to 20.00:  Plan to attend a lecture presented by SPIE Fellow and Board Member **Katarina Svanberg,** Lasers and spectroscopy in medical applications.

Industrialist's Conference

Salon Debussy

Tuesday 8 April . . . . . 14.00 to 18.00 hrs.

Rhenaphotonics Alsace invites you to attend the industrialist's conference, organized in cooperation with the Alsatian Chambers of Commerce, Alsace International and Centre Européen d'Entreprise et d'Innovation. The conference addresses the topics of Laser, Microscopy, and Optical Sensors with an overview presentation on each topic followed by applied presentations given by companies who use the respective technology. The session is held in French.

Book Signing

Tuesday/Wednesday. . . . . 13.00 hrs.

Rhenaphotonics Alsace Booth, stand #533

Bernard Kress will be signing copies of *Optical Systems Design*.

ACCORD Project Presentations

Salon Leicester

Thursday 10 April . . . . . .14.00 to 17.00 hrs.

ACCORD is the Advanced Components Cooperation for Optoelectronics Research and Development - an experimental programme funded under the Sixth Framework Programme of the European Union (IST-2005-2.5.1, Photonic Components).

ACCORD's purpose is to:

- Purchase at marginal cost pre-competitive photonic devices from innovative world wide companies and
- Put them in the hands of European researchers and students, at no net cost to the university or to the company that furnished the devices

This seminar will consist of presentations from the successful participants from the 1st Round of awards. It will demonstrate the advantages to companies and Universities of engaging with the programme.

SPIE Fellows Luncheon

Contades Est

Thursday 10 April . . . . . 12.00 to 13.30 hrs.

All Fellows of SPIE are invited to join your colleagues for the first SPIE-hosted luncheon in Europe. The new Fellows attending Photonics Europe will be introduced and recognized. Please plan to attend this informal lunch gathering and a special opportunity to meet with the international community of SPIE Fellows. Fellows planning to attend are asked to RSVP to Brent Johnson (brentj@spie.org).

Recruitment Corner

Sponsored by: SPIE Works Rhen Photonics Alsace

Local universities have been encouraged to post their vacancies at the Recruitment Corner. Located near the Marketplace.

In addition to university vacancies, be sure to check out www.SPIEWorks.co.uk for jobs posted by Photonics Europe exhibitors.

SPIEWorks, the SPIE job site, was developed to serve the career needs of optics and photonics professionals. Whether you are actively seeking a new position or just want to keep track of the scientific job market, you can search by region, technology, and keywords, set up email alerts or RSS feeds, and research companies of interest.

European Photonics Clusters Meeting

Location: Arp 2, 3, 4 and Salon Stuttgart

Thursday 10 April 2008 . . . . . 09.30 to 17.00 hrs.

Rhenaphotonics Alsace and the Photonics Unit of the European Commission's DG INFSO, in cooperation with SPIE Europe, are organising a meeting of the photonics clusters across Europe.

The purpose of the meeting is for us all to get to know one another better and also to introduce the various players in the photonics field, learn about ongoing research activities and funding opportunities, exchange best practices, present the Photonics^{21} technology platform, and address other issues which are of interest. A workshop will also be held to explore the needs of the clusters' members for technical support and access to advanced research facilities, so that these can be better addressed in future national and European research programmes.

PROGRAMME:

09:30	Registration
10:00	Introduction (Short presentation of the meeting and its goals)
10:10	Clusters presentation (Short introduction from each cluster - approx. 4 minutes each)
11:30	European Clusters - the story so far (Overview and experiences, discussion)
12:30	Lunch
14:30	Photonics^{21} presentation
14:50	EU actions and photonics clusters: EU photonics activities
15:10	Workshop/discussion Support at regional/national/EU level for clusters and their members
16:30	Conclusions and wrapping up
16:45	Close and reception

European Network Meetings

Friday 11 April . . . . . 9.00 to 15.00 hrs.

OLAS Network meeting

By Invitation Only

The network, formed by leading European scientific institutions, aims at achieving foundational research on a world prime: an Organic Electrically Pumped Laser. Our novel approach is based on the engineering of organic heterojunctions in field-effect devices.

The strategy proposed to reach the ambitious goal focuses on solving the main difficulties, which are commonly faced when targeting this breakthrough: exciton quenching and photon losses. We take advantage of the know-how developed on ambipolar light-emitting field-effect devices with lateral charge injection to explore unprecedented routes towards the electrically pumped organic laser."

Product Tutorials

SPIE Product Tutorials give you the opportunity to get training on the latest software and tools—direct from the vendor.

See SPIE *Europe* Cashier to register.

Raman Spectroscopy and Spectroscopic Ellipsometry

Presented by **HORIBA** JOBIN YVON

Location: Salon Leicester

Wednesday, April 9 · 09.00 to 12.00

Attend this tutorial to find out the latest on Raman spectroscopy and spectroscopic ellipsometry. Specific topics include:

- New techniques in Raman microscopy and fast imaging
- Discover more about your thin film coatings with the new generation of automatic ellipsometers

Tutorial Presenters

Tutorials will be presented by HORIBA Jobin Yvon experts to ensure the best quality answers to all your questions.

For more information:
www.jobinyvon.com/photonicseurope2008

Optical Sensing

Sponsored by **SphereOptics, SensL** and **Avantes**

Palais de la Musique et des Congrès,
Salons Arp 3 and Arp 5

Friday, April 11 · 08.30 to 17.00

Registration Fee

20,00 Euro, includes lunch and tutorial materials
Tutorial agenda available on-line at:
www.sphereoptics.com
www.avantes.com
www.sensl.com

Industry technology experts from SphereOptics, SensL and Avantes will present a full-day Optical Sensing Product Tutorial. Attendees will learn design fundamentals and applications methods, along with hands-on workshops to discuss various optical sensing issues.

Presentation Tutorials include:

- basics of light radiometry and photometry
- techniques for spectroscopic analysis
- low light detection solutions

PLUS information on how to:
- specify an integrating sphere
- select and configure the right spectrometer
- choose the appropriate low light detector

Who should attend?

The lectures and seminars are intended for scientists and engineers working in the field of optical sensing including light measurement, testing of optical properties of materials, color measurement, spectroscopic measurement techniques and evaluation and testing of photon counting as it relates to low light level sensing and semiconductor device physics.

Practical and Hands-on Demonstrations

Practical demonstrations for a variety of integrating spheres measurements and spectrometers applications will be shown. Attendees will have the ability for hands-on use of instruments. Ample time is allotted in a separate demonstration room to discuss your needs with the tutorial presenters.

Tutorial Presenters

Chris Durell - VP Sales, Sphereoptics
Chris Durell is the VP of Sales for Sphereoptics. He has over 12 years of experience with sphere-based radiometric and optical systems design. Mr. Durell obtained his BS in Electrical Engineering at Cornell University and his MBA at Franklin Pierce College. cdurell@sphereoptics.com.

Benno Oderkerk - Avantes BV
Benno Oderkerk obtained his master's degree in Electronic Engineering at the Twente Technical University in Enschede, Netherlands in 1988. He worked from 1987 to 1988 at the Technion Institute of Technology in Haifa, Israel and in Munich, Germany at the University of the Bundeswehr in 1989 as a research associate. From 1989 until 1994 he worked as a technical Director at STM Sensor Technology, Munich, Germany. Since 1994 he has been the cofounder and shareholder of Avantes, a spectroscopy company in the Netherlands with offices in the US (Broomfield, CO) and Beijing, China. At Avantes he is a technical director for new product development and oversees sales and marketing and activities worldwide. bennoo@avantes.com.

Dr. Carl Jackson - SensL
Dr. Jackson obtained a B.Sc. and M.Sc. in Electrical Engineering from Clemson University, South Carolina. He received a Ph.D. in Microelectronic Engineering from the National University of Ireland, Cork. His research has been focused on the development of silicon low light detectors for microarrays, low cost optical immunoassay instruments, integrated microfluidic sensors, and the integration of detectors into new detection systems. Prior to SensL, Dr. Jackson founded Photon Detection Systems which focused on the design of optical detector modules. In 2004 he co-founded SensL and is the company's Chief Technology Officer responsible for SensL's product development and application of SensL's technology in customer applications. cjackson@sensl.com.

Student/Early Career Professional Events

Entrepreneurship in Photonics

A workshop for students and early career professionals

Location: Salon Arp 4

Monday 7 April . . . . . 13:30 to 17:00

Open to all students and early career professionals

Studying Photonics in Europe? Wondering what a career path outside of academia might require?

Expand your perspective on high tech business by attending this special topical session designed for students and early career professionals. Four leaders on the forefront of entrepreneurship and business development in optics will take you on a guided tour of the interface between research and business. Learn where the photonics industry is going today.

Co-Chairs:
Nathalie Vermeulen,
Vrije Universiteit Brussel SPIE Student Chapter

Sara Van Overmeire,
Vrije Universiteit Brussel SPIE Student Chapter

The Business of Optics - Pitfalls & Opportunities

Kathleen Perkins,
CEO of Breault Research Organization

Today's global and environmental challenges create unprecedented opportunities for optical scientists and engineers to lead in effective solutions in climate change, medical discovery, and emerging technologies. Kathleen Perkins will pose questions from her marketing and business experience to the future leaders of the international optical science professions, including: "Should training for leaders in optical science and applications include at least 100 hours in areas such as Sales & Marketing, Media & Communication, and Market Research & Finance to meet the demands of an increasingly aggressive international business marketplace?" The answer may portend how well optical science as a field succeeds.

As CEO of Breault Research Organization & publisher of OpticsReport, **Kathleen M. Perkins** drove the international optical design software and consulting firm to new profitability using keen insights to strategic markets and effectively communicating the strengths of Breault's design and implementation know-how. Perkins seeks to apply the experience and ethic of consumer markets to create stronger business environments for scientists and engineers in the optics realm.

Customized Product Development - The Real Challenge

Frank Wyrowski,
University of Jena and LightTrans GmbH

In the beginning, we had a vision for a new generation of optics software. We designed optics software which reflected an advanced understanding of optical modeling and design. However, even a scientifically very sophisticated concept does not guarantee a good product. We had to learn that good optics software products must allow for easy utilization by the customer and to provide customized solutions for specific market segments. The development of our product, as with all high-tech products, must be done with a close eye on the needs of our customers. As scientists, we are sometimes too interested in the scientific development to examine what will really make a business succeed.

Frank Wyrowski was appointed Professor of Technical Physics at the Friedrich-Schiller-University of Jena, Germany, in 1996. In 1998 he founded the company LightTrans GmbH. Professor Wyrowski has published more than 100 peer-reviewed articles in the fields of diffractive optics, holography, information processing, halftoning, and optical engineering.

There is more to life than engineering: Success skills for life outside the lab

Marc Goldchstein,
Vrije Universiteit Brussel

The 'Entrepreneurship in Photonics' (EiP) educational program at the Vrije Universiteit Brussel (VUB) intends to increase the business skills of photonics students and researchers through a series of educational programs. The program includes an introduction to business economics (management, marketing, finance, human resources management...) and entrepreneurship (industry life cycles, startup teams, venture capital, business plans, intellectual property rights...). A unique course on 'business aspects of the photonics industry' (market structures, key players, user industries, trends, cases...) has been developed specifically for the purpose of this program.

Marc Goldchstein has substantial experience in high tech entrepreneurship, as member of a number of start-up teams, and since 4 years as academic teaching staff member on (high tech) entrepreneurship. He is member of the VUB department Business Economics and Strategic Policy (BEDR) and the driving force behind the project 'technological entrepreneurship at the VUB'. He is also part time photographer/journalist.

Photonics Innovation and the Trials of Being Born Global

Gary Colquhoun,
Industry Development SPIE Europe;
CEO of Fibre Photonics

For start-ups and those seeking to accelerate their growth in photonics, the allure of a buoyant market place due to public investment in R&D in countries such as Norway, Sweden, Finland, UK, and Germany is significant. New users are emerging from industries beyond those considered core to photonics, but certain fundamental challenges remain.

Companies will face the rigors of starting up a business and working internationally from day one. Companies must also seek to balance either a market or product focus and decide how to prioritise the customer against the investor. As a young technology company, successfully making this step is largely dependent on the founder.

In October 2006, **Gary Colquhoun** founded Fibre Photonics, a manufacturer of mid infrared fibre optics and fibre optic systems. Previously, as part of the Scottish Enterprise Micro and Opto Electronics Team, Colquhoun was responsible for strategic support and establishment of relations between technology companies and research institutes in Scotland. He has also been responsible for facilitating 'proof of concept' commercialization of photonics research into new products and processes, strategic marketing skills in technology companies, and the convergence of photonics into bio-medical applications. Gary Colquhoun joined SPIE Europe in 2006.

Entrepreneurship Workshop Dinner

Open to Entrepreneurship in Photonics *Workshop attendees only.*

Monday 7 April . . . . . 17:30 to 19:00

Join speakers and participants from the Entrepreneurship Workshop for an informal dinner. Network, socialize, and enjoy an evening out!

Student Lunch with the Experts

Ticket required, seating is limited · Location: Salon Arp 1

Monday 7 April . . . . . 12:30 to 13:30

Join your colleagues and renowned optics leaders for a casual meal that has real networking potential. Talk with experts willing to share their accumulated wisdom on career paths within the optics and photonics industry. Lunch is open to all student attendees. Please come early as space is limited; tickets will be collected at the door.

Student Chapter Breakfast

By Invitation Only. · Location: Salon Stuttgart

Wednesday 9 April . . . . . 07:30 to 09:00

Join your fellow Chapter Members for a casual breakfast and social. Share ideas for activities and the future direction of the chapter program.

Effective Technical Presentations

Tuesday 8 April . . . . . 08:30 to 12:30

Course Level: Introductory · CEU: 0.35
WS897 · Price: €90 SPIE Member / €130 nonmember

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

Learning Outcomes

This course will enable you to:
- plan your presentation efficiently
- organize your material into an effective structure
- create slides that get the message across
- deliver your presentation effectively, both verbally and nonverbally
- handle even the most difficult questions

Intended Audience

This material is intended for anyone who must prepare and deliver oral presentations. Both novice and experienced speakers can expect to learn much from it.

Instructor

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

Hands-On Optics (HOO) Making an Impact with Light: Terrific Telescopes Workshop

Tuesday 8 April . . . . . 13:30 to 16:00

Course Level: Introductory · CEU: 0.25
WS852 · Price: €7 SPIE Member / €15 nonmember

This workshop will train attendees on the use of Terrific Telescopes, a hands-on activity kit intended to engage and enrich the math/science learning experience for students in the middle grades. It was developed as part of HOO, a four year program funded by a $1.7 million dollar grant from the U.S. National Science Foundation (NSF) to design and implement a science enrichment program for children ages 11 to 14 years old.

Intended Audience

Optics professionals, university students, and pre-college teachers.

Instructor

Robert Sparks earned an M.S. in Physics from Michigan State University and is a Science Education Specialist at the National Optical Astronomy Observatory in Tucson, AZ. He taught high school physics, math and astronomy for 11 years before joining the HOO Team. He has been revising the HOO modules, planning and delivering HOO professional development workshops, and working on the development of new modules.

Registration is required.
See SPIE Cashier to Register.

Diffractive Optics Technology for Product Development In Transportation, Display, Security, Telecom, Laser Machining and Biomedical Markets

Monday 7 April . . . . . 13.30 to 17.30 hrs.

SC787 · Price: €230 SPIE Member / €265 nonmember
Course Level: Introductory · CEU: 0.35
Students save 50% on registration.

This course provides an introduction to product development using Diffractive Optics technology in today's established and emerging markets. It provides attendees with practical techniques to manage fabrication flows for diffractive optics using available design tools and foundries, and how to interface between them efficiently.

The course will be split into three parts:

1) After a short introduction to the diffractive optics concept, the first part of the course will focus on the various diffractive optics design and modeling tools available to an industrial product development department, and how they interface with standard optical design CAD tools and other 3D mechanical design tools in order to provide a global CAD solution for the development of real products.

2) The second part of the course will focus on the various fabrication techniques and technologies available in industry today for the mastering and mass replication of diffractive optical elements. More specifically, we will focus on how a product development manager can manage complex diffractive optics fabrication under various constrains (technology, budget, fabrication time, mass production and time to market). Emphasis will be put on design to fabrication interfacing, fabrication limitations, and fabrication costs analysis as well as fabrication flow control.

3) The third and last part of the course will focus on the various products already on the market including diffractives, and identify the potential future applications including such elements. Six application sectors will be considered in depth: Automotive and Transportation; LED and Laser Displays; Optical Security devices; Optical Telecommunications; Laser Machining and Laser Material processing; and Biomedical applications.

The attendee will therefore benefit from a concise and realistic overview of current diffractive optics technology, and thus be able to make the right decision when it comes to weighting the potentiality of using diffractive optics for a specific product development.

Learning Outcomes

This course will enable you to:
- choose the right tools for your application from the range of available options for Diffractive Optics design and modeling
- classify which fabrication tools are currently available in industry and know how to interface with them
- choose the right fabrication technology for the right performance / price ratio
- compare the limitations of each technology owing to the limitations in both design and fabrication processes
- describe where diffractive optics are applied today and where they might be applied tomorrow

Intended Audience

This course is intended for product development managers, directors of engineering, marketing managers, development engineers, or anyone who has to make decisions on why, when and how to use diffractive optics in their existing product lines and new product development programs, in order to decrease production costs, increase optical performance, or simply find new solutions to existing technological problems. No prior background in diffraction theory is needed as we will not enter into details in the modeling/simulation aspects, as it is done in many other short courses.

Instructor

Bernard Kress PhD has been involved in numerous start-ups based on diffractive optics in the Silicon Valley, California, for the past 12 years. He has supervised product development for products including diffractive optics in the telecom, automotive, display, biomedical, laser machining and optical data storage markets. He is also teaching photonics at University Louis Pasteur. He has published two books on this technology (by John Wiley and Sons and McGraw-Hill.)

Photonics Innovation Village

Tuesday to Thursday during Exhibition Hours
Location: Galerie de Marbre

The Photonics Innovation Village will showcase the latest projects and breakthroughs from optics-photonics researchers at universities, research centres and start-up companies. This is a great opportunity to see how EU R&D and project funds are being used by some of the great young innovators in Europe.

A window on creative products developed by universities and research centres. Under the patronage of the European Commission, fifteen entrants from across Europe complete to win categories ranging from Best Marketability to Best Design, Best Technology, and Best Overall Product.

Under the patronage of the European Commission, Photonics Unit

Co-Sponsored by:

Rhen Photonics Alsace

SPIE Europe

Awards Ceremony

Wednesday, 9 April · 17.00 hrs, Galerie de Marbre

Plan to join us for this year's Photonics Innovation village Awards ceremony. This is a great opportunity to see how EU R&D and project funds are being used by some of the great young innovators in Europe. Under the patronage of the European Commission, fifteen entrants from across Europe compete to win categories ranging from Best Marketability to Best Design, Best Technology, and Best Overall Product.

Low power remote sensing system

Y. A. Polkanov, Russia (Individual work)

New approach is based on use of a low-power radiation source with specified gating, when time of source radiation interruption is equal to a pulse duration of ordinary lidar. We propose to reconstruct the average values of these characteristics over the parts commensurable with the sounding path length. As scanning systems is offered with speed of circular scanning is determined by time of small linear moving of a laser beam. It allows to predict a reduction of the meteorological situation stability from an anticipatory change of the revealed structure character of optical heterogeneities of a atmosphere ground layer atmosphere.

Point of care sensor for non-invasive multi-parameter diagnostics of blood biochemistry

Belarusian State University, Belarus; Ruhr-Universität-Bochum, Germany; Second Clinical Hospital, Belarus

Compact fibre optical and thermal sensor for noninvasive measurement of blood biochemistry including glucose, hemoglobin and its derivatives concentrations is developed as a prototype of the point-of-care diagnostic devices for cardiologic, tumour and diabetic patients. Integrated platform for data acquisition, data processing and communication to remote networks has been developed on the pocket PC.

Polarization-holographic gratings and devices on their basis

Laboratory of Holographic Recording & Processing of Information, Institute of Cybernetics, Georgia

We have developed the technology of obtaining of polarization-holographic gratings that have anisotropic profile continuously changing within each spatial period and also the technology of obtaining of polarization-holographic elements on the basis of such gratings. Special highly effective polarization-sensitive materials developed by us are used for obtaining such gratings and elements. We can present samples of gratings and elements and give a demonstration of their work.

Ultra-miniature omni-view camera module

Image Sensing group of the Photonics Division of CSEM (Centre Suisse d'Electronique et de Microtechnique), Switzerland

A live demonstration with a working prototype of a highly integrated ultra-miniature camera module with omni-directional view dedicated to autonomous micro flying devices is presented.

Femtosecond-pulse fibre laser for microsurgery and marking applications

Multitel, Belgium

Multitel presents a new prototype of an all-fibred femtosecond amplified laser. The device has been specifically developed for micromachining and microsurgery applications and operates at 1.55µm, which corresponds to a high absorption peak of water (molecule contained in large quantity in living tissue and cells). Since no free-space optics is used for pulse compression or amplification the prototype is compact and very stable. Moreover, the seed laser source has a high repetition rate therefore enabling multiphoton absorption applications and use in multi-pulse and burst modes.

Flexible artificial optical robotic skins

Department of Applied Physics and Photonics (VUB-TONA) and Robotics & Multibody Mechanics Research Group (VUB-R&MM) of the Vrije Universiteit Brussel, Belgium; Thin Film Components Group (UG-TFCG) and Polymer Chemistry & Biomaterials Research Group (UG-PBM) of the Universiteit Gent, Belgium

We will present a paradigm shifting application for optical fibre sensors in the domain of robotics. We propose fibre Bragg gratings (FBGs) written in highly-birefringent microstructured optical fibres integrated in a flexible skin-like foil to provide a touch capability to a social pet-type robot for hospitalized children named "Probo". The touch information is complementary to vision analysis and audio analysis and will be used to detect where Probo is being touched and to differentiate between different types of affective touches such as tickling, poking, slapping, petting, etc.

3D tomographic microscope

Lauer Technologies, France

The 3D tomographic microscope generates 3D high-resolution images of non-marked samples. The demonstration will show 3D manipulation of images obtained with this microscope.

Polar nephelometer

Institute of Atmospheric Optics of Tomsk, Russia

Material comprising a matrix, apatite and at least one europium composite compound with particle medium sizes more 4-5 micron. The composition for the production of the material comprises (wt. %) apatite 0.01-10.0; composite compound. 0.01-10.0, and the balance is a matrix-forming agent, such as a polymer, a fibre, a glass-forming composition, or lacquer/adhesive-forming substance.

High speed Stokes portable polarimeter

MIPS Laboratory of the Haute Alsace University, France

The implementation of an imaging polarimeter able to capture dynamic scenes is presented. Our prototype is designed to work at visible wavelengths and to operate at high-speed (a 360 Hz framerate was obtained), contrary to commercial or laboratory liquid crystal polarimeters previously reported. It has been used in the laboratory as well as in a natural environment with natural light. The device consists of commercial components whose cost is moderate. The polarizing element is based on a ferroelectric liquid crystal modulator which acts as a half-wave plate at its design wavelength.

Diffractive/refractive endoscopic UV-imaging system

Institut für Technische Optik (ITO) of the University of Stuttgart, Germany

We present a new optical system with an outstanding high performance despite of demanding boundary conditions of endoscopic imaging to enable minimal invasive laser-based measurement techniques. For this purpose the system provides a high lens speed of about 10 times the value of a conventional UV-endoscope, a multiple broad band chromatic correction and small-diameter but wide-angle access optics. This was realized with a new design concept including unconventional, i.e. diffractive components. An application are UV-LIF-measurements on close-to-production engines to speed up the optimization of the combustion and produce aggregates with less fuel consumption and exhaust gases like CO_2.

Light-converting materials and composition: polyethylene film for greenhouses, masterbatch, textile, sunscreen and aerosol

Usefulsun Oy, Finland; Institute Theoretical and Experimental Biophysics Russian Academy of Sciences, Russia

The composition for the production of the material comprises (wt. %) composite compound (inorganic photoluminophore particles with sizes 10-800nm) -0.01-10.0; coordination compound of metal E (the product of transformation of europium, samarium, terbium or gadolinium) - 0,0-10,0 and the balance is a matrix-forming agent, such as, a polymer, a fiber, a glass-forming composition or gel, aerosol, lacquer/adhesive-forming substance. The present invention relates to composite materials, in particular to light-converting materials used in agriculture, medicine, biotechnology and light industry.

HIPOLAS - a compact and robust laser source

CTR AG (Carinthian Tech Research AG), Austria

The prototype covers a robust, compact and powerful laser ignition source for reciprocating gas and petrol engines that could be mounted directly on the cylinder.

We have developed a diode pumped solid-state laser with a monolithic Neodymium YAG resonator core. A ring of 12 high power laser diodes pumps the resonator. Due to the adjustment-free design, the laser is intrinsically robust to environmental vibrations and temperature conditions. With overall dimensions of Æ 50 x 70 mm the laser head is small enough to be fitted at the standard spark plug location on the cylinder head. The dimensions can be reduced for future prototypes.

OLLA OLED lighting tile demonstrator

OLLA project-consortium

OLED technology is not only a display technology but also suited for lighting purposes. The OLLA project has the goal to demonstrate viability of OLED technology for general lighting applications. The demonstrator tile shown here combines the current results of the project: a large sized (15x15cm2) white OLED stack with high efficacy (up to 50 lm/W), combined with long lifetime (>10,000 hours).

During Photonics Europe, we will show several OLEDs tiles in different colors. The demonstrators are made by the OLLA project-consortium members. The large OLED demonstrator tile was fabricated on the inline tool at Fraunhofer IPMS in Dresden

Analyze-IQ

Nanoscale Biophotonics Laboratory, School of Chemistry, and Machine Learning / Data Mining Group, Department of Information Technology, National University of Ireland, Galway, Ireland

Analyze-IQ is the next generation spectral analysis software tool for optical and molecular spectroscopies such as Raman, Mid-IR, NIR, and Fluorescence. The Analyze-IQ software is based on patented machine-learning algorithms and a model based approach in which the software learns to recognise the relevant information in complex mixtures from sample spectra. It then uses these models to rapidly and accurately identify or quantify unknown materials such as narcotics and explosives, in complex mixtures commonly found in law-enforcement and industrial applications.

Micro-optical detection unit for lab-on-a-chip

Department of Applied Physics and Photonics (VUB-TONA) of the Vrije Universiteit Brussel, Belgium

We present a detection unit for fluorescence and UV-VIS absorbance analysis in capillaries, which can be used for chromatography. By using a micro-fabrication technology (Deep Proton Writing) the optics are directly aligned onto the micro-fluidic channel. This integration enables the development of portable and ultimately disposable lab-on-a-chip systems for point-of-care diagnosis. We will explain the working principle of our detection system in a proof-of-concept demonstration set-up while focusing on some specific applications of micro-fluidics in low-cost lab-on-a-chip systems.

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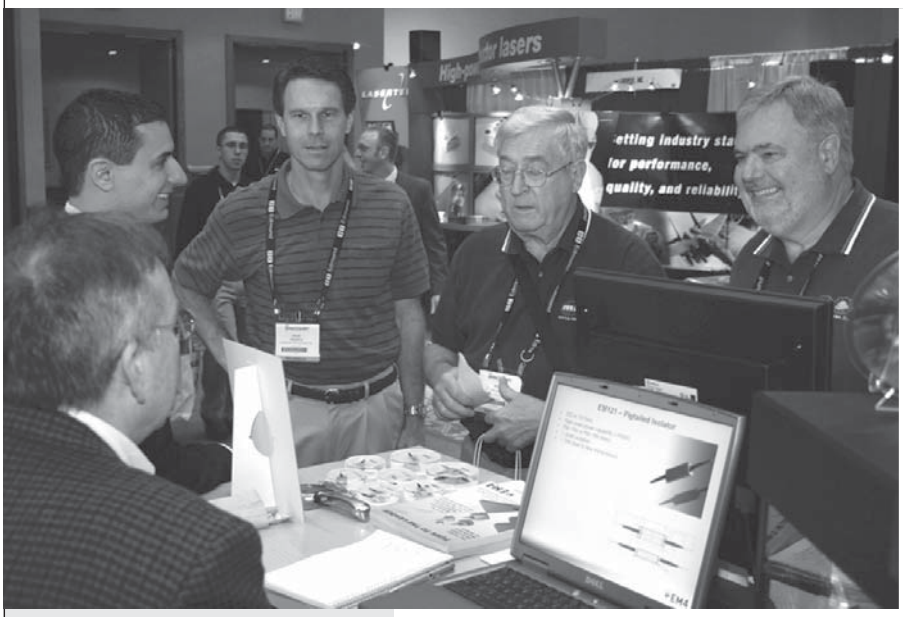

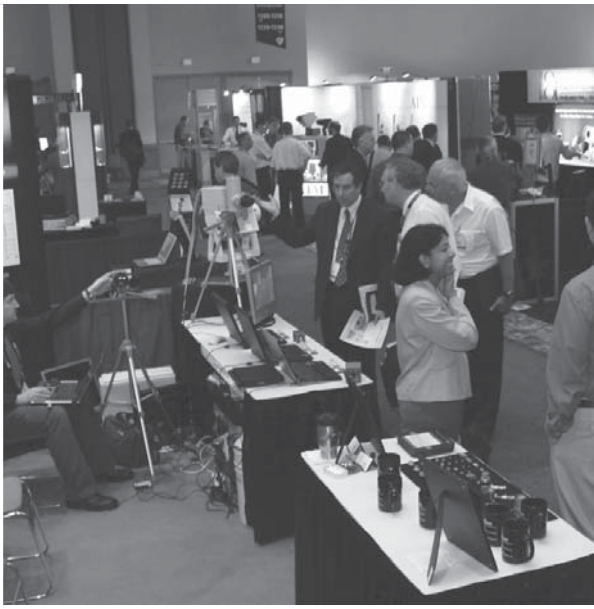

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Exhibition: 8–10 April 2008 • Strasbourg, France

Exhibition Hours

Tuesday 8 April . . . . . 12.00 to 19.30 hrs.
Wednesday 9 April . . . . . 10.00 to 17.00 hrs.
Thursday 10 April . . . . . 10.00 to 14.00 hrs.

See the latest in:

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Plan to have Lunch
in the Exhibition Hall!

See p. 82 for details.

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Conference 6987 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 1, 3, 4, 14, 18, 29, 30, 33, 36, 39, 42, 48, 50, 59, 62, 63, 76, 78, 79

Metamaterials

Conference Chairs: **Nigel P. Johnson,** Univ. of Glasgow (United Kingdom); **Ekmel Özbay,** Bilkent Univ. (Turkey); **Nikolay I. Zheludev,** Univ. of Southampton (United Kingdom); **Richard W. Ziolkowski,** The Univ. of Arizona

Programme Committee: **Allan Dawson Boardman,** Univ. of Salford (United Kingdom); **Peter Haring Bolivar,** RWTH-Aachen (Germany); **Sergey I. Bozhevolnyi,** Aalborg Univ. (Denmark); **Filippo Capolino,** Univ. degli Studi di Siena (Italy); **Ramon Gonzalo,** Univ. Pública de Navarra (Spain); **Maria Kafesaki,** Institute of Electronic Structure and Laser of the Foundation for Research and Technology-Hellas (Greece); **Vladimir Kuzmiak,** Institute of Radio Engineering and Electronics (Czech Republic); **Didier Lippens,** Univ. des Sciences et Technologies de Lille (France); **Ulf Leonhardt,** Univ. of St. Andrews (United Kingdom); **Peter Markos,** Slovak Academy of Sciences (Slovak Republic); **Olivier J. F. Martin,** École Polytechnique Fédérale de Lausanne (Switzerland); **David M. Smith,** Univ. of California/Santa Cruz; **Costas M. Soukoulis,** Iowa State Univ.; **Srinivas Sridhar,** Northeastern Univ.; **Tomasz Szoplik,** Univ. Warszawski (Poland); **Sergei A. Tretyakov,** Helsinki Univ. of Technology (Finland); **Martin Wegener,** Forschungszentrum Karlsruhe (Germany); **Said Zouhdi,** Univ. Pierre et Marie Curie (France)

Monday 7 April

OPENING REMARKS

Room: Arp 5 . . . . . Mon. 10.55 to 11.00

Nigel P. Johnson, Univ. of Glasgow (United Kingdom);
Nikolay I. Zheludev, Univ. of Southampton (United Kingdom);
Ekmel Özbay, Bilkent Univ. (Turkey);
Richard W. Ziolkowski, The Univ. of Arizona (USA)

SESSION 1

Room: Arp 5 . . . . . Mon. 11.00 to 12.35

Lensing I

Keynote Presentation

11.00: **Slow and stopped light in metamaterials: the trapped rainbow** *(Invited Paper)*, Ortwin G. Hess, Kosmas L. Tsakmakidis, Univ. of Surrey (United Kingdom) . . . . . [6987-01]

11.30: **Negative refraction and subwavelength focusing using left-handed composite metamaterials** *(Invited Paper)*, Ekmel Özbay, Bilkent Univ. (Turkey) . . . . . [6987-02]

11.50: **Effective analysis of arrays of nanospheres for near-field enhancement and subwavelength imaging in the optical region**, Sergiy Steshenko, Filippo Capolino, Univ. degli Studi di Siena (Italy); Pekka Alitalo, Sergei Tretyakov, Helsinki Univ. of Technology (Finland) . . . . . [6987-03]

12.05: **Enhanced energy throughput in corrugated, tapered, metal-coated SNOM probes**, Tomasz J. Antosiewicz, Tomasz Szoplik, Univ. Warszawski (Poland) . . . . . [6987-04]

12.20: **Subwavelength resolution of a dielectric profile and size determination of particles in three-dimensional photonic crystals**, Alexander B. Khanikaev, Alexander V. Baryshev, Mitsuteru Inoue, Toyohashi Univ. of Technology (Japan); Mikhail V. Rybin, Mikhail F. Limonov, A.F. Ioffe Physico-Technical Institute (Russia); Gleb Yushin, Georgia Institute of Technology . . . . . [6987-05]

Lunch Break . . . . . 12.35 to 13.45

SESSION 2

Room: Arp 5 . . . . . Mon. 13.45 to 17.40

Lensing II

13.45: **Time-reversed waves and super-resolution** *(Invited Paper)*, Mathias Fink, Arnaud Tourin, Julien de Rosny, Ecole Supérieure de Physique et de Chimie Industrielles (France) . . . . . [6987-06]

14.05: **Checkerboards of negative refractive index to confine light** *(Invited Paper)*, Subramaniam Anantha Ramakrishna, Indian Institute of Technology Kanpur (India); Sebastien Guenneau, The Univ. of Liverpool (United Kingdom) . . . . . [6987-07]

14.25: **Spectral transfer function of a periodic multistack including Veselago layers: formal analogy with the airy function of a Fabry-Perot resonator**, Yann G. Boucher, Ecole Nationale d'Ingénieurs de Brest (France). . . . . [6987-08]

14.40: **Negative refraction in thin metal layer: application for superlens**, Sylvain S. Lecler, Univ. Louis Pasteur (France); Benjamin Frere, Serge Habraken, Univ. de Liège (Belgium); Patrick Meyrueis, Univ. Louis Pasteur (France) . . . . . [6987-09]

14.55: **Sub-diffraction-limited localized structures: influence of linear non-local interactions**, Lendert Gelens, Guy Van der Sande, Philippe Tassin, Vrije Univ. Brussel (Belgium); Damia Gomila, Pere Colet, Manuel A. Matías, Instituto de Fisica Interdisciplinar y Sistemas Complejos (Spain); Mustapha Tlidi, Pascal Kockaert, Univ. Libre de Bruxelles (Belgium); Irina Verettenicoff, Jan Danckaert, Vrije Univ. Brussel (Belgium) . . . . . [6987-10]

Coffee Break . . . . . 15.10 to 15.30

15.30: **Nano-focusing of surface plasmons in metallic nano-structures** *(Invited Paper)*, D. K. Gramotnev, Queensland Univ. of Technology (Australia) . . . . . [6987-11]

15.50: **Metal-dielectric Multilayers for Controllable Deep Sub-wavelength Focusing** *(Invited Paper)*, G. Lerosey, G. Bartal, X. Zhang, Univ. of California/ Berkeley (USA). . . . . [6987-12]

16.10: **Nano-hole array as a lens**, Fumin Huang, Vassili A. Fedotov, Tsung Sheng Kao, Nikolay I. Zheludev, Univ. of Southampton (United Kingdom) . [6987-13]

16.25: **Fuly characterization of planar infrared metamaterials from far field diffraction pattern**, Boubacar Kante, Shah Nawaz Burokur, Frédérique Gadot, André de Lustrac, Univ. Paris-Sud (France) . . . . . [6987-14]

16.40: **Analysis of two-dimensional polarisation-coupled impulse response in multilayered metallic flat lens**, Rafal Kotynski, Karol Krol, Jacek Pniewski, Univ. Warszawski (Poland); Krassimir P. Panajotov, Vrije Univ. Brussel (Belgium) . . . . . [6987-15]

16.55: **Analysis of negative refraction from anomalous phase in the transmission spectrum,** Concita Sibilia, Antonio Mandatori, Univ. degli Studi di Roma/La Sapienza (Italy). . . . . [6987-16]

Keynote Presentation

17.10: **Close-mode resonances in meta-materials and lasing spaser** *(Invited Paper),* Nikolay I. Zheludev, Vassili A. Fedotov, Nikitas Papasimakis, Eric Plum, Sergey L. Prosvirnin, Univ. of Southampton (United Kingdom). . . . . [6987-53]

POSTERS–Monday

Room: Contades Hall . . . . . Mon. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 12:00 hrs on Monday in the Contades Hall. Posters may remain on display until 12:00 hrs on Tuesday. Any papers left on the boards post noon on Tuesday will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Large-area metallic photonic materials fabricated by multi-beam laser interference lithography, Yongjin Wang, Wolfgang Mönch, Bernd Aatz, Hans Zappe, Albert-Ludwigs-Univ. Freiburg (Germany) . . . . . [6987-68]

Transmission of microwaves through a stepped sub-wavelength slit, Matthew J. Lockyear, Alastair P. Hibbins, J. R. Sambles, The Univ. of Exeter (United Kingdom). . . . . [6987-69]

Double-negative metamaterial optical waveguide behavior subjected to stress, Hala J. El-Khozondar, The Islamic Univ. of Gaza (Palestinian Territory (Occupied)); Rifa J. El-Khozondar, Al-Aqsa Univ. (Palestinian Territory (Occupied)); Mohammed M. Shabat, The Islamic Univ. of Gaza (Palestinian Territory (Occupied)) . . . . . [6987-70]

On negative reflection in a bianisotropic medium, Tom G. Mackay, Univ. of Edinburgh (United Kingdom); Akhlesh Lakhtakia, The Pennsylvania State Univ. . . . . [6987-71]

Traversal of pulses through negative (varepsilon,mu) materials, Lipsa Nanda, Subramaniam Anantha Ramakrishna, Indian Institute of Technology Kanpur (India) . . . . . [6987-72]

Giant Goss-Hanchen effect at the reflection from a one-dimensional photonic crystal containing left-handed metamaterials, Abdolrahman Namdar, Kazem J. Ghaleh, Azarbaijan Univ. of Tarbiat Moallem (Iran) . [6987-73]

Nonlinear backward surface Tamm states at an interface between a left-handed metamaterial and a periodic photonic crystal containing left-handed metamaterial, Abdolrahman Namdar, Azarbaijan Univ. of Tarbiat Moallem (Iran); Samad Roshan Entezar, Univ. of Tabriz (Iran) . . . . . [6987-74]

Extra energy coupling through subwavelength hole arrays via stochastic resonance, Guilhem Gallot, Jean-Baptiste Masson, Alexander Podzorov, Ecole Polytechnique (France) . . . . . [6987-75]

Nonlinear microscopy of localized field enhancements in fractal metal nanostructures, Jonas Beermann, Aalborg Univ. (Denmark); Andrey B. Evlyukhin, Vladimir State Univ. (Russia); Alexandra E. Boltasseva, Danmarks Tekniske Univ. (Denmark); Sergey I. Bozhevolnyi, Aalborg Univ. (Denmark) . . . . . [6987-76]

Metamaterials based on mirror structures: lens effect, Eugene Y. Glushko, Institute of Semiconductor Physics (Ukraine) . . . . . [6987-77]

Theoretical and experimental analyze of plasmonic resonances in infrared metamaterials under normal to plane incidence, Boubacar Kante, André de Lustrac, Frédérique Gadot, Univ. Paris-Sud (France) . . . . . [6987-78]

Magnetotunable backward waves in multilayered metamaterials at quantum Hall effect conditions, Roland H. Tarkhanyan, Dimitrios Niarchos, National Ctr. for Scientific Research Demokritos (Greece) . . . . . [6987-79]

Effective permittivity and permeability of two-dimensional photonic crystals, Wojciech Smigaj, Boris Gralak, Institut Fresnel (France) . . . . . [6987-80]

Finite element analysis of waveguide mode coupling through a sub-structured metallic flat lens, Rafal A. Kasztelanic, Rafal Kotynski, Univ. Warszawski (Poland) . . . . . [6987-81]

Infrared cloaking based on wire media, Igor S. Nefedov, Helsinki Univ. of Technology (Russia); Dmitry Chicherin, Ari J. Viitanen, Helsinki Univ. of Technology (Finland) . . . . . [6987-82]

Electromagnetic surface waves of a ferrite slab bounded by metamaterials, Hala J. El-Khozondar, The Islamic Univ. of Gaza (Palestinian Territory (Occupied)); Zeyad Al-Sahhar, Al-Aqsa Univ. (Palestinian Territory (Occupied)); Mohammed M. Shabat, The Islamic Univ. of Gaza (Palestinian Territory (Occupied)) . . . . . [6987-83]

Applications of metamaterials in optical waveguide isolator, Rifa J. El-Khozondar, Al-Aqsa Univ. (Palestinian Territory (Occupied)); Hala J. El-Khozondar, Mohammed M. Shabat, The Islamic Univ. of Gaza (Palestinian Territory (Occupied)) . . . . . [6987-84]

Tuesday 8 April

SESSION 3

Room: Arp 5 . . . . . Tues. 08.50 to 10.15

Waveguides and Transmission Lines

Keynote Presentation

08.50: **Stability of active transmission-line metamaterials** *(Invited Paper),* Allan D. Boardman, Univ. of Salford (United Kingdom); Yuriy Rapoport, Vadim Malnev, National Taras Shevchenko Univ. of Kyiv (Ukraine) . . . . . [6987-17]

09.20: **Engineering the electrical characteristics of resonant type metamaterial transmission lines** *(Invited Paper)*, Ferran Martin, Jordi Bonache, Marta Gil, Gerard Sisó, Univ. Autònoma de Barcelona (Spain). . . . . [6987-18]

09.40: **Theory of meta-materials: one-way waveguides and high-index meta-materials** *(Invited Paper)*, Shanhui Fan, Stanford Univ. . . . . [6987-20]

10.00: **Sub-wavelength waveguide structures**, Philippe Tassin, Xavier Sahyoun, Irina Veretennicoff, Vrije Univ. Brussel (Belgium) . . . . . [6987-21]

Coffee Break . . . . . 10.15 to 10.35

SESSION 4

Room: Arp 5 . . . . . Tues. 10.35 to 12.20

Hole Arrays and PhCs

10.35: **Impedance mismatch in negative index photonic crystals** *(Invited Paper)*, Charles Croënne, Nathalie Fabre, Davy P. Gaillot, Olivier Vanbésien, Didier Lippens, Institut d'Electronique de Microélectronique et de Nanotechnologie (France) . . . . . [6987-22]

10.55: **Enhanced transmission and second harmonic generation from subwavelength slits in metal substrates** *(Invited Paper)*, Maria A. Vincenti, Politecnico di Bari (Italy) and U.S. Army Aviation and Missile Command; Marco De Sario, Vincenzo Petruzzelli, Antonella D'Orazio, Francesco Prudenzano, Politecnico di Bari (Italy); Domenico de Ceglia, Neset Akozbek, Mark J. Bloemer, Paul Ashley, Michael Scalora, U.S. Army Aviation and Missile Command . . . . . [6987-23]

11.15: **Acoustic metamaterials based on sonic crystals** *(Invited Paper)*, José Sánchez-Dehesa, Daniel Torrent, Univ. Politécnica de Valencia (Spain) [6987-24]

11.35: **Optical effects in one dimensional photonic crystal with DPS/DNG layers**, Joseph Shahbazian, Univ. of Massachusetts/Lowell . . . . . [6987-25]

11.50: **Enhanced transmission through a sub-wavelength aperture using metamaterials**, Atilla O. Cakmak, Koray Aydin, Evrim Colak, Zhaofeng Li, Bilkent Univ. (Turkey); Filiberto Bilotti, Lucio Vegni, Univ. degli Studi di Roma Tre (Italy); Ekmel Ozbay, Bilkent Univ. (Turkey) . . . . . [6987-26]

12.05: **Waves along chains of nanopores in noble metals**, Ari J. Viitanen, Igor S. Nefedov, Sergei A. Tretyakov, Helsinki Univ. of Technology (Finland) [6987-27]

Lunch/Exhibition Break . . . . . 12.20 to 13.40

SESSION 5

Room: Arp 5 . . . . . Tues. 13.40 to 15.35

Surface Plasmons I

Keynote Presentation

13.40: **New surface plasmon devices: recent advances and challenges** *(Invited Paper),* Federico Capasso, Harvard Univ. . . . . [6987-28]

14.10: **Terahertz biosensors based on double split ring arrays** *(Invited Paper)*, Christian Debus, Peter Haring Bolivar, Univ. Siegen (Germany) . . . . . [6987-29]

14.30: **Real and complex modes in linear nanoparticle chains** *(Invited Paper)*, Filippo Capolino, Sergiy O. Steshenko, Univ. degli Studi di Siena (Italy) [6987-30]

14.50: **Nonreciprocal magnetoplasmons in imperfect layered structures** *(Invited Paper)*, Alexander G. Schuchinsky, Xiyu Yan, Queen's Univ. Belfast (United Kingdom). . . . . [6987-31]

15.05: **Analysis of channel plasmon-polariton nanoantennas based on a meshless boundary integral equation approach**, Lyudmyla N. Illyashenko-Raguin, Swiss Federal Institute of Technology (Switzerland) . . . . . [6987-32]

15.20: **Periodically structured plasmonic waveguides**, Wladyslaw M. Saj, Univ. Warszawski (Poland) and Institute of Electronic Structure and Laser of the Foundation for Research and Technology-Hellas (Greece); Tomasz Szoplik, Univ. Warszawski (Poland); Stavroula Foteinopoulou, Maria Kafesaki, Costas M. Soukoulis, Eleftherios N. Economou, Institute of Electronic Structure and Laser of the Foundation for Research and Technology-Hellas (Greece) . . . . . [6987-33]

Wednesday 9 April

SESSION 6

Room: Arp 5 . . . . . Wed. 09.00 to 12.20

Surface Plasmons II

Keynote Presentation

09.00: **On the road to low loss nanoplasmonics and metamaterials** *(Invited Paper)*, Mikhail A. Noginov, Norfolk State Univ. . . . . [6987-34]

09.30: **Spoof plasmons and far-infrared plasmonic metamaterials** *(Invited Paper)*, Stefan A. Maier, Univ. of Bath (United Kingdom) . . . . . [6987-35]

09.50: **Launching, scattering and decoupling surface plasmon polaritons by three-dimensional defects in metal films**, Fernando de Leon-Perez, Univ. de Zaragoza (Spain); Francisco J. García-Vidal, Univ. Autónoma de Madrid (Spain); Luis Martín-Moreno, Univ. de Zaragoza (Spain) . . . . . [6987-36]

10.05: **Surface plasmons on metamaterials**, Alastair P. Hibbins, Matthew J. Lockyear, J. R. Sambles, The Univ. of Exeter (United Kingdom) . . . . . [6987-37]

10.20: **Solid-state index matching of surface plasmons**, Michiel J. A.de Dood, Daniel Stolwijk, Leiden Univ. (Netherlands); Marc A. VerSchuuren, Philips Research Labs. (Netherlands); Eduard F. C.Driessen, Leiden Univ. (Netherlands); Gert W. 't Hooft, Philips Research Labs. (Netherlands); Martin P. van Exter, Leiden Univ. (Netherlands) . . . . . [6987-38]

Coffee Break . . . . . 10.35 to 10.55

10.55: **Surface plasmon photonics: multiplexers, interferometers and microscopes** *(Invited Paper)*, Joachim R. Krenn, Karl-Franzens-Univ. Graz (Austria) . . . . . [6987-39]

11.15: **Symmetry breaking in a plasmonic metamaterial** *(Invited Paper)*, André Christ, Yasin Ekinci, Swiss Federal Institute of Technology (Switzerland); Nikolai A. Gippius, Univ. Blaise Pascal (France); Sergei G. Tikhodeev, A.M. Prokhorov General Physics Institute (Russia); Olivier J. F.Martin, Swiss Federal Institute of Technology (Switzerland) . . . . . [6987-40]

11.35: **Investigation of electromagnetic properties of future plasmonic devices and metamaterials by scaled experiments in radiofrequency and microwave regime**, Silvio Hrabar, Univ. of Zagreb (Croatia); Zoran Eres, Rugjer Boskovic Institute (Croatia); Davor Zaluski, Univ. of Zagreb (Croatia); Helga Kumric, Univ. Stuttgart (Germany) . . . . . [6987-41]

11.50: **Plasmons in nanowire arrays**, Alenjandro Manjavacas, Rebecca Sainidou, F. Javier García de Abajo, Consejo Superior de Investigaciones Científicas (Spain) . . . . . [6987-42]

12.05: **Fishnet metamaterials at microwave frequencies with left-handed characteristics**, Koray Aydin, Zhaofeng Li, Ekmel Ozbay, Bilkent Univ. (Turkey) . . . . . [6987-43]

Lunch/Exhibition Break . . . . . 12.20 to 13.50

SESSION 7

Room: Arp 5 . . . . . Wed. 13.50 to 17.25

Novel Device Applications I

Keynote Presentation

13.50: **Optical metamaterials** *(Invited Paper),* Vladimir M. Shalaev, Purdue Univ. . . . . [6987-44]

14.20: **Three-dimensional metamaterials from deep lithography-based micro/nanofabrication** *(Invited Paper)*, Herbert O. Moser, National Univ. of Singapore (Singapore). . . . . [6987-45]

14.40: **Self-organization approach towards photonic crystals and metamaterials** *(Invited Paper)*, Dorota A. Pawlak, Sebastian Turczynski, Katarzyna Kolodziejak, Instytut Technologii Materialów Elektronicznych (Poland); Nigel P. Johnson, Univ. of Glasgow (United Kingdom); Peter Haring Bolivar, Francesco Voltolina, Univ. Siegen (Germany) . . . . . [6987-46]

15.00: **Optical analogue of the event horizon demonstrated with microstructured fibers** *(Invited Paper)*, Ulf Leonhardt, Univ. of St. Andrews (United Kingdom). . . . . [6987-47]

15.20: **Solitons in negative phase metamaterials** *(Invited Paper)*, Allan D. Boardman, Yuriy Rapoport, Neil J. King, Rhiannon Mitchell-Thomas, Univ. of Salford (United Kingdom) . . . . . [6987-48]

Coffee Break . . . . . 15.40 to 16.00

Keynote Presentation

16.00: **Recent progress on photonic metamaterials** *(Invited Paper),* Martin Wegener, Georg von Freymann, Stefan Linden, Forschungszentrum Karlsruhe (Germany) . . . . . [6987-49]

16.30: **Optical properties of split ring resonator metamaterial structures on semiconductor substrates** *(Invited Paper)*, Nigel P. Johnson, Basudev Lahiri, Ali Z. Khokhar, Richard M. De La Rue, Univ. of Glasgow (United Kingdom); Scott G. McMeekin, Glasgow Caledonian Univ. (United Kingdom) . . . . . [6987-50]

16.50: **Casimir forces for moving media** *(Invited Paper)*, Thomas G. Philbin, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Ulf Leonhardt, Univ. of St. Andrews (United Kingdom) . . . . . [6987-51]

17.10: **Nonlinear tunable metamaterials**, Ilya V. Shadrivov, The Australian National Univ. (Australia); Alexander B. Kozyrev, Daniel W. van der Weide, Univ. of Wisconsin/Madison; Yuri S. Kivshar, The Australian National Univ. (Australia). . . . . [6987-52]

Thursday 10 April

SESSION 8

Room: Arp 5 . . . . . Thurs. 11.00 to 11.50

Novel Device Applications II

11.00: **Spectroscopy of individual artificial atoms** *(Invited Paper)*, Stefan Linden, Forschungszentrum Karlsruhe (Germany); Martin Husnick, Nina Meinzer, Matthias W. Klein, Michael F. G.Klein, Univ. Karlsruhe (Germany); Nil Feth, Forschungszentrum Karlsruhe (Germany); Martin Wegener, Univ. Karlsruhe (Germany) . . . . . [6987-54]

11.30: **Realization and coupling effects of three-dimensional photonic metamaterials at optical frequencies**, Liu Na, Harald W. Giessen, Univ. Stuttgart (Germany). . . . . [6987-55]

11.50: **An all-dielectric route for terahertz cloaking**, Davy P. Gaillot, Charles Croënne, Didier Lippens, Ctr. National de la Recherche Scientifique (France) . . . . . [6987-56]

Lunch/Exhibition Break . . . . . 11.0 to 13.20

SESSION 9

Room: Arp 5 . . . . . Thurs. 13.20 to 16.35

Novel Theory

Keynote Presentation

13.20: **Interactions between coated nano-particle lasers** *(Invited Paper),* Richard W. Ziolkowski, The Univ. of Arizona; Joshua A. Gordon, College of Optical Sciences/The Univ. of Arizona . . . . . [6987-57]

13.50: **A three-dimensional left-handed metamaterial based on the rotated TLM method** *(Invited Paper)*, Michael Zedler, Peter Russer, Technischen Univ. München (Germany) . . . . . [6987-58]

14.10: **Equivalent circuit simulations of split ring resonators and wires in the near infra-red** *(Invited Paper)*, Scott G. McMeekin, Glasgow Caledonian Univ. (United Kingdom); Nigel P. Johnson, Ali Z. Khokhar, Basudev Lahiri, Richard M. De La Rue, Univ. of Glasgow (United Kingdom) . . . . . [6987-59]

14.30: **Properties of bulk metamaterials** *(Invited Paper)*, Carsten Rockstuhl, Christoph Menzel, Thomas Paul, Joerg Petschulat, Ekaterina A. Pshenay-Severin, Christian Helgert, Arkadi Chipouline, Thomas Pertsch, Falk L. Lederer, Friedrich-Schiller-Univ. Jena (Germany) . . . . . [6987-60]

14.50: **On the physical meaning and practical utility of effective permittivity and permeability of electrically thin composite layers** *(Invited Paper)*, Sergei Tretyakov, Helsinki Univ. of Technology (Finland). . . . . [6987-62]

Coffee Break . . . . . 15.10 to 15.30

15.30: **Scaling behavior of magnetic metamaterials and left-handed materials from microwaves to optical regime** *(Invited Paper)*, Maria Kafesaki, Raluca Penciu, Eleftherios N. Economou, Institute of Electronic Structure and Laser of the Foundation for Research and Technology-Hellas (Greece); Costas M. Soukoulis, Iowa State Univ. . . . . [6987-63]

15.50: **Photonic Bloch oscillations in layered structures with metamaterials**, Artur Davoyan, Ilya V. Shadrivov, Andrey A. Sukhorukov, Yuri S. Kivshar, The Australian National Univ. (Australia) . . . . . [6987-64]

16.05: **Can negative-index materials be homogeneous?**, Igor Tsukerman, Univ. of Akron . . . . . [6987-65]

16.20: **Analytic description of plane wave propagation in metamaterials**, Jörg Petschulat, Arkadi Chipouline, Thomas Pertsch, Ultra-Optics Ctr. (Germany); Andreas Tunnermann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Carsten Rockstuhl, Christoph Menzel, Falk Lederer, Friedrich-Schiller-Univ. Jena (Germany) . . . . . [6987-66]

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics[21] - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

Conference 6988 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 4, 7, 25, 28, 29, 65

Nanophotonics

Conference Chairs: **David L. Andrews,** Univ. of East Anglia Norwich (United Kingdom); **Jean-Michel Nunzi,** Queens Univ. (Canada); **Andreas Ostendorf,** Laser Zentrum Hannover e.V. (Germany)

Program Committee: **Fabrice Charra,** Commissariat à l'Energie Atomique (France); **Alain Deureux,** Univ. de Bourgogne (France); **Aleksandra Djurisik,** The Univ. of Hong Kong (Hong Kong China); **Dirk M. Guldi,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Satoshi Kawata,** Osaka Univ. (Japan); **Karsten König,** Fraunhofer-Institut für Biomedizinische Technik (Germany); **Manijeh Razeghi,** Northwestern Univ.; **Anatoly V. Zayats,** Queen's Univ. Belfast (United Kingdom)

Monday 7 April

OPENING REMARKS

Room: Kleber. . . . . Mon. 10.55 to 11.00

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

SESSION 1

Room: Kleber. . . . . Mon. 11.00 to 12.30

Surface Plasmons and Devices I

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

11.00: **Plasmonic nanoantennas** *(Invited Paper)*, Vladimir M. Shalaev, Purdue Univ. . . . . [6988-01]

11.30: **Subwavelength resonant nano-chains: from plasmon waveguides to antennas**, A. Femius Koenderink, FOM Institute for Atomic and Molecular Physics (Netherlands); Rene de Waele, FOM Institute for Atomic and Molecular Physics (Netherlands) and California Institute of Technology; Jord C. Prangsma, Albert Polman, FOM Institute for Atomic and Molecular Physics (Netherlands) . . . . . [6988-02]

11.50: **Excitation and focusing of surface plasmon polaritons by nanostructures**, Andrey Stepanov, Andrey Evlyukhin, Roman Kiyan, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) . . . . . [6988-03]

12.10: **Spectroscopic TPL imaging of gold nano-antennas**, Romain Quidant, Petru V. Ghenuche, Sudhir Cherukulappurath, Institut de Ciències Fotòniques (Spain) . . . . . [6988-04]

Lunch Break . . . . . 12.30 to 13.40

SESSION 2

Room: Kleber. . . . . Mon. 13.40 to 15.30

Surface Plasmons and Devices II

Session Chair: **Andreas Ostendorf,**
Laser Zentrum Hannover e.V. (Germany)

13.40: **Fabricating plasmonic components for nanophotonics** *(Invited Paper)*, Alexandra E. Boltasseva, Danmarks Tekniske Univ. (Denmark) . . . . . [6988-05]

14.10: **Plasmonic nanofocusing in tapered gold waveguides**, Ewold Verhagen, Albert Polman, L. Kobus Kuipers, FOM Institute for Atomic and Molecular Physics (Netherlands) . . . . . [6988-06]

14.30: **Plasmonic mediated interaction between nanostructured metal surfaces and single mode optical waveguides**, Pierpaolo A. Porta, Brian Corbett, Tyndall National Institute (Ireland) . . . . . [6988-07]

14.50: **SERS observed in periodic metallo-dielectric nanostructures fabricated using coated colloidal crystals**, Manuel R. Goncalves, André Siegel, Othmar Marti, Univ. Ulm (Germany) . . . . . [6988-08]

15.10: **Finite-element simulations of thermo-optic long-range surface plasmon polariton optical circuits**, Petur G. Hermannsson, Kristjan Leosson, Univ. of Iceland (Iceland) . . . . . [6988-09]

Coffee Break . . . . . 15.30 to 15.50

SESSION 3

Room: Kleber. . . . . Mon. 15.50 to 17.30

Optical Nanofabrication and Characterization I

Session Chair: **Karsten König,** JenLab GmbH (Germany)

15.50: **Light emission from isolated point-dipole sources embedded in chiral sculptured thin films**, Tom G. Mackay, Univ. of Edinburgh (United Kingdom); Akhlesh Lakhtakia, The Pennsylvania State Univ.. . . . . [6988-10]

16.10: **Formation and optical properties of InP-based nanostructures generated by ion bombardment**, Audrey Berrier, Richa Tyagi, Srinivasan Anand, Kungliga Tekniska Högskolan (Sweden). . . . . [6988-11]

16.30: **Optical, elastic and structural properties of single gold nanoparticles**, Anna Tchebotareva, Meindert van Dijk, Paul Ruijgrok, Marcel Hesselberth, Leiden Univ. (Netherlands); Markus Lippitz, Max-Planck-Institut für Festkörperforschung (Germany); Michel Orrit, Leiden Univ. (Netherlands) . . . . . [6988-12]

16.50: **Optical characterization of periodically poled KTP**, Martin P. van Exter, Wouter H. Peeters, Leiden Univ. (Netherlands). . . . . [6988-13]

17.10: **Rational design of molecular self-assemblies towards applications in nanophotonics,** David Bléger, Fabrice Mathevet, David Kréher, André-Jean Attias, Univ. Pierre et Marie Curie (France); Guillaume Schull, Ludovic Douillard, Céline Fiorini-Debuisschert, Fabrice Charra, Commissariat à l'Energie Atomique (France) . . . . . [6988-14]

POSTERS–Monday

Room: Contades Hall . . . . . Mon. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 12:00 hrs on Monday in the Contades Hall. Posters may remain on display until 12:00 hrs on Tuesday. Any papers left on the boards post noon on Tuesday will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Nanostructures based on organic semiconductors and thin films of CdSe and CdSe/ZnS nanoparticles: new materials for optoelectronics, Sergey V. Dayneko, Chistyakov Alexander, Helmut Anton, Zaharchenko Kirill, Nikitenko Vladimir, Moscow Engineering Physics Institute (Russia); Oleinikov Vladimir, Shemyakin and Ovchinnikov Institute of Bioorganic Chemistry (Russia); Tedoradze Mariya, A.N. Frumkin Institute of Physical Chemistry and Electrochemistry (Russia) . . . . . [6988-55]

Scattering of light by a sub-monolayer of randomly packed dielectric microspheres giving color effects in transmission, Mickaël Guillaumée, Martha Liley, Raphaël Pugin, Ross P. Stanley, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland) . . . . . [6988-54]

Photonic devices based on patterning by lithographic and two photon induced polymerization techniques, Ilaria Fortunati, Tiziano Dainese, Raffaella Signorini, Renato Bozio, Univ. degli Studi di Padova (Italy); Valeria Tagliazucca, Sandra Dirè, Univ. degli Studi di Trento (Italy); Piero Schiavuta, CIVEN (Italy); Chantal Andraud, Ecole Normale Supérieure de Lyon (France); Jlenia Bottazzo, Gioia Della Giustina, Giovanna Brusatin, Massimo Guglielmi, Univ. degli Studi di Padova (Italy) . . . . . [6988-53]

A novel two-dimensional photonic crystal L-shaped bent waveguide based on ring resonators, Mehrdad Djavid, Afshin Ghaffari, K.N. Toosi Univ. of Technology (Iran); Faraz Monifi, K.N.Toosi Univ. of Technology (Iran); Mohamad S. Abrishamian, K.N. Toosi Univ. of Technology (Iran) . . . . . [6988-56]

Large nonlinear refraction in gold island films under nano- and femto-second laser pulse excitation, Anatoly A. Borshch, Mykhailo S. Brodyn, Rostislav D. Fedorovich, Volodymyr R. Lyakhovetskii, Petro Tomchuk, Vladislav I. Volkov, Institute of Physics (Ukraine); Leonid Makarovsky, Yuriy Nikitaev, Moscow Institute of Physics and Technology (Russia); Feodor Gostev, Institute of Chemical Physics (Russia) . . . . . [6988-57]

Possibility of amplification of surface plasmon-polaritons by DC in the system with 2D photonic crystal, Andrew Tsykhonya, Valeri Z. Lozovski, National Taras Shevchenko Univ. of Kyiv (Ukraine); Andrew Rudavskyi, National Taras Shevchenko Univ. of Kyiv . . . . . [6988-58]

Theoretical analysis of surface-plasmon polariton resonators in free space and close to an interface, Jesper Jung, Thomas Søndergaard, Aalborg Univ. (Denmark) . . . . . [6988-59]

Influence of different insulating polymers on the performance of ZnO nanorod based LEDs, Shaolin Zhang, Aleksandra B. Djurisic, Yuk Fan Hsu, Alan M. C.Ng, Mao Hai Xie, The Univ. of Hong Kong (Hong Kong China) . . . [6988-60]

Optical and electrical properties of the copper-carbon nanocomposite, Tayebeh Ghodselahi, Mohammad Ali Vesaghi, Sharif Univ. of Technology (Iran). . . . . [6988-61]

Periodic structures modified with silver nanoparticles for novel plasmonic application, Asta Sileikaite, Tomas Tamulevicius, Judita Puiso, Asta Guobiene, Sigitas Tamulevicius, Igoris Prosycevas, Kauno Technologijos Univ. (Lithuania); Horst-Günter Rubahn, Syddansk Univ. (Denmark) . . . . . [6988-62]

Application of vertical-cavity laser-based optical tweezers for particle manipulation in microfluidic channels, Andrea Kroner, Carolin Schneck, Fernando Rinaldi, Rudolf Rösch, Rainer Michalzik, Univ. Ulm (Germany)[6988-63]

Fabrication and luminescent properties of ITO nanocrystalline coated micro Eu:Y_2O_3 particles, Piotr Psuja, Wieslaw Strek, Dariusz Hreniak, Instytut Niskich Temperatur i Badan Strukturalnych (Poland) . . . . . [6988-64]

Structure effects on the magnetism of Co_2Om (m=1-6) nanoparticles, Jelena Tamuliene, Vilnius Univ. (Lithuania) and Vilnius Pedagogical Univ. (Lithuania); Loreta Rasteniene, Marius Franckevicius, Augustinas Kulbickas, Rimas Vaisnoras, Vilnius Pedagogical Univ. (Lithuania); Gonçal Badenes, Institut de Ciències Fotòniques (Spain); Mindaugas Balevicius, Vilnius Univ. (Lithuania) . . . . . [6988-65]

Near-infrared resonant cavity enhanced (RCE) silicon microsphere photodetector, Emre Yuce, Ali Serpenguzel, Koç Univ. (Turkey); Oguzhan Gurlu, Istanbul Teknik Üniv. (Turkey) . . . . . [6988-67]

One-step preparation of silver nanoparticles and silver monolayers, Lavinia Balan, Karim Amarni, Olivier Soppera, Daniel-Joseph Lougnot, Ecole Nationale Supérieure de Chimie de Mulhouse (France) . . . . . [6988-68]

Laser "microexplosions" of gold nanoparticles for inhibiting a tumor growth, Boris Y. Kogan, Organic Intermediates and Dyes Institute (Russia); Alexander Pankratov, P. A. Hertzen Moscow Research Oncological Institute (Russia); Boris N. Khlebtsov, Nikolay G. Khlebtsov, Institute of Biochemistry and Physiology of Plants and Microorganisms (Russia); Alexander V. Butenin, Organic Intermediates and Dyes Institute (Russia); Yulia Zolotavkina, Raisa I. Yakubovskaya, P. A. Hertzen Moscow Research Oncological Institute (Russia); Georgy N. Vorozhtsov, Organic Intermediates and Dyes Institute (Russia) . . . . . [6988-69]

Photophysical properties of water-soluble and biocompatible CdTe nanocrystals, Lavinia Balan, Ecole Nationale Supérieure de Chimie de Mulhouse (France); Jean-Pierre Malval, Univ. de Haute Alsace (France); V. Morosini, Raphael Schneider, Univ. Henri Poincaré Nancy I (France) . . . . . [6988-70]

A study on characteristics of tapered long range surface plasmon polaritons waveguides at 1.55 µm, Wook-Jae Lee, Jae-Eun Kim, Hae Yong Park, Korea Advanced Institute of Science and Technology (South Korea); Suntak Park, Electronics and Telecommunications Research Institute (South Korea) . . . . . [6988-71]

Investigation of the patterning efficiency in a new azo-dye copolymer under UV irradiation towards photonic applications, Licinio Rocha, CEA-LIST (France); Céline Fiorini, CEA-IRAMIS/SPICSI (France); Katarzina Matczyszyn, Wroclaw Univ. of Technology (Poland); Paul Raimond, CEA-LITEN INES-RDI (France); Jean-Michel Nunzi, Queens Univ. (Canada) . . . . . [6988-72]

Tuesday 8 April

SESSION 4

Room: Kleber. . . . . Tues. 08.10 to 10.00

Nanoscale Photonics

Session Chair: **Manijeh Razeghi,** Northwestern Univ.

08.10: **Ultrafast spectroscopy in confined light systems: techniques, applications and perspectives** *(Invited Paper)*, Zeno Gaburro, Univ. degli Studi di Trento (Italy). . . . . [6988-15]

08.40: **Active components in photonic integrated circuits using electron spins in quantum dots**, Amy V. Thompson, Hubert Seigneur, College of Optics & Photonics/Univ. of Central Florida; Michael N. Leuenberger, Univ. of Central Florida; Winston V. Schoenfeld, College of Optics & Photonics/Univ. of Central Florida . . . . . [6988-16]

09.00: **Adaptive subwavelength control of nano-optical fields**, Michael K. Bauer, Christian-Albrechts-Univ. zu Kiel (Germany) . . . . . [6988-17]

09.20: **Switching electromagnetic eigenwaves in metastructures: perturbation theory method**, Eugene Y. Glushko, Institute of Semiconductor Physics (Ukraine). . . . . [6988-18]

09.40: **Gap-dependent chiral coupling in T-shaped gold nanodimers**, Martti Kauranen, Hannu Husu, Brian K. Canfield, Tampere Univ. of Technology (Finland); Janne Laukkanen, Benfeng Bai, Markku Kuittinen, Jari P. Turunen, Joensuu Yliopisto (Finland) . . . . . [6988-19]

Coffee Break . . . . . 10.00 to 10.20

SESSION 5

Room: Kleber. . . . . Tues. 10.20 to 12.00

Near-Field Interactions and Microscopies

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

10.20: **Optically fabricated particle arrays and quantum electrodynamics**, Luciana C. Dávila Romero, Justo J. Rodríguez, David L. Andrews, Univ. of East Anglia Norwich (United Kingdom) . . . . . [6988-20]

10.40: **STM-induced second harmonic generation : towards near-field nonlinear optical microscopy**, Ivan Berline, Cecile Royal, Ludovic Douillard, Fabrice Charra, Céline Fiorini-Debuisschert, Commissariat à l'Energie Atomique (France) . . . . . [6988-21]

11.00: **Finite element electrodynamic simulations in near-field infrared microscopy**, Frantisek Čajko, Igor Tsukerman, The Univ. of Akron; Fritz Keilmann, Rainer Hillenbrand, Max-Planck-Institut für Biochemie . . . . . [6988-22]

11.20: **The optical control of electronic energy transfer through single and dual auxiliary beams**, David S. Bradshaw, David L. Andrews, Univ. of East Anglia Norwich (United Kingdom) . . . . . [6988-23]

11.40: **Measuring near field distribution of photonic crystal GaN-based blue light emitting diodes with NSOM**, Kyoung-Duck Park, Inha Univ. (South Korea); Won-Soo Ji, Samsung Electro-Mechanics Co. Ltd. (South Korea); Dae-Seo Park, Dae-Chan Kim, Beom-Hoan O, Se-Geun Park, El-Hang Lee, Seung-Gol Lee, Inha Univ. (South Korea) . . . . . [6988-24]

Lunch/Exhibition Break . . . . . 12.00 to 13.20

SESSION 6

Room: Kleber. . . . . Tues. 13.20 to 15.30

Surface Plasmons and Devices III

Session Chair: **Anatoly V. Zayats,**
Queen's Univ. Belfast (United Kingdom)

13.20: **Efficient excitation of surface plasmons** *(Invited Paper)*, Ilya P. Radko, Aalborg Univ. (Denmark); Alexandra E. Boltasseva, Danmarks Tekniske Univ. (Denmark); Sergey I. Bozhevolnyi, Aalborg Univ. (Denmark) . . . . . [6988-25]

13.50: **Numerical optimization of gold-dielectric nanoparticle heterostructures for surface plasmon resonance engineering and photothermal applications**, Kyongsik Choi, Peter Zijlstra, James W. M.Chon, Min Gu, Swinburne Univ. of Technology (Australia) . . . . . [6988-26]

14.10: **Laser nanostructuring of metal-dielectric plasmonic components**, Roman Kiyan, Andrey Stepanov, Andrey Evlyukhin, Andreas Seidel, Sven Passinger, Carsten Reinhardt, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) . . . . . [6988-27]

14.30: **Excitation and characterization of dielectric-loaded surface plasmon-polariton waveguides at telecom wavelengths**, Tobias Holmgaard, Sergey I. Bozhevolnyi, Aalborg Univ. (Denmark); Laurent Markey, Alain Deureux, Gerard Colas des Francs, Alexandre Bouhelier, S. Massenot, J. Grandidier, Univ. de Bourgogne (France). . . . . [6988-28]

14.50: **Dielectric surface plasmon Bragg mirrors: theory, design and properties**, Sukanya Randhawa, María U. González, Jan Renger, Institut de Ciències Fotòniques (Spain); Jean-Claude Weeber, Univ. de Bourgogne (France); Romain Quidant, Institut de Ciències Fotòniques (Spain). . . . . [6988-29]

15.10: **Integration of plasmonic optical traps in microfluidics**, Lina Huang, Olivier J. F.Martin, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [6988-30]

Wednesday 9 April

SESSION 7

Room: Kleber. . . . . Wed. 08.00 to 08.20

Technology

Session Chair: **Alain Deureux,** Univ. de Bourgogne (France)

08.00: **Nanophotonics technology watch,** Yves Verbandt, Christian Kallinger, Manfred Scheu, Wolfram Förster, European Patent Office (Netherlands)[6988-31]

SESSION 8

Room: Kleber. . . . . Wed. 08.20 to 10.10

Sub-Wavelength Aperture Optics

Session Chair: **Alain Deureux,** Univ. de Bourgogne (France)

08.20: **Nanophotonics with sub-wavelength holes and nanoparticles** *(Invited Paper)*, Wolfgang Fritzsche, Andrea Csaki, Norbert Jahr, Andrea Steinbrück, Siegmund Schröter, IPHT Jena (Germany) . . . . . [6988-32]

08.50: **Subwavelength hole arrays as a means to couple light to the surface plasmon-polariton modes of optically thin metal films**, James Parsons, Baptiste Auguié, William L. Barnes, J. R. Sambles, The Univ. of Exeter (United Kingdom) . . . . . [6988-33]

09.10: **A sub-wavelength slit as a quarter-wave plate**, Eric R. Eliel, Nikolay V. Kuzmin, Leiden Univ. (Netherlands); Gert W. 't Hooft, Philips Research Labs. (Netherlands) . . . . . [6988-34]

09.30: **Electrically controlled extraordinary transmission of periodically nanostructured metallic films**, Wayne Dickson, Queen's Univ. Belfast (United Kingdom) . . . . . [6988-35]

09.50: **Focusing of light beyond the diffraction limit**, Kuan-Ren Chen, National Cheng Kung Univ. (Taiwan) . . . . . [6988-36]

Coffee Break . . . . . 10.10 to 10.30

SESSION 9

Room: Kleber. . . . . Wed. 10.30 to 12.10

Cavity Nanophotonics

Session Chair: **Aleksandra B. Djurisic,**
The Univ. of Hong Kong (Hong Kong China)

10.30: **Design principles for plasmonic nanocavities** *(Invited Paper)*, Stefan A. Maier, Univ. of Bath (United Kingdom) . . . . . [6988-37]

11.00: **Photonic crystal nanolasers with controlled spontaneous emission**, Isabelle Philip, Remy Braive, Alexios Beveratos, Isabelle Sagnes, Luc Le Gratiet, Stéphane Guilet, Aristide Lemaitre, Ctr. National de la Recherche Scientifique (France) . . . . . [6988-38]

11.20: **Intermolecular interactions and energy transfer near a dielectric cylinder**, Cristian A. Marocico, Jasper Knoester, Rijksuniv. Groningen (Netherlands) . . . . . [6988-39]

11.40: **Spectral properties and nonlinear dynamics of a spontaneous photon emitted by two level atom trapped in damped nanocavity with a single resonance mode in it** *(Invited Paper)*, Vladislav F. Cheltsov, Moscow States Mining Univ. (Russia) . . . . . [6988-40]

Lunch/Exhibition Break . . . . . 12.10 to 13.20

SESSION 10

Room: Kleber. . . . . Wed. 13.20 to 15.10

Surface Plasmons and Devices IV

Session Chair: **Dirk M. Guldi,**
Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

13.20: **The use of hybrid electromagnetic modes in strongly coupled plasmonic nanorod assemblies for the manipulation of photons at the nanoscale**, Gregory A. Wurtz, Univ. of North Florida . . . . . [6988-41]

13.40: **Resonance enhanced infrared spectroscopy using gold nanowires**, Frank F. N.Neubrech, Ruprecht-Karls-Univ. Heidelberg (Germany); Manuel Lopes, Marc Lamy de la Chapelle, Univ. de Technologie de Troyes (France); Karim Shafqat, Thomas Cornelius, Gesellschaft für Schwerionenforschung GmbH (Germany); Javier Aizpurua, Consejo Superior de Investigaciones Científicas (Spain); Annemarie Pucci, Ruprecht-Karls-Univ. Heidelberg (Germany) . . . . . [6988-42]

14.00: **Controlled modification of single colloidal CdSe/ZnS quantum dots fluorescence through interactions with gold surface plasmons**, Céline Vion, Institut des NanoSciences de Paris (France); Piernicola Spinicelli, Ecole Normale Supérieure (France); Laurent Coolen, Jean-Marc Frigerio, Institut des NanoSciences de Paris (France); Jean-Pierre Hermier, Ecole Normale Supérieure (France); Agnès Maître, Institut des NanoSciences de Paris (France) . . [6988-43]

14.20: **Plasmon resonances and optical near-field enhancement in coupled nanosystems**, Lyudmyla N. Illyashenko-Raguin, Swiss Federal Institute of Technology (Switzerland) . . . . . [6988-44]

14.40: **Spatially resolved enhancement of fluorescence and Raman scattering by Ag nanoparticle arrays** *(Invited Paper),* Nic I. Cade, Tom Ritman-Meer, David Richards, King's College London (United Kingdom) . . . . . [6988-45]

Coffee Break . . . . . 15.10 to 15.30

SESSION 11

Room: Kleber. . . . . Wed. 15.30 to 17.30

Complex Optics in Nanostructures

Session Chair: **Fabrice Charra,**
Commissariat à l'Energie Atomique (France)

15.30: **Luminescent oxide nanoparticles with enhanced optical properties**, Genevieve Mialon, Melanie Moreau, Thanh Liem Nguyen, Didier Casanova, Antigoni Alexandrou, Thierry Gacoin, Jean-Pierre Boilot, Ecole Polytechnique (France) . . . . . [6988-46]

15.50: **Pyroelectric effect inducing trapping of particles on periodically-poled lithium niobate crystals**, Pietro Ferraro, Simonetta Grilli, Istituto Nazionale di Ottica Applicata (Italy). . . . . [6988-47]

16.10: **Calculations of the optical response of metallo-dielectric nanostructures of non-spherical particles by a layer-multiple-scattering method**, Nikos Papanikolaou, National Ctr. for Scientific Research (Greece); Georgios Gantzounis, Nikolaos Stefanou, Univ. of Athens (Greece) . . . [6988-48]

16.30: **Patterned multiwall carbon nanotube electrode arrays for liquid crystal photonic devices**, Timothy D. Wilkinson, Xiaozhi Wang, Ken B. K.Teo, William I. Milne, Univ. of Cambridge (United Kingdom) . . . . . [6988-50]

16.50: **Nonlinear optical properties of individual single-walled carbon nanotubes in N-methyl-2-pyrrolidone**, Jun Wang, Werner J. Blau, Trinity College Dublin (Ireland) . . . . . [6988-51]

17.10: **Optical nonlinear switches based on nanocrystalline silicon,** Dmitry E. Milovzorov, Fluens Technology Group Ltd. (Russia) and Scientific Research Physico-Chemical Institute (Russia) . . . . . [6988-52]

CLOSING REMARKS

Room: Kleber. . . . . Wed. 17.30

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics[21] - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

Conference 6989 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 2, 19, 22, 27,33, 38, 46, 55

Photonic Crystal Materials and Devices

Conference Chairs: **Richard M. De La Rue,** Univ. of Glasgow (United Kingdom); **Ceferino López,** Consejo Superior de Investigaciones Científicas (Spain); **Michele Midrio,** Univ. degli Studi di Udine (Italy); **Pierre Viktorovitch,** |École Centrale de Lyon (France)

Programme Committee: **Lucio Claudio Andreani,** Univ. degli Studi di Pavia (Italy); **Wim Bogaerts,** Univ. Gent (Belgium); **Roberto Cingolani,** Istituto Nazionale per la Fisica della Materia (Italy); **Claudio Conti,** Univ. degli Studi di Roma/La Sapienza (Italy); **Dominique Coquillat,** Univ. Montpellier II (France); **René M. de Ridder,** Univ. Twente (Netherlands); **Andrea Di Falco,** Univ. degli Studi di Roma Tre (Italy); **Stefan Enoch,** Institut Fresnel (France); **Jean-Michel Gérard,** CEA Grenoble (France); **Romuald Houdré,** Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Jørn Marcher Hvam,** Danmarks Tekniske Univ. (Denmark); **Florian Kulzer,** ICFO-The Institute of Photonic Sciences (Spain); **Juan Ariel Levenson,** Lab. de Photonique et de Nanostructures (France); **Stefan Linden,** Forschungszentrum Karlsruhe (Germany); **Olivier M. Parriaux,** Univ. Jean Monnet Saint-Etienne (France); **Adriana Passaseo,** Univ. degli Studi di Lecce (Italy); **Pablo Altor Postigo,** Consejo Superior de Investigaciones Científicas (Spain); **Min Qiu,** Kungliga Tekniska Högskolan (Sweden); **Sergei G. Romanov,** Tyndall National Institute (Ireland); **Alexei Tchelnokov,** CEA-LETI (France); **Ulrike Woggon,** Univ. Dortmund (Germany); **Alejandro M. Yacomotti,** Lab. de Photonique et de Nanostructures (France)

Tuesday 8 April

OPENING REMARKS

Room: Oberlin . . . . . Tues. 08.25 to 08.30

SESSION 1

Room: Oberlin . . . . . Tues. 08.30 to 10.10

3D Photonic Crystals and Volume 2D Photonic Crystals

Session Chairs: **Ceferino López,** Consejo Superior de Investigaciones Científicas (Spain); **Florian Kulzer,** Institut de Ciències Fotòniques (Spain)

08.30: **Stacking patterns in thin self-assembled opal films** *(Invited Paper)*, Alvaro Blanco, Instituto de Ciencia de Materiales de Madrid (Spain); Xavier Checoury, Univ. Paris-Sud II (France); Stefan Enoch, Institut Fresnel (France); Ceferino López, Instituto de Ciencia de Materiales de Madrid (Spain) . . [6989-01]

08.55: **Light transmission and scattering in engineered colloidal hetero-crystals**, Boyang Ding, Mária Bardosová, Ian Povey, Martyn Pemble, Sergei G. Romanov, Tyndall National Institute (Ireland) . . . . . [6989-02]

09.10: **Novel method for fabrication of volume 2D photonic crystals**, Ryszard Buczynski, Univ. Warszawski (Poland); Ireneusz S. Kujawa, Instytut Technologii Materialów Elektronicznych (Poland); Adam Filipkowski, Univ. Warszawski (Poland); Dariusz Pysz, Instytut Technologii Materialów Elektronicznych (Poland); Florian Hudelist, Andrew Waddie, Heriot-Watt Univ. (United Kingdom); Ryszard Stepien, Instytut Technologii Materialów Elektronicznych (Poland); Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom). . . . . [6989-03]

09.25: **Study of surface and localized modes in photonic crystal interfaces and hetero-structures**, Babak Dastmalchi, Johannes Kepler Univ. Linz (Austria); Reza Kheradmand, Mohammad R. A.Monazam, Univ. of Tabriz (Iran); Aboozar Hamidipoor, Sahand Univ. of Technology (Iran); Abbas Mohtashami, Kurt Hingerl, Johannes Kepler Univ. Linz (Austria); Javad Zarbakhsh, Johannes Kepler Univ. Linz (Austria) and Kompetenzzentrum Automobil- und Industrie-elektronik GmbH (Austria) . . . . . [6989-04]

09.40: **Two-dimensional and 3D- multi-component photonic crystals: theory and experiment**, Mikhail F. Limonov, Alexander V. Baryshev, A.F. Ioffe Physico-Technical Institute (Russia) and Toyohashi Univ. of Technology (Japan); Alexander B. Khanikaev, Mitsuteru Inoue, Toyohashi Univ. of Technology (Japan); Mikhail V. Rybin, Kirill B. Samusev, Anton K. Samusev, A.F. Ioffe Physico-Technical Institute (Russia); Alexander V. Sel'kin, A.F. Ioffe Physico-Technical Institute (Russia) and Toyohashi Univ. of Technology (Japan); Gleb Yushin, Georgia Institute of Technology . . . . . [6989-05]

09.55: **Photonic band gap switching in thin-film opal-VO2 composites governed by semiconductor-metal phase transition**, Dmitry A. Kurdyukov, Saveliy F. Kaplan, Sergey A. Grudinkin, Arkady A. Andreev, Alexander B. Pevtsov, Valery G. Golubev, A.F. Ioffe Physico-Technical Institute (Russia) . . . . . [6989-06]

Coffee Break . . . . . 10.10 to 10.30

SESSION 2

Room: Oberlin . . . . . Tues. 10.30 to 12.10

Quasi Photonic Crystals

Session Chairs: **Michele Midrio,** Univ. degli Studi di Udine (Italy); **Concita Sibilia,** Univ. degli Studi di Roma/La Sapienza (Italy)

10.30: **Light diffusion, Anderson localizations and random lasing in disordered inverted opals: 3D computational results** *(Invited Paper)*, Claudio Conti, Univ. degli Studi di Roma/La Sapienza (Italy) and Museo Storica della Fisica e Ctr Studi e Ricerche Enrico Fermi (Italy); Andrea Fratalocchi, Museo Storica della Fisica e Ctr Studi e Ricerche Enrico Fermi (Italy) and Univ. degli Studi di Roma/La Sapienza (Italy) . . . . . [6989-07]

10.55: **Gap solitons in spatiotemporal photonic crystals**, Fabio Biancalana, Cardiff Univ. (United Kingdom) . . . . . [6989-08]

11.10: **Periodically oscillating Anderson localization in random photonic superlattices with resonant units**, Mher Ghulinyan, Instituto per la Ricerca Scientifica e Tecnologica (Italy). . . . . [6989-09]

11.25: **Light transport in planar dielectric optical waveguides based on the aperiodic Thue-Morse sequence**, Marianne Hiltunen, VTT Elektroniikka (Finland); Sanna Arpiainen, VTT Information Technology (Finland); Jurgen Michel, Massachusetts Institute of Technology; Luca Dal Negro, The Photonics Ctr. at Boston Univ. . . . . [6989-10]

11.40: **Optical properties of the one-dimensional generalized multilayer Fibonacci and Thue-Morse quasi-periodic photonic crystals**, Mounir Kanzari, Ecole Nationale d'Ingénieurs de Tunis (Tunisia) . . . . . [6989-11]

11.55: **Band gap characterization and slow light effects in periodic and quasi-periodic one-dimensional photonic crystal**, Jihene Zaghdoudi, Mounir Kanzari, Bahri Rezig, Ecole Nationale d'Ingénieurs de Tunis (Tunisia) . . [6989-12]

Lunch/Exhibition Break . . . . . 12.10 to 13.30

SESSION 3

Room: Oberlin . . . . . Tues. 13.30 to 15.25

Probing Photonic Crystals

Session Chairs: **René M. de Ridder,** Univ. Twente (Netherlands); **Sergei G. Romanov,** Tyndall National Institute (Ireland)

13.30: **K-space imaging of planar photonic crystals with Fourier optics** *(Invited Paper)*, Nicolas Le Thomas, Romuald Houdré, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [6989-13]

13.55: **Direct observation of interface waves and their influence on slow light coupling in photonic crystal waveguides**, Valentyn S. Volkov, Sergey I. Bozhevolnyi, Aalborg Univ. (Denmark); Lars Hagedorn Frandsen, Danmarks Tekniske Univ. (Denmark); Martin Kristensen, Åarhus Univ. (Denmark) . [6989-14]

14.10: **Asymmetry reversal and waveguide modes in photonic crystal slabs**, Eduard F. C.Driessen, Daniël Stolwijk, Peter O. M.Heemskerk, Michiel J. A.de Dood, Leiden Univ. (Netherlands) . . . . . [6989-15]

14.25: **Optical superlattices in periodically poled Ba2NaNb5O15 crystals**, Francisco F. Jaque, Jorge Lamela, Airán Rodenas, Ginés Lifante, Daniel Jaque Garcia, Univ. Autónoma de Madrid (Spain); Alexander Kaminskii, Institute of Crystallography (Russia) . . . . . [6989-16]

14.40: **Optimization of a negative refractive index photonic crystal slab at optical wavelength**, Nathalie Fabre, Xavier Mélique, Olivier Vanbésien, Didier Lippens, Institut d'Electronique de Microélectronique et de Nanotechnologie (France) . . . . . [6989-17]

14.55: **Photonic band-structure and optical-frequency phonon properties of arrays of GaN micro-pyramids**, Dominique Coquillat, Marine Le Vassor d'Yerville, Michel Kazan, Univ. Montpellier II (France); Chaowang Liu, Ian M. Watson, P. W. Edwards, Robert W. Martin, Univ. of Strathclyde (United Kingdom); Harold M. H.Chong, Richard M. De La Rue, Univ. of Glasgow (United Kingdom) . . . . . [6989-18]

15.10: **Approaching quantitative optical diffraction analysis of crystal lattices in opal films**, Worawut Khunsin, Sergei G. Romanov, Clivia M. Sotomayor Torres, Tyndall National Institute (Ireland) . . . . . [6989-19]

Wednesday 9 April

SESSION 4

Room: Oberlin . . . . . Wed. 08.30 to 10.20

Light Emission I

Session Chairs: **Pierre Viktorovitch,** Ecole Centrale de Lyon (France); **Lucio Claudio Andreani,** Univ. degli Studi di Pavia (Italy)

08.30: **Analysis of the emission characteristics of photonic crystal LEDs** *(Invited Paper)*, Christopher Wiesmann, Karl Engl, Norbert Linder, OSRAM Opto Semiconductors GmbH (Germany); Ulrich T. Schwarz, Univ. Regensburg (Germany) . . . . . [6989-21]

08.55: **Control of mode volume and radiation dynamics of a slow-light-mode in a quasi-3D photonic crystal configuration** *(Invited Paper)*, Badhise Ben Bakir, Institut des Nanotechnologies de Lyon (France) and CEA-LETI (France); Salim Boutami, Christian Seassal, Xavier Letartre, Jean-Louis Leclercq, Pierre Viktorovitch, Institut des Nanotechnologies de Lyon (France); Marc Zussy, Léa Di Cioccio, Jean M. Fedeli, CEA-LETI (France) . . . . . [6989-22]

09.20: **Tuning of spontaneous emission in photonic crystals by resonant energy transfer and magnetic fields**, Wim Libaers, Kasper Baert, Renaud Vallée, Branko Kolaric, Koen Clays, Katholieke Univ. Leuven (Belgium) [6989-23]

09.35: **Mie nanolasers**, Claudio Conti, Andrea Fratalocchi, Giancarlo Ruocco, Univ. degli Studi di Roma/La Sapienza (Italy) and Museo Storica della Fisica e Ctr Studi e Ricerche Enrico Fermi (Italy) . . . . . [6989-24]

09.50: **1.5 µm photoluminescence of Er^{3+} in opal based photonic crystals**, Gennadi A. Emelchenko, Eduard Steinman, Vladimir Masalov, Alexey Tereschenko, Anatoly Bazhenov, Institute of Solid State Physics (Russia); Alex Grishin, Kungliga Tekniska Högskolan (Sweden) . . . . . [6989-25]

10.05: **Photonic crystal laser based on activated glass**, Olga N. Kozina, Institute of Radio Engineering and Electronics (Russia); Leonid A. Melnikov, Saratov State Univ. (Russia) . . . . . [6989-26]

Coffee Break . . . . . 10.20 to 10.40

SESSION 5

Room: Oberlin . . . . . Wed. 10.40 to 12.05

Light Emission II

Session Chairs: **Romuald Houdré,** Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Juan Ariel Levenson,** Lab. de Photonique et de Nanostructures (France)

10.40: **Excitation-power dependence of luminescence in ZnO inverted opals with structural defects** *(Invited Paper)*, Worawut Khunsin, Pierre Lovera, Gareth Redmond, Sergei G. Romanov, Clivia M. Sotomayor Torres, Tyndall National Institute (Ireland); Michael Scharer, Larry Aagesen, Robert P. H.Chang, Northwestern Univ. . . . . [6989-27]

11.05: **Control of patterns formation in a single feedback system by photonic bandgap structures**, Nicolas Marsal, Germano Montemezzani, Univ. Paul Verlaine-Metz et Supélec (France); Delphine Wolfersberger, Marc Sciamanna, Supélec (France); Dragomir Neshev, The Australian National Univ. (Australia). . . . . [6989-28]

11.20: **Thermal emission properties of 2D and 3D photonic crystals with and without functionalized coatings**, Benjamin Gesemann, Ralf B. Wehrspohn, Stefan L. Schweizer, Martin-Luther Univ. Halle-Wittenberg (Germany) . [6989-29]

11.35: **Impact of dry-etching induced damage in InP-based photonic crystals**, Audrey Berrier, Yaocheng Shi, Jörg Siegert, Saulius Marcinkevicius, Sailing He, Srinivasan Anand, Kungliga Tekniska Högskolan (Sweden). [6989-30]

11.50: **Photonic crystal slab mirrors for an ultimate vertical and lateral confinement of light in vertical Fabry Perot cavities**, Salim Boutami, Ecole Centrale de Lyon (France); Badhise Ben Bakir, Ecole Centrale de Lyon (France) and CEA-LETI (France); Xavier Letartre, Jean-Louis Leclercq, Pierre Viktorovitch, Ecole Centrale de Lyon (France) . . . . . [6989-31]

Lunch/Exhibition Break . . . . . 12.05 to 13.05

SESSION 6

Room: Oberlin . . . . . Wed. 13.05 to 13.50

Light Emission III

Session Chairs: **Romuald Houdré,** Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Juan Ariel Levenson,** Lab. de Photonique et de Nanostructures (France)

13.05: **Vertical microcavities based on photonic crystal mirrors for III-V/Si integrated microlasers**, Lydie Ferrier, Salim Boutami, Fabien Mandorlo, Xavier Letartre, Pedro Rojo-Romeo, Pierre Viktorovitch, Ecole Centrale de Lyon (France); Philippe Gilet, Badhise Ben Bakir, Philippe Grosse, Jean M. Fedeli, Alexei Chelnokov, Commissariat à l'Energie Atomique (France) . . . . . [6989-32]

13.20: **A comparative study of directive emission from photonic quasicrystals**, Alessandro Micco, Univ. degli Studi del Sannio (Italy); Alessandro Della Villa, Univ. degli Studi di Siena (Italy); Vincenzo Galdi, Univ. degli Studi del Sannio (Italy); Filippo Capolino, Univ. degli Studi di Siena (Italy); Vincenzo Pierro, Univ. degli Studi del Sannio (Italy); Stefan Enoch, Gérard Tayeb, Institut Fresnel (France) . . . . . [6989-33]

13.35: **Single-mode vertical-cavity surface-emitting semiconductor lasers with incorporated two-dimensional photonic crystals fabricated using focused-ion beam etching,** Pavlo Ivanov, Yifei Zhu, Martin Cryan, Peter Heard, Judy M. Rorison, Univ. of Bristol (United Kingdom) . . . . . [6989-34]

SESSION 7

Room: Oberlin . . . . . Wed. 13.50 to 15.30

Metallic Photonic Crystals

Session Chairs: **Stefan Linden,** Forschungszentrum Karlsruhe (Germany); **Philippe Lalanne,** Institut d'Optique (France)

13.50: **Metallic metamaterials and nanoantennas** *(Invited Paper)*, Harald W. Giessen, Univ. Stuttgart (Germany). . . . . [6989-35]

14.15: **Plasmonic excitations in ordered assemblies of metallic nanoshells**, Nikolaos Stefanou, Christos Tserkezis, Georgios Gantzounis, Univ. of Athens (Greece) . . . . . [6989-36]

14.30: **Tuneable Fabry-Perot THz filter with sub-wavelength grating mirrors**, Thorsten Göbel, Daniel Schönherr, Technische Univ. Darmstadt (Germany); Axel Roggenbuck, Anselm Deninger, TOPTICA Photonics AG (Germany); Cezary Sydlo, Peter Meissner, Hans-Ludwig Hartnagel, Technische Univ. Darmstadt (Germany) . . . . . [6989-37]

14.45: **Coupled surface states in one-dimensional frequency dependent photonic crystals**, Michael Bergmair, Kurt Hingerl, Johannes Kepler Univ. Linz (Austria) . . . . . [6989-38]

15.00: **Dynamic optical gratings in two layer system: ferroelectric and nanostructured metal film**, Nickolai V. Kukhtarev, Tatiana V. Kukhtareva, Michael Curley, Gregory Stargell, J.-C. Wang, Alabama A&M Univ. . . . [6989-39]

15.15: **Slow-wave phenomenon and extraordinary magneto-optical effects in periodic nanostructured media**, Vladimir I. Belotelov, M.V. Lomonosov Moscow State Univ. (Russia); Anatoly Zvezdin, General Physics Institute (Russia); Andrey Kalish, M.V. Lomonosov Moscow State Univ. (Russia); Vyatcheslav Kotov, General Physics Institute (Russia) . . . . . [6989-40]

Coffee Break . . . . . 15.30 to 15.50

SESSION 8

Room: Oberlin . . . . . Wed. 15.50 to 17.15

NLO/Switching I

Session Chairs: **Jørn Marcher Hvam,** Danmarks Tekniske Univ. (Denmark); **Alexei Tchelnokov,** Commissariat à l'Energie Atomique (France)

15.50: **Second harmonic localization in nonlinear photonic crystals** *(Invited Paper)*, Emmanuel Centeno, Cristian Ciraci, Didier Felbacq, David Cassagne, Univ. Montpellier II (France). . . . . [6989-41]

16.15: **Nonlinear photonic structures for all-optical deflection**, Tal Ellenbogen, Ayelet Ganany-Padowicz, Ady Arie, Tel-Aviv Univ. (Israel) . [6989-42]

16.30: **Quick and non-invasive method for characterisation of profiles of nano-photonics structures**, Szymon M. Lis, Politechnika Wroclawska (Poland); Rafal Dylewicz, Univ. of Glasgow (United Kingdom); Jaroslaw Myśliwiec, Andrzej Miniewicz, Sergiusz Z. Patela, Politechnika Wroclawska (Poland) . . . . . [6989-43]

16.45: **Optical bistabilitiy due to capillary condensation: a photonic superlattive switch**, Mher Ghulinyan, Zeno Gaburro, Lorenzo Pavesi, Univ. degli Studi di Trento (Italy); Pierre Barthelemy, Costanza Toninelli, Diederik S. Wiersma, European Lab. for Non-linear Spectroscopy (Italy). . . . . [6989-44]

17.00: **Few-cycle pulses interactions in nonlinear photonic crystals with managed dispersion,** Valery E. Lobanov, Anatoly P. Sukhorukov, M.V. Lomonosov Moscow State Univ. (Russia) . . . . . [6989-45]

SESSION 9

Room: Oberlin . . . . . Wed. 17.15 to 17.45

Fabrication/Devices I

Session Chairs: **Wim Bogaerts,** Univ. Gent (Belgium); **Adriana Passaseo,** Univ. degli Studi di Lecce (Italy)

17.15: **High-transmission 1D photonic crystal/photonic wire multiple cavity structures based on silicon-on-insulator (SOI)**, Ahmad Rifqi Md Zain, Nigel P. Johnson, Richard M. De La Rue, Univ. of Glasgow (United Kingdom) . . [6989-46]

17.30: **Purcell factor optimization of photonic crystal cavities using the loss minimization and multiple multipole expansion techniques,** Reihaneh Jannesary, Saeid Zamiry, Johannes Kepler Univ. Linz (Austria); Azar D. Mazaheri, Univ. of Isfahan (Iran); Aboozar Hamidipour, Sahand Univ. of Technology (Iran); Abbas Mohtashami, Kurt Hingerl, Javad Zarbakhsh, Johannes Kepler Univ. Linz (Austria) . . . . . [6989-47]

POSTERS–Wednesday

Room: Contades Hall . . . . . Wed. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 9:00 hrs on Wednesday in the Contades Hall. Any papers left on the boards at the close of the poster session will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Complete photonic band gap in cubic approximants of icosahedral quasicrystals with a body-centered six-dimensional lattice, Pavel N. Dyachenko, Image Processing Systems Institute (Russia); Vladimir E. Dmitrienko, A.V. Shubnikov Institute of Crystallography (Russia); Yuri V. Miklyaev, South Ural State Univ. (Russia); Vladimir S. Pavelyev, Image Processing Systems Institute (Russia) . . . . . [6989-67]

Holographic fabrication of hierarchical nanostructures using microprism array toward optofluidic integration, Seung-Kon Lee, Seung-Man Yang, Hyo Sung Park, Korea Advanced Institute of Science and Technology (South Korea) . . . . . [6989-70]

Dispersion and symmetry properties of anisotropic photonic crystals of arbitrary geometry and dimension, Irina A. Khromova, Leonid A. Melnikov, Saratov State Univ. (Russia) . . . . . [6989-69]

Feature of photonic crystal bandgap for laser pulse with a few cycles, Vyacheslav A. Trofimov, Ivan V. Shulakov, M.V. Lomonosov Moscow State Univ. (Russia) . . . . . [6989-71]

Periodic NLC phase grating for tuneable photonic band gap applications, Rami Ghannam, The American Univ. in Cairo (Egypt); Andreas Georgiou, Univ. of Cambridge (United Kingdom) . . . . . [6989-68]

Microwave-hydrothermal technology applied to the synthesis of photonic materials, Anderson Dias, Federal Univ. of Ouro Preto (Brazil) . . . . . [6989-72]

Thursday 10 April

SESSION 10

Room: Oberlin . . . . . Thurs. 11.00 to 12.25

NLO/Switching II

Session Chairs: **Alejandro M. Yacomotti,** Lab. de Photonique et de Nanostructures (France); **Xavier Letartre,** Ecole Centrale de Lyon (France)

11.00: **Classical and nonclassical properties of micro- and nanostructures** *(Invited Paper)*, Concita Sibilia, Letizia Sciscione, MArco Centini, Mario Bertolotti, Univ. degli Studi di Roma/La Sapienza (Italy) . . . . . [6989-51]

11.25: **Novel design of photonic crystal dense wavelength multiplexer based on nonlinear effect**, Shyqyri Haxha, Univ. of Kent (United Kingdom) . . [6989-49]

11.40: **Towards excitable delay lines in coupled photonic crystal resonators**, Alejandro M. Yacomotti, Fabrice Raineri, Timothy Karle, Rama Raj, Juan Ariel Levenson, Lab. de Photonique et de Nanostructures (France). . . . . [6989-50]

11.55: **All-optical diode action with quasiperiodic photonic crystals**, Fabio Biancalana, Cardiff Univ. (United Kingdom) . . . . . [6989-52]

12.10: **Switching of electromagnetic eigenwaves in metastructures**, Eugene Y. Glushko, Institute of Semiconductor Physics (Ukraine) . . . . . [6989-53]

Lunch/Exhibition Break . . . . . 12.25 to 13.40

SESSION 11

Room: Oberlin . . . . . Thurs. 13.40 to 15.20

Fabrication/Devices II

Session Chairs: **Wim Bogaerts,** Univ. Gent (Belgium); **Adriana Passaseo,** Univ. degli Studi di Lecce (Italy)

13.40: **Photonic crystal W1 waveguides with an optimized slow light regime and Slow light in slotted photonic crystal waveguides** *(Invited Paper)*, Liam O'Faolain, Andrea Di Falco, Tom P. White, Thomas F. Krauss, Univ. of St. Andrews (United Kingdom) . . . . . [6989-54]

14.05: **Efficient coupling of light between single-mode waveguides and supercollimating photonic crystals**, Kevin Vynck, Emmanuel Centeno, Marine Le Vassor d'Yerville, David Cassagne, Univ. Montpellier II (France). . . . [6989-55]

14.20: **Novel multiplexer/demultiplexer based on photonic crystal superprism**, Shyqyri Haxha, Univ. of Kent (United Kingdom) . . . . . [6989-56]

14.35: **Compact carrier-injection silicon photonic crystal switch for on-chip optical interconnects**, Eric Cassan, Damien Bernier, Delphine Marris-Morini, Xavier Le Roux, Laurent Vivien, Univ. Paris-Sud-XI (France) . . . . . [6989-57]

14.50: **Direct laser microfabrication in chalcogenide glasses: a novel approach for functional photonic crystal devices**, Elisa E. Nicoletti, Guangyong Zhou, Baohua Jia, Swinburne Univ. of Technology (Australia); Douglas Bulla, Barry Luther-Davies, The Australian National Univ. (Australia); Min Gu, Swinburne Univ. of Technology (Australia) . . . . . [6989-58]

15.05: **Fabrication and optical characterisation of photonic crystal cavities in visible range**, Céline Vion, Agnès Maître, Institut des NanoSciences de Paris (France); Olivier Gauthier-Lafaye, Sophie Bonnefont, Stephan Hernandez, Françoise Lozes-Dupuy, Ctr. National de la Recherche Scientifique (France) . . . . . [6989-59]

Coffee Break . . . . . 15.20 to 15.40

SESSION 12

Room: Oberlin . . . . . Thurs. 15.40 to 17.20

Fabrication/Devices III

Session Chairs: **Richard M. De La Rue,** Univ. of Glasgow (United Kingdom); **Ulrike Woggon,** Univ. Dortmund (Germany)

15.40: **Photonic crystal band edge modes engineering for microlasers,** Christian Seassal, Ecole Centrale de Lyon (France) . . . . . [6989-60]

16.05: **Design criteria and 3D FEM modeling of air hole photonic crystal**, Alessandro Massaro, Vito Errico, National Nanotechnology Lab. (Italy); Adriana Passaseo, Massimo De Vittorio, Univ. degli Studi di Lecce (Italy) . . . . . [6989-61]

16.20: **Ultra high Q/V lineic microcavities on SOI**, Velha Philippe, David Peyrade, Picard Emmanuel, Thomas Charvolin, Emmanuel Hadji, Commissariat à l'Energie Atomique (France); Jean-Claude Rodier, Philippe Lalanne, Institut d'Optique (France). . . . . [6989-62]

16.35: **Rod shape and position optimization in photonic crystal bends by finite element-based methods**, Arti Agrawal, Azizur B. M.Rahman, Kenneth T. V.Grattan, The City Univ. (United Kingdom); Salah Obayya, Univ. of Leeds (United Kingdom). . . . . [6989-63]

16.50: **Photonic crystal waveguide arrays**, Hamza Kurt, Institut d'Optique (France) . . . . . [6989-64]

17.05: **Photonic crystal-based WDM filter for integrated optical triplexer transceiver**, Dae-Seo Park, Beom-Hoan O, Se-Geun Park, El-Hang Lee, Seung-Gol Lee, Inha Univ. (South Korea) . . . . . [6989-65]

Wednesday-Thursday 9-10 April 2008 • Proceedings of SPIE Vol. 6990

Conference 6990 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 1, 2, 6, 8, 13, 15, 27

Photonic Crystal Fibres

Conference Chair: **Kyriacos Kalli,** Cyprus Univ. of Technology (Cyprus); **Waclaw Urbanczyk,** Politechnika Wroclawska (Poland)

Programme Committee: **Hartmut Bartelt,** IPHT Jena (Germany); **Francis Berghmans,** SCK•CEN (Belgium); **Benjamin J. Eggleton,** The Univ. of Sydney (Australia); **Sebastien Fevrier,** Univ. de Limoges (France); **Jiri Kanka,** Institute of Radio Engineering and Electronics (Czech Republic); **Jonathan C. Knight,** Univ. of Bath (United Kingdom); **Hanne Ludvigsen,** Helsinki Univ. of Technology (Finland); **Azizur B. M. Rahman,** The City Univ. (United Kingdom); **Karsten Rottwitt,** COM-Danmarks Tekniske Univ. (Denmark); **Kay Schuster,** Institut für Physikalische Hochtechnologie e.V. (Germany); **Dmitry V. Skryabin,** Univ. of Bath (United Kingdom); **Luc Thevenaz,** École Polytechnique Fédérale de Lausanne (Switzerland); **David J. Webb,** Aston Univ. (United Kingdom)

Wednesday 9 April

OPENING REMARKS

Room: Munch . . . . . Wed. 08.30 to 08.40

Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus);
Waclaw Urbanczyk, Politechnika Wroclawska (Poland)

SESSION 1

Room: Munch . . . . . Wed. 08.40 to 10.00

The NextGenPCF Project: Advances in Fundamentals

Session Chair: **Jonathan C. Knight,** Univ. of Bath (United Kingdom)

08.40: **European Union R&D 'Next Generation Photonic Crystal Fibres' Project**, Pierre Sansonetti, Draka Comteq France (France) . . . . . [6990-01]

09.00: **Fabrication and characterization of germanium doped HNL-PCF**, Gilles Mélin, Simon Lempereur, Anne Fleureau, Laurence Galkovsky, Hélène Maerten, Ekaterina Burov, Pascale Nouchi, Draka Comteq France (France) . . . . . [6990-02]

09.20: **Control of surface modes in hollow-core photonic bandgap fibre**, Rodrigo Amezcua Correa, Sergio G. Leon-Saval, Frédéric Gérôme, Jonathan C. Knight, Timothy A. Birks, Univ. of Bath (United Kingdom) . . . . . [6990-03]

09.40: **Multicomponent glass microstructured fibres for nonlinear applications**, Jens Kobelke, Kay Schuster, Stephan Grimm, Institut für Photonische Technologien e.V. (Germany); Doris Litzkendorf, Consultant (Germany); Johannes Kirchhof, Anka Schwuchow, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany); Andreas Gebhardt, Vitron Spezialwerkstoffe GmbH (Germany) . . . . . [6990-04]

Coffee Break . . . . . 10.00 to 10.30

SESSION 2

Room: Munch . . . . . Wed. 10.30 to 12.00

The NextGenPCF Project: Uses and Applications

Session Chair: **Hartmut Bartelt,** IPHT Jena (Germany)

10.30: **Photonic crystal fiber components for nonlinear-optical microspectroscopy** *(Invited Paper)*, Alexei M. Zheltikov, M.V. Lomonosov Moscow State Univ. (Russia). . . . . [6990-05]

11.00: **Methods for visible supercontinuum generation in doped/undoped holey fibres**, Philippe Leproux, Christelle Buy-Lesvigne, Vincent Tombelaine, Vincent Couderc, Jean-Louis Auguste, Jean-Marc Blondy, Univ. de Limoges (France); Gilles Mélin, Draka Comteq France (France); Kay Schuster, Jens Kobelke, Hartmut Bartelt, IPHT Jena (Germany). . . . . [6990-06]

11.20: **Lumped Raman amplifiers based on highly non-linear photonic crystal fiber**, David Menashe, RED-C Optical Networks, Ltd. (Israel); Dominique Bayart, Alcatel Research & Innovation (France) . . . . . [6990-07]

11.40: **Dynamics and spectral properties of a grating-free Raman laser made with a highly nonlinear photonic crystal fiber**, Stephane Randoux, Nicolas Y. Joly, Univ. des Sciences et Technologies de Lille (France); Gilles Mélin, Anne Fleureau, Laurence Galkovsky, Simon Lempereur, Draka Comteq France (France); Pierre Suret, Univ. des Sciences et Technologies de Lille (France) . . . . . [6990-08]

Lunch/Exhibition Break . . . . . 12.00 to 14.30

SESSION 3

Room: Munch . . . . . Wed. 14.30 to 15.30

Joint Session: Sensing Applications of PCF

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

Joint Event with Conference 7003A, Optical Sensors

14.30: **Oxygen sensor based on hollow-core photonic crystal fibres**, Marcelo Cabaleiro, Volker Lange, Dietrich Kühlke, Hochschule Furtwangen Univ. (Germany) . . . . . [6990-09]

14.50: **Interrogation unit for FBG sensors based on two-mode photonic crystal fibre interferometer**, Joel Villatoro, Vittoria Finazzi, Institut de Ciències Fotòniques (Spain); Vladimir P. Minkovich, Ctr. de Investigaciones en Óptica, A.C. (Mexico); Valerio Pruneri, Gonçal Badenes, Institut de Ciències Fotòniques (Spain) . . . . . [6990-10]

15.10: **The fabrication and characterization of fiber Bragg gratings in high birefringent photonic crystal fibers for sensing applications**, Thomas Geernaert, Karima Chah, Tomasz A. Nasilowski, Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium); Martin Becker, Manfred Rothhardt, Hartmut Bartelt, IPHT Jena (Germany); Marcin Szpulak, Jacek Olszewski, Waclaw Urbanczyk, Politechnika Wroclawska (Poland); Krzysztof Poturaj, Jan Wojcik, Univ. Marii Curie-Sklodowskiej (Poland) . . . . . [6990-11]

Coffee Break . . . . . 15.30 to 15.50

SESSION 4

Room: Munch . . . . . Wed. 15.50 to 17.20

Modelling and Numerical Analysis of PCF

Session Chair: **Stavros Pissadakis,** Foundation for Research and Technology-Hellas (Greece)

15.50: **Donor and acceptor modes in nonlinear microstructured optical fibers** *(Invited Paper)*, Gilles Renversez, Univ. Paul Cézanne (France); Mario Zacarés, Univ. Politécnica de Valencia (Spain); Fabien Drouart, Univ. Paul Cézanne; Miguel-Ángel García-March, Univ. Politécnica de Valencia (Spain); André Nicolet, Univ. Paul Cézanne (France); Albert Ferrando, Univ. de València (France) . . . . . [6990-12]

16.20: **Design of microstructured optical fibres made from highly nonlinear glasses for FWM-based telecom applications**, Jiri Kanka, Institute of Photonics and Electronics (Czech Republic) . . . . . [6990-13]

16.40: **Highly birefringent photonic crystal fibre with enhanced polarimetric sensitivity to hydrostatic pressure**, Marcin Szpulak, Tadeusz Martynkien, Gabriela Statkiewicz, Alicja Anuszkiewicz, Waclaw Urbanczyk, Politechnika Wroclawska (Poland); Jan Wojcik, Pawel Mergo, Mariusz Makara, Univ. Marii Curie-Sklodowskiej (Poland); Tomasz A. Nasilowski, Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [6990-14]

17.00: **Single-mode and single-polarization operation of photonic crystal fibres,** Kejalakshmy Namassivayane, Azizur B. M.Rahman, Kenneth T. V.Grattan, The City Univ. (United Kingdom) . . . . . [6990-15]

POSTERS–Wednesday

Room: Contades Hall . . . . . Wed. 17.30 to 19.00

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Spectral-domain measurement of phase modal birefringence in highly birefringent fibers, Petr Hlubina, Dalibor Ciprian, Jana Trojkova, Technical Univ. of Ostrava (Czech Republic) . . . . . [6990-29]

Dual-core photonic quasicrystal fibers, Soan Kim, Chul-Sik Kee, Jongmin Lee, Gwangju Institute of Science and Technology (South Korea) . . . . . [6990-30]

Detection of methane at 1660-nm band with a hollow-core photonic bandgap fiber, Ana M. Cubillas, Manuel Silva-Lopez, Jose M. Lazaro, Olga M. Conde, Univ. de Cantabria (Spain); Marco N. Petrovich, Univ. of Southampton (United Kingdom); Jose M. Lopez-Higuera, Univ. de Cantabria (Spain) . [6990-31]

A short overview of the most actual problems in the area of fiber bending and chromatic dispersion in photonic crystal fibers, Michal Lucki, Czech Technical Univ. in Prague (Czech Republic) . . . . . [6990-32]

Tunable ultrashort blue-green pulses generated in millimetric photonic crystal fibres, Alexandra Agra Amorim, Instituto Politécnico do Porto (Portugal) and Univ. do Porto (Portugal); Helder Crespo, Luís Miguel Bernardo, Univ. do Porto (Portugal) . . . . . [6990-33]

Design of photonic crystal fibres with improved effective mode area and nearly zero ultra-flatted/negative chromatic dispersion, Shyqyri Haxha, Univ. of Kent (United Kingdom) . . . . . [6990-34]

Soliton-effect pulse compression using 5mm long photonic crystal fibres, Helder Crespo, Univ. do Porto (Portugal); Marco V. Tognetti, Univ. degli Studi di Firenze (Italy); Alexandra Agra Amorim, Instituto Politécnico do Porto (Portugal) and Instituto Superior de Engenharia do Porto (Portugal); Luís Miguel Bernardo, Univ. do Porto (Portugal) . . . . . [6990-35]

Highly birefringent photonic crystal fibers with null polarimetric insensitive to temperature, Tadeusz Martynkien, Politechnika Wroclawska (Poland) and Vrije Univ. Brussel (Belgium); Marcin Szpulak, Gabriela Statkiewicz, Alicja Anuszkiewicz, Waclaw Urbanczyk, Politechnika Wroclawska (Poland); Jan Wojcik, Pawel Mergo, Mariusz Makara, Univ. Marii Curie-Sklodowskiej (Poland); Tomasz A. Nasilowski, Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [6990-36]

Birefringence analysis in photonic crystal fibers with germanium-doped core, Jacek Olszewski, Marcin Szpulak, Tadeusz Martynkien, Waclaw Urbanczyk, Politechnika Wroclawska (Poland) . . . . . [6990-37]

Novel configurations of dispersion-compensating photonic crystal fiber Raman/EDFA hybrid amplifiers, Jose Manuel M. M.de Almeida, Univ. de Trás-os-Montes (Portugal) . . . . . [6990-38]

Efficient adaptive method for computation of pulse propagation in optical fibers, Yonatan Sivan, Nir Gavish, Gadi Fibich, Ady Ditkowski, Tel-Aviv University (Israel) . . . . . [6990-40]

Thursday 10 April

SESSION 5

Room: Munch . . . . . Thurs. 11.00 to 13.00

Characterisation and Applications of PCF

Session Chair: **Gilles Renversez,** Univ. Paul Cézanne (France)

11.00: **Inscription of Bragg reflectors in all-silica microstructured optical fibres using 248nm, picosecond and femtosecond laser radiation** *(Invited Paper)*, Stavros Pissadakis, Michalis Livitzis, Georgios Violakis, Foundation for Research and Technology-Hellas (Greece) . . . . . [6990-16]

11.30: **Characterisation of femtosecond laser inscribed long period gratings in photonic crystal fibre** *(Invited Paper)*, Thomas Allsop, Aston Univ. (United Kingdom); Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus); Kaiming Zhou, Graham Smith, Yicheng Lai, David J. Webb, Ian Bennion, Aston Univ. (United Kingdom); Michael Z. Komodromos, Frederick Institute of Technology (Cyprus) . . . . . [6990-17]

12.00: **Group dispersion measurement of a holey fiber by white-light spectral interferometry**, Petr Hlubina, Dalibor Ciprian, Radek Chlebus, Technical Univ. of Ostrava (Czech Republic) . . . . . [6990-18]

12.20: **Experimental and theoretical investigations of bending loss oscillations in large mode area photonic crystal fibers**, Tadeusz Martynkien, Politechnika Wroclawska (Poland) and Vrije Univ. Brussel (Belgium); Jacek Olszewski, Marcin Szpulak, Waclaw Urbanczyk, Politechnika Wroclawska (Poland); Tomasz A. Nasilowski, Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . [6990-19]

12.40: **Temperature sensitivity of Bragg gratings in PMMA and Topas polymer materials**, David J. Webb, Aston Univ. (United Kingdom); Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus); Chi Zhang, Aston Univ. (United Kingdom); Alexander Argyros, Maryanne C. Large, The Univ. of Sydney (Australia); Grigoriy A. Emiliyanov, Ole Bang, Erik Kjær, Danmarks Tekniske Univ. (Denmark) . . . . . [6990-20]

Lunch/Exhibition Break . . . . . 13.00 to 14.00

SESSION 6

Room: Munch . . . . . Thurs. 14.00 to 15.30

Nonlinear and Active PCF I

Session Chair: **Kay Schuster,** IPHT Jena (Germany)

14.00: **Cladding-pumped ytterbium-doped photonic bandgap fibre laser** *(Invited Paper)*, Sebastien Fevrier, Univ. de Limoges (France) . . . . . [6990-21]

14.30: **Second harmonic generation in Ge-doped silica holey fibres and supercontinuum generation**, Vincent Tombelaine, Christelle Buy-Lesvigne, Vincent Couderc, Philippe Leproux, Univ. de Limoges (France); Gilles Mélin, Draka Comteq France (France); Kay Schuster, Jens Kobelke, Hartmut Bartelt, IPHT Jena (Germany) . . . . . [6990-22]

14.50: **Single-sided supercontinuum generation by high order mode excitation in a photonic crystal fibre**, Rim Cherif, Mourad Zghal, National Engineering School of Communication of Tunis (Tunisia); Luca Tartara, Vittorio Degiorgio, Univ. degli Studi di Pavia (Italy) . . . . . [6990-23]

15.10: **Back seeding of picosecond supercontinuum generation in photonic crystal fibres**, Peter M. Moselund, Michael H. Frosz, Danmarks Tekniske Univ. (Denmark); Carsten L. Thomsen, Koheras A/S (Denmark); Ole Bang, Danmarks Tekniske Univ. (Denmark) . . . . . [6990-24]

Coffee Break . . . . . 15.30 to 15.50

SESSION 7

Room: Munch . . . . . Thurs. 15.50 to 17.20

Nonlinear and Active PCF II

Session Chair: **Sebastien Fevrier,** Univ. de Limoges (France)

15.50: **Solid core chalcogenide microtructured fibers for the middle infrared: fabrication, characterization and modeling** *(Invited Paper)*, Frédéric Désévédavy, Univ. de Rennes I (France); Gilles Renversez, Univ. Paul Cézanne (France); Laurent Brilland, PERFOS (France); Johann Troles, Patrick Houizot, Univ. de Rennes I (France); Frédéric Smektala, Univ. de Bourgogne (France); Nicholas Traynor, PERFOS (France) . . . . . [6990-25]

16.20: **Narrow- and broadband nonlinear spectral transformations in double core photonic crystal fiber**, Ignac Bugar, Dusan Lorenc, International Laser Ctr. (Slovak Republic); Juraj Chlpik, Comenius Univ. (Slovak Republic); Ryszard R. Buczynski, Univ. Warszawski (Poland); Ilya V. Fedotov, Andrei B. Fedotov, M.V. Lomonosov Moscow State Univ. (Russia); Dariusz Pysz, Instytut Technologii Materialów Elektronicznych (Poland); Frantiek Uherek, International Laser Ctr. (Slovak Republic); Alexei M. Zheltikov, M.V. Lomonosov Moscow State Univ. (Russia) . . . . . [6990-26]

16.40: **Broadband supercontinuum generation with photonic crystal fibers made of soft glass**, Ryszard R. Buczynski, Univ. Warszawski (Poland); Dariusz Pysz, Ireneusz S. Kujawa, Instytut Technologii Materialów Elektronicznych (Poland); Jakub Korzeniowski, Univ. Warszawski (Poland); Tadeusz Martynkien, Politechnika Wroclawska (Poland); Tomasz A. Nasilowski, Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium); Ryszard Stepien, Instytut Technologii Materialów Elektronicznych (Poland). . . . . [6990-27]

17.00: **Technology of suspended core microstructured fibers with metal layers for sensing applications**, Jan Wojcik, Pawel Mergo, Univ. Marii Curie-Sklodowskiej (Poland) . . . . . [6990-28]

Conference 6991 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 8, 9, 11, 14, 17, 39, 43, 47, 71, 76, 78

Biophotonics: Photonic Solutions for Better Health Care

Conference Chairs: **Jürgen Popp,** Friedrich-Schiller-Univ. Jena (Germany); **Wolfgang Drexler,** Cardiff Univ. (United Kingdom); **Valery V. Tuchin,** Saratov State Univ. (Russia); **Dennis L. Matthews,** Univ. of California/Davis

Programme Committee: **Peter Eskil Andersen,** Danmarks Tekniske Univ. (Denmark); **Arthur E. T. Chiou,** National Yang-Ming Univ. (Taiwan); **Paul Garside,** Univ. of Glasgow (United Kingdom); **Olivier Haeberlé,** Univ. de Haute Alsace (France); **Markus Sauer,** Univ. Bielefeld (Germany); **Ernst H. K. Stelzer,** European Molecular Biology Lab. (Germany); **Hugo Thienpont,** Vrije Univ. Brussel (Belgium); **Siva Umapathy,** Indian Institute of Science (India); **Gert von Bally,** Univ. Münster (Germany); **Brian C. Wilson,** (Canada)

Tuesday 8 April

OPENING REMARKS

Room: Tivoli I . . . . . Tues. 08.30 to 08.40

Jürgen Popp, Friedrich-Schiller-Univ. Jena (Germany)SESSION K1

KEYNOTE SESSION

Room: Tivoli I . . . . . Tues. 08.40 to 10.10

Session Chair: **Wolfgang Drexler,** Cardiff Univ. (United Kingdom)

08.40: **Coherent optical imaging and guided interventions in breast cancer: translating technology into clinical applications** *(Invited Paper)*, Stephen A. Boppart M.D., Univ. of Illinois at Urbana-Champaign. . . . . [6991-01]

09.25: **Novel photonics for the biomedical sciences** *(Invited Paper)*, Kishan Dholakia, Univ. of St. Andrews (United Kingdom). . . . . [6991-02]

Coffee Break . . . . . 10.10 to 10.40

SESSION 1

Room: Tivoli I . . . . . Tues. 10.40 to 12.30

Advanced Spectroscopy and Microscopy I

Session Chair: **Paul M. W. French,**
Imperial College London (United Kingdom)

10.40: **The glass brain: visualization of neuronal networks in the whole mouse brain by ultramicroscopy** *(Invited Paper)*, Hans U. Dodt, Technische Univ. Vienna (Austria) . . . . . [6991-03]

11.10: **Quantitative three-dimensional imaging of kidney collagenous fibrosis using second harmonic microscopy**, Mathias Strupler, Thomas Chastang, Monica Hernest, Ana-Maria Pena, Emmanuel Beaurepaire, Ecole Polytechnique (France) and Ctr. National de la Recherche Scientifique (France) and Institut National de la Santé et de la Recherche Médicale (France); Jean-Louis Martin, Ecole Polytechnique (France) and Institut National de la Santé et de la Recherche Médicale (France) and Ctr. National de la Recherche Scientifique (France); Pierre-Louis Tharaux, Institut National de la Santé et de la Recherche Médicale (France); Marie-Claire Schanne-Klein, Ecole Polytechnique (France) . . . . . [6991-04]

11.30: **Raman microscopic imaging of cells and applications monitoring the uptake of drug delivery systems,** Christian Matthäus, Lara Milane, Tatyana Chernenko, Northeastern Univ. (USA); Luis Quintero, Univ. of Puerto Rico-Mayagües (Puerto Rico); Mansoor Amiji, Max Diem, Northeastern Univ. (USA) . . . . . [6991-100]

11.50: **Multimode optical bioimaging for translational research**, Daniel L. Farkas, Cedars-Sinai Medical Ctr. . . . . [6991-06]

12.10: **Infrared imaging for tumor detection using antibodies conjugated gold magnetic nanoparticles**, Israel Gannot, Arie Levy, Tel Aviv Univ. (Israel) . . . . . [6991-07]

Lunch/Exhibition Break . . . . . 12.30 to 13.30

SESSION 2

Room: Tivoli I . . . . . Tues. 13.30 to 15.40

Advanced Spectroscopy and Microscopy II

Session Chair: **Jürgen Popp,** Friedrich-Schiller Univ. Jena (Germany)

13.30: **Multidimensional fluorescence imaging** *(Invited Paper)*, Paul M. W.French, Imperial College London (United Kingdom). . . . . [6991-08]

14.00: **A multitechnique study of Bacteriorhodopsin's photonics**, Marta Martin, Marie-Belle Saab, Thierry Cloitre, Elias Estephan, René Legros, Univ. Montpellier II (France); Frédéric J.Cuisinier, Univ. Montpellier I (France); Csilla Gergely, Univ. Montpellier II (France) . . . . . [6991-09]

14.20: **A fluorescence imaging system based on optimal excitation spectrum control using a photonic crystal fibre supercontinuum laser and digital multimirror**, Hao Zhang, Kevin Koh, Tobias Wood, Guang-Zhong Yang, Daniel S. Elson, Imperial College London (United Kingdom) . . . . . [6991-10]

14.40: **Long-lasting phosphors for small animal imaging**, Aurélie Bessière, Ctr. National de la Recherche Scientifique (France); Quentin Lemasne, Biospace Mesures (France); Aurélie Lecointre, Bruno Viana, Ctr. National de la Recherche Scientifique (France); Cyrille Richard, Ecole Nationale Supérieure de Physique de Grenoble (France); Fabienne Pellé, Ctr. National de la Recherche Scientifique (France) . . . . . [6991-11]

15.00: **Fourier transform infrared (FT-IR) attenuated total reflectance (ATR) study of natural dye on hair**, Siva Umapathy, Bhawana Singh, Indian Institute of Science (India). . . . . [6991-12]

15.20: **Identification of active fluorescence stained bacteria by Raman spectroscopy**, Mario Krause, Friedrich-Schiller-Univ. Jena (Germany); Benno Radt, Carl Zeiss Jena GmbH (Germany); Petra Rösch, Friedrich-Schiller Univ. Jena (Germany); Jürgen Popp, Friedrich-Schiller Univ. Jena (Germany) and IPHTJena (Germany) . . . . . [6991-13]

Wednesday 9 April

SESSION 3

Room: Tivoli I . . . . . Wed. 08.00 to 09.10

Advanced Spectroscopy and Microscopy III

Session Chair: **Dennis L. Matthews,** Univ. of California/Davis (USA)

08.00: **Clinical molecular imaging using multiphoton tomography and two-photon microendoscopy** *(Invited Paper),* Karsten König, Saarland Univ. (Germany), Rainer Bückle, Jens Müller, JenLab GmbH (Germany), Martin Kaatz, Friedrich-Schiller-Univ. Jena (Germany) . . . . . [6991-98]

08.30: **A pupil tracking system for adaptive optics retinal imaging**, Betul Sahin, Imagine Eyes (France) and National Univ. of Ireland, Galway (Ireland); Fabrice Harms, Xavier Levecq, Imagine Eyes (France). . . . . [6991-14]

08.50: **Speckle interferometric system to measure ocular microtremor,** James P. Ryle, National Univ. of Ireland/Dublin (Ireland); Mohammed Al-Kalbani, Niamh Collins, The Univ. of Dublin, Trinity College (Ireland); Unnikrishnan Gopinathan, National Univ. of Ireland/Dublin (Ireland); Gerard Boyle, Davis Coakley, The Univ. of Dublin, Trinity College (Ireland); John T. Sheridan, National Univ. of Ireland/Dublin (Ireland). . . . . [6991-15]

SESSION 4

Room: Tivoli I . . . . . Wed. 09.10 to 12.00

Optical Coherence Tomography

Session Chair: **Stephen A. Boppart,**
Univ. of Illinois at Urbana-Champaign

09.10: **Gold nanoshells and quantum dots for contrast improvement in optical bioimaging**, Elena V. Zagainova, Marina V. Shirmanova, Nizhny Novgorod State Medical Academy (Russia); Irina V. Balalaeva, Nizhny Novgorod State Univ. (Russia); Anna G. Orlova, Ilya V. Turchin, Vladislav A. Kamensky, Institute of Applied Physics (Russia); Marina V. Sirotkina, Nizhny Novgorod State Medical Academy (Russia); Michail Kleshnin, Institute of Applied Physics (Russia) . . . . . [6991-16]

09.30: **Investigation of three-dimensional morphology and function of living human photoreceptors using optical coherence tomography**, Boris M. Hermann, Cristiano Torti, Boris Povazay, Bernd Hofer, Cardiff Univ. (United Kingdom); Joshua Fernandez, Univ. de Murcia (Spain); Angelika Unterhuber, Cardiff Univ. (United Kingdom); Peter K. Ahnelt, Medizinische Univ. Wien (Austria); Wolfgang Drexler, Cardiff Univ. (United Kingdom). . . . . [6991-17]

09.50: **Combining confocal fluorescence microscopy and optical coherence tomography for embryonic developmental imaging**, Adrian Bradu, Adrian G. Podoleanu, Lisha Ma, Jim W. Bloor, Univ. of Kent (United Kingdom) . . [6991-18]

Coffee Break . . . . . 10.10 to 10.40

10.40: **Cross-polarization optical coherence tomography in neoplasia diagnostics**, Natalia M. Shakhova M.D., Valentin M. Gelikonov, Institute of Applied Physics (Russia); Irina Kuznetsova, Oksana Onoprienko, Nizhny Novgorod Regional Hospital (Russia); Natalia D. Gladkova M.D., Elena B. Balandina, Ludmila B. Snopova M.D., Katerina Yunusova, Nizhny Novgorod State Medical Academy (Russia). . . . . [6991-19]

11.00: **Extended focus optical coherence tomography of pancreas islets**, Martin L. Villiger, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Joan Goulley, Anne Grapin-Botton, Swiss Institute for Experimental Cancer Research (Switzerland); Paolo Meda, Ctr. Médicale Univ. de Genève (Switzerland); William Pralong, Theo Lasser, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Rainer A. Leitgeb, Medizinische Univ. Wien (Austria) . . . . . [6991-20]

11.20: **Real time monitoring of vasoactive reactions by a combined diffuse reflectance spectroscopy and Doppler optical coherence tomography approach**, Alexandre Y. Douplik, Friedrich-Alexander Univ. Erlangen-Nuermberg (Germany); Darren Morofke, Univ. of Oxford (United Kingdom); Stephanie E. Chiu, Val Bouchelev, Princess Margaret Hospital (Canada); Youxin Mao, National Research Council Canada (Canada); Victor X. D.Yang, Princess Margaret Hospital (Canada); Alex Vitkin, Univ. Health Network (Canada) . . . . . [6991-21]

11.40: **An optical coherence tomography investigation on materials defects in ceramic fixed partial dental prostheses**, Cosmin G. H.Sinescu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian G. Podoleanu, Univ. of Kent (United Kingdom); Meda Lavinia V. Negrutiu M.D., Carmen C. Todea M.D., Mihai Rominu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Philippe L. Laissue, Univ. of Kent (United Kingdom) . . . . . [6991-22]

Lunch/Exhibition Break . . . . . 12.00 to 14.30

SESSION 5

Room: Tivoli I . . . . . Wed. 14.30 to 15.30

Optical Fibers, Assays and Sensors I

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

14.30: **A novel nano-photonics biosensor concept for rapid molecular diagnostics**, Dion J.Klunder, Ruth W. I.de Boer, Maarten M.van Herpen, Eefje J. Hornix, Nicoletta Kahya, Aleksey Kolesnychenko, Philips Research Labs. (Netherlands) . . . . . [6991-23]

14.50: **Self-calibrated dynamical optical biochip system using surface plasmon resonance imaging: application to genotyping**, Jerome Hottin, Julien Moreau, Alain Bellemain, Jolanda Spadavecchia, Institut d'Optique (France); Laure Lecerf, Michel Goossens, INSERM (France); Michael T. G.Canva, Institut d'Optique (France). . . . . [6991-24]

15.10: **Development of cell-based quantitative evaluation method for cell cycle-arrest type cancer drugs for apoptosis by high precision surface plasmon resonance sensor**, Toshihiro Ona, Hiroshi Nishijima, Atsushi Kosaihira, Kyushu Univ. (Japan); Junko Shibata, System Instruments Co., Ltd. (Japan). . . . . [6991-25]

Coffee Break . . . . . 15.30 to 16.00

SESSION 6

Room: Tivoli I . . . . . Wed. 16.00 to 17.20

Optical Fibers, Assays and Sensors II

Session Chair: **Arthur E. T. Chiou,** National Yang-Ming Univ. (Taiwan)

16.00: **New photonic molecular immobilization technology and its use for nanolabeling, ultra-sensitive microarray sensing technology and new biomarkers discovery**, Maria Teresa C. A.Neves-Petersen, Esben Skovsen, Laurent Duroux, Steffen B. Petersen, Ane Kold, Aalborg Univ. (Denmark) . . . . . [6991-26]

16.20: **New optical analyzer for 13C-breath test**, Hermann Harde, Matthias Dressler, Günther Helmrich, Helmut-Schmidt Univ. (Germany); Marcus Wolff, Hinrich G. Groninga, PAS-Tech GmbH (Germany) . . . . . [6991-27]

16.40: **Quality limiting factors of imaging endoscopes based on optical fiber bundles**, Noé Ortega-Quijano, Félix Fanjul Vélez, José L. Arce-Diego, Univ. de Cantabria (Spain). . . . . [6991-28]

17.00: **Miniaturized detection system for fluorescence and absorbance measurements in chromatographic applications,** Sara Van Overmeire, Heidi Ottevaere, Gert Desmet, Hugo Thienpont, Vrije Univ. Brussel (Belgium) [6991-29]

POSTERS–Wednesday

Room: Contades Hall . . . . . Wed. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 9:00 hrs on Wednesday in the Contades Hall. Any papers left on the boards at the close of the poster session will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Best Poster Award

The "Journal of Biophotonics" Poster Award will go to the authors who display and present their work most effectively. The award is provided by Wiley-VCH, and will be presented at the subsequent Wiley-VCH evening reception.

Improved design of a laser scanning system for food analysis applications, Wendy Meulebroeck, Vrije Univ. Brussel (Belgium); Paul Berghmans, BEST n.v. (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . [6991-46]

Quasi-simultaneous OCT/confocal imaging, Irina Trifanov, Michael Hughes, Adrian G. Podoleanu, Univ. of Kent (United Kingdom) . . . . . [6991-47]

Pneumatic skin flattening (PSF): a new technology for more selective, safer and painless coupling of an intense treatment laser beam into the skin, Michael Slatkine, Inolase Ltd. (Israel); Eric F. Bernstein, Univ. of Pennsylvania; Gary P. Lask, Univ. of California/Los Angeles; David J. Goldberg, Mount Sinai School of Medicine; Nathalie Fournier, Ctr. Commercial La Croisee (France); Malcolm Ke, Case Western Reserve Univ. . . . . [6991-48]

Biophotonic applications of optical communication devices, Gerd Keiser, National Taiwan Univ. of Science and Technology (Taiwan); Fu-Jen Kao, National Yang-Ming Univ. (Taiwan) . . . . . [6991-49]

Personal UV biodosimeter for healthy indoor tanning, Irina P. Terenetskaya, Tatiana N. Orlova, Instytut Fizyki (Ukraine) . . . . . [6991-50]

Laser-induced tissue oxygenation: new optical technology of increasing the efficiency of photodynamic therapy of solid tumors, Mustafo M. Asimov, B.I. Stepanov Institute of Physics (Belarus); Asimov M. Rustam, Applied Systems Ltd. (Belarus); Anatoli N. Rubinov, B.I. Stepanov Institute of Physics (Belarus). . . . . [6991-51]

Mid-infrared pulsed laser lithotripsy by using an Er:YAG laser and a difference frequency generation laser, Kunio Awazu, Hisanao Hazama, Shinya Yamada, Osaka Univ. (Japan). . . . . [6991-52]

A compact LED-based module for capillary electrophoresis of DNA samples, Cedric M. Hurth, Frederic Zenhausern, Arizona State Univ.. . [6991-53]

High-resolution imaging of biological cells with fiber-based composite interferometer, Ja-Yun Lee, Bang-Yen You, I-Jen Hsu, Chung Yuan Christian Univ. (Taiwan) . . . . . [6991-54]

Nanophotodynamic effect of gold nanoparticles on human erythrocytes and lymphocytes, Poorani G. Gananathan, Anubama D. Babu, Prakashrao R. Aruna, S. Sivabalan, Ganesan S. Singaravelu, Anna Univ. (India) . . . . . [6991-55]

Implant bone interface investigated with a non-invasive method: optical coherence tomography, Cosmin G. H.Sinescu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian G. Podoleanu, Univ. of Kent (United Kingdom); Meda Lavinia V. Negrutiu M.D., Carmen C. Todea M.D., Sergiu Antonie M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Philippe L. Laissue, Univ. of Kent (United Kingdom); Mihai Rominu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania)[6991-56]

The optical coherence tomography implied in the quality of bracket bonding in orthodontic treatments, Cosmin G. H.Sinescu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian G. Podoleanu, Univ. of Kent (United Kingdom); Meda Lavinia V. Negrutiu M.D., Carmen C. Todea M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Philippe L. Laissue, Univ. of Kent (United Kingdom); Roxana Rominu M.D., Dorin Dodenciu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania) . . . . [6991-57]

Quantitative estimates of vascularity in a collagen-based cell scaffold containing basic fibroblast growth factor by non-invasive near-infrared spectroscopy for regenerative medicine, Toshihiro Kushibiki, Kunio Awazu, Osaka Univ. (Japan) . . . . . [6991-58]

The role of autofluorescens diagnosis in the oral mucosa diseases, Anna Kosciarz-Grzesiok, Jadwiga Waskowska, Aleksandra Z. Kawczyk-Krupka, Anna A. Misiak, Rafal Koszowski M.D., Aleksander Sieron, Medical Univ. of Silesia (Poland) . . . . . [6991-60]

Development of wave-guided surface plasmon spectrometer for cancer drug efficacy evaluation aiming personal therapy, Junko Shibata, System Instruments Co., Ltd. (Japan); Toshihiro Ona, Kyushu Univ. (Japan) . . . [6991-61]

Non-invasive sensor for multi parameter diagnostics of blood biochemistry, Vladimir A. Saetchnikov, Elina A. Tcherniavskaia, Belarusian State Univ. (Belarus); Gustav Schweiger, Ruhr-Univ. Bochum (Germany) . . . . . [6991-62]

The role of autofluorescence colonoscopy in diagnosis and management of solitary rectal ulcer syndrome, Wojciech Latos M.D., Aleksandra Z. Kawczyk-Krupka, Aleksandra E. Ledwon M.D., Anna A. Misiak, Anna Kosciarz-Grzesiok, Aleksander Sieron, Medical Univ. of Silesia (Poland) . . . . . [6991-63]

The possibilities of improvement the sensitivity of cancer fluorescence diagnostics by computer image processing, Aleksandra E. Ledwon M.D., Medical Univ. of Silesia (Poland); Robert Bieda, Polish Japanese Institute of Information Technology (Poland); Aleksandra Z. Kawczyk-Krupka, Medical Univ. of Silesia (Poland); Andrzej Polonski, Konrad Wojciechowski, Polish Japanese Institute of Information Technology (Poland); Marta Maniowska, Aleksander Sieron, Medical Univ. of Silesia (Poland). . . . . [6991-64]

Root canal filling evaluation using optical coherence tomography, Meda Lavinia V. Negrutiu M.D., Cosmin G. H.Sinescu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian G. Podoleanu, Univ. of Kent (United Kingdom); Carmen C. Todea M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Philippe L. Laissue, Univ. of Kent (United Kingdom); Cosmin I. Balabuc M.D., Laura M. Filip M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania) . . . . . [6991-65]

Fibres reinforced dentures investigated with optical coherent tomography, Meda Lavinia V. Negrutiu M.D., Cosmin G. H.Sinescu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian G. Podoleanu, Univ. of Kent (United Kingdom); Luciana Goguta M.D., Carmen C. Todea M.D., Mihai Rominu M.D., Dorin Dodenciu M.D., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Radu Negru, Politehnica Univ. Timisoara (Romania) . . . . . [6991-66]

Vanishing 'tattoo' sensors for express clinical diagnostics, Igor V. Meglinski, Sergey A. Piletsky, Ewa Moczko, Cranfield Univ. (United Kingdom) . . . [6991-67]

Ionic contrast terahertz near field imaging of axonal water fluxes, Guilhem Gallot, Jean-Baptiste Masson, Alexander Podzorov, Martin-Pierre Sauviat, Jean-Louis Martin, Ecole Polytechnique (France) . . . . . [6991-69]

Fluorescence microimaging coupled with image-processing as a simple tool to assess thermal phase transitions of connective tissues, Paolo Matteini, Francesca Rossi, Fulvio Ratto, Istituto di Fisica Applicata Nello Carrara (Italy); Ivan Bruno, Paolo Nesi, Univ. degli Studi di Firenze (Italy); Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy) . . . . . [6991-70]

Optical characterization of porous silicon microcavities for glucose oxidase biosensing, Gabriela Palestino, Univ. Montpellier II (France); Vivechana Agarwal, Univ. Autónoma del Estado de Morelos (Mexico); René Legros, Univ. Montpellier II (France); Elías Pérez, Univ. Autónoma de San Luis Potosi (Mexico); Csilla Gergely, Univ. Montpellier II (France) . . . . . [6991-71]

Light-converting materials and compositions in biomedical application, Robert N. Khramov, Institute for Theoretical and Experimental Physics (Russia) and Useful Sun Oy (Finland) . . . . . [6991-72]

Optical detection of PNA-DNA hybridization in resonant porous silicon-based devices, Lucia Rotiroti, Istituto per la Microelettronica e Microsistemi (Italy); Paolo Arcari, Univ. degli Studi di Napoli Federico II (Italy); Edoardo De Tommasi, Istituto per la Microelettronica e Microsistemi (Italy); Annalisa Lamberti, Carmen Sanges, Univ. degli Studi di Napoli Federico II (Italy); Ivo Rendina, Consiglio Nazionale delle Ricerche (Italy); Luca De Stefano III, Istituto per la Microelettronica e Microsistemi (Italy). . . . . [6991-74]

Specific peptides for functionalization of GaN, Elias Estephan, Univ. Montpellier II (France); Christian Larroque, Univ. Montpellier I (France); Thierry Cloitre, Univ. Montpellier II (France); Frédéric J.Cuisinier, Univ. Montpellier I (France); Csilla Gergely, Univ. Montpellier II (France) . . . . . [6991-76]

Autofluorescence analysis of normal and tumour brain tissue, Rainer Siebert, Minh-Hong Vu Thi, Yves Charon, Univ. Paris-Sud II (France); Mauricette Collado-Hilly, Univ. Paris-Sud (France); Marie-Alix Duval, Univ. Paris-Sud II (France); Tomasz Mandat, NeuroSpin (France); Laurent Menard, Univ. Paris-Sud II (France); Stephane Palfi, NeuroSpin (France); Thierry Tordjmann, Univ. Paris-Sud (France) . . . . . [6991-77]

Waveguide-excited fluorescence microarray, Gabriel Sagarzazu, Mélanie Bedu, Lucio Martinelli, Khoi-Nguyen Ha, Nicolas Pelletier, Slava Safarov, Claude Weisbuch, Genewave S.A.S. (France); Thierry Gacoin, Ecole Polytechnique (France); Henri Benisty, Institut d'Optique (France) . . . . . [6991-78]

Vibrational spectroscopic study of the interaction between microbes and heavy metals, Angela Walter, Petra Rösch, Susann Jezewski, Martin Reinicke, Andre Schmidt, Erika Kothe, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Friedrich-Schiller-Univ. Jena (Germany) and IPHT Jena (Germany) . . . . . [6991-79]

Photon radiation-induced changes in the myocardium of SHR rats, Irina M. Santalova, Institute for Theoretical and Experimental Physics (Russia); Robert N. Khramov, Lilija I. Fakhranurova, Institute of Theoretical and Experimental Biophysics (Russia); Nadya M. Zakharova, Institute of Cell Biophysics (Russia) . . . . . [6991-80]

Comparative analysis of tissue structure via Mueller matrix characterization of liquid crystals, Félix Fanjul Vélez, Noé Ortega-Quijano, José L. Arce-Diego, Univ. de Cantabria (Spain). . . . . [6991-81]

Comparative study of primary and secondary tumors from patients with laryngeal and oropharyngeal cancer, using optical and electron microscopy, Ligia G. Ghetea, Ana-Maria Niculescu, Rozalia Motoc, Univ. of Bucharest (Romania); Virgil-Florin Duma, Aurel Vlaicu Univ. of Arad (Romania); Marinela Bostan, Georgiana Matei, The Stefan S. Nicolau Institute of Virology (Romania); Dorel Manu, Ilfov County Hospital (Romania) . . . . . [6991-82]

Genetic characterization of some Romanian red wine grapevine varieties, Ligia G. Ghetea, Rozalia Motoc, Ana-Maria Niculescu, Univ. of Bucharest (Romania); Virgil-Florin Duma, Aurel Vlaicu Univ. of Arad (Romania); Carmen F. Popescu, National Research Institute for Biotechnology (Romania) . . . [6991-83]

Combined Monte Carlo and finite-difference time-domain modeling for biophotonic analysis, Yasser R. Hijazi, Eastern Mediterranean Univ. (Cyprus); Cemre Kortun, Univ. College London (United Kingdom); Dizem Arifler, Eastern Mediterranean Univ. (Cyprus) . . . . . [6991-84]

Detection of proteins and DNA on a biochip in UV, Kristelle K. R.Robin, Jean-Luc Reverchon, Thales Research & Technology (France); Henri Benisty, Institut d'Optique (France); Laurent Mugherli, Ecole Polytechnique (France). . . [6991-85]

Photobiomodulation of early mouse embryo development, Tatjana A. Sviridova-Chailakhyan, Institute for Theoretical and Experimental Biophysics (Russia); Levon M. Chailakhyan, Robert N. Khramov, Nina B. Simonova, Lilija I. Fakhranurova, Svetlana I. Paskevich, Andrey A. Manokhin, Institute of Theoretical and Experimental Biophysics (Russia) . . . . . [6991-86]

Modelling of epithelia transport phenomena related with the acetowhitening optical changes: potential for the in vivo diagnosis of cervical neoplasia, George Papoutsoglou, Antonis Potirakis, Costas J. Balas, Technical Univ. of Crete (Greece) . . . . . [6991-87]

FDTD simulation of optical phase contract microscope imaging, Stoyan Tanev, Carleton Univ. (Canada); James Pond, Paul Paddon, Lumerical Solutions, Inc. (Canada); Valery V. Tuchin, Saratov State Univ. (Russia). . . . . [6991-88]

Amine-functionalized and rare-earth doped luminescent silica spheres for biological applications, Francesco Enrichi, CIVEN (Italy) . . . . . [6991-89]

Optical properties of tissues after laser treatments in the wavelength range of 300 - 1000 nm, Kunio Awazu, Katsunori Ishii, Akinori Kimura, Osaka Univ. (Japan). . . . . [6991-90]

New approaches are needed for development of effective test for detection of influenza A (H5N1) virus, Natalia V. Tretjakova, Scientific-Research Institute of Influenza (Russia) . . . . . [6991-91]

Imaging and interferometric analysis of protein crystal growth, Ranjini Raghunandan, Cochin Univ. of Science & Technology (India); Anamika S. Gupta, K. Muralidhar, Indian Institute of Technology Kanpur (India) . . . . . [6991-92]

Methods to increase efficiency of laser therapy of oncologic diseases, Alexander Mikov, Viatcheslav N. Svirin, M.F. Stelmakh Polyus Research and Development Institute (Russia) . . . . . [6991-93]

The trends of the evolution laser information technology in oncology, Alexander Mikov, Viatcheslav N. Svirin, M.F. Stelmakh Polyus Research and Development Institute (Russia) . . . . . [6991-94]

Nd:YAG laser irradiation induce the production of extracellular matrix by cells of the connective tissues: a tool for tissue repair, Monica Monici, Venere Basile, Giovanni Romano, Franco Fusi, Antonio Conti, Univ. degli Studi di Firenze (Italy) . . . . . [6991-95]

New technology of cerebral oxygenation measurements by time-resolved spectroscopy, Yuri A. Chivel, Institute of Physics (Belarus) . . . . . [6991-96]

Skin blood perfusion sensor optimization based on the simulation of partial differential pathlengths, Pavel V. Zakharov, Mark Talary, Andreas Caduff, Solianis Monitoring AG (Switzerland) . . . . . [6991-97]

Quantum processes of self assembly, photosynthesis and molecular computing in artificial minimal living cells, Arvydas Tamulis, Vilnius Univ. (Lithuania). . . . . [6991-99]

Evening Reception . . . . . Wednesday 19.00 to 20.30

Salon Bartholdi

"Journal of Biophotonics" Launch Reception

Hosted by

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Thursday 10 April

SESSION 7

Room: Tivoli I . . . . . Thurs. 11.00 to 12.30

Advanced Spectroscopy and Microscopy IV

Session Chair: **Kishan Dholakia,** Univ. of St. Andrews (United Kingdom)

11.00: **New developments for fluorescence correlation spectroscopy in vivo** *(Invited Paper)*, Petra Schwille, Technische Univ. Dresden (Germany) . . [6991-30]

11.30: **Confocal light absorption and scattering spectroscopic microscopy**, Lev T. Perelman, Le Qiu, Edward Vitkin, Saira Salahuddin, Irving Itzkan, Harvard Medical School . . . . . [6991-31]

11.50: **Optical trapping, stretching and in-situ real-time deformation measurement of compliant micro-particles in a fiber optic dual-beam trap**, Arthur E. T.Chiou, Yin-Quan Chen, Ming-Tzo Wei, Chi-Hung Lin, National Yang-Ming Univ. (Taiwan) . . . . . [6991-32]

12.10: **In vivo integrated optical flow cytometry**, Ekaterina I. Galanzha, Vladimir P. Zharov, Univ. of Arkansas for Medical Sciences; Valery V. Tuchin, Saratov State Univ. (Russia) . . . . . [6991-33]

Lunch/Exhibition Break . . . . . 12.30 to 13.30

SESSION 8

Room: Tivoli I . . . . . Thurs. 13.30 to 15.10

Advanced Spectroscopy and Microscopy V

Session Chair: **Olivier Haeberlé,** Univ. de Haute Alsace (France)

13.30: **Determination of the integral refractive index of cells in suspension by digital holographic phase contrast microscopy**, Björn Kemper, Sebastian Kosmeier, Patrik Langehanenberg, Ilona Bredebusch, Jürgen Schnekenburger, Andreas Bauwens, Gert von Bally, Univ. Münster (Germany) . . . . . [6991-34]

13.50: **Non-invasive dry mass determination and monitoring at the single cell level with digital holographic microscopy**, Benjamin Rappaz, Tristan Colomb, Jonaz Kuehn, Christian D. Depeursinge, Pierre J. Magistretti, Pierre P. Marquet, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . [6991-35]

14.10: **Biological samples observed with diffractive tomographic microscopy**, Bertrand Simon, Matthieu Debailleul, Vincent Georges, Olivier Haeberlé, Univ. de Haute Alsace (France); Vincent Lauer, Lauer Optique et Traitement du Signal (France) . . . . . [6991-36]

14.30: **Dynamically monitoring the gene expression of dual fluorophore in the cell cycle with quantitative spectrum analysis**, Ja-Yun Lee, Tzong-Yuan Wu, I-Jen Hsu, Chung Yuan Christian Univ. (Taiwan) . . . . . [6991-37]

14.50: **Contrast mechanisms and signal epidetection in THG microscopy of cells and tissues**, Delphine Débarre, Nicolas Olivier, Willy Supatto, Emmanuel Beaurepaire, Ecole Polytechnique (France) . . . . . [6991-38]

Coffee Break . . . . . 15.10 to 15.30

SESSION 9

Room: Tivoli I . . . . . Thurs. 15.30 to 17.40

Photonic Therapies

Session Chair: **Valery V. Tuchin,** Saratov State Univ. (Russia)

15.30: **Optical spectroscopy for diagnostics and interstitial photodynamic treatment control** *(Invited Paper)*, Stefan Andersson-Engels, Lunds Tekniska Högskola (Sweden) . . . . . [6991-39]

16.00: **Photodynamic therapy of bladder cancer: a phase I study using hexyl-aminolevulinate**, Herbert G. Stepp, Markus J. Bader, Ludwig-Maximilians-Univ. München (Germany); Dirk Zaak, Urologie Gemeinschaftsprxis (Germany); Meike Ehlers, Martin Kriegmair, MTC GmbH (Germany); Thomas Pongratz, Wolfgang Beyer, Christian G. Stief, Ludwig-Maximilians-Univ. München (Germany) . . . . . [6991-40]

16.20: **Predictive analysis of photodynamic therapy applied to esophagus cancer**, Félix Fanjul Vélez, María del Campo-Gutiérrez, Noé Ortega-Quijano, José L. Arce-Diego, Univ. de Cantabria (Spain) . . . . . [6991-41]

16.40: **Optical Doppler tomography for monitoring vascularization during photodynamic therapy of skin cancer lesions**, Jakob B. Thomsen, Danmarks Tekniske Univ. (Denmark); Niels Bendsøe, Katarina Svanberg M.D., Lund Univ. Hospital (Sweden); Stefan Andersson-Engels, Lund Univ. (Sweden); Thomas M. Jørgensen, Lars Thrane, Peter E. Andersen, Henning E. Larsen, Finn Pedersen, Danmarks Tekniske Univ. (Denmark) . . . . . [6991-42]

17.00: **Potential of systemic photosensitizers for PDT of skin malignancies**, Carsten M. Philipp, Ute Mueller, Peter Urban, H.-Peter Berlien, Elisabeth Klinik (Germany) . . . . . [6991-43]

17.20: **Improved tumour response by laser light treatment,** Georgi B. Graschew, Stefan Rakowsky, Theo A. Roelofs, Charité Universitätsmedizin Berlin (Germany) and Max Delbrück Ctr. for Molecular Medicine (MDC) Berlin-Buch (Germany); Janice Smith, Max Delbrück Ctr. for Molecular Medicine (MDC) Berlin-Buch (Germany); Ulrike Stein, Max Delbrück Ctr. for Molecular Medicine (MDC) Berlin-Buch (Germany) and Charité Universitätsmedizin Berlin (Germany); Peter M. Schlag M.D., Charité Universitätsmedizin Berlin (Germany) and Max Delbrück Ctr. for Molecular Medicine (MDC) Berlin-Buch (Germany) . . . [6991-44]

CLOSING REMARKS

Room: Tivoli I . . . . . Thurs. 17.40 to 17.50

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics^{21} - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

Monday-Wednesday 7-9 April 2008 • Proceedings of SPIE Vol. 6992

Conference 6992 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 1, 2, 3, 7, 8, 9, 10, 11, 12, 17, 19, 20, 26, 27, 32, 48

Micro-Optics

Conference Chairs: **Hugo Thienpont,** Vrije Univ. Brussel (Belgium); **Peter Van Daele,** Ghent Univ. (Belgium); **Jürgen Mohr,** Forschungszentrum Karlsruhe (Germany); **Mohammad Reza Taghizadeh,** Heriot-Watt Univ. (United Kingdom)

Programme Committee: **Francis Berghmans,** SCK•CEN (Belgium); **Pierre H. Chavel,** Institut d'Optique (France); **Allen M. Earman,** Novalux Inc.; **Dietmar Fey,** Friedrich-Schiller-Univ. Jena (Germany); **Pietro Ferraro,** Istituto Nazionale di Ottica Applicata (Italy); **Michael A. Fiddy,** The Univ. of North Carolina at Charlotte; **Eric Fogarassy,** Univ. Louis Pasteur (France); **Alexei L. Glebov,** Fujitsu Labs. of America; **Jürgen Jahns,** FernUniv. in Hagen (Germany); **Pentti Karioja,** VTT Elektroniikka (Finland); **El-Hang Lee,** Inha Univ. (South Korea); **Olivier M. Parriaux,** Univ. Jean Monnet Saint-Etienne (France); **Hans Zappe,** Albert-Ludwigs-Univ. Freiburg (Germany)

Monday 7 April

OPENING REMARKS

Room: Room: Gutenberg . . . . . Mon. 10.55 to 11.00

Hugo Thienpont, Vrije Univ. Brussel (Belgium)

Room: Gutenberg . . . . . Mon. 11.00 to 12.10

Micro-optics in Data Communication

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

11.00: **Modular integration of microactuators and micro-optical benches** *(Invited Paper)*, Sven Schuele, Uwe Hollenbach, Jürgen Mohr, Forschungszentrum Karlsruhe (Germany); Juerg Leuthold, Philipp Vorreau, Andrew Efremov, Jingshi Li, Univ. Karlsruhe (Germany). . . . . [6992-01]

11.30: **Very compact FTTH diplexer design using advanced wafer level fabrication methods**, Christophe H. Kopp, Philippe Grosse, Gilet Philippe, Nicolas Olivier, Commissariat à l'Energie Atomique (France); Ivar Hamberg, Lennart Lundqvist, Nicolae Chitica, Zarlink Semiconductor Scandinavia (Sweden); Matthias Hammar, Jesper Berggren, Kungliga Tekniska Högskolan (Sweden); Stéphane Junique, Qin Wang, Susanne Almqvist, Acreo AB (Sweden); Stephane Bernabe, Cyrille Rossat, Régis R. Hamelin, Christian Sillans, IntexyS SA (France) . . . . . [6992-02]

11.50: **A low loss 180° coupling fiber socket making use of low bending loss hole-assisted fiber**, Jurgen Van Erps, Christof Debaes, Tomasz A. Nasilowski, Vrije Univ. Brussel (Belgium); Jan Wojcik, Pawel Mergo, Univ. Marii Curie-Sklodowskiej (Poland); Tim Aerts, Herman Terryn, Vrije Univ. Brussel (Belgium); Jan Watté, Tyco Electronics Corp. (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [6992-03]

Lunch Break . . . . . 12.10 to 13.20

SESSION 2

Room: Gutenberg . . . . . Mon. 13.20 to 15.20

Micro-optical Fabrication and Replication Technologies

Session Chair: **Jürgen Mohr,** Forschungszentrum Karlsruhe GmbH (Germany)

13.20: **Direct laser writing of high-quality micro optics into transparent materials**, Rico Böhme, Klaus-Peter Zimmer, Leibniz-Institut für Oberflächenmodifizierung e.V. (Germany). . . . . [6992-04]

13.40: **"GlassPack": a novel photonic packaging and integration technology using thin glass foils**, Lars Brusberg, Henning Schroeder, Norbert Arndt-Staufenbiel, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (Germany) . . . . . [6992-05]

14.00: **Ultraprecision micromilling of freeform optical elements for planar microoptical systems integration**, Sebastian Stoebenau, Martin Amberg, Stefan Sinzinger, Technische Univ. Ilmenau (Germany) . . . . . [6992-06]

14.20: **Replication of micro-optical components for mass production**, Markus Wissmann, Forschungszentrum Karlsruhe (Germany) . . . . . [6992-07]

14.40: **Replication of deep micro-optical components prototyped by deep proton writing**, Jurgen Van Erps, Vrije Univ. Brussel (Belgium); Markus Wissmann, Markus Guttmann, Michael Hartmann, Forschungszentrum Karlsruhe (Germany); Lieven Desmet, Christof Debaes, Vrije Univ. Brussel (Belgium); Jürgen Mohr, Forschungszentrum Karlsruhe (Germany); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [6992-08]

15.00: **Si moulds for glass and polymer microlenses replication**, Jorge Albero, Lukasz Nieradko, Christophe Gorecki, Univ. de Franche-Comté (France); Heidi Ottevaere, Virginia Gomez, Vrije Univ. Brussel (Belgium); Juha Pietarinen, Joensuu Yliopisto (Finland) . . . . . [6992-09]

Coffee Break . . . . . 15.20 to 15.50

SESSION 3

Room: Gutenberg . . . . . Mon. 15.50 to 17.30

From Micro- to Nano-optics

Session Chair: **Olivier M. Parriaux,** Univ. Jean Monnet Saint-Etienne (France)

15.50: **Direct patterning of micro-optical structures by combined nanoimprinting and lithography**, Jarkko Tuominen, Jussi Hiltunen, Antoine Wojdyla, Mikko Karppinen, VTT Elektroniikka (Finland); Renaud Bouffaron, Ludovic Escoubas, Univ. Paul Cézanne (France) . . . . . [6992-10]

16.10: **DUV phase mask for 100 nm period grating printing**, Yves Jourlin, Emilie Gamet, Olivier M. Parriaux, Stéphanie Reynaud, Univ. Jean Monnet Saint-Etienne (France); Anne Talneau, Lab. de Photonique et de Nanostructures (France); Petri Karvinen, Nicolas Passilly, Joensuu Yliopisto (Finland); Ahmad M. Zain, Richard M. De La Rue, Univ. of Glasgow (United Kingdom) . . . . . [6992-11]

16.30: **Refractive index modification of polymers using nanosized dopants**, Thomas Hanemann, Forschungszentrum Karlsruhe (Germany) and Albert-Ludwigs-Univ. Freiburg (Germany); Eberhard Ritzhaupt-Kleissl, Johannes Böhm, Forschungszentrum Karlsruhe (Germany). . . . . [6992-12]

16.50: **Refraction and interference in micro-and nanostructure optical elements**, Toralf Scharf, Sylvain Jaquet, Patrick Ruffieux, Hans-Peter Herzig, Univ. de Neuchâtel (Switzerland) . . . . . [6992-13]

17.10: **Light micro-lensing effect in biosilica shells of diatoms microalgae,** Edoardo De Tommasi, Luca De Stefano III, Ilaria Rea, Luigi Moretti, Istituto per la Microelettronica e Microsistemi (Italy); Mario De Stefano, Univ. degli Studi di Napoli Federico II (Italy); Ivo Rendina, Istituto per la Microelettronica e Microsistemi (Italy). . . . . [6992-14]

POSTERS–Monday

Room: Contades Hall . . . . . Mon. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 12:00 hrs on Monday in the Contades Hall. Posters may remain on display until 12:00 hrs on Tuesday. Any papers left on the boards post noon on Tuesday will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Design of reconfigurable GRIN planar optical interconnects, Carlos Gomez-Reino D.D.S., Maria T. Flores-Arias, María V. Pérez Martin, Carmen Bao Varela, Antonio Castelo, Daniel Nieto, Univ. de Santiago de Compostela (Spain) . . . . . [6992-36]

A novel method for fabricating an optical grating element with a fine grating pitch, Kuo-Chi Chiu, Sheng-Li Chang, Ming-Fang Hsu, Industrial Technology Research Institute (Taiwan) . . . . . [6992-37]

Multi-colour WDM over POF system for triple-play, Ulrich H. P.Fischer-Hirchert, Matthias Haupt, Daniela Lutz, Hochschule Harz (Germany) . . [6992-39]

Lithography-based technology for the fabrication of non-planar diffraction optical elements, Semen Grabarnik, Arvin Emadi, Huaiwen Wu, Ger de Graaf, Reinoud F. Wolffenbuttel, Technische Univ. Delft (Netherlands) . . . . . [6992-40]

IC-compatible microspectrometer using a planar imaging diffraction grating, Semen Grabarnik, Arvin Emadi, Huaiwen Wu, Ger de Graaf, Gleb V. Vdovin, Reinoud F. Wolffenbuttel, Technische Univ. Delft (Netherlands) [6992-41]

Hollow waveguides ray-tracing analysis, David Izquierdo, Iñigo Salinas, Univ. de Zaragoza (Spain); Victor J. Cadarso, Andreu Llobera, Ctr. Nacional de Microelectrónica (Spain); Ignacio Garcés, Univ. de Zaragoza (Spain) . . [6992-42]

Rapid prototyping of micro-optics on organic light emitting diodes and organic photo cells by means of two-photon 3D lithography and nano-imprint lithography, Valentin Satzinger, Volker Schmidt, JOANNEUM RESEARCH GmbH (Austria); Ladislav Kuna, JOANNEUM RESEARCH Forschungsgesellschaft mbH (Austria); Christian Palfinger, JOANNEUM RESEARCH GmbH (Austria); Robert Inführ, Robert Liska, Technische Univ. Wien (Austria); Joachim R. Krenn, JOANNEUM RESEARCH GmbH (Austria). [6992-43]

A novel method to couple light into an optical fiber avoiding fiber optic connectors, Luca Maggi, Giovanni Delrosso, Pirelli & C. S.p.A. (Italy) . [6992-44]

Investigation of multi-imaging capabilities of LiNbO3 diffraction grating, Melania Paturzo, Univ. degli Studi di Firenze (Italy); Simonetta Grilli, Istituto Nazionale di Ottica Applicata (Italy); Sergio M. De Nicola, Istituto di Cibernetica Eduardo Caianiello (Italy); Pietro Ferraro, Istituto Nazionale di Ottica Applicata (Italy) . . . . . [6992-47]

Characterization of the optical parameters of high aspect ratio polymer micro-optical components, Rafal G. Krajewski, Politechnika Warszawska (Poland) and Vrije Univ. Brussel (Belgium); Jurgen Van Erps, Vrije Univ. Brussel (Belgium); Markus Wissmann, Forschungszentrum Karlsruhe (Germany); Malgorzata Kujawinska, Politechnika Warszawska (Poland); Olivier M. Parriaux, Svetlen Tonchev, Univ. Jean Monnet Saint-Etienne (France); Jurgen Mohr, Forschungszentrum Karlsruhe (Germany); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [6992-48]

Integrated micro-optical write-read head for holographic data storage, Udo Vieth, Matthias Gruber, Univ. of Hagen (Germany) . . . . . [6992-49]

Tuesday 8 April

SESSION 4

Room: Gutenberg . . . . . Tues. 08.30 to 09.30

Infrared Micro-Optics

Session Chair: **El-Hang Lee,** Inha Univ. (South Korea)

08.30: **Micro-concepts for infrared instrumentation**, Guillaume A. Druart, Nicolas Guérineau, Riad Haidar, Isabelle Ribet-Mohamed, Jérôme Primot, Joel Deschamps, ONERA (France) . . . . . [6992-15]

08.50: **Design and fabrication of infrared antireflecting bi-periodic micro-structured surfaces**, Renaud Bouffaron, Ludovic Escoubas, Jean-Jacques Simon, Philippe Torchio, Univ. Paul Cézanne (France); Gérard Berginc, Thales Optronique (France); Philippe Masclet, Delegation Generale Pour L'Armament (France) . . . . . [6992-16]

09.10: **Development of diffractive antireflection structures on ZnSe for high power CO_2 laser applications,** Fabien Reversat, M. Stephane Tisserand, Sophie Gautier, Lionel Dupuy, Silios Technologies (France); Peter Muys, Lambda Research Optics, Inc. (Belgium); Danae G. Delbeke, Univ. Gent (Belgium); Thierry Berthou, Silios Technologies (France); David Grojo, Mohammed Laraichi, Philippe Delaporte, LP3 Laboratory (France) . . . . . [6992-17]

SESSION 5

Room: Gutenberg . . . . . Tues. 09.30 to 12.20

Micro-optical Components and Systems

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

09.30: **Ultra-miniature catadioptrical system for an omnidirectional camera**, Christiane Gimkiewicz, Claus Urban, Edith Innerhofer, Pascal Ferrat, Simon Neukom, Guy Vanstraelen, Peter Seitz, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland) . . . . . [6992-18]

09.50: **Integrated fiber optic sensor for liquid control in microfluidic channel systems**, Frithjof von Germar, Thomas Klotzbücher, Lhoucine Ben Mohammadi, Jan Claussen, Institut für Mikrotechnik Mainz GmbH (Germany) . . . . . [6992-19]

10.10: **A compound microfluidic device with integrated optical waveguides**, Kristin Mandisloh, Forschungszentrum Karlsruhe (Germany); Timo Mappes, Univ. Karlsruhe (Germany); Jürgen Mohr, Forschungszentrum Karlsruhe (Germany) . . . . . [6992-20]

Coffee Break . . . . . 10.30 to 11.00

11.00: **Comparison of different simulation methods for multi-plane, computer-generated holograms**, Thomas Kämpfe, Friedrich-Schiller-Univ. Jena (Germany); Florian Hudelist, Andrew J. Waddie, Mohammad R. Taghizadeh, Heriot Watt Univ. (United Kingdom); Ernst-Bernhard Kley, Andreas Tunnermann, Friedrich-Schiller-Univ. Jena (Germany) . . . . . [6992-21]

11.20: **Polarization sensitive diffuser**, Patrick Ruffieux, Toralf Scharf, Hans-Peter Herzig, Univ. de Neuchâtel (Switzerland). . . . . [6992-22]

11.40: **A compact reliable integrated green-light source by second harmonic generation of a GaAs distributed feedback laser diode**, Tolga Tekin, Henning Schroeder, Bernhard Wunderle, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (Germany); Götz Erbert, Andreas Klehr, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany); Jörg Wiedmann, Friedemann Scholz, eagleyard Photonics GmbH (Germany) . . . . . [6992-23]

12.00: **Anisotropic periodic structure exhibiting gigantic field enhancements**, John O. Schenk, Yang Cao, Michael A. Fiddy, The Univ. of North Carolina at Charlotte . . . . . [6992-24]

Lunch/Exhibition Break . . . . . 12.20 to 13.20

SESSION 6

Room: Gutenberg . . . . . Tues. 13.20 to 15.30

Micro-Optics for PCB Level Interconnects

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

13.20: **Design and fabrication of optical printed circuit board using microlenses and micromirrors** *(Invited Paper)*, El-Hang Lee, Inha Univ. (South Korea) . . . . . [6992-25]

13.50: **Coupling structures for out-of-plane coupling in optical PCBs**, Nina Hendrickx, Univ. Gent (Belgium); Jurgen Van Erps, Vrije Univ. Brussel (Belgium); Erwin Bosman, Univ. Gent (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium); Peter Van Daele, Univ. Gent (Belgium). . . . . [6992-26]

14.10: **Enhanced pluggable out-of-plane coupling components for printed circuit board-level optical interconnections**, Jurgen Van Erps, Vrije Univ. Brussel (Belgium); Nina Hendrickx, Univ. Gent (Belgium); Christof Debaes, Bart Van Giel, Vrije Univ. Brussel (Belgium); Peter Van Daele, Univ. Gent (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [6992-27]

14.30: **Fabrication methods to create high-aspect ratio pillars for photonic coupling of board lev**, Christof Debaes, Vrije Univ. Brussel (Belgium); Mikko Karppinen, VTT Elektroniikka (Finland); Jurgen Van Erps, Vrije Univ. Brussel (Belgium); Jussi Hiltunen, VTT Elektroniikka (Finland); Himanshu Suyal, Heriot-Watt Univ. (United Kingdom); Arndt Last, Forschungszentrum Karlsruhe (Germany); Michael G. Lee, Fujitsu Labs. of America; Mohammad R. Taghizadeh, Heriot-Watt Univ.; Jürgen Mohr, Forschungszentrum Karlsruhe (Germany); Pentti Karioja, VTT Elektroniikka (Finland); Alexei L. Glebov, Fujitsu Labs. of America; Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [6992-28]

14.50: **Integration of optical I/O with organic chip packages**, Bert J. Offrein, Christoph Berger, Folkert Horst, Laurent Dellmann, Peter Dill, Martin L. Schmatz, IBM Zürich Research Lab. (Switzerland); Stefano Oggioni, Mauro Spreafico, Macario Giulio, IBM Vimercate (Italy) . . . . . [6992-29]

15.10: **Flexible embedded active optical link**, Erwin Bosman, Univ. Gent (Belgium) and IMEC (Belgium); Geert Van Steenberge, Nina Hendrickx, Peter Geerinck, Wim Christiaens, Jan M.Vanfleteren, Peter Van Daele, Univ. Gent (Belgium) . . . . . [6992-30]

Wednesday 9 April

SESSION 7

Room: Tivoli II . . . . . Wed. 08.00 to 10.10

Joint session: VCSELs and Micro-Optics

Session Chair: **Rainer Michalzik,** Univ. Ulm (Germany)

Joint Event with the conference 6997, Semiconductor Lasers and Laser Dynamics

08.00: **Photonic crystal vertical-cavity surface-emitting lasers** *(Invited Paper)*, Kent D. Choquette, Chen Chen, Ansas M. Kasten, Dominic Siriani, Meng Peun Tan, Josh Sulkin, Univ. of Illinois at Urbana-Champaign . . . . . [6997-32]

08.30: **Microstructured photonic crystal for singlemode long wavelength VCSELs**, Renaud Stevens, Philippe Gilet, Alexandre Larrue, Laurent Grenouillet, Nicolas Olivier, Philippe Grosse, Karen Gilbert, Raphael Teysseyre, Alexei Chelnokov, Commissariat à l'Energie Atomique (France) . . . . . [6997-33]

08.50: **Single mode 1.3µm InGaAs VCSELs for access network applications**, Petter Westbergh, Emma Söderberg, Johan S. Gustavsson, Peter Modh, Anders G. Larsson, Chalmers Tekniska Högskola (Sweden); Zhenzhong Zhang, Jesper Berggren, Matthias Hammar, Kungliga Tekniska Högskolan (Sweden) . [6997-34]

09.10: **Experimental study of transverse mode dynamics in vertical-cavity surface-emitting lasers under current modulation**, Angel A. Valle, Univ. de Cantabria (Spain); Mikel M. Arizaleta Arteaga, Univ. Pública de Navarra (Spain); Krassimir P. Panajotov, Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics (Bulgaria); Marc Sciamanna, Supélec (France) . . . . . [6997-35]

09.30: **VCSEL collimation using self-aligned integrated polymer microlenses**, Christophe Levallois, Véronique Bardinal, Thierry Camps, Thierry Leïchlé, Emmanuelle Daran, Corinne Vergnenègre, Jean-Baptiste Doucet, LAAS-CNRS (France). . . . . [6992-31]

09.50: **High efficiency vertical-cavity surface-emitting lasers with tunnel-regenerated multiple-active-region structure**, Xia Guo, Bao-Lu Guan, Hao Yang, Tong-Xi Wang, Guang-Di Shen, Beijing Univ. of Technology (China) . . . . . [6997-36]

Coffee Break . . . . . 10.10 to 10.30

SESSION 8

Room: Gutenberg . . . . . Wed. 10.30 to 11.50

Micro-optical Design

Session Chair: **Mohammad Reza Taghizadeh,** Heriot-Watt Univ. (United Kingdom)

10.30: **Realistic opto-mechanical modelling of plastic optical fiber coupling systems**, Els Moens, Michael Vervaeke, Youri Meuret, Heidi Ottevaere, Vrije Univ. Brussel (Belgium); Carl Van Buggenhout, Piet De Pauw, Melexis Microelectronic Systems (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [6992-32]

10.50: **Single mode field analyze and adjustment on polymer waveguides for understanding the feasibility of coupling losses**, Uwe Hollenbach, Hans-Jürgen Boehm, Jürgen Mohr, Forschungszentrum Karlsruhe (Germany) [6992-33]

11.10: **Measurement of optical propagation losses in polymer waveguide structures using a "herringbone" waveguide structure**, Andrew J. Waddie, Himanshu Suyal, Heriot-Watt Univ. (United Kingdom); Ryszard R. Buczynski, Univ. Warszawski (Poland); Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom). . . . . [6992-34]

11.30: **Simulation and optimisation methods for non-periodic subwavelength structures**, Andrew J. Waddie, Florian Hudelist, Heriot-Watt Univ. (United Kingdom); Ryszard R. Buczynski, Univ. Warszawski (Poland); Mohammad R. Taghizadeh, Heriot-Watt Univ. (United Kingdom) . . . . . [6992-35]

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics[21] - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

Conference 6993 · Room: Contades Ouest (Wed)/Kleber (Thu)

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Paper Numbers: 6, 14

MEMS, MOEMS and Micromachining

Conference Chair: **Hakan Urey,** Koç Univ. (Turkey)

Programme Committee: **Dan C. Dascalu,** National Institute for Research and Development in Microtechnologies (Romania); **Padraig J. Hughes,** SensL Technologies Ltd. (Ireland); **Marc J. Madou,** Univ. of California/Irvine; **Yael Nemirovsky,** Technion-Israel Institute of Technology (Israel); **Russell A. Noble,** QinetiQ Ltd. (United Kingdom); **Minoru Sasaki,** Toyota Technological Institute (Japan); **Harald Schenk,** Fraunhofer-Institut für Photonische Mikrosysteme (Germany); **Ion G. Stiharu,** Concordia Univ. (Canada); **Henne van Heeren,** EnablingM3 (Netherlands)

Wednesday 9 April

OPENING REMARKS

Room: Contades Ouest . . . . . Wed. 15.30 to 15.40

Hakan Urey, Koç Univ. (Turkey)

SESSION 1

Room: Contades Ouest . . . . . Wed. 15.40 to 17.10

MOEMS Devices and Systems I

Session Chair: **Hakan Urey,** Koç Univ. (Turkey)

15.40: **NEMS/MEMS cantilever-based biosensors** *(Invited Paper)*, Yael Nemirovsky, Ariel Shemesh, A. Stolyarova, Technion-Israel Institute of Technology (Israel) . . . . . [6993-01]

16.10: **Magnetic actuated polymer scanners as a platform for compact spectrometers**, Caglar Ataman, Hakan Urey, Koç Univ. (Turkey) . . . . . [6993-02]

16.30: **Micromachined multicavity grey body emitter for the use in MIR spectroscopic systems**, Jürgen Hildenbrand, Andreas Kürzinger, Emmanuel Moretton, Fraunhofer-Institut für Physik Meßtechnik (Germany); Andreas Greiner, Albert-Ludwigs-Univ. Freiburg (Germany); Armin Lambrecht, Jürgen Wöllenstein, Fraunhofer-Institut für Physik Messtechnik (Germany); Jan G. Korvink, Albert-Ludwigs-Univ. Freiburg (Germany) . . . . . [6993-03]

16.50: **Optimization and characterization of parabolic membrane mirrors,** Ulrich Mescheder, Fachhochschule Furtwangen (Germany); Thomas Hellmuth, Hochschule Aalen (Germany); Rolf Huster, Wolfgang Kronast, Fachhochschule Furtwangen (Germany); Konstantin Khrennikov, Hochschule Aalen (Germany) . . . . . [6993-04]

POSTERS–Wednesday

Room: Contades Hall . . . . . Wed. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 9:00 hrs on Wednesday in the Contades Hall. Any papers left on the boards at the close of the poster session will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Light concentrating micromirror arrays for photovoltaics, Julia Ackermann, Onny Setyawati, Volker Viereck, Nethaji Dharmarasu, Hartmut H. Hillmer, Univ. Kassel (Germany) . . . . . [6993-08]

A microelectromechanical force actuator for nano-tensile testing system, Sai Gao, Konrad Herrmann, Physikalisch-Technische Bundesanstalt (Germany) . . . . . [6993-16]

Feasibility study for a MEMS modulator suitable for optical system network signalling, Philip Mitchell, Bookham Technology plc (United Kingdom); Jack Luo, Roger J. Jackson, The Univ. of Bolton (United Kingdom). . . . . [6993-17]

Determination of in-plane displacement of MEMS by means of an AFM sensor, Sai Gao, Zhi Li, Konrad Herrmann, Physikalisch-Technische Bundesanstalt (Germany) . . . . . [6993-18]

Thursday 10 April

SESSION 2

Room: Kleber. . . . . Thurs. 11.00 to 12.30

MOEMS Devices and Systems II

Session Chair: **Yael Nemirovsky,**
Technion-Israel Institute of Technology (Israel)

11.00: **New technologies for tunable micro-optics** *(Invited Paper)*, Hans Zappe, Albert-Ludwigs-Univ. Freiburg (Germany) . . . . . [6993-05]

11.30: **Fabrication of polymer micro-optical components for integration in silicon MOEMS**, Dana Cristea, Paula Obreja, Mihai Kusko, Munizer Purica, Adrian Dinescu, National Institute for Research and Development in Microtechnologies (Romania); Alberto Herrero, Fundación TEKNIKER (Spain); Dan Apostol, National Institute for Lasers, Plasma and Radiation Physics (Romania); Elena Manea, National Institute for Research and Development in Microtechnologies (Romania) . . . . . [6993-06]

11.50: **Electrostatically-actuated grating light modulator fabricated using SU-8 photoresist**, Tahito Aida, Yo Habu, Tomoyuki Kato, Osaka City Univ. (Japan). . . . . [6993-07]

12.10: **Overview of the MOEMS markets**, Eric Mounier, Yole Dévelopment (France) . . . . . [6993-09]

Lunch/Exhibition Break . . . . . 12.30 to 14.00

SESSION 3

Room: Kleber. . . . . Thurs. 14.00 to 15.10

Microfabrication and Microfluidics I

14.00: **Optofluidics and optoelectronic tweezers** *(Invited Paper)*, Ming C. Wu, Univ. of California/Berkeley. . . . . [6993-10]

14.30: **Micromachining of InP/InGaAs multiple membrane/airgap structures for tunable optical devices**, Thomas Kusserow, Saleh Ferwana, Univ. Kassel (Germany); Tetsuji Nakamura, Tetsuo Hayakawa, Canare Electric Co., Ltd. (Japan); Nethaji Dharmarasu, Univ. Kassel (Germany); Balasubramanian Vengatesan, Canare Electric Co., Ltd. (Japan); Hartmut H. Hillmer, Univ. Kassel (Germany) . . . . . [6993-11]

14.50: **Vacuum isostatic micro molding of microfluidic structures into polytetrafluoroethylene (PTFE) materials**, Todd E. Lizotte, Hitachi Via Mechanics USA, Inc.. . . . . [6993-12]

Coffee Break . . . . . 15.10 to 15.40

SESSION 4

Room: Kleber. . . . . Thurs. 15.40 to 16.50

Microfabrication and Microfluidics II

15.40: **Technology development for micromirror arrays with high optical fill factor and stable analogue deflection integrated on CMOS substrates** *(Invited Paper)*, Jan-Uwe Schmidt, Martin Friedrichs, Thor Bakke, Benjamin Voelker, Dirk Rudloff, Fraunhofer-Institut für Photonische Mikrosysteme (Germany) . . . . . [6993-13]

16.10: **Selective wet etching of AlInN layers for nitride-based MEMS and photonic device structures**, Ian M. Watson, Chang Xiong, Erdan Gu, Martin Dawson, Katarzyna Bejtka, Robert W. Martin, Univ. of Strathclyde (United Kingdom) . . . . . [6993-14]

16.30: **Review of production of microfluidic devices: material, manufacturing and metrology**, Shiguang Li, Nanyang Technological Univ. (Singapore) . . . . . [6993-15]

Wednesday-Thursday 9-10 April 2008 • Proceedings of SPIE Vol. 6994

Conference 6994 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 4, 6

Photon Management

Conference Chair: **John T. Sheridan,** National Univ. of Ireland/Dublin (Ireland); **Frank Wyrowski,** Friedrich-Schiller-Univ. Jena (Germany)

Program Committee: **Pierre Ambs,** Univ. de Haute Alsace (France); **Takeji Arai,** Chuo Univ. (Japan); **Luis Miguel Bernardo,** Univ. do Porto (Portugal); **Juan-Manuel Campos,** Ecole Superieure d'Electricite (Supelec) (France); **Yeong-Ho Ha,** Kyungpook National Univ. (South Korea); **Joachim Hein,** Friedrich-Schiller-Univ. Jena (Germany); **Zbigniew Jaroszewicz,** Instytut Optyki Stosowanej (Poland); **Bahram Javidi,** Univ. of Connecticut; **Norbert Lindlein,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **M. G. Moharam,** College of Optics & Photonics/Univ. of Central Florida; **Thomas J. Naughton,** National Univ. of Ireland/Maynooth (Ireland); **Cristian Neipp,** Univ. de Alicante (Spain); **Levent Onural,** Bilkent Univ. (Turkey); **Vladimir S. Pavelyev,** Samara State Aerospace Univ. (Russia); **Stefano Pelli,** Istituto di Fisica Applicata Nello Carrara (Italy); **Peeter M. Saari,** Instytut Fizyki (Estonia); **Hagen Schimmel,** LightTrans GmbH (Germany); **Colin James Richard Sheppard,** National Univ. of Singapore (Singapore); **Boris Spektor,** Technion-Israel Institute of Technology (Israel); **Jani Tervo,** Joensuu Yliopisto (Finland); **Jari Pekka Turunen,** Joensuu Yliopisto (Finland)

Tuesday 8 April

OPENING REMARKS

Room: Arp 4 Room: . . . . . Tues. 08.30 to 08.40

Frank Wyrowski, Friedrich-Schiller-Univ. Jena and LightTrans GmbH (Germany)

SESSION 1

Room: Arp 4 . . . . . Tues. 08.40 to 12.10

Photon Management I

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

08.40: **Analytical and numerical analysis of ABCD systems**, John J. Healy, John T. Sheridan, National Univ. of Ireland/Dublin (Ireland) . . . . . [6994-01]

09.00: **Electro-optic time-lens model for femtosecond pulses**, Francisco J. Marinho, Univ. de Trás-os-Montes e Alto Douro (Portugal); Luis M. Bernardo, Univ. do Porto (Portugal) . . . . . [6994-02]

09.20: **The concept of a unified optics modelling**, Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany) . . . . . [6994-03]

09.40: **Reliable simulation of optical bridge system by exchanging optical field data**, Youri Meuret, Vrije Univ. Brussel (Belgium); Norbert Lindlein, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Ingo Sieber, Forschungszentrum Karlsruhe (Germany); Inigo Artundo, Christof Debaes, Vrije Univ. Brussel (Belgium); Wojciech Grabowski, Ryszard Buczynski, Univ. Warszawski (Poland); Andrew Waddie, Heriot-Watt Univ. (United Kingdom); Frank Wyrowski, Friedrich Schiller Univ. (Germany); Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . [6994-04]

10.00: **Novel hemispheric image formation: concepts and applications**, Simon Thibault, ImmerVision (Canada) . . . . . [6994-05]

Coffee Break . . . . . 10.20 to 10.50

10.50: **Wave-optical simulation of a grating lateral shearing interferometer with a periodic incoherent light source**, Norbert Lindlein, Sarina Wunderlich, Irina Harder, Klaus Mantel, Maik Lano, Johannes Schwider, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . . . . [6994-07]

11.10: **Analysis of slanted transmission and reflection gratings**, Dusan Sabol, John T. Sheridan, Ciara E. Close, Shiu Liu, Michael R. Gleeson, National Univ. of Ireland/Dublin (Ireland) . . . . . [6994-08]

11.30: **Fast photorefractive self focusing in InP:Fe semiconductor at near infrared wavelengths**, Delphine Wolfersberger, Cristian Dan, Naima Khelfaoui, Nicolas Fressengeas, MOPS Lab. (France); Leblond Hervé, POMA Lab. (France) . . . . . [6994-09]

11.50: **Grounded frequency selective surface array as millimeter wave beam splitter**, Saiful Islam, Vrije Univ. Brussel (Belgium) . . . . . [6994-10]

Lunch/Exhibition Break . . . . . 12.10 to 13.50

SESSION 2

Room: Arp 4 . . . . . Tues. 13.50 to 15.30

Photon Management II

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

13.50: **Experiments on conical refraction**, Todor K. Kalkandjiev, Maria A. Bursukova, Conerefringent optics SL (Spain) . . . . . [6994-11]

14.10: **Effects of molecular anisotropy and waveguide structure on the emission properties of surface adsorbed fluorophores**, Lirong Wang, College of Optical Sciences/The Univ. of Arizona; Sergio B. Mendes, Univ. of Louisville . . . . . [6994-12]

14.30: **Time-domain fluorescence mammography using early time-reflected signals: finite element approach**, Jean-Pierre L'Huillier, Ecole Nationale Supérieure d'Arts et Métiers (France) . . . . . [6994-13]

14.50: **Approximate solutions to the NPDD**, Ciara E. Close, Michael R. Gleeson, John T. Sheridan, National Univ. of Ireland/Dublin (Ireland) . . [6994-14]

15.10: **Depth localization of an inclusion within turbid slab media using time-resolved transillumination contrast functions: numerical study**, Vianney M. Piron, Jean-Pierre L'Huillier, Ecole Nationale Supérieure d'Arts et Métiers (France) . . . . . [6994-15]

Wednesday 9 April

SESSION 3

Room: Arp 4 . . . . . Wed. 09.10 to 12.10

Photon Management III

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

09.10: **Distortion management of SBS slow light in a single-mode optical fiber by optimization of broadband SBS gain spectrum**, Liyong Ren, Yasuo Tomita, The Univ. of Electro-Communications (Japan). . . . . [6994-17]

09.30: **Non-invasive WDM channel scrambling for secure high data rate optical transmissions**, Joaquin Cornejo, Jean-Louis de Bougrenet de la Tocnaye, Ecole Nationale Supérieure des Télécommunications Bretagne (France) . . . . . [6994-18]

09.50: **Diffractive optical element for improving the Z-scan technique sensitivity**, Kamel Ait-Ameur, Renaud de Saint Denis, Michael Fromager, Emmanuel Cagniot, Ecole Nationale Supérieure d'Ingenieurs de Caen et Ctr. de Recherche (France) . . . . . [6994-20]

10.10: **Influence of the incident angle in the performance of LCoS displays**, Juan Campos, Angel Lizana, Nuria Martin, Univ. Autònoma de Barcelona (Spain); Andres Marquez, Univ. de Alicante (Spain); Ignacio S. Moreno, Univ. Miguel Hernández de Elche (Spain); Claudio C. Iemmi, Univ. de Buenos Aires (Argentina); María J. Yzuel, Univ. Autònoma de Barcelona (Spain) . . . . [6994-21]

Coffee Break . . . . . 10.30 to 11.00

11.00: **Chromatic dispersion compensation of a ferroelectric liquid crystal modulator for optical switching applications**, Maria del Mar Sánchez-López, Univ. Miguel Hernández de Elche (Spain); Pascuala García-Martínez, Univ. de València (Spain); Ignacio S. Moreno, Univ. Miguel Hernández de Elche (Spain) . . . . . [6994-22]

11.20: **Simulation in color optics with VirtualLab**, Rene C. Krieg, LightTrans GmbH (Germany); Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany) . . . . . [6994-23]

11.40: **Vacuum isostatic micro molding of reflective micro-optical structures into polytetrafluoroethylene materials**, Todd E. Lizotte, Orest Ohar, Hitachi Via Mechanics USA, Inc.. . . . . [6994-24]

12:00: **Polarization gratings in azobenzene based materials**, Olga Kulikovska, Joachim Stumpe, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) . . . . . [6994-26]

Lunch/Exhibition Break . . . . . 12.20 to 14.30

SESSION 4

Room: Arp 4 . . . . . Wed. 14.30 to 16.50

Photon Management IV

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

14.30: **Temporal evolution of holographic grating formation in photopolymer materials**, Michael R. Gleeson, Shui Liu, Dusan Sabol, Ciara E. Close, John T. Sheridan, National Univ. of Ireland/Dublin (Ireland) . . . . . [6994-27]

14.50: **Improvement of photopolymer materials for holographic data storage**, Michael R. Gleeson, Dusan Sabol, Shui Liu, Ciara E. Close, John T. Sheridan, National Univ. of Ireland/Dublin (Ireland) . . . . . [6994-28]

15.10: **Realization and investigaton of diffractive microrelief on the end face of silver-halide waveguide**, Vladimir S. Pavelyev, Oleg Y. Moiseev, Alexey V. Volkov, Vadim A. Eropolov, Stanislav V. Dmitriev, Sergey V. Karpeev, Image Processing Systems Institute (Russia); Viacheslav G. Artyushenko, Vitaliy V. Kashin, General Physics Institute (Russia) . . . . . [6994-29]

Coffee Break . . . . . 15.30 to 15.50

15.50: **On the thermal stability of volume holograms recorded in nanoparticle-polymer composite films**, Yasuo Tomita, Toshihiro Nakamura, Atsushi Tago, The Univ. of Electro-Communications (Japan). . . . . [6994-30]

16.10: **A compact speckle interferometer for measuring low-amplitude low frequency motion**, James P. Ryle, National Univ. of Ireland/Dublin (Ireland); Mohammed Al-Kalbani, The Univ. of Dublin, Trinity College (Ireland); Unnikrishnan Gopinathan, National Univ. of Ireland/Dublin (Ireland); Gerard Boyle, Davis Caokley, The Univ. of Dublin, Trinity College; John T. Sheridan, National Univ. of Ireland/Dublin (Ireland). . . . . [6994-31]

16.30: **Optical beam switching in photorefractive medium using wave-wave and wave-impulse interaction,** Irina V. Kabakova, Anatoly P. Sukhorukov, M.V. Lomonosov Moscow State Univ. (Russia) . . . . . [6994-32]

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics[21] - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

POSTERS–Wednesday

Room: Contades Hall . . . . . Wed. 17.30 to 19.00

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

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Focused image creation approaches for macroscopic objetcs encoded in digital holograms, Conor P. McElhinney, National Univ. of Ireland/Maynooth (Ireland); Thomas J. Naughton, National Univ. of Ireland/Maynooth (Ireland) and Univ. of Oulu (Finland). . . . . [6994-06]

A polarization-sensitive diffractive optical device for document security, Ivo Aubrecht, Police presidium CR (Czech Republic); Miroslav Miler, Institute of Radio Engineering and Electronics (Czech Republic) . . . . . [6994-33]

Bandwidth and apertures in ABCD systems, John J. Healy, John T. Sheridan, National Univ. of Ireland/Dublin (Ireland). . . . . [6994-34]

The management of modulation transfer function is real opportunity of improvement of quality of the image IIT, Alexander B. Berkin, Novosibirsk State Technical Univ. (Russia). . . . . [6994-35]

Polarization simultaneous readout for volume holographic storage in LiNbO3, Wei-Chia Su, National Changhua Univ. of Education (Taiwan); Chien-Yue Chen, National Yunlin Univ. of Science and Technology (Taiwan); Yau-Wen Liu, National Changhua Univ. of Education (Taiwan); Ching-Huang Lin, Hwa Hsia College of Technology and Commerce (Taiwan); Yueh Ouyang, Chinese Military Academy (Taiwan) . . . . . [6994-36]

Diffraction efficiency increase of polarization holographic gratings in erasable and rewritable dye-doped liquid-crystal films without an applied electric field, Wei-Chia Su, National Changhua Univ. of Education (Taiwan); Chien-Yue Chen, National Yunlin Univ. of Science and Technology (Taiwan); Jin-Yi Chen, National Changhua Univ. of Education (Taiwan); Ching-Huang Lin, Hwa Hsia College of Technology and Commerce (Taiwan); Chi-Yen Huang, National Changhua Univ. of Education (Taiwan) . . . . . [6994-37]

Cascaded induced lattices in quadratic nonlinear medium, Olga V. Borovkova, Anatoly P. Sukhorukov, Valery E. Lobanov, M.V. Lomonosov Moscow State Univ. (Russia). . . . . [6994-38]

Patterning of organic materials by DUV interferometry, Ali Dirani, Olivier Soppera, Daniel J. Lougnot, Ecole Nationale Supérieure de Chimie de Mulhouse (France) . . . . . [6994-39]

A comparison of wavelet analysis techniques applied to different digital holograms, Karen M. Molony, Bryan M. Hennelly, Emmanouil Darakis, National Univ. of Ireland/Maynooth (Ireland); Thomas J. Naughton, National Univ. of Ireland/Maynooth (Ireland) and Univ. of Oulu (Finland) . . . . . [6994-40]

Tuesday-Thursday 8-10 April 2008 • Proceedings of SPIE Vol. 6995

Conference 6995 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 14, 19, 27, 28

Optical Micro- and Nanometrology in Microsystems Technology

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

Programme Committee: **Francis Berghmans,** Vrije Univ. Brussel (Belgium); **Alain Bosseboeuf,** Univ. Paris-Sud II (France); **Peter J. de Groot,** Zygo Corp.; **Pietro Ferraro,** Istituto Nazionale di Ottica Applicata (Italy); **Cosme Furlong,** Worcester Polytechnic Institute; **Malgorzata Kujawinska,** Politechnika Warszawska (Poland); **Paul C. Montgomery,** Univ. Louis Pasteur (France); **Yoshiharu Morimoto,** Wakayama Univ. (Japan); **Günter Wilkening,** Physikalisch-Technische Bundesanstalt (Germany); **Xiaoping Wu,** Univ. of Science and Technology of China (China); **Huimin Xie,** Tsinghua Univ. (China)

Tuesday 8 April

OPENING REMARKS

Room: Dresde . . . . . Tues. 09.00 to 09.10

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

SESSION 1

Room: Dresde . . . . . Tues. 09.10 to 12.00

Digital Holography

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

09.10: **Sensitivity increase in digital holographic interferometry** *(Invited Paper)*, Nazif Demoli, Kristina ariri, Ivica Sovic, Univ. of Zagreb (Croatia); Marc P. Torzynski, Hanan Halaq, Dalibor Vukicevic, Univ. Louis Pasteur (France) . . . . . [6995-01]

09.40: **Dual-wavelength digital holographic microscopy with sub-nanometer axial accuracy**, Jonas Kuhn, Florian Charrière, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Tristan Colomb, Univ. Vaudois (Switzerland); Frédéric Montfort, Etienne Cuche, Yves Emery, Lyncée Tec SA (Switzerland); Pierre P. Marquet, Univ. Vaudois (Switzerland); Christian D. Depeursinge, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [6995-02]

10.00: **Undersampled digital holographic interferometry**, Hanan Halaq, Louis Pasteur Univ. (France); Nazif Demoli, Ivan Sovic, Kristina Sariri, Univ. of Zagreb (Croatia); Marc P. Torzynski, Dalibor Vukicevic, Univ. Louis Pasteur (France) . . . . . [6995-03]

Coffee Break . . . . . 10.20 to 10.40

10.40: **Digital holography in combination with diffraction grating to get super-resolution**, Melania Paturzo, Univ. degli Studi di Firenze (Italy); Francesco Merole, Simonetta Grilli, Istituto Nazionale di Ottica Applicata (Italy); Sergio M. De Nicola, Istituto di Cibernetica Eduardo Caianiello (Italy); Pietro Ferraro, Istituto Nazionale di Ottica Applicata (Italy). . . . . [6995-04]

11.00: **Phase map retrieval in digital holography: avoiding the undersampling effect by a lateral shear approach**, Pietro Ferraro, Costantino Del Core, Simonetta Grilli, Lisa Miccio, Istituto Nazionale di Ottica Applicata (Italy); Sergio M. De Nicola, Andrea Finizio, Istituto di Cibernetica Eduardo Caianiello (Italy); Giuseppe Coppola, Istituto per la Microelettronica e Microsistemi (Italy). . . . . [6995-05]

11.20: **Application of light emitting diodes in digital holographic microscopy**, Björn Kemper, Christian Remmersmann, Stephan Stuerwald, Patrik Langehanenberg, Gert von Bally, Univ. Münster (Germany). . . . . [6995-06]

11.40: **Adaptive measurement of deformation and shape by compensation using TV holography and digital holography**, János Kornis, Richarc Sefel, Bence Beky, Budapest Univ. of Technology and Economics (Hungary) [6995-08]

Lunch/Exhibition Break . . . . . 12.00 to 13.50

SESSION 2

Room: Dresde . . . . . Tues. 13.50 to 15.30

Nanoscale Metrology and Sensors for Near-Field Microscopy

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

13.50: **Sensitivity enhancement of integrated optical near field sensors**, Julia Hahn, Frank Fecher, Juergen Petter, Theo T. Tschudi, Technische Univ. Darmstadt (Germany) . . . . . [6995-09]

14.10: **Integrated optic Michelson interferometer for sensors application**, Pawel Marc, Wojskowa Akademia Techniczna (Poland) and Univ. de Franche-Comté (France); Christophe Gorecki, Lukasz Nieradko, Univ. de Franche-Comté (France) . . . . . [6995-10]

14.30: **Development features in large-range nanoscale coordinate metrology**, Martin Gruhlke, Christian Recknagel, Hendrik Rothe, Helmut-Schmidt Univ. (Germany) . . . . . [6995-11]

14.50: **Evanescent waves interference lithography for patterning of two dimensional subwavelength features**, Jeun Kee Chua, Vadakke Matham Murukeshan, Nanyang Technological Univ. (Singapore); Sia Kim Tan, Qun Ying Lin, Chartered Semiconductor Manufacturing Ltd. (Singapore) . . . . . [6995-12]

15.10: **Electron beam nanolithography and testing: ways of increasing the resolution and the throughput**, Vladimir A. Zlobin, All-Russian Electrotechnical Institute (Russia) . . . . . [6995-13]

Wednesday 9 April

SESSION 3

Room: Dresde . . . . . Wed. 08.30 to 10.10

Inspection of MEMS

Session Chair: **Christophe Gorecki,** Univ. de Franche-Comté (France)

08.30: **AlN driven microcantilever actuators: fabrication, characterization and modeling**, Katarzyna Krupa, Michal Józwik, Politechnika Warszawska (Poland); Alexandru Andrei, Lukasz Nieradko, Christophe Gorecki, Laurent Hirsinger, Patrick Delobelle, Univ. de Franche-Comté (France) . . . . . [6995-14]

08.50: **Characterization of MEMS cantilevers using lensless digital holographic microscope**, Vijay Raj Singh, Nanyang Technological Univ. (Singapore); Alexandru Andrei, Christophe Gorecki, Lukasz Nieradko, Univ. de Franche-Comté (France); Anand K. Asundi, Nanyang Technological Univ. (Singapore) . . . . . [6995-15]

09.10: **Nondestructive determination of shrinkage deformations in concrete due to drying**, Dragana Jankovic, Technische Univ. Delft (Netherlands) [6995-16]

09.30: **Numerical simulations of interferometrical deformation measurements in multi-layered objects**, Kay Gastinger, SINTEF (Norway); Pål Løvhaugen, Univ. of Tromsø (Norway); Ola D. Hunderi, Norwegian Univ. of Science and Technology (Norway) . . . . . [6995-17]

09.50: **Fusion of micro-metrology techniques for the flexible inspection of MEMS/MOEMS assembly**, Robert Schmitt, RWTH Aachen (Germany); Alberto X. Pavim, RWTH Aachen (Germany) and Scholarship holder of the Brazilian CNPq (Brazil) . . . . . [6995-18]

Coffee Break . . . . . 10.10 to 10.30

SESSION 4

Room: Dresde . . . . . Wed. 10.30 to 12.40

High Resolution Metrology and Specialised Techniques

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

10.30: **Benchmarking instrumentation tools for the characterization of microlenses within the EC Network of Excellence on Micro-Optics (NEMO)** *(Invited Paper)*, Heidi Ottevaere, Vrije Univ. Brussel (Belgium); Johannes Schwider, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Jacek Kacperski, Politechnika Warszawska (Poland); Lothar Steinbock, Forschungszentrum Karlsruhe (Germany); Yves Emery, Lyncée Tec SA (Switzerland); Malgorzata Kujawinska, Politechnika Warszawska (Poland); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [6995-19]

11.00: **Interest of second harmonic generation imaging to study extracellular matrix modification in osteoarthritis cartilage**, Elisabeth Werkmeister, Dominique Dumas, Nancy-Univ. (France). . . . . [6995-20]

11.20: **Real-time and in situ monitoring of microlenses fabricated with deep proton writing**, Virginia Gomez, Heidi Ottevaere, Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . [6995-21]

11.40: **Precision metrology length standard based on femtosecond stabilized laser**, Radek Smid, Ondrej Cip, Josef Lazar, Institute of Scientific Instruments (Czech Republic) . . . . . [6995-22]

12.00: **A multipoint diffraction strain sensor using a micro-lens array: from theory to application**, Jun Wang, Wei Zhou, Anand K. Asundi, Nanyang Technological Univ. (Singapore) . . . . . [6995-23]

12.20: **Comparison of 127I2-stabilized frequency-doubled Nd: YAG lasers and evaluation of frequency shifts caused by iodine cells**, Jan Hrabina, Frantisek Petru, Ondrej Cip, Petr Jedlicka, Josef Lazar, Institute of Scientific Instruments (Czech Republic) . . . . . [6995-24]

Lunch/Exhibition Break . . . . . 12.40 to 14.30

SESSION 5

Room: Dresde . . . . . Wed. 14.30 to 16.30

Topography and Surface Measurements

Session Chair: **Malgorzata Kujawinska,** Politechnika Warszawska (Poland)

14.30: **Characterization of materials and film stacks for accurate surface topography measurement using a white-light optical profiler** *(Invited Paper)*, Xavier Colonna de Lega, Peter J. de Groot, Zygo Corp. . . . . [6995-25]

15.00: **Improved micro topography measurement by LCoS based fringe projection and z-stitching**, Xavier Schwab, Christian Kohler, Klaus Körner, Univ. Stuttgart (Germany); Christian Moosbauer, Norbert Eichhorn, GEFASOFT Automatisierung und Software GmbH (Germany); Wolfgang Osten, Univ. Stuttgart (Germany) . . . . . [6995-26]

Coffee Break . . . . . 15.20 to 15.50

15.50: **Photonic wires sidewall roughness measures using AFM capabilities**, Radu I. Malureanu, Lars Hagedorn Frandsen, Danmarks Tekniske Univ. (Denmark) . . . . . [6995-27]

16.10: **Optical measurement methodology for the focusing mirror in the scanning helium microscope,** Dariusz Litwin, Jacek Galas, Stefan Sitarek, Instytut Optyki Stosowanej (Poland); Barbara Surma, Bronislaw Piatkowski, Instytut Technologii Materialów Elektronicznych (Poland) . . . . . [6995-28]

POSTERS–Wednesday

Room: Contades Hall . . . . . Wed. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 9:00 hrs on Wednesday in the Contades Hall. Any papers left on the boards at the close of the poster session will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Pixel size determination of a monitor by moiré fringe, Mohammad Abolhassani, Rahil Daman, Arak Univ. (Iran) . . . . . [6995-38]

Accurate three-dimensional detection of micro-particles by means of digital holographic microscopy, Maciej K. Antkowiak, Natacha Callens, Cedric Schockaert, Catherine Yourassowsky, Frank Dubois, Univ. Libre de Bruxelles (Belgium) . . . . . [6995-40]

Energy characteristics of excitons in InGaN/GaN heterostructures, Sergey O. Usov, Andrei F. Tsatsulnikov, Wsevolod V. Lundin, Alexei V. Sakharov, Evgeny E. Zavarin, A.F. Ioffe Physico-Technical Institute (Russia); Mihail A. Sinitsin, Russian Academy of Sciences for Research and Education (Russia); Nikolai N. Ledentsov, A.F. Ioffe Physico-Technical Institute (Russia) . . . [6995-42]

In-situ imaging of interlayer nanodeformation with improved differential confocal microscopy, Zhi Li, Sai Gao, Konrad Herrmann, Physikalisch-Technische Bundesanstalt (Germany) . . . . . [6995-43]

Investigation of high reflectivity optical phase-conjugation in $BaTiO_3$, Mohammad H. Majles Ara, Teacher Training Univ. (Iran); Seyed R. Hosseini, Sr., Mohammad Abolhassani, Arak Univ. (Iran) . . . . . [6995-45]

Thursday 10 April

SESSION 6

Room: Dresde . . . . . Thurs. 11.00 to 12.40

Scatterometry and Diffusion Techniques

Session Chair: **Nazif Demoli,** Univ. of Zagreb (Croatia)

11.00: **Uncertainty estimate for measurement and profile reconstruction in scatterometry**, Hermann A. Gross, Physikalisch-Technische Bundesanstalt (Germany); Andreas Rathsfeld, Weierstrass-Institute für Angewandte Analysis und Stochastik (Germany); Frank Scholze, Regine Model, Markus Bär, Physikalisch-Technische Bundesanstalt (Germany) . . . . . [6995-29]

11.20: **On quasi-phase-conjugated arrays**, Gerhard Kloos, Meilute (Germany) and Hella KGaA Hueck & Co. (Germany) . . . . . [6995-30]

11.40: **Modeling reflection on coated steel surfaces**, Veerle Goossens, Erik W. Stijns, Vrije Univ. Brussel (Belgium); Sake K. Van Gils, ArcelorMittal Research Industry Gent (Belgium); Herman Terryn, Vrije Univ. Brussel (Belgium) . [6995-31]

12.00: **Light scattering in random media: speckle pattern polarization and selective cancellation**, Carole Deumié-Raviol, Claude Amra, Gaelle Georges, Laurent Arnaud, Myriam Zerrad, Institut Fresnel (France). . . . . [6995-32]

12.20: **Full-field analysis of a liquid crystal cell using a low birefringence polariscope**, Pin Wang, Anand K. Asundi, Nanyang Technological Univ. (Singapore) . . . . . [6995-33]

Lunch/Exhibition Break . . . . . 12.40 to 14.00

SESSION 7

Room: Dresde . . . . . Thurs. 14.00 to 15.20

Image Reconstruction and Signal Processing

Session Chair: **Heidi Ottevaere,** Vrije Univ. Brussel (Belgium)

14.00: **Investigation of methods to set up the normal vector field for the differential method**, Stephan Rafler, Thomas Schuster, Karsten Frenner, Univ. Stuttgart (Germany) . . . . . [6995-34]

14.20: **Phase retrieval from the spectral interferograms by windowed Fourier transform**, Petr Hlubina, Jiri Lunacek, Dalibor Ciprian, Radek Chlebus, Technical Univ. of Ostrava (Czech Republic) . . . . . [6995-35]

14.40: **Phase retrieval using a series of intensity measurements produced by tuning the illumination wave-length**, Peng Bao, Fucai Zhang, Giancarlo Pedrini, Wolfgang Osten, Univ. Stuttgart (Germany). . . . . [6995-36]

15.00: **A Fourier optics-based non-invasive and vibration-insensitive micron-size object analyzer for quality control assessment,** Sarun Sumriddetchkajorn, Kosom Chaitavon, National Electronics and Computer Technology Ctr. (Thailand) . . . . . [6995-37]

CLOSING REMARKS

Room: Dresde . . . . . Thurs. 15.20 to 15.30

Wolfgang Osten, Univ. Stuttgart (Germany);
Anand K. Asundi, Nanyang Technological Univ. (Singapore)

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics[21] - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

Monday-Thursday 7-10 April 2008 • Proceedings of SPIE Vol. 6996

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Paper Numbers: 1, 4, 7, 18, 25, 32, 41, 44, 46, 52, 57, 59

Silicon Photonics and Photonic Integrated Circuits

Conference Chairs: **Giancarlo C. Righini,** CNR (Italy); **Seppo K. Honkanen,** Helsinki Univ. of Technology (Finland); **Lorenzo Pavesi,** Univ. degli Studi di Trento (Italy); **Laurent Vivien,** CNRS/Univ. Paris-Sud II (France)

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Monday 7 April

OPENING REMARKS

Room: Arp 2 . . . . . Mon. 10.55 to 11.00

Giancarlo C. Righini, CNR (Italy); **Seppo K. Honkanen,** Helsinki Univ. of Technology (Finland); **Lorenzo Pavesi,** Univ. degli Studi di Trento (Italy); **Laurent Vivien,** CNRS/Univ. Paris-Sud II (France)

SESSION 1

Room: Arp 2 . . . . . Mon. 11.00 to 12.30

Devices Integration

Session Chair: **Giancarlo C. Righini,**
CNR-Department of Materials and Devices (Italy)

11.00: **Fabrication of silicon photonic devices with microelectronics tools for integration with a CMOS circuit** *(Invited Paper)*, Jean M. Fedeli, Commissariat à l'Energie Atomique (France) . . . . . [6996-01]

11.30: **Integration of functional micro/nano-photonic devices**, El-Hang Lee, Inha Univ. (South Korea) . . . . . [6996-02]

11.50: **Guided-wave electron optics for the integration of nanophotonic devices with nanoelectronic devices**, Jesús Liñares, María C. Nistal, Vicente Moreno, Univ. de Santiago de Compostela (Spain) . . . . . [6996-03]

12.10: **Amorphous silicon optical waveguides and Bragg mirrors**, Amit Khanna, Mikaël Mulot, Teknillinen Korkeakoulu (Finland); Sanna Arpiainen, VTT Information Technology (Finland); Antti Säynätjoki, Teknillinen Korkeakoulu (Finland); Jouni Ahopelto, VTT Information Technology (Finland); Seppo K. Honkanen, Harri K. Lipsanen, Teknillinen Korkeakoulu (Finland) . . . . . [6996-04]

Lunch Break . . . . . 12.30 to 13.40

SESSION 2

Room: Arp 2 . . . . . Mon. 13.40 to 15.10

Photonic Materials and Devices

Session Chair: **Seppo K. Honkanen,**
Helsinki Univ. of Technology (Finland)

13.40: **Organic semiconductor laser on silicon** *(Invited Paper)*, Ifor D.Samuel, Andreas E. Vasdekis, Stephen A. Moore, Arvydas Ruseckas, Thomas F. Krauss, Graham A. Turnbull, Univ. of St. Andrews (United Kingdom) . . . . . [6996-05]

14.10: **Preparation and characterization of ZnO particles embedded in organic-inorganic planar waveguide by sol-gel route**, Andrea Chiappini, Cristina Armellini, Alessandro Chiasera, Maurizio Ferrari, Yoann Jestin, Enrico Moser, Univ. degli Studi di Trento (Italy); Gualtiero N. Conti, Istituto di Fisica Applicata Nello Carrara (Italy) and Centro Fermi (Italy); Stefano Pelli, Istituto di Fisica Applicata Nello Carrara (Italy); Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy) and 7CNR, Department of Materials and Devices (Italy); Richard Retoux, Ecole Nationale Supérieure d'Ingenieurs de Caen et Ctr. de Recherche (France); Giorgio Speranza, Istituto per la Ricerca Scientifica e Tecnologica (Italy) . . . . . [6996-06]

14.30: **Cadmium telluride: a silicon-compatible optical material as an alternative technology for building all-optical photonic devices**, Alejandro Martinez, Francisco Cuesta-Soto, Jaime García, Javier Marti, Univ. Politécnica de Valencia (Spain); Mykola Sochinskii, Marian Abellán, Jonathan Rodriguez-Fernandez, Instituto de Microelectrónica de Madrid (Spain); Sandro Mengali, Consorzio CREO (Italy); Ian Reid, Michael Robertson, Ctr. for Integrated Photonics Ltd. (United Kingdom); Peter Mascher, McMaster Univ. (Canada) . . . . . [6996-07]

14.50: **Electron confinements effects in silver nanoparticles embedded in sodalime glasses**, Giorgio Speranza, Luca Minati, Istituto per la Ricerca Scientifica e Tecnologica (Italy); Andrea Chiappini, Alessandro Chiasera, Maurizio Ferrari, Giancarlo C. Righini, Consiglio Nazionale delle Ricerche (Italy) . . . . . [6996-08]

Coffee Break . . . . . 15.10 to 15.40

SESSION 3

Room: Arp 2 . . . . . Mon. 15.40 to 17.20

Microresonators

Session Chair: **Stefano Pelli,**
Istituto di Fisica Applicata Nello Carrara (Italy)

15.40: **Circular grating resonators as candidates for ultra-small photonic devices**, Sophie Schönenberger, Nikolaj Moll, Thilo Stöferle, Rainer F. Mahrt, Bert J. Offrein, IBM Zürich Research Lab. (Switzerland); Thorsten Wahlbrink, Jens Bolten, Thomas Mollenhauer, Christian Moormann, AMO GmbH (Germany); Stephan Götzinger, ETH Zürich (Switzerland). . . . . [6996-09]

16.00: **Resonance narrowing in a two-ring resonator system**, Landobasa Y. Tobing, Nanyang Technological Univ. (Singapore); Pieter Dumon, Roel G. Baets, Univ. Gent (Belgium); Mee-Koy Chin, Nanyang Technological Univ. (Singapore) . . . . . [6996-10]

16.20: **Silicon microspheres for optical modulation and switching applications**, Ersin Alpan, Koç Univ. (Turkey); Oğuzhan Gürlü, Istanbul Teknik Üniv. (Turkey); Ali Serpengüzel, Koç Univ. (Turkey). . . . . [6996-11]

16.40: **Analysis of silicon-on-insulator (SOI) optical microring add-drop filter based on waveguide intersections**, Andrzej Kazmierczak, Multitel A.S.B.L. (Belgium); Wim Bogaerts, Dries Van Thourhout, Univ. Gent (Belgium); Emmanuel Drouard, Pedro Rojo-Romeo, Ecole Centrale de Lyon (France); Domenico Giannone, Multitel A.S.B.L. (Belgium); Frederic Gaffiot, Ecole Centrale de Lyon (France) . . . . . [6996-12]

17.00: **Active optical micro-resonators seen as mesoscopic photonic atoms**, Yann G. Boucher, Ecole Nationale d'Ingénieurs de Brest (France); Yannick Dumeige, Patrice Feron, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France). . . . . [6996-13]

Tuesday 8 April

SESSION 4

Room: Arp 2 . . . . . Tues. 08.10 to 10.00

Diagnostic and Characterisation Techniques

Session Chair: **Ali Serpengüzel,** Koç Univ. (Turkey)

08.10: **Challenging nano-scale stress evaluation in glassy and crystalline semiconductor heterostructures** *(Invited Paper)*, Giuseppe Pezzotti, Kyoto Institute of Technology (Japan); Andrea Leto, Kyoto Institute of Technology (Japan) and CNR Kyoto Research Ctr. (Japan); Alessandro Alan Porporati, CNR Kyoto Research Ctr. (Japan) and Kyoto Institute of Technology (Japan) [6996-14]

08.40: **Study of crystallization and phase mixing in SiO_2/SiOx superlattices through form birefringence measurements**, Mher Ghulinyan, Minghua Wang, Antonio Picciotto, Georg Pucker, Istituto per la Ricerca Scientifica e Tecnologica (Italy) . . . . . [6996-15]

09.00: **Electro-optical properties of $BaTiO_3$-$SrTiO_3$ multilayer thin films for waveguide modulators**, Jussi Hiltunen, Mikko Karppinen, VTT Elektroniikka (Finland); Jyrki Lappalainen, Jarkko Puustinen, Vilho Lantto, Univ of Oulu (Finland) . . . . . [6996-16]

09.20: **Photonic crystal L3 nanocavities probed with the photoluminescence of SiGe/Si self-assembled islands**, Moustafa El Kurdi, Thi-Phuong Ngo, Xavier Checoury, Sylvain David, Philippe Boucaud, Univ. Paris-Sud-XI (France); Olivier Kermarrec, Yves Campidelli, Daniel Bensahel, STMicroelectronics (France) . . . . . [6996-17]

09.40: **Advanced optical characterization of broad-band light-emitting color-center strip waveguides in lithium fluoride**, Rosa Maria Montereali, Francesca Bonfigli, Marco Montecchi, Enrico Nichelatti, ENEA (Italy); Massimo Piccinini, Istituto Nazionale di Fisica Nucleare (Italy) . . . . . [6996-18]

Coffee Break . . . . . 10.00 to 10.30

SESSION 5

Room: Arp 2 . . . . . Tues. 10.30 to 12.20

Modelling and Design

Session Chair: **Thomas P. Felici,** Photon Design (United Kingdom)

10.30: **Highly efficient (R>0.995) and ultrasmall (L=21) Bragg mirrors in SOI ridge waveguides by engineering evanescent Bloch modes** *(Invited Paper)*, Philippe Lalanne, P. Velha, Jean-Claude Rodier, Institut d'Optique (France) . . . . . [6996-19]

11.00: **Implementation of quasi-phase-matching in semiconductor waveguides using whispering gallery mode resonators**, Yannick Dumeige, Patrice Féron, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France) . . . . . [6996-20]

11.20: **Compact spectrometer modeling based on wavelength-scale stationary wave Fourier transform in integrated optic**, Alain Morand, Guillaume Custillon, Pierre M. Benech, Minatec (France); Etienne P. Le Coarer, Univ. Joseph Fourier (France); Gregory Leblond, Sylvain Blaize, Univ. de Technologie de Troyes (France) . . . . . [6996-21]

11.40: **Study and simulation for the sharp-corner of silicon-on-insulator waveguides**, De-Gui Sun, Travor Hall, Univ. of Ottawa (Canada) . . . . . [6996-22]

12.00: **Bending and transition losses and mode and polarization conversions in bent optical waveguides**, Azizur B. M.Rahman, David Leung, The City Univ. (United Kingdom); Salah S. A.Obyaya, Univ. of Leeds (United Kingdom); Kenneth T. V.Grattan, The City Univ. (United Kingdom) . . . . [6996-23]

Lunch/Exhibition Break . . . . . 12.20 to 13.30

SESSION 6

Room: Arp 2 . . . . . Tues. 13.30 to 15.30

Waveguides and Devices I

Session Chair: **Javier Marti,** Univ. Politécnica de Valencia (Spain)

13.30: **Nested-ring Mach-Zehnder interferometer in silicon-on-insulator**, Stevanus Darmawan, Landobasa Yosef Mario, Nanyang Technological Univ. (Singapore); Pieter Dumon, Roel G. Baets, Univ. Gent (Belgium); Mee-Koy Chin, Nanyang Technological Univ. (Singapore) . . . . . [6996-24]

13.50: **Broadband and highly efficient grating couplers for silicon-based horizontal slot waveguides**, Jose V. Galan-Conejos, Pablo Sanchis-Kilders, Javier Blasco-Solves, Javier Marti-Sendra, Univ. Politécnica de Valencia (Spain) . . . . . [6996-25]

14.10: **Echelle grating WDM (de-)multiplexers in SOI technology, based on a design with two stigmatic points**, Folkert Horst, IBM Zürich Research Lab. (Switzerland); William M. J.Green, IBM Thomas J. Watson Research Ctr.; Bert J. Offrein, IBM Zürich Research Lab. (Switzerland); Yurii A. Vlasov, IBM Thomas J. Watson Research Ctr. . . . . [6996-26]

14.30: **Frequency comb generator on a silicon chip**, Tobias J. Kippenberg, Max-Planck-Institut für Quantenoptik (Germany) . . . . . [6996-27]

14.50: **Tolerance analysis of high efficiency silicon nitride surface grating couplers**, Guillaume Maire, Laurent Vivien, Anne-Sophie Stragier, Univ. Paris-Sud-XI (France); Andrzej Kaźmierczak, Multitel A.S.B.L. (Belgium); Benito Sanchez, Univ. Politécnica de Valencia (Spain); Kristin B. Gylfason, Kungliga Tekniska Högskolan (Sweden); Amadeu Griol, Univ. Politécnica de Valencia (Spain); Delphine Marris-Morini, Eric Cassan, Univ. Paris-Sud-XI (France); Dominico Giannone, Multitel A.S.B.L. (Belgium); Hans B. Sohlström, Kungliga Tekniska Högskolan (Sweden); Daniel Hill, Univ. Politécnica de Valencia (Spain) . . . . . [6996-32]

15.10: **Design of high gain Er^{3+}-Yb^{3+}-Ce^{3+} co-doped ZLE waveguide amplifier**, Francesco Prudenzano, Luca Allegretti, Marco De Sario, Luciano Mescia, Tommaso Palmisano, Politecnico di Bari (Italy); Alessandro Chiasera, Maurizion Ferrari, Yoann Jestin, Univ. degli Studi di Trento (Italy); Brigitte Boulard, Olivier Peron, Univ. du Maine (France) . . . . . [6996-28]

Wednesday 9 April

SESSION 7

Room: Arp 2 . . . . . Wed. 08.10 to 10.10

Photonics in Industry

Session Chair: **Thomas P. Pearsall,** European Photonics Industry Consortium (France)

08.10: **Quantum dot comb-laser as efficient light source for silicon photonics** *(Invited Paper)*, Alexey Kovsh, Innolume Inc. . . . . [6996-29]

08.40: **Integration of photonics components in state-of-the-art CMOS technology** *(Invited Paper)*, Felix Lustenberger, Dirk Leipld, ESPROS Photonics AG (Switzerland) . . . . . [6996-30]

09.10: **Integrating silicon photonics with the real world of manufacturing and sales** *(Invited Paper)*, Jean-Louis Malinge, Kotura, Inc. . . . . [6996-31]

09.40: **Silicon photonics activities in the OIDA** *(Invited Paper)*, Thomas G. Palkert, Luxtera Inc. . . . . [6996-33]

Coffee Break . . . . . 10.10 to 10.40

SESSION 8

Room: Arp 2 . . . . . Wed. 10.40 to 12.40

Photonics in Industry II

Session Chair: **Laurent Vivien,** Univ. Paris-Sud-XI (France)

10.40: **Challenges and innovations in very-large CCD and CMOS imagers for professional imaging** *(Invited Paper)*, Jan T. Bosiers, DALSA Corp. (Netherlands) . . . . . [6996-34]

11.10: **10Gbit/s transceiver on silicon** *(Invited Paper)*, Jeremy Witzens, Gianlorenzo Masini, Subal Sahni, Cary Gunn, Luxtera Inc.; Giovanni Capellini, Univ. degli Studi di Roma Tre (Italy) . . . . . [6996-35]

11.40: **Silicon photonics in Pirelli** *(Invited Paper)*, Marco Romagnoli, Pirelli & C. S.p.A. (Italy) . . . . . [6996-36]

12.10: **Low loss, high contrast planar optical waveguides based on low-cost CMOS compatible LPCVD processing** *(Invited Paper)*, Willem Hoving, XiO Photonics (Netherlands); Rene Heideman, LioniX, BV (Netherlands); Douwe H. Geuzebroek, XiO Photonics (Netherlands); Arne Leinse, LioniX, BV (Netherlands); Edwin J. Klein, XiO Photonics (Netherlands). . . . . [6996-37]

Lunch/Exhibition Break . . . . . 12.40 to 13.40

SESSION 9

Room: Arp 2 . . . . . Wed. 13.40 to 15.20

Active Waeguides and Devices I

Session Chair: **Roel G. Baets,** Univ. Gent (Belgium)

13.40: **Photonic switching on Silicon: the FP6-PHOLOGIC approach** *(Invited Paper)*, Javier Marti, Univ. Politécnica de Valencia (Spain) . . . . [6996-38]

14.10: **Waveguides and devices: photodetectors** *(Invited Paper)*, Michael T. Morse, Massachusetts Institute of Technology . . . . . [6996-39]

14.40: **Carrier-depletion-based optical modulator integrated in a lateral structure in a SOI waveguide**, Delphine Marris-Morini, Laurent Vivien, Univ. Paris-Sud-XI (France); Jean M. Fedeli, Commissariat à l'Energie Atomique (France); Eric Cassan, Gilles Rasigade, Xavier Le Roux, Univ. Paris-Sud-XI (France); Philippe Lyan, Commissariat à l'Energie Atomique (France); Suzanne C. Laval, Univ. Paris-Sud-XI (France). . . . . [6996-40]

15.00: **InP based and electrically driven lasers fabricated with CMOS technologies**, Fabien Mandorlo, Ecole Centrale de Lyon (France) and Commissariat à l'Energie Atomique (France); Pedro Rojo-Romeo, Ecole Centrale de Lyon (France); Jean M. Fedeli, Commissariat à l'Energie Atomique (France); Xavier Letartre, Philippe Regreny, Ecole Centrale de Lyon (France); Philippe Grosse, Commissariat à l'Energie Atomique (France). . . . . [6996-41]

Coffee Break . . . . . 15.20 to 15.40

SESSION 10

Room: Arp 2 . . . . . Wed. 15.40 to 17.30

Active Waveguides and Devices II

Session Chair: **El-Hang Lee,** Inha Univ. (South Korea)

15.40: **Glass integrated optics: recent advances on passive and active devices** *(Invited Paper),* Jean-Emmanuel Broquin, École Nationale Supérieure d'Electronique et de Radioélectricité de Grenoble (France) [6996-71]

16.10: **Optimization of Al_2O_3:Er waveguide technology for active integrated optical devices**, Kerstin Worhoff, Jonathan Bradley, Feridun Ay, Dimitri Geskus, Tom Blauwendraat, Markus Pollnau, Univ. Twente (Netherlands) . . . . . [6996-43]

16.30: **Further improvements in Er^{3+} coupled to Si nanoclusters rib-waveguides**, Alessandro Pitanti, Daniel Navarro-Urrios, Nicola Daldosso, Univ. degli Studi di Trento (Italy); Fabrice Gourbilleau, Larysa Khomenkova, Richard Rizk, Ecole Nationale Supérieure d'Ingenieurs de Caen et Ctr. de Recherche (France); Lorenzo Pavesi, Univ. degli Studi di Trento (Italy) . . . . . [6996-44]

16.50: **Femtosecond mode-locked fiber/waveguide laser based on a fiber taper embedded in carbon nanotubes/polymer composite**, Qing Wang, College of Optical Sciences/The Univ. of Arizona; Kieu Khanh, Cornell Univ.; Franko Kueppers, College of Optical Sciences/The Univ. of Arizona; Seppo K. Honkanen, Helsinki Univ. of Technology (Finland) . . . . . [6996-45]

17.10: **Evanescent multimode longitudinal pumping scheme for Si-nanocluster sensitized Er^{3+} doped waveguide amplifiers,** Veronica Toccafondo, Stefano Faralli, Fabrizio Di Pasquale, Scuola Superiore Sant'Anna (Italy); Josep Carreras, Blas Garrido, Univ. de Barcelona (Spain). . . . . [6996-46]

POSTERS–Wednesday

Room: Contades Hall . . . . . Wed. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 9:00 hrs on Wednesday in the Contades Hall. Any papers left on the boards at the close of the poster session will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Application of discrete layer peeling algorithm for design of selective directional couplers obeying the constraints of the fabrication process, Marcin Wielichowski, Sergiusz Z. Patela, Politechnika Wroclawska (Poland) . . . . . [6996-60]

Size effects in silicon quantum dots studied by second harmonic generation spectroscopy, Tatyana Murzina, Vladimir O. Bessonov, Anton Maydykovsky, Oleg A. Aktsipetrov, M.V. Lomonosov Moscow State Univ. (Russia); X. Huang, Kunji Chen, Nanjing Univ. (China) . . . . . [6996-61]

Quantization of coupled waveguided modes progression integrated photonic devices, Jesús Liñares, María C. Nistal, David Barral, Vicente Moreno, Carlos Montero, Univ. de Santiago de Compostela (Spain) . . . . . [6996-62]

Wide tunable thermo-optical filters with polymer micro-ring resonators, Azar Maalouf, Frederic Henrio, Séverine Haesaert, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); Philippe Grosso, Michel Gadonna, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France) and ENST - Bretagne (France); Dominique Bosc, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France) . . . . . [6996-63]

A design method for a ratiometric wavelength monitor using a pair of directional couplers acting as edge filters, Agus M. Hatta, Qian Wang, Gerald T. Farrell, Dublin Institute of Technology (Ireland). . . . . [6996-64]

Silicon-based photonic molecules, Bo Qian, Nanjing Univ. (China) and Ecole Normale Supérieure (France); San Chen, Kunji Chen, Xiangao Zhang, Jun Xu, Zhongyuan Ma, Wei Li, Xinfan Huang, Jean Hare, Nanjing Univ. (China) [6996-65]

A new method for solving nonhermitian perturbation theory for the microdisc resonators with periodic refractive index, Shahram Keyvaninia, Masoumeh Karvar, Alireza Bahrampour, Sharif Univ. of Technology (Iran). . . . . [6996-66]

Studies of different modulation techniques in the integration of SCM optical communication system, Diogo V. N.Coelho, Maria T. M. R.Giraldi, Instituto Militar de Engenharia (Brazil); Daniel J. C.Coura, Marcelo E. V.Segatto, Maria J. Pontes, Univ. Federal do Espirito Santo (Brazil); Joao C. W. A.Costa, Univ. Federal do Pará (Brazil) . . . . . [6996-67]

Dynamic behavior of electric field in the microrings in the presence of Kerr and two-photon absorption, Shahram Keyvaninia, Masoumeh Karvar, Alireza Bahrampour, Sharif Univ. of Technology (Iran) . . . . . [6996-68]

Optical channel dropping in the mid-infrared with a silicon microsphere, Mohammed S. Murib, Ali Serpengüzel, Koç Univ. (Turkey); Oğuzhan Gürlü, Istanbul Teknik Üniv. (Turkey) . . . . . [6996-69]

Tunable photonic structures based on grooved silicon-on-insulator and liquid crystals, Tatiana S. Perova, The Univ. of Dublin, Trinity College (Ireland); Vladimir Tolmachev, Ekaterina Astrova, A.F. Ioffe Physico-Technical Institute (Russia); Vasily Melnikov, The Univ. of Dublin, Trinity College (Ireland) . [6996-70]

Photodiode modeling for optoelectronic integrated circuits, Johannes Sturm, Carinthia Univ. (Austria); H. Zimmermann, Technische Univ. Wien (Austria) . . . . . [6996-72]

Thursday 10 April

SESSION 11

Room: Tivoli II . . . . . Thurs. 11.00 to 12.30

Advanced Processes and Devices

Session Chair: **Lorenzo Pavesi,** Univ. degli Studi di Trento (Italy)

11.00: **Towards SiGe quantum cascade lasers** *(Invited Paper)*, Douglas J. Paul, Univ. of Glasgow (United Kingdom) . . . . . [6996-47]

11.30: **Building technology platforms and foundries for photonic integrated circuits in Europe** *(Invited Paper)*, Roel G. Baets, Univ. Gent (Belgium) [6996-48]

12.00: **Waveguides and devices: modelling** *(Invited Paper)*, Thomas P. Felici, Photon Design (United Kingdom) . . . . . [6996-49]

Lunch/Exhibition Break . . . . . 12.30 to 13.30

SESSION 12

Room: Tivoli II . . . . . Thurs. 13.30 to 15.20

Photonics in Telecommunication Systems

Session Chair: **Alfred Driessen,** Univ. Twente (Netherlands)

13.30: **Photonics in the BREAD roadmap** *(Invited Paper)*, Peter Van Daele, Univ. Gent (Belgium) . . . . . [6996-50]

14.00: **Optical buffering scheme based on two-ring resonator system**, Landobasa Y. Tobing, Mee-Koy Chin, Nanyang Technological Univ. (Singapore) . . . . . [6996-51]

14.20: **Impact of large-scale reconfigurable optical interconnection networks in multiprocessor systems**, Inigo Artundo, Lieven Desmet, Vrije Univ. Brussel (Belgium); Wim Heirman, Univ. Gent (Belgium); Christof Debaes, Vrije Univ. Brussel (Belgium); Joni Dambre, Jan M. Van Campenhout, Univ. Gent (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . [6996-52]

14.40: **Performance of a free space optics subsystem boosted by SCM implementation**, Maria J. Pontes, Univ. Federal do Espirito Santo (Brazil); Diogo V. N.Coelho, Thiago V. N.Coelho, Maria T. M. R.Giraldi, Instituto Militar de Engenharia (Brazil); Marcelo E. V.Segatto, Univ. Federal do Espirito Santo (Brazil); Joao C. W. A.Costa, Univ. Federal do Pará (Brazil) . . . . . [6996-53]

15.00: **A novel integrated optical device for spectral coding in OCDMA networks**, Alexander V. Shamray, Alexander Kozlov, Igor Ilichev, Mikhail P. Petrov, A.F. Ioffe Physico-Technical Institute (Russia) . . . . . [6996-54]

Coffee Break . . . . . 15.20 to 15.40

SESSION 13

Room: Tivoli II . . . . . Thurs. 15.40 to 17.20

Waveguides and Devices II

Session Chair: **Juha T. Rantala,** Silecs Oy (Finland)

15.40: **Whispering gallery mode resonators based on erbium activated coated microspheres**, Patrice Féron, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); Yoann Jestin, Univ. degli Studi di Trento (Italy); Laura Ghisa, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); Alessandro Chiasera, Consiglio Nazionale Delle Ricerche (Italy); Yannick Dumeige, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); Maurizio Ferrari, Giancarlo C. Righini, Consiglio Nazionale delle Ricerche (Italy) . . . . . [6996-55]

16.00: **Phase matched magnetooptic planar waveguide elaborated by magnetic nanoparticles embedded in an organic-inorganic sol-gel matrix**, Fadi Choueikani, François Royer, Jamon Damien, Univ. Jean Monnet Saint-Etienne (France); Sophie Neveu, Univ. Pierre et Marie Curie (France) . . [6996-56]

16.20: **Novel schemes for bipolar charge injection into silicon nanocrystals for light emitting devices**, Oleksiy Anopchenko, Univ. degli Studi di Trento (Italy) and Istituto per la Ricerca Scientifica e Tecnologica (Italy); Stefano Prezioso, Luigi Ferraioli, Nicola Daldosso, Zeno Gaburro, Lorenzo Pavesi, Univ. degli Studi di Trento (Italy); Minghua Wang, Georg Pucker, Pierluigi Bellutti, Istituto per la Ricerca Scientifica e Tecnologica (Italy) . . . . . [6996-57]

16.40: **Composite nanostructured photonic crystals**, Tatyana Murzina, Fedor Y. Sychev, Irina Kolmychek, Oleg A. Aktsipetrov, M.V. Lomonosov Moscow State Univ. (Russia); Stephanie Cheylan, Gonçal Badenes, Institut de Ciències Fotòniques (Spain). . . . . [6996-58]

17.00: **Photonic crystal waveguides with ring-shaped holes on silicon-on-insulator**, Antti Säynätjoki, Mikaël Mulot, Teknillinen Korkeakoulu (Finland); Kevin Vynck, David Cassagne, Univ. Montpellier II (France); Jouni Ahopelto, VTT Information Technology (Finland); Harri K. Lipsanen, Teknillinen Korkeakoulu (Finland) . . . . . [6996-59]

Conference 6997 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 2, 4, 15, 18, 24, 26, 31, 34, 39, 41, 42, 43, 45, 58, 61, 68, 73, 75, 76, 77, 78

Semiconductor Lasers and Laser Dynamics

Conference Chairs: **Krassimir P. Panajotov,** Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics (Bulgaria); **Marc Sciamanna,** Supélec (France); **Angel A. Valle,** Univ. de Cantabria (Spain); **Rainer Michalzik,** Univ. Ulm (Germany)

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Monday 7 April

OPENING REMARKS

Room: Tivoli II . . . . . Mon. 10.55 to 11.00

Krassimir P. Panajotov, Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics (Bulgaria)

SESSION 1

Room: Tivoli II . . . . . Mon. 11.00 to 12.30

High-performance Lasers

Session Chair: **Fritz Henneberger,** Humboldt-Univ. zu Berlin (Germany)

11.00: **GaSb-based VECSEL exhibiting multiple-Watt output power and high beam quality at a lasing wavelength of 2.25µm** *(Invited Paper)*, Benno Rösener, Nicola Schulz, Marcel Rattunde, Christian Manz, Klaus Köhler, Joachim Wagner, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany) . . . . . [6997-01]

11.30: **The physics of catastrophic optical damage in high-power AlGaInP laser diodes**, Marwan Bou Sanayeh, OSRAM Opto Semiconductors GmbH (Germany) and Consultant (Germany) and Consultant (Germany); Peter Brick, Wolfgang Schmid, Bernd Mayer, Martin Müller, Martin Reufer, Klaus P. Streubel, OSRAM Opto Semiconductors GmbH (Germany); Mathias Ziegler, Jens W. Tomm, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Gerd Bacher, Univ. Duisburg-Essen (Germany) . . . . . [6997-02]

11.50: **High efficient tunable blue light generation by SHG of an external cavity enhanced broad area laser diode using a PPLN waveguide**, Andreas Jechow, Axel M. Heuer, Univ. Potsdam (Germany); Marc T. Kelemen, m2k-laser GmbH (Germany); Ralf Menzel, Univ. Potsdam (Germany). . . . . [6997-03]

12.10: **Diffraction coupling of tapered lasers in a very compact external Talbot cavity**, Imen Hassiaoui, Nicolas Michel, Michel Lecomte, Olivier Parillaud, Michel Calligaro, Michel M. Krakowski, Thales Research & Technology (France); Gilbert L. Bourdet, Ecole Polytechnique (France); Jean-Pierre Huignard, Thales Research & Technology (France) . . . . . [6997-04]

Lunch Break . . . . . 12.30 to 13.40

SESSION 2

Room: Tivoli II . . . . . Mon. 13.40 to 15.20

Semiconductor Lasers I

Session Chair: **Wolfgang E. Elsäßer,** Technische Univ. Darmstadt (Germany)

13.40: **Applications of Gunn lasers**, Naci Balkan, Univ. of Essex (United Kingdom) . . . . . [6997-05]

14.00: **Harmonic-resonance enhanced third-order nonlinear susceptibilities in quantum-cascade lasers**, Jing Bai, Univ. of Minnesota/Duluth; David S. Citrin, Georgia Institute of Technology and Unité Mixte Internationale (France) . . . . . [6997-06]

14.20: **Spectral measurements and simulations of 405 nm (Al, In)GaN laser diodes grown on SiC and GaN substrate**, Tobias M. Meyer, OSRAM Opto Semiconductors GmbH (Germany) and Univ. Regensburg (Germany); Harald Braun, Ulrich T. Schwarz, Univ. Regensburg (Germany); Desiree Queren, Marc O. Schillgalies, Stefanie Brüninghoff, Ansgar Laubsch, Uwe Strauss, OSRAM Opto Semiconductors GmbH (Germany) . . . . . [6997-07]

14.40: **Effects of detuned loading on the modudulation performance of widely tunable MG-Y lasers**, Marek Chacinski, Richard Schatz, Olle Kjebon, Kungliga Tekniska Högskolan (Sweden) . . . . . [6997-08]

15.00: **A new simulation technique for DFB lasers**, Britta C. Heubeck, Christoph Pflaum, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Gunther Steinle, Infineon Technologies AG (Germany). . . . . [6997-09]

Coffee Break . . . . . 15.20 to 15.50

SESSION 3

Room: Tivoli II . . . . . Mon. 15.50 to 17.30

Coupled lasers, Chaos and Synchronisation

Session Chair: **Angel A. Valle,** Univ. de Cantabria (Spain)

15.50: **Delay-coupled semiconductor lasers near locking: a bifurcation study**, Bernd Krauskopf, Univ. of Bristol (United Kingdom); Hartmut Erzgräber, The Univ. of Exeter (United Kingdom) . . . . . [6997-10]

16.10: **ental study of the non-linear dynamics of quantum-dot InAs/InGaAsP/InP twin-stripe lasers emitting at 1.5µm**, Jose M. Pozo, Technische Univ. Eindhoven (Netherlands); Stefano Beri, Technische Univ. Eindhoven (Netherlands) and Vrije Univ. Brusel (Belgium); Erwin A. Bente, Sanguan Anantathanasarn, Richard Nötzel, Technische Univ. Eindhoven (Netherlands); Mirvais Yousefi, The Member Co. (TMC) N.V. (Netherlands); Daan Lenstra, Technische Univ. Delft (Netherlands); Meint K. Smit, Technische Univ. Eindhoven (Netherlands) . . . . . [6997-11]

16.30: **Masking the time-delay from the chaotic output of an external-cavity laser**, Damien Rontani, Supélec (France) and Georgia Institute of Technology and Georgia Tech Lorraine (France); Alexandre Locquet, Georgia Tech Lorraine (France); Marc Sciamanna, Supélec (France) and Georgia Tech Lorraine (France); David S. Citrin, Georgia Institute of Technology . . . . . [6997-12]

16.50: **Time delay extraction in chaotic cryptosystems based on optoelectronic feedback with variable delay**, Silvia Ortin, Univ. de Cantabria (Spain); Maxime Jacquot, Univ. de Franche-Comté (France); Luis Pesquera, Univ. de Cantabria (Spain); Michael Peil, Laurent Larger, Univ. de Franche-Comté (France) . . . . . [6997-13]

17.10: **Synchronization on excitable pulses in optically injected semiconductor lasers,** Olivier Vaudel, Nicolas Péraud, Pascal Besnard, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France) . . . . . [6997-14]

POSTERS–Monday

Room: Contades Hall . . . . . Mon. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 12:00 hrs on Monday in the Contades Hall. Posters may remain on display until 12:00 hrs on Tuesday. Any papers left on the boards post noon on Tuesday will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Third-order harmonic-expansion analysis of the Lorenz-Haken equations, Belkacem Meziane, Univ. d'Artois (France); Samia Ayadi, Univ. des Sciences et de la Technologie Houari Boumediene (Algeria) . . . . . [6997-48]

Dynamic gain structuring during pulse build-up in self-pulsing lasers, Belkacem Meziane, Univ. d'Artois (France). . . . . [6997-49]

Single pass SHG of a high power DFB RW laser with more than 50% conversion efficiency using a PPLN waveguide crystal, Andreas Jechow, Univ. Potsdam (Germany); Sandra Stry, Joachim R. Sacher, Sacher Lasertechnik GmbH (Germany); Ralf Menzel, Univ. Potsdam (Germany). . . . . [6997-50]

Optimal laser diode operating mode with unstable operating temperature in turbulent atmosphere, Lucie Dordova, Otakar Wilfert, Brno Univ. of Technology (Czech Republic) . . . . . [6997-51]

Optimisation of an avionic VCSEL-based optical link through a large signal characterisation, Khadijetou S. Ly, Airbus S.A.S. (France); Angélique Rissons Blanquet, Ecole Nationale Supérieure de l'Aéronautique et de l'Espace (France); Eddie Gambardella, Airbus S.A.S. (France); Jean-Claude Mollier, Ecole Nationale Supérieure de l'Aéronautique et de l'Espace (France) . . . . . [6997-52]

Compact Illumination Modules Based on High-Power VCSEL Arrays, Christiane Gimkiewicz, Michael Columbus, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Michael Moser, Avalon Photonics (Switzerland) . . . . . [6997-53]

Polarization bistability in 1.5 micron wavelength single-mode vertical-cavity surface-emitting lasers induced by orthogonal optical injection, Angel A. Valle, Marcos Gomez-Molina, Luis Pesquera, Univ. de Cantabria (Spain) . . . . . [6997-54]

Mode structure of a semiconductor laser with feedback from two external filters, Piotr Slowinski, Bernd Krauskopf, Univ. of Bristol (United Kingdom); Sebastian M. Wieczorek, Univ. of Exeter (United Kingdom) . . . . . [6997-55]

Bifurcations of composite-cavity modes in multi-stripe laser arrays, Hartmut Erzgräber, Sebastian M. Wieczorek, The Univ. of Exeter (United Kingdom); Bernd Krauskopf, Univ. of Bristol (United Kingdom) . . . . . [6997-56]

Oscillator-like resonance in the "Maxwell-Bloch" equations self-pulsing regime, Belkacem Meziane, Univ. d'Artois (France). . . . . [6997-57]

Modelling strategies for bistable semiconductor ring lasers, Alessandro Scirè, Univ. de les Illes Balears (Spain) . . . . . [6997-58]

Nonlinear dynamics of a vertical-cavity surface-emitting laser (VCSEL) subject to a repetitive optical pulse injection, Yuan-Sung Chang, Fan-Yi Lin, National Tsing Hua Univ. (Taiwan). . . . . [6997-59]

Nonlinear dynamics of a semiconductor laser optically injected by high-frequency repetitive pulses from an optoelectronic feedback laser, Yu-Shan Juan, Fan-Yi Lin, National Tsing Hua Univ. (Taiwan) . . . . . [6997-60]

Noise properties of semiconductor ring lasers, Antonio Perez, Alessandro Scire, Roberta Zambrini, Pere Colet, Univ. de les Illes Balears (Spain) . [6997-61]

Oblong-shaped VCSELs with pre-defined mode patterns, Abdel-Sattar M. Gadallah, Andrea Kroner, Ihab Kardosh, Fernando Rinaldi, Rainer Michalzik, Univ. Ulm (Germany) . . . . . [6997-62]

Characterization of the chirp behaviour of integrated laser modulators (ILM) by measurements of their optical spectra, Ignacio Garces, Asier Villafranca, Javier Lasobras, Univ. de Zaragoza (Spain) . . . . . [6997-63]

Narrow linewidth and demonstration of saturation spectra of the Cesium at 852nm with high power Al-free DFB laser diodes, Vincent Ligeret, Shailendra Bansropun, Yannick Robert, Michel Lecomte, Michel Calligaro, Olivier Parillaud, Michel M. Krakowski, Thales Research & Technology (France) . . . . . [6997-64]

Measurement and simulation of the lateral mode profile of broad ridge 405 nm (Al,In)GaN laser diodes, Harald Braun, Dominik Scholz, Ulrich T. Schwarz, Univ. Regensburg (Germany); Stefanie Brüninghoff, Marc O. Schillgalies, Desiree Queren, Ansgar Laubsch, Uwe Strauss, OSRAM Opto Semiconductors GmbH (Germany) . . . . . [6997-65]

Carrier transport study in GaInNAs material using the Monte Carlo method, Nikolaos Vogiatzis, Ying Ning Qiu, Judy M. Rorison, Univ. of Bristol (United Kingdom) . . . . . [6997-67]

Optimisation of the wall-plug efficiency of Al-free active region diode lasers at 975 nm, Nicolas Michel, Michel Lecomte, Olivier Parillaud, Michel Calligaro, Michel M. Krakowski, Thales Research & Technology (France) . . . . . [6997-68]

Experimental investigation of the self-pulsation starting in mode-locked Fabry-Perot semiconductor lasers, Vincent Roncin, Julien Poette, Jean-François Hayau, Pascal Besnard, Jean-Claude Simon, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France) . . . . . [6997-69]

Frequency division multiplexed radio-over-fiber transmission using an optically injected laser diode, Sze-Chun Chan, City Univ. of Hong Kong (Hong Kong China). . . . . [6997-70]

Equivalent convex-mirror induced by pump in an optically-pumped VECSEL, Tiffany Elsass, Sylvain Barbay, Isabelle Sagnes, Robert Kuszelewicz, Ctr. National de la Recherche Scientifique (France) . . . . . [6997-71]

Broad-waveguide passively mode-locked laser diodes for stable short pulse generation, Eugene A. Avrutin, The Univ. of York (United Kingdom); Boris S. Ryvkin, Efim L. Portnoi, A.F. Ioffe Physico-Technical Institute (Russia) . . . . . [6997-72]

Spatio-temporal dynamics in a Fabry-Perot semiconductor microresonator beyond the uniform field limit, Lorenzo Columbo, Lionel Gil, Ctr. National de la Recherche Scientifique (France) . . . . . [6997-73]

RIN-spectra of a two-mode lasing two-section DFB-laser for optical sensor application., Hubert Krause, Julian Sonksen, Jürgen Baumann, Univ. Kassel (Germany); Ute Troppenz, Wolfgang Rehbein, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Volker Viereck, Hartmut H. Hillmer, Univ. Kassel (Germany) . . . . . [6997-74]

Study and fabrication of buried oxide layers in GaAs/AlAs structures for confinement engineering in photonic devices, Isaac Suarez, Moustapha Conde, Guilhem Almuneau, Laurent Jalabert, Pascal Dubreuil, Jean-Baptiste Doucet, Laurent Bouscayrol, Chantal N. Fontaine, LAAS-CNRS (France) . . . . . [6997-75]

Time-domain response to ps optical pulse trigger of an all-optical flip-flop based on semiconductor ring laser, Andrea Trita, Univ. degli Studi di Pavia (Italy); Sandor Furst, Gabor Mezosi, Marc Sorel, Univ. of Glasgow (United Kingdom); Maria J. Latorre Vidal, Jin Yu, Francesca Bragheri, Ilaria Cristiani, Univ. degli Studi di Pavia (Italy); Siyuan Yu, Zhuoran Wang, Univ. of Bristol (United Kingdom); Guido Giuliani, Univ. degli Studi di Pavia (Italy) . . . . [6997-76]

Experimental and theoretical analysis of the optical spectra of directionally bistable semiconductor ring lasers, Maria J. Latorre Vidal, Univ. degli Studi di Pavia (Italy); Sandor Furst, Gabor Mezosi, Marc Sorel, Univ. of Glasgow (United Kingdom); Antonio Perez, Alessandro Scirè, Salvador Balle, Univ. de les Illes Balears (Spain); Guido Giuliani, Univ. degli Studi di Pavia (Italy) . . . . . [6997-77]

Tuesday 8 April

SESSION 4

Room: Tivoli II . . . . . Tues. 08.20 to 09.30

Cavity Solitons

Session Chair: **Giovanna Tissoni,** INFM-CNR and CNISM, Univ. de degli Studi dell'Insubria (Italy)

08.20: **Interplay of external gradients and material defects in the dynamics of semiconductor** *(Invited Paper)*, Stéphane Barland, Ctr. National de la Recherche Scientifique (France); Emilie Caboche, Patrice Genevet, Francesco Pedaci, Massimo Giudici, Jorge R. Tredicce, Univ. de Nice Sophia Antipolis (France); Giovanna Tissoni, Luigi A. Lugiato, INFM-CNR and CNISM, Univ. degli Studi dell'Insubria (Italy) . . . . . [6997-15]

08.50: **Topological localized structures in quantum dot semi-conductor lasers with saturable absorber**, Sergey V. Fedorov, Nikolay N. Rosanov, Anatoly N. Shatsev, S.I. Vavilov State Optical Institute (Russia). . . . . [6997-17]

09.10: **Mapping local defects of extended media using localized structures,** Francesco Pedaci, Giovanna Tissoni, INFM-CNR and CNISM, Univ. degli Studi dell'Insubria (France); Stéphane Barland, Ctr. National de la Recherche Scientifique (France); Massimo Giudici, Jorge R. Tredicce, Univ. de Nice Sophia Antipolis (France). . . . . [6997-18]

SESSION 5

Room: Tivoli II . . . . . Tues. 09.30 to 12.20

Optical Injection and Dynamics

Session Chair: **Marc Sciamanna,** Supèlec (France)

09.30: **All-optical frequency conversion using nonlinear dynamics of semiconductor lasers subject to external optical injection**, Sheng-Kwang Hwang, National Cheng Kung Univ. (Taiwan); Shie-Chin Hsieh, Hsiang-Ji Jhong, National Chung Cheng Univ. (Taiwan). . . . . [6997-19]

09.50: **Dynamical sensitivity and bifurcations in lasers with noisy injection: towards chaos-based laser sensors**, Sebastian M. Wieczorek, The Univ. of Exeter (United Kingdom); Weng W. Chow, Sandia National Labs. . . . . [6997-20]

10.10: **Nonlinear dynamics in an optically injected two-colour laser**, Simon W. Osborne, Kevin Buckley, Andreas Amann, Stephen O'Brien, Tyndall National Institute (Ireland) . . . . . [6997-21]

Coffee Break . . . . . 10.30 to 11.00

11.00: **All-optical noninvasive control of semiconductor lasers**, Sylvia Schikora, Hans-Jürgen Wünsche, Fritz Henneberger, Humboldt-Univ. zu Berlin (Germany) . . . . . [6997-22]

11.20: **Optical bistability and flip-flop operation in DFB laser diodes injected with a CW signal**, Geert Morthier, Koen Huybrechts, Univ. Gent (Belgium) . . . . . [6997-23]

11.40: **Bifurcation analysis of a multi-transverse-mode VCSEL**, Kirk Green, Frank Marten, Vrije Univ. Amsterdam (Netherlands); Bernd Krauskopf, Univ. of Bristol (United Kingdom) . . . . . [6997-24]

12.00: **Asymmetric square-waves in mutually coupled semiconductor lasers**, David W. Sukow, Washington and Lee Univ.; Athanasios T. Gavrielides, Air Force Research Lab.; Thomas Erneux, Univ. Libre de Bruxelles (Belgium) . . . . . [6997-25]

Lunch/Exhibition Break . . . . . 12.20 to 13.20

SESSION 6

Room: Tivoli II . . . . . Tues. 13.20 to 15.30

Semiconductor Lasers II

Session Chair: **Dieter Bimberg,** Technische Univ. Berlin (Germany)

13.20: **3.5 W GaInNAs disk laser operating at 1220 nm** *(Invited Paper)*, Ville-Markus Korpijarvi, Jussi Rautiainen, Tampere Univ. of Technology (Finland); Pietari Tuomisto, EpiCrystals, Inc. (Finland) and Tampere Univ. of Technology (Finland); Janne Puustinen, Antti Härkönen, Mircea D. Guina, Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland) . . . . . [6997-26]

13.50: **Novel chirped multilayer quantum-dot lasers**, Gray Lin, National Chiao Tung Univ. (Taiwan) . . . . . [6997-27]

14.10: **Differences in partition noise for 1.55 µm quantum-dash (dot) and bulk structures**, Jean-François Hayau, Julien Poëtte, Vincent Roncin, Pascal Besnard, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); François Lelarge, B. Rousseau, L. Le Gouezigou, F. Pommereau, F. Poingt, O. Le Gouezigou, Alexandre Shen, Guang-Hua Duan, Alcatel-Thales III-V Lab. (France) . . . . . [6997-28]

14.30: **Bifurcation analysis of a model of passively mode-locked quantum dot laser**, Andrei G. Vladimirov, Weierstrass-Institute für Angewandte Analysis und Stochastik (Germany) and St. Petersburg State Univ. (Russia); Dmitrii I. Rachinskii, National Univ. of Ireland/Cork (Ireland) . . . . . [6997-29]

14.50: **A self-biased extremely shallow quantum-well SESAM with a low saturation fluence**, Eugene A. Avrutin, The Univ. of York (United Kingdom); Boris S. Ryvkin, A.F. Ioffe Physico-Technical Institute (Russia); Krassimir P. Panajotov, Vrije Univ. Brussel (Belgium) . . . . . [6997-30]

15.10: **Comprehensive RF-domain, spectral- and time-domain analysis of passively mode-locked two-section quantum-dot laser emitting at 1.3µm**, Stefan Breuer, Lukas Drzewietzki, Wolfgang E. Elsäßer, Technische Univ. Darmstadt (Germany); Mark Hopkinson, The Univ. of Sheffield (United Kingdom); Michel Calligaro, Michel M. Krakowski, Alcatel-Thales III-V Lab. (France) . . . . . [6997-31]

Wednesday 9 April

SESSION 7

Room: Tivoli II . . . . . Wed. 08.00 to 10.10

Joint session: VCSELs and Micro-Optics

Session Chair: **Rainer Michalzik,** Univ. Ulm (Germany)

Joint Event with Conference 6992, Micro-Optics

08.00: **Photonic crystal vertical-cavity surface-emitting lasers** *(Invited Paper)*, Kent D. Choquette, Chen Chen, Ansas M. Kasten, Dominic Siriani, Meng Peun Tan, Josh Sulkin, Univ. of Illinois at Urbana-Champaign . . . . . [6997-32]

08.30: **Microstructured photonic crystal for singlemode long wavelength VCSELs**, Renaud Stevens, Philippe Gilet, Alexandre Larrue, Laurent Grenouillet, Nicolas Olivier, Philippe Grosse, Karen Gilbert, Raphael Teysseyre, Alexei Chelnokov, Commissariat à l'Energie Atomique (France) . . . . . [6997-33]

08.50: **Single mode 1.3µm InGaAs VCSELs for access network applications**, Petter Westbergh, Emma Söderberg, Johan S. Gustavsson, Peter Modh, Anders G. Larsson, Chalmers Tekniska Högskola (Sweden); Zhenzhong Zhang, Jesper Berggren, Matthias Hammar, Kungliga Tekniska Högskolan (Sweden) . [6997-34]

09.10: **Experimental study of transverse mode dynamics in vertical-cavity surface-emitting lasers under current modulation**, Angel A. Valle, Univ. de Cantabria (Spain); Mikel M. Arizaleta Arteaga, Univ. Pública de Navarra (Spain); Krassimir P. Panajotov, Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics (Bulgaria); Marc Sciamanna, Supélec (France) . . . . . [6997-35]

09.30: **VCSEL collimation using self-aligned integrated polymer microlenses**, Christophe Levallois, Véronique Bardinal, Thierry Camps, Thierry Leïchlé, Emmanuelle Daran, Corinne Vergnenègre, Jean-Baptiste Doucet, LAAS-CNRS (France) . . . . . [6992-31]

09.50: **High efficiency vertical-cavity surface-emitting lasers with tunnel-regenerated multiple-active-region structure**, Xia Guo, Bao-Lu Guan, Hao Yang, Tong-Xi Wang, Guang-Di Shen, Beijing Univ. of Technology (China) . . . . . [6997-36]

Coffee Break . . . . . 10.10 to 10.30

SESSION 8

Room: Tivoli II . . . . . Wed. 10.30 to 12.20

Vertical cavity Lasers

Session Chair: **Krassimir P. Panajotov,** Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics (Bulgaria)

10.30: **High power semiconductor disk laser with monolithically integrated pump lasers** *(Invited Paper)*, Wolfgang Diehl, OSRAM Opto Semiconductors GmbH (Germany) and Philipps-Univ. Marburg (Germany); Tony Albrecht, Peter Brick, Michael Furitsch, Stefan Illek, Stephan Lutgen, Ines Pietzonka, Johann Luft, OSRAM Opto Semiconductors GmbH (Germany); Wolfgang Stolz, Philipps-Univ. Marburg (Germany) . . . . . [6997-37]

11.00: **Coherence radius and mode size of a broad-area vertical-cavity surface-emitting laser in the incoherent emission regime**, Gordon M.Craggs, Guy Verschaffelt, Ingo Fischer, Michael L.Peeters, Vrije Univ. Brussel (Belgium); Shyam K. Mandre, Technische Univ. Darmstadt (Germany) . . . . . [6997-38]

11.20: **Excitation of a two-mode limit cycle dynamics on the route to polarization switching in a VCSEL subject orthogonal to optical injection**, Ignace I. Gatare, Vrije Univ. Brussel (Belgium); Marc Sciamanna, Ecole Supérieure d'Electricité (France); Michel Nizette, Univ. Libre de Bruxelles (Belgium); Hugo Thienpont, Krassimir P. Panajotov, Vrije Univ. Brussel (Belgium) . . . . . [6997-39]

11.40: **Reasons for an unusual transverse-mode selectivity in some detuned VCSELs**, Wlodzimierz Nakwaski, Robert P. Sarzala, Krzysztof Gutowski, Maciej Kuc, Politechnika Lódzka (Poland) . . . . . [6997-40]

12.00: **High-power semiconductor disk lasers based on quantum dots**, Andre Strittmatter, T. D. Germann, J. Pohl, U. W. Pohl, Dieter Bimberg, Technische Univ. Berlin (Germany); Jussi Rautiainen, Mircea D. Guina, Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland) . . . . . [6997-78]

Lunch/Exhibition Break . . . . . 12.20 to 14.30

SESSION 9

Room: Tivoli II . . . . . Wed. 14.30 to 15.30

Ring lasers

Session Chair: **Athanasios T. Gavrielides,** Air Force Research Lab.

14.30: **High-speed integrated semiconductor micro-ring lasers with efficient off-axis parabolic reflectors**, Guy Verschaffelt, Vrije Univ. Brussel (Belgium); Zhuoran Wang, Yi Shu, Univ. of Bristol (United Kingdom); Gabor Mezosi, Univ. of Glasgow (United Kingdom); Jan Danckaert, Vrije Univ. Brussel (Belgium); Marc Sorel, Univ. of Glasgow (United Kingdom); Siyuan Yu, Univ. of Bristol (United Kingdom) . . . . . [6997-41]

14.50: **Chaos and non-linear dynamics of a 1.55µm InGaAsP-InP microring laser**, Konstantinos E. Chlouverakis, Spiros S. Mikroulis, Dimitris Syvridis, Univ. of Athens (Greece) . . . . . [6997-42]

15.10: **The dynamical behaviour of a semiconductor ring laser**, Guy Van der Sande, Lendert Gelens, Philippe Tassin, Vrije Univ. Brussel (Belgium); Alessandro Scirè, Univ. de les Illes Balears (Spain); Jan Danckaert, Vrije Univ. Brussel (Belgium) . . . . . [6997-43]

Coffee Break . . . . . 15.30 to 15.50

SESSION 10

Room: Tivoli II . . . . . Wed. 15.50 to 17.10

Semiconductor Lasers III

Session Chair: **Ortwin G. Hess,** Univ. of Surrey (United Kingdom)

15.50: **Investigation on the linewidth enhancement factor of multiple longitudinal mode semiconductor lasers**, Asier Villafranca, Ignacio Garces, Univ. de Zaragoza (Spain); Guido Giuliani, Silvano Donati, Univ. degli Studi di Pavia (Italy) . . . . . [6997-44]

16.10: **Frequency stabilized high brightness tapered amplifier and laser modules**, Gerd Kochem, Mark Haverkamp, Konstantin M. Boucke, Fraunhofer-Institut für Lasertechnik (Germany) . . . . . [6997-45]

16.30: **Traveling wave modeling of semiconductor ring lasers**, Mindaugas Radiunas, Weierstrass-Institute für Angewandte Analysis und Stochastik (Germany) . . . . . [6997-46]

16.50: **Transverse mode control in an optically-pumped VCSEL**, Robert Kuszelewicz, Ctr. National de la Recherche Scientifique (France); Xavier Hachair, Vrije Univ. Brussel (Belgium); Sylvain Barbay, Tiffany Elsass, Isabelle Sagnes, Ctr. National de la Recherche Scientifique (France) . . . . . [6997-47]

Conference 6998 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 19, 33, 57, 66

Solid State Lasers and Amplifiers

Conference Chairs: **Jonathan A. Terry,** Univ. of St. Andrews (United Kingdom); **Thomas Graf,** Univ. Stuttgart (Germany); **Helena Jelínková,** Czech Technical Univ. in Prague (Czech Republic)

Programme Committee: **Arnaud Brignon,** Thales Research & Technology (France); **Timothy J. Carrig,** Lockheed Martin Coherent Technologies; **Giulio Cerullo,** Politecnico di Milano (Italy); **Efstratios Georgiou,** Technological Education Institute-Crete (Greece); **Nikolay V. Kuleshov,** International Laser Ctr. (Belarus); **Valdas Pasiskevicius,** Kungliga Tekniska Högskolan (Sweden); **Gunnar Rustad,** Norwegian Defense Research Establishment (Norway); **Alphan Sennaroglu,** Koç Univ. (Turkey); **Yehoshua Shimony,** Soreq Nuclear Research Ctr. (Israel)

Tuesday 8 April

OPENING REMARKS

Room: Orangerie . . . . . Tues. 08.15 to 08.20

Jonathan A. Terry, Univ. of St. Andrews (United Kingdom)

SESSION 1

Room: Orangerie . . . . . Tues. 08.20 to 12.10

Fibre Lasers

Session Chair: **Thomas Graf,** Univ. Stuttgart (Germany)

08.20: **Multicomponent oxide glass fiber lasers** *(Invited Paper)*, Shibin Jiang, NP Photonics, Inc.. . . . . [6998-01]

08.50: **8-ns Q-switched fiber laser using resonant saturable absorber mirror**, Tommi Hakulinen, Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland) . . . . . [6998-02]

09.10: **Cw-operation of an Ytterbium-doped 19-core fiber laser**, Andreas Popp, Marwan Abdou Ahmed, Daniela Kauffmann, Andreas Voss, Thomas Graf, Univ. Stuttgart (Germany) . . . . . [6998-03]

09.30: **Soliton crystal fiber laser**, François Sanchez, Adil Haboucha, Hervé Leblond, Mohamed Salhi, Andrey K. Komarov, Univ. d'Angers (France) [6998-04]

09.50: **Spectroscopic properties of Tb-doped borosilicate glasses for new green laser media**, Yasutake Ohishi, Tatsuya Yamashita, Yusuke Arai, Takenobu Suzuki, Toyota Technological Institute (Japan) . . . . . [6998-05]

Coffee Break . . . . . 10.10 to 10.40

10.40: **High power mid-infrared fibre lasers that use silica host material** *(Invited Paper)*, Stuart D. Jackson, The Univ. of Sydney (Australia) . . . . [6998-06]

11.10: **High power bismuth fibre amplifier at 1178nm for laser guide stars**, Luke R. Taylor, European Southern Observatory (Germany); Vladislav Dvoyrin, General Physics Institute (Russia); Yan Feng, Domenico Bonaccini Calia, Wolfgang K. P.Hackenberg, European Southern Observatory (Germany); Valery M. Mashinsky, General Physics Institute (Russia). . . . . [6998-07]

11.30: **Mode-locked Yb-doped large-mode-area microstructure fiber laser**, Ammar A. Hideur, Gilles Martel, Caroline Lecaplain, Clovis Chédot, Univ. de Rouen (France); Bülend Ortac, Jens Limpert, Friedrich-Schiller-Univ. Jena (Germany) . . . . . [6998-08]

11.50: **Improvement of Yb^{3+} doped optical fibers by using MCVD method**, Vincent Petit, Edson H. Sekiya, Tomoya Okazaki, Romain Bacus, Pranabesh Barua, Kazuya Saito, Toyota Technological Institute (Japan). . . . . [6998-09]

Lunch/Exhibition Break . . . . . 12.10 to 13.20

SESSION 2

Room: Orangerie . . . . . Tues. 13.20 to 15.30

Pulsed SSL

Session Chair: **Helena Jelínková,**
Czech Technical Univ. (Czech Republic)

13.20: **Compact and efficient mode-locked lasers based on QD-SESAMs** *(Invited Paper)*, Edik U. Rafailov, Univ. of Dundee (United Kingdom); Alexander A. Lagatsky, Univ. of St. Andrews (United Kingdom); S. A. Zolotovskaya, Univ. of Dundee (United Kingdom); Wilson Sibbett, Univ. of St. Andrews (United Kingdom) . . . . . [6998-10]

13.50: **Efficient, high peak power, Q-switched, tunable diode pumped Tm: YLF laser**, Jan K. Jabczynski, Lukasz Gorajek, Waldemar Zendzian, Jacek Kwiatkowski, Wojskowa Akademia Techniczna (Poland); Helena Jelínková, Jan Sulc, Michal Nemec, Czech Technical Univ. (Czech Republic) . . . . [6998-11]

14.10: **Q-switching a fibre laser with a dual mode single crystal photo-elastic modulator**, Ferdinand Bammer, Technische Univ. Wien (Austria); Rok Petkovsek, Janez I. Mozina, Univ. v Ljubljani (Slovenia); Dieter Schuöcker, Technische Univ. Wien (Austria) . . . . . [6998-12]

14.30: **High-energy diode-pumped Yb:YAG chirped pulse amplifier**, Mathias Siebold, Christoph Wandt, Friedrich-Schiller-Univ. Jena (Germany); Sandro Klingebiel, Zsuzsanna Major, Antonia Popp, Izhar Ahmad, Tie-Jun Wang, Max-Planck-Institut für Quantenoptik (Germany); Joachim Hein, Friedrich-Schiller-Univ. Jena (Germany); Ferenc Krausz, Stefan Karsch, Max-Planck-Institut für Quantenoptik (Germany) . . . . . [6998-13]

14.50: **75 fs, 100 mW chirped pulse amplification: impact of pumping configuration**, Jean-Bernard Lecourt, Yves Hernandez, Flavien Liegeois, Domenico Giannone, Multitel A.S.B.L. (Belgium) . . . . . [6998-14]

15.10: **Q-switched high-power disk laser**, Yuri A. Chivel, Irina V. Nikonchuk, Dmitry A. Zatiagin, B.I. Stepanov Institute of Physics (Belarus) . . . . . [6998-15]

Wednesday 9 April

SESSION 3

Room: Orangerie . . . . . Wed. 08.40 to 12.00

Beam Control & Transmission

Session Chair: **Jonathan A. Terry,**
Univ. of St. Andrews (United Kingdom)

08.40: **Radially polarized Yb:YAG thin-disk laser** *(Invited Paper)*, Marwan Abdou Ahmed, Moritz M. Vogel, Andreas Voss, Thomas Schoder, Monica Ubl, Univ. Stuttgart (Germany); Marcus Pritschow, Institut für Mikroelektronik Stuttgart (Germany); Thomas Graf, Univ. Stuttgart (Germany) . . . . . [6998-16]

09.10: **New simulation techniques for solid-state lasers**, Matthias Wohlmuth, Christoph Pflaum, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . . . . [6998-17]

09.30: **Detection of mode conversion effects in passive LMA fibres by means of optical correlation analysis**, Michael R. Duparré, Thomas Kaiser, Barbara Luedge, Friedrich-Schiller-Univ. Jena (Germany); Siegmund Schröter, IPHT Jena (Germany); Daniela Kauffmann, Univ. Stuttgart (Germany) . . [6998-22]

09.50: **Full vectorial finite-element simulations of Bragg fibers for single-mode beam delivery systems**, Moritz M. Vogel, Marwan Abdou Ahmed, Daniela Kauffmann, Andreas Voss, Thomas Graf, Univ. Stuttgart (Germany) . . . . . [6998-19]

Coffee Break . . . . . 10.10 to 10.40

10.40: **Efficient linear-to-radial polarization converter for high-power lasers**, Galina Machavariani, Steven Jackel, Yaakov Lumer, Inon Moshe, Avi Meir, Soreq Nuclear Research Ctr. (Israel) . . . . . [6998-20]

11.00: **Investigation of the bending effects on evanescent-field coupled waveguides used for high-power fundamental mode delivery systems**, Daniela Kauffmann, Marwan Abdou Ahmed, Florian Kizhakeparampil, Moritz M. Vogel, Andreas Voss, Thomas Graf, Univ. Stuttgart (Germany) . . . . . [6998-21]

11.20: **Transverse mode analysis of a laser beam with a non-optical technique**, Kamel Ait-Ameur, Renaud de Saint Denis, Michael Fromager, Florent Porée, Ecole Nationale Supérieure d'Ingenieurs de Caen et Ctr. de Recherche (France) . . . . . [6998-18]

11.40: **Novel coupling device of high peak power pulsed laser to multimode fiber**, Xinghai Zhao, Yang Gao, Yong-Sheng Cheng, Wei Su, China Academy of Engineering Physics (China) . . . . . [6998-23]

Lunch/Exhibition Break . . . . . 12.00 to 14.20

SESSION 4

Room: Orangerie . . . . . Wed. 14.20 to 17.00

Infrared Lasers

14.20: **Some new approaches for development of mid IR laser sources** *(Invited Paper)*, Maxim E. Doroshenko, General Physics Institute (Russia); Tasoltan T. Basiev, A.M. Prokhorov General Physics Institute (Russia) . [6998-24]

14.50: **2 Watt 2 µm Tm/Ho fiber laser system passively Q-switched by antimonide semiconductor saturable absorber**, Samuli Kivistö, Tommi Hakulinen, Mircea D. Guina, Oleg G. Okhotnikov, Tampere Univ. of Technology (Finland); Karl Rössner, Alfred W. B.Forchel, Univ. Würzburg (Germany) [6998-25]

15.10: **Laser action in bulk Cr:ZnSe crystals**, Petr Koranda, Helena Jelínková, Michal Nemec, Jan Sulc, Czech Technical Univ. (Czech Republic); Maxim E. Doroshenko, Tasoltan T. Basiev, General Physics Institute (Russia); Vitaly K. Komar, Andriy S. Gerasimenko, Institute for Single Crystals (Ukraine); Valeriy V. Badikov, Kuban State Univ. (Russia). . . . . [6998-26]

Coffee Break . . . . . 15.30 to 16.00

16.00: **Effects of pulse timing parameters on bulk Erbium laser operation in the eyesafe region**, Efstratios Georgiou, Nikolaos Lazarides, Panagiotis Kabadais, Technological Education Institute-Crete (Greece); Olivier Musset, Jean-Pierre Boquillon, Univ. de Bourgogne (France) . . . . . [6998-27]

16.20: **Tm-doped vanadates under pulsed pumping with variable duty-cycle: impact on lasing and fluorescence**, Jan Sulc, Pavel Cerny, Helena Jelínková, Czech Technical Univ. (Czech Republic); Witold Ryba-Romanowski, Radoslaw Lisiecki, Piotr Solarz, Grazina Dominiak-Dzik, Instytut Niskich Temperatur i Badan Strukturalnych (Poland); Yoshiharu Urata, Megaopto Co., Ltd. (Japan); Mikio Higuchi, Hokkaido Univ. (Japan) . . . . . [6998-42]

16.40: **Record performance from a passively Q-switched Yb:Er:YVO_4 laser**, Yuen H. Tsang, Colin M. Mercer, David J. Binks, The Univ. of Manchester (United Kingdom). . . . . [6998-29]

POSTERS–Wednesday

Room: Contades Hall . . . . . Wed. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 9:00 hrs on Wednesday in the Contades Hall. Any papers left on the boards at the close of the poster session will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Diode pumped Er:YVO_4 microchip laser, Helena Jelínková, Jan Sulc, Czech Technical Univ. (Czech Republic); Witold Ryba-Romanowski, Instytut Niskich Temperatur i Badan Strukturalnych (Poland); Tadeusz Lukasiewicz, Instytut Technologii Materialów Elektronicznych (Poland). . . . . [6998-28]

Gain variation of Raman amplifier in silicon microring coupled-resonator optical waveguides, Shahram Keyvaninia, Sharif Univ. of Technology (Iran); Ehsaneh Daghigh Ahmadi, Shahid Bahonar Univ. of Kerman (Iran); Farnaz Farman, Sharif Univ. of Technology (Iran); Razieh Taghiabadi, Vali Asr Univ. (Iran); Alireza Bahrampour, Sharif Univ. of Technology (Iran) . . . . . [6998-41]

Nd:YAG laser systems with radiation delivery by thin hollow waveguides, Michal Nemec, Jan Sulc, Helena Jelínková, Czech Technical Univ. in Prague (Czech Republic); Mitsunobu Miyagi, Katsumasa Iwai, Sendai National College of Technology (Japan); Yi-Wei Shi, Fudan Univ. (China); Yuji Matsuura, Tohoku Univ. (Japan) . . . . . [6998-43]

Optical and laser characterization of 2% Nd:YAG ceramics elements, Jan K. Jabczynski, Wojskowa Akademia Techniczna (Poland); Zdzislaw Librant, Helena Weglarz, Anna Wajler, Instytut Technologii Materialów Elektronicznych (Poland); Waldemar Zendzian, Jaroslaw Jagus, Wojskowa Akademia Techniczna (Poland) . . . . . [6998-44]

The study of spectroscopic and luminescence properties of disordered laser crystals calcium niobium gallium garnet doped with Er^{3+}, Polina A. Ryabochkina, Mordovian State Univ. (Russia); Yurii K. Voronko, General Physics Institute (Russia); Alexander V. Malov, Mordovian State University (Russia); Mihael O. Marychev, N.I. Lobachevsky State Univ. of Nizhni Novgorod (Russia); Alexander A. Sobol, Sergei N. Ushakov, General Physics Institute (Russia); Evgenii V. Chuprunov, N.I. Lobachevsky State Univ. of Nizhni Novgorod (Russia) . . . . . [6998-45]

Investigations on fibers for high-peak power pulsed Nd:YAG-lasers for laser detonator, Yang Gao, Xinghai Zhao, Wei Su, Yong-Sheng Cheng, Meijian Xu, Wentao Duan, Haiwu Yu, China Academy of Engineering Physics (China) . . . . . [6998-46]

Optimized single amplified ultra-short laser pulse, Junewen Chen, Chung-Hua Univ. (Taiwan). . . . . [6998-47]

Laser induced fluorescence as a tool for the study of laser damage precursors in transparent materials, Alessandra Ciapponi, Frank R. Wagner, Jean-Yves Natoli, Institut Fresnel (France); Hervé Piombini, David Damiani, Bertrand Bertussi, Commissariat à l'Energie Atomique (France) . . . . . [6998-48]

300-kW, eye-safe intracavity OPO with efficient pulse shortening, Waldemar Zendzian, Jan K. Jabczynski, Jacek Kwiatkowski, Krzysztof Kopczynski, Wojskowa Akademia Techniczna (Poland) . . . . . [6998-49]

The effect of self-frequency shift on soliton-bound states in a system with spectral filtering and nonlinear gain, Sofia C. V.Latas, Mário F. S.Ferreira, Univ. de Aveiro (Portugal) . . . . . [6998-50]

Characterization and optimization of a miniature 2.94 µm Er:YAG laser, Cha Yu, Ruei-Bin Jhang, National Central Univ. (Taiwan); En-Yea Pan, Chung Cheng Institute of Technology (Taiwan); Hon-Fai Yau, National Central Univ. (Taiwan); Yuh-Ping Tong, DailyCare Biomedical Inc. (Taiwan) . . . . . [6998-51]

A Q-switched Nd:YCOB laser, Colin M. Mercer, Yuen H. Tsang, David J. Binks, The Univ. of Manchester (United Kingdom); Huaijin Zhang, Jiyang Wang, Shandong Univ. (China). . . . . [6998-52]

Fictive temperature dependences on refractive index and Yb absorption band in silica preforms, Rie Yamamoto, Natsuki Kamiya, Edson H. Sekiya, Pranabesh Barua, Kazuya Saito, Toyota Technological Institute (Japan) [6998-53]

Tailoring of Raman gain bandwidth of tellurite glasses for designing of gain flattened fiber Raman amplifiers, Rajan Jose, Jr., Guanshi Qin, Yusuke Arai, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan). . . . . [6998-54]

Optimum design for high power continues wave Yb: YAG thin disc laser, Mohammad Javadi Dashcasan, Fereshteh Hajiesmaeilbaigi, Univ. of Tehran (Iran). . . . . [6998-55]

High resolution spectroscopy on $SrWO_4$: Nd^{3+} laser crystals, Aurelia Lupei, Voicu Lupei, Cristina Gheorghe, Alexandru Achim, Lucian Gheorghe, Institute of Atomic Physics (Romania). . . . . [6998-56]

Z-scan measurements of nonlinear refractive indices of NaT(XO4)2 T = Y, La, Gd, Lu and Bi, X = Mo, W, femtosecond laser crystals, Alberto García-Cortés, María-Dolores Serrano, Carlos Zaldo, Concepción Cascales, Instituto de Ciencia de Materiales de Madrid (Spain); Gustav Strömqvist, Valdas Pasiskevicius, Kungliga Tekniska Högskolan |(Sweden). . . . . [6998-57]

High-resolution spectroscopy of Nd-doped GSGG crystals and transparent ceramics, Voicu Lupei, Aurelia Lupei, Cristina Gheorghe, Institute of Atomic Physics (Romania); Akio Ikesue, World Lab Co., Ltd. (Japan) . . . . . [6998-58]

A mechanically Q-switched Yb:Er:YVO4 laser, Yuen H. Tsang, Colin M. Mercer, David J. Binks, The Univ. of Manchester (United Kingdom) . . . [6998-60]

Investigation of 3H4 (Tm^{3+}) laser emission at 1.5 µm in Tm and Tm-Ho doped ZBLAN glasses by using numerical simulation of the rate equations system for cw pumping, André F. H.Librantz, Univ. Nove de Julho (Brazil); Laércio Gomes, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Younes Messaddeq, Sidney J. L.Ribeiro, Univ. Estadual Paulista (Brazil) . . . . . [6998-61]

An inhomogeneous theoretical model for analyzing the temporal response of high concentration erbium doped fiber lasers, Shahram Keyvaninia, Masoumeh Karvar, Alireza Bahrampour, Sharif Univ. of Technology (Iran). . . . . [6998-63]

Passively mode-locked waveguide lasers using carbon nanotube saturable absorber, Haiyan Chen, Yangtze Univ. (China); Qing Wang, College of Optical Sciences/The Univ. of Arizona . . . . . [6998-64]

Numerical rate equation modelling of a 1.61 µm pumped ~2 µm Tm^{3+}-doped tellurite fibre laser, Billy D. O.Richards, Craig A. Evans, Zoran Ikonic, Paul Harrison, Univ. of Leeds (United Kingdom); Yuen H. Tsang, David J. Binks, The Univ. of Manchester (United Kingdom); Joris Lousteau, Animesh Jha, Univ. of Leeds (United Kingdom) . . . . . [6998-65]

Preparation and characterization of new fluorotellurite glasses for photonics application, Qiuping Chen, Guihua Liao, Jianjun Xing, Qiuling Chen, Daniel Milanese, Michael Fokine, Monica Ferraris, Politecnico di Torino (Italy) . . . . . [6998-66]

Thursday 10 April

SESSION 5

Room: Orangerie . . . . . Thurs. 11.00 to 12.50

1 Micron

Session Chair: **Efstratios Georgiou,**
Technological Education Institute-Crete (Greece)

11.00: **High power single frequency lasers for gravitational wave detection** *(Invited Paper)*, Dietmar Kracht, L. Winkelmann, O. Puncken, B. Schulz, S. Wagner, Matthias Hildebrandt, Peter Wessels, Maik Frede, Laser Zentrum Hannover e.V. (Germany) . . . . . [6998-31]

11.30: **Dual wavelength generation of a diode pumped Nd:$GdVO_4$ laser at 1063 nm and 1066 nm**, Vaclav Kubecek, Michal Drahokoupil, Miroslav Cech, Petr Hirsl, Czech Technical Univ. (Czech Republic) . . . . . [6998-32]

11.50: **Continuous-wave and mode-locked operation of diode-pumped Yb-NaY(WO4)2**, Andreas Schmidt, Simon Rivier, Valentin Petrov, Uwe Griebner, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Alberto García-Cortés, María-Dolores Serrano, Concepción Cascales, Carlos Zaldo, Instituto de Ciencia de Materiales de Madrid (Spain) . . . . . [6998-33]

12.10: **New directions for power scaling of Nd lasers**, Voicu Lupei, Institute of Atomic Physics (Romania). . . . . [6998-34]

12.30: **Diode pumping of Yb^{3+}:$CaGdAlO_4$**, Bruno Viana, Ecole Nationale Supérieure de Chimie de Paris (France) . . . . . [6998-35]

Lunch/Exhibition Break . . . . . 12.50 to 14.00

Keynote Presentation

Room: Orangerie . . . . . Thurs. 14.00 to 14.40

Session Chair: **Jonathan A. Terry,**
Univ. of St. Andrews (United Kingdom)

14.00: **HiPER: The European path to laser fusion and related plasma science,** John L. Collier, Science and Technology Facilities Council (United Kingdom) . . . . . .[6998-67]

SESSION 6

Room: Orangerie . . . . . Thurs. 14.40 to 17.30

NLO

Session Chair: **Yehoshua Shimony,**
Soreq Nuclear Research Ctr. (Israel)

14.40: **Periodic and quasi periodic nonlinear photonic crystals** *(Invited Paper)*, Ady Arie, Tel-Aviv Univ. (Israel). . . . . [6998-36]

15.10: **High-pulse-energy 8µm laser source based on optical parametric amplification in ZnGeP2**, Magnus W. Haakestad, Norwegian Defense Research Establishment (Norway); Gunnar Arisholm, Data Respons Norge AS (Norway); Espen Lippert, Stephane Nicolas, Gunnar Rustad, Knut Stenersen, Norwegian Defense Research Establishment (Norway) . . . . . [6998-37]

Coffee Break . . . . . 15.30 to 16.00

16.00: **Highly efficient mid-infrared OPO based on low-loss orientation patterned GaAs samples** *(Invited Paper)*, David Faye, Eric Lallier, Arnaud Grisard, Bruno Gérard, Thales Research & Technology (France); Christelle Kieleck, Antoine Hirth, French-German Research Institute of Saint-Louis (France) . . . . . [6998-39]

16.30: **Novel NLO crystal for frequency conversion to UV wavelengths**, Daniel Rytz, Andreas Gross, Sophie Vernay, Volker Wesemann, FEE GmbH (Germany) . . . . . [6998-38]

16.50: **Laser damage investigation in nonlinear crystals: study of KTiOPO4 (KTP) and RbTiOPO4 (RTP) crystals**, Anne Hildenbrand, Frank R. Wagner, Jean-Yves Natoli, Mireille Commandre, Institut Fresnel (France); Hervé Albrecht, Fred Théodore, Cristal Laser S.A. (France). . . . . [6998-40]

17.10: **Efficient diode-pumped intracavity frequency-doubled CW Nd: YLF laser emitting at 656nm for a silver atom optical clock,** Jean-Philippe Loisel, Suat Topsu, Luc Chassagne, Pierre R. Dahoo, Univ. de Versailles Saint-Quentin-en Yvelines (France); Thomas Badr, CNAM-INM (France); Patrick Juncar, Conservatoire National des Arts et Métiers (France); Yasser Alayli, Univ. de Versailles Saint-Quentin-en Yvelines (France). . . . . [6998-62]

CLOSING REMARKS

Room: Orangerie . . . . . Thurs. 17.30 to 17.40

Jonathan A. Terry, Univ. of St. Andrews (United Kingdom)

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics[21] - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

Conference 6999 · Room: Schuman

Monday-Thursday 7-10 April 2008 • Proceedings of SPIE Vol. 6999

Conference 6999 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 11, 13, 17, 22, 25, 36, 41, 50, 59, 80, 86, 93, 103

Organic Optoelectronics and Photonics

Conference Chairs: **Paul L. Heremans,** IMEC (Belgium); **Michele Muccini,** Istituto per lo Studio dei Materiali Nanostrutturati (Italy); **Eric A. Meulenkamp,** Philips Research Labs. (Netherlands)

Programme Committee: **Chihaya Adachi,** Kyushu Univ. (Japan); **Heinrich Becker,** Merck OLED Materials GmbH (Germany); **David Beljonne,** Univ. de Mons-Hainaut (Belgium); **Paul W. M. Blom,** Rijksuniv. Groningen (Netherlands); **Herbert F. Boerner,** Philips Research Labs. (Germany); **Donal D. C. Bradley,** Imperial College London (United Kingdom); **Franco Cacialli,** Univ. College London (United Kingdom); **Gunther Haas,** CEA-LETI (France); **Richard H. Friend,** Univ. of Cambridge (United Kingdom); **René A. J. Janssen,** Technische Univ. Eindhoven (Netherlands); **Junji Kido,** Yamagata Univ. (Japan); **Guglielmo Lanzani,** Politecnico di Milano (Italy); **Karl Leo,** Technische Univ. Dresden (Germany); **Rainer F. Mahrt,** IBM Zürich Research Lab. (Switzerland); **Niyazi Serdar Sariciftci,** Johannes Kepler Univ. Linz (Austria); **Paul van der Schaaf,** Ciba Specialty Chemicals (Switzerland); **Uli Lemmer,** Univ. Karlsruhe (Germany)

Monday 7 April

OPENING REMARKS

Room: Schuman . . . . . Mon. 10.55 to 11.00

Paul L. Heremans, IMEC (Belgium); **Michele Muccini,** Istituto per lo Studio dei Materiali Nanostrutturati (Italy); **Eric A. Meulenkamp,** Philips Research Labs. (Netherlands)

SESSION 1

Room: Schuman . . . . . Mon. 11.00 to 12.30

Lasers I

Session Chair: **K. Baumann,** IBM Zürich Research Lab. (Switzerland)

11.00: **Sub-nanojule threshold lasing and mode competition in 5x5 µ2 organic photonic boxes** *(Invited Paper)*, Vadim G. Lyssenko, Maik Langner, Susanne I. Hintschich, Hartmut Fröb, Karl Leo, Institut für Angewandte Photophysik (Germany) . . . . . [6999-01]

11.30: **Characteristics of edge emission at cutoff wavelength from electrically pumped organic light-emitting diodes**, Daisuke Yokoyama, Hajime Nakanotani, Yousuke Setoguchi, Kyushu Univ. (Japan); Masato Moriwake, Dai Ohnishi, Rohm Co., Ltd. (Japan); Masayuki Yahiro, Chihaya Adachi, Kyushu Univ. (Japan) . . . . . [6999-02]

11.50: **Conjugated polymer nanowires for sub-wavelength photonics**, Gareth Redmond, Deirdre O'Carroll, Tyndall National Institute (Ireland) . . . . . [6999-03]

12.10: **A three-components organic heterojunction with lasing properties and field-effect charge transport for use in light-emitting transistors**, Stefano Toffanin, Raffaella Capelli, Miguel Ramon, Istituto per lo Studio dei Materiali Nanostrutturati (Italy); Franco Dinelli, Istituto per i Processi Chimico-Fisici (Italy); Francesco Todescato, Mauro Murgia, Roberto Zamboni, Istituto per lo Studio dei Materiali Nanostrutturati (Italy); Ken-Tsung Wong, National Taiwan Univ. (Taiwan); Michele Muccini, Istituto per lo Studio dei Materiali Nanostrutturati (Italy) . . . . . [6999-04]

Lunch Break . . . . . 12.30 to 13.30

SESSION 2

Room: Schuman . . . . . Mon. 13.30 to 14.40

Lasers II

Session Chair: **Karl Leo,**
Institut für Angewandte Photophysik (Germany)

13.30: **Mixed-order photonic feedback structures for organic lasers** *(Invited Paper)*, K. Baumann, Thilo Stöferle, Nikolaj Moll, Rainer F. Mahrt, IBM Zürich Research Lab. (Germany); Thorsten Wahlbrink, Jens Bolten, Christian Moormann, AMO GmbH (Germany) . . . . . [6999-05]

14.00: **Blue non-periodic circular Bragg resonator polymer lasers**, Thomas Wellinger, Imperial College London (United Kingdom); Christof Pflumm, Merck KGaA (Germany); Jing Becker, Thomas Weimann, Physikalisch-Technische Bundesanstalt (Germany); Paul Stavrinou, Donal D. C.Bradley, Imperial College London (United Kingdom); Ulrich Scherf, Bergische Univ. Wuppertal (Germany) . . . . . [6999-06]

14.20: **Measurement of triplet exciton diffusion in the context of organic lasers,** Hakim Choukri, Melanie Lebental, Sebastien Forget, Sebastien V. Chenais, Azzedine Boudrioua, Alexis P. Fischer, Amanda Martinez-Gil, Marie-Claude C. Castex, Univ. Paris-Nord (France); Bernard Geffroy, Commissariat à l'Energie Atomique (France); Dominique Ades, Alain Siove, Univ. Paris-Nord (France) . . . . . [6999-07]

SESSION 3

Room: Schuman . . . . . Mon. 14.40 to 15.20

Photophysics I

Session Chair: **Karl Leo,**
Institut für Angewandte Photophysik (Germany)

14.40: **Intrachain order controls the exciton linewidth in single polyfluorene nanowires**, Enrico Da Como, Klaus Becker, Ludwig-Maximilians-Univ. München (Germany); John M. Lupton, The Univ. of Utah; Jochen Feldmann, Ludwig-Maximilians-Univ. München (Germany). . . . . [6999-09]

15.00 **TBA**

Coffee Break . . . . . 15.20 to 15.40

SESSION 4

Room: Schuman . . . . . Mon. 15.40 to 17.30

Photophysics II

Session Chair: **Luisa De Cola,**
Westfälische Wilhelms-Univ. Münster (Germany)

15.40: **Luminescence quenching processes in π-conjugated materials and OLEDs** *(Invited Paper)*, Joseph Shinar, Iowa State Univ. . . . . [6999-10]

16.10: **Probing excitation delocalization in supramolecular Chiral stacks by means of optical spectroscopy: experiment and modeling** *(Presentation Only)*, David Beljonne, Univ. de Mons-Hainaut (Belgium); Frank Spano, Temple Univ.; Stefan Meskers, Technische Univ. Eindhoven (Netherlands) . . . . . [6999-11]

16.30: **Theory of directed transportation of electronic excitation between single molecules through photonic coupling**, David L. Andrews, David S. Bradshaw, Univ. of East Anglia Norwich (United Kingdom) . . . . . [6999-12]

16.50: **Modelling exciton migration in conjugated polymers at the multiscale**, Alison B. Walker, Theodoros Papadopoulos, Stavros Athanasopoulos, Univ. of Bath (United Kingdom); David Beljonne, Emmanuelle Hennebicq, Univ. de Mons-Hainaut (Belgium); Claudio Zannoni, Luca Muccioli, Univ. degli Studi di Bologna (Italy) . . . . . [6999-13]

17.10: **Tuning of the radiative rate in deep-blue phosphorescent complexes by spin-orbit coupling and singlet-triplet splitting,** Stephan Haneder, Enrico Da Como, Andrey L. Rogach, Jochen Feldmann, Ludwig-Maximilians-Univ. München (Germany); John M. Lupton, The Univ. of Utah; Evelyn Fuchs, Oliver Molt, Ingo Muenster, Christian Lennartz, Christian Schildknecht, Gherard Wagenblast, BASF Aktiengesellschaft (Germany). . . . . [6999-14]

POSTERS–Monday

Room: Contades Hall . . . . . Mon. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 12:00 hrs on Monday in the Contades Hall. Posters may remain on display until 12:00 hrs on Tuesday. Any papers left on the boards post noon on Tuesday will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Large-area bilayer interfaces from liquid-liquid dewetting for photovoltaic applications, Roland Hany, Jakob Heier, Frank Nüesch, Fernando A. Castro, EMPA (Switzerland) . . . . . [6999-55]

Electroabsorption study of the influence of PEDOT:PSS on organic solar cells performances, Jose Miguel Navarro, Hani Kanaan, Isabelle Séguy, Pascal Jolinat, Pierre Destruel, Univ. Paul Sabatier (France); Harald Bock, Ctr. National de la Recherche Scientifique (France). . . . . [6999-56]

Using optical thin film model to optimize thermal annealing procedure in P3HT:PCBM blend based solar cells, S. Y. Chuang, Hsuen-Li Chen, W. H. Lee, T. H. Chen, W. F. Su, National Taiwan Univ. (Taiwan) . . . . . [6999-57]

Characterisation of different hole transport materials as used in organic p-i-n solar cells, Steffen Pfuetzner, Annette Petrich, Technische Univ. Dresden (Germany); Christine Malbrich, Leibniz-Institut fur Festkorper- und Werkstoffforschung Dresden (Germany); Dirk Hildebrandt, heliatek GmbH (Germany); Maik Koch, Moritz K. Riede, Karl Leo, Technische Univ. Dresden (Germany); Martin P. Pfeiffer, heliatek GmbH (Germany) . . . . . [6999-58]

Carbon nanotubes and nanohors for organic photovoltaics, Emmanuel Kymakis, Technological Education Institute-Crete (Greece); Peyman Servati, The Univ. of British Columbia (Canada); Emmanuel Koudoumas, Technological Education Institute-Crete (Greece); Gehan A. J.Amaratunga, Univ. of Cambridge (United Kingdom). . . . . [6999-59]

Understanding of SKPM on organic solar cells, Klara Maturova, Martijn Kemerink, René A. J.Janssen, Technische Univ. Eindhoven (Netherlands) . . . . . [6999-60]

Flexible organic solar cells with nanoscale heterojunctions of single walled carbon nanotubes and zinc oxide nanowires, Husnu E. Unalan, Pritesh Hiralal, Gehan A. J.Amaratunga, Univ. of Cambridge (United Kingdom); Bhavin Parekh, Manish Chhowalla, Rutgers Univ. . . . . [6999-61]

Study of polymer solar cell based on P3HT and carbon nanomaterials, Kao-Yu Kuo, Husnu E. Unalan, Pritesh Hiralal, Univ. of Cambridge (United Kingdom); Yasuhiko Hayashi, Nagoya Institute of Technology (Japan); Emmanuel Kymakis, Technological Education Institute-Crete (Greece); Gehan A. J.Amaratunga, Univ. of Cambridge (United Kingdom) . . . . . [6999-62]

Regioregular polythiophene copolymers for organic solar cells, Farid Ouhib, Guillaume Dupuis, Roger C. Hiorns, IPREM Pau Univ. (France); Rémi De Bettignies, Severine Bailly, Commissariat à l'Energie Atomique (France); Hervé Martinez, Jacques Desbrières, Christine Dagron-Lartigau, IPREM Pau Univ. (France) . . . . . [6999-63]

Light-sensing nano-scale organic field-effect transistors, Steve Pittner, Arne Hoppe, Veit Wagner, Jacobs Univ. Bremen (Germany) . . . . . [6999-64]

Nanostructured molecular sensor for optical detection of air acidity *(Presentation Only)*, Alberto Martinez, Emi Evangelio, Felix Busquets, Jordi Hernando, Daniel Ruiz-Molina, Univ. Autònoma de Barcelona (Spain) . [6999-65]

Photonics of organic photochromic materials, Valery A. Barachevsky, Ctr. of Photochemistry (Russia) . . . . . [6999-66]

Investigation on optical waveguide realisations based on polymers with large third order non-linear susceptibility, Khalida Messaad, Dominique Bosc, Monique Thual, Frédéric Henrio, Séverine Haesaert, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France) . . . . . [6999-67]

Organic materials for molecular switching, Inge Asselberghs, Katholieke Univ. Leuven (Belgium); Gunther Hennrich, Univ. Autónoma de Madrid (Spain); Jon A. McCleverty, Univ. of Bristol (United Kingdom); Benjamin J. Coe, Univ. of Manchester (United Kingdom); Koen Clays, Katholieke Univ. Leuven (Belgium) . . . . . [6999-68]

Analysis of diffraction characteristics of photopolymers by using the FDTD method, Keita Shimada, Manabu Yamamoto, Shuhei Yoshida, Naruki Yoshida, Tokyo Univ. of Science (Japan). . . . . [6999-69]

Role of the chemical and photochemical properties of organic materials in the hologram recording, Yaël Israeli, Benedicte Mailhot, Lawrence Frezet, Agnes Rivaton, Univ. Blaise Pascal (France). . . . . [6999-70]

Research on the growth of dye film in vacuum in situ, Konstantin P. Grytsenko, Institute of Semiconductor Physics (Ukraine). . . . . [6999-71]

Enigma of the second harmonic generation in oriented film of symmetric squaraine, Konstantin P. Grytsenko, Institute of Semiconductor Physics (Ukraine) . . . . . [6999-72]

Stable and efficient organo-inorgamic emitting materials: a new rare earth-MOF family, Felipe Gándara, Alicia de Andrés, Enrique Gutierrez-Puebla, María Angeles Monge, Natalia Snejko, Consejo Superior de Investigaciones Científicas (Spain) . . . . . [6999-73]

Sum-rules and quantum limits: nonlinear optics from first principles, Javier Pérez-Moreno, Koen Clays, Katholieke Univ. Leuven (Belgium); Mark G. Kuzyk, Washington State Univ. . . . . [6999-74]

Pyridiniums and benzathiazoliums for second-order nonlinear optics, Edith Franz, Katholieke Univ. Leuven (Belgium); Elizabeth C. Harper, Benjamin J. Coe, The Univ. of Manchester (United Kingdom); Pavol Zahradnik, Comenius Univ. in Bratislava (Slovak Republic); Koen Clays, Inge Asselberghs, Katholieke Univ. Leuven (Belgium) . . . . . [6999-75]

Influence of corona poling procedures on linear and non-linear optical properties of polymer materials containing indandione derivativatives as a cromophores, Aivars Vembris, Martins A. Rutkis, Elina Laizane, Latvijas Univ. (Latvia) . . . . . [6999-76]

Study of the luminescence properties of Nd(TTA)3phen-doped 6-FDA/epoxy waveguides, Jing Yang, Mart Diemeer, Lucie Hilderink, Alfred Driessen, Univ. Twente (Netherlands) . . . . . [6999-77]

New type of polymer-LC switchable diffractive devices: POLIPHEM, Oksana V. Sakhno, Fraunhofer-Institut für Angewandte Polymerforschung (Germany); Sergey Slussarenko, Instytut Fizyki (Ukraine); Joachim Stumpe, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) . . . . . [6999-78]

Organic-inorganic photopolymerizable nanocomposites for volume holography, Oksana V. Sakhno, UP Transfer GmbH (Germany); Joachim Stumpe, Fraunhofer-Institut für Angewandte Polymerforschung (Germany); Leonid Goldenberg, UP Transfer GmbH (Germany); Tatiana N. Smirnova, Institute of Physics (Ukraine). . . . . [6999-79]

Electro-optical proprieties of volume holograms in organic conductive materials, Maria de la Paz Hernandez-Garay, Rosangela Fontanilla-Urdaneta, Arturo Olivares-Perez, Israel Fuentes-Tapia, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico) . . . . . [6999-80]

Optimizing second order NLO host-guest polymer systems: is poor polar order stability consequence of trade-off for high NLO efficiency?, Martins A. Rutkis, Aivars Vembris, Latvijas Univ. (Latvia); Andrejs Jurgis, Institute of Physical Energetics (Latvia). . . . . [6999-81]

Photopolymer material characterisation and development, Ciara E. Close, Michael R. Gleeson, Dusan Sabol, Shui Liu, John T. Sheridan, National Univ. of Ireland/Dublin (Ireland) . . . . . [6999-82]

Self-assembled planar Pt(II) complex with wave-guiding properties, Arul L. R.Vellaisamy, Stephen Kui, Chi-Ming Che, The Univ. of Hong Kong (Hong Kong China); Michele Muccini, Consiglio Nazionale delle Ricerche (Italy) . . . . [6999-83]

Electroabsorption spectra of multipolar chromophores, Cristina Sissa, Francesca Terenziani, Anna Painelli, Univ. degli Studi di Parma (Italy). . [6999-84]

Emission properties of artificial opals infiltrated with a heteroaromatic quadrupolar dye, Davide Comoretto, Marco Cucini, Univ. degli Studi di Genova (Italy); Matteo Galli, Franco Marabelli, Univ. degli Studi di Pavia (Italy); Alessandro Abbotto, Luca Bellotto, Chiara Marinzi, Univ. degli Studi di Milano-Bicocca (Italy) . . . . . [6999-108]

Hybrid Ti based sol-gel Bragg gratings filters on hybrid optical channel waveguides, Christian Palazzesi, Enrico Orsini, Paolo Prosposito, Mauro Casalboni, Univ. degli Studi di Roma/Tor Vergata (Italy) . . . . . [6999-109]

Effect of P-type hole transport layer on the performance of organic light-emitting devices, Muhammad A. R.Khan, Shanghai Univ. (China) . . . [6999-110]

Tuesday 8 April

Session 5 Runs Concurrently with Joint Session: Organic Photovoltaics I

SESSION 5

Room: Schuman . . . . . Tues. 08.30 to 09.20

Sensors and Switches

Session Chair: **Eric A. Meulenkamp,**
Philips Research Labs. (Netherlands)

08.30: **Optically-addressed actuators and optical sensors based on liquid crystalline polymers** *(Invited Paper)*, Casper van Osten, Dick J. Broer, Kees W. M.Bastiaansen, Technische Univ. Eindhoven (Netherlands). . . . . [6999-15]

09.00: **Functionalized zeolite L as a component for sensors and switchable surfaces,** Rodrigo Q. Albuquerque, Westfälische Wilhelms-Univ. Münster (Germany); Joel Kühni, Univ. de Fribourg (Switzerland); Gion A. Calzaferri, Univ. Bern (Switzerland); Peter Belser, Univ. de Fribourg (Switzerland); Luisa De Cola, Westfälische Wilhelms-Univ. Münster (Germany) . . . . . [6999-16]

JOINT SESSION

Room: Munch . . . . . Tues. 08.00 to 10.00

Organic Photovoltaics I

Joint Event with Conference 7002,
Photonics for Solar Energy Systems

08.00: **Design rules for donors in bulk-heterojunction tandem solar cells: towards 15% energy-Conversion efficiency**, Gilles Dennler, Markus C. Scharber, Karen Forberich, Tayebeh Ameri, Christoph Waldauf, Patrick Denk, Christoph J. Brabec, Konarka Austria (Austria); Kurt Hingerl, Johannes Kepler Univ. Linz (Austria). . . . . [7002-15]

08.20: **Recent progress in organic solar cells based on small molecules**, Moritz K. Riede, Rico Schueppel, David Wynands, Kerstin Schulze, Ronny Timmreck, Christian L. Uhrich, Annette Petrich, Technische Univ. Dresden (Germany); Martin P. Pfeiffer, Technische Univ. Dresden (Germany) and Heliatek GmbH (Germany); Eduard Brier, Egon Reinold, Peter Bäuerle, Univ. Ulm (Germany); Karl Leo, Technische Univ. Dresden (Germany) . . . . . [7002-16]

08.40: **Mapping exciton quenching in photovoltaics-applicable polymer blends using time-resolved scanning near field optical microscopy**, Ashley J. Cadby, Gamal E. Khalil, A. M. Fox, David G. Lidzey, The Univ. of Sheffield (United Kingdom). . . . . [7002-17]

09.00: **Impact of light on P3HT/PCBM organic solar cells: evolution of the chemical structure, morphology and photovoltaic properties of the active layer**, Agnes Rivaton, Matthieu Manceau, Sylvain Chambon, Jean Luc Gardette, Univ. Blaise Pascal (France); Noëlla Lemaître, Commissariat à l'Energie Atomique (France); Stephane Guillerez, Institut National de l'Energie Solaire (France) . . . . . [7002-18]

09.20: **Ambipolar organic semiconductor blends for photovoltaic cells**, Andreas Opitz, Markus Bronner, Julia Wagner, Marcel Götzenbrugger, Wolfgang Brütting, Univ. Augsburg (Germany) . . . . . [7002-19]

09.40: **Long lived flexible organic photovoltaics**, Pavel Schilinsky, Marcus Biele, Luigi Pinna, Sambatra Rajoelson, Jens A. Hauch, Stelios A. Choulis, Christoph J. Brabec, Konarka Austria (Germany) . . . . . [7002-20]

Coffee Break . . . . . 10.00 to 10.30

Session 6 runs concurrently with Joint Session: Organic Photovoltaics I & II

SESSION 6

Room: Schuman . . . . . Tues. 09.20 to 11.50

Nonlinear Optic Materials

Session Chair: **Michele Muccini,**
Consiglio Nazionale delle Ricerche (Italy)

09.20: **Molecular self-assembly across multiple length scales: processing, nanomanipulation and functions** *(Invited Paper),* Paolo Samori, Univ. Louis Pasteur (France) . . . . . [6999-17]

09.50: **Generation of microstructures in novel supramolecular ionic materials based on azobenzene**, Olga Kulikovska, Fraunhofer-Institut für Angewandte Polymerforschung (Germany); Leonid Goldenberg, Lazar Kulikovsky, Institut für Dünnschichttechnologie und Mikrosensorik e.V. (Germany); Joachim Stumpe, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) . . . . . [6999-18]

10.10: **Multipolar dyes for NLO: solvation and aggregation effects**, Anna Painelli, Cristina Sissa, Francesca Terenziani, Univ. degli Studi di Parma (Italy) and INSTM-UdR Parma (Italy). . . . . [6999-19]

Coffee Break . . . . . 10.30 to 10.50

10.50: **One- and two-photon absorption and emission properties of heteroaromatic bichromophores**, Alessandro Abbotto, Luca Bellotto, Chiara Marinzi, Univ. degli Studi di Milano-Bicocca (Italy); Anna Painelli, Francesca Terenziani, Cristina Sissa, Univ. degli Studi di Parma (Italy); Camilla Ferrante, Ilaria Fortunati, Renato Bozio, Univ. degli Studi di Padova (Italy) . . . . . [6999-20]

11.10: **Novel two-photon absorbing stryrylpyridine-based multibranched dyes**, André-Jean Attias, David Kréher, Fabrice Mathevet, Univ. Pierre et Marie Curie (France); Patrice Baldeck, Univ. Joseph Fourier (France) . . . . . [6999-21]

11.30: **Polyfluorene-PMMA copolymers for plastic optical fibers with gain,** Jorge M. Morgado, A. Luisa Mendonça, Instituto Superior Técnico (Portugal); Ana Charas, Instituto de Telecomunicações (Portugal); Jenny Clark, Guglielmo Lanzani, Politecnico di Milano (Italy); Luca Bazzana, Alessandro Nocivelli, Luceat S.p.A. (Italy) . . . . . [6999-22]

Lunch/Exhibition Break . . . . . 11.50 to 13.00

JOINT SESSION

Room: Munch . . . . . Tues. 10.30 to 11.50

Organic Photovoltaics II

Joint Event with Conference 7002,
Photonics for Solar Energy Systems

10.30: **Bilayer heterojunction solar cells based on naphthalene/perylene bis-bezimidazole dyes**, Sule Erten, Siddik Icli, Ege Univ. (Turkey) . . . . . [7002-21]

10.50: **Hybrid photovoltaic junctions: metal/molecular organic insulator/semiconductor, MOIS solar cells**, Rotem Har-Lavan, Oliver Seitz, Florent Thieblemont, David Cahen, Weizmann Institute of Science (Israel) . . . . [7002-22]

11.10: **Optical optimization of V tandem cell**, Viktor Andersson, Kristofer Tvingstedt, Olle Inganäs, Linköpings Univ. (Sweden) . . . . . [7002-23]

11.30: **Photonic crystals for enhancing the absorption of organic photovoltaic materials**, David Duché, Ludovic Escoubas, Jean-Jacques Simon, Philippe Torchio, Univ. Paul Cézanne (France); Jean-Louis Roumiguières, Antoine Labeyrie, Société Irilab (France). . . . . [7002-24]

Lunch/Exhibition Break . . . . . 11.50 to 13.00

SESSION 7

Room: Munch . . . . . Tues. 13.00 to 15.30

Joint Session: Organic Photovoltaics III

Session Chair: **Paul L. Heremans,** IMEC (Belgium)

Joint Event with Conference 7002, Photonics for Solar Energy Systems

13.00: **Printed solar cells: fundamentals and applications** *(Invited Paper)*, Christoph Brabec, Konarka Technologies GmbH (Germany) . . . . . [6999-23]

13.30: **Ruthenium sensitizers based on heteroaromatic conjugated bypiridines for dye-sensitized solar cells**, Alessandro Abbotto, Luca Bellotto, Chiara Marinzi, Univ. degli Studi di Milano-Bicocca (Italy); Filippo De Angelis, Univ. degli Studi di Perugia (Italy); Claudia Barolo, Mohammad K. Nazeeruddin, Michael Grätzel, Swiss Federal Institute of Technology (Switzerland) . . [6999-24]

13.50: **Temperature-dependent studies of transport and charge generation in conjugated polymer photovoltaic**, James C. Blakesley, Helen S. Clubb, Neil C. Greenham, Univ. of Cambridge (United Kingdom) . . . . . [6999-25]

14.10: **Vertical and lateral transport in organic solar cells: a morphological device model**, Martijn Kemerink, Klara Maturova, René A. J.Janssen, Technische Univ. Eindhoven (Netherlands). . . . . [6999-26]

14.30: **Engineered electrodes for organic photovoltaics**, Jens A. Hauch, Andrea Welte, Pavel Schilinsky, Konarka Technologies GmbH (Germany); Gilles Dennler, Christoph Brabec, Karen Forberich, Konarka Austria (Austria) [6999-27]

14.50: **NTCDA as transparent electron transport material in organic p-i-n solar cells**, Christiane Falkenberg, Selina Olthof, Christian L. Uhrich, Technische Univ. Dresden (Germany); Bert Maennig, heliatek GmbH (Germany); Moritz K. Riede, Karl Leo, Technische Univ. Dresden (Germany) . . . . . [6999-28]

15.10: **3% inkjet printed organic solar cells**, Claudia N. Hoth, Konarka Technologies GmbH (Germany) and Carl von Ossietzky Univ. Oldenburg (Germany); Stelios A. Choulis, Pavel Schilinsky, Konarka Technologies GmbH (Germany); Christoph J. Brabec, Konarka Technologies, Inc. . . . . [6999-29]

Wednesday 9 April

SESSION 8

Room: Schuman . . . . . Wed. 08.30 to 10.00

Photodetectors

Session Chair: **Christoph J. Brabec,** Konarka Austria (Austria)

08.30: **Integrated photonic systems based on organic semiconductors** *(Invited Paper)*, Carsten Winnewisser, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland) . . . . . [6999-30]

09.00: **Organic photodetectors sensitized with PbS nanocrystals for the near-infrared**, Tobias Rauch, Siemens AG (Germany); Michaela Boeberl, Maksym V. Kovalenko, Johannes Kepler Univ. Linz (Austria); Sandro Tedde, Edgar Zaus, Oliver Hayden, Siemens AG (Germany); Uli Lemmer, Univ. Karlsruhe (Germany); Jens Fürst, Siemens AG (Germany); Wolfgang Heiss, Johannes Kepler Univ. Linz (Austria) . . . . . [6999-31]

09.20: **High-speed organic photo-detectors fabricated by vacuum and solution processes and application for optical transmission**, Yutaka Ohmori, Tatsunari Hamasaki, Osaka Univ. (Japan); Taichiro Morimune, Takuma National College of Technology (Japan); Hirotake Kajii, Osaka Univ. (Japan) . . . [6999-32]

09.40: **Light-sensing ambipolar organic transistors for optoelectronic applications**, Thomas D. Anthopoulos, Paul H. Wöbkenberg, Donal D. C.Bradley, Imperial College London (United Kingdom) . . . . . [6999-33]

Coffee Break . . . . . 10.10 to 10.30

SESSION 9

Room: Schuman . . . . . Wed. 10.30 to 12.00

Light-Emitting Detectors

Session Chair: **Reinder Coehoorn,** Philips Research Labs. (Netherlands)

10.30: **Novel materials for electronic circuits and transparent AMOLED displays** *(Invited Paper)*, Antonio F. Facchetti, Northwestern Univ. . . . . [6999-34]

11.00: **Ambipolar light emitting transistor based on high photoluminescent organic single crystal**, Satria Z. Bisri, Tohoku Univ. (Japan); Taishi Takenobu, Tohoku Univ. (Japan) and Japan Science and Technology Corp. (Japan); Yohei Yomogida, Tohoku Univ. (Japan); Shu Hotta, Kyoto Institute of Technology (Japan); Yoshihiro Iwasa, Tohoku Univ. (Japan) and Japan Science and Technology Corp. (Japan) . . . . . [6999-35]

11.20: **Performance of organic light-emitting diodes with remote metallic contact using high mobility electron transport layers**, Sarah Schols, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium) and FWO (Belgium); Christina McClatchey, Queen's Univ. Belfast (United Kingdom); Jan Genoe, IMEC (Belgium); Paul L. Heremans, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium); Antonio F. Facchetti, Northwestern Univ. . . . . [6999-36]

11.40: **Recombination zone modeling in organic light emitting field effect transistors**, Dimitri S. H.Charrier, Technische Univ. Eindhoven (Netherlands); Edsger C.Smits, Philips Research Labs. (Netherlands); Simon G. J.Mathijssen, Technische Univ. Eindhoven (Netherlands) and Philips Research Labs. (Netherlands); Dago M. de Leeuw, Philips Research Labs. (Netherlands); Martijn Kemerink, René A. J.Janssen, Technische Univ. Eindhoven (Netherlands) . . . . . [6999-37]

Lunch/Exhibition Break . . . . . 12.00 to 14.00

SESSION 10

Room: Schuman . . . . . Wed. 14.00 to 15.10

OLED Physics I

Session Chair: **Joseph Shinar,** Iowa State Univ.

14.00: **Spin and device engineering for blue organic light emitting devices** *(Invited Paper)*, Michael Segal, Carlijn Mulder, Kemal Celebi, Madhusudan Singh, Kelley Rivoire, Scott Difley, Troy Van Voorhis, Marc Baldo, Massachusetts Institute of Technology . . . . . [6999-38]

14.30: **Influence of a magnetic field on the device performance of OLEDs**, Ulrich Niedermeier, Ralph Pätzold, Wiebke Sarfert, Siemens AG (Germany); Heinz von Seggern, Technische Univ. Darmstadt (Germany) . . . . . [6999-39]

14.50: **FDTD and RCWA simulations of oled light extraction structures**, Horst J. R.Greiner, Philips Research Labs. (Germany); Peter Bienstman, Univ. Gent (Belgium); James Pond, Lumerical Solutions, Inc. (Canada); Peter Vandersteegen, Univ. Gent (Belgium) . . . . . [6999-40]

Coffee Break . . . . . 15.10 to 15.30

SESSION 11

Room: Schuman . . . . . Wed. 15.30 to 17.30

OLED Physics II

Session Chair: **Michael Segal,** Massachusetts Institute of Technology

15.30: **Towards an experimentally validated second-generation OLED device model** *(Invited Paper)*, Reinder Coehoorn, Philips Research Labs. (Netherlands); Siebe L. M.van Mensfoort, Peter A. Bobbert, Technische Univ. Eindhoven (Netherlands) . . . . . [6999-41]

16.00: **Method for determining the depth profile of emitting dipoles in organic light-emitting devices from experiment**, Siebe L. M.van Mensfoort, Philips Research Labs. (Netherlands) and Technische Univ. Eindhoven (Netherlands); Mischa Megens, Horst J. R.Greiner, Dominique Wehenkel, Philips Research Labs. (Netherlands); Reinder Coehoorn, Philips Research Labs. (Netherlands) and Technische Univ. Eindhoven (Netherlands) . . . . . [6999-42]

16.20: **Influence of charge balance and exciton distribution on efficiency and lifetime of phosphorescent OLEDs**, Rico Meerheim, Institut für Angewandte Photophysik (Germany); Sebastian Scholz, Selina Olthof, Gregor Schwartz, Sebastian Reineke, Karsten Walzer, Karl Leo, Technische Univ. Dresden (Germany) . . . . . [6999-43]

16.40: **Atomistic simulation of charge mobility**, Joe Kwiatkowski, Jenny Nelson, Imperial College London (United Kingdom); Hong Li, Jean-Luc Bredas, Georgia Institute of Technology; Christian Lennartz, BASF Aktiengesellschaft (Germany); Wolfgang Wenzel, Forschungszentrum Karlsruhe (Germany)[6999-44]

17.00: **A theoretical view on self-assembled monolayers in organic electronic devices** *(Invited Paper),* Georg Heimel, Georgia Institute of Technology and Humboldt Univ. Berlin (Germany); Lorenz Romaner, Egbert Zojer, Technische Univ. Graz (Austria); Jean-Luc Bredas, Georgia Institute of Technology . . . . . [6999-45]

POSTERS–Wednesday

Room: Contades Hall . . . . . Wed. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 9:00 hrs on Wednesday in the Contades Hall. Any papers left on the boards at the close of the poster session will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Integration of top-emitting organic light emitting diodes on CMOS substrates, Michael Toerker, Daniel Kreye, Uwe Vogel, Jörg Amelung, Fraunhofer-Institut für Photonische Mikrosysteme (Germany) . . . . . [6999-75]

A new fluorescent dendrimer for solution-processed blue light emitting diodes, Carmen Coya, Univ. Rey Juan Carlos (Spain); Alicia de Andrés, Instituto de Ciencia de Materiales de Madrid (Spain); Angel Luis Álvarez, Univ. Rey Juan Carlos (Spain); Carlos Zaldo, Instituto de Ciencia de Materiales de Madrid (Spain); Rafael Gómez, Jose Luis Segura, Carlos Seoane, Univ. Complutense de Madrid (Spain) . . . . . [6999-76]

Development of printed ITO coatings on PET foil for flexible organic photodiodes, Sabine Heusing, Leibniz-Institut fuer Neue Materialien GmbH (Germany); Anja Haase, JOANNEUM RESEARCH GmbH (Austria); Peter W. Oliveira, Michael Veith, Leibniz-Institut fuer Neue Materialien GmbH (Germany); Elke Kraker, JOANNEUM RESEARCH GmbH (Austria) . . . . . [6999-77]

Comprehensive characterisation of bulky functional groups on a perylene aromatic core: effects and possible molecular electronics applications, Christopher Kufazvinei, Manuel Ruether, The Univ. of Dublin, Trinity College (Ireland); Werner J. Blau, Trinity College Dublin (Ireland) . . . . . [6999-78]

Improved organic tandem solar cells comprising polymer and small-molecule subcells, Alexander Colsmann, Jürgen Silbereisen, Uli Lemmer, Univ. Karlsruhe (Germany) . . . . . [6999-79]

Origin and implications of the spectral shift from blue to green in electroluminescence observed in a light-emitting cationic iridium (III) complex, Ruben D. Costa, Henk J. Bolink, Enrique Orti, Eugenio Coronado, Univ. de València (Spain); Mohammad K. Nazeeruddin, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [6999-80]

Environmental effects on the triplet state of the red light emitting OLED compound Ir(btp)2(acac): characterization by site-selective and hole burning spectroscopy, Walter J. Finkenzeller, Reinhard Bauer, Udo Bogner, Hartmut Yersin, Univ. Regensburg (Germany) . . . . . [6999-81]

Photoluminescence degradation of blue OLED emitters, Stephan Winter, Sebastian Reineke, Karsten Walzer, Leo Leo, Technische Univ. Dresden (Germany) . . . . . [6999-82]

2,7-carbazole-based derivatives as effective hole transport materials for optoelectronics, Ausra Tomkeviciene, Juozas V. Grazulevicius, Kauno Technologijos Univ. (Lithuania) . . . . . [6999-83]

Interesting luminescent properties of a new cyclometallated Ir(III) complex and the prototype of the related electroluminescence device, Adriana Valore, Univ. degli Studi di Milano (Italy) and UdR INSTM di Milano (Italy); Claudia Dragonetti, Univ. degli Studi di Milano (Italy) and UdR INSTM Milano (Italy); Michele Muccini, Consiglio Nazionale delle Ricerche (Italy); Stefania Righetto, Univ. degli Studi di Milano (Italy) and UdR INSTM, Milano (Italy); Dominique Roberto, Univ. degli Studi di Milano (Italy) and UdR INSTM and ISTM-CNR, Milano (Italy); Abhishek Sharma, Vivek Shukla, Consiglio Nazionale delle Ricerche (Italy); Renato Ugo, Univ. degli Studi di Milano (Italy) and UdR INSTM and ISTM-CNR, Milano (Italy) . . . . . [6999-85]

Inkjet printing as a processing technique for organic solar cells, Tom Aernouts, Claudio Girotto, Jan Genoe, Paul L. Heremans, Jef Poortmans, IMEC (Belgium) . . . . . [6999-86]

An effective intermediate Al/Au electrode for stacked color-tunable organic light emitting devices, Tianhang Zheng, Wallace C. H.Choy, Hongmei Zhang, The Univ. of Hong Kong (Hong Kong China). . . . . [6999-87]

High-efficiency fluorescent white organic light-emitting diodes using double hole-transporting-layers, Jwo-Huei Jou, Shih-Ming Shen, Cheng-Chung Chen, Yu-Chiao Chung, Chun-Jan Wang, Mao-Feng Hsu, Wei-Ben Wang, Ming-Hsuan Wu, Chi-Ping Liu, National Tsing Hua Univ. (Taiwan) . . . . . [6999-88]

Light extraction from oleds with (high) index matched glass substrates, Horst J. R.Greiner, Georg Gärtner, Philips Research Labs. (Germany) . [6999-89]

Light extraction and optical loss mechanisms in organic light-emitting diodes, Stefan Nowy, Nils A. Reinke, Jörg Frischeisen, Wolfgang Brütting, Univ. Augsburg (Germany) . . . . . [6999-91]

Negative capacitance in organic semiconductor diodes under bipolar injection conditions, Eitan A. Ehrenfreund, Technion-Israel Institute of Technology (Israel); Christoph Lungenschmied, Johannes Kepler Univ. Linz (Austria); Gilles Dennler, Konarka Austria (Austria); Helmut Neugebauer, Niyazi S. Sariciftci, Johannes Kepler Univ. Linz (Austria). . . . . [6999-92]

Application of metal oxides in optoelectronics, Michele Sessolo, Henk J. Bolink, Diego Repetto, Miguel Clemente León, Eugenio Coronado Miralles, Univ. de València (Spain) . . . . . [6999-93]

Emission enhancement of microlens on OLED with different layer structures, Yu-Hsuan Ho, National Taiwan Univ. (Taiwan); Jheng-Hao Fang, National Dong Hwa Univ. (Taiwan); Jiun-Haw Lee, National Taiwan Univ. (Taiwan); Mao-Kuo Wei, National Dong Hwa Univ. (Taiwan); Hoang-Yan Lin, National Taiwan Univ. (Taiwan) . . . . . [6999-94]

Organic photonic crystals for laser applications, Francesco Scotognella, Francesco Meinardi, Riccardo Tubino, Univ. degli Studi di Milano Bicocca (Italy) . . . . . [6999-95]

Lower limit of the lasing threshold in an organic microcavity, Bernd Schütte, Hannes Gothe, Markas Sudzius, Vadim G. Lyssenko, Susanne I. Hintschich, Hartmut Fröb, Karl Leo, Institut für Angewandte Photophysik (Germany) . . . . . [6999-96]

Multiple wavelength lasing from a variable thickness organic microcavity, Susanne I. Hintschich, Bernd Schütte, Hannes Gothe, Markas Sudzius, Vadim G. Lyssenko, Hartmut Fröb, Karl Leo, Institut für Angewandte Photophysik (Germany) . . . . . [6999-97]

Reinvestigation of photophysical properties of fac-Ir(ppy)3: new insight based on highly resolved spectra, Thomas Hofbeck, Hartmut Yersin, Univ. Regensburg (Germany) . . . . . [6999-100]

Synthesis and photophysical properties of indolyl-based wide bandgap macromolecular and low-molar-mass compounds, Ramunas Lygaitis, Fizikos Institutas (Lithuania); Edgaras Skrabys, Kauno Technologijos Univ. (Lithuania); Ramune Rutkaite, The Univ. of Sheffield (United Kingdom); Algimantas Undzenas, Fizikos Institutas (Lithuania); Juozas V. Grazulevicius, Mindaugas Kirkus, Kauno Technologijos Univ. (Lithuania) . . . . . [6999-101]

A photophysical study of substituted arylethynylenes, Karen S. Findlay, The Univ. of Sheffield (United Kingdom); Andrew Beeby, Simon Rutter, Laurent Porrès, Durham Univ. (United Kingdom); Ian Clark, Pavel Matousek, Anthony W. Parker, Michael Towrie, Rutherford Appleton Lab. (United Kingdom) . [6999-102]

Exciton size and mobility in (6,5) single-walled carbon nanotubes, Sajjad Hoseinkhani, Guglielmo Lanzani, Politecnico di Milano (Italy); Jared Crochet, Tobias Hertel, Vanderbilt Univ.; Larry Lüer, Politecnico di Milano (Italy) and Vanderbilt Univ. . . . . [6999-103]

Ambipolar light-emitting transistors of organic single crystals, Taishi Takenobu, Tetsuo Takahashi, Satria Z. Bisri, Yoshihiro Iwasa, Tohoku Univ. (Japan). . . . . [6999-104]

Ambipolar field-effect transistor of high photoluminescent material, AC5 and TPPy single crystal, Yohei Yomogida, Satria Z. Bisri, Taishi Takenobu, Tohoku Univ. (Japan); Chihaya Adachi, Kyushu Univ. (Japan); Shu Hotta, Kyoto Institute of Technology (Japan); Yoshihiro Iwasa, Tohoku Univ. (Japan). . . . . [6999-105]

Dye doping of the dielectric/semiconductor interface in PPV-based field-effect transistors, Francesco Todescato, Raffaella Capelli, Istituto per lo Studio dei Materiali Nanostrutturati (Italy); Franco Dinelli, Istituto per i Processi Chimico-Fisici (Italy); Mauro Murgia, Istituto per lo Studio dei Materiali Nanostrutturati (Italy); Nadia Camaioni, Istituto per la Sintesi Organica e la Fotoreattività (Italy); Mujie Yang, Zhejiang Univ. (China); Renato Bozio, Univ. degli Studi di Padova (Italy); Michele Muccini, Istituto per lo Studio dei Materiali Nanostrutturati (Italy) . . . . . [6999-106]

Opto-electronic properties of field effect transistors based on an intrinsically ambipolar and light emitting material, Raffaella Capelli, Istituto per lo Studio dei Materiali Nanostrutturati (Italy); Franco Dinelli, Istituto per i Processi Chimico-Fisici (Italy); Stefano Toffanin, Francesco Todescato, Mauro Murgia, Michele Muccini, Istituto per lo Studio dei Materiali Nanostrutturati (Italy); Antonio F. Facchetti, Tobin J. Marks, Northwestern Univ. . . . . [6999-107]

Thursday 10 April

SESSION 12

Room: Schuman . . . . . Thurs. 11.00 to 12.10

OLED Materials and Technology I

Session Chair: **Jan Blochwitz-Nimoth,** Novaled GmbH (Germany)

11.00: **Thin film barrier and film encapsulation technology for flexible OLED lamps** *(Invited Paper)*, Ton Van Mol, TNO (Netherlands) . . . . . [6999-46]

11.30: **Chemical degradation mechanisms of organic semiconductor devices**, Sebastian Scholz, Rico Meerheim, Karsten Walzer, Karl Leo, Technische Univ. Dresden (Germany). . . . . [6999-47]

11.50: **High efficient pin orange organic light emitting diode fabrication with novel Al cathode using DC magnetron sputtering**, Tae-Hyun Gil, Fraunhofer-Institut für Photonische Microsysteme (Germany) and Technische Univ. Dresden (Germany); Sebastian Franke, Christian May, Jörg Amelung, Hubert Lakner, Karl Leo, Fraunhofer-Institut für Photonische Mikrosysteme (Germany); Stefan Keller, Julian Schwenzel, Applied Materials GmbH (Germany) . . . . . [6999-48]

Lunch/Exhibition Break . . . . . 12.10 to 13.20

SESSION 13

Room: Schuman . . . . . Thurs. 13.20 to 15.40

OLED Materials and Technology II

Session Chair: **Ton Van Mol,** TNO (Netherlands)

13.20: **Triplet emitters and electroluminescent devices: cheap and environmentally friendly systems** *(Invited Paper)*, Luisa De Cola, Westfälische Wilhelms-Univ. Münster (Germany). . . . . [6999-49]

13.50: **An overview about the use of electrical doping of charge carrier transport layers for OLEDs and further organic electronic applications** *(Invited Paper)*, Jan Blochwitz-Nimoth, Novaled GmbH (Germany) . . . . [6999-50]

14.20: **Light-emitting electrochemical cells with mm-sized electrode gap: controlling light at low voltage and identification of degradation mechanism**, Ludvig Edman, Piotr Matyba, Thomas Wagberg, Joon Ho Shin, Umeå Univ. (Sweden); Mats R. Andersson, Chalmers Tekniska Högskola (Sweden); Nathaniel D. Robinson, Linköpings Univ. (Sweden). . . . . [6999-51]

14.40: **Triplet substates, spin-orbit coupling, and OLED performance: towards guidelines for the development of efficient emitter materials**, Hartmut Yersin, Andreas F. Rausch, Rafal Czerwieniec, Univ. Regensburg (Germany) . . . . . [6999-52]

15.00: **New approaches for highly efficient OLEDs**, Karsten Walzer, Gregor Schwartz, Sebastian Reineke, Karsten Fehse, Karl Leo, Technische Univ. Dresden (Germany) . . . . . [6999-53]

15.20: **Multilayer Hybrid LEDs based on colloidal inorganic semiconductors nanocrystal and PIN technology**, Giuseppe Gigli, Aurora Rizzo, Marco Mazzeo, Univ. degli Studi di Lecce (Italy) . . . . . [6999-54]

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics[21] - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

Make time for the

Photonics Europe Free Exhibition

Palais de la Musique et Congrès Exhibition Hall

Tuesday 8 April . . . . . 12.00 to 19.30 hrs.
Wednesday 9 April . . . . . 10.00 to 17.00 hrs.
Thursday 10 April . . . . . 10.00 to 14.00 hrs.

Conference 7000 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 2, 16, 37, 47

Optical and Digital Image Processing

Conference Chairs: **Peter Schelkens,** Vrije Univ. Brussel (Belgium); **Touradj Ebrahimi,** École Polytechnique Fédérale de Lausanne (Switzerland); **Gabriel Cristóbal,** Consejo Superior de Investigaciones Científicas (Spain); **Frédéric Truchetet,** Univ. de Bourgogne (France)

Programme Committee: **Boris Escalante-Ramírez,** Univ. Nacional Autónoma de México (Mexico); **Walter J. Husak,** Dolby Labs. Inc.; **Bahram Javidi,** Univ. of Connecticut; **Pascuala García-Martínez,** Univ. de València (Spain); **Maria Sagrario Millán García-Varela,** Univ. Politècnica de Catalunya (Spain); **Didier Nicholson,** Thales Group (France); **Colin James Richard Sheppard,** National Univ. of Singapore (Singapore); **Athanassios N. Skodras,** Univ. of Patras (Greece); **Andrew G. Tescher,** AGT Associates

Monday 7 April

OPENING REMARKS

Room: Arp 3 . . . . . Mon. 10.55 to 11.00

Peter Schelkens, Vrije Univ. Brussel (Belgium)

SESSION 1

Room: Arp 3 . . . . . Mon. 11.00 to 12.20

Holography-Interferometry

Session Chair: **Pascuala García-Martínez,** Univ. de València (Spain)

11.00: **Superresolution microscopy using common-path phase-shifting interferometry**, Vicente Mico, Asociacion Industrial De Optica, Color E Imagen (Spain); Zeev Zalevsky, Bar-Ilan Univ. (Israel); Javier García-Monreal, Univ. de València (Spain) . . . . . [7000-01]

11.20: **Segmentation of macroscopic object digital holographic reconstructions using extracted depth information**, Conor P. McElhinney, Bryan M. Hennelly, John B. McDonald, Thomas J. Naughton, National Univ. of Ireland/Maynooth (Ireland). . . . . [7000-02]

11.40: **Holographic data storage using phase-only data pages**, Tamás Sarkadi, Pál Koppa, Ferenc Újhelyi, Budapest Univ. of Technology and Economics (Hungary); Judit Reményi, General Electric Hungary (Hungary); Gábor Erdei, Emöke Lörincz, Budapest Univ. of Technology and Economics (Hungary) . . . . . [7000-03]

12.00: **Quantitative phase restoration in differential interference contrast (DIC) microscopy**, Shan Shan Kou, Colin J. R.Sheppard, National Univ. of Singapore (Singapore). . . . . [7000-04]

Lunch Break . . . . . 12.20 to 13.30

SESSION 2

Room: Arp 3 . . . . . Mon. 13.30 to 15.20

Industrial Applications

Session Chair: **Maria S. Millan Garcia-Varela,** Univ. Politècnica de Catalunya (Spain)

13.30: **New solutions for industrial inspection based on 3D computer tomography** *(Invited Paper)*, Ira M. Effenberger, Julia W. Kroll, Fraunhofer-Institut für Produktionstechnik und Automatisierung (Germany) . . . . . [7000-05]

14.00: **High speed binary image processor for compact vision systems**, Andreas Loos, Michael Schmidt, Dietmar Fey, Friedrich-Schiller-Univ. Jena (Germany); Jens Groebel, Consultant (Germany) . . . . . [7000-06]

14.20: **Automated inspection of microlens arrays**, James Mure-Dubois, Heinz Hügli, Univ. de Neuchâtel (Switzerland) . . . . . [7000-07]

14.40: **Defect detection of a composite material by vibration method using TA-ESPI**, Naseem Akhter, Koung-Suk Kim, Hyun-Chul Jung, Ho-Seob Chang, Chosun Univ. (South Korea) . . . . . [7000-08]

15.00: **Flaw detection and segmentation in textile inspection**, Maria S. Millán García-Varela, Miquel Rallo, Jaume Escofet, Univ. Politècnica de Catalunya (Spain) . . . . . [7000-09]

Coffee Break . . . . . 15.20 to 15.40

SESSION 3

Room: Arp 3 . . . . . Mon. 15.40 to 17.30

Wavelet Methods

Session Chair: **Frederic Truchetet,** Univ. de Bourgogne (France)

15.40: **The wavelet transform on the 2-sphere and related manifolds** *(Invited Paper)*, Jean-Pierre Antoine, Univ. Catholique de Louvain (Belgium); Daniela Rosca, Univ. Tehnica Cluj-Napocã (Romania) . . . . . [7000-10]

16.30: **HDR-wavelet transform**, Vicent Peris Baixauli, Univ. de València (Spain); Carlos F. Milovic, Pleiades Software (Spain). . . . . [7000-11]

16.50: **A Hilbert-Space approach to the complete investigation of Vaidyanathan's procedure applied to the design of unitary filter banks of the generation of orthogonal wavelet bases**, Peter Steffen, Wolfgang Brandhuber, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . [7000-13]

17.10: **Wavelet-constrained stereo matching under photometric variations,** Wided Miled, Institut National de Recherche en Informatique et en Automatique (France); Jean-Christophe Pesquet, Univ. de Marne-la-Vallée (France) . [7000-14]

POSTERS–Monday

Room: Contades Hall . . . . . Mon. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 12:00 hrs on Monday in the Contades Hall. Posters may remain on display until 12:00 hrs on Tuesday. Any papers left on the boards post noon on Tuesday will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Indexed composite filters for optical pattern recognition, Esmail Ahouzi, Institut National des Postes et Telecommunications (Morocco); Oum El Kheir Abra, Fakhita Regragui, Univ. Mohammed V (Morocco). . . . . [7000-48]

Analysis of non-ideal behavior of CAPD based time-of-flight pixels, Riemer Grootjans, Ward van der Tempel, Daniël Van Nieuwenhove, Maarten Kuijk, Vrije Univ. Brussel (Belgium) . . . . . [7000-50]

Parallelized optical character recognition (OCR) on a single chip digital camera, Guan Yu, Gauthier Lafruit, IMEC (Belgium); Peter Schelkens, Vrije Univ. Brussel (Belgium). . . . . [7000-51]

Image processing algorithms with JPEG2000 encoder, Przemyslaw Sliwinski, Artur Chorazyczewski, Politechnika Wroclawska (Poland) . . . . . [7000-52]

An iris recognition algorithm based on DCT and GLCM, Feng Gui, Hua Qiao Univ. (China) . . . . . [7000-54]

Automatic detection and recognition of traffic signs in stereo images based on features and probabilistic neural networks, Yehua Sheng, Ka Zhang, Nanjing Normal Univ. (China) . . . . . [7000-55]

Statistical approach to image moments analysis in character classification, Kristina Sariri, Nazif Demoli, Institut Za Fiziku (Croatia) . . . . . [7000-57]

Fast deconvolution with non-invariant PSF for 3D, Elie Maalouf, Bruno Colicchio, Alain Dieterlen, Univ. de Haute Alsace (France). . . . . [7000-58]

Segmentation of remote sensing images for building detection, Hamid Moayeri, Islamic Azad Univ. (Iran) . . . . . [7000-59]

Pattern reconstruction using Jacobi-Fourier moments, Alfonso Padilla-Vivanco, Univ. Politécnica de Tulancingo (Mexico); Carina Toxqui-Quitl, Instituto Nacional de Astrofísica, Óptica y Electronica (Mexico); Cesar Santiago-Tepantlan, Univ. Politécnica de Tulancingo (Mexico) . . . . . [7000-60]

High-speed smart camera with embedded feature extractions and profilometry measurements, Julien Dubois, Univ. de Bourgogne (France); Romuald Mosqueron, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Michel Paindavoine, Francois Beguin, Cedric Clerc, Univ. de Bourgogne (France) . . . . . [7000-61]

Improvement of the signal-to-noise ratio of holographic memories by using the Wiener filter, Shuhei Yoshida, Manabu Yamamoto, Motoaki Saitoh, Miyuki Tanaka, Yasuhiro Ohuchi, Tokyo Univ. of Science (Japan) . . . . . [7000-62]

Optical system for highly-informative projective videocube with a diagonal of 1.5 meters based on MEMS, Sergey M. Shamaev, Bauman Moscow State Technical Univ. (Russia) . . . . . [7000-63]

WFC using coma aberration for dual field of view IR systems, Marta C. de la Fuente Puente, Jose M. Infante Herrero, Indra Sistemas S.A. (Spain) . . [7000-64]

Shape measurement of transparent objects with polarisation imaging, Mathias Ferraton, Christophe Stolz, Fabrice Mériaudeau, Univ. de Bourgogne (France) . . . . . [7000-65]

Diffractive optical element for high precision optical alignment of a microscopic-stereo vision system, Bruno Serio, Ecole Nationale Supérieure de Physique de Strasbourg (France); Victorien Raulot, Lab. des Systèmes Photoniques (France); Bernard Kress, Ecole Nationale Supérieure de Physique de Strasbourg (France) . . . . . [7000-66]

Study of the holographic phase stitching technique, Cuixia Dai, Shanghai Univ. (China) . . . . . [7000-67]

A dynamic three-dimensional display technique based on liquid spatial light modulator, Cuixia Dai, Shanghai Univ. (China) . . . . . [7000-68]

Advances in LCoS SLM characterization for improved optical performance in image processing, Joaquin Oton, Maria S. Millán García-Varela, Univ. Politècnica de Catalunya (Spain); Pierre Ambs, Univ. de Haute Alsace (France); Elisabet Pérez-Cabré, Univ. Politècnica de Catalunya (Spain) . . . . . [7000-69]

Three-dimensional imaging of radioactivity in man measured with a whole body counter, Raffaele Novario, Fabio Tanzi, Gloria Quadrelli, Univ. degli Studi dell'Insubria (Italy); Silvana Rodà, Univ. degli Studi di Milano (Italy); Carla Bianchi, Leopoldo Conte, Univ. degli Studi dell'Insubria (Italy) . . . . . [7000-70]

Signal processing in optical coherence tomography by nonlinear super-resolving stochastic filtering method, Maxim Volynsky, Igor Gurov, Alexey Zakharov, St. Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russia) . . . . . [7000-71]

Partial volume correction of whole body PET images using the wavelet transform, Antonello E. Spinelli, Luca Guerrieri, Daniela D'Ambrosio, Roberto Franchi, Stefano Boschi, Mario Marengo, Azienda Ospedaliera Policlinico Sant Orsola-Malpighi (Italy) . . . . . [7000-72]

Determining locus and periphery of optic disk in retinal images, Mohammad Norouzi Fard, Ali Reza Salehi, Islamic Azad Univ. (Iran); Jamshid Shanbeh Zadeh, Tarbiat Modares Univ. (Iran) . . . . . [7000-73]

Algorithms improvement in image processing for optical observations of space debris in geostationary orbit with the TAROT telescopes, Myrtille Bourez-Laas, Observatoire Astronomique de Marseille-Provence (France); Gwendoline Blanchet, Ctr. National d'Études Spatiales (France); Michel Boër, Observatoire Astronomique de Marseille-Provence (France); Etienne Ducrotté, Ctr. National d'Études Spatiales (France); Alain Klotz, Ctr. d'Etude Spatiale des Rayonnements (France). . . . . [7000-74]

Feature-constrained surface reconstruction approach for point cloud data acquired with 3D laser scanner, Yongbo Wang, Yehua Sheng, Nanjing Normal Univ. (China) . . . . . [7000-75]

Atmospheric correction for inland water based on Gordon model, Yunmei Li, Jiazhu Huang, Jieyu Zhou, Nanjing Normal Univ. (China). . . . . [7000-76]

Mapping of alpine grassland cover in western China from normalized Landsat TM image, Yong Zha, Nanjing Normal Univ. (China). . . . . [7000-77]

Example based learning of image stitching for an omni-directional camera using a variational optical flow methodology, Nir Karpel, Tal Nir, RAFAEL Armament Development Authority Ltd. (Israel) . . . . . [7000-78]

Quantitative retrieval of chlorophyll-a by remote sensing in Lake Taihu based on TM data, Heng Lu, Nanjing Normal Univ. (China) . . . . . [7000-79]

Retrieval of land cover information under thin fog in Lansat TM image, Yuchun Wei, Nanjing Normal Univ. (China). . . . . [7000-80]

Landsat TM image feature extraction and analysis of alga bloom in Taihu Lake, Yuchun Wei, Nanjing Normal Univ.. . . . . [7000-81]

A novel multi-focus image fusion algorithm based on feature extraction and wavelets, Rodrigo Nava, Boris Escalante-Ramírez, Univ. Nacional Autónoma de México (Mexico); Gabriel Cristóbal, Consejo Superior de Investigaciones Científicas (Spain) . . . . . [7000-83]

SONAR images despeckling using a Bayesian approach in the wavelet domain, Sorin D. Moga, Ecole Nationale Supérieure des Télécommunications Bretagne (France); Alexandru N. Isar, Politehnica Univ. Timisoara (Romania) . . . . . [7000-84]

Multi-sensor image fusion with the steered Hermite transform, Boris Escalante-Ramirez, Univ. Nacional Autónoma de México (Mexico); Alejandra A. Lopez-Caloca, Ctr. de Investigación en Geografía y Geomática (Mexico). . . . . [7000-85]

The position searching of image-carrying fiber bundles based on Kalman filter, Bowen An, Junbo Gao, Shanghai Maritime Univ. (China). . . . . [7000-86]

Adaptive attacks against DCT-based watermarking, Zhang Tao, Tsinghua Univ. (China) . . . . . [7000-87]

Analysis of depth-of-field in synthetic aperture focusing, Suleiman Erateb, Brenda H. Timmerman, Peter J. Bryanston-Cross, The Univ. of Warwick (United Kingdom). . . . . [7000-88]

Digital holographic microscope imaging with low spatial and temporal coherence of the illumination, Hana Janeckova, Pavel Kolman, Brno Univ. of Technology (Czech Republic); Pavel Veselý, Institute of Molecular Genetis (Czech Republic); Radim Chmelík, Brno Univ. of Technology (Czech Republic) . . . . . [7000-89]

Analysis of Depth-of-Field in Synthetic Aperture Focusing, S.M. Erateb, B.H. Timmerman, P.J. Bryanston-Cross, Univ. of Warwick . . . . . [7000-90]

Tuesday 8 April

SESSION 4

Room: Arp 3 . . . . . Tues. 08.30 to 10.30

Compression Technologies

Session Chair: **Peter Schelkens,** Vrije Univ. Brussel (Belgium)

Keynote Presentation

08.30: **TBA** *(Invited Paper)* . . . . . [7000-15]

09.10: **Heuristic dynamic complexity coding**, Jozef Škorupa, Stefaan Mys, Jürgen Slowack, Peter Lambert, Rik Van de Walle, Univ. Gent (Belgium) . . . . . [7000-16]

09.30: **Priority-based error protection for the scalable extension of H.264/SVC**, Dirk Bakker, Vrije Univ. Brussel (Belgium); Dennis Cromboom, ELIA (Belgium); Tim Dams, Hogeschool Antwerpen (Belgium); Adrian Munteanu, Joeri Barbarien, Vrije Univ. Brussel (Belgium) . . . . . [7000-30]

09.50: **Compression of confocal microscopy images: a comparative study**, Athanassios N. Skodras, Hellenic Open Univ. (Greece); Angelos A. Skodras, Imperial College London (United Kingdom) . . . . . [7000-18]

10.10: **Blind image quality assessment through a logarithmic anisotropic measure**, Gabriel Cristóbal, Salvador Gabarda, Consejo Superior de Investigaciones Científicas (Spain) . . . . . [7000-19]

Coffee Break . . . . . 10.30 to 11.00

SESSION 5

Room: Arp 3 . . . . . Tues. 11.00 to 12.40

Advanced Camera Systems

Session Chair: **Touradj Ebrahimi,** (Switzerland)

11.00: **Smart camera with embedded co-processor: a postal sorting application**, Romuald Mosqueron, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Julien Dubois, Univ. de Bourgogne (France); Marco Mattavelli, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [7000-20]

11.20: **Panoramic lens applications revisited**, Simon Thibault, ImmerVision (Canada) . . . . . [7000-21]

11.40: **Ultra-miniature omnidirectional camera for an autonomous flying micro-robot**, Pascal Ferrat, Simon Neukom, Christiane Gimkiewicz, Thomas Baechler, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland) . . . . . [7000-22]

12.00: **A CAPD based time-of-flight ranging pixel with wide dynamic range**, Daniël Van Nieuwenhove, Ward van der Tempel, Riemer Grootjans, Maarten Kuijk, Vrije Univ. Brussel (Belgium) . . . . . [7000-23]

12.20: **Detection of activity pattern changes among elderly with 3D camera technology**, Bart Jansen, Vrije Univ. Brussel (Belgium); Sonja Rebel, Univ. Ziekenhuis Brussel (Belgium); Rudi Deklerck, Vrije Univ. Brussel (Belgium); Tony Mets, Univ. Ziekenhuis Brussel (Belgium); Peter Schelkens, Vrije Univ. Brussel (Belgium) . . . . . [7000-24]

Lunch/Exhibition Break . . . . . 12.40 to 13.40

SESSION 6

Room: Arp 3 . . . . . Tues. 13.40 to 15.40

Wavelet Applications and Denoising

Session Chair: **Frederic Truchetet,** Univ. de Bourgogne (France)

13.40: **Video modelling in the DWT domain**, Corneliu Dumitru, Mihai P. Mitrea, Francoise J. Preteux, Institut National des Télécommunications (France) . . . . . [7000-25]

14.00: **Fringe pattern analysis using one-dimensional wavelet transform**, Abdulbasit A. Abid, Liverpool John Moores Univ. (United Kingdom) . . . [7000-26]

14.20: **Variational image denoising by wavelet bi-frames**, Martin Ehler, Philipps-Univ. Marburg (Germany) . . . . . [7000-27]

14.40: **Discrete multiscale wavelet shrinkage and integrodifferential equations**, Stephan Didas, Univ. des Saarlandes (Germany); Gabriele Steidl, Univ. Mannheim (Germany); Joachim Weickert, Univ. des Saarlandes (Germany) . . . . . [7000-28]

15.00: **A new multiscale Bayesian shrinkage method tailored for ultrasound image denoising**, Mohamad Forouzanfar, Hamid Abrishami Moghaddam, K.N. Toosi Univ. of Technology (Iran) . . . . . [7000-29]

15.20: **A wavelet transform based multiresolution edge detection and classification schema**, Guillermo Palacios, Univ. de Zaragoza (Spain) [7000-12]

Wednesday 9 April

SESSION 7

Room: Arp 3 . . . . . Wed. 08.30 to 10.00

Watermarking

Session Chair: **Boris Escalante-Ramirez,** Univ. Nacional Autónoma de México (Mexico)

08.30: **Capacity evaluation for MPEG 4 AVC watermarking** *(Invited Paper)*, Sorin A. Duta, Mihai P. Mitrea, Francoise J. Preteux, Institut National des Télécommunications (France) . . . . . [7000-31]

09.00: **A new watermarking method based on the use of the hyperanalytic wavelet transform**, Corina Nafornita, Ioana Firoiu, Politehnica Univ. Timisoara (Romania); Jean-Marc Boucher, Ecole Nationale Supérieure des Télécommunications Bretagne (France); Alexandru N. Isar, Politehnica Univ. Timisoara (Romania) . . . . . [7000-33]

09.20: **Image watermarking in the Hermite transform domain with resistance to geometric distortions**, Miguel A. Troncoso, Univ. Nacional Autónoma de México (Mexico); Nadia Baaziz, Univ. du Québec en Outaouais (Canada); Boris Escalante-Ramírez, Univ. Nacional Autónoma de México (Mexico) . . . . . [7000-34]

09.40: **A novel adaptive multi-resolution combined watermarking algorithm**, Feng Gui, Hua Qiao Univ. (China) . . . . . [7000-32]

Coffee Break . . . . . 10.00 to 10.30

SESSION 8

Room: Arp 3 . . . . . Wed. 10.30 to 12.30

Advanced Imaging

10.30: **Scale and rotation invariant 3D object detection using spherical nonlinear correlations**, Pascuala Garcia-Martinez, Jose J. Vallés, Carlos Ferreira, Univ. de València (Spain) . . . . . [7000-35]

10.50: **Adaptive illumination source for multispectral vision system applied to material discrimination**, Olga M. Conde, Adolfo Cobo, Paulino Cantero, David Conde, Jesus M. Mirapeix, Ana M. Cubillas, Jose M. Lopez-Higuera, Univ. de Cantabria (Spain) . . . . . [7000-36]

11.10: **Extended dynamic range imaging in shearography**, Roger M. Groves, Wolfgang Osten, Univ. Stuttgart (Germany) . . . . . [7000-37]

11.30: **Minimum image entropy technology applied to the real-time autofocusing system of space optical remote sensors**, Linghua Guo, Jianquan Li, China Academy of Space Technology (China); Yi Li, China Univ. of Petroleum (China); Sen Wang, Aimin Jiang, National Astronomical Observatories (China); Xiaoqing Ding, Tsinghua Univ. (China) . . . . . [7000-38]

11.50: **On a method to eliminate moving shadows in video sequences**, Bhargav K. Mitra, Philip M. Birch, Rupert C. D.Young, Christopher R. Chatwin, Univ. of Sussex at Brighton (United Kingdom) . . . . . [7000-53]

12.10: **Implementation of optical pattern recognition with high dynamic range amplitude filters**, Esmail Ahouzi, Institut National des Postes et Telecommunications (Morocco); Ignacio S. Moreno, Univ. Miguel Hernández de Elche (Spain) . . . . . [7000-49]

Lunch/Exhibition Break . . . . . 12.30 to 14.10

SESSION 9

Room: Arp 3 . . . . . Wed. 14.10 to 15.10

Medical Imaging

Session Chair: **Gabriel Cristóbal,** Consejo Superior de Investigaciones Científicas (Spain)

14.10: **Preprocessing and analysis of microarray images from integrated lensless bio-photonic sensors**, Jesus Angulo, Ecole Nationale Supérieure des Mines de Paris (France) . . . . . [7000-39]

14.30: **Imaging of the laser-induced thermal stress in biotissues with shadowgraph**, Alexander I. Omelchenko, Institute of Laser and Information Technologies (Russia) . . . . . [7000-40]

14.50: **A structured light system to guide percutaneous punctures in interventional radiology**, Stephane A. Nicolau, Julie Brenot, Laurent Goffin, Luc Soler, Jacques Marescaux, IRCAD (France) . . . . . [7000-41]

Coffee Break . . . . . 15.10 to 15.40

SESSION 10

Room: Arp 3 . . . . . Wed. 15.40 to 17.30

Interaction between optics and Digital Image Processing

Session Chair: **Pascuala García-Martínez,** Univ. de València (Spain)

15.40: **Analysis of polarization vortices generated from a polarization diffractive mask** *(Invited Paper)*, Ignacio S. Moreno, Univ. Miguel Hernández de Elche (Spain); Claudio C. Iemmi, Univ. de Buenos Aires (Argentina); Juan Campos, María J. Yzuel, Univ. Autònoma de Barcelona (Spain); Asticio A. Vargas, Univ. de la Frontera (Chile) . . . . . [7000-43]

16.10: **The assessment of phase-only filters in imaging systems by the classical optical merit functions**, Juan Campos, Univ. Autònoma de Barcelona (Spain); Rosemarie Hild, Hochschule für Technik, Wirtschaft und Kultur Leipzig (Germany); María J. Yzuel, Univ. Autònoma de Barcelona (Spain); Claudio C. Iemmi, Univ. de Buenos Aires (Argentina); Roger Gimeno, Juan C. Escalera, Univ. Autònoma de Barcelona (Spain) . . . . . [7000-44]

16.30: **Image capture and processing for a micro-optical compound-eye camera**, Raul Tudela, Andreas Brückner, Jacques W. Duparré, Andreas Bräuer, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [7000-47]

16.50: **An improved model of free-space light propagation in non-contact optical imaging**, Wei Yang, Jie Tian, Dan Liu, Institute of Automation (China); Li Sun, Beijing Univ. of Technology (China); Kai Liu, Chenghu Qin, Institute of Automation (China) . . . . . [7000-45]

17.10: **Spatial transform in non-conventional ultra-high resolution image-carrying fiber bundles**, Bowen An, Junbo Gao, Shanghai Maritime Univ. (China) . . . . . [7000-46]

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics[21] - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

Conference 7001 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Number: 15

Photonics in Multimedia

Conference Chair: **Ari Tervonen,** Helsinki Univ. of Technology (Finland); **Frank Möllmer,** OSRAM Opto Semiconductors GmbH (Germany)

Programme Committee: **Janne K. Aikio,** VTT Elektroniikka (Finland); **Jan T. Bosiers,** DALSA Corp. (Netherlands); **Jacques Willy Duparré,** Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); **Michael Schwind,** OSRAM Opto Semiconductors GmbH (Germany); **Martin Schrader,** Nokia Research Ctr. (Finland)

Wednesday 9 April

OPENING REMARKS

Room: Gutenberg . . . . . Wed. 15.25 to 15.30

Ari Tervonen, Nokia Research Ctr. (Finland); **Frank Möllmer,** OSRAM Opto Semiconductors GmbH (Germany)SESSION 1

Room: Gutenberg . . . . . Wed. 15.30 to 17.30

3D and Immersive Displays

Session Chair: **Janne K. Aikio,** VTT Elektroniikka (Finland)

15.30: **Optical characterization and measurements of autostereoscopic 3D displays**, Marja P. Salmimaa, Toni Järvenpää, Nokia Research Ctr. (Finland) . . . . . [7001-01]

15.50: **LED-based stereoscopic projection display using LCOS panels**, Lawrence P. Bogaert, Youri Meuret, Bart Van Giel, Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . [7001-02]

16.10: **Development of monocular and binocular multi-focus 3D display systems using LEDs**, Sung-Kyu Kim, Dong-Wook Kim, Yong-Moo Kwon, Korea Institute of Science and Technology (South Korea) . . . . . [7001-03]

16.30: **Diffractive exit-pupil expander for large field-of-view NEDs**, Pasi Saarikko, Nokia Research Ctr. (Finland) . . . . . [7001-04]

16.50: **Compact near-to-eye display with integrated gaze tracking**, Toni Järvenpää, Viljakaisa Aaltonen, Nokia Research Ctr. (Finland). . . . . [7001-05]

17.10: **Syn4D displays: a new generation of holographic applications,** Odile Meulien-Ohlmann, Dietmar Öhlmann D.D.S., Syn4D GmbH (Germany); Stanislovas J. Zacharovas, Geola Technologies Ltd. (Lithuania) . . . . . [7001-06]

POSTERS–Wednesday

Room: Contades Hall . . . . . Wed. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 9:00 hrs on Wednesday in the Contades Hall. Any papers left on the boards at the close of the poster session will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Modeling and analysis of optical wireless communication link using traffic signal light with LEDs, Chung-Ghiu Lee, Chosun Univ. (South Korea); Chul-Soo Park, A*STAR Institute for Infocomm Research (Singapore). . . . . [7001-20]

Fractal dimension and neural network based image segmentation technique, Qiwei Lin, Hua Qiao Univ. (China) . . . . . [7001-21]

A novel image fusion algorithm based on wavelet transforms, Qiwei Lin, Hua Qiao Univ. (China) . . . . . [7001-22]

Design and fabrication of quartz-based micro prism array of dual-view display by using reactive ion etching, Chien-Yue Chen, National Yunlin Univ. of Science and Technology (Taiwan) . . . . . [7001-23]

Thursday 10 April

SESSION 2

Room: Gutenberg . . . . . Thurs. 11.00 to 12.50

Camera Sensors and Signal Processing

Session Chair: **Jan T. Bosiers,** DALSA Corp. (Netherlands)

11.00: **Small pixels development for novel CMOS image sensors** *(Invited Paper)*, Gennadiy Agranov, Rick Mauritzson, Ulrich C. Boettiger, Terry Gilton, Xiaofeng Fang, Xiangli Li, Micron Technology, Inc. . . . . [7001-07]

11.30: **Inorganic color filters for CMOS image sensors by MOCVD and colorimetry**, Samir Guerroudj, STMicroelectronics (France) and Minatec (France); François Roy, STMicroelectronics (France); Jean-Luc Deschanvres, Minatec (France) . . . . . [7001-08]

11.50: **Characterising spatial crosstalk effects in small pixel image sensors**, Charles P. Leahy, STMicroelectronics Ltd. (United Kingdom) and The Univ. of Edinburgh (United Kingdom); Robert L. Nicol, STMicroelectronics Ltd. (United Kingdom) . . . . . [7001-09]

12.10: **Processor extensions for CMOS sensor imaging in camera phone**, Mathieu Thevenin, Commissariat à l'Energie Atomique (France); Michel Paindavoine, Univ. de Bourgogne (France); Laurent Letellier, Commissariat à l'Energie Atomique (France); Barthélémy Heyrman, Univ. de Bourgogne (France) . . . . . [7001-10]

12.30: **Integration and characterization of spin on dielectric materials in image sensor devices**, Hai Reznik, Tower Semiconductor Ltd. (Israel); Kimmo Karaste, Silecs Oy (Finland); Fabian Dulberg, Ruth S. Edelstein, Michal Shach-Caplan, Dmitry Veinger, Tower Semiconductor Ltd. (Israel); Juha T. Rantala, Silecs Oy (Finland). . . . . [7001-11]

Lunch/Exhibition Break . . . . . 12.50 to 14.20

SESSION 3

Room: Gutenberg . . . . . Thurs. 14.20 to 15.40

Laser and LED Projection

Session Chair: **Frank Möllmer,** OSRAM Opto Semiconductors GmbH (Germany)

14.20: **Visible lasers for mobile projection** *(Invited Paper)*, Ulrich Steegmueller, OSRAM Opto Semiconductors GmbH (Germany) . . . . . [7001-12]

14.50: **Scanning laser beam displays** *(Invited Paper)*, Maarten Niesten, Randy Sprague, Josh Miller, Microvision, Inc. . . . . [7001-13]

15.20: **Requirements on LEDs in etendue-limited light-engines**, Alexander Wilm, OSRAM Opto Semiconductors GmbH (Germany) . . . . . [7001-15]

Coffee Break . . . . . 15.40 to 16.00

SESSION 4

Room: Gutenberg . . . . . Thurs. 16.00 to 17.40

Applications and Optical Subsystems

Session Chair: **Ari Tervonen,** Nokia Research Ctr. (Finland)

16.00: **Liquid lens for optical image stabilization for high-end mobile camera modules** *(Invited Paper)*, Bruno Berge, Mathieu Maillard, Nicolas Verplanck, Varioptic SA (France). . . . . [7001-16]

16.30: **Optical design of compact LED illumination in projection displays**, Bart Van Giel, Youri Meuret, Lawrence P. Bogaert, Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . [7001-17]

16.50: **Optical links in multimedia devices** *(Invited Paper)*, Sjoerd G. C.van Geffen, Tyco Electronics Nederland B.V. (Netherlands) and Tyco Electronics Corp.; Richard Miller, Tyco Electronics Corp.. . . . . [7001-18]

17.20: **Optical link utilizing polymer optical waveguides: application in multimedia device**, Yoshihisa Ishida, Hayami Hosokawa, Omron Corp. (Japan). . . . . [7001-19]

Conference 7002 · Room: Munch

Monday-Tuesday 7-8 April 2008 • Proceedings of SPIE Vol. 7002

Conference 7002 contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 7, 8, 37

Photonics for Solar Energy Systems

Conference Chair: **Andreas Gombert,** Fraunhofer-Institut für Solare Energiesysteme (Germany)

Programme Committee: **Christoph J. Brabec,** Konarka Austria (Austria); **Gion A. Calzaferri,** Univ. Bern (Switzerland); **Cläs-Göran Granqvist, Sr.,** Uppsala Univ. (Sweden); **Olle Inganäs,** Linköpings Univ. (Sweden); **Zbigniew T. Kuznicki,** Louis Pasteur Univ. (France); **Yunosuke Makita,** Tateyama Kagaku Ind. Co., Ltd. (Japan); **Martin P. Pfeiffer,** Technische Univ. Dresden (Germany); **Geoffrey B. Smith,** Univ. of Technology/ Sydney (Australia); **Ralf Boris Wehrspohn,** Fraunhofer Institut für Werkstoffmechanik Halle (Germany); **Hiiro Yugami,** Tohoku Univ. (Japan)

Monday 7 April

OPENING REMARKS

Room: Munch . . . . . Mon. 10.55 to 11.00

Andreas Gombert,
Fraunhofer-Institut für Solare Energiesysteme (Germany)

SESSION 1

Room: Munch . . . . . Mon. 11.00 to 12.30

Session Chair: **Andreas Gombert,**
Fraunhofer-Institut für Solare Energiesysteme (Germany)

11.00: **Mimicking the antenna system of green plants** *(Invited Paper)*, Gion A. Calzaferri, Univ. Bern (Switzerland) . . . . . [7002-01]

11.30: **Evidence of the formation of high quality β-fesi2 bulk crystals to be used for solar cells through low-temperature photoluminescence observations**, Yunosuke Makita, Tateyama Kagaku Ind. Co., Ltd. (Japan) . . . . . [7002-02]

11.50: **PV conversion of energetic photons of the solar spectrum**, Zbigniew T. Kuznicki, Univ. Louis Pasteur (France) . . . . . [7002-03]

12.10: **High quantum efficiency photovoltaic effect in silicon nanocrystals embedded in silicon oxide and silicon oxy-nitride matrices**, Syed M. Hossain, Univ. degli Studi di Trento (Italy) and Bengal Engineering and Science Univ. (India); Luigi Ferraioli, Oleksiy Anopchenko, Univ. degli Studi di Trento (Italy); Georg Pucker, Pierluigi Bellutti, Istituto per la Ricerca Scientifica e Tecnologica (Italy); Lorenzo Pavesi, Univ. degli Studi di Trento (Italy) . . . . . [7002-04]

Lunch Break . . . . . 12.30 to 13.40

SESSION 2

Room: Munch . . . . . Mon. 13.40 to 15.20

Collection and Trapping of Solar Radiation, Radiation Management I

Session Chair: **Andreas Gombert,**
Fraunhofer-Institut für Solare Energiesysteme (Germany)

13.40: **Enhanced up-converted fluorescence in fluorozirconate based glass ceramics for high efficiency solar cells**, Bernd Ahrens, Bastian Henke, Univ. Paderborn (Germany); Paul T. Miclea, Fraunhofer-Institut für Werkstoffmechanik (Germany); Jacqueline A. Johnson, Argonne National Lab.; Stefan Schweizer, Fraunhofer Ctr. for Silicon Photovoltaics (Germany) . . . . . [7002-05]

14.00: **Photonic crystal assisted ultra-thin silicon photovoltaic solar cell**, Christian Seassal, Yeonsang Park, Ecole Centrale de Lyon (France); Alain Fave, Institut National des Sciences Appliquées de Lyon (France); Emmanuel Drouard, Ecole Centrale de Lyon (France); Erwann Fourmond, Institut des Nanotechnologies de Lyon (France); Anne Kaminski-Cachopo, Mustapha Lemiti, Institut National des Sciences Appliquées de Lyon (France); Xavier Letartre, Pierre Viktorovitch, Ecole Centrale de Lyon (France) . . . . . [7002-06]

14.20: **Three-dimensional photonic crystal as intermediate filter for thin-film tandem solar cells**, Andreas Bielawny, Martin-Luther Univ. Halle-Wittenberg (Germany); Paul T. Miclea, Ralf B. Wehrspohn, Fraunhofer-Institut für Werkstoffmechanik (Germany); Seung-Mo Lee, Mato Knez, Max-Planck-Institut für Mikrostrukturphysik (Germany); Reinhard Carius, Forschungszentrum Jülich GmbH (Germany) . . . . . [7002-07]

14.40: **The luminescent solar concentrator: a parameter study towards maximum efficiency**, Lenneke H. Slooff, A. R. Burgers, Evert E. Bende, Energy Research Ctr. of the Netherlands (Netherlands); Michael G. Debije, Technische Univ. Eindhoven (Netherlands) . . . . . [7002-08]

15.00: **Enhanced light-trapping in solar cells by directional selective optical filters**, Carolin Ulbrich, Univ. Stuttgart (Germany); Stephan Fahr, Friedrich-Schiller-Univ. Jena (Germany); Marius Peters, Fraunhofer-Institut für Solare Energiesysteme (Germany); Johannes Üpping, Martin-Luther Univ. Halle-Wittenberg (Germany); Thomas Kirchartz, Forschungszentrum Jülich GmbH (Germany); Carsten Rockstuhl, Univ. de Neuchâtel (Switzerland); Jan C. Goldschmidt, Philipp Loeper, Fraunhofer-Institut für Solare Energiesysteme (Germany); Ralf B. Wehrspohn, Fraunhofer-Institut für Werkstoffmechanik (Germany); Andreas Gombert, Fraunhofer-Institut für Solare Energiesysteme (Germany); Falk L. Lederer, Friedrich-Schiller-Univ. Jena (Germany); Uwe Rau, Forschungszentrum Jülich GmbH (Germany) . . . . . [7002-09]

Coffee Break . . . . . 15.20 to 15.50

SESSION 3

Room: Munch . . . . . Mon. 15.50 to 17.10

Collection and Trapping of Solar Radiation, Radiation Management II

Session Chair: **Andreas Gombert,**
Fraunhofer-Institut für Solare Energiesysteme (Germany)

15.50: **Rugate filter for ultra light trapping in solar cells**, Stephan Fahr, Friedrich-Schiller-Univ. Jena (Germany); Thomas Kirchartz, Uwe Rau, Forschungszentrum Jülich GmbH (Germany); Carsten Rockstuhl, Univ. de Neuchâtel (Switzerland); Carolin Ulbrich, Univ. Stuttgart (Germany); Falk L. Lederer, Friedrich-Schiller-Univ. Jena (Germany) . . . . . [7002-10]

16.10: **Nanoimprint lithography of light trapping patterns in sol-gel coatings for thin film silicon solar cells**, Maurits Heijna, Jochen Löfller, Bas B. van Aken, Wim J. Soppe, ECN Solar Energy (Netherlands); Herman J. Borg, Patrick Peeters, Philips Optical Storage (Netherlands) . . . . . [7002-11]

16.30: **The optical near-field of randomly textured light trapping structures for thin-film solar cells**, Thomas Beckers, Karsten Bittkau, Forschungszentrum Jülich GmbH (Germany); Carsten Rockstuhl, Univ. de Neuchâtel (Switzerland); Stephan Fahr, Falk Lederer, Friedrich-Schiller-Univ. Jena (Germany); Reinhard Carius, Forschungszentrum Jülich GmbH (Germany) and Friedrich-Schiller-Univ. Jena (Germany) . . . . . [7002-12]

16.50: **Thin-film solar cell with randomly textured back reflector using nano-particles,** Shih-Shou Lo, Chii-Chang Chen, National Central Univ. (Taiwan) . . . . . [7002-13]

POSTERS–Monday

Room: Contades Hall . . . . . Mon. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 12:00 hrs on Monday in the Contades Hall. Posters may remain on display until 12:00 hrs on Tuesday. Any papers left on the boards post noon on Tuesday will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Evaluation of bulk β-fesi2 crystal as a solar cell material through the photo-response measurements of al/n-β-fesi2 Schottky diodes, Yasuhiro Fukuzawa, National Institute of Advanced Industrial Science and Technology (Japan) . . . . . [7002-25]

Multistage PV conversion using nanostructured multi-interface Si components, Zbigniew T. Kuznicki, Univ. Louis Pasteur (France) . . . . . [7002-26]

Optically active Si surfaces, Zbigniew T. Kuznicki, Univ. Louis Pasteur (France) . . . . . [7002-27]

Low-energy generation in nanostructured Si, Zbigniew T. Kuznicki, Univ. Louis Pasteur (France) . . . . . [7002-28]

A simple but accurate multiband solar cells model, Marius H. Paulescu, Eugenia Tulcan-Paulescu, Adrian Neculae, Paul Gravila, West Univ. of Timisoara (Romania) . . . . . [7002-29]

Monte-Carlo simulations of fluorescent photovoltaic collectors, Liv Prönneke, Univ. Stuttgart (Germany); Uwe Rau, Forschungszentrum Jülich GmbH (Germany); Marius Peters, Albert-Ludwigs-Univ. Freiburg (Germany); Jan C. Goldschmidt, Fraunhofer-Institut für Solare Energiesysteme (Germany) . . . . . [7002-30]

Design of photonic structures for the enhancement of the light guiding efficiency of fluorescent concentrators, Marius Peters, Jan C. Goldschmidt, Philipp Loeper, Fraunhofer-Institut für Solare Energiesysteme (Germany); Liv Prönneke, Univ. Stuttgart (Germany); Andreas Gombert, Fraunhofer-Institut für Solare Energiesysteme (Germany) . . . . . [7002-31]

Direction selective filter using 3D photonic structures for ultra light trapping in solar cells, Johannes Üpping, Andreas Bielawny, Martin-Luther Univ. Halle Wittenberg (Germany); Paul T. Miclea, Ralf B. Wehrspohn, Fraunhofer-Institut für Werkstoffmechanik (Germany) . . . . . [7002-32]

Using self-assembled nanoparticles to fabricate and optimize sub-wavelength textured structures in solar cells, D. H. Wan, Hsuen-Li Chen, C. C. Yu, Y. C. Lee, Y. C. Lin, National Taiwan Univ. (Taiwan) . . . . . [7002-33]

Modeling and numerical simulation of the transport processes inside DSSC using a monodomain approach, Adrian Neculae, Marius H. Paulescu, West Univ. of Timisoara (Romania); Dan Curticapean, Fachhochschule Offenburg (Germany) . . . . . [7002-35]

Angle dependence of external and internal quantum efficiency, Gilles Dennler, Karen Forberich, Markus C. Scharber, Tayebeh Ameri, Christoph Waldauf, Patrick Denk, Christoph J. Brabec, Konarka Austria (Austria); Kurt Hingerl, Thomas Fromherz, Johannes Kepler Univ. Linz (Austria) . . . . . [7002-37]

Transparent contacting materials for solar cells, Jan Meiss, Christian L. Uhrich, Karsten Fehse, Moritz K. Riede, Karl Leo, Technische Univ. Dresden (Germany) . . . . . [7002-38]

The influence of hot-spots on the performance of organic photovoltaics, Roland Steim, Konarka Austria (Austria) and Light Technology Institute (Germany); Pavel Schilinsky, Stelios A. Choulis, Christoph J. Brabec, Konarka Austria (Austria) . . . . . [7002-39]

Dipole moments in fluorescent collectors, Liv Prönneke, Univ. Stuttgart (Germany); Jan C. Goldschmidt, Fraunhofer-Institut für Solare Energiesysteme (Germany); Marius Peters, Albert-Ludwigs-Univ. Freiburg (Germany); Uwe Rau, Forschungszentrum Jülich GmbH (Germany) . . . . . [7002-40]

Tuesday 8 April

SESSION 4

Room: Munch . . . . . Tues. 08.00 to 10.00

Joint Session: Organic Photovoltaics I

Session Chair: **Andreas Gombert,**
Fraunhofer-Institut für Solare Energiesysteme (Germany)

Joint Event with Conference 6999,
Organic Optoelectronics and Photonics

08.00: **Design rules for donors in bulk-heterojunction tandem solar cells: towards 15% energy-Conversion efficiency**, Gilles Dennler, Markus C. Scharber, Karen Forberich, Tayebeh Ameri, Christoph Waldauf, Patrick Denk, Christoph J. Brabec, Konarka Austria (Austria); Kurt Hingerl, Johannes Kepler Univ. Linz (Austria). . . . . [7002-15]

08.20: **Recent progress in organic solar cells based on small molecules**, Moritz K. Riede, Rico Schueppel, David Wynands, Kerstin Schulze, Ronny Timmreck, Christian L. Uhrich, Annette Petrich, Technische Univ. Dresden (Germany); Martin P. Pfeiffer, Technische Univ. Dresden (Germany) and Heliatek GmbH (Germany); Eduard Brier, Egon Reinold, Peter Bäuerle, Univ. Ulm (Germany); Karl Leo, Technische Univ. Dresden (Germany) . . . . . [7002-16]

08.40: **Mapping exciton quenching in photovoltaics-applicable polymer blends using time-resolved scanning near field optical microscopy**, Ashley J. Cadby, Gamal E. Khalil, A. M. Fox, David G. Lidzey, The Univ. of Sheffield (United Kingdom). . . . . [7002-17]

09.00: **Impact of light on P3HT/PCBM organic solar cells: evolution of the chemical structure, morphology and photovoltaic properties of the active layer**, Agnes Rivaton, Matthieu Manceau, Sylvain Chambon, Jean Luc Gardette, Univ. Blaise Pascal (France); Noëlla Lemaître, Commissariat à l'Energie Atomique (France); Stephane Guillerez, Institut National de l'Energie Solaire (France) . . . . . [7002-18]

09.20: **Ambipolar organic semiconductor blends for photovoltaic cells**, Andreas Opitz, Markus Bronner, Julia Wagner, Marcel Götzenbrugger, Wolfgang Brütting, Univ. Augsburg (Germany) . . . . . [7002-19]

09.40: **Long lived flexible organic photovoltaics**, Pavel Schilinsky, Marcus Biele, Luigi Pinna, Sambatra Rajoelson, Jens A. Hauch, Stelios A. Choulis, Christoph J. Brabec, Konarka Austria (Germany) . . . . . [7002-20]

Coffee Break . . . . . 10.00 to 10.30

SESSION 5

Room: Munch . . . . . Tues. 10.30 to 11.50

Joint Session: Organic Photovoltaics II

Session Chair: **Andreas Gombert,**
Fraunhofer-Institut für Solare Energiesysteme (Germany)

Joint Event with Conference 6999,
Organic Optoelectronics and Photonics

10.30: **Bilayer heterojunction solar cells based on naphthalene/perylene bis-bezimidazole dyes**, Sule Erten, Siddik Icli, Ege Univ. (Turkey) . . . . [7002-21]

10.50: **Hybrid photovoltaic junctions: metal/molecular organic insulator/semiconductor, MOIS solar cells**, Rotem Har-Lavan, Oliver Seitz, Florent Thieblemont, David Cahen, Weizmann Institute of Science (Israel) . . . . [7002-22]

11.10: **Optical optimization of V tandem cell**, Viktor Andersson, Kristofer Tvingstedt, Olle Inganäs, Linköpings Univ. (Sweden) . . . . . [7002-23]

11.30: **Photonic crystals for enhancing the absorption of organic photovoltaic materials**, David Duché, Ludovic Escoubas, Jean-Jacques Simon, Philippe Torchio, Univ. Paul Cézanne (France); Jean-Louis Roumiguières, Antoine Labeyrie, Société Irilab (France). . . . . [7002-24]

Lunch/Exhibition Break . . . . . 11.50 to 13.00

Room: Munch . . . . . Tues. 13.00 to 15.30

Joint Session: Organic Photovoltaics III

Session Chair: **Paul L. Heremans,** IMEC (Belgium)

Joint Event with Conference 6999,
Organic Optoelectronics and Photonics

13.00: **Printed solar cells: fundamentals and applications** *(Invited Paper)*, Christoph Brabec, Konarka Technologies GmbH (Germany) . . . . . [6999-23]

13.30: **Ruthenium sensitizers based on heteroaromatic conjugated bypiridines for dye-sensitized solar cells**, Alessandro Abbotto, Luca Bellotto, Chiara Marinzi, Univ. degli Studi di Milano-Bicocca (Italy); Filippo De Angelis, Univ. degli Studi di Perugia (Italy); Claudia Barolo, Mohammad K. Nazeeruddin, Michael Grätzel, Swiss Federal Institute of Technology (Switzerland) . . [6999-24]

13.50: **Temperature-dependent studies of transport and charge generation in conjugated polymer photovoltaic**, James C. Blakesley, Helen S. Clubb, Neil C. Greenham, Univ. of Cambridge (United Kingdom) . . . . . [6999-25]

14.10: **Vertical and lateral transport in organic solar cells: a morphological device model**, Martijn Kemerink, Klara Maturova, René A. J.Janssen, Technische Univ. Eindhoven (Netherlands). . . . . [6999-26]

14.30: **Engineered electrodes for organic photovoltaics**, Jens A. Hauch, Andrea Welte, Pavel Schilinsky, Konarka Technologies GmbH (Germany); Gilles Dennler, Christoph Brabec, Karen Forberich, Konarka Austria (Austria) [6999-27]

14.50: **NTCDA as transparent electron transport material in organic p-i-n solar cells**, Christiane Falkenberg, Selina Olthof, Christian L. Uhrich, Technische Univ. Dresden (Germany); Bert Maennig, heliatek GmbH (Germany); Moritz K. Riede, Karl Leo, Technische Univ. Dresden (Germany) . . . . . [6999-28]

15.10: **3% inkjet printed organic solar cells**, Claudia N. Hoth, Konarka Technologies GmbH (Germany) and Carl von Ossietzky Univ. Oldenburg (Germany); Stelios A. Choulis, Pavel Schilinsky, Konarka Technologies GmbH (Germany); Christoph J. Brabec, Konarka Technologies, Inc. . . . . [6999-29]

Conference 7003A · Room: Orangerie

Monday-Thursday 7-10 April 2008 • Proceedings of SPIE Vol. 7003

Conference7003A contains papers funded by and/or related to current EU research projects contained in Framework VI.

Paper Numbers: 1, 7, 35, 85

Optical Sensors

Conference Chairs: **Francis Berghmans,** Vrije Univ. Brussel (Belgium); **Anna Grazia Mignani,** Istituto di Fisica Applicata Nello Carrara (Italy); **Antonello Cutolo,** Univ. degli Studi del Sannio (Italy)

Programme Committee: **Francesco Baldini,** Istituto di Fisica Applicata Nello Carrara (Italy); **Brian Culshaw,** Univ. of Strathclyde (United Kingdom); **Jiri Homola,** Institute of Radio Engineering and Electronics (Czech Republic); **Leszek R. Jaroszewicz,** Wojskowa Akademia Techniczna (Poland); **Hypolito Jose Kalinowski,** Ctr. Federal de Educação Tecnológica do Paraná (Brazil); **Robert A. Lieberman,** Intelligent Optical Systems, Inc.; **Alexis Méndez,** MCH Engineering LLC; **Luc Thevenaz,** École Polytechnique Fédérale de Lausanne (Switzerland); **Moshe Tur,** Tel Aviv Univ. (Israel); **Waclaw Urbanczyk,** Politechnika Wroclawska (Poland)

Monday 7 April

OPENING REMARKS

Room: Orangerie . . . . . Mon. 10.55 to 11.00

Francis Berghmans, Vrije Univ. Brussel (Belgium)

SESSION 1

Room: Orangerie . . . . . Mon. 11.00 to 12.30

Optical Fibre Sensors I

Session Chair: **Antonello Cutolo,** Univ. degli Studi del Sannio (Italy)

11.00: **Distributed strain measurement with polymer optical fibers integrated into multifunctional geotextiles** *(Invited Paper)*, Sascha Liehr, Philipp Lenke, Katerina Krebber, Bundesanstalt für Materialforschung und -prüfung (Germany); Berhane Gebreselassie, Univ. Kassel (Germany). . [7003-01]

11.30: **A distributed fiber-optic sensor system for dike monitoring using Brillouin frequency domain analysis**, Nils Noether, Aleksander Wosniok, Katerina Krebber, Bundesanstalt für Materialforschung und -prüfung (Germany) . . . . . [7003-02]

11.50: **Miniaturization and evaluation of fiber-optic probes for low-coherence interferometry**, Robert Schmitt, RWTH Aachen (Germany); Niels König, Fraunhofer-Institut für Produktionstechnologie (Germany); Frank Depiereux, Fionec GmbH (Germany) . . . . . [7003-03]

12.10: **Fabry Perot sensor for in-pile nuclear reactor metrology**, Guy Cheymol, Chloé Aubisse, Commissariat à l'Energie Atomique (France); Benoit Brichard, SCK•CEN (Belgium). . . . . [7003-04]

Lunch Break . . . . . 12.30 to 13.40

SESSION 2

Room: Orangerie . . . . . Mon. 13.40 to 15.20

Optical Fibre Sensors II

Session Chair: **Antonello Cutolo,** Univ. degli Studi del Sannio (Italy)

13.40: **Fiber Bragg grating sensors advancements and industrial applications** *(Invited Paper)*, Andrea Cusano, OptoSmart s.r.l. and Univ. degli Studi del Sannio (Italy). . . . . [7003-05]

14.10: **Weakly tilted fiber Bragg gratings for sensing purposes** *(Invited Paper)*, Christophe Caucheteur, Faculté Polytechnique de Mons (Belgium); Chengkun Chen, Jacques Albert, Carleton Univ. (Canada); Patrice Mégret, Faculté Polytechnique de Mons (Belgium) . . . . . [7003-06]

14.40: **Determination of strain sensitivity of free fibre Bragg gratings**, Johannes Roths, Frank Jülich, Munich Univ. of Applied Sciences (Germany) . . . . . [7003-07]

15.00: **Influence of the coating type on the radiation sensitivity of FBGs**, Andrei I. Gussarov, SCK•CEN (Belgium); Christoph Chojetzki, FBGS Technologies GmbH (Germany); Iain Mckenzie, European Space Research and Technology Ctr. (Netherlands); Francis Berghmans, Vrije Univ. Brussel (Belgium) . . . . . [7003-08]

Coffee Break . . . . . 15.20 to 15.40

SESSION 3

Room: Orangerie . . . . . Mon. 15.40 to 17.30

Optical Fibre Sensors III

Session Chair: **Antonello Cutolo,** Univ. degli Studi del Sannio (Italy)

15.40: **High performance fiber Bragg gratings by inscription of micro-patterns using ultra-fast laser micro-machining**, Hamidreza Alemohammad, Ehsan Toyserkani, Univ. of Waterloo (Canada) . . . . . [7003-09]

16.00: **Fiber Bragg gratings with selective sensitivity through fabrication of heterogeneous metallic thin-films**, Hamidreza Alemohammad, Ehsan Toyserkani, Univ. of Waterloo (Canada) . . . . . [7003-10]

16.20: **Experimental studies of an all-silicon carbide hybrid wireless-wired optics temperature sensor for extreme environments in turbines** *(Invited Paper)*, Mumtaz A. Sheikh, Nabeel A. Riza, College of Optics & Photonics/Univ. of Central Florida. . . . . [7003-11]

16.50: **Enhanced resolution of a POF-based refractometer sensor using a novel hybrid silica-fiber POF directional coupler**, Gerald T. Farrell, Cheng Gao, Dublin Institute of Technology (Ireland) . . . . . [7003-12]

17.10: **High-sensitivity fiber optic chemo-sensors coated by SWCNTs based nano-composites,** Marco Consales, Alessio Crescitelli, Univ. degli Studi del Sannio (Italy); Michele Penza, Patrizia Aversa, ENEA (Italy); Michele Giordano, Consiglio Nazionale delle Ricerche (Italy); Antonello Cutolo, Andrea Cusano, Univ. degli Studi del Sannio (Italy). . . . . [7003-13]

POSTERS–Monday

Room: Contades Hall . . . . . Mon. 17.30 to 19.00

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

Poster presenters may post their poster papers starting at 12:00 hrs on Monday in the Contades Hall. Posters may remain on display until 12:00 hrs on Tuesday. Any papers left on the boards post noon on Tuesday will be considered unwanted and will be discarded. SPIE Europe assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17:30 to 19:00 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Aladin telescope stability verification using a Hartmann wavefront sensor, Marc Schillinger, Francis Delbru, Caroline Meisse, Didier Hours, EADS Astrium (France) . . . . . [7003-55]

Contour scanning of textile preforms using a light-section sensor for the automated manufacturing of fibre-reinforced plastics, Robert Schmitt, Christian Niggemann, Alexandre Orth, Christoph Mersmann, RWTH Aachen (Germany) . . . . . [7003-56]

Fiber ringdown-beat pressure sensors, Haiyan Chen, Yangtze Univ. (China); Qing Wang, College of Optical Sciences/The Univ. of Arizona; Tuomo von Lerber, LuxDyne Ltd. (Finland); Seppo K. Honkanen, Franko Kueppers, College of Optical Sciences/The Univ. of Arizona . . . . . [7003A-57]

A novel optical technique for the detection of stone fragments in fruits, Wendy Meulebroeck, Vrije Univ. Brussel (Belgium); Paul Berghmans, BEST n.v. (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . [7003-59]

A non-invasive human temperature screening system with multiple detection points, Sarun Sumriddetchkajorn, Kosom Chaitavon, National Electronics and Computer Technology Ctr. (Thailand) . . . . . [7003-60]

Optical sensors for the free space optical link, Petr Krivak, Brno Univ. of Technology (Czech Republic) . . . . . [7003-62]

Dual-slab waveguide interferometer for glucose concentration measurement in physiological range, Meng Wang, Univ. of Oulu (Finland); Sanna Uusitalo, VTT Elektroniikka (Finland); Miia E. Määttälä, Risto A. Myllylä, Univ. of Oulu (Finland) . . . . . [7003-64]

UV-biosensor for visual indication of vitamin D synthesis, Tatiana N. Orlova, Irina P. Terenetskaya, Institute of Physics (Ukraine) . . . . . [7003-65]

A Monte Carlo study of multiplication and noise in HgCdTe APD, Sophie Derelle, Sylvie Bernhardt, Riad Haïdar, Jérôme Primot, ONERA (France); Johan Rothman, Gwladys M. Perrais, Commissariat à l'Energie Atomique (France) . . . . . [7003-67]

Organic-inorganic nano-composite films for optical sensors, Konstantin P. Grytsenko, Institute of Semiconductor Physics (Ukraine). . . . . [7003-68]

Identification of external quantities using redistribution of optical power, Jan Skapa, Petr Šiška, Vladimír Vasinek, Technical Univ. of Ostrava (Czech Republic) . . . . . [7003-70]

Effect of LED spectral shift on vertical resolution in stroboscopic white light interferometry, Kalle Hanhijärvi, Juha P. Aaltonen, Ivan Kassamakov, Univ. of Helsinki (Finland); Kestutis Grigoras, Lauri Sainiemi, Sami Franssila, Helsinki Univ. of Technology (Finland); Edward Hæggström, Univ. of Helsinki (Finland). . . . . [7003-71]

In-process automatic wavelength calibration for CCD-spectrometers, Jesus M. Mirapeix, Adolfo Cobo, Ana M. Cubillas, Olga M. Conde, Jose M. Lopez-Higuera, Univ. de Cantabria (Spain) . . . . . [7003-72]

Investigation of the influence of 3dB coupler on ratiometric wavelength measurements, Ginu Rajan, Yuliya V. Semenova, Gerald T. Farrell, Qian Wang, Pengfei Wang, Dublin Institute of Technology (Ireland) . . . . . [7003-73]

Explosives detection by a hollow fiber and quantum cascade laser-based gas sensor, Johannes G. Herbst, APE GmbH (Germany); Jürgen Hildenbrand, Jürgen Wöllenstein, Armin Lambrecht, Fraunhofer-Institut für Physik Messtechnik (Germany); Johannes Koeth, Nanoplus GmbH (Germany); Sam Buechler, Ray Detection Technologies (Israel) . . . . . [7003-74]

Determination of the birefringent medium phase difference order in the optical vortex birefringence compensator, Monika A. Borwińska, Boguslawa Dubik, Marcelina Banach, Piotr Kurzynowski, Politechnika Wroclawska (Poland) . . . . . [7003-75]

Discretely tunable ferroelectric liquid crystal filter for demodulation of multiple FBG sensors, Yuliya V. Semenova, Sunish Mathews, Ginu Rajan, Gerald T. Farrell, Dublin Institute of Technology (Ireland). . . . . [7003-76]

Accurate theoretical prediction on singlemode fiber macrobending loss and bending induced polarization dependent loss, Pengfei Wang, Gerald T. Farrell, Yuliya V. Semenova, Qian Wang, Ginu Rajan, Dublin Institute of Technology (Ireland) . . . . . [7003-78]

Tapered phase-shift FBGs for sensing applications, Agostino Iadicicco, Stefania Campopiano, Univ. degli Studi di Napoli Parthenope (Italy); Domenico Paladino, Antonio Fanelli, Antonello Cutolo, Andrea Cusano, Univ. degli Studi del Sannio (Italy); Michele Giordano, Consiglio Nazionale delle Ricerche (Italy) . . . . . [7003-79]

Photogrammetric calibration of the SwissRanger(tm) 3D range imaging sensor, Scott D. Robbins, Brigit Schroeder, Nicholas T. Heckman, Jonathan K. Leung, The MITRE Corp. . . . . [7003-80]

Compost quality control by hyperspectral imaging, Giuseppe Bonifazi, Silvia Serranti, Univ. degli Studi di Roma/La Sapienza (Italy) . . . . . [7003-81]

Progress in reliability of silica optical fibres, Irina V. Severin, Univ. Politehnica Bucuresti (Romania); Marcel Poulain, Rochdi El Abdi, Univ. de Rennes I (France) . . . . . [7003-82]

Development and new application of Raman/Mie lidar: severe weather research and Earth observation atmospheric correction, Jinye Zhang, Wei Gong, Wuhan Univ. (China). . . . . [7003-83]

Development of 2D array of thermal detectors for far infrared investigation of the outer planets and their icy moons: processing issues and noise considerations, Brook Lakew, NASA Goddard Space Flight Ctr. . . . . [7003-84]

Miniaturised optical fibre sensor for dew detection inside organ pipes, Riccardo Falciai, Francesco Baldini, Andrea A. Mencaglia, Folco Senesi, Istituto di Fisica Applicata Nello Carrara (Italy); Dario Camuffo, Antonio della Valle, Consiglio Nazionale delle Ricerche (Italy) . . . . . [7003-85]

Comparative analysis of quality parameters of Italian extra virgin olive oils according to their origin region, Anna G. Mignani, Istituto di Fisica Applicata Nello Carrara (Italy); P. Beatriz Garcia-Allende, Univ. de Cantabria (Spain); Leonardo Ciaccheri, Antonio Cimato, Cristina Attilio, Istituto di Fisica Applicata Nello Carrara (Italy) . . . . . [7003-86]

IR-single beam dynamic holographic interferometer with 3 channels (two optical and one electrical), Nickolai V. Kukhtarev, Tatiana V. Kukhtareva, Alabama A&M Univ.; Yurii P. Gnatenko, Instytut Fizyki (Ukraine); Roman V. Gamernyk, Lviv National Univ. (Ukraine); Petro M. Bukivskij, Instytut Fizyki (Ukraine) . . . . . [7003-87]

Tuesday 8 April

SESSION 4

Room: Boston . . . . . Tues. 08.00 to 12.10

Detector Technologies and Imaging II

Session Chair: **Francis Berghmans,** Vrije Univ. Brussel (Belgium)

08.00: **Hyperspectral imaging applied to complex particulate solids systems** *(Invited Paper)*, Giuseppe Bonifazi, Silvia Serranti, Univ. degli Studi di Roma/La Sapienza (Italy) . . . . . [7003-14]

08.30: **Performances of a solid streak camera in standard CMOS technology with nanosecond time resolution**, Frédéric Morel, Ctr. National de la Recherche Scientifique (France) and Univ. Louis Pasteur (France); Chantal-Virginie Zint, Univ. Louis Pasteur (France) and Ctr. National de la Recherche Scientifique (France); Wilfried Uhring, Jean-Pierre Le Normand, Univ. Louis Pasteur (France) and Institut d'Électronique du Solide et des Systèmes (France) . . . . . [7003-15]

08.50: **A new high speed thermal imaging concept based on a logarithmic CMOS imager technology**, Franz X. Hutter, Daniel Brosch, Joachim N. Burghartz, Heinz-Gerd Graf, Markus Strobel, IMS CHIPS (Germany) . . [7003-16]

09.10: **Silicon photomultipliers for nuclear medical imaging applications**, Massimo C. Mazzillo, Giovanni Condorelli, Delfo D. Sanfilippo, Alessandro Piazza, Giuseppina G. Valvo, Beatrice Carbone, Giorgio G. Fallica, STMicroelectronics (Italy); Alfio Pappalardo, Luigi Cosentino, Paolo Finocchiaro, Istituto Nazionale di Fisica Nucleare (Italy); Michele Corselli, Giuseppe Suriani, Salvatore Lombardo, Istituto per la Microelettronica e Microsistemi (Italy); Sergio Billotta, Massimiliano Belluso, Giovanni Bonanno, Osservatorio Astrofisico di Catania (Italy). . . . . [7003-17]

09.30: **BiCMOS phototransistors** *(Invited Paper)*, Artur K. Marchlewski, Horst K. Zimmermann, Technische Univ. Wien (Austria). . . . . [7003-18]

10.00: **High sensitivity optical position sensitive detectors fabricated from high resistivity substrates**, Jasmine Henry, Univ. of Western Australia (Australia). . . . . [7003-20]

Coffee Break . . . . . 10.20 to 10.50

10.50: **Correlating photodetector with current carrying photogate for time-of-flight distance measurements**, Alexander Nemecek, Horst K. Zimmermann, Technische Univ. Wien (Austria) . . . . . [7003-21]

11.10: **Multicolor LED sensor**, Volker Lange, Felipe Ribeiro, Dietrich Kühlke, Hochschule Furtwangen Univ. (Germany); Walter Tews, LITEC-LLL GmbH (Germany) . . . . . [7003-22]

11.30: **AlGaN photo-detectors for applications in the extreme ultraviolet (EUV) wavelength range**, Pawel Malinowski, Anne Lorenz, Joachim John, Charles Sturdevant, Kai Cheng, Marianne Germain, IMEC (Belgium); Fabrice Semond, Jean-Yves Duboz, Ctr. National de la Recherche Scientifique (France); Ali Ben Moussa, Jean-Francois Hochedez, Royal Observatory of Belgium (Belgium); Udo Kroth, Mathias Richter, Physikalisch-Technische Bundesanstalt (Germany) . . . . . [7003-23]

11.50: **Silicon phototransistor reliability assessment and new selection strategies for space applications**, Spezzigu Piero, Univ. Bordeaux I (France) and Univ. degli Studi di Cagliari (Italy); Laurent Bechou, Yannick Deshayes, Ousten Yves, Univ. Bordeaux I (France); Quadri Gianandrea, Gilard Olivier, Ctr. National d'Études Spatiales (France); Vanzi Massimo, Univ. degli Studi di Cagliari (Italy) . . . . . [7003-24]

Lunch/Exhibition Break . . . . . 12.10 to 13.40

SESSION 5

Room: Boston . . . . . Tues. 13.40 to 15.20

Application Driven Sensing Techniques

Session Chair: **Robert A. Lieberman,** Intelligent Optical Systems, Inc.

13.40: **Metal sheet thickness profile measurement method based on two-side line triangulation and continuous vibration compensation**, Petri Lehtonen, Jari Miettinen, Heimo Keränen, Tapio Vaarala, VTT Elektronikka (Finland); Jarmo Raustela, Luvata Pori Oy (Finland) . . . . . [7003-25]

14.00: **Efficient processing technique based on plasma optical spectroscopy for on-line welding quality monitoring**, Jesus M. Mirapeix, Adolfo Cobo, Ana M. Cubillas, Olga M. Conde, Jose M. Lopez-Higuera, Univ. de Cantabria (Spain) . . . . . [7003-26]

14.20: **Optical characterization of thin layers grown on metal components**, Franz C. Mayrhofer, Gerald Zauner, Günther Hendorfer, Upper Austria Univ. of Applied Sciences (Austria); Gerald Darilion, Ruebig GmbH (Austria) . . . [7003-27]

14.40: **Photo-thermal measurement of absorptance losses and temperature induced wavefront deformation in DUV-optics**, Bernd Schäfer, Klaus Mann, Torsten Miege, Laser-Lab. Göttingen e.V. (Germany). . . . . [7003-28]

15.00: **Zero-crossing detection algorithm for arrays of optical spatial filtering velocimetry sensors**, Michael L. Jakobsen, Steen G. Hanson, Danmarks Tekniske Univ. (Denmark) . . . . . [7003-30]

Wednesday 9 April

SESSION 6

Room: Boston . . . . . Wed. 08.00 to 10.20

Interferometric Techniques

Session Chair: **Leszek R. Jaroszewicz,** Wojskowa Akademia Techniczna (Poland)

08.00: **Subnanometric Michelson interferometry for seismologic applications**, Philippe Millier, Damien Ponceau, Commissariat à l'Energie Atomique (France) . . . . . [7003-31]

08.20: **Full automatic fiber optic polarization analyzer**, Pawel Marc, Leszek R. Jaroszewicz, Karol Stasiewicz, Rafal Swillo, Zbigniew Krajewski, Wojskowa Akademia Techniczna (Poland) . . . . . [7003-32]

08.40: **On the analysis of adjustment sensitivities of interferometric sensors**, Gerhard Kloos, Meilute (Germany) and Hella KGaA Hueck & Co. (Germany) . . . . . [7003-33]

09.00: **Design and testing of low-cost full-field, integrated optical extensometer**, Jerzy M. Krezel, Malgorzata Kujawinska, Politechnika Warszawska (Poland); Kimmo Keranen, VTT Elektroniikka (Finland); Jürgen Mohr, Forschungszentrum Karlsruhe (Germany) . . . . . [7003-35]

09.20: **A compact high-sensitivity heterodyne interferometer for industrial metrology**, Thilo Schuldt, Hochschule Konstanz (Germany) and Astrium GmbH (Germany); Martin Gohlke, Astrium GmbH (Germany) and Humboldt-Univ. zu Berlin (Germany); Dennis Weise, Ulrich A. Johann, Astrium GmbH (Germany); Achim Peters, Humboldt-Univ. zu Berlin (Germany); Claus Braxmaier, Hochschule Konstanz (Germany) . . . . . [7003-36]

09.40: **Dynamic holographic interferometry in IR and visible range in semiconductor crystals for acoustical sensing (modeling and experimental realization)**, Nickolai V. Kukhtarev, Tatiana V. Kukhtareva, Phillip P. Land, Alabama A&M Univ.; Yurii P. Gnatenko, Institute of Physics (Ukraine); Alexander A. Grabar, Uzhgorod National Univ. (Ukraine); Peter Bukovskij, Institute of Physics (Ukraine); Roman V. Gamernyk, Lviv National Univ. (Ukraine). . [7003-37]

10.00: **Modeling a multimode Sagnac interferometer: application for an embarked fiber optic gyroscope**, Medjaba Hocine, Lab of Electronics and Optoelectronics Systems (Algeria); Sylvain S. Lecler, Univ. Louis Pasteur (France); Simohamed L. Mokhtar, Lab of Electronics and Optoelectronics Systems (Algeria); Ayoub Chakari, Univ. Louis Pasteur (France) . . . . . [7003-102]

Coffee Break . . . . . 10.20 to 10.40

SESSION 7

Room: Boston . . . . . Wed. 10.40 to 12.00

Time-of-Flight and Doppler Techniques

Session Chair: **Leszek R. Jaroszewicz,** Wojskowa Akademia Techniczna (Poland)

10.40: **Design and test of the T2L2 (Time Transfer by Laser Link) optical subsystem**, Patrick S. Vrancken, Etienne Samain, Observatoire de la Côte d'Azur (France); Philippe Guillemot, Ctr. National d'Études Spatiales (France) . . . . . [7003-38]

11.00: **Effect of photonic shot noise on optimum leading edge detection level of laser pulses**, Lauri W. Hallman, Juha T. Kostamovaara, Univ. of Oulu (Finland) . . . . . [7003-39]

11.20: **Development of a prototype sensor system for ultra-high speed LDA-PIV**, Jennifer A. Griffiths, Gary J. Royle, Sarah E. Bohndiek, Univ. College London (United Kingdom); Renato A. D.Turchetta, Science and Technology Facilities Council (United Kingdom); Daoyi Chen, The Univ. of Liverpool (United Kingdom) . . . . . [7003-40]

11.40: **Lee filtered burst selecting in the photon correlation LDA signal processing**, Lénárd Vámos, Péter J. Jani, Magyar Tudományos Akadémia Szilárdtestfizikai és Optikai (Hungary) . . . . . [7003-41]

Lunch/Exhibition Break . . . . . 12.00 to 14.30

Room: Munch . . . . . Wed. 14.30 to 15.30

Joint Session: Sensing Applications of PCF

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

Joint Event with Conference 6990, Photonic Crystal Fibres

14.30: **Oxygen sensor based on hollow-core photonic crystal fibres**, Marcelo Cabaleiro, Volker Lange, Dietrich Kühlke, Hochschule Furtwangen Univ. (Germany) . . . . . [6990-09]

14.50: **Interrogation unit for FBG sensors based on two-mode photonic crystal fibre interferometer**, Joel Villatoro, Vittoria Finazzi, Institut de Ciències Fotòniques (Spain); Vladimir P. Minkovich, Ctr. de Investigaciones en Óptica, A.C. (Mexico); Valerio Pruneri, Gonçal Badenes, Institut de Ciències Fotòniques (Spain) . . . . . [6990-10]

15.10: **The fabrication and characterization of fiber Bragg gratings in high birefringent photonic crystal fibers for sensing applications**, Thomas Geernaert, Karima Chah, Tomasz A. Nasilowski, Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium); Martin Becker, Manfred Rothhardt, Hartmut Bartelt, IPHT Jena (Germany); Marcin Szpulak, Jacek Olszewski, Waclaw Urbanczyk, Politechnika Wroclawska (Poland); Krzysztof Poturaj, Jan Wojcik, Univ. Marii Curie-Sklodowskiej (Poland) . . . . . [6990-11]

Coffee Break . . . . . 15.30 to 15.50

SESSION 8

Room: Boston . . . . . Wed. 15.50 to 17.20

Innovative Sensing Devices

Session Chair: **Francis Berghmans,** Vrije Univ. Brussel (Belgium)

15.50: **An optical sensor based on monolithic integrated organic light-emitting diodes (OLED's)** *(Invited Paper)*, Sven Reckziegel, Daniel Kreye, Tino Pügner, Uwe Vogel, Michael Toerker, Jörg Amelung, Fraunhofer-Institut für Photonische Mikrosysteme (Germany) . . . . . [7003-42]

16.20: **Characteristics of nonlinear waveguide sensors using left-handed materials**, Mohammed M. Shabat, Max-Planck-Institut für Physik Komplexer Systeme (Germany); Sofyan Taya, The Islamic Univ. of Gaza (Palestinian Territory (Occupied)) . . . . . [7003-43]

16.40: **Ultra-fast wavefront analyser for high volume production of camera modules lenses**, Marie Cherrier, Trioptics France (France); Stefan Krey, Iris Erichsen, Aiko K. Ruprecht, Trioptics GmbH (Germany) . . . . . [7003-44]

17.00: **A credit card verifier structure using diffraction and spectroscopy concepts**, Sarun Sumriddetchkajorn, Yuttana Intaravanne, National Electronics and Computer Technology Ctr. (Thailand) . . . . . [7003-45]

Thursday 10 April

SESSION 9

Room: Boston . . . . . Thurs. 11.00 to 12.30

Chemical and Environmental Sensing I

Session Chair: **Anna Grazia Mignani,**
Istituto di Fisica Applicata Nello Carrara (Italy)

11.00: **Tunable fibre laser spectroscopy in the near-IR for measurement of gas parameters** *(Invited Paper)*, George Stewart, Norhana Arsad, Walter Johnstone, Univ. of Strathclyde (United Kingdom) . . . . . [7003-46]

11.30: **Injection seeded singlemode intracavity spectroscopy of the oxygen A-band**, Benjamin Scherer, Jürgen Wöllenstein, Fraunhofer-Institut für Physik Messtechnik (Germany); Wenzel Salzmann, Matthias Weidemüller, Albert-Ludwigs-Univ. Freiburg (Germany) . . . . . [7003-47]

11.50: **Surface plasmon resonance sensor based on a planar polychromatic OLED light source**, Jörg Frischeisen, Nils A. Reinke, Cornelia Ostermayr, Jürgen Neumann, Stefan Nowy, Wolfgang Brütting, Univ. Augsburg (Germany) . . . . . [7003-48]

12.10: **Optical combo sensor for early diagnostics within the built and natural environment**, Emma Bryce, Mike J. Hepher, James Sommerville, Glasgow Caledonian Univ. (United Kingdom) . . . . . [7003-49]

Lunch/Exhibition Break . . . . . 12.30 to 13.30

SESSION 10

Room: Boston . . . . . Thurs. 13.30 to 15.00

Chemical and Environmental Sensing II

Session Chair: **Anna Grazia Mignani,**
Istituto di Fisica Applicata Nello Carrara (Italy)

13.30: **Novel integrated organic sensor system for the detection of oxygen and pH** *(Invited Paper)*, Elke Kraker, Anja Haase, Georg Jakopic, Bernhard Lamprecht, Christian Konrad, Stefan Köstler, JOANNEUM RESEARCH GmbH (Austria) . . . . . [7003-50]

14.00: **Optical sensing of chemicals by a porous silicon Bragg grating waveguide**, Ilaria Rea, Mario Iodice, Giuseppe Coppola, Ivo Rendina, Luca De Stefano III, Istituto per la Microelettronica e Microsistemi (Italy) . . . . . [7003-51]

14.20: **Photoacoustic HF-sensor**, Hermann Harde, Matthias Dressler, Günther Helmrich, Helmut-Schmidt Univ. (Germany) . . . . . [7003-52]

14.40: **Application of hyperspectral lidar in remote sensing of oil pollution**, Sergey M. Babichenko, Alexey Lisin, Larisa Poryvkina, Sergei Shchemelyov, Irina Jakovleva-Richter, AS Laser Diagnostics Instruments (Estonia); Alexandre Vorobiev, Laser Diagnostic Instruments International Inc. (Canada) . . . [7003-54]

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics[21] - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

Make time for the
Photonics Europe Free Exhibition
Palais de la Musique et Congrès Exhibition Hall

Tuesday 8 April . . . . . 12.00 to 19.30 hrs.
Wednesday 9 April . . . . . 10.00 to 17.00 hrs.
Thursday 10 April . . . . . 10.00 to 14.00 hrs.

Photonics in the Automobile

Conference Chair: **Patrick P. Meyrueis,** Univ. Louis Pasteur (France); **Thomas P. Pearsall,** European Photonics Industry Consortium (France)

Programme Committee: **Dan Curticapean,** Fachhochschule Offenburg (Germany); **Thomas Graf,** Univ. Stuttgart (Germany); **Alex A. Kazemi,** The Boeing Co.; **Wolfgang Knapp,** Cooperation Laser Franco-Allemande (France); **Markus Kreuzer,** DaimlerChrysler AG (Germany); **Uli Lemmer,** Univ. Karlsruhe (Germany); **Martin Liess,** PerkinElmer Optoelectronics GmbH & Co. KG (Germany); **Jean-Francois Longchamp,** Robert Bosch S.A. (Switzerland); **Valerio Meliga,** (Italy); **Mendiaye Ndao,** Delphi Corp.; **F. Quentel,** D-Lightsys; **Pier Mario Repetto,** Magnetti Marelli (Italy); **Caroline Robert,** VALEO (France); **D. Wallaschek,**

Monday 7 April

OPENING REMARKS

Room: Tivoli I . . . . . Mon. 10.55 to 11.00

Patrick P. Meyrueis, Univ. Louis Pasteur (France);
Thomas P. Pearsall, European Photonics Industry Consortium (France)

SESSION 11

Room: Tivoli I . . . . . Mon. 11.00 to 13.00

Innovative Lighting in Automotive

Session Chairs: **Patrick P. Meyrueis,** Univ. Louis Pasteur (France); **Thomas P. Pearsall,** European Photonics Industry Consortium (France)

11.00: **The phantom light effects in modern car taillight combinations**, Norbert Hahn, Karl Manz, Uli Lemmer, Karsten D. Klinger, Univ. Karlsruhe (Germany) . . . . . [7003-88]

11.20: **The influence of ambient light on the driver**, Karsten D. Klinger, Uli Lemmer, Univ. Karlsruhe (Germany) . . . . . [7003-89]

11.40: **New headlamp technologies**, Christian Jebas, Karsten D. Klinger, Uli Lemmer, Univ. Karlsruhe (Germany) . . . . . [7003-90]

12.00: **Headlamps for light-based driver assistance**, Mirco Götz, Michael Kleinkes, Hella KGaA Hueck & Co. (Germany) . . . . . [7003-91]

12.20: **New design tools for LED headlamps**, Andre Domhardt, Univ. Karlsruhe (Germany); Udo Rohlfing, Hochschule Darmstadt (Germany); Karsten D. Klinger, Dieter Kooss, Karl Manz, Uli Lemmer, Univ. Karlsruhe (Germany) . . . . . [7003-92]

12.40: **Optical concept for an active headlamp with DMD array**, Alexander Günther, Univ. Paderborn (Germany) . . . . . [7003-93]

Lunch/Exhibition Break . . . . . 13.00 to 14.00

SESSION 12

Room: Tivoli I . . . . . Mon. 14.00 to 16.10

Photonics Sensing in the Automotive

Session Chairs: **Patrick P. Meyrueis,** Univ. Louis Pasteur (France); **Thomas P. Pearsall,** European Photonics Industry Consortium (France)

14.00: **Fiber optic sensor technologies for detection of hydrogen in space application** *(Invited Paper)*, Alex A. Kazemi, The Boeing Co.. . . . . [7003-94]

14.30: **Simulation and visualization of pressure measurements using optical fibers with possible applications to automotive**, Mathieu Guilhem, Ayoub Chakari, Patrick Meyrueis, Univ. Louis Pasteur (France); Dan Curticapean, Fachhochschule Offenburg (Germany) . . . . . [7003-95]

14.50: **An implementation of wireless sensor network for detection of runaway train**, Xiaowei Liu, Harbin Institute of Technology (China) . . . [7003-96]

Coffee Break . . . . . 15.10 to 15.30

15.30: **Tolerant launching scheme for short-reach multimode fibre connections with non-ideal offset connectors**, Christian-Alexander Bunge, Technische Univ. Berlin (Germany); Dan Curticapean, Winfried Lieber, Fachhochschule Offenburg (Germany) . . . . . [7003-97]

15.50: **Novel Compact Panomorph Lens Based Vision System for Monitoring Around a Vehicle,** Simon Thibault, Patrice Roulet, ImmerVision (Canada) . . . . . [7003-98]

SESSION 13

Room: Tivoli I . . . . . Mon. 16.10 to 17.10

Creative Photonics Engineering for Automotive

Session Chairs: **Patrick P. Meyrueis,** Univ. Louis Pasteur (France); **Thomas P. Pearsall,** European Photonics Industry Consortium (France)

16.10: **Do advertisements at the roadside distract the driver?**, Carmen Kettwich, Karsten D. Klinger, Uli Lemmer, Univ. Karlsruhe (Germany) . . . . . [7003-99]

16.30: **Temperature measurement using optical fibre with applications to automobiles considering a high accurate numerical solution for the conductive heat transport in a circular cylinder**, Dan Curticapean, Fachhochschule Offenburg (Germany); Adrian Neculae, West Univ. of Timisoara (Romania) . . . . . [7003-100]

16.50: **Diffractive optical elements for laser marking applications**, Estelle Neiss, Lab. des Systèmes Photoniques (France); Manuel Flury, Lab. Hubert Curien (France); Joël Fontaine, Lab. des Systèmes Photoniques (France) . . . . . [7003-101]

Hot Topics I

Monday 7 April . . . . . .8.45 to 10.30 hrs.

Photonics[21] - Top priorities for European Photonics Research

European Photonics: Challenges and Opportunities, Ronan Burgess, European Commission, Photonics Unit, Belgium

European Photonics: Taking a Glorious Legacy into a Challenging Future, Eugene Arthurs, SPIE Europe, United Kingdom

Hot Topics II

Tuesday 8 April . . . . . .16.00 to 17.30 hrs.

Status of Photonics Polymers for "Fibre to the Display", Yasuhiro Koike, Keio Univ., Japan

The Slow and Fast Light in Optical Fibres, Miguel González-Herráez, Univ. of Alcalá, Spain

Hot Topics III

Thursday 10 April . . . . . .9.00 to 10.30 hrs.

DNA-based Biopolymers for Photonics and Electronics Biotronics, ames G. Grote, Air Force Research Lab., USA

Silicon-based Nonlinear Optical Devices and Their Applications: Recent Progress in Silicon Raman Lasers, Wavelength Converters, and Dispersion Compensators, Haisheng Rong, Intel Corp., USA

Coffee breaks will follow Hot Topics I & III on Monday and Thursday, and precede Hot Topics II on Tuesday.

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General Information

7-11 April 2008 · Palais de la Musique et des Congrès · Place de Bordeaux · Strasbourg, France
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Registration

Registration

Full symposium registration includes: Admittance to the conferences, the Industry Perspectives programme, the exhibition, welcome reception, poster receptions, coffee breaks, one hosted lunch, and Proceedings of SPIE as applicable under the specific registration plans (see registration form for details).

Proceedings of SPIE and CD-ROMs purchased as part of your registration plan include shipping charges. Student author registration plans do not include Proceedings of SPIE.

Registration Hours

Palais de la Musique et des Congrès, Erasme Foyer

Sunday 6 April	13.00 to 17.30 hrs.
Monday 7 April	07.30 to 17.00 hrs.
Tuesday 8 April	08.00 to 17.00 hrs.
Wednesday 9 April	08.00 to 17.00 hrs.
Thursday 10 April	08.00 to 16.00 hrs.

Exhibition Hours

Tuesday 8 April	12.00 to 19.30 hrs.
Wednesday 9 April	10.00 to 17.00 hrs.
Thursday 10 April	10.00 to 14.00 hrs.

Author/Presenter Information

Speaker Check-In Desk / Audiovisual Preview Station

Sunday through Thursday, open during Registration Hours

Salon Rohan, First Floor of the Conference Centre

All Conference rooms will have a computer workstation, LCD projector, screen, lapel microphone, and laser pointer. All presenters are requested to come to the Self-Service Speaker Preview Desk to confirm display settings of their presentations from their memory devices or laptops with the audiovisual equipment being used at this symposium.

Interactive Poster Sessions Setup Instructions

Contades Est

Monday poster presenters may post their poster papers starting at 12:00 hrs on Monday in the Contades Hall. Posters may remain on display until 12:00 hrs on Tuesday. Any papers left on the boards post noon on Tuesday will be considered unwanted and will be discarded. Wednesday poster presenters may post their poster papers starting at 9:00 hrs on Wednesday in the Contades Hall. Any papers left on the boards at the close of the Wednesday poster session will be considered unwanted and will be discarded.

SPIE Europe assumes no responsibility for posters left up after the designated end of each of the poster sessions. Poster authors should be at their papers from 17:30 to 19:00 hrs during their respective session on Monday or Wednesday to answer questions from attendees.

Attendees are requested to wear their conference registration badges to the poster sessions. Supplies for posting papers will be available in those areas. The viewable size of the poster board is 1x1 m. Note that poster presenters are not supplied with any audio visual equipment, authors requiring such equipment should refrain from requesting the poster presentation format.

SPIE *Europe* Onsite Services

Messages for Attendees

Messages for attendees at Photonics Europe can be left by calling the Palais de La Musique et des Congrès at Tel: **+33 3 88 37 67 67**, Fax +33 3 88 35 38 17 and asking for the SPIE Europe conference registration desk. Messages will be taken during registration hours Monday through Thursday. Attendees should check the message boards at the message centre on a daily basis to receive their messages.

Internet Access/WiFi

The Internet Café will be open from Sunday to Thursday during registration hours. Several internet access terminals will allow attendees to access their internet e-mail during the conference. There will be a 10-minute time limit for each internet session.

The Palais de la Musique et des Congrès also has WiFi capability. Prices at the point of going to press are: 60 minutes' access in 24 hours: €10.00; 24 hour access: €22.00; 7-day access: €88.00. Access can be purchased online by starting up your browser at the venue.

Luggage Storage and Coat Check

Convention Centre, Ground Floor near Entrée Erasme

Monday–Thursday. . . . . 7.30 to 18.00 hrs.

There will be a minimal cost for coat and luggage storage as required by the Convention Centre.

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Local universities have been encouraged to post their vacancies at the Recruitment Corner.

In addition to university vacancies, be sure to check out www.SPIEWorks.co.uk for jobs posted by Photonics Europe exhibitors.

SPIEWorks, the SPIE job site, was developed to serve the career needs of optics and photonics professionals. Whether you are actively seeking a new position or just want to keep track of the scientific job market, you can search by region, technology, and keywords, set up email alerts or RSS feeds, and research companies of interest.

Food and Beverage Services

Coffee Breaks

Complimentary coffee will be served twice each day of the conference at approximately 10.00 and 15.00 hrs. Please check the individual technical conference timings for exact times and locations.

Cash Lunches

A lunch buffet will be held in the Exhibition Hall, Tuesday–Thursday starting at 11.30 hrs. One lunch ticket is included in the conference registration fee. Additional lunches can be purchased through the registration form. A separate lunch menu is available for purchase at the Bar Agora on the first floor of the Conference Centre. Lunch can also be purchased at the surrounding hotels and restaurants.

Desserts

Tuesday and Wednesday

Exhibition hall

Dessert snacks will be served during the afternoon coffee break. Complimentary tickets for the dessert snacks will be included in attendee registration packets.

Policies

Audio/Video/Digital Recording Policy

Because of copyright restrictions, video or digital recording of any conference session or poster is strictly prohibited without written prior consent from each specific presenter to be recorded. Individuals not complying with this policy will be asked to leave a given session and to surrender their film or disc. It is the responsibility of the presenter to notify SPIE Europe if consent is given.

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SPIE Europe uses tested and safety-approved laser pointers for all conference and course rooms. For safety reasons, SPIE Europe requests that presenters use our provided laser pointers. Use of a personal laser pointer at an SPIE Europe event represents user's acceptance of liability for use of a non-SPIE Europe-supplied laser pointer device. Misuse of any laser pointer could lead to eye damage.

No Suitcasing Policy

Suitcasing is the act of soliciting business in the aisles during the exhibition or in other public spaces associated with the exhibition. Please note that while all meeting attendees are invited to the exhibition, any attendee who is observed to be soliciting business in violation of any portion of SPIE Exhibition Policy will be asked to leave immediately. Additional penalties may be applied. Please report any violations you observe to show management.

Unsecured Items

Personal belongings such as briefcases, backpacks, coats, book bags, etc., should not be left unattended in meeting rooms or public areas. These items will be subject to removal by security upon discovery.

Travel Information

Welcome to Strasbourg!

Because of its geographical situation and its history, Strasbourg is European by definition.

The historic heart of Strasbourg is located in a curve of the Ill, a tributary of the Rhine. There is an impressive number of architectural treasures, including massive medieval towers; neat, half-timbered houses; and prestigious town houses from the 18th Century, all concentrated in this perimeter of 83 hectares. The best way to tour the town is to stroll from one of the many lively squares to the next. Be sure to see the European Quarter, a classic example of contemporary architecture.

Alsace's location near the German and Swiss borders makes possible a myriad of excursions. Germany's Black Forest is less than an hour's drive. The Swiss city of Basel is about an hour away. Closer to home, the Wine Road features countless walled villages and vineyards to explore. The Vosges Mountains offer well-marked hiking trails and breathtaking vistas

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Strasbourg Info: www.strsbourg.co.uk

Travel by Rail to Strasbourg

Entzheim Rail Station is only 5 minutes walking distance from the airport terminal. For the train schedule: http://www.strasbourg.aeroport.fr/E/index_E.html.

The train runs regularly about every half-hour from 5:34 through 20:42. It is a 14-minute ride from downtown Strasbourg to Entzheim Station at the airport. Railway information Tel: +33 8 92 35 35 35, www.sncf.com

Travel by Tram within Strasbourg

The Strasbourg public transport network is composed of 23 bus lines and 4 tram lines accessing the whole Strasbourg area. The Relay-Tram parking lots offer parking next to a tram station and access the city centre within a few minutes. Information CTS (Company of Strasbourg Transportation) Tel: (+33) 3 88 77 70 70, www.cts-strasbourg.fr.

To get to Palais de la Musique et des Congrès de Strasbourg from the Strasbourg Airport-Entzheim, take the airport shuttle (one way 5,10€, return 9,70€), leaving every 20 minutes from the arrivals terminal to Tram stop Baggersee, where there is a connection to Tram Line A to downtown. Take Tram Line A (towards Hautepierre Maillon) and get off at Tram Stop Homme de Fer. Transfer to Tram Line B (towards Hoenheim Gare) and get off at either Tram Stop Lycée Kléber, which is within walking distance and just before the Palais de la Musique, or Tram Stop Wacken, which is just after the Palais de la Musique.

To get to the airport from the centre of Strasbourg, take tram line A (towards Illkirch Lixenbuhl) and get off at Baggersee, where there is a shuttle leaving every 20 minutes, arriving at the airport in 12 minutes.

Relay-Tram Parking Lots

Set up along the tram lines, the Relay-Tram parking lots (P+R) offer the possibility to park your vehicle close to a tram station and travel downtown without worry of traffic or parking. In return for the price of parking for the day, all occupants of the vehicle receive a ticket permitting a round-trip by tram. For parking solutions: www.parcus.com.

Further information about transport links in Strasbourg, are located on the Strasbourg Transportation Company (CTS) website: www.cts-strasbourg.fr.

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Parking

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