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NEW LOCATION

SPIE Photonics Europe

- Micro/Nano Technologies
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- Photonics in Industrial Applications

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This program is current as of 2/8/2010. Please visit www.photonicseurope.org for event updates, travel, and online registration information.

Advance Programme

Conferences: 12-16 April 2010
Exhibition: 13-15 April 2010

The Square Conference Centre
Brussels, Belgium

SPIE
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SPIE Photonics Europe

Join the most innovative minds working in photonics, optics, lasers, and micro/nanotechnologies.

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

SPIE will advance your research globally

Your research will reach far beyond the conference room—all work from SPIE Photonics Europe will be published in the SPIE Digital Library. Promote yourself, your ideas, and your organisation to millions of key researchers from around the world.

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

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

Advance Programme

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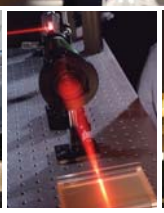

Participate at SPIE Photonics Europe 2010 in Brussels

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SPIE Europe Ltd., a subsidiary of SPIE, is a not-for-profit UK-registered company serving SPIE constituents throughout Europe as an advocate and liaison to political and industry associations within the European optics and photonics community.

In addition to providing membership services, SPIE Europe Ltd. organises and manages internationally recognised conferences, education programmes, and technical exhibitions featuring emerging technologies in optics and photonics.

SPIE Europe
2 Alexandra Gate
Ffordd Pengam, Cardiff, CF24 2SA
Tel: +44 29 2089 4747
Fax: +44 29 2089 4750
info@spieeurope.org

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Continued next page

Plan Now to Attend

Photonics Europe has moved to the heart of Europe and to a brand new conference centre in the very city centre of Brussels.

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

- Photonics Europe is conferences, workshops, seminars, and an exhibition that will combine into a dynamic learning environment
- Photonics Europe serves as the platform for new information updates on the European Commission's 7th Research Framework Programme (FP7)
- Photonics Europe features comprehensive "hot topics" sessions, and will include a unique welcoming reception, daily coffee breaks, plus other technical and social events
- Photonics Europe presents the Innovation Village: a window on creative products developed by universities and research centres
- Photonics Europe hosts the European Village: a display on European initiatives, Networks of Excellence, Integrated Projects and other EC-projects that showcase their consortium as well as their newest breakthroughs

Brussels' historical city centre provides a great atmosphere, against a backdrop of excellent dining, comfortable facilities, straightforward accessibility and easy transportation. The leadership of Photonics Europe 2010 has selected many of the toughest issues facing optical and photonics technologies today as the basis for their programmes. These current research issues will drive the development of new products for years to come.

Attend Photonics Europe 2010 and be among the leaders!

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Vrije Univ. Brussel (Belgium)

Ronan Burgess
European Commission Joint Research Ctr. (Belgium)

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Honorary Chair

Hugo Thienpont
Vrije Univ. Brussel (Belgium)

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B-PHOT Brussels Photonics Team

CBO-BCO

EOS European Optical Society

IOP Institute of Physics

PHOTONICS 21

photonics 4 life

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Daily Schedule

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Photonics[21] Student Innovation Award, 09.10 to 09.30, p. 6	**Poster Session,** 17.40 to 19.10, p. 7	**Women in Optics,** 13.00 to 14.00, p. 5	**Poster Session,** 18.00 to 19.30, p. 7	
Student Lunch with the Experts, 12.00 to 13.00, p. 6	WS897 **Effective Technical Presentations** (Doumont) 9.00 am to 12.30 pm, p. 12	**All-Conference Best Student Paper Awards,** 16.30 to 16.50, p. 5		
Welcome Reception, 19.30 to 21.30, p. 6	**SPIE Fellows Luncheon,** 13.00 to 14.30, p. 7	**Best Practices for a Successful Future in Photonics,** 13.00 to 16.15, p. 7		
WS985 **Hit-the-Target Laser Activity Workshop** (Fabian) 2.00 to 4.00 pm, p. 12	**Photonics Career Event: Stop waffling and kick start your career!** 13.00 to 17.00, p. 7 • 13.00 to 13.40 Rik Moons - "The Job Interview" • 13.40 to 15.30 Presentations from company representatives • 15.30 to 17.00 Question session and social event			
Early Career Networking Social, 17.30 to 18.30, p. 6				
	EXHIBITION, p. 5			
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7712 **Nanophotonics** (Andrews, Nunzi, Ostendorf) p. 15

7713 **Photonic Crystal Materials and Devices** (Míguez, Romanov, Andreani, Seassal) p. 20

7714 **Photonic Crystal Fibres** (Kalli, Urbanczyk) p. 24

7715 **Biophotonics: Photonic Solutions for Better Health Care** (Popp, Drexler, Tuchin, Matthews) p. 26

7716 **Micro-Optics** (Thienpont, Van Daele, Mohr, Zappe) p. 32

7717 **Optical Modelling and Design** (Wyrowski, Sheridan) p. 36

7718 **Optical Micro- and Nanometrology** (Gorecki, Asundi, Osten) p. 39

7719 **Silicon Photonics and Photonic Integrated Circuits** (Righini, Honkanen, Jalali, Pavesi, Vivien) p. 42

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7721A **Solid State Lasers and Amplifiers** (Gräf, Mackenzie, Jelinkova) p. 49

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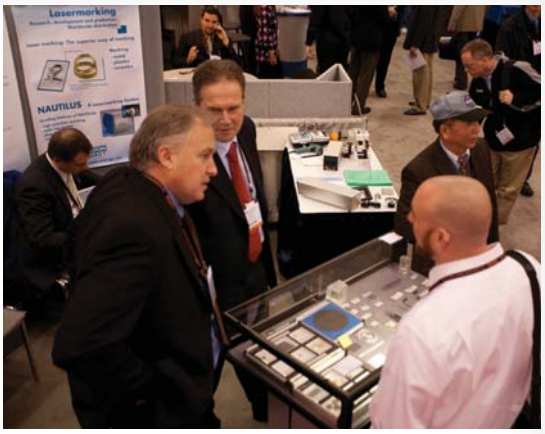
7723 **Optical and Digital Image Processing** (Schelkens, Ebrahimi, Perez, Truchetet, Saarikko) p. 57

7725 **Photonics for Solar Energy Systems** (Wehrspohn, Gombert) p. 61

7726 **Optical Sensing and Detection** (Berghmans, Mignani, Van Hoof) p. 64

7727 **Quantum Optics** (Zadkov, Durt) p. 68

7728 **Nonlinear Optics and its Applications** (Eggleton, Gaeta, Broderick) p. 70



MOVING TECHNOLOGY TO MARKET™

Exhibition Hours:

Tuesday 13 April · 10.00 to 17.00
Wednesday 14 April · 10.00 to 17.00
Thursday 15 April · 10.00 to 14.00

SPIE Photonics Europe is an exhibition for the scientific research market for photonics, optics, lasers, and micro/nanotechnologies. Photonics Europe is the exhibition for those who are directly involved in research and engineering—scientists who need the latest equipment to do their best work.

Meet with suppliers and see the latest technologies

Leading companies from Germany, France, the UK, and throughout Europe will showcase their newest equipment featuring optical components, lasers, fiber optics, detectors, sensors, cameras, and other instrumentation for the optics and photonics fields. Take advantage of this opportunity to see well-known suppliers under one roof.

Come see leading companies such as:

Hamamatsu Photonics · Ocean Optics · Spectra-Physics · Thorlabs · Ohara · Physik Instrumente · PicoQuant · CeramOptec

SPECIAL SHOWCASE on the Exhibition Floor

Photonics Innovation Village

Showcasing developments from universities, nonprofits, and research centres

B-PHOT BRUSSELS PHOTONICS TEAM

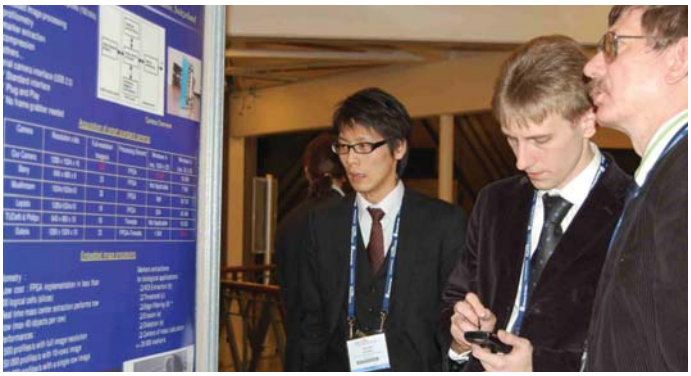
The 4th edition of the Photonics Innovation Village will be organised by the Vrije Universiteit Brussel. By taking part in the competition, innovative researchers will receive a complimentary "mini-booth" in a special high-traffic section of the exhibition.

Purpose of the Innovation Village

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

For more information about attending or exhibiting at the Photonics Europe Exhibition:

www.photonicseurope.org



Special Forum and Events. Heighten your experience at SPIE Photonics Europe through technical and social special events. Enjoy this robust selection of events for networking and technical insight.

Photonics21 Student Innovation Award

Monday, 09.10 to 09.30

The Research, Education and Training Work Group of the Photonics21 Technology Platform has established a prize for students in the field of photonics in order to promote research in photonics especially related to R&D with industrial impact.

Any person under 35 and active in the field of optics and photonics may apply for the Photonics21 Student Innovation Award by 10 February 2010. The award consists of a certificate and a cash prize of €5,000. For further information and application forms, please see: http://www.photonics21.org/TrainingEducation/innovationaward.php?, or contact the award secretariat at secretariat@photonics21.org.

The awards ceremony will be held on Monday 12 April 2010 during the Opening Ceremony at SPIE Photonics Europe.

Student Lunch with the Experts

Monday, 12.00 to 13.00

Seating Limited to first 100 students. First come, first served.
A ticket is required and provided with student registration.

Enjoy a casual meal with SPIE Leadership and SPIE Photonics Europe conference chairs at this engaging networking opportunity. Talk with experts willing to share their experience and wisdom on career paths in optics and photonics. Lunch is complimentary to all students.

Early Career Networking Social

Monday, 17.30 to 18.30

Open to All Early Career Professionals
Starting a new career doesn't mean starting over. Build your network of peers at this informal gathering of new career-holders and connect with future colleagues. Refreshments and drinks are complimentary.

Welcome Reception

Monday, 19.30 to 21.30

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

SPIE Fellows Luncheon

Tuesday, 13.00 to 14.30

All Fellows of SPIE are invited to join your colleagues for the second SPIE-hosted Fellows luncheon in Europe. The new Fellows attending Photonics Europe will be introduced and recognised. 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).

Photonics Career Event: Stop Waffling and Kick Start Your Career!

Tuesday, 13.00 to 17.00

Interested in learning about a career outside of academia?

Find out how to get your foot in the door with a professional résumé and interview. Talk to recruiters and company representatives from throughout Europe as they describe their science and work environment. The event will conclude with time to socialize, ask questions, and eat tasty Belgian waffles.

- 13.00 to 13.40 Rik Moons - "The Job Interview"
- 13.40 to 15.30 Presentations from company representatives
- 15.30 to 17.00 Question session and social event

Poster Sessions and Receptions

Tuesday, 17.40 to 19.10 hrs

Thursday, 18.00 to 19.30 hrs

Conference attendees are invited to attend the SPIE Photonics Europe poster sessions on Tuesday and Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Posters will be on display after 10.00 hrs on Tuesday and Thursday in the Conference Centre. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Women in Optics Presentation and Reception

Wednesday, 13.00 to 14.00

Join us for an early afternoon of networking and inspiration. Connect with your colleagues while enjoying a light lunch.

Dr. Eleni Alexandratou, National Technical Univ. of Athens (Greece) and a member of the gender management team of the www.BRIGHTER.EU Project will address opportunities and challenges facing women in academic and business sectors.

Best Practices for a Successful Future in Photonics

Wednesday, 13.00 to 16.15

Students and Early Career Professionals - attend this series of talks covering a range of topics you won't find in your schools course catalog. Learn from established leaders in the photonics field what brings success and what to avoid along your career path. Speakers to include:

- Yves Verbandt - Patents
- John Dudley - Photonics Research
- Toby Murcott - Working with the press
- Ronan Burgess - EU project writing

Register in advance to attend the post-workshop dinner at Restobières.

All-Conference Best Student Paper Awards

Wednesday, 16.30 to 16.50

Awards forethe best student papers in all 19 SPIE Photonics Europe conferences will be granted. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April · 16:50 to 18:30

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by:

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany

Ursula Keller, ETH Zurich, Switzerland

Mike Dunne, Science & Technology Facilities Council, UK

Monday Hot Topics

Hot Topics in Photonics is a series of plenary sessions aimed at giving researchers and engineers an overview of the most important developments in the field of photonics.

SESSION I

Monday 12 April · 09:00 to 11:50

9.00 to 9.10

Opening Remarks

Chairs: **Hugo Thienpont, Francis Berghmans,** Vrije Univ. Brussel, Belgium

9.10 to 9.20

Photonics21 Student Innovation Award Presentation

9.20 to 9.30

Presentation of the SPIE Fellowship to

Francis Berghmans, Vrije Univ. Brussel, Belgium

9.30 to 10.05

Illuminating the Path to Growth: The European Research Strategy in Photonics

Giorgio Anania
Photonics21, and Cube Optics AG, Germany

The European Technology Platform Photonics21 is an industry driven membership organisation which comprises more than 1400 members from 27 EU member states. The keynote will provide information on the Second Photonics21 Strategic Research Agenda - handed over to the European Commision in January 2010 - which aims to further develop Europe's scientific, technological and economic leadership in photonics. Recommendations of the SRA were identified by about 450 members at 17 workshops taking place all over Europe. The platform is based on an industry-led initiative encouraged by the European Commission which only recently identified Photonics as key enabling technology in Europe. Furthermore, detailled information on key recommendations on future research priorities, but also on instruments and investment necessary to achieve the goal of becoming the world leading region in Photonics will be provided.

Giorgio Anania currently serves as Chairman of Cube Optics and Vice President of Photonics21. He has an MA from Oxford University in Physics and a PhD from Princeton University in Thermonuclear Fusion.

10.05 to 10.35 · Coffee Break

10.35 to 11.10

Nanoscopy with focused light

Stefan Hell
Max Planck Institute for Biophysical Chemistry, Germany

For more than a century, it has been generally accepted that the resolution of a lens-based optical microscope is limited to about $d = \lambda/(2NA) > 200$ nm in the focal plane and > 500 nm along the optic axis, with NA denoting the numerical aperture of the lens and the wavelength of light. The discovery in the 1990's that elementary transitions between the states of a fluorophore can be used to eliminate the limiting role of diffraction has led to light microscopy concepts with resolution on the nanometer scale[1,2]. Currently, all existing and successfully applied nanoscopy methods share a common enabling element: they switch fluorescence on or off, so that adjacent features are registered sequentially in time[3,4].

For example, in a typical Stimulated Emission Depletion (STED) microscope[1], the fluorophores are switched off (=kept dark) by overlapping the excitation beam with a de-exciting (STED) beam which effectively confines the fluorophores to the ground state everywhere in the focal region except at a tiny area where the STED beam is close to zero. Fluorophores that are located in this subdiffraction-sized smaller area are registered. Scanning the beams further in space registers those fluorophores that had been switched off. An image of the whole object is assembled by sequential registration. The resolution is now given by the smaller diameter $d \approx \lambda/(2NA\sqrt{(1+I/Is)})$ of this area in which the fluorophores are still fluorescent. I is the intensity of the STED beam, which, for $I >> Is$, entails $d \to 0$, meaning that the resolution is conceptually no longer limited by λ.

STED microscopy has been used to investigate the fate of synaptic vesicle proteins after exocytosis[5], thus demonstrating the potential of emerging 'fluorescence nanoscopy' for the life sciences. A video-rate STED microscope was used to describe the mobility of vesicles inside the axons of cultured living neurons[6]. Live-cell STED microscopy has also been used to image activity-dependent morphological plasticity of dendritic spines[7], while in another study, it revealed that single sphingolipids, but not phospholipids, are transiently (< 10 ms) and locally (< 20 nm) trapped in a living cell membrane, mediated by cholesterol(8).

The concept of STED microscopy has been expanded to low intensity operation by switching the fluorophore to a long-lived dark (triplet) state or between a 'fluorescence activated' and a 'deactivated' (conformational) state[2] as encountered in switchable fluorescent proteins[9]. More recent but seminal nanoscopy schemes such as PALM, STORM and also GSDIM, switch the molecules individually and stochastically to a state that emits $m >> 1$ detectable photons in a row before returning to a dark state, allowing the calculation of their position. These single fluorophore switching concepts[10-14] require only a single switching cycle[3,4] per fluorophore, which greatly extends the power of the switching concept for subdiffraction separation. Altogether, lens-based optical nanoscopy is an unexpected and fascinating development in the physical sciences that is poised to impact several areas of science, in particular the life sciences, in the near future.

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14. J. Folling et al., Nature Meth. 5, 943 (2008).

11.15 to 11.50

The Light Touch: Advanced Micromanipulation and Photoporation

Kishan Dholakia
St. Andrews Univ., United Kingdom

Light is incredible. In the realm of interdisciplinary science and particularly biophotonics, it has enabled some astounding advances since the advent of the laser fifty years ago. The momentum of light may be used to hold and move colloidal particles and cells. Such optical micromanipulation has changed the way we understand single molecule biophysics, cell mechanics, the angular momentum of light amongst other key topics. Photonics can also be used for controlled nanosurgery at the cellular and sub-cellular level, in particular allowing the delivery of therapeutic agents at will to cells of choice - photoporation. Underpinning these areas we have seen a proliferation in methods to optically sculpt the light field to create exotic and unusual beam profiles that have led to major advances in these fields. I will give an overview of the field of micromanipulation and photoporation emphasizing the use of advanced photonics and beam sculpting for applications. These fields seem set to play a key role in shaping the future of biophotonics

SESSION II

Tuesday 13 April · 16:10 to 17:30

16.10 to 16.15 · Introduction

16.15 to 16.50

Bridging Photonics and Computing

Mario Paniccia
Intel Corporation, United States

The silicon chip has been the mainstay of the electronics industry for the last 40 years and has revolutionized the way the world operates. Today a silicon chip the size of a fingernail contains over one billion transistors and has the computing power that only a decade ago would take up an entire room of servers. Silicon photonics that mainly based upon silicon on insulator (SOI) has recently attracted a great deal of attention since it offers an opportunity for low cost opto-electronic solutions for applications ranging from telecommunications down to chip-to-chip interconnects as well as possible applications in new emerging areas such as optical sensing and or bio-medical applications.

Recent advances and research breakthroughs in silicon photonic device performance over last few years have shown that silicon can be considered as a material onto which one can build future optical devices. While significant efforts are needed to improve device performance and to "commercialize" these technologies, progress is moving at a rapid rate. If successful, silicon photonics may similarly come to dominate the optical communications as it has the electronics industry.

This keynote will provide overview of silicon photonics research at Intel Corporation, describe some of the recent advances in device performance and discuss the key building blocks needed for "siliconizing" photonics. In addition the presentation will provide an overview and discussion on potential applications and future opportunities for enabling "photonics" in and around the PC and platform .

Dr. Mario Paniccia is an Intel Fellow and Director of the Photonic Technology Lab at Intel Corporation. Mario currently directs a research group focused in the area of Silicon Photonics. The team is developing silicon-based photonic building blocks for future use in enterprise and data center communications. Mario has worked in many areas of optical technologies during his career at Intel including optical testing for leading edge microprocessors, optical communications and optical interconnects. His teams pioneering activities in silicon photonics have led to many firsts such as the first silicon modulator with bandwidth >1GHz (2004) and then the first at 40Gb/s (2007). The first continuous wave Silicon laser breakthrough (2005) and together with UCSB, the world's first "Hybrid Silicon Laser" (2006). Mario has won numerous awards including in November 2004 Mario was awarded by Scientific American to be one of the top 50 researchers for his teams work in the area of silicon photonics. In October 2008 Dr Paniccia was being by R&D Magazine as "Scientist of the year" for his teams pioneering research in the area of Silicon Photonics. He has published numerous papers, including 3 Nature papers, 3 book chapters, and has over 65 patents issued or pending. He is a senior member or IEEE and a fellow of OSA. Mario earned a B.S. degree in Physics in 1988 from the State University of New York at Binghamton and a Ph.D. degree in Solid State Physics from Purdue University in 1994.

16.55 to 17.30

InP Photonic Integration: Past, Present and Future

Radhakrishnan Nagarajan
Infinera Corporation, United States

Photonic integration has an active research history dating back to the late 1960's. This area of development that started with the integration of a handful of devices saw the first commercial deployment of Large Scale Photonic Integrated Circuits (LS-PIC), with over 50 discrete components monolithically integrated onto to single InP substrate, only five years ago. Experimentally to date, monolithically integrated devices on InP with well over 200 components have demonstrated. We will review the progress, current state of the art, and possible future directions in this field.

Radhakrishnan Nagarajan is with Infinera where he works on various aspects of large scale photonic integration on the InP platform. He obtained his B.Eng. degree in Electrical Engineering from the National University of Singapore, his M.Eng. from the University of Tokyo, and his Ph.D. from the University of California, Santa Barbara. He was with SDL from 1995 to 2001 when it was acquired by JDS Uniphase. He joined Infinera in 2001, where he is currently a Senior Director, Optical Components Technology. At SDL, among other things, he managed the development of the new generation 980nm EDFA pump module which won the Photonics Circle of Excellence Award in 2000. He has authored/co-authored over 150 publications in journals and conferences. He has also authored three book chapters in the area of high speed optical components. He has been awarded 38 US patents.

He is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), the Optical Society of America (OSA) and the Institution of Engineering and Technology (IET). In 2006 he shared the IEEE/LEOS Aron Kressel Award for his work on commercializing large scale photonic integrated circuits which have found widespread deployment in commercial optical transport networks.

SESSION III

Thursday 15 April · 15:45 to 17:45

15.45 to 15.50

Introduction

15.50 to 16.25

Visualizing Light Fields in Nanophotonics

L. (Kobus) Kuipers
Univ. of Amsterdam, Netherlands

Nanostructures such as photonic crystals and plasmonic metallodielectrics can exert a huge control over light at the nanoscale. This control is of both academic and industrial interest. Nanoconfinement of light can miniaturize optical chips and the slow light achievable with photonic crystals leads to increased light-matter interactions with a potential for new (bio)sensors and ultrafast all-optical switches. Implicit in the control of light at the nanoscale is that the light field itself no longer conforms to our everyday intuition in terms of plane waves or rays. Close to a nanophotonic structure the light field itself becomes highly structured.

In order to investigate light fields at the nanoscale in detail a subwavelength resolution is crucial. We have succeeded in measuring the structure of light in the near field of photonic crystal waveguides with phase-sensitive near-field microscopy. It turns out that the evanescent field of these waveguides is much richer than expected due to the Bloch nature of the eigenmodes. For example, it turns out that the light does not decay with a single or even multiple exponents away from the surface as might have naively been expected [1]. With a breakthrough in near-field microscopy we have succeeded to separate the two electric field components in to the plane above the waveguide structure and the phase difference between them. As a consequence we can reconstruct the polarization ellipse for every point above the nanophotonic structure. We find that the polarization above a photonics crystal structure is highly dependent on position to extent that the field even contains so-called polarization singularities [2]. The breakthrough has enabled the visualization of the effective excitation of nanowire plasmon modes through adiabatic mode transformation [3]. Building on our ability to distinguish different vector components, we used a 'split' nanoprobe to visualize the magnetic component of propagating light at optical frequencies [4]. This integral part of light is never observed as light-matter interactions are usually governed by the electric part rather than the magnetic part.

1. R.J.P. Engelen, D. Mori, T. Baba, L. Kuipers, Subwavelength Structure of the Evanescent Field of an Optical Bloch Wave, Phys. Rev. Lett. 102, 023902 (2009).
2. M. Burresi, R.J.P. Engelen, A. Opheij, D. v. Oosten, D. Mori, T. Baba, L. Kuipers, Observation of polarization
3. E. Verhagen, M. Spasenovic, A. Polman, L. Kuipers, Observation of polarization singularities at the nanoscale, Phys. Rev. Lett. 102, 033902 (2009).
4. M. Burresi, D. van Oosten, T. Kampfrath, H. Schoenmaker, R. Heideman, A. Leinse and L. Kuipers , Probing the magnetic field of light at optical frequencies, Science 326, 550-553 (2009). (featured in perspectives H. Giessen and R. Volgelgesang, Science 326, 529-530 (2009))

16.30 to 17.05

Plastic Photonics and Electronics: a Myth or Reality?

Bernard Kippelen
Georgia Institute of Technology, United States

Organic synthetic molecules and polymers have invaded our daily lives because of their renowned optical and mechanical properties, their light weight and their ability to be mass produced at low cost using various extrusion, coating, and printing techniques. Advances during the last 30 years in the synthesis and processing of organic materials with nonlinear optical and semiconducting properties, have fueled the emergence of a new technology that can potentially lead to low cost, flexible, and large area plastic optoelectronic chips.

Recent research breakthroughs in electro-optic modulators, light-emitting diodes for displays and lighting, solar cells, and thin-film transistors are bringing flexible photonic and electronic technologies closer to commercialization.

In this plenary talk, we will review recent advances in organic molecules and polymers for organic optoelectronics. We will discuss the origin of nonlinear optical properties, charge transport, and light emission in conjugated organic materials with an emphasis on how structure at the nanoscale relates to various physical properties. Finally, we will review the latest developments in examples of applications, including organic modulators, electroluminescent devices for lighting, photovoltaic cells for power generation, and printed electronics.

17.10 to 17.45

Ultrafast Nonlinear Optics on a Chip: Breaking the Terabit per Second Barrier

Benjamin J. Eggleton
Univ. of Sydney, Australia

This talk will review our progress on developing photonic integrated circuits based on breakthroughs in highly nonlinear materials and nanophotonics. We have demonstrated ultrafast information processing in a monolithic integrated photonic chip with terabit per-second bandwidth. Our approach takes advantage of different ultrafast nonlinear processes, such as four-wave-mixing and stimulated Raman scattering processes and also exploits dispersion engineering and slow-light effects. We will present ourr recent record-breaking results demonstrating information processing at terabit per second speeds and will discuss prospects for implementation in next generation high bandwidth information systems.

Closing Remarks

Professional Development Workshops

Effective Technical Presentations

WS897

Course level: Introductory
CEU .35 €55 Member / €92 Non-member
Tuesday 9.00 to12.30

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

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.).

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

Hit-the-Target Laser Activity Workshop

WS985

Course level: Introductory
CEU .00 €11 Member / €26 Non-member
Monday 14.00 to 16.00

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

INTENDED AUDIENCE

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

INSTRUCTOR

Dirk Fabian studied astronomy and philosophy of science, receiving an MS in astronomy from the University of Wisconsin - Madison. He is the Student Services Lead for SPIE, building professional development programs and networking tools for scientists.

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We are confident that once you experience an SPIE course for yourself you will look to SPIE for your future education needs. However, if for any reason you are dissatisfied, SPIE will gladly refund your money. We just ask that you tell us what you did not like; suggestions for improvement are always welcome.

Continuing Education Units

SPIE has been approved as an authorized provider of CEUs by IACET, The International Association for Continuing Education and Training (Provider #1002091). In obtaining this approval, SPIE has demonstrated that it complies with the ANSI/IACET Standards which are widely recognized as standards of good practice.

Metamaterials

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

Programme Committee: **Allan D. Boardman,** Univ. of Salford (United Kingdom); **Sergey I. Bozhevolnyi,** Aalborg Univ. (Denmark); **Filippo Capolino,** Univ. degli Studi di Siena (Italy); **Enzo M. Di Fabrizio,** Univ. degli studi Magna Græcia di Catanzaro (Italy); **Ramon Gonzalo,** Univ. Pública de Navarra (Spain); **Maria Kafesaki,** Foundation for Research and Technology-Hellas (Greece); **Vladimir Kuzmiak,** Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Ulf Leonhardt,** Univ. of St. Andrews (United Kingdom); **Herbert O. Moser,** National Univ. of Singapore (Singapore); **Willie J. Padilla,** Boston College (USA); **Costas M. Soukoulis,** Iowa State Univ. (USA); **Srinivas Sridhar,** Northeastern Univ. (USA); **Tomasz Szoplik,** Univ. of Warsaw (Poland); **Sergei G. Tikhodeev,** A. M. Prokhorov General Physics Institute (Russian Federation); **Sergei Tretyakov,** Helsinki Univ. of Technology (Finland); **Markus Walther,** Albert-Ludwigs-Univ. Freiburg (Germany); **Martin Wegener,** Forschungszentrum Karlsruhe GmbH (Germany); **Said Zouhdi,** Univ. Paris-Sud (France)

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

Opening Remarks . . . . . Mon. 13.30 to 13.40

SESSION 1 . . . . . Mon. 13.40 to 15.10

Metamaterials Past and Present

History and future of metamaterials research: what are metamaterials for? *(Invited Paper)*, William J. Stewart, Retired, GEC-Marconi Materials Technology Ltd. (United Kingdom) . . . . . [7711-01]

Photonic metamaterials: tunable and low-loss *(Invited Paper)*, Vladimir M. Shalaev, Purdue Univ. (United States) . . . . . [7711-02]

Bright spatial solitons and nonlinear guided waves in complex metamaterial structures *(Invited Paper)*, Allan D. Boardman, Peter Egan, Rhiannon R. C. Mitchell-Thomas, Yuriy G. Rapoport, Univ. of Salford (United Kingdom) . . [7711-03]

Split ring resonators: from organic sensors to visible magnetic response *(Invited Paper)*, Nigel P. Johnson, Basudev Lahiri, Univ. of Glasgow (United Kingdom); Scott G. McMeekin, Glasgow Caledonian Univ. (United Kingdom); Ali Z. Khokhar, Richard M. De La Rue, Univ. of Glasgow (United Kingdom) . . . . [7711-04]

SESSION 2 . . . . . Mon. 15.50 to 18.10

Plasmonic Metamaterials

Nonscattering nano-antenna receiver *(Invited Paper)*, Andrea Alù, The Univ. of Texas at Austin (United States); Nader Engheta, Univ. of Pennsylvania (United States) . . . . . [7711-05]

New concepts for spoof surface plasmons: from dual-band to broadband guiding on thin metafilms *(Invited Paper)*, Stefan A. Maier, Imperial College London (United Kingdom) . . . . . [7711-06]

Enlarged negative effective index bandwidth from fishnet metamaterials, Rubén Ortuño Molinero, Carlos García-Meca, Francisco José Rodríguez-Fortuño, Javier Martí, Alejandro Martínez, Univ. Politécnica de Valencia (Spain) . . . [7711-07]

Optical chirality in plasmonic arrays of subwavelength Z-shaped apertures, Maxim R. Shcherbakov, Polina P. Vabishchevich, Tatyana V. Dolgova, Shawkat N. Nizamov, Lomonosov Moscow State Univ. (Russian Federation); Elena D. Mishina, Alexander S. Sigov, Moscow State Institute of Radiotechnics, Electronics and Automation (Russian Federation); Andrey A. Fedyanin, Lomonosov Moscow State Univ. (Russian Federation). . . . . [7711-08]

Metamaterials and plasmonics at THz frequencies: design and applications, Tahsin Akalin, Univ. des Sciences et Technologies de Lille (France) . . . . . [7711-09]

Experimental realization of subradiant and superradiant resonances in ring/disk plasmonic nanocavities as building blocks for new optical metamaterials, Yannick Sonnefraud, Imperial College London (United Kingdom); Niels Verellen, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium); Heidar Sobhani, Rice Univ. (United States); Guy A. E. Vandenbosch, Victor V. Moshchalkov, Katholieke Univ. Leuven (Belgium); Pol Van Dorpe, IMEC (Belgium); Peter J. Nordlander, Rice Univ. (United States); Stefan A. Maier, Imperial College London (United Kingdom) . . . . . [7711-10]

Plasmon resonances of aluminum nanoparticles and nanorods *(Invited Paper)*, Yasin Ekinci, ETH Zürich (Switzerland) . . . . . [7711-11]

Metactronics versus electronics *(Invited Paper)*, Nader Engheta, Univ. of Pennsylvania (United States). . . . . [7711-62]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.45 to 10.10

Lensing

Negative refractive index response of weakly and strongly coupled optical metamaterials *(Invited Paper)*, Maria Kafesaki, Foundation for Research and Technology-Hellas (Greece); Jianfeng Zhou, Los Alamos National Lab. (United States); Thomas Koschny, Iowa State Univ. (United States); Costas M. Soukoulis, Iowa State Univ. (United States) and Foundation for Research and Technology-Hellas (Greece) . . . . . [7711-12]

Effects of discrete structure in metamaterials *(Invited Paper)*, Mikhail Lapine, Univ. de Sevilla (Spain); L. Jelinek, Czech Technical Univ. in Prague (Czech Republic); Ricardo Marques, Manuel J. Freire, Univ. de Sevilla (Spain) . . . [7711-13]

Influence of fabrication accuracies of metal-dielectric layered flat lenses on their imaging properties., Tomasz Stefaniuk, Rafal Kotynski, University of Warsaw (Poland); Grzegorz Nowak, Institute of High Pressure Physics PAS (Poland); Tomasz Szoplik, University of Warsaw (Poland) . . . . . [7711-14]

composite and multilayer near-field superlenses, Mark D. Thoreson, Erlangen Graduate School in Advanced Optical Technologies (Germany) and Purdue Univ. (United States); Eugen Tatartschuk, Ekaterina F. Shamonina, Erlangen Graduate School in Advanced Optical Technologies (Germany); Alexandra Boltasseva, Technical Univ. of Denmark (Denmark) and Erlangen Graduate School in Advanced Optical Technologies (Germany) and Purdue Univ. (United States) . . . . . [7711-15]

Optimisation of a plasmonic nanolens: increase of transmission and focal length, Piotr Wrobel, Tomasz J. Antosiewicz, Tomasz Szoplik, Univ. of Warsaw (Poland) . . . . . [7711-16]

SESSION 4 . . . . . Tues. 10.50 to 12.35

Terahertz Technology

Design of mmw heterodyne receivers based on metamaterial technology *(Invited Paper)*, Iñigo Ederra, Irina A. Khromova, Ramon Gonzalo, Univ. Pública de Navarra (Spain); Nicolas Delhote, Dominique Baillargeat, Univ. de Limoges (France); Axel Murk, Univ. Bern (Switzerland); Byron Alderman, Rutherford Appleton Lab. (United Kingdom); Peter J. I. de Maagt, European Space Research and Technology Ctr. (Netherlands) . . . . . [7711-17]

Large-area metamaterials on thin membranes for multilayer and curved applications at terahertz and higher frequencies *(Invited Paper)*, Richard D. Averitt, Boston Univ. (United States). . . . . [7711-18]

A sensitivity analysis of frequency selective surface based metamaterial at THz frequency, Saiful M. Islam, Johan H. Stiens, Roger A. Vounckx, Vrije Univ. Brussel (Belgium). . . . . [7711-19]

Fractal THz metamaterials: design, fabrication and characterisation, Radu I. Malureanu, Peter U. Jepsen, Technical Univ. of Denmark (Denmark); Shiyi Xiao, Lei Zhou, Fudan Univ. (China); Andrei Andryieuski, Andrei V. Lavrinenko, Technical Univ. of Denmark (Denmark) . . . . . [7711-20]

Possible applications of regular arrays of metallic carbon nanotubes for tunable terahertz devices, Igor S. Nefedov, Helsinki Univ. of Technology (Finland). . . . . [7711-21]

Terahertz metamaterials under a near-field microscope *(Invited Paper)*, Markus Walther, Albert-Ludwigs-Univ. Freiburg (Germany) and Freiburg Materials Research Ctr. (Germany); Andreas Bitzer, Albert-Ludwigs-Univ. Freiburg (Germany) and Univ. Bern (Switzerland); Alex Ortner, Stefan Waselikowski, Albert-Ludwigs-Univ. Freiburg (Germany) and Freiburg Materials Research Ctr. (Germany) . . . . . [7711-22]

Lunch Break . . . . . 12.35 to 13.45

SESSION 5 . . . . . Tues. 13.45 to 15.35

3D Metamaterials

Fabrication of 3D metallic nanostructures by two-photon polymerization for metamaterial applications *(Invited Paper)*, Arune Gaidukeviciute, Foundation for Research and Technology-Hellas (Greece); Carsten Reinhardt, Laser Zentrum Hannover e.V. (Germany) and Foundation for Research and Technology-Hellas (Greece); Konstantina Terzaki, Vasileia Melissinaki, Anastasia Giakoumaki, Maria Vamvakaki, Maria Farsari, Foundation for Research and Technology-Hellas (Greece); Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) and Foundation for Research and Technology-Hellas (Greece); Costas Fotakis, Foundation for Research and Technology-Hellas (Greece) . . . . . .[7711-23]

Chiral metamaterials for optical frequencies *(Invited Paper)*, Stefan Linden, Karlsruhe Institute of Technology (Germany); Justyna K. Gansel, Univ. Karlsruhe (Germany); Manuel Decker, Martin Wegener, Karlsruhe Institute of Technology (Germany) . . . . . .[7711-24]

Lattice modes mediate radiative coupling in metamaterial arrays *(Invited Paper)*, Andreas Bitzer, Jan Wallauer, Hanspeter Helm, Albert-Ludwigs-Univ. Freiburg (Germany); Hannes Merbold, Thomas Feurer, Univ. Bern (Switzerland); Markus Walther, Albert-Ludwigs-Univ. Freiburg (Germany) . . . . . .[7711-25]

Towards self-assembled hexagonal double fishnets as negative index materials, Kristof Lodewijks, IMEC (Belgium); Niels Verellen, Katholieke Univ. Leuven (Belgium); Willem Van Roy, Liesbet Lagae, Gustaaf Borghs, Pol Van Dorpe, IMEC (Belgium) . . . . . .[7711-26]

Three-dimensional metallic metamaterials: from simple to complex--coupling matters! *(Invited Paper)*, Harald W. Giessen, Univ. Stuttgart (Germany) . .[7711-27]

Three-dimensional subwavelength optical cavities with high quality factor, Vincent Ginis, Vrije Univ. Brussel (Belgium); Philippe Tassin, Vrije Univ. Brussel (Belgium) and Iowa State Univ. (United States); Costas M. Soukoulis, Iowa State Univ. (United States) and Univ. of Crete (Greece); Irina P. Veretennicoff, Vrije Univ. Brussel (Belgium). . . . . .[7711-28]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

Wednesday 14 April

SESSION 6 . . . . . Wed. 08.50 to 10.15

Active Metamaterials

Spaser as nanoscale quantum generator and ultrafast amplifier *(Invited Paper)*, Mark I. Stockman, Georgia State Univ. (United States) . . . . . .[7711-29]

Effective parameters of split-ring arrays, numerically determined by frequency-dependent homogenization *(Invited Paper)*, Hicham Belyamoun, Alain Bossavit, Said Zouhdi, Lab. de Génie Électrique de Paris (France) . . . . . .[7711-30]

Metamaterials: the search for toroidal moments, Thomas Kaelberer, Nikitas Papasimakis, Vassili A. Fedotov, Nikolay I. Zheludev, Univ. of Southampton (United Kingdom) . . . . . .[7711-31]

Selective transmission and reflection of electromagnetic waves by uniaxial absorbing metamaterials with near-to-zero axial parameter, Evgenii G. Starodubtsev, Gomel State Technical Univ. (Belarus) . . . . . .[7711-32]

Frequency-domain simulations of a negative-index material with embedded gain, Yonatan Sivan, Imperial College London (United Kingdom); Shumin Xiao, Uday K. Chettiar, Alexander V. Kildishev, Vladimir M. Shalaev, Purdue Univ. (United States) . . . . . .[7711-33]

SESSION 7 . . . . . Wed. 10.55 to 13.00

Optical Metamaterials and Cloaking

Optical metamaterials *(Invited Paper)*, Xiang Zhang, Univ. of California, Berkeley (United States). . . . . .[7711-34]

Metamaterial-based cloaking with sparse distribution of spiral resonators *(Invited Paper)*, Kaan Guven, Bilkent Univ. (Turkey); Elena Saenz, Ramon Gonzalo, Univ. Pública de Navarra (Spain); Sergei Tretyakov, Helsinki Univ. of Technology (Finland); Ekmel Özbay, Bilkent Univ. (Turkey) . . . . . .[7711-35]

Transforming electromagnetic fields *(Invited Paper)*, Sergei Tretyakov, Igor S. Nefedov, Pekka Alitalo, Helsinki Univ. of Technology (Finland); Stanislav Maslovski, Univ. de Coimbra (Portugal) . . . . . .[7711-36]

Scattering cancellation approach to cloaking: new applications, Filiberto Bilotti, Simone Tricarico, Lucio Vegni, Univ. degli Studi di Roma Tre (Italy) . . . . . .[7711-37]

Frequency tunable near-infrared metamaterials *(Invited Paper)*, Koray Aydin, California Institute of Technology (United States). . . . . .[7711-38]

Surface waves in metamaterial lattices: high-Q resonances and Wood's anomalies, Nikitas Papasimakis, Vassili A. Fedotov, Nikolay I. Zheludev, Univ. of Southampton (United Kingdom) . . . . . .[7711-39]

Split ring resonators: The effect of titanium adhesion layers on the optical response, Basudev Lahiri, Rafal Dylewicz, Univ. of Glasgow (United Kingdom); Scott G. McMeekin, Glasgow Caledonian University (United Kingdom); Ali Z. Khokhar, Richard M. De La Rue, Nigel P. Johnson, Univ. of Glasgow (United Kingdom). . . . . .[7711-40]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50 hrs

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by:

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany

Ursula Keller, ETH Zurich, Switzerland

Mike Dunne, Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 8 . . . . . Thurs. 08.30 to 10.05

Novel Metamaterials Structure I

Carbon nanotubes in photonic metamaterials *(Invited Paper)*, Nikolay I. Zheludev, Andrey E. Nikolaenko, Univ. of Southampton (United Kingdom); Francesco De Angelis, Univ. degli Studi Magna Græcia di Catanzaro (Italy); Stuart A. Boden, Nikitas Papasimakis, Peter Ashburne, Univ. of Southampton (United Kingdom); Enzo M. Di Fabrizio, Univ. degli Studi Magna Græcia di Catanzaro (Italy) . . . . . .[7711-41]

Electromagnetic eigenmodes in metallic-dielectric metamaterials *(Invited Paper)*, Nikolay A. Gippius, Univ. Blaise Pascal (France) and General Physics Institute (Russian Federation); Sergei G. Tikhodeev, A. M. Prokhorov General Physics Institute (Russian Federation) . . . . . .[7711-42]

Geometry-function relationship of meta-foils *(Invited Paper)*, Herbert O. Moser, Linke Jian, National Univ. of Singapore (Singapore); Hongsheng Chen, Zhejiang Univ. (China); Mohammed Bahou, Shenbaga M. P. Kalaiselvi, Selven Virasawmy, National Univ. of Singapore (Singapore); Xiangxiang Cheng, Zhejiang Univ. (China); A. Banas, Krzysztof Banas, Sascha P. Heussler, National Univ. of Singapore (Singapore); Bae-Ian Wu, Massachusetts Institute of Technology (United States); Sivakumar Maniam, Nanyang Technological Univ. (Singapore); Wei Hua, National Univ. of Singapore (Singapore) . . . . . .[7711-43]

Colloidal chemistry routes for fabrication of nanoparticle-based metamaterials *(Invited Paper)*, Maria L. Curri, Roberto Comparelli, M. Corricelli, Marinella Striccoli, Consiglio Nazionale delle Ricerche (Italy) . . . . . .[7711-44]

Confined modes of self-standing and supported particle arrays, Xesús Manoel Bendaña Sueiro, F. Javier García de Abajo, Consejo Superior de Investigaciones Científicas (Spain) . . . . . .[7711-45]

SESSION 9 . . . . . Thurs. 10.45 to 12.45

Novel Metamaterials Structures II

Trapped rainbow storage of light in metamaterials *(Invited Paper)*, Ortwin Hess, Univ. of Surrey (United Kingdom) . . . . . .[7711-46]

Photovoltaics in metallic-dielectric metamaterials *(Invited Paper)*, Sergei G. Tikhodeev, A. M. Prokhorov General Physics Institute (Russian Federation); Nikolay A. Gippius, Univ. Blaise Pascal (France); Takafumi Hatano, Teruya Ishihara, Tohoku Univ. (Japan) . . . . . .[7711-47]

High-Tc superconducting metamaterial, Vassili A. Fedotov, Jin-Hui Shi, Anagnostis Tsiatmas, Peter J. de Groot, Univ. of Southampton (United Kingdom); Yifang Chen, Rutherford Appleton Lab. (United Kingdom); Nikolay I. Zheludev, Univ. of Southampton (United Kingdom) . . . . . .[7711-48]

Near field to far field coupling in the optical regime by metallic meanders, Philipp Schau, Karsten Frenner, Liwei Fu, Heinz C. Schweizer, Harald W. Giessen, Wolfgang Osten, Univ. Stuttgart (Germany) . . . . . .[7711-49]

Polarization control with planner chiral grating structures *(Invited Paper)*, Kuniaki Konishi, Natsuki Kanda, Makoto Kuwata-Gonokami, The Univ. of Tokyo (Japan). . . . . .[7711-50]

A scalable bandpass filter demonstrating ultra-wide-bandwidth, excellent efficiency and sharp band-edge transition, Tseng-Yu Huang, National Tsing Hua Univ. (Taiwan); Ta-Jen Yen, National Tsing Hua Univ. (Taiwan) and Institute of NanoEngineering and MicroSystems (Taiwan) . . . . . .[7711-51]

Filtering properties of mirror metamaterials, Eugene Y. Glushko, V. Lashkaryov Institute of Semiconductor Physics (Ukraine) . . . . . .[7711-52]

Lunch Break . . . . . .12.45 to 13.55

SESSION 10 . . . . . Thurs. 13.55 to 15.05

Tuning and Switching of Metamaterials I

Nematic liquid crystals for visible-near-infrared all-optical tuning of metamaterials *(Invited Paper)*, Iam Choon Khoo, The Pennsylvania State Univ. (United States) . . . . . .[7711-53]

Capacitance tuning of nanoscale split-ring resonators *(Invited Paper)*, Claus Jeppesen, Niels A. Mortensen, Anders Kristensen, Technical Univ. of Denmark (Denmark) . . . . . .[7711-54]

Switching metamaterials with electronic signals and electron-beam excitations, Zsolt L. Sámson, Giorgio Adamo, Kevin F. MacDonald, Kenton J. Knight, Univ. of Southampton (United Kingdom); Francesco De Angelis, Univ. degli Studi Magna Græcia di Catanzaro (Italy); Andrey E. Nikolaenko, Chung-Che Huang, Univ. of Southampton (United Kingdom); Enzo M. Di Fabrizio, Univ. degli Studi Magna Græcia di Catanzaro (Italy); Daniel W. Hewak, Nikolay I. Zheludev, Univ. of Southampton (United Kingdom) . . . . . .[7711-55]

Modulation of refractive index caused by heterogeneity of anchoring forces in nanosphere-doped liquid crystal metamaterial: Monte Carlo analysis, Grzegorz Pawlik, Michal Jarema, Wiktor T. Walasik, Antoni C. Mitus, Wroclaw Univ. of Technology (Poland) . . . . . .[7711-56]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

An experimental study of the effects of various parameters on the resonant and efficiency of circular split-ring resonators, Amna Elhawil, Johan H. Stiens, Cathleen De Tandt, Willy Ranson, Roger A. Vounckx, Vrije Univ. Brussel (Belgium) . . . . . .[7711-69]

Behaviour of chiral waves in a metamaterial medium, Carmen Bao Iturbe, Univ. De La Rioja (Spain) . . . . . .[7711-70]

Terahertz metamaterials fabricated by inkjet printing, Alex Ortner, Albert-Ludwigs-Univ. Freiburg (Germany) and Freiburg Materials Research Ctr. (Germany); Henning Meier, Ute Löffelmann, Patrick J. Smith, Jan G. Korvink, Markus Walther, Albert-Ludwigs-Univ. Freiburg (Germany) . . . . . .[7711-71]

Negative refraction and focalisation with a dielectric metamaterial lens, Geoffroy Scherrer, Univ. de Bourgogne (France); Maxence Hofman, Univ. des Sciences et Technologies de Lille (France); Wojciech Smigaj, Institut Fresnel (France); Benoit Cluzel, Univ. de Bourgogne (France); Olivier Vanbésien, Univ. des Sciences et Technologies de Lille (France); Boris Gralak, Institut Fresnel (France); Frédérique A. De Fornel, Univ. de Bourgogne (France) . . . . . .[7711-72]

Light compression without reflections, Carlos Garcia-Meca, Michael M. Tung, Jose Vicente Galan-Conejos, Rubén Ortuño Molinero, Francisco José Rodriguez-Fortuño, Javier Marti, Alejandro Martinez, Univ. Politécnica de Valencia (Spain) . . . . . .[7711-73]

Optimization of resolution and effective skin depth of silver-dielectric multilayers, Anna Pastuszczak, Rafal Kotynski, Univ. Warszawski (Poland) . . . . . .[7711-74]

Modeling of metallo-dielectric photonic crystals: toward a subwavelength resolution of superlens by compensation of losses, comparison between TE and TM polarization, Yacoub Ould Agha, Laurent Salomon, Benoit Cluzel, Frédérique A. De Fornel, Univ. de Bourgogne (France) . . . . . .[7711-75]

Electric and magnetic excitation of single split-ring resonators and resonator arrays investigated by THz time-domain spectroscopy, Stefan Waselikowski, Alex Ortner, Markus Walther, Albert-Ludwigs-Univ. Freiburg (Germany) and Freiburg Materials Research Ctr. (Germany) . . . . . .[7711-76]

Light bullets in metamaterial planar waveguides, Allan D. Boardman, Yuriy G. Rapoport, Rhiannon R. C. Mitchell-Thomas, Univ. of Salford (United Kingdom) . . . . . .[7711-77]

Friday 16 April

SESSION 11 . . . . . Fri. 09.00 to 10.10

Tuning and Switching of Metamaterials II

Tuning methods for metamaterials *(Invited Paper)*, Mikhail Lapine, Univ. de Sevilla (Spain); David A. Powell, The Australian National Univ. (Australia); M. Gorkunov, A.V. Shubnikov Institute of Crystallography (Russian Federation); Ilya V. Shadrivov, The Australian National Univ. (Australia); Ricardo Marques, Univ. de Sevilla (Spain); Yuri S. Kivshar, The Australian National Univ. (Australia) . .[7711-58]

Manipulating the light transmission through metamaterial films by applying a magnetic field, Yakov M. Strelniker, Bar-Ilan Univ. (Israel); David J. Bergman, Tel Aviv Univ. (Israel) . . . . . .[7711-59]

Control of metamaterial resonances with liquid crystal *(Invited Paper)*, Jeong-Weon Wu, Ewha Womans Univ. (Korea, Republic of) . . . . . .[7711-60]

Fabrication of a metal-dielectric composite with tunable optical properties, Rasmus B. Nielsen, Alexandra Boltasseva, Anders Kristensen, Technical Univ. of Denmark (Denmark) . . . . . .[7711-61]

SESSION 12 . . . . . Fri. 10.50 to 12.35

Nano-Metamaterials

Nanoscale optics with negative index metamaterials *(Invited Paper)*, Srinivas Sridhar, Northeastern Univ. (United States) . . . . . .[7711-63]

Asymmetric second harmonic generation in chiral optical metamaterials, Ventsislav K. Valev, Alejandro V. Silhanec, Katholieke Univ. Leuven (Belgium); Nick Smisdom, Univ. Hasselt (Belgium); Werner Gillijns, Katholieke Univ. Leuven (Belgium); Ben De Clerck, Univ. Hasselt (Belgium); Oleg A. Aktsipetrov, Lomonosov Moscow State Univ. (Russian Federation); Marcel Ameloot, Univ. Hasselt (Belgium); Victor V. Moshchalkov, Thierry Verbiest, Katholieke Univ. Leuven (Belgium) . . . . . .[7711-64]

Experimental determination of principal permittivities and hyperbolic equi-frequency surfaces in silver nanowire arrays, Joerg Schilling, Martin-Luther-Univ. Halle-Wittenberg (Germany) and Queen's Univ. Belfast (United Kingdom); Jyotirmayee Kanungo, Queen's Univ. Belfast (United Kingdom) . . . . . .[7711-65]

Channel plasmon nanofocusing *(Invited Paper)*, Sergey I. Bozhevolnyi, Univ. of Southern Denmark (Denmark) . . . . . .[7711-66]

Near-field spectroscopy of nanostructures *(Invited Paper)*, Ze-Xiang Shen, Yun Ma, Johnson Kasim, Nanyang Technological Univ. (Singapore) . . . . . .[7711-67]

Backward second-harmonic localization: towards the biomicroscopy superlens, Cristian Ciraci, Emmanuel Centeno, Univ. Montpellier 2 (France) . . . . . .[7711-68]

Closing Remarks . . . . . Fri. 12.35 to 12.40

Conference 7712

Monday-Friday 12-16 April 2010 • Proceedings of SPIE Vol. 7712

Nanophotonics

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

Programme Committee: **Fabrice Charra,** Commissariat à l'Énergie Atomique (France); **Alain Dereux,** Univ. de Bourgogne (France); **Aleksandra B. Djurisic,** The Univ. of Hong Kong (Hong Kong, China); **Yuval Golan,** Ben-Gurion Univ. of the Negev (Israel); **Dirk M. Guldi,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Satoshi Kawata,** Osaka Univ. (Japan); **Martti Kauranen,** Tampere Univ. of Technology (Finland); **Karsten König,** JenLab GmbH (Germany); **Manijeh Razeghi,** Northwestern Univ. (USA); **Carsten Reinhardt,** Laser Zentrum Hannover e.V. (Germany); **Gary P. Wiederrecht,** Argonne National Lab. (USA); **Anatoly V. Zayats,** Queen's Univ. Belfast (United Kingdom)

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

SESSION 1 . . . . . Mon. 13.00 to 15.00

Plasmonics I

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

Surface plasmons, waveguide modes, and Bloch surface waves: the view from a common framework for planar resonant structures *(Invited Paper)*, John E. Sipe, Molu Shi, Univ. of Toronto (Canada); Marco Liscidini, Univ. degli Studi di Pavia (Italy) . . . . . .[7712-01]

Plasmonic control of elementary emitters *(Invited Paper)*, Joachim R. Krenn, Karl-Franzens-Univ. Graz (Austria) . . . . . .[7712-02]

Requirements for a rectifying antenna solar cell technology, Jean-Michel Nunzi, Queen's Univ. (Canada) . . . . . .[7712-03]

Linewidth tuning in individual plasmonic resonators by engineering subradiant and Fano resonances for sensing applications, Pol Van Dorpe, IMEC (Belgium); Yannick Sonnefraud, Imperial College London (United Kingdom); Niels Verellen, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium); Heidar Sobhani, Rice Univ. (United States); Guy A. E. Vandenbosch, Victor V. Moshchalkov, Katholieke Univ. Leuven (Belgium); Peter J. Nordlander, Rice Univ. (United States); Stefan A. Maier, Imperial College London (United Kingdom) . . . . . .[7712-04]

Imaging of optical nanoantennas via localized emitters: from confocal fluorescence to stimulated emission depletion microscopy, Yannick Sonnefraud, Imperial College London (United Kingdom); Yuan Hsing Fu, National Taiwan Univ. (Taiwan); Dang Yuan Lei, Roberto Fernandez-Garcia, Imperial College London (United Kingdom); Yury S. Alaverdyan, Mete Atatüre, Univ. of Cambridge (United Kingdom); Ding Ping Tsai, National Taiwan Univ. (Taiwan); Stefan A. Maier, Imperial College London (United Kingdom) . . . . . .[7712-05]

SESSION 2 . . . . . Mon. 15.40 to 17.50

Plasmonics II

Session Chair: **Gary P. Wiederrecht,** Argonne National Lab. (USA)

Plasmon nano-optics: designing novel nanotools for biology and medicine *(Invited Paper)*, Romain Quidant, ICFO - Instituto de Ciencias Fotónicas (Spain) . . . . . .[7712-06]

Hyperspectral imaging with scanning near-field optical microscopy, Jean-Sebastien G. Bouillard, Sébastien Vilain, Wayne Dickson, Daniel O'Connor, Anatoly V. Zayats, Queen's Univ. Belfast (United Kingdom) . . . . . .[7712-07]

Theoretical modelling and leakage radiation microscopy of surface plasmon polariton excitation and scattering on laser fabricated surface structures, Carsten Reinhardt, Arseniy I. Kuznetsov, Andrey B. Evlyukhin, Wei Cheng, Andreas Seidel, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) . . . . .[7712-08]

Compact integrated optical isolation based on extraordinary dichroic transmission through a magnetoplasmonic waveguide grating, Mathias Vanwolleghem, Liubov Magdenko, Pierre Beauvillain, Béatrice Dagens, Institut d'Électronique Fondamentale (France) . . . . . .[7712-09]

Negative permittivity chamber inside a stack of silver nanorings, Sheng-Chung Chen, Jr Chau Shiu, Far East College (Taiwan). . . . . .[7712-10]

Hybridized exciton-plasmon polaritons in nanostructured silver films, Nic Cade, King's College London (United Kingdom); Tom Ritman-Meer, David R. Richards, King's College London (United States) . . . . . .[7712-11]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.30 to 10.20

Optical Nanofabrication I

Session Chair: **Yuval Golan,** Ben-Gurion Univ. of the Negev (Israel)

Three-dimensional metallic metamaterials: from simple to complex-coupling matters! *(Invited Paper)*, Harald W. Giessen, Univ. Stuttgart (Germany) . .[7712-12]

3D harnessing of light with photon cage, Jean-Louis Leclercq, Segolène Callard, Michel Gendry, Geneviève Grenet, Xavier Letartre, Khalid Naji, Philippe Regreny, Clément Sieutat, Pierre Viktorovitch, Ecole Centrale de Lyon (France); Vincent Aimez, Guillaume Beaudin, Mélanie Cloutier, Dominique Drouin, Univ. de Sherbrooke (Canada) . . . . . .[7712-13]

Polarization- and wavelength-sensitive sub-wavelength structures fabricated in the metal layers of deep submicron CMOS processes, Stephan Junger, Wladimir Tschekalinskij, Nanko Verwaal, Norbert Weber, Fraunhofer-Institut für Integrierte Schaltungen (Germany) . . . . . .[7712-14]

Laser-induced transfer approach to fabrication of nanoparticle structures for nanophotonics, Arseniy I. Kuznetsov, Carsten Reinhardt, Andrey B. Evlyukhin, Wei Cheng, Andreas Seidel, Aleksandr Ovsianikov, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) . . . . . .[7712-15]

Silica nano-ridges connections based on a fluidic approach for hybrid integrated photonics, Bruno Beche, Angela Jimenez, Univ. de Rennes 1 (France); Etienne Gaviot, Univ. du Maine (France); Franck Artzner, Univ. de Rennes 1 (France); Lionel Camberlein, Univ. du Maine (France); Francois Doré, Laurent Courbin, Univ. de Rennes 1 (France) . . . . . .[7712-16]

SESSION 4 . . . . . Tues. 11.00 to 12.50

Plasmonics III

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

Superlattice and low symmetry plasmonic crystals *(Invited Paper)*, Teri W. Odom, Northwestern Univ. (United States). . . . . .[7712-17]

Optically amplified long-range surface plasmon polaritons, Malte C. Gather, Wellman Ctr. for Photomedicine (United States); Klaus Meerholz, Univ. zu Köln (Germany); Norbert Danz, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Kristjan Leosson, Univ. of Iceland (Iceland) . . .[7712-18]

Nonlinear effects in metal-dielectric plasmonic structures, Yuri S. Kivshar, Arthur R. Davoyan, Ilya V. Shadrivov, The Australian National Univ. (Australia). . . . . .[7712-19]

Influence of the roughness of metal templates on surface enhanced Raman scattering, Manuel R. Goncalves, Othmar Marti, Univ. Ulm (Germany). . .[7712-20]

Plasmonic surface modes on rough gold surfaces, Pierpaolo A. Porta, John G. Mcinerney, Univ. College Cork (Ireland); Brian Corbett, Tyndall National Institute (Ireland) . . . . . .[7712-21]

Lunch Break . . . . . .00.50 to 02.00

SESSION 5 . . . . . Tues. 14.00 to 15.30

Optical Nanofabrication II

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

Nanosilicon photonics *(Invited Paper)*, Lorenzo Pavesi, Univ. degli Studi di Trento (Italy) . . . . . .[7712-22]

Emission dynamics of tensile strained type-II germanium quantum wells, Nicola Pavarelli, Tomasz J. Ochalski, Tyndall National Institute (Ireland); Yijie Huo, Stanford Univ. (United States); Guillaume Huyet, Tyndall National Institute (Ireland); James S. Harris, Jr., Stanford Univ. (United States) . . . . . .[7712-23]

Plasmon resonances of gold nanostars, Ludmila Raguin, ETH Zürich (Switzerland); Tatiana Samrowski, Univ. Zürich (Switzerland); Christian Hafner, Rüdiger Vahldieck, ETH Zürich (Switzerland) . . . . . .[7712-24]

Controlling the optical properties of single molecules by optical confinement in a tunable microresonator, Raphael Gutbrod, Alexey I. Chizhik, Eberhard Karls Univ. Tübingen (Germany); Dmitry Khoptyar, Lund Univ. (Sweden); Anna M. Chizhik, Sebastian Bär, Alfred J. Meixner, Eberhard Karls Univ. Tübingen (Germany) . . . . . .[7712-25]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

Wednesday 14 April

SESSION 6 . . . . . Wed. 08.20 to 10.10

Near-field Optics and Imaging I

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

Nanoimaging through plasmonics and beyond plasmonic *(Invited Paper)*, Prabhat Verma, Takaaki Yano, Taro Ichimura, Yuika Saito, Satoshi Kawata, Osaka Univ. (Japan) . . . . . .[7712-26]

Wide-field fluorescence microscopy beyond the diffraction limit on resonant gratings, Eric Le Moal, Jules Girard, Anne Sentenac, Kamal Belkebir, Patrick C. Chaumet, Hugues Giovannini, Serge Monneret, Institut Fresnel (France); Anne Talneau, Ctr. National de la Recherche Scientifique (France). . . . . .[7712-27]

Optical super-resolution through super-oscillations, Jörg Baumgartl, Michael Mazilu, Sebastian Kosmeier, Univ. of St. Andrews (United Kingdom); Edward T. F. Rogers, Tsung Sheng Kao, Vassili Savinov, Univ. of Southampton (United Kingdom); Kishan Dholakia, Univ. of St. Andrews (United Kingdom); Nikolay I. Zheludev, Univ. of Southampton (United Kingdom) . . . . . .[7712-28]

Plasmonic devices capable of harvesting and concentrating light over the whole visible spectrum, Alexandre Aubry, Dang Yuan Lei, Antonio I. Fernandez-Dominguez, Yannick Sonnefraud, Stefan A. Maier, John B. Pendry, Imperial College London (United Kingdom) . . . . . .[7712-29]

Light absorption by nanostructured metals, Nicolas Bonod, Institut Fresnel (France) . . . . . .[7712-30]

SESSION 7 . . . . . Wed. 10.50 to 13.00

Near-field Optics and Imaging II

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

Colloidal quantum dots: from single photon emitters to lasers to potential bioapplications *(Invited Paper)*, Arto V. Nurmikko, Cuong Dang, Brown Univ. (United States). . . . . .[7712-31]

Dipolar and quadrupolar pattern of generated second harmonic from double gold nanowires, Marco Centini, Alessio Benedetti, Concita Sibilia, Mario Bertolotti, Univ. degli Studi di Roma La Sapienza (Italy). . . . . .[7712-32]

Development of an ultrafast electro-optical scanner for high resolution optical microscopy to reduce photobleaching, Jale Ozcelik, Johann Engelhardt, Deutsches Krebsforschungszentrum (Germany); Stefan W. Hell, Max-Planck-Institut für biophysikalische Chemie (Germany) . . . . . .[7712-33]

Near-field scanning single-photon microscopy with an ultrasmall nanodiamond, Aurelien Cuche, Aurelien Drezet, Serge Huant, Institut NÉEL (France) . . . . . .[7712-34]

Rigorous analytical theory of Fabry-Pérot modes of a cylindrical nanowire., Vladimir G. Bordo, Univ. of Southern Denmark (Denmark) . . . . . .[7712-35]

GaAs micro-nano disks coupled to silica and GaAs nanotapers for optomechanics applications, Lu Ding, Christophe Baker, Univ. Paris Diderot-Paris 7 (France); Cherif Belacel, Pascale Senellart, Ctr. National de la Recherche Scientifique (France); Sara Ducci, Giuseppe Leo, Ivan Favero, Univ. Paris Diderot-Paris 7 (France) . . . . . .[7712-36]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50 hrs

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by:

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany

Ursula Keller, ETH Zurich, Switzerland

Mike Dunne, Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 8 . . . . . Thurs. 08.20 to 10.10

Optical Nanomanipulation I

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

Small scale surface effects in quantum/atom optics and cavity QED *(Invited Paper)*, Mohamed Babiker, The Univ. of York (United Kingdom) . . . . . .[7712-37]

Manipulation of surface plasmons on a vertical cavity surface emitting laser platform, Brian Corbett, Jean-Michel Lamy, Gaetan Leveque, John Justice, Tyndall National Institute (Ireland) . . . . . .[7712-38]

Fast localized modes propagating in optical metal coaxial wavegiudes, Olga N. Kozina, Institute of Radio Engineering and Electronics (Russian Federation); Leonid A. Melnikov, Saratov State Univ. (Russian Federation); Igor S. Nefedov, Helsinki Univ. of Technology (Finland) . . . . . .[7712-39]

A novel approach for the preparation of discrete phosphor nanoparticles, Robert Withnall, Jack Silver, Supriya Hajare, Shuo Zhang, George R. Fern, Brunel Univ. (United Kingdom) . . . . . .[7712-40]

Optical control and dynamic patterning of Zeolite L, Mike Woerdemann, Stefan Gläsener, Florian Hörner, Westfälische Wilhelms-Univ. Münster (Germany); André Devaux, Luisa De Cola, CeNTech GmbH (Germany) . . . . . .[7712-41]

SESSION 9 . . . . . Thurs. 10.50 to 12.20

Optical Nanomanipulation II

Session Chair: **Manijeh Razeghi,** Northwestern Univ. (USA)

The photo-mechanical effect in azo polymers: from reflectometry to robotics *(Invited Paper)*, Christopher J. Barrett, McGill Univ. (Canada) . . . . . .[7712-42]

Mechanisms of nanoparticle interaction with laser irradiation, Alexander Pyatenko, National Institute of Advanced Industrial Science and Technology (Japan). . . . . .[7712-43]

Optical binding between polar particles, Luciana C. Davila Romero, David L. Andrews, Univ. of East Anglia Norwich (United Kingdom) . . . . . .[7712-44]

Electromagnetic friction in rotating nanoparticles, Alejandro Manjavacas Arevalo, Ana Asenjo-García, F. Javier García de Abajo, Consejo Superior de Investigaciones Científicas (Spain) . . . . . .[7712-45]

Lunch Break. . . . . .12.20 to 13.30

SESSION 10 . . . . . Thurs. 13.30 to 15.00

Plasmonics IV

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

Surface plasmon resonances in multishell nanostructures *(Invited Paper)*, Cecilia Noguez, Carlos E. Roman-Velazquez, Univ. Nacional Autonoma de Mexico (Mexico). . . . . .[7712-46]

Interactions with surface plasmons: a way to control the fluorescence of single quantum dots, Céline Vion, Hugo Frederich, Amaury Avoine, Julien Laverdant, Laurent Coolen, Catherine Schwob, Carlos Barthou, Paul Benalloul, Jean-Marc Frigerio, Agnès Maître, Institut des NanoSciences de Paris (France) . . . . . .[7712-47]

Emitting molecule in a nano-gap: control of polarization and spectral shape, Gilad Haran, Weizmann Institute of Science (Israel) . . . . . .[7712-48]

Enhanced quadrupolar second-harmonic generation from rough gold films, Fu Xiang Wang, Francisco J. Rodriguez, Tampere Univ. of Technology (Finland); Willem M. Albers, VTT Microtechnology and Sensors (Finland); Martti Kauranen, Tampere Univ. of Technology (Finland). . . . . .[7712-49]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Rigorous characterization of surface plasmon modes by using the finite element method, B. M. A. Rahman, Namassivayane Kejalakshmy, Huda M. Tanvir, Anita Quadir, Kenneth T. V. Grattan, The City Univ. (United Kingdom) . . .[7712-68]

PEGylated plasmon resonant gold nanoparticles as diagnostic tool in tumor-bearing mice, Boris Y. Kogan, State Research Ctr. NIOPIK (Russian Federation); Natalia A. Andronova, N. N. Blokhin Russian Cancer Research Ctr. (Russian Federation); Nikolay G. Khlebtsov, Boris N. Khlebtsov, Institute of Biochemistry and Physiology of Plants and Microorganisms (Russian Federation); Viktor M. Rudoy, Olga Dement'eva, A.N. Frumkin Institute of Physical Chemistry and Electrochemistry (Russian Federation); Evelina Sedykh, Lyudmila Bannykh, V.I. Vernadsky Institute of Geochemistry and Analytical Chemistry (Russian Federation) . . . . . .[7712-69]

Femtosecond photonics of gold and silver nanoparticles photodeposited on crystalline and amorphous films of TiO_2, Arseniy Aiboushev, Artem Astafiev, N.N. Semenov Institute of Chemical Physics (Russian Federation); Yurii E. Lozovik, Institute for Spectroscopy (Russian Federation); Oleg M. Sarkisov, N.N. Semenov Institute of Chemical Physics (Russian Federation) . . . . . .[7712-70]

Field enhancement in fractal shaped periodic metal nanostructures imaged by surface-enhanced Raman scattering, Jonas Beermann, Sergey M. Novikov, Ole Albrektsen, Michael G. Nielsen, Sergey I. Bozhevolnyi, Univ. of Southern Denmark (Denmark). . . . . .[7712-71]

Optical micro resonance based sensor schemes for detection and identification of nano particles and biological agents in situ, Vladimir A. Saetchnikov, Elina A. Tcherniavskaia, Belarusian State Univ. (Belarus); Gustav Schweiger, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany) . . . . . .[7712-72]

Ultrasharp carbon whisker optical fiber probes for scanning near-field optical microscopy, Mounir Mensi, Serguei K. Sekatskii, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Serguei Pyatkin, Gennadii Mikhailov, Institute of Microelectronics Technology and High Purity Materials (Russian Federation); Giovanni Dietler, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7712-73]

Near-field scanning optical microscopy using polymethylmethacrylate optical fiber probes, Kanat Dukenbayev, Haytham Chibani, Mounir Mensi, Serguei K. Sekatskii, Giovanni Dietler, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7712-74]

Dual-channel radially polarized surface plasmon microscopy for simultaneous detection of fluorescence and refractive index of nanospheres, Chih-Hsiang Sung, National Taiwan Univ. (Taiwan) and Institut d'Alembert (France); Dominique Chauvat, Joseph Zyss, Ecole Normale Supérieure de Cachan (France); Chih-Kung LEE, National Taiwan Univ. (Taiwan). . . . . .[7712-75]

Optical characteristics of the two-dimensional photonic crystals with nano-size metal roads, Olga N. Kozina, Institute of Radio Engineering and Electronics (Russian Federation); Leonid A. Melnikov, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) . . . . . .[7712-76]

Surface-plasmon-polariton propagation in all magnetized multilayer structures, Anderson O. Silva, Victor Dmitriev, Univ. Federal do Pará (Brazil) . . . . . .[7712-77]

Sub-wavelength fluorescence excitation profile generated by surface plasmons induced via focused optical vortex beam, Piau Siong Tan, Nanyang Technological Univ. (Singapore) . . . . . .[7712-78]

Surface enhanced Raman microscopy with individual metal nanoparticles and arrays, Jonas Beermann, Sergey M. Novikov, Sergey I. Bozhevolnyi, Univ. of Southern Denmark (Denmark); Kristjan Leosson, Univ. of Iceland (Iceland) . . . . . .[7712-79]

Investigating high-confinement surface plasmon polariton waveguides via near-field optical microscopy: from scattering approaches to dual-probing techniques, Yannick Sonnefraud, Imperial College London (United Kingdom); Yury S. Alaverdyan, Mete Atatüre, Univ. of Cambridge (United Kingdom); Stefan A. Maier, Imperial College London (United Kingdom) . . . . . .[7712-80]

Nano-structured silver patterns produced by multi-photon laser direct writing: a surface enhanced Raman scattering study, Robertino Pilot, Francesco Todescato, Tiziano Dainese, Consorzio INSTM and Univ. degli Studi di Padova (Italy); Piero Schiavuta, Associazione CIVEN (Italy); Renato Bozio, Consorzio INSTM and Univ. degli Studi di Padova (Italy). . . . . .[7712-81]

Controlled rotation of lipid tubules with optical tweezers, Sookpichaya Charrunchon, Kasetsart Univ. (Thailand); Sarun Sumriddetchkajorn, National Electronics and Computer Technology Ctr. (Thailand); Jumras Limtrakul, Nattaporn Chattham, Kasetsart Univ. (Thailand) . . . . . .[7712-82]

Surface tension rise and self-made capillary action controlled chemical etching for fine optical fiber nanoprobe fabrication, Samir K. Mondal, Nahar Singh, Pawan Kapur, Central Scientific Instruments Organisation (India) .[7712-83]

Surface plasmon polariton amplification by active media, Andrew Tsykhonya, Institute of Semiconductor Physics (Ukraine); Valeri Lozovski, National Taras Shevchenko Univ. of Kyiv (Ukraine) . . . . . .[7712-84]

Surface plasmon lifetime studies and biosensing application of 2D metallic nanohole arrays, Dang Yuan Lei, Imperial College London (United Kingdom); Jia Li, The Chinese Univ. of Hong Kong (Hong Kong, China); Antonio I. Fernandez-Dominguez, Imperial College London (United Kingdom); Hock Chun Ong, The Chinese Univ. of Hong Kong (Hong Kong, China); Stefan A. Maier, Imperial College London (United Kingdom) . . . . . .[7712-85]

Plasmon resonance modulation of single nanoparticles on active substrates, Dang Yuan Lei, Yannick Sonnefraud, Imperial College London (United Kingdom); Kannatassen Appavoo, Richard F. Haglund, Jr., Vanderbilt Univ. (United States); Jonathan Breeze, Peter K. Petrov, Neil M. Alford, Georges Adamopoulos, Thomas D. Anthopoulos, Paul N. Stavrinou, Stefan A. Maier, Imperial College London (United Kingdom). . . . . .[7712-86]

Near-field optical mapping of higher order plasmonic resonances in metal nanoparticle arrays, Chen-Han Huang, Hsing-Ying Lin, Chih-Han Chang, Yun-Chiang Lan, Hsiang-Chen Chui, National Cheng Kung Univ. (Taiwan). . . .[7712-87]

Surface plasmon polariton based mirror and splitter in metal-insulator-metal structures, Yongsop Hwang, Jae-Eun Kim, Hae-Yong Park, Korea Advanced Institute of Science and Technology (Korea, Republic of) . . . . . .[7712-88]

Angle- and time-resolved luminescence of colloidal nanocrystals in artificial opals, Céline Vion, Amaury Avoine, Hugo Frederich, Julien Laverdant, Carlos Barthou, Paul Benalloul, Catherine Schwob, Laurent Coolen, Jean-Marc Frigerio, Agnès Maître, Institut des NanoSciences de Paris (France) . . . . . .[7712-89]

Time resolved electrical detection of surface plasmon polaritons in metallic slot waveguides, Pieter Neutens, Liesbet Lagae, Gustaaf Borghs, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium); Pol Van Dorpe, IMEC (Belgium). .[7712-90]

Fiber-coupled dielectric-loaded plasmonic waveguides, Jacek Gosciniak, Valentyn S. Volkov, Sergey I. Bozhevolnyi, Univ. of Southern Denmark (Denmark); Laurent Markey, Alain Dereux, Univ. de Bourgogne (France) . . . . . .[7712-91]

Nonlinear optical properties of BSO nanoparticles dispersed in PMMA matrix, Sekhar H., Prem Kiran Paturi, Narayana R. Desai, Univ. of Hyderabad (India). . . . . .[7712-92]

On the definition of beam width of highly-focused radially-polarized light fields, Pedro M. Mejías Arias, Rosario Martínez-Herrero D.V.M., Univ. Complutense de Madrid (Spain); Alejandro Manjavacas Arevalo, Consejo Superior de Investigaciones Científicas (Spain). . . . . .[7712-93]

Synthesis and optical limiting investigation of HAP_2SiO_2 core-shell nanoparticles, Kirubalan M. Rahulan, Vinitha Gandhiraj, Prakasa Rao Aruna, Singaravelu Ganesan, Anna Univ. (India); Reji Philip, Raman Research Institute (India). . . . . .[7712-94]

Molding photonic response by elastic strain engineering, Branko Kolaric, Hughes Vandeparre, Pascal Damman, Univ. de Mons-Hainaut (Belgium); Sylvain Desprez, Materia Nova ASBL (Belgium); Renaud A. L. Vallee, Ctr. de Recherche Paul Pascal (France) . . . . . .[7712-95]

Fabrication of dielectrically-loaded surface plasmon polariton waveguide (DLSPPW) components using linear and nonlinear hybrid sol-gel materials, Arune Gaidukeviciute, Foundation for Research and Technology-Hellas (Greece); Carsten Reinhardt, Laser Zentrum Hannover e.V. (Germany) and Foundation for Research and Technology-Hellas (Greece); Konstantina Terzaki, Vasileia Melissinaki, Anastasia Giakoumaki, Maria Vamvakaki, Maria Farsari, Foundation for Research and Technology-Hellas (Greece); Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) and Foundation for Research and Technology-Hellas (Greece); Costas Fotakis, Foundation for Research and Technology-Hellas (Greece). . . . . .[7712-96]

Synthesis and characterization of Au-Zn nanoalloy by laser irradiation, Majid Fazeli Jadidi, Fereshteh Hajiesmaeilbaigi, Asma Motamedi, NSTRI Laser & Optics Research School (Iran, Islamic Republic of) . . . . . .[7712-97]

Scattering simulation of biological nano-particles by combined finite element propagation methods, Michael Kuhn, LightTrans GmbH (Germany); Joachim Schöberl, RWTH Aachen (Germany); Tino Untermann, LightTrans GmbH (Germany); Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany) . . . .[7712-98]

Plasmonic metamaterial as a controllable template for nanoscale light localization, Tsung Sheng Kao, Edward T. F. Rogers, Univ. of Southampton (United Kingdom); Yifang Chen, Rutherford Appleton Lab. (United Kingdom); Nikolay I. Zheludev, Univ. of Southampton (United Kingdom) . . . . . .[7712-99]

Stimulated emission of surface plasmon polaritons by lead-sulphide quantum dots, Ilya P. Radko, Sergey I. Bozhevolnyi, Univ. of Southern Denmark (Denmark) . . . . . .[7712-100]

Broadband plasmonic couplers for light trapping and waveguiding, Harold M. H. Chong, Ehsan Jaberansary, Farrah Djidjeli, Darren M. Bagnall, Univ. of Southampton (United Kingdom) . . . . . .[7712-101]

Dynamically optical response of silver nanoparticle film under an annealing treatment, Wen-Chi Hung, National Sun Yat-Sen Univ. (Taiwan) . . . . . [7712-102]

Nature of non-reciprocal Bloch modes in transverse magnetoplasmonic waveguide gratings, Mathias Vanwolleghem, Institut d'Électronique Fondamentale (France); Vladimir Belotelov, Lomonosov Moscow State Univ. (Russian Federation); Dmitry Bykov, Image Processing Systems Institute (Russian Federation); Béatrice Dagens, Institut d'Électronique Fondamentale (France); Anatoly Zvezdin, A. M. Prokhorov General Physics Institute (Russian Federation) . . . . . [7712-103]

Photophysical processes in molecules placed into micellar nanostructures, Evgeny A. Shirshin, Victor Fadeev, Irina Veselova, Konstantin Yablocky, Lomonosov Moscow State Univ. (Russian Federation) . . . . . [7712-104]

Femtosecond laser nanostructuring of metals: sub100-nm one-dimensional surface gratings, Sergey I. Kudryashov, Andrey A. Ionin, Leonid V. Seleznev, Dmitry V. Sinitsyn, P.N. Lebedev Physical Institute (Russian Federation); Alexander E. Ligachev, A. M. Prokhorov General Physics Institute (Russian Federation); Eugene Golosov, Belgorod State Univ. (Russian Federation) . . . . . [7712-105]

Engineering band-structure of plasmonic crystals, Sébastien Vilain, Jean-Sebastien G. Bouillard, Wayne Dickson, Anatoly V. Zayats, Queen's Univ. Belfast (United Kingdom) . . . . . [7712-106]

Plasmonic gain in planar multi-layer structures incorporating a thin conjugated polymer film, Hong Yoon, Stefan A. Maier, Donal D. C. Bradley, Paul N. Stavrinou, Imperial College London (United Kingdom) . . . . . [7712-107]

Enhanced transmission through slit arrays in single mode approximation, Viktoriia E. Babicheva, Moscow Institute of Physics and Technology (Russian Federation); Yurii E. Lozovik, Institute for Spectroscopy (Russian Federation) . . . . . [7712-108]

Characterization of laser-written dielectric-loaded surface plasmon polariton waveguides by leakage radiation microscopy, Carsten Reinhardt, Wei Cheng, Andreas Seidel, Andrey B. Evlyukhin, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) . . . . . [7712-109]

Dispersion of whispering gallery modes in anisotropic nanowires of arbitrary cross-section, Goran Z. Pavlovic, Guillaume Malpuech, Univ. Blaise Pascal (France); Nikolay A. Gippius, Univ. Blaise Pascal (France) and A.M. Prokhorov General Physics Institute (Russian Federation) . . . . . [7712-110]

Modeling of two-dimensional nanoscale plasmonic waveguides with cavities for filtering and demultiplexing of the telecommunication wavelengths, Abdellatif Akjouj, Noual Adnane, Yan Pennec, Bahram Bjafari-Rouhani, Institut d'Electronique, de Microélectronique, et de Nanotechnologie (France) . . [7712-111]

Transmission of surface plasmon polaritons through a nanowire array, Dmitry Y. Fedyanin, Aleksey V. Arsenin, Moscow Institute of Physics and Technology (Russian Federation) . . . . . [7712-112]

Plasmonic nanoantennas studied with a home-built method of moments Maxwell solver, Niels Verellen, Katholieke Univ. Leuven (Belgium) and IMEC (Belgium); Francisco Pelayo Garcia de Arquer, Vladimir Volski, Katholieke Univ. Leuven (Belgium); Pol Van Dorpe, IMEC (Belgium); Victor V. Moshchalkov, Guy A. E. Vandenbosch, Katholieke Univ. Leuven (Belgium) . . . . . [7712-113]

Mechanism of photoluminescence investigation of Si nano-crystals embedded in SiO_x, Alejandro H. Vivas, Tetyana V. Torchynska, Ingri Guerrero M., Instituto Politécnico Nacional (Mexico) . . . . . [7712-114]

Short and long range sensing using plasmonic nanostrucures: experimental and theoretical study, Akjouj Abdellatif, Institut d'Electronique, de Microélectronique, et de Nanotechnologie (France); Sabine Szunerits, Institut de Recherches Interdisciplinaires (France); Yan Pennec, Bahram Djafari-Rouhani, Elisabeth Galopin, Institut d'Electronique, de Microélectronique, et de Nanotechnologie (France); Joanna Niedziólka-Jönsson, Institut de Recherches Interdisciplinaires (France); Rabah Boukherroub, Institut d'Electronique, de Microélectronique, et de Nanotechnologie (France) . . . . . [7712-115]

Controlling molecular organization at the nanoscale for localized second harmonic generation, Ivan Berline, Céline Fiorini-Debuisschert, Ludovic Douillard, Fabrice Charra, Commissariat à l'Énergie Atomique (France) . . . . . [7712-116]

Near-field map reconstruction using randomly dispersed fluorescent beads, Jules Girard, Eric Le Moal, Nicolas Bertaux, Serge Monneret, Hugues Giovannini, Kamal Belkebir, Institut Fresnel (France); Anne Talneau, Ctr. National de la Recherche Scientifique (France); Anne Sentenac, Institut Fresnel (France) . . . . . [7712-117]

Enhanced transmission of s-polarized light through a metal slit, Mickael Guillaumee, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Alexey Y. Nikitin, Univ. de Zaragoza (Spain); L. Andrea Dunbar, Vladislav Spassov, Mona J. K. Klein, Rolf Eckert, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Luis Martín-Moreno, Univ. de Zaragoza (Spain); Francisco J. García-Vidal, Univ. Autónoma de Madrid (Spain); Ross P. Stanley, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland) . . . . . [7712-118]

Using nanostructured metallic surface to enhance transmission, polarization and spectral filtering on photodetectors, L. Andrea Dunbar, Mickaël Guillaumée, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Fernando de León Pérez, Sol Carretero Palacios, Univ. de Zaragoza (Spain); Vladislav Spassov, Rolf Eckert, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Fernando Lopez-Tejeira, Univ. de Zaragoza (Spain); Francisco J. García-Vidal, Univ. Autónoma de Madrid (Spain); Luis Martín-Moreno, Univ. de Zaragoza (Spain); Ross P. Stanley, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland) . . . . . [7712-119]

Optically induced three-dimensional photonic crystals and quasicrystallographic structures, Julian Becker, Westfälische Wilhelms-Univ. Münster (Germany); Jolly Xavier, Indian Institute of Technology Delhi (India); Martin Boguslawski, Patrick Rose, Westfälische Wilhelms-Univ. Münster (Germany); Joby Joseph, Indian Institute of Technology Delhi (India); Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) . . . . . [7712-120]

Optical induction of photonic superlattices with complex nondiffracting beams, Martin Boguslawski, Patrick Rose, Bernd Terhalle, Jörg Imbrock, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) . . . . . [7712-121]

Shape-dependent optical enhancement effect of surface-enhanced Raman scattering on gold nanostructured arrays, Hsing-Ying Lin, Chen-Han Huang, Chih-Han Chang, Yun-Chiang Lan, Hsiang-Chen Chui, National Cheng Kung Univ. (Taiwan) . . . . . [7712-122]

Friday 16 April

SESSION 11 . . . . . Fri. 08.30 to 10.00

Plasmonics V

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

Plasmonic solar cells *(Invited Paper)*, Albert Polman, FOM Institute for Atomic and Molecular Physics (Netherlands) . . . . . [7712-50]

Nanoscale imaging and ultrafast processes in hybrid plasmonic nanostructures, Gary P. Wiederrecht, Argonne National Lab. (United States) . . . . . [7712-51]

Electron energy loss spectroscopy and cathodoluminescence as powerful tools for studying surface-plasmon modes in metal nanostructures, Viktor Myroshnychenko, Consejo Superior de Investigaciones Científicas (Spain); Jaysen Nelayah, Odile Stéphan, Mathieu Kociak, Christian Colliex, Univ. Paris-Sud 11 (France); Giorgio Adamo, Kevin F. MacDonald, Nikolay I. Zheludev, Univ. of Southampton (United Kingdom); Enrique Carbó-Argibay, Jessica Rodríguez-Fernandez, Luis M. Liz-Marzán, Univ. de Vigo (Spain); Javier F. García de Abajo, Consejo Superior de Investigaciones Científicas (Spain) . . . . . [7712-52]

Theoretical study of surface plasmon frequencies in a system of two coupled spheres and comparison with experimental data, Taron Makaryan, Univ. Ulm (Germany); Karlen Madoyan, Armen O. Melikyan, Russian-Armenian (Slavonic) State Univ. (Armenia); Hayk Minassian, Yerevan Physics Institute (Armenia) . . . . . [7712-53]

SESSION 12 . . . . . Fri. 10.40 to 12.10

Nanoparticles

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

Second harmonic nanocrystals *(Invited Paper)*, Demetri Psaltis, Rachel Grange, Chia-Lung Hsieh, Ye Pu, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [7712-54]

Novel metallo-dielectric nanostructures for plasmonic applications, Wayne Dickson, Stephen Beckett, John McPhillips, Antony Murphy, Queen's Univ. Belfast (United Kingdom); Gregory A. Wurtz, Univ. of North Florida (United States); Jean-Sebastien G. Bouillard, Sebastien Vilain, Paul R. Evans, Robert Pollard, Anatoly V. Zayats, Queen's Univ. Belfast (United Kingdom) . . . . . [7712-55]

Surface structure dependent properties of nanostructures: computational study, Farzana Aslam, Christian von Ferber, Coventry Univ. (United Kingdom) . . . . . [7712-56]

Strong inhibition of quantum dot spontaneous emission in photonic wires, Joël Bleuse, Megan Creasey, Nitin S. Malik, Maela Bazin, Julien Claudon, Jean-Michel Gérard, Commissariat à l'Énergie Atomique (France); Ivan S. Maksymov, Christophe Sauvan, Jean-Paul Hugonin, Philippe Lalanne, Institut d'Optique Graduate School (France) . . . . . [7712-57]

Lunch Break . . . . . 12.10 to 13.20

SESSION 13 . . . . . Fri. 13.20 to 15.10

Nonlinear Optics

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

Detection and analysis of protein microcrystals by nonlinear optical imaging *(Invited Paper)*, Garth J. Simpson, Purdue Univ. (United States) . . . . . .[7712-58]

Effective medium multipolar tensor analysis of second-harmonic generation from metal nanoparticles, Mariusz R. Zdanowicz, Sami Kujala, Hannu Husu, Martti Kauranen, Tampere Univ. of Technology (Finland) . . . . . .[7712-59]

Electronic delocalisation in a branched nonlinear fluorophore, Richard J. Marsh, Daven A. Armoogum, Nick Nicolaou, Univ. College London (United Kingdom); Olivier M. Mongin, Mireille H. Blanchard-Desce, Univ. de Rennes 1 (France); Angus J. Bain, Univ. College London (United Kingdom) . . . . . .[7712-60]

Self-formation of nano-membranes induced by two-photon absorption, Mangirdas Malinauskas, Vilnius Univ. (Lithuania); Aleksandr Ovsianikov, Laser Zentrum Hannover e.V. (Germany); Gabija Bickauskaite, Vilnius Univ. (Lithuania); Xiao Shizhou, Laser Zentrum Hannover e.V. (Germany); Roaldas Gadonas, Vilnius Univ. (Lithuania); Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) . . . . . .[7712-61]

Controlling nanoscale optical emission with off-resonant laser light, David L. Andrews, Jamie M. Leeder, David S. Bradshaw, Univ. of East Anglia Norwich (United Kingdom). . . . . .[7712-62]

SESSION 14 . . . . . Fri. 15.50 to 17.40

Plasmonics VI

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

High-density photonic integration with nanowire plasmonic waveguides *(Invited Paper)*, Alexey V. Krasavin, Anatoly V. Zayats, Queen's Univ. Belfast (United Kingdom). . . . . .[7712-63]

High resolution scanning surface plasmon imaging of nanoparticles, Lotfi Berguiga, Francoise Argoul, Thibault Roland, Audrey Fahys, Pascale Milani, Zofia Haftek, Philippe Bouvet, Alain Arneodo, Ecole Normale Supérieure de Lyon (France); Juan Elezgaray, Institut European de Chimie et Biologie (France) . . . . . .[7712-64]

Ultra-high Purcell factors in plasmonic whispering gallery resonators, Ernst Jan R. Vesseur, Toon Coenen, FOM Institute for Atomic and Molecular Physics (Netherlands); F. Javier García de Abajo, Consejo Superior de Investigaciones Científicas (Spain); Albert Polman, FOM Institute for Atomic and Molecular Physics (Netherlands) . . . . . .[7712-65]

Exploring the role of the surface states in the luminescence of gold spherical particles by single molecule spectroscopy, Anne Debarre, Matthieu Loumaigne, Daniele Nutarelli, Lab. Aime Cotton (France) . . . . . .[7712-66]

Excitation and popagation of Hankel type surface plasmon polaritons on a metal film with a subwavelength aperture, Sona Nerkararyan, Khachatur V. Nerkararyan, Yerevan State Univ. (Armenia); Norik A. Janunts, Thomas Pertsch, Andreas Tuennermann, Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7712-67]

Conference 7713

Monday-Thursday 12-15 April 2010 • Proceedings of SPIE Vol. 7713

Photonic Crystal Materials and Devices

Conference Chairs: **Hernán R. Míguez,** Instituto de Ciencia de Materiales de Sevilla (Spain); **Sergei G. Romanov,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Lucio Claudio Andreani,** Univ. degli Studi di Pavia (Italy); **Christian Seassal,** Ecole Centrale de Lyon (France)

Programme Committee: **Wim Bogaerts,** Univ. Gent (Belgium); **Emmanuel Centeno,** Univ. Montpellier 2 (France); **Claudio Conti,** Univ. degli Studi di Roma La Sapienza (Italy); **Richard M. De La Rue,** Univ. of Glasgow (United Kingdom); **Rene M. De Ridder,** Univ. Twente (Netherlands); **Stefan Enoch,** Institut Fresnel (France); **Alfred W. B. Forchel,** Julius-Maximilians-Univ. Würzburg (Germany); **Romuald Houdré,** Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Jørn Marcher Hvam,** Technical Univ. of Denmark (Denmark); **Thomas F. Krauss,** Univ. of St. Andrews (United Kingdom); **Juan Ariel Levenson,** Ctr. National de la Recherche Scientifique (France); **Ceferino López,** Consejo Superior de Investigaciones Científicas (Spain); **Jordi Martorell,** Institut de Ciències Fotòniques (Spain); **Michele Midrio,** Univ. degli Studi di Udine (Italy); **Adriana Passaseo,** National Nanotechnology Lab. (Italy); **Min Qiu,** Kungliga Tekniska Högskolan (Sweden); **Alexei Tchelnokov,** CEA-LETI (France); **Pierre Viktorovitch,** Ecole Centrale de Lyon (France); **Georg von Freymann,** Forschungszentrum Karlsruhe GmbH (Germany); **David M. Whittaker,** The Univ. of Sheffield (United Kingdom); **Ulrike Woggon,** Technische Univ. Dortmund (Germany)

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

Opening Remarks . . . . . Mon. 13.00

SESSION 1 . . . . . Mon. 13.10 to 15.00

Recent Advances in the Preparation and Characterisatoin of Self-Assembled Photonic Crystals

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

Light scattering in opal-based photonic crystals *(Invited Paper)*, Mikhail F. Limonov, Ioffe Physical-Technical Institute (Russian Federation) . . . . . .[7713-01]

Towards a full understanding of the growth dynamics, optical response and crystalline structure of self-assembled photonic colloidal crystal films, Gabriel Lozano, Instituto de Ciencia de Materiales de Sevilla (Spain); Luis A. Dorado, Ricardo A. Depine, Univ. de Buenos Aires (Argentina); Hernán R. Míguez, Instituto de Ciencia de Materiales de Sevilla (Spain) . . . . . .[7713-02]

Polarization of light and cross-polarized transmission breakdown in colloidal photonic crystals, Sergei G. Romanov, Ulf Peschel, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Worawut Khunsin, Max-Planck-Institut für Festkörperforschung (Germany); Sabine Essig, Kurt Busch, Univ. Karlsruhe (Germany) . . . . . .[7713-03]

Observation of enhanced optical gain in photonic crystals, Riccardo Sapienza, Instituto de Ciencia de Materiales de Madrid (Spain) and ICMM - The institute of material science of Madrid (Spain); Marco Leonetti, Univ. degli Studi di Roma La Sapienza (Italy); Luis S. Froufe-Perez, Instituto de Ciencia de Materiales de Madrid (Spain); Juan F. Galisteo-López, Consejo Superior de Investigaciones Científicas (Spain); Claudio Conti, Univ. degli Studi di Roma La Sapienza (Italy); Cefe López, Consejo Superior de Investigaciones Científicas (Spain) . . . . . .[7713-04]

Molding resonant energy transfer by colloidal crystal: Dexter transfer and electroluminescence, Luis González-Urbina, Katholieke Univ. Leuven (Belgium); Branko Kolaric, Univ. de Mons-Hainaut (Belgium); Renaud A. L. Vallée, Univ. Bordeaux 1 (France); Wim Libaers, Koen J. Clays, Katholieke Univ. Leuven (Belgium) . . . . . .[7713-05]

SESSION 2 . . . . . Mon. 15.40 to 17.30

Light Managing in Photovoltaic and Light-Emitting Devices Using Photonic Crystals

Session Chair: **Mikhail F. Limonov,** Ioffe Physico-Technical Institute (Russian Federation)

Enhancement of solar cell efficiency using two-dimensional photonic crystals *(Invited Paper)*, Pablo A. Postigo, Instituto de Microelectrónica de Madrid (Spain) . . . . . .[7713-06]

Absorbing photonic crystals for thin film photovoltaics, Ounsi El Daif, Emmanuel Drouard, Guillaume Gomard, Xianqin Meng, Ecole Centrale de Lyon (France); Anne Kaminski, Alain Fave, Institut National des Sciences Appliquées de Lyon (France); Mustapha Lemiti, Ecole Centrale de Lyon (France); Enric Garcia-Cavrel, Pere Roca Cabarrocas, Ecole Polytechnique (France); Sungmo Ahn, Heonsu Jeon, Seoul National Univ. (Korea, Republic of); Christian Seassal, Ecole Centrale de Lyon (France) . . . . . .[7713-07]

Efficiency of thin-films silicon solar cells with a photonic pattern, Simone Zanotto, Marco Liscidini, Lucio C. Andreani, Univ. degli Studi di Pavia (Italy) . . . . . .[7713-08]

Increased efficiency for DSC coupled to one-dimensional photonic crystal, Silvia Colodrero, Hernán R. Míguez, Instituto de Ciencia de Materiales de Sevilla (Spain) . . . . . .[7713-09]

Photonic quasi-crystal light emitting diodes: comparisons between patterned P-side up and N-side up device performance, Martin D. B. Charlton, Univ. of Southampton (United Kingdom); Martin Tillin, Sharp Labs. of Europe Ltd. (United Kingdom); Ian M. Watson, Erdan Gu, Univ. of Strathclyde (United Kingdom); Ali Z. Khokhar, Nigel P. Johnson, Richard M. De La Rue, Faiz Rahman, Univ. of Glasgow (United Kingdom). . . . . .[7713-10]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.30 to 10.00

Controlling Light in Photonic Crystal Micro- and Nanocavities

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

Manipulating light with photonic crystal nanocavities and their coupled arrays *(Invited Paper)*, Masaya Notomi, Takasumi Tanabe, Eiichi Kuramochi, Hideaki Taniyama, NTT Basic Research Labs. (Japan) . . . . . .[7713-11]

Evanescent assembly of air slotted nanocavities, Benoit Cluzel, Kevin Foubert, Loic Lalouat, Univ. de Bourgogne (France); Emmanuel Picard, Commissariat à l'Énergie Atomique (France); David Peyrade, Ctr. National de la Recherche Scientifique (France); Emmanuel Hadji, Commissariat à l'Énergie Atomique (France); Frédérique A. De Fornel, Univ. de Bourgogne (France) . . . . . .[7713-12]

Activating photonic crystal membrane nanocavities by infiltrating with liquid crystals or luminescent colloidal nanocrystals, Mehmet A. Dundar, Christina Christova, Andrei Y. Silov, Fouad Karouta, Richard Nötzel, Martijn M. Wienk, Technische Univ. Eindhoven (Netherlands); Huub W. Salemink, Technische Univ. Delft (Netherlands); Rob W. van der Heijden, Technische Univ. Eindhoven (Netherlands) . . . . . .[7713-13]

Coupling of cavities - the way to impose control over their modes, Andrey Sukhorukov, The Australian National Univ. (Australia); Andrei V. Lavrinenko, Technical Univ. of Denmark (Denmark); Sangwoo Ha, Yuri S. Kivshar, The Australian National Univ. (Australia) . . . . . .[7713-14]

SESSION 4 . . . . . Tues. 10.40 to 12.10

Photonic Crystal-based Integrated Devices

Session Chair: **Masaya Notomi,** NTT Basic Research Labs. (Japan)

Ultrafast adiabatic frequency conversion using slow-light in photonic crystal waveguides *(Invited Paper)*, Daryl M. Beggs, Univ. of St. Andrews (United Kingdom); Tobias Kampfrath, Kobus Kuipers, FOM Institute for Atomic and Molecular Physics (Netherlands); Thomas F. Krauss, Univ. of St. Andrews (United Kingdom) . . . . . .[7713-15]

Purcell-enhanced spontaneous Raman emission in silicon photonic crystal cavities, Xavier Checoury, Zheng Han, Moustafa El Kurdi, Philippe Boucaud, Institut d'Électronique Fondamentale (France) . . . . . .[7713-16]

Increase of light emission from Erbium in silicon photonic crystal nanocavities, Matteo Galli, Univ. degli Studi di Pavia (Italy); Liam O'Faolain, Univ. of St. Andrews (United Kingdom); Giorgia Franzò, Univ. degli Studi di Catania (Italy); Dario Gerace, Univ. degli Studi di Pavia (Italy); Thomas F. Krauss, Univ. of St. Andrews (United Kingdom); Francesco Priolo, Univ. degli Studi di Catania (Italy); Lucio C. Andreani, Univ. degli Studi di Pavia (Italy) . . . . . .[7713-17]

A superprism-based photonic crystal demultiplexer in nearly-perfect collimation conditions, Eric Cassan, Damien Bernier, Anatole Lupu, Xavier Le Roux, Delphine Marris-Morini, Laurent Vivien, Institut d'Électronique Fondamentale (France) . . . . . [7713-18]

Lunch Break . . . . . 12.10 to 13.10

SESSION 5 . . . . . Tues. 13.10 to 14.30

Wave Propagation in Slow-light Photonic Crystal Waveguides

Session Chair: **Daryl M. Beggs,** Durham Univ. (United Kingdom)

Slow light propagation in disordered photonic crystal waveguides *(Invited Paper)*, Philippe Lalanne, Lab. Charles Fabry (France) . . . . . [7713-19]

The role of the coherent scattering in photonic crystals *(Invited Paper)*, Sylvain Combrié, Alfredo De Rossi, Thales Research & Technology (France); Pierre Colman, Thales Research & Technology (France) and Lab. Photonique et Nanostructures (France); Mark Patterson, Stephen Hughes, Queen's Univ. (Canada); Renaud Gabet, Yves Jaouen, Telecom ParisTech (France) . . . . [7713-20]

A new kind of semi-slow light photonic crystal waveguides with large delay-bandwidth product, Ran Hao, Eric Cassan, Xavier Le Roux, Delphine Marris-Morini, Laurent Vivien, Institut d'Électronique Fondamentale (France); Xinliang Zhang, Huazhong Univ. of Science and Technology (China) . . . . . [7713-21]

SESSION 6 . . . . . Tues. 14.30 to 15.30

Magneto-photonic Crystals

Session Chair: **Philippe Lalanne,** Lab. Charles Fabry (France)

Preliminary studies of 3D magnetophotonic crystals designed from a template stuffed by sol-gel process, Kekesi Renata, Francois Royer, Marie Françoise Blanc-Mignon, Francois Goutaland, Damien Jamon, Univ. Jean Monnet Saint-Etienne (France); Etelka Tombacz, Univ. of Szeged (Hungary); Jean-Pierre Chatelon, Univ. Jean Monnet Saint-Etienne (France) . . . . . [7713-22]

A novel integrated optical circulator based on a uniformly magnetized circular magneto-optic Bragg resonator, Liubov V. Magdenko, Institut d'Électronique Fondamentale (France); Wojciech Smigaj, Sébastien Guenneau, Boris Gralak, Institut Fresnel (France); Mathias Vanwolleghem, Pierre Beauvillain, Béatrice Dagens, Institut d'Électronique Fondamentale (France) . . . . . [7713-23]

One-way EM waveguide formed at the interface between plasmonic metal and uniformly magnetized two-dimensional photonic crystal fabricated from magneto-optic material, Sergey Eiderman, Vladimir Kuzmiak, Institute of Photonics and Electronics ASCR, v.v.i. (Czech Republic); Mathias Vanwolleghem, Institut d'Électronique Fondamentale (France) . . . . . [7713-24]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

POSTERS—Tuesday . . . . . Tues. 17.40 to 19.10

A poster session will be held on Tuesday 17.40 to 19.10. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Tuesday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Colloidal crystals shaped by microevaporation, Aurore Merlin, Jacques Leng, Jean-Baptiste Salmon, Univ. Bordeaux 1 (France) . . . . . [7713-47]

Photonic membranes and photonic crystal resonators for all-optical signal processing, Eugene Y. Glushko, Luidmila A. Karachevtseva, V. Lashkaryov Institute of Semiconductor Physics (Ukraine); Alexander E. Glushko, Univ. of Leoben (Austria) . . . . . [7713-48]

Optical dispersion filters with gain, Rene Gunster, Univ. der Bundeswehr München (Germany) . . . . . [7713-49]

Peculiarities of microstructure elements fabrication on light-curable nanocomposite, Nadejda D. Vorzobova, Vera G. Bulgakova, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation) . . . . . [7713-50]

Holographic materials for recording in blue spectral field, Nadejda D. Vorzobova, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Roze V. Ryabova, Russian Research Ctr. Kurchatov Institute (Russian Federation) . . . . . [7713-51]

All-nanoparticle based luminescent optical resonators built in 1D photonic crystals for detection of gases and liquids, Olalla Sanchez-Sobrado, Silvia Colodrero, Mauricio E. Calvo, Nuria Núñez, Manuel Ocaña, Gabriel Lozano, Hernán R. Míguez, Consejo Superior de Investigaciones Científicas (Spain) . . . . . [7713-52]

Mesostructured thin films as photonic crystal building blocks for sensing applications, Nuria Hidalgo Serano, Mauricio E. Calvo, Hernán R. Miguez, Instituto de Ciencia de Materiales de Sevilla (Spain) . . . . . [7713-53]

Fabrication of three-dimensional metallodielectric photonic crystals by interference lithography, Pavel N. Dyachenko, Sergei V. Karpeev, Vladimir S. Pavelyev, Image Processing Systems Institute (Russian Federation); Yuri V. Miklyaev, South-Ural State Univ. (Russian Federation); Maria V. Halipa, Irina Y. Roschupkina, Genadiy D. Malchikov, Samara State Aerospace Univ. (Russian Federation) . . . . . [7713-54]

Transmission spectra in a symmetrical Fibonacci photonic structure, E. L. Albuquerque, M. S. Vasconcelos, Univ. Federal do Rio Grande do Norte (Brazil) . . . . . [7713-55]

Novel polarization beam splitters based on simple dielectric periodic structure, Yuan Zhang, Wei Xue, Yurong Jiang, Beijing Institute of Technology (China) . . . . . [7713-56]

All-optical switching in photonic crystals based on porous silicon, Svetlana Afonina, Stanislav V. Zabotnov, Lomonosov Moscow State Univ. (Russian Federation) . . . . . [7713-57]

Photonic crystal microcavity in GaN-on-sapphire slab waveguide for sensor applications, Szymon Lis, Wroclaw Univ. of Technology (Poland); Rafal Dylewicz, Univ. of Glasgow (United Kingdom); Konrad Ptasinski, Sergiusz Patela, Wroclaw Univ. of Technology (Poland) . . . . . [7713-58]

Coupling to silicon photonic crystal cavities with Q factor up to 2 millions, Zheng Han, Xavier Checoury, Delphine Neel, Sylvain David, Moustafa El Kurdi, Philippe Boucaud, Institut d'Électronique Fondamentale (France) . . . . . [7713-59]

Band-pass filters based on the omnidirectional reflection of one-dimensional photonic crystals, Shuping Li, Tibet Institute for Nationalities (China); Bing Chen, Xi'an Jiaotong Univ. (China); Xiaoguang Gao, Xianyang Pianzhuan Group Corp. (China) . . . . . [7713-60]

GaN/AlGaN microcavities for enhancement of non linear optical effects, Vittorianna Tasco, Iolena Tarantini, Adriana Campa, Alessandro Massaro, Tiziana Stomeo, Gianmichele Epifani, Adriana Passaseo, National Nanotechnology Lab. (Italy); Matteo Braccini, Maria C. Larciprete, Concita Sibilia, Univ. degli Studi di Roma La Sapienza (Italy); Fabio A. Bovino, Elsag Datamat S.p.A. (Italy) . . [7713-61]

Multiple scattering of light by nanoparticles in Er^{3+}-doped optical fibers, Shivakiran N. Bhaktha Bantwal Narasimha, Wilfried Blanc, Bernard Dussardier, Michele Ude, Stanislaw Trzesien, Patrick Sebbah, Univ. de Nice Sophia Antipolis (France) . . . . . [7713-62]

Sub-wavelength structures for infrared filtering, Steffen Kurth, Fraunhofer-Institut für Einrichtung Elektronische Nanosysteme (Germany); Karla Hiller, Technische Univ. Chemnitz (Germany); Norbert Neumann, InfraTec GmbH (Germany); Mario Seifert, Technische Univ. Chemnitz (Germany); Martin Ebermann, InfraTec GmbH (Germany); Joachim Zajadacz, Leibniz-Institut für Oberflächenmodifizierung e.V. (Germany); Thomas Gessner, Fraunhofer-Institut für Einrichtung Elektronische Nanosysteme (Germany) . . . . . [7713-63]

Optical bistable switching with Kerr nonlinear materials exhibiting a finite response time in two-dimensional photonic crystals, Ali Naqavi, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Zahra Monem Haghdoost, Khashayar Mehrany, Sina Khorasani, Sharif Univ. of Technology (Iran, Islamic Republic of) . . . . . [7713-64]

A novel reactive gas-timing sputtered nanoporous ZnO thin films and photonic crystal biosensor enhancement, Sakon Rahong, National Science and Technology Development Agency (Thailand); Supanit Porntheeraphat, Thai Microelectronic Ctr. (Thailand); Jiti Nukeaw, King Mongkut's Institute of Technology Ladkrabang (Thailand) . . . . . [7713-65]

The Wannier function approach to the simulation of photonic crystal defect structures, Christian Wolff, Kurt Busch, Univ. Karlsruhe (Germany) . . . . . [7713-66]

Low index-contrast aperiodically ordered photonic quasicrystals for the development of isotropic photonic band-gap devices, Priya Rose Thankamani, Emiliano Di Gennaro, Univ. degli Studi di Napoli Federico II (Italy); Gianluigi Zito, Consiglio Nazionale delle Ricerche (Italy); Antonello Andreone, Giancarlo Abbate, Univ. degli Studi di Napoli Federico II (Italy) . . . . . [7713-67]

Analysis of non-linear optical properties of photonic crystal beam splitters, Rohit K. Ramakrishnan, Indian Institute of Science (India); Sreeparvathi Warrier, Indian Institute of Science (India) and Univ. of Gent (Belgium); Prashanth Angadikkunnath, Srinivas Talabatulla, Indian Institute of Science (India) . . [7713-68]

Nanometre control and determination of hole size in photonic crystal slabs, Daryl M. Beggs, Liam O'Faolain, Thomas F. Krauss, Univ. of St. Andrews (United Kingdom) . . . . . [7713-69]

Design, modeling and optimization of gallium nitride-based photonic crystal structures, Konrad Ptasinski, Szymon Lis, Marcin Wielichowski, Sergiusz Patela, Wroclaw Univ. of Technology (Poland) . . . . . [7713-70]

Tunable Fabry-Pérot microresonator integrated into Si chip, Vladimir Tolmachev, Ioffe Physico-Technical Institute (Russian Federation); Tatiana S. Perova, Vasily Melnikov, Trinity College Dublin (Ireland); Ekaterina Astrova, Ioffe Physico-Technical Institute (Russian Federation); Anna Baldycheva, Trinity College Dublin (Ireland); Galina Fedulova, Ioffe Physico-Technical Institute (Russian Federation) . . . . . [7713-71]

Design of three-component one-dimensional photonic crystals for alteration of optical contrast and omnidirectional reflection, Anna Baldycheva, Trinity College Dublin (Ireland); Vladimir Tolmachev, Trinity College Dublin (Ireland) and Ioffe Physico-Technical Institute (Russian Federation); Tatiana S. Perova, Trinity College Dublin (Ireland); Kevin Berwick, Dublin Institute of Technology (Ireland) . . . . . [7713-72]

Wednesday 14 April

SESSION 7 . . . . . Wed. 08.30 to 10.00

Photonic Effects in Disordered Structures and Anomalous Wave Propagation

Session Chairs: **Hernán Ruy Míguez,** Consejo Superior de Investigaciones Científicas (Spain); **Sergei G. Romanov,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

Photons, dust, and honey bees *(Invited Paper)*, Diederik S. Wiersma, European Lab. for Non-linear Spectroscopy (Italy) . . . . . .[7713-25]

Transverse scattering and localization of a laser beam in a longitudinally-invariant, transversely-disordered random medium, Parimal Bala, Univ. de Nice Sophia Antipolis (France) and Jagannath Univ. (Belarus); Patrick Sebbah, Univ. de Nice Sophia Antipolis (France) . . . . . .[7713-26]

Anomalous group velocity at the high energy range of real 3D photonic nanostructures, Muriel Botey, Jordi Martorell, Univ. Politècnica de Catalunya (Spain); Gabriel Lozano, Hernán R. Míguez, Consejo Superior de Investigaciones Científicas (Spain); Luis A. Dorado, Ricardo A. Depine, Univ. de Buenos Aires (Argentina) . . . . . .[7713-27]

Superluminal reflected pulses in microstrip slabs and photonic crystals, Julia Arias, Aida Sánchez-Meroño, María del Mar Sánchez-López, Ernesto Ávila-Navarro, Ignacio Soriano Moreno, Univ. Miguel Hernández de Elche (Spain) . . . . . .[7713-28]

SESSION 8 . . . . . Wed. 10.40 to 12.30

Applications of Photonic Crystals to Biosensing and Photodetection

Session Chair: **Diederik S. Wiersma,** European Lab. for Non-linear Spectroscopy (Italy)

Porous-silicon-based photonic crystals for biosensing applications *(Invited Paper)*, Cecile Jamois, Cheng Li, Ruslan Skryshevskyi, Taha Benyattou, Régis Orobtchouk, Institut National des Sciences Appliquées de Lyon (France); Yann Chevolot, Virginie Monnier, Eliane Souteyrand, Ecole Centrale de Lyon (France) . . . . . .[7713-29]

Stimuli-responsive Bragg stacks for chemo-optical sensing applications, Bettina V. Lotsch, Ludwig-Maximilians-Univ. München (Germany); Francesco Scotognella, Univ. degli Studi di Milano-Bicocca (Italy); Karin Möller, Thomas Bein, Ludwig-Maximilians-Univ. München (Germany); Geoffrey A. Ozin, Univ. of Toronto (Canada) . . . . . .[7713-30]

Silicon-nitride 2D photonic crystals as substrates for fluorescence microscopy, Alejandro M. Yacomotti, Ctr. National de la Recherche Scientifique (France); Laura C. Estrada, Oscar E. Martinez, Univ. de Buenos Aires (Argentina); Maia Brunstein, Sophie Bouchoule, Luc Le Gratiet, Anne Talneau, Isabel Sagnes, Juan Ariel Levenson, Ctr. National de la Recherche Scientifique (France) .[7713-31]

GaSb-based photonic crystal coupled cavity lasers above 2.3 µm, Souad Moumdji, Univ. Montpellier 2 (France) and Lab. d'Analyse et d'Architecture des Systèmes (France); Alexandre Larrue, Djaffar Belharet, Pascal Dubreuil, Sophie Bonnefont, Olivier Gauthier-Lafaye, Lab. d'Analyse et d'Architecture des Systèmes (France); Yves Rouillard, Aurore Vicet, Univ. Montpellier 2 (France). . . . . .[7713-32]

Resonant coupling of light into quantum well infrared photodetectors with embedded 2D photonic crystal, Alexander E. Glushko, Ronald Meisels, Montan Univ. Leoben (Austria); Stefan Kalchmair, Gottfried Strasser, Technische Univ. Wien (Austria) . . . . . .[7713-33]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50 hrs

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by:

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany

Ursula Keller, ETH Zurich, Switzerland

Mike Dunne, Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 9 . . . . . Thurs. 08.30 to 10.00

Light Propagation and Dynamics in Photonic/Plasmonic Structures

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

Light propagation in periodic nanostructures: interaction between individual elements and coupled system dynamics *(Invited Paper)*, Kurt Busch, Michael König, Paolo Longo, Jens Niegemann, Univ. Karlsruhe (Germany) . . . . . .[7713-34]

Enhanced emission in self assembled photonic crystals by hybrid photonic-plasmonic modes, Martin López-García, Alvaro Blanco, Juan F. Galisteo-López, Cefe López, Consejo Superior de Investigaciones Científicas (Spain); Antonio García-Martín, Instituto de Microelectrónica de Madrid (Spain) . . . . . .[7713-35]

Tailored transmission in colloidal photonic crystals coated with a gold film, Boyang Ding, Maria Bardosova, Martyn E. Pemble, Tyndall National Institute (Ireland); Alexander V. Korovin, Ulf Peschel, Sergei G. Romanov, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . . . . .[7713-36]

Femtosecond dynamics of resonantly enhanced surface plasmons in planar plasmonic crystals, Tatyana V. Dolgova, Polina P. Vabishchevich, Lomonosov Moscow State Univ. (Russian Federation); Elena D. Mishina, Alexander S. Sigov, Moscow State Institute of Radiotechnics, Electronics and Automation (Russian Federation); Andrey A. Fedyanin, Lomonosov Moscow State Univ. (Russian Federation) . . . . . .[7713-37]

SESSION 10 . . . . . Thurs. 10.40 to 12.10

Nonlinear Effects in Photonic Crystals

Session Chair: **Kurt Busch,** Univ. Karlsruhe (Germany)

Nonlinear photonics in optically-induced photonic lattices *(Invited Paper)*, Jörg Imbrock, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) . . . . . .[7713-38]

Nonlinear and photosensitive Chalcogenide glass photonic crystals, Christian Grillet, Michael W. Lee, Christelle Monat, Snjezana Tomljenovic-Hanic, Eric Mägi, David J. Moss, Benjamin J. Eggleton, The Univ. of Sydney (Australia); Xin Gai, Steve Madden, Duk Yong Choi, Douglas Bulla, Barry Luther-Davies, The Australian National Univ. (Australia) . . . . . .[7713-39]

Broadband phase-matched second harmonic generation for narrow beams in planar two-dimensional photonic crystals, Cristian Nistor, Crina M. Cojocaru, Jose Trull, Univ. Politècnica de Catalunya (Spain); Kestutis Staliunas, Univ. Politècnica de Catalunya (Spain) and ICREA Barcelona (Spain). . . . . .[7713-40]

Fabrication of GaN/AlGaN 1D photonic crystals designed for nonlinear optical applications, Tiziana Stomeo, Vittorianna Tasco, Gianmichele Epifani, Iolena Tarantini, Adriana Campa, Massimo De Vittorio, Adriana Passaseo, National Nanotechnology Lab. (Italy); Matteo Braccini, Maria C. Larciprete, Concita Sibilia, Univ. degli Studi di Roma La Sapienza (Italy); Fabio A. Bovino, Elsag Datamat S.p.A. (Italy) . . . . . .[7713-41]

Lunch Break . . . . . .12.10 to 13.20

SESSION 11 . . . . . Thurs. 13.20 to 15.10

Novel Materials and Techniques for Photonic Crystal Fabrication

Session Chair: **Jörg Imbrock,** Westfälische Wilhelms-Univ Münster (Germany)

Incorporation of luminescent nanometric films in photonic crystals and devices for the development of photonic sensors *(Invited Paper)*, Angel Barranco, Instituto de Ciencia de Materiales de Sevilla (Spain); Miguel Holgado, Univ. Politécnica de Madrid (Spain); Iwona Blaszczyk-Lezak, Ana Borras, Instituto de Ciencia de Materiales de Sevilla (Spain); Amadeu Griol, Carlos Angulo Barrios, Univ. Politécnica de Valencia (Spain); Hans Sohlström, Royal Institute of Technology (Sweden); Agustín R. Gonzalez-Elipe, Instituto de Ciencia de Materiales de Sevilla (Spain) . . . . . .[7713-42]

Flexible, adhesive and transferable one dimensional photonic crystals based on polymer infiltrated nanoparticle multilayers, Mauricio E. Calvo, Hernán R. Miguez, Instituto de Ciencia de Materiales de Sevilla (Spain). . . . . .[7713-43]

Optical gain in DNA-DCM for lasing in photonic materials, Marta Ibisate, Consejo Superior de Investigaciones Científicas (Spain); Marco Leonetti, Univ. degli Studi di Roma La Sapienza (Italy); Riccardo Sapienza, Univ. Politècnica de Catalunya (Spain); Claudio Conti, Univ. degli Studi di Roma La Sapienza (Italy); Cefe López, Consejo Superior de Investigaciones Científicas (Spain) . . . .[7713-44]

Fabrication and optical study of (Al,Ga)N photonic crystal devices, Delphine Neel, Sylvain David, Xavier Checoury, Philippe Boucaud, Institut d'Électronique Fondamentale (France); Sylvain Sergent, Fabrice Semond, Ctr. de Recherche sur l'Hétéro-Epitaxie et ses Appliations (France); Bruno Gayral, Commissariat à l'Énergie Atomique (France); Thierry Guillet, Univ. Montpellier 2 (France) .[7713-45]

3D photonic nanostructures fabricated using direct laser writing, Ioanna Sakellari, Foundation for Research and Technology-Hellas (Greece) and Univ. of Crete (Greece); Arune Gaidukeviciute, Foundation for Research and Technology-Hellas (Greece); Maria Vamvakaki, Foundation for Research and Technology-Hellas (Greece) and Univ. of Crete (Greece); David Gray, Costas Fotakis, Maria Farsari, Foundation for Research and Technology-Hellas (Greece) . . . . . .[7713-46]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

Conference 7714

Wednesday-Friday 14-16 April 2010 • Proceedings of SPIE Vol. 7714

Photonic Crystal Fibres

Conference Chairs: **Kyriacos Kalli,** Cyprus Univ. of Technology (Cyprus); **Waclaw Urbanczyk,** Wroclaw Univ. of Technology (Poland)

Programme Committee: **Hartmut Bartelt,** IPHT Jena (Germany); **Francis Berghmans,** Vrije Univ. Brussel (Belgium); **Benjamin J. Eggleton,** The Univ. of Sydney (Australia); **Sébastien Février,** Univ. de Limoges (France); **Jiri Kanka,** Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Jonathan C. Knight,** Univ. of Bath (United Kingdom); **Hanne Ludvigsen,** Helsinki Univ. of Technology (Finland); **B. M. Azizur Rahman,** The City Univ. (United Kingdom); **Karsten Rottwitt,** Technical Univ. of Denmark (Denmark); **Kay Schuster,** IPHT Jena (Germany); **Dmitry V. Skryabin,** Univ. of Bath (United Kingdom); **David J. Webb,** Aston Univ. (United Kingdom); **Alexei M. Zheltikov,** Lomonosov Moscow State Univ. (Russian Federation)

Wednesday 14 April

JOINT SESSION . . . . . Wed. 08.30 to 10.20

Photonic Crystal Fibre Sensors

Joint Session with Conference 7726, Optical Sensing and Detection

TBD *(Invited Paper)*, , ...[7726-26]

Liquid crystal filled photonic crystal fibers for voltage sensing applications, Sunish J. Mathews, Yuliya V. Semenova, Gerald T. Farrell, Dublin Institute of Technology (Ireland) . . . . . .[7726-27]

Evaluation of serial multiplexed photonic crystal fiber interferometric sensors, David Barrera, Univ. Politécnica de Valencia (Spain); Joel Villatoro, Vittoria Finazzi, ICFO - Instituto de Ciencias Fotónicas (Spain); Salvador Sales, Univ. Politécnica de Valencia (Spain); Valerio Pruneri, ICFO - Instituto de Ciencias Fotónicas (Spain) . . . . . .[7726-28]

Bragg fibre for sensing applications, Orlando Frazão, José M. Baptista, José L. Santos, INESC Porto (Portugal); Philippe Roy, Raphaël Jamier, Sébastien Février, Univ. de Limoges (France). . . . . .[7714-32]

Sensing characteristics of long period gratings and rocking filters based on highly birefringent boron doped photonic crystal fiber and fabricated by a CO_2 laser, Joel P. Carvalho, INESC Porto (Portugal); Gabriela Statkiewicz-Barabach, Alicja Anuszkiewicz, Wroclaw Univ. of Technology (Poland); Orlando Frazão, INESC Porto (Portugal); Jan Wojcik, Univ. Marii Curie-Sklodowskiej (Poland); José M. Baptista, José L. Santos, INESC Porto (Portugal); Waclaw Urbanczyk, Wroclaw Univ. of Technology (Poland) . . . . . .[7714-33]

Thursday 15 April

SESSION 1 . . . . . Thurs. 08.20 to 10.00

Nonlinear and Active Silica PCF

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

Adjustable supercontinuum laser source with low coherence length and low timing jitter, Marco Andreana, Univ. de Limoges (France); Anthony Bertrand, Yves Hernandez, Multitel A.S.B.L. (Belgium); Philippe Leproux, Vincent Couderc, Univ. de Limoges (France); Stéphane Hilaire, Guillaume Huss, Leukos (France); Domenico Giannone, Multitel A.S.B.L. (Belgium); Alessandro Tonello, Alexis Labruyère, Univ. de Limoges (France). . . . . .[7714-01]

Amplification of femtosecond pulses in large mode area Bragg fibers, Dmitry D. Gaponov, Sébastien Février, Philippe Roy, Univ. de Limoges (France); Marc Hanna, Dimitris N. Papadopoulos, Frédéric Druon, Louis Daniault, Patrick Georges, Univ. Paris-Sud (France); Mikhail Likhachev, Mikhail Salganskii, Mikhail V. Yashkov, A. M. Prokhorov General Physics Institute (Russian Federation) . . . . . .[7714-02]

Effect of inhomogeneities on backward and forward Brillouin scattering in photonic crystal fibers, Birgit Stiller, Michael Delque, Min W. Lee, Univ. de Franche-Comté (France); Stella Foaleng Mafang, Jean-Charles Beugnot, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Alexandre Kudlinski, Univ. des Sciences et Technologies de Lille (France); Luc Thevenaz, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Herve Maillotte, Thibaut Sylvestre, Univ. de Franche-Comté (France) . . . . . .[7714-03]

Deep ultraviolet supercontinuum generation in optical nanofibers by femtosecond-pulses at 400nm wavelength, Alexander Heidt, Stellenbosch Univ. (South Africa); Alexander Hartung, Hartmut Bartelt, IPHT Jena (Germany) . . . . . .[7714-04]

Luminescence of PbS quantum dots on a silica microstructured fiber, Luis C. Barbosa, Enver F. Chillcce, Cristiano M. Cordeiro, Univ. Estadual de Campinas (Brazil) . . . . . .[7714-05]

SESSION 2 . . . . . Thurs. 10.40 to 12.10

Nonlinear Chalcogenide PCF

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

Experimental observation of infrared spectral enlargement in As_2S_3 suspended core microstructured fiber *(Invited Paper)*, Mohammed El-Amraoui, Julien Fatome, Jean-Charles Jules, Grégory Gadret, Frédéric Smektala, Univ. de Bourgogne (France); Igor Skripatchev, Younes Messadeq, Univ. Estadual Paulista (Brazil); Gilles Renversez, Institut Fresnel (France); Marcin Szpulak, Wroclaw Univ. of Technology (Poland); Johann Troles, Univ. de Rennes 1 (France); Laurent Brilland, Plate-forme d'Étude et de Recherche sur les Fibres Optiques Spéciales (France) . . . . . .[7714-06]

Casting process for manufacturing a low loss chalcogenide photonic crystal fiber, Laurent Brilland, Plate-forme d'Étude et de Recherche sur les Fibres Optiques Spéciales (France); Quentin Coulombier, Patrick Houizot, Univ. de Rennes 1 (France); Than Nam Nguyen, Thierry Chartier, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); Frederic Smektala, Univ. de Bourgogne (France); Gilles Renversez, Institut Fresnel (France); Achille Monteville, Plate-forme d'Étude et de Recherche sur les Fibres Optiques Spéciales (France); Jean Christophe Sangleboeuf, Johann Troles, Univ. de Rennes 1 (France) . . . . . .[7714-07]

Mid-infrared frequency conversion in highly nonlinear optical fibres, Nicolas Ducros, Georges J. Humbert, Alexis Labruyère, Sébastien Février, Univ. de Limoges (France); Ryszard R. Buczynski, Univ. of Warsaw (Poland); Dariusz Pysz, Ryszard Stepien, Institute of Electronic Materials (Poland); Franck Morin, Fréderic Druon, Marc Hanna, Patrick Georges, Univ. Paris-Sud (France); Kevin J. Cook, John Canning, The Univ. of Sydney (Australia) . . . . . .[7714-08]

The tellurite highly nonlinear microstructured fibers for THG and SC generations, Meisong Liao, Chitrarekha B. Chaudhari, Guanshi Qin, Xin Yan, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan). . . . . .[7714-09]

Lunch Break . . . . . .12.10 to 13.30

SESSION 3 . . . . . Thurs. 13.30 to 15.00

Polymer PCF

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

Multiplexed FBG sensor recorded in multimode microstructured polymer optical fibre *(Invited Paper)*, Ian P. Johnson, David J. Webb, Aston Univ. (United Kingdom); Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus); Maryanne C. Large, Alexander Argyros, The Univ. of Sydney (Australia). . . . . .[7714-10]

Stimulated Raman scattering in microstructured polymer optical fibers, Kristian Nielsen, Karsten Rottwitt, Technical Univ. of Denmark (Denmark) [7714-11]

Investigation of sensing properties of microstructured polymer optical fibres, Jens Witt, Milan Steffen, Marcus Schukar, Katerina Krebber, Bundesanstalt für Materialforschung und -prüfung (Germany) . . . . . .[7714-12]

Measurements of stress-optic coefficient and Young's modulus in PMMA fibers drawn under different conditions, Marcin K. Szczurowski, Wroclaw Univ. of Technology (Poland); Lutful Khan, David J. Webb, Aston Univ. (United Kingdom); Chenchun Ye, Janice M. Dulieu-Barton, Univ. of Southampton (United Kingdom); Waclaw Urbanczyk, Wroclaw Univ. of Technology (Poland). . . . . .[7714-13]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

High resolution pulse distortion precompensation in nanosecond ytterbium-doped fiber amplifiers, Laure Lago, Commissariat à l'Énergie Atomique (France); Arnaud Mussot, Marc Douay, Univ. des Sciences et Technologies de Lille (France); Emmanuel Hugonnot, Commissariat à l'Énergie Atomique (France) . . . . .[7714-34]

Tunable liquid crystal filled photonic crystal fiber coupler, Kaisar R. Khan, Trevor J. Hall, Univ. of Ottawa (Canada) . . . . . .[7714-35]

Guiding properties of liquid filled solid-core photonic crystal fibers, Peter Agruzov, Igor Ilichev, Alexander V. Shamray, Ioffe Physico-Technical Institute (Russian Federation); Victor S. Shevandin, Konstantin V. Dukelskij, S.I. Vavilov State Optical Institute (Russian Federation) . . . . . .[7714-36]

Large-mode-area Bragg fiber with microstructured core for suppression of high-order modes, Svetlana S. Aleshkina, Mikhail Likhachev, Andrei Pryamikov, Dmitry D. Gaponov, Alexandr Denisov, Sergei L. Semjonov, Mikhail M. Bubnov, Mikhail Salganskii, Alexei N. Guryanov, A. M. Prokhorov General Physics Institute (Russian Federation) . . . . . .[7714-37]

Arc fusion splicing of photonic crystal fibers to standard single mode fibers, Krzysztof Borzycki, National Institute of Telecommunications (Poland) . . .[7714-38]

Guiding properties of kagome-lattice hollow-core fibers, Enrico Coscelli, Federica Poli, Davide Passaro, Annamaria Cucinotta, Stefano Selleri, Univ. degli Studi di Parma (Italy) . . . . . .[7714-39]

Dispersion tailored microstructured fibers: core dopant effects, Jens Kobelke, Kay Schuster, Ron Spittel, Alexander Hartung, Anka Schwuchow, Johannes Kirchhof, Hartmut Bartelt, IPHT Jena (Germany) . . . . . .[7714-40]

Highly nonlinear bending insensitive birefringent photonic crystal fibres, Huseyin Ademgil, Shyqyri Haxha, Fathi AbdelMalek, Univ. of Kent (United Kingdom) . . . . . .[7714-41]

Friday 16 April

SESSION 4 . . . . . Fri. 08.30 to 10.00

Modelling and Numerical Analysis of PCF I

Session Chair: **Sébastien Février,** Univ. de Limoges (France)

Theory of second-harmonic generation in silica nanowires *(Invited Paper)*, Jesper Laegsgaard, Technical Univ. of Denmark (Denmark) . . . . . .[7714-14]

Higher-order mode suppression in rod-type photonic crystal fibers with sectioned doping and enlarged core, Federica Poli, Enrico Coscelli, Davide Passaro, Annamaria Cucinotta, Stefano Selleri, Univ. degli Studi di Parma (Italy); Jesper Lægsgaard, Technical Univ. of Denmark (Denmark); Jes Broeng, NKT Photonics A/S (Denmark) . . . . . .[7714-15]

Single-mode and single-polarization operation of photonic crystal fibers, B. M. A. Rahman, Namassivayane Kejalakshmy, Arti Agrawal, Mohammad Uthman, The City Univ. (United Kingdom); Kenneth T. V. Grattan, The City Univ. (United States) . . . . . .[7714-16]

Influence of transverse perturbation of soliton propagation direction on laser radiation evolution along the layered medium, Vyacheslav A. Trofimov, Tatiana M. Lysak, Olga V. Matusevich, Lomonosov Moscow State Univ. (Russian Federation) . . . . . .[7714-17]

SESSION 5 . . . . . Fri. 10.40 to 12.00

Modelling and Numerical Analysis of PCF II

Session Chair: **B. M. Azizur Rahman,** The City Univ. (United Kingdom)

The impact of ring core on chromatic dispersion of photonic quasicrystal fiber, Soan Kim, Chul-Sik Kee, Gwangju Institute of Science and Technology (Korea, Republic of); Chung Ghiu Lee, Chosun Univ. (Korea, Republic of) . . . . . .[7714-18]

Simulation of liquid crystal infiltrated photonic crystal waveguides using the Fourier modal method, Thomas Zebrowski, Sabine Essig, Kurt Busch, Karlsruhe Institute of Technology (Germany) . . . . . .[7714-19]

Optimal design of broadband photonic crystal fibre long-period gratings for evanescent absorption sensing, Jiri Kanka, Institute of Photonics and Electronics ASCR, v.v.i. (Czech Republic) . . . . . .[7714-20]

Spiral photonics crystal fibers: special properties, Arti Agrawal, Namassivayane Kejalakshmy, Yousaf Azabi, B. M. A. Rahman, Kenneth T. V. Grattan, The City Univ. (United Kingdom) . . . . . .[7714-21]

Lunch Break . . . . . 12.00 to 13.10

SESSION 6 . . . . . Fri. 13.10 to 15.00

Device Development Based on PCF

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

Short wavelength (UV + VIS) guidance in kagomé lattice hollow core photonic crystal fibre *(Invited Paper)*, Sébastien Février, Benoît Beaudou, Univ. de Limoges (France) . . . . . .[7714-22]

Photonic crystal fiber filled with a high index electro-optic polymer, Muralidharan Balakrishnan, Ron Spittel, Jens Kobelke, Kay Schuster, Volker Reichel, Hartmut Bartelt, IPHT Jena (Germany) . . . . . .[7714-23]

Spectral tuning of a microstructured optical fibre Bragg grating by employing an infiltrated ferrofluidic actuator, Alessandro Candiani, Maria Konstantaki, Stavros Pissadakis, Foundation for Research and Technology-Hellas (Greece); Walter Margulis, Acreo AB (Sweden) . . . . . .[7714-24]

UV Bragg grating inscription in germanium-doped photonic crystal fibers, Thomas Geernaert, Vrije Univ. Brussel (Belgium); Martin Becker, IPHT Jena (Germany); Tomasz A. Nasilowski, Vrije Univ. Brussel (Belgium); Pawel Mergo, Jan Wojcik, Univ. Marii Curie-Sklodowskiej (Poland); Waclaw Urbanczyk, Wroclaw Univ. of Technology (Poland); Manfred Rothhardt, IPHT Jena (Germany); Christoph Chojetzki, FBGS Technologies GmbH (Germany); Hartmut Bartelt, IPHT Jena (Germany); Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7714-25]

Silicon Long Period Grating Grown in Hollow Fibers by Laser-assisted Chemical Vapor Deposition, Di Xu, Tong Chen, Kevin P. Chen, Univ. of Pittsburgh (United States); Hao Wang, Yongfeng Lu, Univ. of Nebraska-Lincoln (United States); Yuankun Lin, The Univ. of Texas-Pan American (United States) . . . . . .[7714-26]

SESSION 7 . . . . . Fri. 15.30 to 17.20

Physical Properties of PCF

Session Chair: **Waclaw Urbanczyk,** Wroclaw Univ. of Technology (Poland)

Demonstration of multimode interference effect for PCF connectors *(Invited Paper)*, Craig D. Stacey, BAE Systems (United Kingdom); Christopher Clarke, Imperial College London (United Kingdom); Roy G. Clarke, David W. Charlton, BAE Systems (United Kingdom) . . . . . .[7714-27]

Sagnac interferometer based on a suspended twin-core fibre, Orlando Frazão, José M. Baptista, José L. Santos, INESC Porto (Portugal); Jens Kobelke, Kay Schuster, IPHT Jena (Germany) . . . . . .[7714-28]

Broad spectral range measurement of chromatic dispersion of polarization modes in holey fibers by interferometric techniques, Petr Hlubina, Dalibor Ciprian, Miroslava Kadulova, Technical Univ. of Ostrava (Czech Republic); Tadeusz Martynkien, Waclaw Urbanczyk, Wroclaw Univ. of Technology (Poland) . .[7714-29]

Modal decomposition for photonic crystal fibers using computer-generated holograms, Oliver A. Schmidt, Daniel Flamm, Michael Duparré, Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7714-30]

Optical, thermal and mechanical characterization of photonic crystal fibers: results and comparisons, Krzysztof Borzycki, National Institute of Telecommunications (Poland) . . . . . .[7714-31]

Conference 7715

Monday-Friday 12-16 April 2010 • Proceedings of SPIE Vol. 7715

Biophotonics: Photonic Solutions for Better Health Care

Conference Chairs: **Jürgen Popp,** Institute of Photonic Technology Jena e.V. (Germany); **Wolfgang Drexler,** Cardiff Univ. (United Kingdom); **Valery V. Tuchin,** Saratov State Univ. (Russian Federation); **Dennis L. Matthews,** UC Davis Medical Ctr. (USA)

Programme Committee: **Peter Eskil Andersen,** Technical Univ. of Denmark (Denmark); **Arthur E. T. Chiou,** National Yang-Ming Univ. (Taiwan); **Paul Garside,** Univ. of Strathclyde (United Kingdom); **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,** Westfälische Wilhelms-Univ. Münster (Germany); **Brian C. Wilson,** Univ. of Toronto (Canada)

Conference Co-sponsors

Laserlab Europe

WITec focus innovations

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

SESSION 1 . . . . . Mon. 13.00 to 15.00

Advanced Microscopic Methods

Session Chair: **Brett E. Bouma,** Wellman Ctr. for Photomedicine (USA)

Imaging HIV transfer between T cells with optical superresolution *(Invited Paper)*, Thomas R. Huser, UC Davis Medical Ctr. (United States) . . . . . .[7715-01]

LSM, SIM and PAL-M - superresolution methods and their consequences, Gerhard M. Krampert, Michael Kempe, Carl Zeiss AG (Germany); Ralf Wolleschensky, Ingo Kleppe, Thomas Kalkbrenner, Carl Zeiss MicroImaging GmbH (Germany) . . . . . .[7715-02]

Influence of sample preparation and identification of subcelluar structures in quantitative holographic phase contrast microscopy, Björn Kemper, Lisa Schmidt, Sabine Przibilla, Christina Rommel, Jens Klokkers, Bayram Edemir, Jürgen Schnekenburger, Angelika Vollmer, Steffi Ketelhut, Gert von Bally, Westfälische Wilhelms-Univ. Münster (Germany) . . . . . .[7715-03]

Digital holography for second harmonic generation microscopy, Etienne Shaffer, Christian D. Depeursinge, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7715-04]

High resolution surface plasmon microscopy for cellular imaging, Francoise Argoul, Lotfi Berguiga, Thibault Roland, Karine Monier, Pascale Milani, Philippe Bouvet, Ecole Normale Supérieure de Lyon (France); Juan Elezgaray, Institut European de Chimie et Biologie (France) . . . . . .[7715-05]

SESSION 2 . . . . . Mon. 15.40 to 18.00

Coherence Domain Optical Methods and Optical Coherence Tomography

Session Chair: **Thomas R. Huser,** UC Davis Medical Ctr. (USA)

Vascular imaging with frequency domain OCT *(Invited Paper)*, Brett E. Bouma, Wellman Ctr. for Photomedicine (United States). . . . . .[7715-06]

In vivo Optical Coherence Tomography accompanying a biocompatibility study of percutaneous implants in hairless mice, Sabine Donner, Laser Zentrum Hannover e.V. (Germany); Frank Witte, Ivonne Bartsch, CrossBIT (Germany); Ole Massow, Marko Heidrich, Holger Lubatschowski, Alexander Heisterkamp, Alexander Krueger, Laser Zentrum Hannover e.V. (Germany) . . . . . .[7715-07]

Demonstration of PECVD SiC thermal delay lines for optical coherence tomography in the visible, Grégory Pandraud, Eduardo Margallo Balbás, Pasqualina M. Sarro, Technische Univ. Delft (Netherlands) . . . . . .[7715-08]

Study and suppression of motion artifacts in full-field optical coherence tomography, Delphine Sacchet, Julien Moreau, Patrick Georges, Arnaud Dubois, Lab. Charles Fabry (France) . . . . . .[7715-09]

High-power FDML laser for Swept Source-OCT at 1060 nm, Sebastian Marschall, Technical Univ. of Denmark (Denmark); Thomas Klein, Ludwig-Maximilians-Univ. München (Germany); Kevin Hsu, Micron Optics, Inc. (United States); Kim P. Hansen, NKT Photonics A/S (Denmark); Bernd Sumpf, Karl-Heinz Hasler, Götz Erbert, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany); Ole B. Jensen, Christian Pedersen, Technical Univ. of Denmark (Denmark); Robert Huber, Ludwig-Maximilians-Univ. München (Germany); Peter E. Andersen, Technical Univ. of Denmark (Denmark) . . . . . .[7715-10]

Diagnostic value of cross-polarization endoscopic optical coherence tomography in diagnosis of mucosa neoplasia, Elena Kiseleva, Natalia Gladkova, Elena Zagaynova, Olga Streltsova, Maria Karabut, Irina Kuznetsova, Natalia Shakhova, Ludmila Snopova, Ekaterina Orinicheva, Irina Balalaeva, Nizhny Novgorod State Medical Academy (Russian Federation) . . . . . .[7715-11]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.30 to 10.20

Optical Technologies for Process Analytics and Quality Control I

Session Chair: **Maria Farsari,** Foundation for Research and Technology-Hellas (Greece)

Development of biophotonics technologies for rural and point-of-care medicine *(Invited Paper)*, Dennis L. Matthews, Stephen M. Lane, UC Davis Medical Ctr. (United States); Sebastian Wachsmann-Hogiu, Cedars-Sinai Medical Ctr. (United States) . . . . . .[7715-12]

False saturation data rejection in optical pulse-oximeter, Lorenzo Scalise, Paolo Marchionni, Virgilio Carnielli, Univ. Politecnica delle Marche (Italy) .[7715-13]

Towards online lubricant oil characterization using plastic micro-optics, Sara Van Overmeire, Heidi Ottevaere, Vrije Univ. Brussel (Belgium); Anna G. Mignani, Leonardo Ciaccheri, Istituto di Fisica Applicata Nello Carrara (Italy); Gert Desmet, Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7715-14]

Non-contact measurement of respiration parameters, Lorenzo Scalise, Paolo Marchionni, Univ. Politecnica delle Marche (Italy). . . . . .[7715-15]

Time-resolved imaging of hydrogel jets during laser-induced forward transfer, Claudia Unger, Martin Gruene, Lothar Koch, Juergen Koch, Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) . . . . . .[7715-16]

SESSION 4 . . . . . Tues. 11.00 to 11.40

Optical Technologies for Process Analytics and Quality Control II

Session Chair: **Dennis L. Matthews,** UC Davis Medical Ctr. (USA)

Two-wavelength spectral imaging-based Thai rice breed identification, Sarun Sumriddetchkajorn, National Electronics and Computer Technology Ctr. (Thailand); Kajpanya Suwansukho, King Mongkut's Institute of Technology Ladkrabang (Thailand). . . . . .[7715-17]

Laser diagnostic system based on blood cell scattering, Yaroslav V. Savenko, National Technical Univ. of Ukraine (Ukraine). . . . . .[7715-18]

SESSION 5 . . . . . Tues. 11.40 to 12.40

Optical Tweezers and Laser Catapulting

Session Chair: **Dennis L. Matthews,** UC Davis Medical Ctr. (USA)

Trapping and transport of particles in air with optical vortices, Andrei V. Rode, Vladlen G. Shvedov, Yana V. Izdebskaya, Anton S. Desyatnikov, Wieslaw Z. Krolikowski, Yuri S. Kivshar, The Australian National Univ. (Australia) . . . .[7715-19]

Holographic optical tweezers-induced assembly of arrays of dynamic molecular nanomotors on surfaces, Florian Hörner, Mike Woerdemann, Jan Ribbe, Eva Baresel, Rudolf Friedrich, Berenike Maier, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany). . . . . .[7715-20]

Peculiarities of red blood cell aggregation studied by optical tweezers, Andrey A. Fedyanin, Alexander G. Zhdanov, Maria D. Khokhlova, Evgeny V. Lyubin, Irina A. Sokolova, Sofia Rykova, Lomonosov Moscow State Univ. (Russian Federation) . . . . . .[7715-21]

Lunch Break . . . . . .12.40 to 13.50

Towards a Better Health Care: Unmet Medical Needs

Tuesday 13 April, 13.50 to 15.30

Special Interdisciplinary Session

Moderator: **Jürgen Popp,**
Institute of Photonic Technology Jena e.V. (Germany)

Renowned physicians will unravel challenges and unmet needs in various medical fields ranging from Oncology to Infectious diseases. By addressing the technology developers they will point out in which directions research and technological development in Biophotonics should advance to create useful solutions for the most pressing medical problems.

Speakers:

- **Prof. Hans Peter Berlien** *(Laser Surgery)*, Elisabeth Klinik Berlin Germany
- **Prof. Katharina Svanberg** *(Oncology)*, Lund Univ. Medical Laser Centre, Sweden
- **Prof. Michael Bauer** *(Infectious Diseases)*, Department of Anesthesiology and Intensive Care, Univ. Hospital Jena, Germany
- **Prof. Axel Niendorf,** Institute for Diagnostic Histopathology and Cytology Hamburg, Germany
- **Dr. Fausto Chiesa,** The European Institute of Oncology Milan, Italy
- **Prof. Torello Lotti,** Department of Dermatological Sciences, Univ. of Florence, Italy
- **Prof. Marco Carini,** Department of Urology, Univ. of Florence, Italy

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

POSTERS—Tuesday . . . . . Tues. 17.40 to 19.10

A poster session will be held on Tuesday 17.40 to 19.10. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Optical coherence tomography as approach for the minimal invasive localization of the germinal disc in ovo before chicken sexing, Anke Burkhardt, Stefan Geissler, Julia Walther, Edmund Koch, Technische Univ. Dresden (Germany) . . . . . .[7715-64]

Extinction, scattering, and depolarization of light by gold and gold/silver nanorods: insight from experiment and simulations, Boris N. Khlebtsov, Vitaly Khanadeev, Nikolai G. Khlebtsov, Institute of Biochemistry and Physiology of Plants and Microorganisms (Russian Federation). . . . . .[7715-65]

Raman spectral imaging for monitoring of time-dependend biochemical changes in single living cells, Alina B. Zoladek, Flavius C. Pascut, Ioan Notingher, The Univ. of Nottingham (United Kingdom) . . . . . .[7715-66]

Biconical tapered optical fiber biosensor for measuring refractive index of cysteine, leucine and L-alanine in aqueous D-glucose and sucrose solution, Mohammad Zibaii, Morteza Karami, Hamid Latifi, Morteza Gholami, Seyed Masoud Hosseini, Mohammad Hossein Ghezel Ayagh, Shahid Beheshti Univ. (Iran, Islamic Republic of) . . . . . .[7715-67]

Label free detection of DNA hybridization by refractive index tapered fiber biosensor, Mohammad Zibaii, Elahe Ghanati, Hamid Latifi, Morteza Karami, Morteza Gholami, Seyed Masoud Hosseini, Shahid Beheshti Univ. (Iran, Islamic Republic of) . . . . . .[7715-68]

Phytoplankton as a fluorescent bioindicator of ecotoxicants in natural waters, Timofey S. Gostev, Fyodor I. Kouzminov, Lomonosov Moscow State Univ. (Russian Federation); Maxim Y. Gorbunov, Rutgers Coastal Ocean Observation Lab. (United States); Victor V. Fadeev, Lomonosov Moscow State Univ. (Russian Federation) . . . . . .[7715-69]

Fluorescent diagnostics of cyanobacteria, Fyodor I. Kouzminov, Eugene G. Maximov, Lomonosov Moscow State Univ. (Russian Federation); Maxim Y. Gorbunov, Rutgers Coastal Ocean Observation Lab. (United States); Victor V. Fadeev, Lomonosov Moscow State Univ. (Russian Federation). . . . . .[7715-70]

Development of swept sources at 1 micron for Fourier domain optical coherence tomography, Irina Trifanov, Liviu P. Neagu, Multiwave Photonics (Portugal); Adrian G. Podoleanu, Univ. of Kent (United Kingdom); Jose R. Salcedo, Multiwave Photonics (Portugal); Antonio B. Lobo Ribeiro, Univ. Fernando Pessoa (Portugal) . . . . . .[7715-71]

Real-time analysis of capillary-refill processes using blue LED, Edgars Kviesis-Kipge, Edgars Curkste, Janis Spigulis, Univ. of Latvia (Latvia); Linda Eihvalde, Univ. Children's Hospital (Latvia) . . . . . .[7715-72]

Real time optical coherence tomography monitoring of Candida albicans biofilm in vitro during photodynamic therapy study, Anderson Zanardi de Freitas, Luis C. Suzuki, Renato Araujo Prates, Marcus P. Raele, Martha Simões Ribeiro, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . . . . . .[7715-73]

On the possibility of intramolecular vibrations investigation using FRET, Evgeny A. Shirshin, Victor V. Fadeev, Nadezhda Zhdanova, Gleb Budylin, Lomonosov Moscow State Univ. (Russian Federation) . . . . . .[7715-74]

Determination of Blood Oxygenation in Skin Phantom Model, Rajesh V. Kanawade, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Alexandre Douplik, Friedrich-Alexander Universität Erlangen-Nürnberg (Germany); Gennadiy Sayko, Chen Yinjen, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . . . . .[7715-75]

Concepts and components for time-resolved single molecule microscopy, Felix Koberling, Benedikt Kraemer, Peter Kapusta, PicoQuant GmbH (Germany); Steffen Ruettinger, Physikalisch-Technische Bundesanstalt (Germany); Volker Buschmann, Uwe Ortmann, Marcelle Koenig, Sebastian Tannert, Michael Wahl, PicoQuant GmbH (Germany); Deron A. Walters, Jacob A. Viani, Asylum Research (United States); Rainer Erdmann, PicoQuant GmbH (Germany) . . . . . .[7715-76]

Non-contact measurement of ocular microtremor using laser speckle, Emer Kenny, Davis Coakley, Gerard Boyle, Trinity College Dublin (Ireland) . . . .[7715-77]

Optical extraction of the helical pitch angle of amylopectin in starch, Sotiris Psilodimitrakopoulos, Ivan Amat-Roldan, Pablo Loza-Alvarez, ICFO - Instituto de Ciencias Fotónicas (Spain); David Artigas-García, Univ. Politècnica de Catalunya (Spain) . . . . . .[7715-78]

Assessing structural characteristics of axons in cortical neurons using polarisation sensitive SHG, Sotiris Psilodimitrakopoulos, ICFO - Instituto de Ciencias Fotónicas (Spain); Valerie Petegnief, Guadalupe Soria, Consejo Superior de Investigaciones Científicas (Spain); Ivan Amat-Roldan, ICFO - Instituto de Ciencias Fotónicas (Spain); David Artigas-Garcia, Univ. Politècnica de Catalunya (Spain); Anna M. Planas, Consejo Superior de Investigaciones Científicas (Spain); Pablo Loza-Alvarez, ICFO - Instituto de Ciencias Fotónicas (Spain) . . . . .[7715-79]

Analysis of optical crosstalk in flexible imaging endoscopes based on multicore fibers, Noé Ortega-Quijano, Félix Fanjul-Vélez, Irene Salas-García, José Luis Arce-Diego, Univ. de Cantabria (Spain). . . . . .[7715-80]

Development of OCT signal analyses model for total extinction coefficient determination of biological tissue, Marcello M. Amaral, Marcus P. Raele, Anderson Zanardi de Freitas, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . . . . . .[7715-81]

Towards noninvasive method for the detection of pathological tissue variations by mapping different blood parameters, Omar Abdallah, Qasem Qananwah, Kawther Abo Alam, Armin Bolz, Karlsruhe Institute of Technology (Germany) . . . . . .[7715-82]

Controlling fluorescence resonance energy transfer (FRET) by optical confinement in a λ/2-microresonator, Raphael Gutbrod, Sebastian Bär, Frank Schleifenbaum, Sébastien Peter, Kirstin Elgass, Alfred J. Meixner, Eberhard Karls Univ. Tübingen (Germany). . . . . .[7715-83]

Preliminary optical coherence tomography investigation of the glass and polyethylene fiber reinforced composite splints, Luciana Goguta, Cosmin Sinescu, Corina Marcauteanu, Meda L. Negrutiu, Eniko T. Demjan, Florin Topala, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Michael Hughes, Adrian Bradu, George M. Dobre, Adrian G. Podoleanu, Univ.of Kent (United Kingdom) . . . . . .[7715-84]

Fiber spectral domain optical coherence tomography for in-vivo rat brain imaging, Yijing Xie, Susanne Loeffler, Tim Bonin, Gereon Hüttmann, Ulrich G. Hofmann, Univ. zu Lübeck (Germany). . . . . .[7715-85]

Color mapping assessment in OCT investigation of composite dental fillings, Mihai Rominu, Florin I. Topala, Cosmin Sinescu, Meda L. Negrutiu, Roxana O. Rominu, Adelina E. Stoia, Daniela M. Pop, Marius Enescu, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian Bradu, Adrian G. Podoleanu, Univ. of Kent (United Kingdom). . . . . .[7715-86]

Conference 7715

Imaging of live-cell dynamics and morphometry using a heterodyne Mach-Zehnder interferometer and employing dynamic phase demodulation technique, Shiju Joseph, David Newport, Univ. of Limerick (Ireland); Jean-Michel Gineste, Maurice P. Whelan, European Commission Joint Research Ctr. (Italy) . . . . . .[7715-87]

Study of short pulse laser propagation in biological tissue by means of boundary element method, Reza Massudi, Mohammad Ali Ansari, Laser and plasma research institute, shahid behesti university, tehran (Iran, Islamic Republic of) . . . . . .[7715-88]

High-wavenumber micro-Raman spectroscopy on oral tissue for monitoring Pemphigus vulgaris follow-up, Ines Delfino, Univ. degli Studi della Tuscia (Italy); Carlo Camerlingo, Consiglio Nazionale delle Ricerche (Italy); Flora Zenone, Univ. degli Studi di Napoli Federico II (Italy); Giuseppe Perna, Vito Capozzi, Univ. di Foggia (Italy); Nicola Cirillo, Giovanni M. Gaeta, Maria Lepore, Seconda Univ. degli Studi di Napoli (Italy) . . . . . .[7715-89]

Widefield reflectance and fluorescence imaging device and digital image processing for the detection of skin and oral cancer, Sebastiao Pratavieira, Vanderlei S. Bagnato, Cristina Kurachi, Univ. de São Paulo (Brazil). . . . . .[7715-90]

High resolution single-mode-fiber-based sensor for intravascular detection of fluorescent molecular probes, R. Nika Razansky, Mathias Mueller, Alexander Borisov, Alexander W. Koch, Vasilis Ntziachristos, Technische Univ. München (Germany) . . . . . .[7715-91]

Effect of light scattering superficial layer on the accuracy of flow velocity profiles measurements by Doppler optical coherence tomography, Janne Lauri, Alexander V. Bykov, Univ. of Oulu (Finland); Alexander V. Priezzhev, Lomonosov Moscow State Univ. (Russian Federation); Risto A. Myllylä, Univ. of Oulu (Finland) . . . . . .[7715-92]

Combining optical coherence tomography with fluorescence microscopy: a closer look into tissue, Maria Gärtner, Peter Cimalla, Lilla Knels, Sven Meissner, Edmund Koch, Univ. Hospital Carl Gustav Carus Dresden (Germany). . . .[7715-93]

3D topology and arrangement of proteins inside ceramide-rich domains, Christian Imhäuser, Fachhochschule Dortmund (Germany); Heike Gulbins, Erich Gulbins, Univ. Duisburg-Essen (Germany); Hans-Gerd Lipinski, Fachhochschule Dortmund (Germany). . . . . .[7715-94]

Nonlinear fluorimetry determination of energy transfer rate in the molecule of fluorescent protein, Evgeny A. Shirshin, Victor V. Fadeev, Alexander Banishev, Lomonosov Moscow State Univ. (Russian Federation) . . . . . .[7715-95]

Comparison of spectral colorimetric measurements vs. color pictures in dermatology, Pascal Blain, Fabrice Michel, Olivier Vanhooteghem, Vincent Moreau, Univ. de Liège (Belgium); Michel de la Brassinne, Clinique Sainte Elisabeth (Belgium); Yvon L. M. Renotte, Serge L. Habraken, Univ. de Liège (Belgium) . . . . . .[7715-96]

Implantable reflectance pulse transit time blood pressure sensor with oximetry capability, Jens Fiala, Robert Gehrke, Michael Theodor, Philipp Bingger, Albert-Ludwigs-Univ. Freiburg (Germany); Katharina Förster, Claudia Heilmann, Friedhelm Beyersdorf, Univ. Hospital Freiburg (Germany); Hans Zappe, Andreas Seifert, Albert-Ludwigs-Univ. Freiburg (Germany) . . . . . .[7715-97]

Photochemical predictive analysis of photodynamic therapy with non homogeneous topical photosensitizer distribution in dermatological applications, Irene Salas-García, Félix Fanjul-Vélez, Noé Ortega-Quijano, José Luis Arce-Diego, Univ. de Cantabria (Spain). . . . . .[7715-98]

Microstructural characterization of cervical sclerotic dentin treated with Er:YAG laser: a preliminary en face OCT investigation, Corina Marcauteanu, Carmen Todea, Cosmin Balabuc, Eniko T. Demjan, Cosmin Sinescu, Meda L. Negrutiu, Luciana Goguta, Florin Topala, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Michael Hughes, Adrian Bradu, George M. Dobre, Adrian G. Podoleanu, Univ. of Kent (United Kingdom) . . . . . .[7715-99]

The P4L project 'NIR-laser-activated gold nanoparticles: perspectives in minimally invasive diagnosis and therapy', Fulvio Ratto, Paolo Matteini, Istituto di Fisica Applicata Nello Carrara (Italy); Sonia Centi, Univ. degli Studi di Firenze (Italy); Francesca Rossi, Istituto di Fisica Applicata Nello Carrara (Italy); Franco Fusi, Univ. degli Studi di Firenze (Italy); Roberto Pini, Istituto di Fisica Applicata Nello Carrara (Italy); Boris N. Khlebtsov, Nikolai G. Khlebtsov, Institute of Biochemistry and Physiology of Plants and Microorganisms (Russian Federation); Elena S. Tuchina, Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation); Christopher Dunsby, Mark Neil, Paul French, Imperial College London (United Kingdom); Srirang Manohar, Vinod Subramaniam, Univ. Twente (Netherlands); Niels Bendsoe, Katarina Svanberg, Lund Univ. Hospital (Sweden) . . . . . .[7715-100]

Cancer detection by terahertz time-domain spectroscopy and imaging, Faustino Wahaia, Univ. do Porto (Portugal) . . . . . .[7715-101]

Full-field optical coherence tomography at 800 nm and 1300 nm simultaneously, Delphine Sacchet, Julien Moreau, Patrick Georges, Arnaud Dubois, Lab. Charles Fabry (France). . . . . .[7715-102]

Finger heater for non-invasive blood glucose measurement, Xiqin Zhang, Choon Meng Ting, GlucoStats System Pte Ltd. (Singapore); Joon Hock Yeo, Nanyang Technological Univ. (Singapore) . . . . . .[7715-103]

Biomedical imaging by means of linear and non-linear Raman microspectroscopy, Nadine Vogler, Institute of Photonic Technology Jena e.V. (Germany); Benjamin Dietzek, Michael Schmitt, Friedrich-Schiller-Univ. Jena (Germany); Christoph Krafft, Volker Deckert, Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) . . . . . .[7715-104]

Microfluidic-CARS: a model system for studying isolated biological systems, Gero Bergner, Denis Ackimov, Daniell Malsch, Thomas Henkel, Institute of Photonic Technology Jena e.V. (Germany); Benjamin Dietzek, Friedrich-Schiller-Univ. Jena (Germany); Sebastian Schlücker, Univ. Osnabrück (Germany); Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) . . . . . .[7715-105]

New variants of fluorescent proteins as instruments for investigation of processes in living systems: optical and photophysical properties, Alexandr A. Banishev, Institute on Laser and Information Technologies (Russian Federation); Evgeny P. Vrzheshch, Lomonosov Moscow State Univ. (Russian Federation) . . . . . .[7715-106]

Multi-spectral mapping of in-vivo skin haemoglobin and melanin, Dainis Jakovels, Janis Spigulis, Univ. of Latvia (Latvia). . . . . .[7715-107]

Biotissue structure investigation using ultra-short pulsed laser polarimetry, Iulian G. Ionita, Ovidiu Toma, Univ. of Bucharest (Romania) . . . . . .[7715-108]

Determination of local optical properties of the rat barrel cortex during neural activation: Monte-Carlo approach to light propagation, Elena V. Migacheva, Stéphane R. Chamot, Olivier Seydoux, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Bruno Weber, Univ. Hospital Zürich (Switzerland); Christian D. Depeursinge, Pierre P. Marquet, Pierre J. Magistretti, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7715-109]

Mechanisms of tumor necrosis in photodynamic therapy with a chlorine photosensitizer: experimental studies, Valeriy A. Privalov, Elmir N. Bigbov, Alexander V. Lappa, Chelyabinsk State Univ. (Russian Federation). . . . .[7715-110]

Characterization of different cancer cell lines by means of Raman spectroscopy, Melanie Putsche, Thomas Bocklitz, Katharina Pachmann, Petra Rösch, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7715-111]

Towards a new approach for the online monitoring of drugs in complex matrices, Anne März, Petra Rösch, Friedrich-Schiller-Univ. Jena (Germany); Thomas Henkel, Institute of Photonic Technology Jena e.V. (Germany); Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7715-112]

Utilizing of anisotropic plasmonic arrays for analytics, Dana Cialla, Jörg Petschulat, Friedrich-Schiller-Univ. Jena (Germany); Uwe Hübner, Henrik Schneidewind, Matthias Zeisberger, Roland Mattheis, Institute of Photonic Technology Jena e.V. (Germany); Thomas Pertsch, Robert Möller, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7715-113]

Fabrication of regular patterned SERS arrays by electron beam lithography, Uwe Hübner, Henrik Schneidewind, Institute of Photonic Technology Jena e.V. (Germany); Dana Cialla, Karina Weber, Friedrich-Schiller-Univ. Jena (Germany); Matthias Zeisberger, Roland Mattheis, Institute of Photonic Technology Jena e.V. (Germany); Robert Möller, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7715-114]

Raman microscopy of individual living human embryonic stem cells, Sergey M. Novikov, Jonas Beermann, Sergey I. Bozhevolnyi, Linda M. Harkness, Moustapha Kassem, Univ. of Southern Denmark (Denmark). . . . . .[7715-115]

Identification of pathogenic bacteria extracted from milk on single-cell level by means of micro-Raman spectroscopy, Susann Meisel, Stephan Stöckel, Friedrich-Schiller-Univ. Jena (Germany); Mandy Elschner, Friedrich-Loeffler-Institut (Germany); Petra Rösch, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7715-116]

Easy characterization of SERS substrates of enzymatically produced silver nanoparticles and their applications in the area of bioanalytics, Katharina K. Strelau, Thomas Schüler, Robert Möller, Friedrich-Schiller-Univ. Jena (Germany); Wolfgang Fritzsche, Institute of Photonic Technology Jena e.V. (Germany); Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7715-117]

Sedimentation of agglomerated nanoparticles under cell culture conditions studied by image based analysis, Darius Schippritt, Hans-Gerd Lipinski, Fachhochschule Dortmund (Germany); Martin Wiemann, IBE GmbH (Germany) . . . . . .[7715-118]

Binding of cationic photosensitizers to blood proteins, Grigor V. Gyulkhandanyan, Institute of Biotechnology (Armenia); Aram G. Gyulkhandanyan, Yerevan State Univ. (Armenia); Lusine Gyulkhandanyan, Institute of Biochemistry (Armenia); Robert K. Ghazaryan, Artak G. Tovmasyan, Yerevan State Medical Univ. (Armenia); Guevork Kevorkian, Institute of Biochemistry (Armenia); Emil Gevorgyan, Yerevan State Univ. (Armenia); Sona S. Ghambaryan, Institute of Biotechnology (Armenia); Marina Sheyranyan, Yerevan State Univ. (Armenia). . . . . .[7715-119]

Selective removal of carious dentin using a nanosecond pulsed laser with a wavelength of 6.02 µm, Kunio Awazu, Katsunori Ishii, Masayuki Saiki, Osaka Univ. (Japan); Kenzo Yasuo, Kazuyo Yamamoto, Kazushi Yoshikawa, Osaka Dental Univ. Hospital (Japan). . . . . .[7715-120]

Optical tweezers and nanosecond laser surgery of yeast cells, Domna Kotsifaki, Mersini I. Makropoulou, Alexander A. Serafetinides, National Technical Univ. of Athens (Greece) . . . . . .[7715-121]

En-face OCT investigation of Er:YAG laser hard tissue preparation, Cosmin Balabuc D.D.S., Carmen Todea D.D.S., Cosmin Sinescu D.D.S., Laura Filip D.D.S., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian Bradu, Michael Hughes, Adrian G. Podoleanu, Univ. of Kent (United Kingdom) .[7715-122]

Detection of Cancer and its Severe Stage by Measuring Reduced Hemoglobin Concentration, Rajesh V. Kanawade, Alexandre Douplik, Gennadiy Sayko, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . . . . .[7715-123]

ZnO and TiO_2 particles: study on nanosafety and photoprotection, Alexey P. Popov, Univ. of Oulu (Finland) and Lomonosov Moscow State Univ (Russian Federation); Andrei V. Zvyagin, Macquarie Univ. (Australia); Juergen Lademann, Charité Universitätsmedizin Berlin (Germany); Michael S. Roberts, Washington Sanchez, The Univ. of Queensland (Australia); Alexander V. Priezzhev, Lomonosov Moscow State Univ. (Russian Federation); Risto A. Myllylä, Univ. of Oulu (Finland) . . . . . .[7715-124]

Laser Doppler flowmetry monitoring of dental pulp tissue after laser treatment, Carmen Todea D.D.S., Cosmin Balabuc D.D.S., Mariana Miron D.D.S., Dorin Dodenciu D.D.S., Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania) . . . . . .[7715-125]

Exploring red blood cell membrane dynamics with digital holographic microscopy, Daniel Boss, Jonas Kühn, Christian D. Depeursinge, Pierre P. Marquet, Pierre J. Magistretti, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7715-126]

Broadband radiometry for photodynamic therapy, Gesse E. Calvo Nogueira, José Pucci Caly, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . . . . . .[7715-127]

Histological study of interactions between PDT and CO_2 laser in rats liver tissue, Raquel F. Rego, Luis F. Tirapelli, Univ. de São Paulo (Brazil); Fernando M. Araújo-Moreira, Univ. Federal de São Carlos (Brazil); Vanderlei S. Bagnato, Univ. de São Paulo (Brazil) . . . . . .[7715-128]

Ocular microtremor measurement: non-contact optical sensor, James P. Ryle, John T. Sheridan, Univ. College Dublin (Ireland) . . . . . .[7715-129]

OCT monitoring of diffusion of water and other agents within tooth dentin, Natalia A. Trunina, Vladislav V. Lygachov, Valery V. Tuchin, N.G. Chernyshevsky Saratov State Univ. (Russian Federation) . . . . . .[7715-130]

Possibility of improvement of hemoglobin properties as biosensors' detection element, Alina S. Martirosyan, Hrachik R. Vardapetyan, Russian-Armenian (Slavonic) State Univ. (Armenia); Susanna G. Tiratsuyan, Yerevan State Univ. (Armenia); Ashkhen A. Hovhannisyan, Russian-Armenian (Slavonic) State Univ. (Armenia) . . . . . .[7715-131]

Liquid phosphorescent sensor for tissue oxygenation measurements in vivo, Alexander V. Butenin, Boris Y. Kogan, State Research Ctr. NIOPIK (Russian Federation); Natalia A. Andronova, Elena Treshchalina, N. N. Blokhin Russian Cancer Research Ctr. (Russian Federation); Eugeny A. Luk'yanets, Georgy N. Vorozhtsov, State Research Ctr. NIOPIK (Russian Federation) . . . . . .[7715-132]

FT-IR microspectroscopy characterization of supports for enzyme immobilization in biosensing applications, Marianna Portaccio, Bartolomeo Della Ventura, Seconda Univ. degli Studi di Napoli (Italy); Oliya Stoilova, Nevenka Manolova, Iliya Rashkov, Institute of Polymers (Bulgaria); Katya Gabrovska, Ivaylo Marinov, Tzonka Godjevargova, Burgas Prof. Assen Zlatarov Univ. (Bulgaria); Damiano G. Mita, Maria Lepore, Seconda Univ. degli Studi di Napoli (Italy) . . . . . .[7715-133]

Best Poster Award

The "*Journal of Biophotonics*" Poster Award will honour the best poster presentation in the field of Biophotonics.

The award is sponsored by:

WILEY-VCH

Wednesday 14 April

SESSION 6 . . . . . Wed. 08.20 to 10.20

Nano-optical Tools and Methods for Biophotonics and Biomedical Optics I

Session Chair: **Roberto Pini,**
Istituto di Fisica Applicata Nello Carrara (Italy)

Novel Multifunctional Confocal Imaging and Sensing Approaches in Biophotonics and Nanobiophotonics *(Invited Paper)*, Ilko K. Ilev, U.S. Food and Drug Administration (United States) . . . . . .[7715-22]

Green laser excited surface plasmon resonance biosensor utilizing highly sensitive phase interrogation detection, How-Foo Chen, Ya-Jung Wang, Wei-Chen Hsu, National Yang-Ming Univ. (Taiwan); Ta-Jen Yen, National Tsing Hua Univ. (Taiwan) . . . . . .[7715-23]

A cellular assay using metal-modified fluorescence lifetime analysis for high-content screening of protein internalization, Nic Cade, Gilbert O. Fruhwirth, King's College London (United Kingdom); Stephen Archibald, The Univ. of Hull (United Kingdom); Tony Ng, King's College London (United States); David R. Richards, King's College London (United Kingdom) . . . . . .[7715-24]

Optimisation of fluorescent DNA labels for two-photon microscopy, Germain Metgé, Celine Fiorini, Fabrice Charra, Commissariat à l'Énergie Atomique (France); Marie-Paule Teulade-Fichou, Guillaume Bordeau, Elodie Faurel, Institut Curie (France) . . . . . .[7715-25]

Photothermolysis of tumor with gold nanoparticles guided by optical diagnostics, Elena V. Zagainova, Marina A. Sirotkina, Marina Shirmanova, Vadim Elagin, Nizhny Novgorod State Medical Academy (Russian Federation); Mikhail Y. Kirillin, Pavel D. Agrba, Vladislav A. Kamensky, Institute of Applied Physics (Russian Federation); Victor A. Nadtochenko, N.N. Semenov Institute of Chemical Physics (Russian Federation); Sergey M. Deyev, Shemyakin and Ovchinnikov Institute of Bioorganic Chemistry (Russian Federation) . . . . . .[7715-26]

SESSION 7 . . . . . Wed. 10.50 to 13.10

Nano-optical Tools and Methods for Biophotonics and Biomedical Optics II

Session Chair: **Ilko K. Ilev,** U.S. Food and Drug Administration (USA)

In vitro and in vivo studies on laser-activated gold nanorods for applications in photothermal therapies *(Invited Paper)*, Roberto Pini, Fulvio Ratto, Paolo Matteini, Francesca Rossi, Istituto di Fisica Applicata Nello Carrara (Italy) [7715-27]

Fs laser transfection of canine hematopoietic stem cells using nanomaterials for immunological cell therapy, Markus Schomaker, Laser Zentrum Hannover e.V. (Germany); Doreen Killian, University of Rostock (Germany); Jörn Bullerdiek, Small Animal Clinic Hannover (Germany); Eric Diebold, Eric Mazur, Harvard School of Engineering and Applied Science (United States); Ingo Nolte, Hugo Murua Escobar, Small Animal Clinic Hannover (Germany); Christian Junghanss, University of Rostock (Germany); Holger Lubatschowski, Alexander Heisterkamp, Laser Zentrum Hannover e.V. (Germany) . . . . . .[7715-28]

High performance multichannel photonics biochip sensor for future point of care diagnostics: an overview on two EU sponsored projects, Domenico Giannone, Andrzej Kazmierczak, Fabian Dortu, Multitel A.S.B.L. (Belgium); Laurent Vivien, Institut d'Électronique Fondamentale (France); Hans Sohlström, Royal Institute of Technology (Sweden) . . . . . .[7715-29]

Detection of matrix metalloproteinase via porous silicon microcavity devices functionalized with human antibodies, Marta Martin, Univ. Montpellier 2 (France); Chakib Taleb Bendiab, Laurent Massif, Univ. Montpellier 1 (France); Gabriela Palestino, Univ. Autónoma de San Luis Potosi (Mexico); Vivechana Agarwal, Univ. Autónoma del Estado de Morelos (Mexico); Frédéric Cuisinier, Univ. Montpellier 1 (France); Csilla Gergely, Univ. Montpellier 2 (France) . . . . . .[7715-30]

Biomolecular detection using a metal semiconductor field effect transistor, Elias Estephan, Marie-Belle Saab, Petre Buzatu, Roger L. Aulombard, Univ. Montpellier 2 (France); Frédéric Cuisinier, Univ. Montpellier 1 (France); Csilla Gergely, Thierry Cloitre, Univ. Montpellier 2 (France) . . . . . .[7715-31]

Fabrication of three-dimensional scaffolds by direct laser writing *(Invited Paper)*, Maria Farsari, Konstantina Terzaki, Emannouil Kasotakis, Arune Gaidukeviciute, Vasileia Melissinaki, Anthi Ranella, Costas Fotakis, Maria Vamvakaki, Foundation for Research and Technology-Hellas (Greece); Anna Mitraki, Univ. of Crete (Greece) . . . . . .[7715-32]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50 hrs

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by:

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany

Ursula Keller, ETH Zurich, Switzerland

Mike Dunne, Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 8 . . . . . Thurs. 08.00 to 10.00

Spectroscopic and Microscopic Methods I

Session Chair: **Lev T. Perelman,** Harvard Medical School (USA)

Diffuse optical spectroscopy for biomedical diagnostics and treatment control *(Invited Paper)*, Stefan Andersson-Engels, Johan Axelsson, Lund University (Sweden); Johannes Swartling, SpectraCure AB (Sweden); Katarina Svanberg, Lund University (Sweden) . . . . . .[7715-33]

Diffuse reflectance measurement tool for laparoscopic surgery, Mario E. Giardini, Annett B. Klemm, Andrea Di Falco, Thomas F. Krauss, Univ. of St. Andrews (United Kingdom) . . . . . .[7715-34]

A Raman spectroscopic approach for the culture-free identification of bacteria *(Invited Paper)*, Petra Rösch, Susann Meisel, Stephan Stöckel, Anja Bossecker, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7715-35]

Monitoring intra-cellular lipid metabolism in macrophages by Raman- and CARS-microscopic imaging *(Invited Paper)*, Christian Matthäus, Gero Bergner, Christoph Krafft, Institute of Photonic Technology Jena e.V. (Germany); Benjamin Dietzek, Institute of Photonic Technology Jena e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany); Stefan Lorkowski, Friedrich-Schiller-Univ. Jena (Germany); Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7715-36]

SESSION 9 . . . . . Thurs. 10.40 to 12.50

Spectroscopic and Microscopic Methods II

Session Chair: **Stefan Andersson-Engels,** Lund Univ. (Sweden)

Detecting early cancer with scattered light *(Invited Paper)*, Lev T. Perelman, Le Qiu, Ram Chuttani, Douglas Pleskow, Edward Vitkin, Jan Leyden, Nuri Ozden, Sara Itani, Alana Sacks, Jeffrey Goldsmith, Mark D. Modell, Eugene B. Hanlon, Irving Itzkan, Harvard Medical School (United States) . . . . . .[7715-37]

Tip-enhanced and surface-enhanced Raman spectroscopy of biological molecules on structured metallic surfaces, Dai Zhang, L. E. Hennemann, Eberhard Karls Univ. Tübingen (Germany); D. Benner, Univ. Konstanz (Germany); Alfred J. Meixner, Eberhard Karls Univ. Tübingen (Germany). . . . . .[7715-38]

A microfluidic platform for chip-based DNA detection using SERS and silver colloids, Karina Weber, Katharina K. Strelau, Werner Uhlemann, Robert Möller, Friedrich-Schiller-Univ. Jena (Germany); Wolfgang Fritzsche, Institute of Photonic Technology Jena e.V. (Germany); Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) and Friedrich-Schiller-Univ. Jena (Germany). . . . . .[7715-39]

Monitoring Collagene Structures in Basal Cell Carcinoma Using Muldimodal Imaging, Nadine Vogler, Tobias Meyer, Christoph Krafft, Institute of Photonic Technology Jena e.V. (Germany); Katarina Svanberg, Department of Oncoloy, Lund University Hospital (Sweden); Niels Bendsøe, Department of Dermatology, Lund University Hospital (Sweden); Benjamin Dietzek, Jürgen Popp, Institute of Photonic Technology Jena e.V. (Germany) . . . . . .[7715-40]

Differentiation among human colonic tissues using FTIR spectra and advanced statistical techniques, Shaul Mordechai, Ben-Gurion Univ. of the Negev (Israel). . . . . .[7715-41]

TBA, , ...[7715-135]

Lunch Break . . . . . .12.50 to 13.50

SESSION 10 . . . . . Thurs. 13.50 to 15.10

Spectroscopic and Microscopic Methods III

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

Morphological differences between normal and cancerous mammalian cells via multitechnique microscopic studies, Marie-Belle Saab, Elias Estephan, Marta Martin, Thierry Cloitre, Univ. Montpellier 2 (France); Nicole Bec, Christian Larroque, Institut de Recherche en Cancérologie de Montpellier (France); Frédéric Cuisinier, Univ. Montpellier 1 (France); Csilla Gergely, Univ. Montpellier 2 (France) . . . . . .[7715-42]

Spectral confocal scanning laser ophthalmoscope for the retinal perfusion imaging, Seyed Hossein Rasta, Tabriz Univ. of Medical Sciences (Iran, Islamic Republic of) and Univ. of Aberdeen (United Kingdom); Peter F. Sharp, A. Manivannan, Univ. of Aberdeen (United Kingdom) . . . . . .[7715-43]

Optical tomography using digital holographic microscopy and object rotation, Isabelle Bergoënd, Nicolas Pavillon, Jérôme Parent, Christian D. Depeursinge, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7715-44]

Automated ensemble segmentation of epithelial proliferation, necrosis and fibrosis using scatter tumor imaging, Pilar Beatriz Garcia-Allende, Olga M. Conde, Univ. de Cantabria (Spain); Venkataramanan Krishnaswamy, Dartmouth College (United States); Brian W. Pogue, Dartmouth Hitchcock Medical Ctr. (United States); Jesus M. Mirapeix, José M. López-Higuera, Univ. de Cantabria (Spain) . . . . . .[7715-45]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

Friday 16 April

SESSION 11 . . . . . Fri. 08.40 to 10.00

Fiber and Photonic Crystal Biomedical Technologies

Session Chair: **Iulian G. Ionita,** Univ. of Bucharest (Romania)

Aptamer-based surface plasmon sensor for thrombin detection, Thomas D. P. Allsop, David Nagel, Aston Univ. (United Kingdom); Ron Neal, Univ. of Plymouth (United Kingdom); Edward M. Davies, Aston Univ. (United States); Chengbo Mou, Aston Univ. (United Kingdom); Peter Bond, Univ. of Plymouth (United Kingdom); Saeed Rehman, STR Fiber Technologies (United Kingdom); Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus); David J. Webb, Aston Univ. (United Kingdom); Phil Calverhouse, Univ. of Plymouth (United Kingdom); Anna Hine, Aston Univ. (United Kingdom); Marco Mascini, Univ. degli Studi di Firenze (Italy); Ian Bennion, Aston Univ. (United Kingdom) . . . . . .[7715-46]

OFSETH: optical technologies embedded in smart medical textile for continuous monitoring of respiratory motions under magnetic resonance imaging, François Narbonneau, Multitel A.S.B.L. (Belgium); Julien De Jonckheere, Mathieu Jeanne, Régis Logier, Ctr. Hospitalier Regional Univ. de Lille (France); Damien P. Kinet, Multitel A.S.B.L. (Belgium) and Univ. de Mons-Hainaut (Belgium); Fabian Dortu, Multitel A.S.B.L. (Belgium); Jens Witt, Katerina Krebber, Bundesanstalt für Materialforschung und -prüfung (Germany); Bernard Paquet, Centexbel (Belgium); Annick Depré, Elasta NV (Belgium). . . . . .[7715-47]

DNA-recognition by peptide nucleic acid-modified PCFs: from models to real samples, Stefano Selleri, Enrico Coscelli, Federica Poli, Davide Passaro, Annamaria Cucinotta, Roberto Corradini, Rosangela Marchelli, Univ. degli Studi di Parma (Italy). . . . . .[7715-48]

Laser two-photon polymerization micro- and nanostructuring over a large area on various substrates, Mangirdas Malinauskas, Vytautas Purlys, Albertas Zukauskas, Marius Rutkauskas, Gabija Bickauskaite, Domas Paipulas, Paulius Danilevicius, Vladimir Chorosajev, Vilnius Univ. (Lithuania); Daiva Baltriukiene, Virginija Bukelskiene, Biochemijos Institutas (Lithuania); Roaldas Gadonas, Algis S. Piskarskas, Vilnius Univ. (Lithuania) . . . . . .[7715-49]

SESSION 12 . . . . . Fri. 10.40 to 11.20

Biochips

Session Chair: **Gert von Bally,**
Westfälische Wilhelms-Univ. Münster (Germany)

Study and manufacturing of an APD arrays polarized in Geiger-mode for application in radiology for detection of cancer cells, Khalil Jradi, Arnaud Le Padellec, Ali Yalaoui, Ctr. d'Etude Spatiale des Rayonnements (France); Daniel Esteve, Lab. d'Analyse et d'Architecture des Systèmes (France); Olivier Caselles, Institut Claudius Regaud (France); Dominique Toublanc, Robert Bazer-Bachi, Ctr. d'Etude Spatiale des Rayonnements (France) . . . . . .[7715-50]

Highly integrated biophotonics towards all-organic lab-on-chip systems, Christoph Vannahme, Institut für Mikrostrukturtechnik, Karlsruhe Institute of Technology (Germany) and Lichttechnisches Institut, Karlsruhe Institute of Technology (Germany); Sönke Klinkhammer, Lichttechnisches Institut, Karlsruhe Institute of Technology (Germany) and Institut für Mikrostrukturtechnik, Karlsruhe Institute of Technology (Germany); Falko Brinkmann, Physikalisches Institut, Westfälische Wilhelms-Universität Münster (Germany) and Institut für Nanotechnologie, Karlsruhe Institute of Technology (Germany); Steven Lenhert, Department of Biological Science and Integrative NanoScience Institute, Florida State University (United States); Uli Lemmer, Lichttechnisches Institut, Karlsruhe Institute of Technology (Germany); Timo Mappes, Institut für Mikrostrukturtechnik, Karlsruhe Institute of Technology (Germany) . . . . . .[7715-51]

SESSION 13 . . . . . Fri. 11.20 to 12.00

Blood Oxygenation

Session Chair: **Gert von Bally,** Westfälische Wilhelms-Univ. Münster (Germany)

Concentrations of hemoglobin fractions calculation using modified Lambert-beer law and solving of an ill-posed system of equations, Omar Abdallah, Mohammed Natsheh, Kawther Abo Alam, Qasem Qananwah, Ahmed Al Nabulsi, Armin Bolz, Karlsruhe Institute of Technology (Germany). . . . . .[7715-52]

Improvement of measurement accuracy for quantitative analysis of blood contents with near-infrared spectroscopy, Yunhan Luo, Jinan Univ. (China) . . . . . .[7715-53]

Lunch Break . . . . . 12.00 to 13.20

SESSION 14 . . . . . Fri. 13.20 to 15.00

PDT

Session Chair: **Katarina Svanberg,** Lund Univ. Hospital (Sweden)

Autofluorescence of pigmented skin lesions using a pulsed UV laser with synchronized detection: clinical results, Haynes P. Cheng, Technical Univ. of Denmark (Denmark); Pontus Svenmarker, Haiyan Xie, Lund Univ. Hospital (Sweden); Peter Tidemand-Lichtenberg, Ole B. Jensen, Technical Univ. of Denmark (Denmark); Niels Bendsoe, Katarina Svanberg M.D., Lund Univ. Hospital (Sweden); Paul M. Petersen, Christian Pedersen, Technical Univ. of Denmark (Denmark); Stefan Andersson-Engels, Lund Univ. (Sweden); Peter E. Andersen, Technical Univ. of Denmark (Denmark). . . . . .[7715-54]

Assessment of photodynamic damage on escherichia coli via atomic force microscopy, Silvia C. Nunez, Martha Simões Ribeiro, Aguinaldo Silva Garcez, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Walter Miyakawa, Ctr. Técnico Aeroespacial (Brazil) . . . . . .[7715-55]

Protoporphyrin IX for photodynamic therapy of brain tumours, Ann Johansson, Jochen Herms, Ludwig-Maximilians-Univ. München (Germany); Walter Stummer, Universitätsklinikum Münster (Germany); Oliver Schnell, Univ. Clinic Munich (Germany); Gesa Palte, Ludwig-Maximilians-Univ. München (Germany); Ardevan Ardeshiri, Univ. Clinic Munich (Germany); Wolfgang Beyer, Herbert G. Stepp, Ludwig-Maximilians-Univ. München (Germany); Friedrich-Wilhelm Kreth, Univ. Clinic Munich (Germany) . . . . . .[7715-56]

Photodynamic therapy on bladder cancer cells: further studies on the performance of Coimbra sensitizers, Antonio A. Rocha Gonsalves, Arménio C. Serra, Marta G. Pineiro, Maria Filomena Botelho, Univ. de Coimbra (Portugal) . . . . . .[7715-57]

Light attenuation in rat skin following low level laser therapy on burn healing, Martha Simões Ribeiro, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Daniela F. Teixeira Silva, Univ. Nove de Julho (Brazil) . . . . . .[7715-58]

SESSION 15 . . . . . Fri. 15.40 to 16.20

Environmental Biophotonics

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

The use of elastic light scattering in pollen characterization and identification, Mario Surbek, Cemal Esen, Gustav Schweiger, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany) . . . . . .[7715-59]

Professional and household dosimeters for UV and visible biologically active ranges of solar radiation on the basis of ZnSe 'semiconductor-metal' nanostructures, Oleksandr D. Opolonin, Institute for Single Crystals (Ukraine); Volodymyr D. Ryzhikov, Sr., Institute for Scintillation Materials (Russian Federation); Gennady M. Onishchenko, Sr., Institute for Scintillation Materials (Ukraine); Craig F. Smith, Sr., Lawrence Livermore National Lab. (United States); Olena K. Lysetska, Sr., Institute for Scintillation Materials (Ukraine); Igor M. Zenya, Sr., Alexei V. Volkov, Institute for Scintillation Materials (Russian Federation) . . . . . .[7715-134]

SESSION 16 . . . . . Fri. 16.20 to 17.40

Dental Biophotonics

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

Effect of photodynamic antimicrobial therapy on induced-dental caries in vivo, Alessandra Baptista, Renato A. Prates, Ilka T. Kato, Marcello M. Amaral, Anderson Zanardi de Freitas, Martha S. Ribeiro, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . . . . . .[7715-60]

Teeth material ablation by femtosecond laser, Iulian G. Ionita, Univ. of Bucharest (Romania); Balazs Rozsa, Femtonics Ltd. (Hungary). . . . . .[7715-61]

Imagistic investigations of endodontically treated human teeth, Meda L. Negrutiu, Cosmin Sinescu, Florin I. Topala, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Ciprian N. Ionita, Univ. at Buffalo (United States); Luminita Nica, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian Bradu, George M. Dobre, Univ. of Kent (United Kingdom); Mihai Rominu, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian G. Podoleanu, Univ. of Kent (United Kingdom) . . . . . .[7715-62]

OCT investigation of ceramic veneered fixed partial prostheses, Cosmin Sinescu, Meda L. Negrutiu, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Ciprian N. Ionita, Univ. at Buffalo (United States); Florin I. Topala, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian Bradu, George M. Dobre, Univ. of Kent (United Kingdom); Roxana O. Rominu, Daniela M. Pop, Emanuela L. Petrescu, Mihai Rominu, Univ. de Medicina si Farmacie Victor Babes, Timisoara (Romania); Adrian G. Podoleanu, Univ. of Kent (United Kingdom) . . . . . .[7715-63]

Micro-Optics

Conference Chairs: **Hugo Thienpont,** Vrije Univ. Brussel (Belgium); **Peter Van Daele,** Univ. Gent (Belgium); **Jürgen Mohr,** Forschungszentrum Karlsruhe GmbH (Germany); **Hans Zappe,** Univ. Freiburg (Germany)

Programme Committee: **Véronique Bardinal,** Lab. d'Analyse et d'Architecture des Systèmes (France); **Francis Berghmans,** Vrije Univ. Brussel (Belgium); **Pierre H. Chavel,** Lab. Charles Fabry (France); **Allen M. Earman,** Arasor (USA); **Pietro Ferraro,** Istituto Nazionale di Ottica Applicata (Italy); **Dietmar Fey,** Friedrich-Schiller-Univ. Jena (Germany); **Michael A. Fiddy,** The Univ. of North Carolina at Charlotte (USA); **Eric Fogarassy,** Institut d'Optique Graduate School (France); **Alexei L. Glebov,** OptiGrate Corp. (USA); **Jurgen Jahns,** FernUniv. in Hagen (Germany); **Pentti Karioja,** VTT Elektroniikka (Finland); **Bernard C. Kress,** USI Photonics Inc (USA); **El-Hang Lee,** Inha Univ. (Korea, Republic of); **Marc J. Madou,** Univ. of California, Irvine (USA); **Olivier M. Parriaux,** Univ. Jean Monnet Saint-Etienne (France); **Oltmann Riemer,** Univ. Bremen (Germany); **Ion G. Stiharu,** Concordia Univ. (Canada); **Henne van Heeren,** EnablingM3 (Netherlands); **Geert Van Steenberge,** Univ. Gent (Belgium)

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

SESSION 1 . . . . . Mon. 13.00 to 15.05

Micro-optics Fabrication Technologies I

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

Diamond machining of micro-optical components and structures *(Invited Paper)*, R. Gläbe, Transregional Collaborative Research Ctr. (Germany) . .[7716-01]

Laser-based methods for the high-precision machining of polymeric materials and surfaces *(Invited Paper)*, Ulrich Klug, Laser Zentrum Hannover e.V. (Germany) . . . . . .[7716-02]

Replication of optical components by hot embossing *(Invited Paper)*, M. Worgull, Karlsruhe Institute of Technology (Germany) . . . . . .[7716-03]

Injection molding of high-volume micro-optics *(Invited Paper)*, Rien de Schipper, Penta HT Optics (Netherlands) . . . . . .[7716-04]

Mechanical processes for micro-optics *(Invited Paper)*, Fengzhou Fang, Harbin Institute of Technology (China) . . . . . .[7716-05]

SESSION 2 . . . . . Mon. 15.40 to 17.50

Polymer Microlenses

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

Polymer microlenses (TBD) *(Invited Paper)*, Véronique Bardinal, Benjamin Reig, Thierry Camps, Emmanuelle Daran, Jean-Baptiste Doucet, Lab. d'Analyse et d'Architecture des Systèmes (France); Colette Turck, Jean-Pierre Malval, Daniel J. Lougnot, Olivier Soppera, Univ. de Haute Alsace (France) . . . . . .[7716-06]

Fabrication of microlenses and optical waveguides by self-guiding photopolymerization *(Invited Paper)*, Olivier Soppera, Univ. de Haute Alsace (France); Safi Jradi, Ecole Nationale Supérieure de Chimie de Mulhouse (France); Daniel J. Lougnot, Univ. de Haute Alsace (France) . . . . . .[7716-07]

Integration of optical elements onto optoelectronic components operating at non-visible wavelengths, Qin Wang, Zhenzhong Zhang, Acreo AB (Sweden); Xingang Yu, Zhongjie Huo, Royal Institute of Technology (Sweden); Susanne Almqvist, Acreo AB (Sweden); Mattias Hammar, Royal Institute of Technology (Sweden); Jan Y. Andersson, Acreo AB (Sweden) . . . . . .[7716-08]

Microlenses fabricated by two-photon polymerization technique, Mangirdas Malinauskas, Vilnius Univ. (Lithuania); Holger Gilbergs, Univ. Stuttgart (Germany); Albertas Zukauskas, Vytautas Purlys, Marius Rutkauskas, Kastytis Belazaras, Domas Paipulas, Roaldas Gadonas, Algis S. Piskarskas, Vilnius Univ. (Lithuania) . . . . . .[7716-09]

Nano-optics of nanolens *(Invited Paper)*, Kwang S. Kim, Pohang Univ. of Science & Technology (Korea, Republic of) . . . . . .[7716-10]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.00 to 10.30

Tunable Micro-optical Components

Session Chair: **Véronique Bardinal,**
Lab. d'Analyse et d'Architecture des Systèmes (France)

Tuneable liquid microlenses onto a functionalized polar dielectric substrates: formation and characterization. *(Invited Paper)*, Pietro Ferraro, Istituto di Cibernetica Eduardo Caianiello (Italy); Simonetta Grilli, Melania Paturzo, Lisa Miccio, Andrea Finizio, Veronica Vespini, CNR INOA (Italy) . . . . . .[7716-11]

Liquid crystal polymers and tunable lenses *(Invited Paper)*, Tigran V. Galstian, Univ. Laval (Canada) . . . . . .[7716-12]

Membrane-based, aberration-corrected tunable micro-lenses, Philipp Waibel, Eugen Ermantraut, Daniel Mader, Andreas Seifert, Hans Zappe, Albert-Ludwigs-Univ. Freiburg (Germany) . . . . . .[7716-13]

Tunable diffractive optical elements on various electro active polymers, Sebastian Döring, Fraunhofer-Institut für Angewandte Polymerforschung (Germany); Matthias Kollosche, Univ. Potsdam (Germany); Niko Hildebrandt, Joachim Stumpe, Fraunhofer-Institut für Angewandte Polymerforschung (Germany); Guggi Kofod, Univ. Potsdam (Germany) . . . . . .[7716-14]

Fast reconfigurable liquid optical interface, Carl V. Brown, Gary G. Wells, Wamid Al-Shabib, Glen McHale, Michael I. Newton, Nottingham Trent Univ. (United Kingdom). . . . . .[7716-15]

A benchmark analysis of tunable liquid lenses and lens arrays *(Invited Paper)*, Heidi Ottevaere, Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . .[7716-16]

SESSION 4 . . . . . Tues. 11.00 to 12.50

Microlenses and Microcameras

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

Liquid lens enabling real-time focus and tilt compensation for optical image stabilization in camera modules *(Invited Paper)*, Bruno Berge, Varioptic SA (France) . . . . . .[7716-17]

Driving microoptical imaging systems towards miniature camera applications, Andreas Brückner, Jacques Duparré, Robert Leitel, Peter Dannberg, Andreas H. Bräuer, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) . . . . . .[7716-18]

Tunable compound eye cameras, Daniel Pätz, Stefan Sinzinger, Stefan Hampl, Steffen Leopold, Martin Hoffmann, Technische Univ. Ilmenau (Germany); Fabian Knöbber, Oliver Ambacher, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany) . . . . . .[7716-19]

A wafer-level camera approach based on the Gabor superlens, Robert Leitel, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Klemens Stollberg, ESG Elektroniksystem- und Logistik-GmbH (Germany); Andreas Brückner, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Jacques W. Duparré, Pelican Imaging Corp. (United States); Peter Dannberg, Andreas H. Bräuer, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) . . . . . .[7716-20]

Low cost video endoscopes with simplified integration, Frank C. Wippermann, Erik Beckert, Peter Dannberg, Ramona Eberhardt, Andreas H. Bräuer, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Bernhard Messerschmidt, Grintech GmbH (Germany) . . . . . .[7716-21]

Lunch Break . . . . . .12.50 to 14.00

SESSION 5 . . . . . Tues. 14.00 to 15.30

Micro-Optics, Optical Spectra, and Pulses

Session Chair: **Bernard C. Kress,** USI Photonics Inc. (USA)

Microcameras and microspectrometer designs *(Invited Paper)*, Nicolas Guérineau, ONERA (France) . . . . . .[7716-22]

Volume Bragg Gratings - ultra narrow band optical filters for optoelectronic and analytical applications *(Invited Paper)*, Alexei L. Glebov, Vadim Smirnov, Leonid B. Glebov, OptiGrate Corp. (United States) . . . . . .[7716-23]

Programmable microoptics for ultrashort pulses *(Invited Paper)*, Rüdiger Grunwald, Martin Bock, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) . . . . . .[7716-24]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

Wednesday 14 April

SESSION 6 . . . . . Wed. 08.00 to 10.20

Micro-optics in Biochips and Microfluidics

Session Chair: **Pierre H. Chavel,** Lab. Charles Fabry (France)

Nanoimprinted polymer photonic crystal dye lasers *(Invited Paper)*, Anders Kristensen, Mads B. Christiansen, Cameron L. C. Smith, Thomas Buss, Sanshui Xiao, Niels A. Mortensen, Technical Univ. of Denmark (Denmark) . . . . . .[7716-25]

Fully integrated photonic lab-on-chip systems for biomedical applications *(Invited Paper)*, Timo Mappes, Christoph Vannahme, Karlsruhe Institute of Technology (Germany); Sönke Klinkhammer, Karlsruhe Institute of Technology (Germany) and Center for Functional Nanostructures (CFN) (Germany); Uwe Bog, Mauno Schelb, Tobias Grossmann, Jürgen Mohr, Karlsruhe Institute of Technology (Germany); Heinz Kalt, Uli Lemmer, Karlsruhe Institute of Technology (Germany) and Center for Functional Nanostructures (CFN) (Germany) . . . . . .[7716-26]

Integrated freespace optical fluorescence detector for micro fluidic applications, Martin Amberg, Sebastian Stoebenau, Stefan Sinzinger, Technische Univ. Ilmenau (Germany) . . . . . .[7716-27]

Highly integrated optical microsystem for particle concentration measurement, Meike Hofmann, Xuan Ma, Jan Schneider, Stefan Sinzinger, Technische Univ. Ilmenau (Germany) . . . . . .[7716-28]

Plastic light coupler for absorbance detection in silicon microfluidic devices, Sara Van Overmeire, Heidi Ottevaere, Vrije Univ. Brussel (Belgium); Jorge Albero, Univ. de Franche-Comté (France); Lukasz Nieradko, Univ. de Franche-Comté (France) and Wroclaw Academic Hub (Poland); Gert Desmet, Vrije Univ. Brussel (Belgium); Christophe Gorecki, Univ. de Franche-Comté (France); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7716-29]

Single cell electroporation using proton beam fabricated biochips, Sureerat Homhuan, Binbin Zhang, Fwu-Shan Sheu, Andrew A. Bettiol, Frank Watt, National Univ. of Singapore (Singapore) . . . . . .[7716-30]

SESSION 7 . . . . . Wed. 11.00 to 12.40

Micro-optics Fabrication Technologies II

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

Deep proton writing: a powerful rapid prototyping technology for various micro-optical components, Jurgen Van Erps, Michael Vervaeke, Christof Debaes, Heidi Ottevaere, Sara Van Overmeire, Alex Hermanne, Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . .[7716-32]

Nanoimprint lithography for solar cell texturisation, Hubert Hauser, Pauline Berger, Fraunhofer-Institut für Solare Energiesysteme (Germany); Claas Müller, Albert-Ludwigs-Univ. Freiburg (Germany); Martin Hermle, Benedikt Bläsi, Fraunhofer-Institut für Solare Energiesysteme (Germany) . . . . . .[7716-33]

Half-tone proximity lithography, Torsten Harzendorf, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Lorenz Stürzebecher, Fraunhofer Institut für Angewandte Optik und Feinmechanik (Germany); Uwe Vogler, SUSS MicroOptics SA (Switzerland); Uwe D. Zeitner, Fraunhofer Institut für Angewandte Optik und Feinmechanik (Germany); Reinhard Völkel, SUSS MicroOptics SA (Switzerland) . . . . . .[7716-34]

Advances in lithography on non-planar surfaces, Daniela Radtke, Marko Stumpf, Uwe D. Zeitner, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany). . . . . .[7716-35]

Active modular microsystems based on Mach-Zehnder interferometers, Sven Schule, Stefan Hengsbach, Uwe Hollenbach, Forschungszentrum Karlsruhe GmbH (Germany); Jingshi Li, Juerg Leuthold, Karlsruhe Institute of Technology (Germany); Jürgen Mohr D.D.S., Forschungszentrum Karlsruhe GmbH (Germany) . . .[7716-36]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50 hrs

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by:

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany

Ursula Keller, ETH Zurich, Switzerland

Mike Dunne, Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 8 . . . . . Thurs. 08.30 to 10.10

Micro-Optics in Industry

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

Micro Spectral Sensors: Concepts, Efficiency and Manufacturing *(Invited Paper)*, Robert Brunner, University of Applied Science Jena (Germany) and Carl Zeiss Jena GmbH (Germany); Matthias Burkhardt, Oliver Sandfuchs, Reinhard Steiner, Carl-Zeiss-Jena GmbH (Germany). . . . . .[7716-37]

Potential appications of micro-optic technology for next generation fiber optic connectivity solutions exploitable in access networks *(Invited Paper)*, Jan Watté, Tyco Electronics Corp. (Belgium) . . . . . .[7716-38]

Micro-optics challenges in the automotive *(Invited Paper)*, Piet De Pauw, Melexis N.V. (Belgium). . . . . .[7716-39]

WaferOptics®technology based mass volume production *(Invited Paper)*, Edwin Wolterink, Anteryon B.V. (Netherlands) . . . . . .[7716-40]

SESSION 9 . . . . . Thurs. 10.50 to 12.50

Micro-optics in Projectors and Displays

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

Shaping light with diffusers based on a multi-channel concept, Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany); Christian Hellmann, LightTrans GmbH (Germany). . . . . .[7716-41]

Micro-optical beam-shaper for tailoring light emission from OLEDs, Michael Flämmich, Dirk Michaelis, Norbert Danz, Christoph A. Wächter, Peter Dannberg, Andreas H. Bräuer, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) . . . . . .[7716-42]

Chirped lens-array LED spot-array generator with individually coloured spots, Peter Schreiber, Peter Dannberg, Frank C. Wippermann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany). . . . . .[7716-43]

Projection screen with microlenses for multiview displays: design, prototyping and characterization, Lawrence Bogaert, Vrije Univ. Brussel (Belgium); Aykut Avci, Univ. Gent (Belgium); Youri Meuret, Stijn Roelandt, Vrije Univ. Brussel (Belgium); Herbert De Smet, Univ. Gent (Belgium) and IMEC (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . .[7716-44]

Development and characterisation of a miniaturized laser projection display based on MEMS-scanning-mirrors, Andreas Heger, Peter Schreiber, Bernd Höfer, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) . . . . . .[7716-45]

Ultra-slim array projector, Marcel Sieler, Peter Schreiber, Peter Dannberg, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany). .[7716-46]

Lunch Break . . . . . .12.50 to 14.00

SESSION 10 . . . . . Thurs. 14.00 to 15.00

X-ray Micro Optics

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

Refractive X-ray optics made from polymer microstructures *(Invited Paper)*, Markus Simon, Forschungszentrum Karlsruhe GmbH (Germany); Vladimir P. Nazmov, Elena F. Reznikova, Arndt Last, Karlsruhe Institute of Technology (Germany); Jürgen Mohr D.D.S., Volker Saile, Forschungszentrum Karlsruhe GmbH (Germany) . . . . . .[7716-47]

Applications of micro-structured gratings in advanced X-ray imaging *(Invited Paper)*, Martin Bech, Copenhagen Univ. (Denmark) . . . . . .[7716-48]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Ultralow threshold green lasing and optical bistability in ZBNA microspheres, Yuqiang Wu, Univ. College Cork (Ireland) and Tyndall National Institute (Ireland); Jonathan M. Ward, Tyndall National Institute (Ireland); Síle G. Nic Chormaic, Univ. College Cork (Ireland) and Tyndall National Institute (Ireland) . . . . . .[7716-59]

Realistic opto-mechanical simulation and tolerancing of an automotive optical transmitter coupling system, Michael Vervaeke, Els Moens, Youri Meuret, Heidi Ottevaere, Vrije Univ. Brussel (Belgium); Carl Van Buggenhout, Piet De Pauw, Melexis Ieper N.V. (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7716-60]

Design and fabrication of embedded micro-mirror inserts for out-of-plane coupling in PCB-level optical interconnections, Jurgen Van Erps, Vrije Univ. Brussel (Belgium); Nina Hendrickx, Erwin Bosman, Peter Van Daele, Univ. Gent (Belgium); Christof Debaes, Hugo Thienpont, Vrije Univ. Brussel (Belgium)[7716-61]

Quasi-optical technique for sensing bond quality of silicon wafer, Amna Elhawil, Vrije Univ. Brussel (Belgium); Isabelle Huynen, Jean-Pierre Raskin, César Roda Neve, Benoît Olbrechts, Univ. Catholique de Louvain (Belgium); Johan H. Stiens, Roger A. Vounckx, Vrije Univ. Brussel (Belgium) . . . . . .[7716-62]

Investigation of optical properties of Ag: PMMA nanocomposite structures, Sigita Ponelyte, Arvydas Palevicius, Asta Guobiene, Igoris Prosycevas, Judita Puiso, Kaunas Univ. of Technology (Lithuania) . . . . . .[7716-63]

Ink-jet process for creating fluorescent microdroplet, Mitsunori Saito, Kentaro Koyama, Ryukoku Univ. (Japan) . . . . . .[7716-64]

Novel digital diffractive tags integrating anti-counterfeiting, tamper-evident and high density WORM data storage features, Bernard C. Kress, USI Photonics Inc. (United States); Enrick Boisdur, Horus Microsystems (France) . . . . . .[7716-65]

All-optical fabrication of 2D and 3D photonic micro-structures in polymeric materials, Yuri Gritsai, Leonid M. Goldenberg, Olga Kulikovska, Oksana V. Sakhno, Joachim Stumpe, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) . . . . . .[7716-66]

Level set method for micro-fabrication simulations, Maciej Baranski, Rafal A. Kasztelanic, Univ. of Warsaw (Poland) . . . . . .[7716-67]

Preparation and characterization of optical microspheres for refractive-index sensing, Filip Todorov, Institute of Photonics and Electronics ASCR, v.v.i. (Czech Republic); Michal Jelínek, Czech Technical Univ. in Prague (Czech Republic); Vlastimil Matejec, Miroslav Chomát, Institute of Photonics and Electronics ASCR, v.v.i. (Czech Republic); Václav Kubecek, Czech Technical Univ. in Prague (Czech Republic); Daniela Berková, Institute of Photonics and Electronics ASCR, v.v.i. (Czech Republic); Radek Sedlár, Czech Technical Univ. in Prague (Czech Republic) . . . . . .[7716-68]

Group velocity control in multiple-beam and Mach-Zehnder interferometers, María del Mar Sánchez-López, Aida Sánchez-Meroño, Julia Arias, Ignacio Moreno, Univ. Miguel Hernández de Elche (Spain) . . . . . .[7716-69]

Fabrication and characterization of high-Q conical polymeric microcavities, Mario Hauser, Tobias Grossmann, Simone Schleede, Julian Fischer, Torsten Beck, Christoph Vannahme, Timo Mappes, Heinz Kalt, Karlsruhe Institute of Technology (Germany) . . . . . .[7716-70]

Towards active collimation for VCSELs, Benjamin Reig, Thierry Camps, Jean-Baptiste Doucet, Emmanuel Daran, Corinne Vergnenègre, Véronique Bardinal, Lab. d'Analyse et d'Architecture des Systèmes (France) . . . . . .[7716-71]

Integrated glass lenses fabrication for parallel interferometric inspection systems of MEMS and MOEMS, Jorge Albero, Sylwester Bargiel, Christophe Gorecki, Univ. de Franche-Comté (France) . . . . . .[7716-72]

Ultra-low threshold lasing in silica whispering-gallery-mode microcavities coated with Nd_{3+}:Gd_2O_3 nanocrystals, Guoping Lin, Ecole Normale Supérieure (France) and Xiamen Univ. (China); Olivier Tillement, Univ. Claude Bernard Lyon 1 (France); Yves Candela, Ecole Normale Supérieure (France); Zhiping Cai, Xiamen Univ. (China); Valérie Lefèvre-Seguin, Jean Hare, Ecole Normale Supérieure (France) . . . . . .[7716-73]

A silicon MEMS platform for fine-positioning and locking of optical ball-lens in silicon photonics packaging, Qing Xin Zhang, A*STAR Institute of Microelectronics (Singapore) . . . . . .[7716-74]

Generation of optofluidic microchannels in ice, Suman Anand, A. Engelbrecht, David McGloin, Univ. of Dundee (United Kingdom) . . . . . .[7716-75]

A modified dynamical model of drying process of a polymer solution having plural solvents coated on a flat substrate for a flat and homogeneous polymer film fabrication, Hiroyuki Kagami, Nagoya College (Japan) . . . . . .[7716-76]

Fabrication of sub-micron sized spherical lenses by controlled dewetting of the polymer thin-films, Ankur Verma, Ashutosh Sharma, Indian Institute of Technology Kanpur (India) . . . . . .[7716-77]

Mode division multiplex communication technique based on dynamic volume hologram and phase conjugation, Atsushi Okamoto, Kazuyuki Morita, Yuta Wakayama, Junya Tanaka, Hokkaido Univ. (Japan); Kunihiro Sato, Hokkai-Gakuen Univ. (Japan) . . . . . .[7716-78]

Design and fabrication of large area diffractive attenuators for high power lasers, Victor P. Korolkov, Alexander G. Poleshchuk, Institute of Automation and Electrometry (Russian Federation); Ivan V. Shchesyuk, Novosibirsk State Univ. (Russian Federation); Ruslan K. Nasyrov, Institute of Automation and Electrometry (Russian Federation) . . . . . .[7716-79]

Fabrication of complex 3D photonic structures by laser lithography and nanoimprint lithography, Volker Schmidt, Heinz Pichler, Valentin Satzinger, Maria R. Belegratis, JOANNEUM RESEARCH Forschungsgesellschaft GmbH (Austria); Joachim R. Krenn, Karl-Franzens-Univ. Graz (Austria) and JOANNEUM RESEARCH Forschungsgesellschaft mbH (Austria) . . . . . .[7716-80]

Power efficient optical data communication module packaging for optical networks using thin glass substrates, Henning Schröder, Lars Brusberg, Lutz Stobbe, Tolga Tekin, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (Germany) . . . . . .[7716-81]

Biophotonic fluorescence excitation with integrated polymer waveguides, Timo Mappes, Mauno Schelb, Christoph Vannahme, Karlsruhe Institute of Technology (Germany); Steven Lenhert, Karlsruhe Institute of Technology (Germany) and Florida State Univ. (United States); Benjamin Ross, Alexander Welle, Karlsruhe Institute of Technology (Germany) . . . . . .[7716-82]

Tunable solid-body elastomeric lenses, Peter Liebetraut, Sebastian Petsch, Patrick Bollgrün, Hans Zappe, Wolfgang Mönch, Albert-Ludwigs-Univ. Freiburg (Germany) . . . . . .[7716-83]

Compact optoelectronics oscillators using WGM modes on fused silica and MgF_2 mini-disks resonators, Patrice Salzenstein, Kirill Volyanskiy, Enrico Rubiola, Laurent Larger, Ctr. National de la Recherche Scientifique (France) . . . . . .[7716-84]

An insect eye based image sensor with very large field of view, Els Moens, Youri Meuret, Heidi Ottevaere, Vrije Univ. Brussel (Belgium); Mukul Sarkar, IMEC (Netherlands); David San Segundo Bello, IMEC (Belgium); Patrick Merken, Royal Military Academy (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7716-85]

Fundamental performances of a micro stationary Fourier transform spectrometer, Frédéric Gillard, Nicolas Guérineau, Sylvain Rommeluère, ONERA (France); Jean Taboury, Pierre H. Chavel, Institut d'Optique Graduate School (France) . . . . . .[7716-86]

Coupling behaviour of tapered highly multimodal dielectric waveguides as part of PCB-level optical interconnects, Yasin Soenmez, C-LAB (Germany); Gerd Mrozynski, Univ. Paderborn (Germany); Juergen Schrage, C-LAB (Germany) . . . . . .[7716-87]

Spectral measurement using IC-compatible linear vairable optical filter, Arvin Emadi, Huaiwen Wu, Semen Grabarnik, Ger de Graaf, Technische Univ. Delft (Netherlands); Karin Hedsten, Peter Enoksson, Chalmers Univ. of Technology (Sweden); José Higino Gomeo Correia, Univ. do Minho (Portugal); Reinoud F. Wolffenbuttel, Technische Univ. Delft (Netherlands) . . . . . .[7716-88]

Micro-retroreflector array fabricated by the LIGA process, Jürgen Jahns, Thomas Seiler, FernUniv. in Hagen (Germany); Jürgen Mohr D.D.S., Martin Börner, Forschungszentrum Karlsruhe GmbH (Germany) . . . . . .[7716-89]

Three-dimensional shape measurement based on light patterns projection using diffractive optical elements, Patrice J. Twardowski, Bruno Serio, Victorien Raulot, Univ. of Strasbourg (France) . . . . . .[7716-90]

Modeling and fabrication of an effective medium diffractive micro-lens, Victorien Raulot, Bruno Serio, Univ. Louis Pasteur (France); Philippe Gérard, Ecole Nationale Supérieure de Physique de Strasbourg (France); Patrice J. Twardowski, Patrick P. Meyrueis, Univ. Louis Pasteur (France) . . . . . .[7716-91]

Design and optimization of GRIN lens arrays for high resolution digital colour presses, Christine Ruwisch, Heidi Ottevaere, Vrije Univ. Brussel (Belgium); Dirk Broddin, Frank Deschuytere, Punch Graphix International NV (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7716-92]

Technology development of diffractive micromirror arrays for the deep ultraviolet to the near-infrared spectral range, Jan-Uwe Schmidt, Martin Bring, Martin Friedrichs, Jana Roessler, Dirk Rudloff, Dirk Berndt, Jörg Heber, Matthias List, Michael Müller, Michael Wagner, Fraunhofer-Institut für Photonische Mikrosysteme (Germany) . . . . . .[7716-93]

Self induced Patterning of PDMS Structures by surface-charge lithography driven by photorefractive effect, Lisa Miccio, Melania Paturzo, Pietro Ferraro, Istituto di Cibernetica Eduardo Caianiello (Italy) . . . . . .[7716-94]

Thermo-optical tuning of whispering gallery modes in erbium doped microspheres, Yuqiang Wu, Univ. College Cork (Ireland) and Tyndall National

Institute (Ireland); Jonathan M. Ward, Univ. College Cork (Ireland); Síle Nic Chormaic, Univ. College Cork (Ireland) and Tyndall National Institute (Ireland) . . . . . [7716-95]

Microscale laser peen forming of copper foil: deformation and damage, Chao Zheng, Sheng Sun, Ji Zhong, Jing Liu, Wei Wang, Shandong Univ. (China) . . . . . [7716-96]

Integrated three-dimensional scan optic for endoscopic biomedical imaging, Khaled Aljasem, Andreas Seifert, Hans Zappe, Albert-Ludwigs-Univ. Freiburg (Germany) . . . . . [7716-97]

Friday 16 April

SESSION 11 . . . . . Fri. 08.00 to 10.30

Optical Interconnects and Flexible Micro-optics

Session Chair: **Alexei L. Glebov,** OptiGrate Corp. (USA)

Embedded optical interconnect technology in data storage systems *(Invited Paper)*, Richard C. Pitwon, Xyratex Technology Ltd. (United Kingdom) . . . [7716-31]

Optical interconnects for satellite payloads: overview of the state-of-the-art *(Invited Paper)*, Michael Vervaeke, Christof Debaes, Jürgen Van Erps, Vrije Univ. Brussel (Belgium); Mikko Karppinen, Antti Tanskanen, Timo Aalto, Mikko Harjanne, VTT Technical Research Ctr. of Finland (Finland); Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . [7716-49]

Flexible and stretcheable foils:opportunities for micro-optics *(Invited Paper)*, Jan M. A. Vanfleteren, Univ. Gent (Belgium) . . . . . [7716-50]

High density optical pressure sensor foil based on arrays of crossing flexible waveguides, Jeroen Missinne, Geert Van Steenberge, Bram Van Hoe, Erwin Bosman, Univ. Gent (Belgium); Christof Debaes, Jürgen Van Erps, Vrije Univ. Brussel (Belgium); Chunxiao Yan, Eleonora Ferraris, Katholieke Univ. Leuven (Belgium); Peter Van Daele, Jan M. A. Vanfleteren, Univ. Gent (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium); Dominiek F. Reynaerts, Katholieke Univ. Leuven (Belgium). . . . . [7716-51]

Characterization of flexible fully embedded optical links, Erwin Bosman, Geert Van Steenberge, Jeroen Missinne, Bram Van Hoe, Peter Van Daele, Univ. Gent (Belgium) . . . . . [7716-52]

Populating multi-fiber fiberoptic connectors using an interferometric measurement of fiber tip position and facet quality, Jurgen Van Erps, Vrije Univ. Brussel (Belgium); Anna Pakula, Slawomir Tomczewski, Warsaw Univ. of Technology (Poland); Michael Vervaeke, Vrije Univ. Brussel (Belgium); Leszek A. Salbut, Warsaw Univ. of Technology (Poland); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [7716-53]

SESSION 12 . . . . . Fri. 11.00 to 12.50

Diffractive Micro-optics

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

Digital diffractive optics: have diffractive optics entered mainstream industry yet? *(Invited Paper)*, Bernard C. Kress, USI Photonics Inc. (United States) . . . . . [7716-54]

High performance gratings for space applications, Uwe D. Zeitner, Dirk Michaelis, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Ernst-Bernhard Kley, Friedrich-Schiller-Univ. Jena (Germany); Matthias Erdmann, European Space Agency (Netherlands) . . . . . [7716-55]

Smart technology for blazed multi-level grating fabrication, Maria Oliva, Jens Dunkel, Torsten Harzendorf, Dirk Michaelis, Uwe D. Zeitner, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany). . . . . [7716-56]

Monolithic dual-grating phase mask for long grating writing, Sanaa Bakkali, Yannick Bourgin, Yves Jourlin, Svetlen H. Tonchev, Olivier M. Parriaux, Univ. Jean Monnet Saint-Etienne (France) . . . . . [7716-57]

Novel approach for manufacturing of continuously shaped diffractive optical elements, Vladimir S. Pavelyev, Image Processing Systems Institute (Russian Federation); Yuri V. Miklyaev, LIMO Lissotschenko Mikrooptik GmbH (Germany) and South Ural State Univ. (Russian Federation); Waleri Imgrunt, LIMO Lissotschenko Mikrooptik GmbH (Germany); Maxim V. Bolshakov, South Ural State Univ. (Russian Federation); Denis G. Kachalov, Vadim A. Eropolov, Victor A. Soifer, Samara State Aerospace Univ. (Russian Federation); Lutz Aschke, Vitaly Lissotschenko, LIMO Lissotschenko Mikrooptik GmbH (Germany) . . . . . [7716-58]

Conference 7717

Tuesday-Thursday 13-15 April 2010 • Proceedings of SPIE Vol. 7717

Optical Modelling and Design

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

Programme Committee: **Pierre Ambs,** Univ. de Haute Alsace (France); **Pierre H. Chavel,** Lab. Charles Fabry (France); **Zbigniew Jaroszewicz,** Instytut Optyki Stosowanej (Poland); **Bahram Javidi,** Univ. of Connecticut (USA); **Norbert Lindlein,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **M. G. Moharam,** CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); **Cristian Neipp,** Univ. de Alicante (Spain); **Hagen Schimmel,** LightTrans GmbH (Germany); **Vladimir Sergeevich Pavelyev,** Image Processing Systems Institute (Russian Federation); **Colin J. R. Sheppard,** National Univ. of Singapore (Singapore); **Boris Spektor,** Technion-Israel Institute of Technology (Israel); **Jari Turunen,** Univ. of Eastern Finland (Finland)

Tuesday 13 April

Opening Remarks . . . . . Tues. 08.50 to 09.00

SESSION 1 . . . . . Tues. 09.00 to 12.20

Subwavelength Structures

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

High Q polarization independent guided mode resonance filter with 'doubly periodic' etched Ta_2O_5 bi-dimensional grating, Anne-Laure Fehrembach, Fabien Lemarchand, Institut Fresnel (France); Anne Talneau, Ctr. National de la Recherche Scientifique (France); Anne Sentenac, Institut Fresnel (France)[7717-01]

Simulations of subwavelength optical devices with a fast B-spline modal method, Patrick Bouchon, ONERA (France) and Ctr. National de la Recherche Scientifique (France); Fabrice Pardo, Ctr. National de la Recherche Scientifique (France); Riad Haïdar, ONERA (France); Jean-Luc Pelouard, Ctr. National de la Recherche Scientifique (France) . . . . . .[7717-02]

Interpolatory fixed-point algorithm for an efficient computation of TE and TM modes in arbitrary 1D structures at oblique incidence, Manuel Pérez Molina, Jorge Frances Monllor, Mariela Álvarez López, Cristian Neipp Lopez, Univ. de Alicante (Spain); Luis Carretero López, Univ. Miguel Hernández de Elche (Spain) . . . . . .[7717-03]

Matched curvilinear coordinates in the Fourier modal method, Thomas Weiss, Univ. Stuttgart (Germany) and Univ. Blaise Pascal (France); Gérard Granet, Univ. Blaise Pascal (France); Nikolay A. Gippius, Univ. Blaise Pascal (France) and A. M. Prokhorov General Physics Institute (Russian Federation); Sergei G. Tikhodeev, A. M. Prokhorov General Physics Institute (Russian Federation); Harald W. Giessen, Univ. Stuttgart (Germany) . . . . . .[7717-04]

Transference matrix method for non slanted holographic reflection gratings, Cristian Neipp Lopez, Jorge Frances Monllor, Manuel Pérez-Molina, Sergio Bleda, Augusto Beléndez, Univ. de Alicante (Spain) . . . . . .[7717-05]

Modelling light propagation in plasmonic nanostructures, Tatiana Samrowski, Univ. of Zürich (Switzerland); Ludmila Raguin, Christian Hafner, Rüdiger Vahldieck, ETH Zürich (Switzerland) . . . . . .[7717-06]

Beaming light with a dielectric microsphere, Alexis Devilez, Brian D. Stout, Nicolas Bonod, Institut Fresnel (France); Philippe C. Delaporte, Lasers, Plasmas et Procédés Photoniques (France) . . . . . .[7717-07]

Characterization of the scattering effect of complex mask geometries with surface roughness, Zhabiz Rahimi, Andreas Erdmann, Fraunhofer-Institut für Integrierte System und Bauelementetechnologie (Germany) and Erlangen Graduate School in Advanced Optical Technologies (Germany); Christoph Pflaum, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . . . . .[7717-08]

Lunch Break . . . . . 12.20 to 13.30

SESSION 2 . . . . . Tues. 13.30 to 15.20

Wave Optics I

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

Considerations on achromatic diffraction *(Invited Paper)*, Uwe D. Zeitner, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany). .[7717-09]

Uniform illumination in projection displays with a low spatial coherence laser source, Youri Meuret, Hamed Ahmadpanahi, Vrije Univ. Brussel (Belgium); Falko Riechert, Univ. Karlsruhe (Germany); Stijn Roelandt, Gordon M. J. Craggs, Guy Verschaffelt, Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . .[7717-10]

Influence of Fiber Injection on Square Fiber Optic Homogenizers, Todd E. Lizotte, Hitachi Via Mechanics (USA), Inc. (United States) . . . . . .[7717-11]

Generation of diffractive optical elements onto a photopolymer using a liquid crystal display, Andrés Márquez Ruiz, Sergi Gallego, Manuel Ortuño, Elena Fernández, Mariela Álvarez López, Augusto Beléndez, Inmaculada Pascual, Univ. de Alicante (Spain). . . . . .[7717-12]

Stochastic optimization of radial DOE forming intensity distribution along an axial focal zone, Denis G. Kachalov, Samara State Aerospace Univ. (Russian Federation); Vladimir S. Pavelyev, Image Processing Systems Institute (Russian Federation); Svetlana N. Khonina, Samara State Aerospace Univ. (Russian Federation) . . . . . .[7717-13]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

POSTERS—Tuesday . . . . . Tues. 17.40 to 19.10

A poster session will be held on Tuesday 17.40 to 19.10. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

A new method to validate the usage of Fresnel approximation instead of Kirchhoff diffraction formula for calculations concerning camera systems, Ulrike Talbiersky, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany) . . . . . .[7717-33]

Optical one dimensional waveguide: an approximation solution using Galerkin's method with hermite-Gauss and Legendre polynomials as basis functions, Hamidreza Hassannejad, Sharif Univ. of Technology (Iran, Islamic Republic of) . . . . . .[7717-34]

Hemispherical projection lens for insect behaviour analysis, Mika Aikio, VTT Technical Research Ctr. of Finland (Finland); Jouni Takalo, Mikko Vähäsöyrinki, Univ. of Oulu (Finland) . . . . . .[7717-35]

Radiation of difference frequencies at optical rectification of spatially-limited femtosecond laser pulse in the periodically-poled GaAs crystal, Artsrun S. Martirosyan, Institute for Physical Research (Armenia); David L. Hovhannisyan, Yerevan State Univ. (Armenia); Vigen O. Chaltikyan, Institute for Physical Research (Armenia); Gevorg D. Hovhannisyan, Yerevan State Univ. (Armenia) . . . . .[7717-36]

Innovative flooded mask for a well-corrected vision both underwater and above-water, Luca Mercatelli, Elisa Sani, Paola Sansoni, Franco Francini, David Jafrancesco, Daniela Fontani, Istituto Nazionale di Ottica Applicata (Italy) [7717-37]

The design of optical module of LED street lamp with non-axial symmetrical lens and freeform reflector, Ming-Jun Lu, Yi-Yung Chen, Jong-Woei A. Whang, Chi-Ann Chen, National Taiwan Univ. of Science and Technology (Taiwan) . . . . . .[7717-38]

Design and measurement of TIR lens of MR16-compatible LED lamp without aspherical surface for high directivity, Wei-Che Hsieh, Yi-Yung Chen, Jong-Woei A. Whang, Yu-Chi Lee, National Taiwan Univ. of Science and Technology (Taiwan) . . . . . .[7717-39]

Simulation analysis of a novel bandpass fiber filter, Xunqi Wu, Joël Jacquet, Ecole Supérieure d'Electricité (France); Guanghua Duan, Alcatel-Thales III-V Lab. (France) . . . . . .[7717-40]

New photopolymers with high environmental compatibility: biophotopol compared to PVA/AA materials at zero spatial frequency limit, Sergi Gallego, Andrés Márquez Ruiz, Univ. de Alicante (Spain) and I.U. Fisica Aplicada a Las Ciencias y Las Tecnologias (Spain); Manuel Ortuño, Stephan Marini, David I. Méndez, Univ. de Alicante (Spain); Inmaculada Pascual, Univ. de Alicante (Spain) and I.U. Fisica Aplicada a Las Ciencias y Las Tecnologias (Spain) . . . . . .[7717-41]

Approximate analysis of nonlinear operation of triangular lattice photonic crystal laser, Marcin Koba, Pawel Szczepanski, Warsaw Univ. of Technology (Poland) and National Institute of Telecommunications (Poland) . . . . . .[7717-42]

Modelling of the propagation in the new generation fibers, Cherbi A. Lynda, Ecole Nationale Superieure Polytechnique d'Alger (Algeria). . . . . .[7717-43]

The modeling optical characteristic biological structure laser spectroscopy method., Kirill G. Kulikov, Tetiana V. Koshlan, St. Petersburg State Polytechnical Univ. (Russian Federation). . . . . .[7717-44]

Numerical approximation of scalar diffraction through first order optical systems, John J. Healy, John T. Sheridan, Univ. College Dublin (Ireland).[7717-45]

5Gb/s optical logic AND operations using monolithically-integrated photodetector and eletroabsorption modulator, Yunxiao Zhang, Jiaoqing Pan, Bin Niu, Lingjuan Zhao, Wei Wang, Institute of Semiconductors (China) . .[7717-46]

Recording reproduction simulation of holographic memory using three-dimensional beam propagation method, Tomohiro Ohori, Shuhei Yoshida, Manabu Yamamoto, Tokyo Univ. of Science (Japan) . . . . . .[7717-47]

Multiorder varifocal Moiré zone plates, Zbigniew Jaroszewicz, Instytut Optyki Stosowanej (Poland); Andrzej Kolodziejczyk, Warsaw Univ. of Technology (Poland); Maria S. Millán García-Varela, Lenny A. Romero Perez, Escuela Univ. de Óptica y Optometria (Spain); Ilya Golub, Algonquin College (Canada) . . . . . .[7717-48]

Design of a light guild structure of optical glass to enhance the efficiency of solar cells, Shu-Li Hsiao, Jong-Woei A. Whang, National Taiwan Univ. of Science and Technology (Taiwan) . . . . . .[7717-49]

A y-branch light collecting device for natural light guiding system, Kuan-Yu Chen, Jong-Woei A. Whang, National Taiwan Univ. of Science and Technology (Taiwan) . . . . . .[7717-50]

A generalized approach to modeling radiation pattern measurement methods for high-power LEDs, Gao-Wei Chang, National Taiwan Normal Univ. (Taiwan); Chia-Cheng Liao, Yung-Chang Chen, National Tsing Hua Univ. (Taiwan) .[7717-51]

Three-dimensional object reconstruction by using phase only information from digital hologram with liquid crystal spatial light modulators, Duygu Önal Tayyar, Gebze Institute of Technology (Turkey); Zehra Saraç, Zonguldak Karaelmas Univ. (Turkey); Ali Dursun, Yalova Univ. (Turkey); F. Necati Ecevit, Gebze Institute of Technology (Turkey) . . . . . .[7717-52]

Modeling polarized light emitting diodes with the use of metallic nanoslit array, Örs Sepsi, István Szanda, Pál Koppa, Budapest Univ. of Technology and Economics (Hungary) . . . . . .[7717-53]

The Fourier-modal method for aperiodic structures on layered media in two dimensions, Maxim Pisarenco, Jos Maubach, Technische Univ. Eindhoven (Netherlands); Irwan Setija, ASML Netherlands B.V. (Netherlands); Robert Mattheij, Technische Univ. Eindhoven (Netherlands). . . . . .[7717-54]

Extracting parameters from slanted gratings recorded in photopolymer, Dusan Sabol, Michael R. Gleeson, John T. Sheridan, Univ. College Dublin (Ireland) . . . . . .[7717-55]

Experimental study of primary radical generation in polyvinylalcohol/ acrylamide (PVA/AA) based photopolymer material, Shui Liu, Michael R. Gleeson, Jinxin Guo, John T. Sheridan, Univ. College Dublin (Ireland) . . .[7717-56]

Zoom systems with tunable-focus lenses, Antonin Miks, Pavel Novak, Jiri Novák, Czech Technical Univ. in Prague (Czech Republic) . . . . . .[7717-57]

Design procedure for planar add-drop multiplexer based on contra-directional coupler and apodized Bragg grating, Marcin Wielichowski, Szymon Lis, Konrad Ptasinski, Sergiusz Patela, Wroclaw Univ. of Technology (Poland) . . . . . .[7717-58]

CFD grid-based Fourier-optics method to predict the aero-optical quality, Tao Wang, Xi'an Jiaotong Univ. (China). . . . . .[7717-59]

The technique of generation of multi colour incoherent optical bottle beams, Nataliya V. Shostka, Vernadskiy Tavricheskiy National Univ. (Ukraine); Vladlen G. Shvedov, Vernadskiy Tavricheskiy National Univ. (Ukraine) and The Australian National Univ. (Australia); Vladimir I. Shostka, Vernadskiy Tavricheskiy National Univ. (Ukraine) . . . . . .[7717-60]

An approximation to the rate of acrylamide diffusion using short exposures, Ciara E. Close, Michael R. Gleeson, John T. Sheridan, Univ. College Dublin (Ireland) . . . . . .[7717-61]

Investigation of optical properties of one and two-dimensional photonic crystals by means of the scattering matrix method, Sergey A. Dyakov, Trinity College (Ireland) and Lomonosov Moscow State Univ. (Russian Federation); Sergei G. Tikhodeev, Ioffe Physical Technical Institute (Russian Federation); Ekaterina Astrova, General Physics Institute (Russian Federation); Vladimir Tolmachev, Ioffe Physico-Technical Institute (Russian Federation); Tatiana S. Perova, Trinity College Dublin (Ireland); Victor Y. Timoshenko, Lomonosov Moscow State Univ. (Russian Federation) . . . . . .[7717-62]

Wednesday 14 April

SESSION 3 . . . . . Wed. 08.40 to 10.00

New Strategies in Optical Design

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

Systematics of the design shapes in the optical merit function landscape *(Invited Paper)*, Florian Bociort, Pascal van Grol, Technische Univ. Delft (Netherlands) . . . . . .[7717-14]

Optics cost modelling and design optimization *(Invited Paper)*, Jukka-Tapani Mäkinen, VTT Technical Research Ctr. of Finland (Finland); Sebastian Nollau, Sascha Klappert, Günther Schuh, Fraunhofer-Institut für Produktionstechnologie (Germany) . . . . . .[7717-15]

Robust design approach in micro optics, Ingo Sieber, Markus Dickerhof, Karlsruhe Institute of Technology (Germany) . . . . . .[7717-16]

SESSION 4 . . . . . Wed. 10.40 to 12.50

Illumination Systems

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

Applications of the SMS method to the design of compact optics *(Invited Paper)*, Juan C. Miñano, Pablo Benitez, Univ. Politécnica de Madrid (Spain); Jose M. Infante Herrero, Indra (Spain); Lin Wang, Univ. Politécnica de Madrid (Spain) . . . . . .[7717-17]

Modelling the spatial colour distribution of phosphor white high power light-emitting diodes, Arno Keppens, Steven Denijs, Wouter R. Ryckaert, Kaho Sint-Lieven Hogeschool (Belgium); Geert Deconinck, Katholieke Univ. Leuven (Belgium); Peter Hanselaer, Kaho Sint- Lieven Hogeschool (Belgium) . . . . . .[7717-18]

Design and study LED illumination with secondary optical lens for desk lamp, I-Ju Chen, Jong-Woei A. Whang, National Taiwan Univ. of Science and Technology (Taiwan) . . . . . .[7717-19]

Feasibility study of a brute force ray tracing approach to obtain luminance maps of luminaires modeled with ray files, Filip Vandeghinste, Jan Audenaert, Katholieke Hogeschool Sint-Lieven (Belgium); Guy Durinck, Peter Hanselaer, Kaho Sint- Lieven Hogeschool (Belgium) . . . . . .[7717-20]

Design and optimization of automotive headlamps based on projection system with double ellipsoidal reflector, Chi-Tang Ma, Yi-Yung Chen, Jong-Woei A. Whang, Kao-Hsu Chou, National Taiwan Univ. of Science and Technology (Taiwan) . . . . . .[7717-21]

Ray tracing analysis of light scattering properties of randomly nano-textured ZnO films, Melanie Schulte, Karsten Bittkau, Bart E. Pieters, Silvia Jorke, Forschungszentrum Jülich GmbH (Germany); Helmut Stiebig, Malibu GmbH & Co. KG (Germany); Uwe Rau, Forschungszentrum Jülich GmbH (Germany) . .[7717-22]

Lunch at the Exhibition Hall/Exhibition-Only Time. . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50 hrs

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by:

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany

Ursula Keller, ETH Zurich, Switzerland

Mike Dunne, Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 5 . . . . . Thurs. 08.30 to 10.10

Holographic Modelling

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

Imaging micro optical components with short coherent digital holographic microscopy, Stephan Stuerwald, Robert Schmitt, Fraunhofer-Institut für Produktionstechnologie (Germany) . . . . . .[7717-23]

Multispectral lensless digital in-line holographic microscope: LED illumination, James P. Ryle, Dayan Li, John T. Sheridan, Univ. College Dublin (Ireland) . . . . . .[7717-24]

Study of influence of ACPA in holographic reflection gratings recorded in PVA/AA based photopolymer, Rosa Fuentes, Elena Fernández, Celia García, Augusto Beléndez, Inmaculada Pascual, Univ. de Alicante (Spain) . . . . . .[7717-25]

Analysis of chain transfer agents behaviours in photopolymer materials, Jinxin Guo, Michael R. Gleeson, Shui Liu, John T. Sheridan, Univ. College Dublin (Ireland) . . . . . .[7717-26]

Monomer diffusion in the Raman-Nath regime, Ciara E. Close, Michael R. Gleeson, John T. Sheridan, Univ. College Dublin (Ireland) . . . . . .[7717-27]

SESSION 6 . . . . . Thurs. 11.00 to 12.40

Wave Optics II

Session Chair: **Uwe Detlef Zeitner,** Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany)

Waveoptical simulation of a spectral narrowed resonator, Herbert Gross, Carl Zeiss AG (Germany) . . . . . .[7717-28]

Enabling aberration retrieval of microlenses with the Extended Nijboer-Zernike (ENZ) diffraction theory, Sven van Haver, Joseph J. M. Braat, Silvania F. Pereira, Technische Univ. Delft (Netherlands) . . . . . .[7717-29]

Scalar product technique in modal decomposition for multimode fibers, Duc Minh Nguyen, Univ. de Rennes 1 (France); Thanh Nam Nguyen, Posts and Telecommunications Institute of Technology (Viet Nam); Stéphane J. Blin, Univ. Montpellier 2 (France); Thierry Chartier, Monique Thual, Univ. de Rennes 1 (France) . . . . . .[7717-30]

Non-Bragg bandgaps, resonances and Gaussian beam propagation in superlattices composed from negative index metamaterials, Milan Maksimovic, MECAL (Netherlands) . . . . . .[7717-31]

Fixed weight Hopfield Neural Network based on optical implementation of all-optical MZI-XNOR logic gate, Kussay N. Mutter, Univ. Sains Malaysia (Malaysia) . . . . . .[7717-32]

Tuesday-Friday 13-16 April 2010 • Proceedings of SPIE Vol. 7718

Optical Micro- and Nanometrology

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

Programme Committee: **Peter J. de Groot,** Zygo Corp. (USA); **Pietro Ferraro,** Istituto Nazionale di Ottica Applicata (Italy); **Cosme Furlong,** Worcester Polytechnic Institute (USA); **Kay Gastinger,** SINTEF (Norway); **Hans-Peter Herzig,** École Polytechnique Fédérale de Lausanne (Switzerland); **Malgorzata Kujawinska,** Warsaw Univ. of Technology (Poland); **Peter H. Lehmann,** Univ. Kassel (Germany); **Paul C. Montgomery,** Institut d'Électronique du Solide et des Systèmes (France); **Heidi Ottevaere,** Vrije Univ. Brussel (Belgium); **Huimin Xie,** Tsinghua Univ. (China)

Tuesday 13 April

Keynote Session . . . . . Tues. 08.10 to 08.40

Session Chair: **Christophe Gorecki,** Univ. de Franche-Comté (France)

3D metamaterials: fundamentals and applications *(Invited Paper)*, Harald W. Giessen, Univ. Stuttgart (Germany). . . . . [7718-01]

SESSION 1 . . . . . Tues. 08.40 to 10.20

Digital Holography

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

Digital holographic microscopy in the deep ultraviolet for nano-inspection, Ahmad Faridian, David Hopp, Giancarlo Pedrini, Wolfgang Osten, Univ. Stuttgart (Germany) . . . . . .[7718-02]

Digital holography from shadowgraphic phase estimates, Falk Eilenberger, Friedrich-Schiller-Univ. Jena (Germany); Dimitris Pliakis, Technical Univ. of Crete (Greece); Stefano Minardi, Thomas Pertsch, Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7718-03]

Fast non-contact surface roughness measurements up to the micrometer range by dual-wavelength digital holographic microscopy, Jonas Kuhn, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Eduardo Solanas, Sébastien Bourquin, Etienne Cuche, Yves Emery, Lyncée Tec SA (Switzerland); Christian D. Depeursinge, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . .[7718-04]

Managing the depth of focus in 3D imaging through controlled distortion of digital holograms, Melania Paturzo, Pietro Ferraro, Pasquale Memmolo, Istituto Nazionale di Ottica Applicata (Italy); Andrea Finizio, Istituto di Cibernetica Eduardo Caianiello (Italy) . . . . . .[7718-05]

Digital holographic depth of focus calibration using two orthogonal views, Larbi L. Bouamama, Central School of Lyon (France); Sebti Boucherit, Univ. de Guelma (Algeria); Rabah Zegadi, Univ. Ferhat Abbas de Sétif (Algeria); Serge Simoens, Ecole Centrale de Lyon (France) . . . . . .[7718-06]

SESSION 2 . . . . . Tues. 11.00 to 12.20

New Aspects in Microtopography Measurements I

Session Chair: **Kay Gastinger,** SINTEF (Norway)

Investigation of enhanced 2D field stitching method as a simulation-tool for line edge roughness in scatterometry, Bartosz Bilski, Karsten Frenner, Wolfgang Osten, Univ. Stuttgart (Germany) . . . . . .[7718-07]

Two-scale approach to the diffuse light scattering from rough surfaces, András Vernes, Johannes A. Böhm, Georg Vorlaufer, AC2T Research GmbH (Austria) . . . . . .[7718-08]

CCD-ARS set-up: a comprehensive and fast high sensitivity characterisation tool for optical components, Myriam Zerrad, Michel Lequime, Carole Deumie, Claude Amra, Institut Fresnel (France) . . . . . .[7718-09]

Interferometric accuracy with Fourier based deflectometry, Didier P. Beghuin, Xavier Dubois, Xavier Hutsebaut, Luc C. Joannes, LAMBDA-X sa (Belgium); Philippe Antoine, Univ. Catholique de Louvain (Belgium) . . . . . .[7718-10]

Lunch Break . . . . . 12.20 to 13.30

SESSION 3 . . . . . Tues. 13.30 to 14.30

New Aspects in Microtopography Measurements II

Session Chair: **Kay Gastinger,** SINTEF (Norway)

A deflectometric sensor for the on-machine surface form measurement and adaptive manufacturing, Stefan Krey, Iris Erichsen, Wim van Amstel, TRIOPTICS GmbH (Germany); Karl U. Vielhaber, Fraunhofer-Institut für Produktionstechnologie (Germany) . . . . . .[7718-11]

Statistical signatures of random media: application to the scattering origins, Jacques Sorrentini, Myriam Zerrad, Claude Amra, Institut Fresnel (France)[7718-12]

Object-adapted fringe projection technique on scattered data interpolation, Wenjing Zhou, Junzheng Peng, Mingyi Chen, Yingjie Yu, Shanghai Univ. (China) . . . . . .[7718-13]

SESSION 4 . . . . . Tues. 14.30 to 15.40

Inspection of MEMS I

Session Chair: **Christophe Gorecki,** Univ. de Franche-Comté (France)

Next generation test equipment for micro-production *(Invited Paper)*, Kay Gastinger, SINTEF (Norway); Malgorzata Kujawinska, Warsaw Univ. of Technology (Poland); Uwe D. Zeitner, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Jorge Albero, Univ. de Franche-Comté (France); Stephan Beer, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Christoph Schaeffel, Institut für Mikroelektronik- und Mechatronik- Systeme gemeinnützige GmbH (Germany); Patrick Lambelet, Heliotis Inc. (Switzerland); Marco Pizzi, Techfab Ltd. (Italy). . . . . .[7718-14]

Automated multiscale measurement system for MEMS-characterisation, Wolfram Lyda, Avinash Burla, Jan Zimmermann, Johan Regin, Wolfgang Osten, Oliver Sawodny, Engelbert Westkämper, Univ. Stuttgart (Germany) . . . . .[7718-15]

simulation and in plane movement characterization of 2D MEMS platform, Jerzy M. Krezel, Malgorzata Kujawinska, Warsaw Univ. of Technology (Poland); Karolina Laszczyk, Sylwester Bargiel, Christophe Gorecki, Univ. de Franche-Comté (France) . . . . . .[7718-16]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

Wednesday 14 April

SESSION 5 . . . . . Wed. 08.30 to 10.10

Topography and Surface Measurements

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

Multiresolution analysis of 2D confocal microscope images, Davide Bianchi, András Vernes, Georg Vorlaufer, AC2T Research GmbH (Austria); Gerhard Betz, Technische Univ. Wien (Austria) . . . . . .[7718-17]

Comparability and uncertainty of shape measurements with white-light interferometers, Wilfried Bauer, Sebastian Bödecker, Polytec GmbH (Germany); Rolf Krüger-Sehm, Physikalisch-Technische Bundesanstalt (Germany); Peter H. Lehmann, Univ. Kassel (Germany); Christian Rembe, Polytec GmbH (Germany) . . . . . .[7718-18]

Spatially resolved measurement of sub-micrometre change in surface topography using confocal white light microscopy and image registration techniques, Georg Vorlaufer, Martin Jech, Johannes A. Böhm, Stefan Eder, AC2T Research GmbH (Austria) . . . . . .[7718-19]

Modelling the colour of a coated rough steel surface, Veerle Goossens, Erik W. Stijns, Vrije Univ. Brussel (Belgium); Sake K. Van Gils, ArcelorMittal Research Industry Gent (Belgium); Robert Finsy, Herman Terryn, Vrije Univ. Brussel (Belgium) . . . . . .[7718-20]

Measurements of characteristic parameters of extremely small cogged wheels with low module by means of low coherence interferometry, Anna Pakula, Slawomir Tomczewski, Leszek A. Salbut, Andrzej Skalski, Dionizy Bialo, Warsaw Univ. of Technology (Poland) . . . . . .[7718-21]

SESSION 6 . . . . . Wed. 10.50 to 13.00

Inspection of Microoptics

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

Optical characterization of semiconductor microlenses using a Mach-Zehnder interferometer in the near-infrared region *(Invited Paper)*, Heidi Ottevaere, Nathalie Vermeulen, Virginia Gomez, Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . .[7718-22]

Sensitivity enhancement of bimaterial MOEMS thermal imaging sensor array using two wavelength readout, Onur Ferhanoglu, Hakan Urey, Koç Univ. (Turkey) . . . . . .[7718-23]

Characterization and inspection of micro-lens array by SCBS microscope, Weijuan Qu, Oi Choo Chee, Ngee Ann Polytechnic (Singapore); Yingjie Yu, Shanghai Univ. (China); Hooi Leng Ng-Lee, Ngee Ann Polytechnic (Singapore); Ailing Tian, Xi'an Technological Univ. (China); Anand K. Asundi, Nanyang Technological Univ. (Singapore) . . . . . .[7718-24]

Optical characterization of diffractive micromirror arrays, Dirk Berndt, Jörg Heber, Steffen Sinning, Jens Knobbe, Jan-Uwe Schmidt, Martin Bring, Jana Rössler, Detlef Kunze, Michael Wagner, Hubert Lakner, Fraunhofer-Institut für Photonische Mikrosysteme (Germany) . . . . . .[7718-25]

New device to measure optical parameters of a micro optical array, Josef Heinisch, TRIOPTICS GmbH (Germany) . . . . . .[7718-26]

Unification of approaches to optimization and metrological characterization of continuous-relief diffractive optical elements, Victor P. Korolkov, Sergei V. Ostapenko, Ruslan K. Nasyrov, Arthur S. Gutman, Alexander R. Sametov, Institute of Automation and Electrometry (Russian Federation) . . . . . .[7718-27]

Lunch at the Exhibition Hall/Exhibition-Only Time. . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50

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Advancing the Laser: 50 Years and into the Future

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Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany; **Ursula Keller,** ETH Zurich, Switzerland; **Mike Dunne,** Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 7 . . . . . Thurs. 08.10 to 10.20

Advanced Microscopy Techniques

Session Chair: **Heidi Ottevaere,** Vrije Univ. Brussel (Belgium)

Multi-wavelength digital holographic microscopy for high resolution inspection of surfaces and imaging of phase specimen *(Invited Paper)*, Björn Kemper, Sebastian Kosmeier, Patrik Langehanenberg, Gert von Bally, Westfälische Wilhelms-Univ. Münster (Germany). . . . . .[7718-47]

Advances in the development of the LNE metrological atomic force microscope, Benoit Poyet, Sebastien Ducourtieux, Lab. National de Metrologie et d'Essais (France); Jean David, Ecole Nationale Supérieure d'Arts et Métiers (France); Ludovic Lahousse, Lab. National de Metrologie et d'Essais (France) . . . . . .[7718-28]

Millimeter scale topographical image of highly integrated optical structures using enlarged metrological atomic force microscopy, Suat Topsu, Luc Chassagne, Ahmad Sinno, Pascal Ruaux, Yasser Alayli, Univ. de Versailles Saint-Quentin-en Yvelines (France); Gilles Lerondel, Stephane Blaize, Auréline Bruyant, Pascal Royer, Univ. de Technologie Troyes (France) . . . . . .[7718-29]

Two-photon microscopy with simultaneous standard and enhanced imaging performance using focal modulation technique, Gong Wei, Ke Si, Nanguang Chen, Colin Sheppard, National Univ. of Singapore (Singapore) . . . . . .[7718-30]

One-shot measurement of surface profile using an astigmatic microscope system, Chu-Shik Kang, Jae Wan Kim, Jong-Ahn Kim, Jonghan Jin, Tae Bong Eom, Korea Research Institute of Standards and Science (Korea, Republic of); Jong-Ung Lee, Cheongju Univ. (Korea, Republic of) . . . . . .[7718-31]

Test objects for calibration of SEMs and AFMs operating at the nanoscale, Valeriy P. Gavrilenko, Yury Novikov, Alexander V. Rakov, Pavel A. Todua, A. M. Prokhorov General Physics Institute (Russian Federation) . . . . . .[7718-32]

SESSION 8 . . . . . Thurs. 11.00 to 12.00

Inspection of MEMS II

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

Digital Reflection Holography Based Systems Development for MEMS Testing, Vijay Raj Singh, Nanyang Technological Univ. (Singapore); Anand Asundi, ...[7718-33]

High frequency micromechanical fatigue test assisted by laser-Doppler-vibrometer, Hsuan Yu Lin, Yi-Chia Lee, Wensyang Hsu, National Chiao Tung Univ. (Taiwan) . . . . . .[7718-34]

Measuring ultra-sonic in-plane vibrations with the scanning confocal heterodyne interferometer, Christian Rembe, Faisal Ur-Rehman, Alexander Dräbenstedt, Frank Heimes, Polytec GmbH (Germany) . . . . . .[7718-35]

Lunch Break . . . . . .12.00 to 13.00

SESSION 9 . . . . . Thurs. 13.00 to 15.20

Image Reconstruction and Signal Processing

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

Imaging of stratified scattering media by optical coherence tomography (OCT) and spectral identification of their components: applications to works of art, Antoine Morin, Mady Elias, Jean-Marc Frigerio, Univ. Pierre et Marie Curie (France) . . . . . .[7718-36]

Imaging formation of Scattering Media by Focal Modulation Microscopy with Annular Apertures, Ke Si, Gong Wei, Nanguang Chen, Colin Sheppard, National Univ. of Singapore (Singapore) . . . . . .[7718-37]

Motion detection using speckle photography and extended fractional Fourier transform, Basanta Bhaduri, Cho Jui Tay, Chenggen Quan, National Univ. of Singapore (Singapore). . . . . .[7718-38]

Electromagnetic prediction of multiscale depolarization, Myriam Zerrad, Jacques Sorrentini, Gabriel Soriano, Claude Amra, Institut Fresnel (France) . . . . . .[7718-39]

Relation between the Nyquist sampling criteria and the upper measuring range of TV holography and digital holography, Richard Séfel, János Kornis, Budapest Univ. of Technology and Economics (Hungary) . . . . . .[7718-40]

Error analysis of 3D shearography using finite-element modelling, Dênis T. Goto, Technische Univ. Delft (Netherlands) and Univ. Federal de Santa Catarina (Brazil); Roger M. Groves, Technische Univ. Delft (Netherlands) . . . . . .[7718-41]

Phase retrieval in ESPI from a dense fringe pattern, Hongtao Niu, Chenggen Quan, Cho Jui Tay, National Univ. of Singapore (Singapore) . . . . . .[7718-42]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Semi-derivative real filter for the measurement of the wavefront distortion, Rafal A. Kasztelanic, Univ. of Warsaw (Poland) . . . . . .[7718-54]

In situ control of roughness of processed surfaces by reflectometric method, Yuriy D. Filatov, Oleksandr Y. Filatov, V. Bakul Institute for Superhard Materials NASU (Ukraine); Uwe Heisel, Michael G. Storchak, Univ. Stuttgart (Germany); Guy Monteil, Ecole Nationale Supérieure Mécanique et des Microtechniques de Besancon (France). . . . . .[7718-55]

Magnesium diboride (MgB_2) thin film IR bolometer: excess noise characterization, Brook Lakew, Shahid Aslam, NASA Goddard Space Flight Ctr. (United States). . . . . .[7718-56]

A micro-SPM head array for large-scale topography measurement, Sai Gao, Zhi Li, Konrad Herrmann, Physikalisch-Technische Bundesanstalt (Germany) . . . . . .[7718-57]

A simple method for alignment of line distance sensor arrays, Holger Bremer, Manuel Stavridis, Axel Wiegmann, Michael Schulz, Clemens Elster, Franko Schmähling, Physikalisch-Technische Bundesanstalt (Germany); Aiko K. Ruprecht, Stefan Krey, TRIOPTICS GmbH (Germany) . . . . . .[7718-58]

Fine grained nano Sn film used as a medium in super-resolution optical storage, Chuanfei Guo, Qian Liu, The National Ctr. for Nanoscience and Technology of China (China) . . . . . .[7718-59]

Characterization of photoconductive semiconductor switch, Qinggang Liu, Zhihong Yan, Ling Zhao, Xiaotang Hu, Tianjin Univ. (China). . . . . .[7718-60]

Optical testing of bifocal diffractive-refractive intraocular lenses using Shack-Hartmann wavefront sensor, Victor P. Korolkov, Arthur S. Gutman, Institute of Automation and Electrometry (Russian Federation); Ivan V. Shchesyuk, Novosibirsk State Univ. (Russian Federation) . . . . . .[7718-61]

Friday 16 April

SESSION 10 . . . . . Fri. 08.20 to 10.20

Specialised Techniques and Sensors

Session Chair: **Francis Berghmans,** Vrije Univ. Brussel (Belgium)

Narrow selection bandwith of femtosecond laser comb with application to changes in optical path distance, Radek Smid, Josef Lazar, Ondrej Cip, Zdenek Buchta, Jan Jezek, Martin Cizek, Institute of Scientific Instruments of the ASCR, v.v.i. (Czech Republic). . . . . .[7718-43]

Investigations of fast rotating bodies using an interferometric laser Doppler distance sensor, Jürgen W. Czarske, Philipp Günther, Florian Dreier, Thorsten Pfister, Thomas Haupt, Maik Gude, Werner Hufenbach, Technische Univ. Dresden (Germany) . . . . . .[7718-44]

Ellipsometry based on spectrally-resolved interference to measure the thickness of a thin-film structure, Petr Hlubina, Dalibor Ciprian, Jiri Lunacek, Technical Univ. of Ostrava (Czech Republic) . . . . . .[7718-45]

Accuracy of ellipsometric measurements of Si-SiO_2 structures, Valeriy P. Gavrilenko, Yury A. Novikov, Alexander V. Rakov, Pavel A. Todua, A. M. Prokhorov General Physics Institute (Russian Federation). . . . . .[7718-46]

Characterisation of slab waveguides, fabricated in CaF2 and Er-doped tungsten-tellurite glass by MeV energy N+ ion implantation, using spectroscopic ellipsometry and m-line spectroscopy, I. Bányász, Research Institute for Solid State Physics and Optics (Hungary); S. Berneschi, Istituto di Fisica Applicata Nello Carrara (Italy); T. Lohner, M. Fried, P. Petrik, N. Q. Khánh, Z. Zolnai, A. Watterich, Research Institute for Solid State Physics and Optics (Hungary); M. Brenci, G. Nunzi Conti, S. Pelli, G. C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy) . . . . . .[7718-236]

An optical microform calibration system for ball-shaped hardness indenters, Sai Gao, Zhi Li, Konrad Herrmann, Physikalisch-Technische Bundesanstalt (Germany) . . . . . .[7718-48]

SESSION 11 . . . . . Fri. 11.00 to 12.40

Process Monitoring Systems

Session Chair: **Leszek A. Salbut,** Warsaw Univ. of Technology (Poland)

Optical metrology for process control: modeling, design and simulation of sensors for a comparison of different measurement principles, David Fleischle, Wolfram Lyda, Florian Mauch, Tobias Haist, Wolfgang Osten, Univ. Stuttgart (Germany) . . . . . .[7718-49]

Scatterometric analysis of chatter marks occurring in industrial grinding processes, Johannes A. Böhm, AC2T Research GmbH (Austria) and Technische Univ. Wien (Austria); András Vernes, Martin Jech, AC2T Research GmbH (Austria); Michael J. Vellekoop, Technische Univ. Wien (Austria). . . . . .[7718-50]

An optically nondestructive, non-contact, and vibration-insensitive edge defect assessment system for semiconductor and harddisk drive industries, Sarun Sumriddetchkajorn, Kosom Chaitavon, National Electronics and Computer Technology Ctr. (Thailand) . . . . . .[7718-51]

Optical coherent sensor for monitoring and measurement of engineering structures, Dariusz Lukaszewski, Leszek A. Salbut, Warsaw Univ. of Technology (Poland); Jan A. Dziuban, Wroclaw Univ. of Technology (Poland) . . . . . .[7718-52]

Highly sensitive wave front sensor for visual inspection of bare and patterned silicon wafers, Irina Lazareva, Andreas Nutsch, Lothar Pfitzner, Lothar Frey, Fraunhofer-Institut für Integrierte System und Bauelementetechnologie (Germany) . . . . . .[7718-53]

Conference 7719

Monday-Friday 12-16 April 2010 • Proceedings of SPIE Vol. 7719

Silicon Photonics and Photonic Integrated Circuits

Conference Chair: **Giancarlo Cesare Righini,** Istituto di Fisica Applicata Nello Carrara (Italy)

Conference Co-Chairs: **Seppo K. Honkanen,** Helsinki Univ. of Technology (Finland); **Bahram Jalali,** Univ. of California, Los Angeles (USA); **Lorenzo Pavesi,** Univ. degli Studi di Trento (Italy); **Laurent Vivien,** Institut d'Électronique Fondamentale (France)

Programme Committee: **Wim Bogaerts,** Univ. Gent (Belgium); **John E. Bowers,** Univ. of California, Santa Barbara (USA); **Louay A. Eldada,** HelioVolt Corp. (USA); **Jean-Marc Fédéli,** CEA-LETI (France); **Helmut Heidrich,** Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); **Mile Ivanda,** Institut Ruder Bo?kovic (Croatia); **El-Hang Lee,** Inha Univ. (Korea, Republic of); **Sebastian Lourdudoss,** Royal Institute of Technology (Sweden); **Mario J. Paniccia,** Intel Corp. (USA); **Thomas P. Pearsall,** European Photonics Industry Consortium (France); **Stefano Pelli,** Istituto di Fisica Applicata Nello Carrara (Italy); **Klaus Petermann,** Technische Univ. Berlin (Germany); **Stavros Pissadakis,** Foundation for Research and Technology-Hellas (Greece); **Francesco Priolo,** Univ. degli Studi di Catania (Italy); **Manijeh Razeghi,** Northwestern Univ. (USA); **Juha T. Rantala,** Silecs Oy (Finland); **Graham T. Reed,** Univ. of Surrey (United Kingdom); **Ali Serpengüzel,** Koç Univ. (Turkey); **Luigi Sirleto,** Istituto per la Microelettronica e Microsistemi (Italy); **Ari Tervonen,** Helsinki Univ. of Technology (Finland); **Brian R. West,** Wilfrid Laurier Univ. (Canada)

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

Opening Remarks . . . . . Mon. 13.45 to 14.00

Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy)

SESSION 1 . . . . . Mon. 14.00 to 17.10

Silicon Photonics I

Session Chair: **Lorenzo Pavesi,** Univ. degli Studi di Trento (Italy)

Ultra low power Si photonics devices *(Invited Paper)*, Michal F. Lipson, Cornell Univ. (United States) . . . . . .[7719-01]

Carrier depletion based silicon optical modulators *(Invited Paper)*, Delphine Marris-Morini, Gilles Rasigade, Laurent Vivien, Institut d'Électronique Fondamentale (France); David J. Thomson, Frédéric Y. Gardes, Graham T. Reed, Univ. of Surrey (United Kingdom); Jean-Marc Fédéli, Lab. d'Electronique de Technologie de l'Information (France); Paul Crozat, Eric Cassan, Institut d'Électronique Fondamentale (France) . . . . . .[7719-02]

Nonlinear silicon photonics *(Invited Paper)*, Kevin K. Tsia, Univ. of California, Los Angeles (Hong Kong, China) . . . . . .[7719-03]

III-V sources on silicon *(Invited Paper)*, Dries Van Thourhout, Univ. Gent (Belgium) . . . . . .[7719-04]

Silicon-based light sources *(Invited Paper)*, Oleksiy Anopchenko, Univ. degli Studi di Trento (Italy) . . . . . .[7719-05]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 2 . . . . . Tues. 09.00 to 12.10

European Projects in Silicon Photonics

Session Chair: **Laurent Vivien,** Univ. Paris-Sud 11 (France)

Silicon photonics integration with electronic circuit *(Invited Paper)*, Jean-Marc Fédéli, Lab. d'Electronique de Technologie de l'Information (France) . . . .[7719-06]

Overview of the EU FP7-project HISTORIC *(Invited Paper)*, Geert Morthier, Rajesh Kumar, Univ. Gent (Belgium); Fabrice Raineri, Rama Raj, Ctr. National de la Recherche Scientifique (France); Jens Hofrichter, Nikolaos Chrysos, IBM Zürich Research Lab. (Switzerland); Ray Zhang, Jos J. G. M. van der Tol, Oded Raz, Harmen J. S. Dorren, Technische Univ. Eindhoven (Netherlands) . . . . . .[7719-07]

The BOOM project: Terabit-on-chip: Micro and Nano-scale silicon photonic integrated components and sub-systems enabling Tb/s-capacity, scalable and fully integrated photonic routers *(Invited Paper)*, Leontios Stampoulidis, Costas Vyrsokinos, Christos Stamatiadis, Hercules Avramopoulos, National Technical Univ. of Athens (Greece); Jochen Kreissl, Ludwig Mörl, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Dries Van Thourhout, IMEC (Belgium); Jens Bolten, Thorsten Wahlbrink, AMO GmbH (Germany); Lars Zimmermann, Karsten Voigt, Technische Univ. Berlin (Germany); Fausto Gomez-Agis, Eduward Tangdiongga, Harmen J. S. Dorren, Technische Univ. Eindhoven (Netherlands); Christoph Scheytt, IHP GmbH (Germany); Ronald Dekker, LioniX BV (Netherlands); Annachiara Pagano, Emilio Riccardi, TelecomitaliaLAB (Italy) . . . . . .[7719-08]

The UK silicon photonics project *(Invited Paper)*, Graham T. Reed, Goran Z. Mashanovich, Univ. of Surrey (United Kingdom); Thomas F. Krauss, Univ. of St. Andrews (United Kingdom); Robert W. Kelsall, Univ. of Leeds (United Kingdom); D. Leadley, Univ. of Surrey (United Kingdom); Richard M. Jenkins, QinetiQ Ltd. (United Kingdom); Peter Wilson, Univ. of Ulster (United Kingdom) . . . . . .[7719-09]

Real-time label free biosensing with integrated planar waveguide ring-resonators *(Invited Paper)*, Hans Sohlström, Kristinn B. Gylfason, Daniel Hill, Royal Institute of Technology (Sweden) . . . . . .[7719-10]

Lunch Break . . . . . .12.10 to 13.40

SESSION 3 . . . . . Tues. 13.40 to 15.20

Passive Photonic Devices

Session Chair: **Seppo K. Honkanen,**
Helsinki Univ. of Technology (Finland)

Silicon waveguide based mode-evolution polarization rotator, Jing Zhang, Mingbin Yu, Guoqiang Lo, Dim-Lee Kwong, A*STAR Institute of Microelectronics (Singapore) . . . . . .[7719-11]

Towards a realistic modeling of ultra-compact racetrack resonators based SCISSOR router for filtering and switching applications, Marco Masi, Manga Rao, Romain Guider, Mattia Mancinelli, Paolo Bettotti, Univ. degli Studi di Trento (Italy); Régis Orobtchouk, Guofang Fan, Institut National des Sciences Appliquées de Lyon (France); Jean-Marc Fédéli, Lab. d'Electronique de Technologie de l'Information (France); Lorenzo Pavesi, Univ. degli Studi di Trento (Italy). .[7719-12]

Design, simulation and fabrication of a 90° SOI Optical Hybrid Based on the self-imaging principle, Sawsan Abdul-Majid, Imad I. Hasan, Przemek J. Bock, Trevor J. Hall, Ottawa Univ. (Canada) . . . . . .[7719-13]

Highly integrated optical 8×8 lambda-router in silicon-on-insulator technology, Guofang Fan, Régis Orobtchouk, Institut National des Sciences Appliquées de Lyon (France); Jean-Marc Fédéli, Lab. d'Electronique de Technologie de l'Information (France) . . . . . .[7719-14]

Characterisation of slab waveguides, fabricated in CaF_2 and Er-doped tungsten-tellurite glass by MeV energy N^+ ion implantation, using spectroscopic ellipsometry and m-line spectroscopy, István Bányász, Research Institute for Solid State Physics and Optics (Hungary); Simone Berneschi, Istituto di Fisica Applicata Nello Carrara (Italy); Tivadar Lohner, Miklós Fried, Peter Petrik, Nguyen Q. Khánh, Zsolt Zolnai, Research Institute for Technical Physics and Materials Science (Hungary); Andrea Watterich, Research Institute for Solid State Physics and Optics (Hungary); Massimo Brenci, Gualtiero Nunzi Conti, Stefano Pelli, Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy) .[7719-15]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

Wednesday 14 April

SESSION 4 . . . . . Wed. 08.30 to 10.20

Optical Sources I

Session Chair: **Maurizio Ferrari,** IFN CNR (Italy)

Transient optical gain in strained germanium quantum wells *(Invited Paper)*, Sangam Chatterjee, Christoph Lange, Niko S. Köster, Philipps-Univ. Marburg (Germany); Hans C. Sigg, Paul Scherrer Institut (Switzerland); Daniel Chrastina, Giovanni Isella, Lab. for Epitaxial Nanostructures on Silicon and Spintronics (Italy); Martin Schäfer, Mackillo Kira, Stephan W. Koch, Philipps-Univ. Marburg (Germany) . . . . . .[7719-16]

Control of direct band gap emission of bulk germanium by a mechanical in-plane tensile strain, Moustafa El Kurdi, Hervé Bertin, Emile Martincic, Malo de Kersauson, Willy Daney de Marcillac, Guy Fishman, Sebastien Sauvage, Alain Bosseboeuf, Institut d'Électronique Fondamentale (France); Roberto Jakomin, Grégoire Baudoin, Noelle Gogneau, Ludovic Largeau, Isabelle Sagnes, Ctr. National de la Recherche Scientifique (France); Philippe Boucaud, Institut d'Électronique Fondamentale (France) . . . . . .[7719-17]

Light emission of 2D photonic crystal based on nanocrystal-Si/SiO_2 superlattice structure, Mingbin Yu, Liang Ding, Fang-Fang Ren, Patrick G. Lo, Dim-Lee Kwong, A*STAR Institute of Microelectronics (Singapore). . . . . .[7719-18]

A silicon-based electrical source of surface plasmon polaritons, Robert J. Walters, FOM Institute for Atomic and Molecular Physics (Netherlands); Ihor Brunets, Jurriaan Schmitz, Univ. Twente (Netherlands); Albert Polman, FOM Institute for Atomic and Molecular Physics (Netherlands) . . . . . .[7719-19]

Tailoring nonlinear material towards integrated source based on stimulated Raman scattering, Luigi Sirleto, Maria Antonietta Ferrara, Istituto per la Microelettronica e Microsistemi (Italy); Luca Dal Negro, The Boston Univ. Photonics Ctr. (United States); Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy) . . . . . .[7719-20]

SESSION 5 . . . . . Wed. 11.00 to 12.40

Optical Sources II

Session Chair: **Dries Van Thourhout,** Univ. Gent (Belgium)

Silicon nanocrystals light emitting devices: characterization and coupling to SU-8 waveguides, David Izquierdo, María del Carmen Garralaga, Iñigo Salinas, Univ. de Zaragoza (Spain); Jorge Barreto, Carlos Domínguez Horna, Ctr. Nacional de Microelectrónica (Spain); Juan Ignacio Garcés, Univ. de Zaragoza (Spain) . . . . . .[7719-21]

Blue and red electroluminescence of silicon-rich oxide light emitting capacitors, Alfredo Morales-Sanchez, Mariano Aceves-Mijares, Alfredo A. Gonzalez-Fernandez, Karim Monfil-Leyva, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Joan Juvert, Carlos Dominguez, Ctr. Nacional de Microelectrónica (Spain) . . . . . .[7719-22]

design and electro-optical characterization of si-based resonant cavity light emitting devices with erbium doped silicon rich oxide, Anna Muscara, Maria E. Castagna, Salvatore Coffa, STMicroelectronics (Italy) . . . . . .[7719-23]

Enhanced gain coefficient in Raman amplifier based on silicon nanocomposites, Maria Antonietta Ferrara, Luigi Sirleto, Giuseppe Nicotra, Corrado Spinella, Ivo Rendina, Istituto per la Microelettronica e Microsistemi (Italy) . . . . . .[7719-24]

Heteroepitaxial indium phosphide on silicon, Carl Junesand, W. Metaferia, Fredrik Olsson, Kista Photonics Research Ctr. (Sweden); Manuel Avella Romero, Juan Jimnez, Univ. de Valladolid (Spain); Galina R. Pozina, Lars Hultman, Linköping Univ. (Sweden); Sebastian Lourdudoss, Kista Photonics Research Ctr. (Sweden) . . . . . .[7719-25]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany; **Ursula Keller,** ETH Zurich, Switzerland; **Mike Dunne,** Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 6 . . . . . Thurs. 08.20 to 10.00

Optical Detection

Session Chair: **Laurent Vivien,** Univ. Paris-Sud 11 (France)

CMOS technology compatible photodetectors at 1.55 µm, Maurizio Casalino, Mariano Gioffrè, Giuseppe Coppola, Mario Iodice, Consiglio Nazionale delle Ricerche (Italy); Luigi Moretti, Seconda Univ. degli Studi di Napoli (Italy); Ivo Rendina, Luigi Sirleto, Consiglio Nazionale delle Ricerche (Italy) . . . . . .[7719-26]

Hybrid integration of InP photodetectors with SOI waveguides using thermocompression bonding, Mikko Harjanne, Markku Kapulainen, Sami Ylinen, Timo Aalto, Jyrki Ollila, VTT Technical Research Ctr. of Finland (Finland); Ludwig Mörl, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) . . . . . .[7719-27]

Monolithically fabricated germanium-on-SOI photodetector and Si CMOS circuit for integrated photonic applications, Kah-Wee Ang, Tsung-Yang Liow, Mingbin Yu, Qing Fang, Junfeng Song, Patrick G. Lo, Dim-Lee Kwong, A*STAR Institute of Microelectronics (Singapore). . . . . .[7719-28]

PIN photodiodes with significantly improved responsivities implemented in a 0.35µm CMOS/BiCMOS technology, Ingrid Jonak-Auer, austriamicrosystems AG (Austria); Artur Marchlewski, Technische Univ. Wien (Austria); Stefan Jessenig, austriamicrosystems AG (Austria); Andreas Polzer, Wolfgang Gaberl, Technische Univ. Wien (Austria); Arnold Schmiderer, Ewald Wachmann, austriamicrosystems AG (Austria); Horst K. Zimmermann, Technische Univ. Wien (Austria) . . . .[7719-29]

Integrated streak camera in standard (Bi)CMOS technology, Martin Zlatanski, Wilfried Uhring, Jean-Pierre Le Normand, Chantal-Virginie Zint, Daniel Mathiot, Institut d'Électronique du Solide et des Systèmes (France) . . . . . .[7719-30]

SESSION 7 . . . . . Thurs. 10.40 to 12.40

Nonlinear Photonics

Session Chair: **Luigi Sirleto,**
Istituto per la Microelettronica e Microsistemi (Italy)

Silicon-based ultra-wide discrete band conversion *(Invited Paper)*, Ozdal Boyraz, En-Kuang Tien, Univ. of California, Irvine (United States) . . . . . .[7719-31]

Terahertz-range stimulated emission due to electronic nonlinear frequency conversion in silicon, Sergeij G. Pavlov, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany); Heinz-Wilhelm Hübers, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany) and Technische Univ. Berlin (Germany); Ute Böttger, Rene Eichholz, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany); Valery N. Shastin, Institute for Physics of Microstructures (Russian Federation); Nikolai V. Abrosimov, Helge Riemann, Leibniz-Institut für Kristallzüchtung (Germany); Britta Redlich, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands). . . . .[7719-32]

Enhancing the efficiency of silicon Raman converters, Nathalie Vermeulen, Vrije Univ. Brussel (Belgium); John E. Sipe, Univ. of Toronto (Canada); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7719-33]

Strain dependence of second harmonic generation in silicon, Clemens Schriever, Christian Bohley, Ralf B. Wehrspohn, Martin-Luther-Univ. Halle-Wittenberg (Germany) . . . . . .[7719-34]

Deterministic aperiodic structures for on-chip nanophotonics and nanonplasmonics *(Invited Paper)*, Luca Dal Negro, The Boston Univ. Photonics Ctr. (United States) . . . . . .[7719-35]

Lunch Break . . . . . .12.40 to 13.50

SESSION 8 . . . . . Thurs. 13.50 to 15.10

Optical Modulator and Switches

Session Chair: **Graham T. Reed,** Univ. of Surrey (United Kingdom)

Hybrid SOI nonlinear optical polymer racetrack resonator designs for electro-optical modulation, Jan Hampe, Jan-Hendrik Wülbern, Stefan Prorok, Alexander Y. Petrov, Manfred Eich, Technische Univ. Hamburg-Harburg (Germany).[7719-36]

An optimization method for depletion-based silicon optical modulators, Gilles Rasigade, Delphine Marris-Morini, Laurent Vivien, Eric Cassan, Institut d'Électronique Fondamentale (France) . . . . . .[7719-37]

Tunable silicon CROW delay lines, Francesco Morichetti, Antonio Canciamilla, Matteo Torregiani, Carlo Ferrari, Andrea Melloni, Mario Martinelli, Politecnico di Milano (Italy) . . . . . .[7719-38]

RF frequency transparent 90° hybrid based on silicon on insulator photonic circuit, Rakesh Sambaraju, Jose Vicente Galan-Conejos, Javier Herrera, Amadeu Griol, Alejandro Martinez, Univ. Politécnica de Valencia (Spain) . . . . . .[7719-39]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Magnetic nanoparticles-doped silica layer reported on ion-exchanged glass waveguide: a novel integrated magneto-optical device, Hadi Amata, François Royer, Fadi Choueikani, Damien Jamon, Univ. Jean Monnet Saint-Etienne (France); Jean-Emmanuel Broquin, Institut de Microélectronique Électromagnétisme et Photonique (France); Jean Claude Plenet, Univ. Claude Bernard Lyon 1 (France); Jean-Jaques Rousseau, Univ. Jean Monnet Saint-Etienne (France) . . . . .[7719-51]

10Gbps monolithic silicon ONU transceiver for FTTH, Jing Zhang, Tsung-Yang Liow, Guoqiang Lo, Dim-Lee Kwong, A*STAR Institute of Microelectronics (Singapore) . . . . . .[7719-52]

Laser-assisted chemical etching for texturing silicon surface, Mitsunori Saito, Saori Kimura, Ryukoku Univ. (Japan) . . . . . .[7719-53]

Discretely tunable microwave photonics beamformer based on ring resonators and arrayed waveguide gratings, Jose D. Domenech Gomez, Pascual Muñoz-Muñoz, Jose Capmany Francoy, Univ. Politécnica de Valencia (Spain) . . . . . .[7719-54]

Influence of the localization of process-induced disorder on planar photonic crystal waveguide properties, Ryan Hao, Eric Cassan, Institut d'Électronique Fondamentale (France) . . . . . .[7719-55]

Study on the diffraction performance of the etched blazed grating, Shuping Li, Xiangdiao Deng, Jingping Zhu, Tiantong Tang, Xi'an Jiaotong Univ. (China) . . . . . .[7719-56]

Digital holographic microscopy for silicon microsystems metrology, Yves Delacrétaz, Christian D. Depeursinge, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7719-57]

A 10Gb/s transimpedance amplifier for hybrid integration of a Ge PIN waveguide photodiode, Andreas Polzer, Wolfgang Gaberl, Robert Swoboda, Horst K. Zimmermann, Technische Univ. Wien (Austria); Jean-Marc Fédéli, Lab. d'Electronique de Technologie de l'Information (France); Laurent Vivien, Institut d'Électronique Fondamentale (France) . . . . . .[7719-58]

Electrooptically controlled Bragg grating with travelling wave electrodes, Alexander V. Shamray, Vladimir Lebedev, Andrei Greshnov, Igor Ilichev, Ioffe Physico-Technical Institute (Russian Federation) . . . . . .[7719-59]

Enhanced stimulated Raman scattering in silicon nanocrystals embedded in silicon-rich nitride/silicon superlattice structures, Luigi Sirleto, Maria Antonietta Ferrara, Ivo Rendina, Istituto per la Microelettronica e Microsistemi (Italy); Soumendra N. Basu, Boston Univ. (United States); Joseph Warga, Rui Li, Luca Dal Negro, The Boston Univ. Photonics Ctr. (United States) . . . . . .[7719-60]

Enhanced Raman gain coefficients and bandwidths in sodium-niobium-phosphate glasses, Luigi Sirleto, Istituto per la Microelettronica e Microsistemi (Italy); Maria Grazia Donato, Istituto per i Processi Chimico-Fisici (Italy); Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy); Giacomo Messina, Univ. Mediterranea di Reggio Calabria (Italy) . . . . . .[7719-61]

Waveguide-based copper Schottky-barrier photodetector at 1.55 µm, Maurizio Casalino, Luigi Sirleto, Nunzia Saffioti, Mariano Gioffrè, Mario Iodice, Ivo Rendina, Giuseppe Coppola, Consiglio Nazionale delle Ricerche (Italy) . . . . . .[7719-62]

Low-voltage high-efficiency light emitting diodes with lateral-current injection based on truncated Si/SiO $_2$ quantum wells, Liang Ding, Mingbin Yu, Patrick G. Lo, Dim-Lee Kwong, A*STAR Institute of Microelectronics (Singapore). . .[7719-63]

Monolithic integration and optimization of waveguide silicon modulators and germanium photodetectors, Tsung-Yang Liow, Kah-Wee Ang, Qing Fang, Junfeng Song, Yong-Zhong Xiong, Mingbin Yu, Patrick G. Lo, Dim-Lee Kwong, A*STAR Institute of Microelectronics (Singapore). . . . . .[7719-64]

Nanometer germanium photodetector with aluminum surface plasmon antenna for enhanced photo-response, Fang-Fang Ren, Kah-Wee Ang, Patrick G. Lo, Dim-Lee Kwong, A*STAR Institute of Microelectronics (Singapore) [7719-65]

Theoretical analysis of two resonators system, Guofang Fan, Régis Orobtchouk, Institut National des Sciences Appliquées de Lyon (France).[7719-66]

Apodization of coupled resonator optical waveguide devices through a longitudinal offset technique, Jose D. Domenech Gomez, Pascual Muñoz-Muñoz, Jose Capmany Francoy, Univ. Politécnica de Valencia (Spain) . . .[7719-67]

Compact integrated optical directional coupler with large cross section silicon waveguides, Bijoy K. Das, John P. George, Nandita DasGupta, Indian Institute of Technology Madras (India) . . . . . .[7719-68]

Widely tunable multi-wavelength channel drop filter on oriented SOI wafers by anisotropic chemical wet etching, Renil M. Kumar, Prita Nair, Sri Sivasubramaniya Nadar College of Engineering (India) . . . . . .[7719-69]

Design and fabrication of a novel evanescent germanium electro-absorption modulator, Andy E. Lim, Kah-Wee Ang, Qing Fang, Tsung-Yang Liow, Mingbin Yu, Patrick G. Lo, Dim-Lee Kwong, A*STAR Institute of Microelectronics (Singapore) . . . . . .[7719-70]

Photonic integrated single-sideband modulator / frequency shifter based on surface acoustic waves, Elaine C. S. Barretto, Jørn M. Hvam, Technical Univ. of Denmark (Denmark). . . . . .[7719-71]

Evolution of black silicon surface nano-a nd micro-scale topology upon femtosecond laser irradiation, Sergey I. Kudryashov, Andrey A. Ionin, Sergey Makarov, Leonid V. Seleznev, Dmitry V. Sinitsyn, P.N. Lebedev Physical Institute (Russian Federation); Alexander E. Ligachev, A. M. Prokhorov General Physics Institute (Russian Federation) . . . . . .[7719-72]

A full-vectorial mode solver for bending waveguides by a modified finite difference method based on E-fields in cylindrical coordinate systems, Jinbiao Xiao, Xiaohan Sun, Southeast Univ. (China) . . . . . .[7719-73]

Friday 16 April

SESSION 9 . . . . . Fri. 08.30 to 10.20

Photonic Integration

Session Chair: **Jean-Marc Fédéli,**
Lab. d'Electronique de Technologie de l'Information (France)

Integration of plasmonic wires and devices for VLSI photonic circuits *(Invited Paper)*, El-Hang Lee, Inha Univ. (Korea, Republic of) . . . . . .[7719-40]

Cycle-accurate evaluation of reconfigurable photonic networks-on-chip, Christof Debaes, Vrije Univ. Brussel (Belgium); Inigo Artundo, Univ. Politécnica de Valencia (Spain); Wim Heirman, Jan M. Van Campenhout, Univ. Gent (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7719-41]

High-Speed Optoelectronic IC for Multi-Standards of Optical Storage System, Sang Hyun Cha, Ha Woong Jeong, Chae Dong Go, Deuk Hee Park, Chang Seok Lee, Kyoung Soo Kwon, Jea Shin Lee, Samsung Electro-Mechanics (Korea, Republic of) . . . . . .[7719-42]

320 Gbps monolithic silicon photonic DWDM receiver, Qing Fang, Tsung-Yang Liow, Kah-Wee Ang, Yu Ting Phang, Mingbin Yu, Patrick G. Lo, Dim-Lee Kwong, A*STAR Institute of Microelectronics (Singapore). . . . . .[7719-43]

Multichip Subcarrier for Chip-to-Chip Optical Interconnects Using Long Wavelength VCSELs, Ikechi A. Ukaegbu, Jun Yeong Lee, Jamshid Sangirov, Tae-Woo Lee, Mu Hee Cho, Hyo-Hoon Park, Korea Advanced Institute of Science and Technology (Korea, Republic of) . . . . . .[7719-44]

SESSION 10 . . . . . Fri. 11.00 to 13.00

Waveguide and Active Devices

Session Chair: **Sebastian Lourdudoss,**
Royal Institute of Technology (Sweden)

Rigorous characterization of silicon nanowire for compact nanophotonic devices, B. M. A. Rahman, David Leung, Namassivayane Kejalakshmy, Arti Agrawal, Mohammad Ashraf, Kenneth T. V. Grattan, The City Univ. (United Kingdom) . . . . . .[7719-45]

Spatially localized UV-induced crystallization of SnO $_2$ in photorefractive SiO $_2$-SnO $_2$ thin film, Shivakiran Bhaktha Bantwal Narasimha, Univ. de Nice Sophia Antipolis (France); Simone Berneschi, Gualtiero Nunzi Conti, Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy); Andrea Chiappini, Alessandro Chiasera, Maurizio Ferrari, Istituto di Fotonica e Nanotecnologie (Italy); Sylvia Turrell, Lab. de Spectrochimie Infrarouge et Raman (France) . . . . . .[7719-46]

Fabrication of nanophotonic components in bulk silicon using ion irradiation, Mark B. H. Breese, National Univ. of Singapore (Singapore) . . . . . .[7719-47]

Low voltage, moderate rejection ratio electro-optic modulator at 2.2µm obtained by proton exchange in lithium niobate, Olga Caballero-Calero, Romain Burla, Thibaut Moulin, Alain Delboulbé, Laurent Jocou, Jean-Philippe Berger, Guillermo Martin, Lab. d'Astrophysique de l'Observatoire de Grenoble (France) . . . . . .[7719-48]

tunable inegrated optical filters based on sapphire microspheres and liquid crystals, Romeo Beccherelli, Istituto per la Microelettronica e Microsistemi (Italy); Giovanni Gilardi, Antonio D'Alessandro, Univ. degli Studi di Roma La Sapienza (Italy); Ali Serpengüzel, Hasan Yilmaz, Mohammed Sharif Murib, Koç Univ. (Turkey) . . . . . .[7719-49]

Electrically driven hybrid Si/III-V evanescent lasers based on adiabatic mode transformers, Badhise Ben Bakir, Philippe Grosse, Lab. d'Electronique de Technologie de l'Information (France); Nicolas Olivier, Ecole Polytechnique (France); S. Messaoudène, S. Brision, E. Augendre, Paul Philippe, Karen Gilbert, D. Bordel, J. Harduin, Jean-Marc Fédéli, Lab. d'Electronique de Technologie de l'Information (France). . . . . .[7719-50]

Monday-Friday 12-16 April 2010 • Proceedings of SPIE Vol. 7720

Semiconductor Lasers and Laser Dynamics

Conference Chairs: **Krassimir Panayotov,** Vrije Univ. Brussel (Belgium); **Marc Sciamanna,** Supélec (France); **Angel A. Valle,** Univ. de Cantabria (Spain); **Rainer Michalzik,** Univ. Ulm (Germany)

Programme Committee: **Sylvain Barbay,** CNRS-Lab. de Photonique et Nanostructures (France); **Dieter Bimberg,** Technische Univ. Berlin (Germany); **Kent D. Choquette,** Univ. of Illinois at Urbana-Champaign (USA); **Weng W. Chow,** Sandia National Labs. (USA); **Wolfgang E. Elsäßer,** Technische Univ. Darmstadt (Germany); **Jerome Faist,** ETH Zürich (Switzerland); **Fritz Henneberger,** Humboldt-Univ. zu Berlin (Germany); **Diana L. Huffaker,** Univ. of California, Los Angeles (USA); **Anders G. Larsson,** Chalmers Univ. of Technology (Sweden); **John G. McInerney,** Univ. College Cork (Ireland); **Wlodzimierz Nakwaski,** Technical Univ. of Lodz (Poland); **K. Alan Shore,** Bangor Univ. (United Kingdom); **Atsushi Uchida,** Saitama Univ. (Japan)

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

Opening Remarks . . . . . Mon. 13.15

SESSION 1 . . . . . Mon. 13.00 to 15.00

VCSELs I

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

High-speed 850-nm VCSELs for 40 Gb/s transmission *(Invited Paper)*, Johan S. Gustavsson, Petter Westbergh, Krzysztof Szczerba, Asa Haglund, Anders G. Larsson, Magnus Karlsson, Peter A. Andrekson, Chalmers Univ. of Technology (Sweden); Friedhelm Hopfer, Gerrit Fiol, Dieter Bimberg, Technische Univ. Berlin (Germany); Bengt-Erik Olsson, A. Kristiansson, Ericsson AB (Sweden); Sorcha Healy, Eoin P. O'Reilly, Tyndall National Institute (Ireland); Andrew M. Joel, IQE plc (United Kingdom). . . . . .[7720-01]

Directly and electrooptically-modulated Bragg reflector vertical cavity surface emitting lasers for high-speed and short-reach optical links *(Invited Paper)*, James A. Lott, VI Systems GmbH (Germany) . . . . . .[7720-02]

High data throughput VCSELs, Jim A. Tatum, Finisar Corp. (United States) . . . . . .[7720-03]

Polarization modes in long-wavelength vertical cavity surface emitting lasers (VCSELs) and VCSEL arrays, Elodie Lamothe, Lukas Mutter, Vladimir Iakovlev, Andrei Caliman, Alexandru Mereuta, Alexei Sirbu, Eli E. Kapon, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7720-04]

Polarization-stable single-mode VCSELs for Cs-based MEMS atomic clock applications, Ahmed Al-Samaneh, Simeon Renz, Andreas Strodl, Wolfgang Schwarz, Dietmar Wahl, Rainer Michalzik, Univ. Ulm (Germany) . . . . . .[7720-84]

SESSION 2 . . . . . Mon. 15.40 to 17.50

VCSELs II and Cavity Solitons

Session Chair: **Krassimir Panajotov,** Vrije Univ. Brussel (Belgium)

Self-pulsing dynamics in a cavity soliton laser *(Invited Paper)*, Thorsten Ackemann, Neal Radwell, William J. Firth, Gian-Luca Oppo, Univ. of Strathclyde (United Kingdom). . . . . .[7720-05]

Manipulation and dynamics of cavity solitons in a monolithic vertical-cavity laser with saturable absorber, Tiffany Elsass, Isabelle Sagnes, Robert Kuszelewicz, Sylvain Barbay, Ctr. National de la Recherche Scientifique (France) . . . . . .[7720-06]

Turn-on delay and Auger recombination in long-wavelength VCSELs, Nicolas Volet, Lukas Mutter, Alexei Sirbu, Vladimir Iakovlev, Alexandru Mereuta, Andrei Caliman, Grigore I. Suruceanu, Eli E. Kapon, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7720-07]

Pulse-regime single-mode operation of antiwaveguide photonic-crystal 1300 nm VCSEL, Tomasz G. Czyszanowski, Robert P. Sarzala, Maciej Dems, Michal Wasiak, Wlodzimierz Nakwaski, Technical Univ. of Lodz (Poland); Krassimir Panajotov, Vrije Univ. Brussel (Belgium) . . . . . .[7720-08]

Monolithic integration of VCSELs and PIN photodiodes for bidirectional data communication over standard multimode fibers, Alexander Kern, Dietmar Wahl, Bo Liu, Martin Stach, Rainer Michalzik, Univ. Ulm (Germany) . . . . . .[7720-09]

Feedback-free loss-modulation in detuned duo-cavity VCSEL: concept for ultra-high speed laser source, Serge Oktyabrsky, Jobert van Eisden, Vadim E. Tokranov, Michael Yakimov, Univ. at Albany (United States) . . . . . .[7720-10]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.30 to 10.20

Laser Dynamics I

Enhanced modulation bandwidth of nanocavity light emitting diodes *(Invited Paper)*, Ming C. Wu, Univ. of California, Berkeley (United States) . . . . . .[7720-11]

Excitable pulse trains in mutually-coupled quantum dot lasers, Bryan Kelleher, Cristian Bonatto, Pavel Skoda, Stephen P. Hegarty, Tyndall National Institute (Ireland); Guillaume Huyet, Cork Institute of Technology (Ireland) . . . . . .[7720-12]

Dynamics of an optically-injected multi-section tunable laser, Christopher A. Stolz, Dmitry Labukhin, Nickolay A. Zakhleniuk, Rodney Loudon, Michael J. Adams, Univ. of Essex (United Kingdom) . . . . . .[7720-13]

Numerical and experimental study of quantum dot mode-locked lasers with single mode optical injection, Natalia V. Rebrova, Tyndall National Institute (Ireland) and Cork Institute of Technology (Ireland); Tatiana Habruseva, Stephen P. Hegarty, Guillaume Huyet, Tyndall National Institute (Ireland) . . . . . .[7720-14]

Optical injection-induced timing jitter reduction in gain-switched single-mode vertical-cavity surface-emitting lasers, Antonio Consoli, Univ. Politécnica de Madrid (Spain); Jose M. Noriega, Univ. de Oviedo (Spain); Angel A. Valle, Luis Pesquera, Univ. de Cantabria (Spain); Ignacio Esquivias, Francisco J. López-Hernández, Univ. Politécnica de Madrid (Spain). . . . . .[7720-15]

SESSION 4 . . . . . Tues. 11.00 to 12.50

Application of Laser Chaos

Session Chair: **Marc Sciamanna,** Supélec (France)

Towards the generation of random bits at terahertz rates based on a chaotic semiconductor laser *(Invited Paper)*, Ido Kanter, Bar-Ilan Univ. (Israel) . .[7720-16]

Power loss resilience and eavesdropper detection in optical chaos communications systems, Yanhua Hong, K. Alan Shore, Bangor Univ. (United Kingdom) . . . . . .[7720-17]

Solution structure and dynamics of a semiconductor laser subject to feedback from two external filters, Piotr Slowinski, Bernd Krauskopf, Univ. of Bristol (United Kingdom); Sebastian M. Wieczorek, The Univ. of Exeter (United Kingdom) . . . . . .[7720-18]

Chaos multiplexing with external-cavity semiconductor lasers, Damien Rontani, Supélec (France) and Georgia Institute of Technology (United States) and CNRS UMI-2958 (France); Alexandre Locquet, Georgia Tech Lorraine (France) and CNRS UMI-2958 (France); Marc Sciamanna, Supélec (France) and Georgia Institute of Technology (France) and CNRS UMI-2958 (France); David S. Citrin, Georgia Institute of Technology (United States) and CNRS UMI-2958 (France) . . . . . .[7720-19]

Hysteresis in the synchronization process between two semiconductor lasers, Olivier Vaudel, Pascal Besnard, CNRS Foton-Enssat (France). . . .[7720-20]

Lunch Break . . . . . 12.50 to 14.00

SESSION 5 . . . . . Tues. 14.00 to 15.30

Laser Array and Ring Laser

Coupled cavity semiconductor ring lasers *(Invited Paper)*, Marc Sorel, Univ. of Glasgow (United Kingdom) . . . . . [7720-21]

Theoretical and experimental investigation of mode-hopping in semiconductor ring lasers, Stefano Beri, Lendert Gelens, Miquel Mestre, Guy Van der Sande, Vrije Univ. Brussel (Belgium); Gabor Mezosi, Marc Sorel, Univ. of Glasgow (United Kingdom); Guy Verschaffelt, Jan Danckaert, Vrije Univ. Brussel (Belgium) . . . . . [7720-22]

Modal conversion of a phase-locked extended-cavity diode laser array into a single lobe, David Pabœuf, Florian M. Emaury, Sébastien M. de Rossi, Arnaud M. Jérôme, Michel M. Lamare, Raymond F. Mercier, Institut d'Optique Graduate School (France); Gaëlle Lucas-Leclin, Institut d'Optique Graduate School (France) and Ctr. National de la Recherche Scientifique (France) and Univ. Paris-Sud 11 (France); Patrick Georges, Institut d'Optique Graduate School (France) . .[7720-23]

Low cost and high performance for high-order laterally coupled DFB lasers, Atousa Assadi, Ron Millett, Kais Dridi, Henry P. Schriemer, Karin Hinzer, Trevor J. Hall, Univ. of Ottawa (Canada) . . . . . [7720-24]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

Wednesday 14 April

SESSION 6 . . . . . Wed. 08.20 to 10.10

Laser Dynamics II

Session Chair: **Angel A. Valle,** Univ. de Cantabria (Spain)

Spatio-temporal dynamics of coupled semiconductor lasers: the weak and strong-coupling theory *(Invited Paper)*, Sebastian M. Wieczorek, The Univ. of Exeter (United Kingdom) . . . . . [7720-25]

Synchronization of quasiperiodic oscillations to an harmonic force studied on semiconductor lasers, André Loose, Hans-Jürgen Wünsche, Fritz Henneberger, Humboldt-Univ. zu Berlin (Germany). . . . . [7720-26]

Theoretical and experimental investigation of complex low energy Gain switching sources using a highly nonlinear optical loop mirror, Cristina de Dios Fernandez, Horacio Lamela, Univ. Carlos III de Madrid (Spain) . . . . . [7720-27]

Integrated monolithic device with three mutually coupled DFB lasers for the generation of a tunable narrow linewidth mm-wave signal, Marco Zanola, Marco Soldo, Univ. degli Studi di Pavia (Italy); Michael J. Strain, Marc Sorel, Univ. of Glasgow (United Kingdom); Guido Giuliani, Univ. degli Studi di Pavia (Italy) . . . . . [7720-28]

Direct modulation of stably injection-locked semiconductor lasers for photonic microwave transmission, Sheng-Kwang Hwang, National Cheng Kung Univ. (Taiwan); Sze-Chun Chan, City Univ. of Hong Kong (Hong Kong, China); Shie-Chin Hsieh, Cheng-Yu Li, National Chung Cheng Univ. (Taiwan) . . .[7720-29]

SESSION 7 . . . . . Wed. 10.50 to 13.00

Mode-locking I

Versatile mode-locked quantum-dot laser diodes *(Invited Paper)*, Maria-Ana Cataluna, Edik U. Rafailov, Univ. of Dundee (United Kingdom) . . . . . [7720-30]

Traveling wave modeling, simulations and analysis of quantum-dot mode-locked semiconductor lasers, Mindaugas Radsiunas, Andrei G. Vladimirov, Weierstrass-Institute für Angewandte Analysis und Stochastik (Germany); Evgeny A. Viktorov, Univ. Libre de Bruxelles (Belgium). . . . . [7720-31]

Locking characteristics of a 40 GHz hybrid mode-locked monolithic quantum dot laser, Andrei G. Vladimirov, Matthias Wolfrum, Weierstrass-Institute für Angewandte Analysis und Stochastik (Germany); Gerrit Fiol, Dejan Arsenijevic, Dieter Bimberg, Technische Univ. Berlin (Germany); Evgeny A. Viktorov, Paul Mandel, Univ. Libre de Bruxelles (Belgium); Dmitrii I. Rachinskii, Univ. College Cork (Ireland) . . . . . [7720-32]

Quantum-dot mode-locked lasers with dual mode optical injection, Tatiana Habruseva, Natalia V. Rebrova, Shane O'Donoghue, Stephen P. Hegarty, Guillaume Huyet, Tyndall National Institute (Ireland). . . . . [7720-33]

40 GHz and 160 GHz mode-locked quantum dot laser showing pulse width of 750 fs at 1.3 µm, Holger Schmeckebier, Gerrit Fiol, Christian Meuer, Dejan Arsenijevic, Dieter Bimberg, Technische Univ. Berlin (Germany) . . . . . [7720-34]

Reverse excited state / ground state dynamics in mode-locked two-section quantum dot semiconductor lasers, Stefan Breuer, Wolfgang E. Elsaesser, Technische Univ. Darmstadt (Germany); Mattia Rossetti, Ivo Montrosset, Politecnico di Torino (Italy); Mark Hopkinson, The Univ. of Sheffield (United Kingdom); Michel Krakowski, Alcatel-Thales III-V Lab. (France). . . . . [7720-35]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . 13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany; **Ursula Keller,** ETH Zurich, Switzerland; **Mike Dunne,** Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 8 . . . . . Thurs. 08.20 to 10.10

Nanolasers and VECSELs

Electrically pumped semiconductor plasmonic nano lasers at near infrared wavelengths *(Invited Paper)*, Martin T. Hill, Technische Univ. Eindhoven (Netherlands) . . . . . [7720-36]

Thermoreflectance study of the temperature distributions in the antimonide VECSELs during pulse operation, Kamil Pierscinski, Dorota Pierscinska, Maciej Bugajski, Institute of Electron Technology (Poland); Marcel Rattunde, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany). . . . . [7720-37]

Optically pumped semiconductor disk laser with gain element engineered for wide tunability, Carl Borgentun, Jörgen Bengtsson, Anders G. Larsson, Chalmers Univ. of Technology (Sweden); Frank Demaria, Alexander Hein, Peter Unger, Univ. Ulm (Germany). . . . . [7720-38]

2.34 µm electrically-pumped VECSEL with buried tunnel junction, Antti Härkönen, Tampere Univ. of Technology (Finland); Alexander Bachmann, Shamsul Arafin, Walter Schottky Institute (Germany); Kimmo Haring, Jukka Viheriälä, Mircea D. Guina, Tampere Univ. of Technology (Finland); Markus-Christian Amann, Walter Schottky Institute (Germany). . . . . [7720-39]

High-power narrow linewidth optically pumped dilute-nitride disk laser with emission at 589 nm, Tomi Leinonen, Antti Härkönen, Ville-Markus Korpijärvi, Mircea D. Guina, Tampere Univ. of Technology (Finland); Ryan Epstein, James Murray, Gregory J. Fetzer, Areté Associates (United States) . . . . . [7720-40]

SESSION 9 . . . . . Thurs. 10.50 to 12.10

Mode-locking II

40 GHz GaInNAs-based passively mode-locked laser diode, Kimmo Haring, Tampere Univ. of Technology (Finland); Jiri Thoma, Tomasz J. Ochalski, Tyndall National Institute (Ireland) and Cork Institute of Technology (Ireland); Stephen P. Hegarty, Tyndall National Institute (Ireland); Janne Puustinen, Jukka Viheriälä, Tampere Univ. of Technology (Finland); Guillaume Huyet, Tyndall National Institute (Ireland) and Cork Institute of Technology (Ireland); Mircea D. Guina, Tampere Univ. of Technology (Finland) . . . . . [7720-41]

Coherence collapse in monolithic quantum-dash-based passive mode-locked lasers, Kamel Merghem, Ricardo Rosales, Sheherazade Azouigui, Anthony Martinez, Guy Aubin, Abderrahim Ramdane, Ctr. National de la Recherche Scientifique (France) . . . . . [7720-42]

Intra-cavity dispersion control of semiconductor mode-locked lasers with chirped Bragg grating structures, Michael J. Strain, Marc Sorel, Univ. of Glasgow (United Kingdom) . . . . . [7720-43]

10-GHz 1.59 µm quantum dash passively mode-locked two-section lasers, Madhoussoudhana Dontabactouny, Institut National des Sciences Appliquées de Rennes (France); Christian Rosenberg, Elizaveta S. Semenova, David Larsson, Kresten Yvind, Technical Univ. of Denmark (Denmark); Rozenn Piron, Frédéric Grillot, Olivier Dehaese, Slimane Loualiche, Institut National des Sciences Appliquées de Rennes (France) . . . . . [7720-44]

Lunch Break . . . . . 12.10 to 13.30

SESSION 10 . . . . . Thurs. 13.30 to 14.50

Semiconductor Edge-emitting Lasers

Red-emitting tapered diode lasers for display applications, Gunnar Blume, David Feise, Helmar Dittrich, Christian Kaspari, Katrin Paschke, Götz Erbert, Ferdinand-Braun-Institut für Höchstfrequenztechnik (Germany) . . . . . [7720-45]

Wavelength switching characteristics of two-colour semiconductor lasers with current modulation, Patrycja Heinricht, Nicola Brandonisio, David Bitauld, Stephen O'Brien, Simon W. Osborne, Tyndall National Institute (Ireland) .[7720-46]

High brightness diode lasers for fiber laser pumping, Jürgen Gilly, Patrick Friedmann, m2k-laser GmbH (Germany); Heiko Kissel, Jens Biesenbach, DILAS Diodenlaser GmbH (Germany); Márc T. Kelemen, m2k-laser GmbH (Germany) . . . . . [7720-47]

Technological alternatives for the flexible and compact generation of green picosecond pulses, Kristian Lauritsen, Sina Riecke, Thomas Eckhard, Martin Langkopf, Peter Kapusta, Rainer Erdmann, PicoQuant GmbH (Germany). [7720-48]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Polarization rectification of two red polarization coupled broad area ECDL's, Volker Raab, Optikexpertisen (Germany) . . . . . [7720-57]

Charge carrier transport between zero-dimensional nanostructures, Karel Kral, Institute of Physics of the ASCR, v.v.i. (Czech Republic) . . . . . [7720-58]

A 25-GHz TO-can header for coaxial laser package on transmission applications, Tien-Tsorng Shih, National Kaohsiung Univ. of Applied Sciences (Taiwan); Pei-Hao Tseng, National Sun Yat-Sen Univ. (Taiwan); Hao-Wei Chen, Sung-Mao Wu, National Kaohsiung Univ. of Applied Sciences (Taiwan); Wood-Hi Cheng, National Sun Yat-Sen Univ. (Taiwan) . . . . . [7720-59]

Time resolved photoluminescence study of Ga(AsBi): influence of disorder, Alexej Chernikov, Sangam Chaterjee, Martin Koch, Christina Bückers, Philipps-Univ. Marburg (Germany); Sebastian Imhof, Angela D. Thränhardt, Technische Univ. Chemnitz (Germany); Stephan W. Koch, Philipps-Univ. Marburg (Germany); Shane R. Johnson, Xianfeng Lu, Arizona State Univ. (United States); Dan A. Beaton, Thomas Tiedje, The Univ. of British Columbia (Canada) . . . . . [7720-60]

All optical memory based on a two mode diode laser with optical feedback, Nicola Brandonisio, Patrycja Heinricht, Andreas Amann, Simon W. Osborne, Stephen O'Brien, Tyndall National Institute (Ireland). . . . . [7720-61]

Generation of single transverse modes in a commercial multimode VCSEL by the beam-profile adapted optical feedback, Yu-Heng Wu, Chuan-Pi Hsu, Da-Long Cheng, Wang-Chuang Kuo, Tsu-Chiang Yen, National Sun Yat-Sen Univ. (Taiwan) . . . . . [7720-62]

Evaluation of the stability of a VCSEL stabilised to a micro-fabricated Rubidium vapour cell, Joab Di Francesco, Florian Gruet, Christian Schori, Christoph Affolderbach, Gaetano Mileti, Univ. of Neuchâtel (Switzerland); Yves Salvadé, Haute Ecole Arc Ingénierie Siège (Switzerland); Yves-Patrick Petremand, Nico F. de Rooij, Univ. of Neuchâtel (Switzerland) . . . . . [7720-63]

Wavelength beam combining of a 980 nm tapered diode laser bar in an external cavity, Deepak Vijayakumar, Ole B. Jensen, Birgitte Thestrup, Risø National Lab. (Denmark) . . . . . [7720-64]

Polarization bistability in long-wavelength multitransverse-mode VCSELs induced by orthogonal optical injection, Ana Quirce, Jose-Ramon Cuesta, Angel A. Valle, Univ. de Cantabria (Spain); Antonio Hurtado, Univ. of Essex (United Kingdom); Luis Pesquera, Univ. de Cantabria (Spain); Michael J. Adams, Univ. of Essex (United Kingdom) . . . . . [7720-65]

Oxide confined 850 nm VCSELs for high speed datacom applications, Philip Moser, Alexander Mutig, Technische Univ. Berlin (Germany); Sergey A. Blokhin, Alexey M. Nadtochy, Technische Univ. Berlin (Germany) and Ioffe Physico-Technical Institute (Russian Federation); Gerrit Fiol, Technische Univ. Berlin (Germany); James A. Lott, Vitaly A. Shchukin, Nikolay N. Ledentsov, VI-Systems GmbH (Germany); Dieter Bimberg, Technische Univ. Berlin (Germany) . . . [7720-66]

Design of semiconductor optical amplifier with four level Y-type QD, for cancelling absorption and achieving amplification, Shahryar Rahmatollahpur, Rasoul Sadighi-Bonabi, Sharif Univ. of Technology (Iran, Islamic Republic of) . . . . . [7720-67]

High-power single-higher-order-mode VCSELs for optical particle manipulation, Abdel-Sattar M. Gadallah, Anna Bergmann, Rainer Michalzik, Univ. Ulm (Germany). . . . . [7720-68]

Dynamical regimes in an optically injected semiconductor ring laser, Werner Coomans, Stefano Beri, Guy Van der Sande, Lendert Gelens, Jan Danckaert, Vrije Univ. Brussel (Belgium) . . . . . [7720-69]

Low-speckle laser projection using farfield nonmodal emission of a broad-area vertical-cavity surface-emitting laser, Gordon M. J. Craggs, Vrije Univ. Brussel (Belgium); Falko Riechert, Univ. Karlsruhe (Germany); Youri Meuret, Hugo Thienpont, Vrije Univ. Brussel (Belgium); Uli Lemmer, Karlsruhe Institute of Technology (Germany); Guy Verschaffelt, Vrije Univ. Brussel (Belgium). . . [7720-70]

Single-mode ingaas/gaas 1.3-µm VCSELs based on a shallow intracavity patterning, Xingang Yu, Royal Institute of Technology (Sweden); Il-sug Chung, Jesper Mørk, Technical Univ. of Denmark (Denmark); Xiang Yu, Jesper Berggren, Matthias Hammar, Royal Institute of Technology (Sweden) . . . . . [7720-71]

Optical injection dynamics of quantum dot lasers: influence of the excited states, Lukasz Olejniczak, Vrije Univ. Brussel (Belgium) and Supélec (France); Marc Sciamanna, Supélec (France); Hugo Thienpont, Vrije Univ. Brussel (Belgium); Krassimir Panajotov, Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics (Bulgaria) . . . . . [7720-72]

Synchronisation and symmetry breaking of delay-coupled lasers: on the role of phase and amplitude instabilities, Otti D'Huys, Jan Danckaert, Vrije Univ. Brussel (Belgium); Raul Vicente, Frankfurt Institute for Advanced Studies (Germany) and Max Planck Institute for Brain Research (Germany); Ingo Fischer, Instituto de Física Interdisciplinar y Sistemas Complejos (Spain) . . . . . [7720-73]

Experimental study of relative intensity noise of multimode vertical-cavity surface-emitting lasers, Ana Quirce, Angel A. Valle, Carolina-Francisca Gimenez, Luis Pesquera, Univ. de Cantabria (Spain) . . . . . [7720-74]

Breaking on/off phase-shift keying in optical chaos-based cryptosystems, Joshua Winebarger, Alexandre Locquet, Georgia Institute of Technology (France); David S. Citrin, Georgia Institute of Technology (United States) . . . . . [7720-75]

Ultrafast carrier dynamics in GaInNAsSb semiconductor optical amplifier, Jaroslaw Pulka, Tomasz Piwonski, Gillian Madden, Guillaume Huyet, Tyndall National Institute (Ireland); John Houlihan, Waterford Institute of Technology (Ireland); Judy M. Rorison, Univ. of Bristol (United Kingdom); James A. Gupta, National Research Council Canada (Canada) . . . . . [7720-76]

Dual-modulation of a novel integrated laser-modulator for radio-over-fiber systems, Juan Petit, Waqqas Akhtar, Didier Erasme, Jean-Claude Bouley, Telecom ParisTech (France); Christophe Kazmierski, Christophe Jany, Jean Decobert, François Alexandre, Nicolas Dupuis, Alcatel-Thales III-V Lab. (France) . . . . . [7720-77]

Study of excitability in semiconductor ring lasers: theory and experiment, Lilia Mashal, Stefano Beri, Lendert Gelens, Guy Van der Sande, Vrije Univ. Brussel (Belgium); Gabor Mezosi, Marc Sorel, Univ. of Glasgow (United Kingdom); Guy Verschaffelt, Jan Danckaert, Vrije Univ. Brussel (Belgium) . . . . . [7720-78]

Analysis of multistability in semiconductor ring lasers, Lendert Gelens, Stefano Beri, Guy Van der Sande, Vrije Univ. Brussel (Belgium); Gabor Mezosi, Marc Sorel, Univ. of Glasgow (United Kingdom); Jan Danckaert, Guy Verschaffelt, Vrije Univ. Brussel (Belgium). . . . . [7720-79]

Theoretical and experimental investigation of phase coupled stripe-array diode lasers in external cavities, Andreas Jechow, Univ. Potsdam (Germany); Mark Lichtner, Mindaugas Radsiunas, Andrei G. Vladimirov, Weierstrass-Institute für Angewandte Analysis und Stochastik (Germany); Ralf Menzel, Univ. Potsdam (Germany) . . . . . [7720-80]

Analysis of the spectral symmetry in wavelength-tuning interferometry using an external cavity laser diode, Luc Perret, Pierre Pfeiffer, Ecole Nationale Supérieure de Physique de Strasbourg (France) . . . . . [7720-81]

Noise as characterization tools for GaSb based laser diodes, Zdenek Chobola, Miroslav Lunak, Jiri Vanek, Brno Univ. of Technology (Czech Republic); E. Hulicius, T. Simecek, Institute of Physics of the ASCR, v.v.i. (Czech Republic) . . . . [7720-82]

Using optical injection of Fabry-Perot lasers for high-speed access in optical telecommunications, Quoc Thai Nguyen, Pascal Besnard, CNRS Foton-Enssat (France); Laurent Bramerie, CNRS Foton-Persyst (France); Alexandre Shen, Alexandre Garreau, Alcatel-Thales III-V Lab. (France); Olivier Vaudel, CNRS Foton-Enssat (France); Christophe Kazmierski, Guang-Hua Duan, Alcatel-Thales III-V Lab. (France); Jean-Claude Simon, CNRS Foton-Enssat (France) . . . . . [7720-83]

Friday 16 April

SESSION 11 . . . . . Fri. 08.40 to 10.00

Quantum Dots

Many-body and nonequilibrium effects on relaxation oscillations in a quantum-dot microcavity laser, Benjamin Lingnau, Kathy Lüdge, Eckehard Schoell, Technische Univ. Berlin (Germany); Weng W. Chow, Sandia National Labs. (United States) . . . . . [7720-49]

Polarization properties and instabilities of QD VCSELs, Lukasz Olejniczak, Vrije Univ. Brussel (Belgium) and Supélec (France); Marc Sciamanna, Supélec (France); Hugo Thienpont, Vrije Univ. Brussel (Belgium); Krassimir Panajotov, Vrije Univ. Brussel (Belgium) and Institute of Solid State Physics (Bulgaria); Alexander Mutig, Friedhelm Hopfer, Dieter Bimberg, Technische Univ. Berlin (Germany) . . . [7720-50]

Spectrally resolved measurement of the linewidth enhancement factor of 1300 nm Fabry-Perot quantum-dots semiconductor laser by using an optically filtered fiber transfer method, Maria J. Latorre Vidal, Univ. degli Studi di Pavia (Italy); Abdelmajid Salhi, Vittorianna Tasco, Maria Teresa Todaro, Adriana Passaseo, Univ. del Salento (Italy); Asier Villafranca, Juan Ignacio Garcés, Univ. de Zaragoza (Spain); Massimo De Vittorio, Guido Giuliani, Univ. degli Studi di Pavia (Italy) . . . . . [7720-51]

Modelling differential transmission spectroscopy experiments in quantum dot optical amplifiers and saturable absorbers, Mattia Rossetti, Paolo Bardella, Ivo Montrosset, Politecnico di Torino (Italy) . . . . . [7720-52]

SESSION 12 . . . . . Fri. 10.40 to 12.00

Semiconductor Lasers

Contrasting dynamical features of quantum well lasers and quantum dot lasers undergoing optical injection, Bryan Kelleher, Beatriz Baselga Pascual, David Goulding, Stephen P. Hegarty, Tyndall National Institute (Ireland); Guillaume Huyet, Cork Institute of Technology (Ireland); Thomas Erneux, Evgeny A. Viktorov, Univ. Libre de Bruxelles (Belgium) . . . . . [7720-53]

Fast integrated discretely tunable laser using filtered feedback for packet switching and access network applications, Jose M. Pozo, Boudewijn Docter, Technische Univ. Eindhoven (Netherlands); Stefano Beri, Ilya V. Ermakov, Jan Danckaert, Vrije Univ. Brussel (Belgium); Meint K. Smit, Technische Univ. Eindhoven (Netherlands) . . . . . [7720-54]

Passive mode-locking of pre-selected cavity modes in perturbed Fabry-Perot laser diodes, David Bitauld, Simon W. Osborne, Stephen O'Brien, Tyndall National Institute (Ireland) . . . . . [7720-55]

Optical simulation of coupled defect cavities in photonic crystal vertical-cavity surface-emitting lasers, Peter Nyakas, Furukawa Electric Institute of Technology Ltd. (Hungary) . . . . . [7720-56]

Conference 7721A

Monday-Wednesday 12-14 April 2010 • Part of Proceedings of SPIE Vol. 7721

Solid State Lasers and Amplifiers

Conference Chairs: **Thomas Graf,** Univ. Stuttgart (Germany); **Jacob I. Mackenzie,** Univ. of Southampton (United Kingdom); **Helena Jelinková,** Czech Technical Univ. in Prague (Czech Republic)

Programme Committee: **Arnaud Brignon,** Thales Research & Technology (France); **Timothy J. Carrig,** Lockheed Martin Coherent Technologies (USA); **Giulio Cerullo,** Politecnico di Milano (Italy); **Efstratios Georgiou,** Technological Education Institute-Crete (Greece); **Valdas Pasiskevicius,** Royal Institute of Technology (Sweden); **Gunnar Rustad,** Norwegian Defense Research Establishment (Norway); **Jonathan A. Terry,** Univ. of St. Andrews (United Kingdom); **Yehoshua Shimony,** Soreq Nuclear Research Ctr. (Israel)

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

SESSION 1 . . . . . Mon. 13.00 to 15.00

High-Power Fibre Lasers

Thin-disk laser-pumped ytterbium-doped fiber laser with an output power in the kW range *(Invited Paper)*, Andreas Popp, Andreas Voss, Thomas Graf, Univ. Stuttgart (Germany); Sonja Unger, Johannes Kirchhof, Hartmut Bartelt, IPHT Jena (Germany) . . . . . .[7721-01]

Fiber Bragg grating inscription in rare-earth doped germanium-free fibers for fiber laser applications with two beam interference and a sub-ps deep-ultraviolet laser source *(Invited Paper)*, Martin Becker, Manfred Rothhardt, Eric Lindner, Sven Brückner, Hartmut Bartelt, IPHT Jena (Germany) . . . . . .[7721-02]

Multicore fibers for high-brilliance laser beam delivery, Moritz M. Vogel, Marwan Abdou-Ahmed, Armin Austerschulte, Andreas Popp, Thomas Rataj, Thomas Liebig, Andreas Voss, Thomas Graf, Univ. Stuttgart (Germany) . .[7721-03]

Spectroscopic properties of Nd $^{3+}$ in tellurite glasses for solar pumped fiber laser, Shintaro Mizuno, Hiroshi Ito, Kazuo Hasegawa, Toyota Central Research and Development Labs., Inc. (Japan); Hiroyuki Nasu, Mark A. Hughes, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan). . . . . .[7721-04]

Thermal stress anomaly in rare-earth-doped fiber materials for high-power fiber lasers codoped with aluminum and phosphorus, Florian Just, Sonja Unger, Johannes Kirchhof, Volker Reichel, Hartmut Bartelt, IPHT Jena (Germany) . . . . . .[7721-05]

SESSION 2 . . . . . Mon. 15.40 to 18.00

Pulsed Fibre Lasers

16 W at 488 nm by frequency doubling of a high energy pulsed three-level Yb-doped fiber laser *(Invited Paper)*, Johan Boullet, Univ. Bordeaux 1 (France); Nicholas Traynor, ALPhANOV (France); Eric Cormier, Univ. Bordeaux 1 (France) . . . . . .[7721-06]

High repetition rate, high energy, actively Q-switched all-in-fiber laser, Jean-Bernard Lecourt, Anthony Bertrand, Sébastien Guillemet, Yves Hernandez, Domenico Giannone, Multitel A.S.B.L. (Belgium) . . . . . .[7721-07]

Timing jitter of mode-locked fiber lasers, Rüdiger Paschotta, RP Photonics Consulting GmbH (Switzerland) . . . . . .[7721-08]

Novel figure-eight fiber laser scheme including a power-symmetric nonlinear optical loop mirror with adjustable switching power, Olivier Pottiez, Ruben Grajales-Coutiño, Ctr. de Investigaciones en Óptica, A.C. (Mexico); Baldemar Ibarra Escamilla, Evgeny A. Kuzin, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Andres Gonzalez-Garcia, Juan Carlos Hernandez-Garcia, Ctr. de Investigaciones en Óptica, A.C. (Mexico) . . . . . .[7721-09]

Soliton complexes in a high power fiber laser, Foued Amrani, Adil Haboucha, Mohamed Salhi, Hervé Leblond, Univ. d'Angers (France); Andrey K. Komarov, Institute of Automation and Electrometry (Russian Federation); François Sanchez, Univ. d'Angers (France). . . . . .[7721-10]

High gain solid-state amplifier modules for picosecond pulses *(Invited Paper)*, Antonio Agnesi, Federico Pirzio, Giancarlo C. Reali, Univ. degli Studi di Pavia (Italy) . . . . . .[7721-11]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.30 to 10.20

Mode-locked Solid State Lasers

Multi-wavelength picosecond pulse generation with diode-pumped Nd:GAGG and Nd:LGGG lasers *(Invited Paper)*, Antonio Agnesi, Federico Pirzio, Giancarlo C. Reali, Univ. degli Studi di Pavia (Italy); Andrea Arcangeli, Mauro Tonelli, Consiglio Nazionale delle Ricerche (Italy) and Univ. di Pisa (Italy); Zhitai Jia, Jian Zhang, Xutang Tao, Shandong Univ. (China) . . . . . .[7721-12]

High-power passively mode-locked Nd:YVO $_4$ oscillator with adjustable pulse duration between 46 ps and 12 ps, Marie-Christine Nadeau, Univ. Bordeaux 1 (France) and Thales Optronique S.A. (France); Stephane Petit, Philippe Balcou, Univ. Bordeaux 1 (France); Romain Czarny, Thales Optronique S.A. (France); Sebastien Montant, Univ. Bordeaux 1 (France); Christophe Simon-Boisson, Thales Optronique S.A. (France). . . . . .[7721-13]

Mode-locking of a Cr $^{2+}$, ZnSe laser using a PPLN nonlinear mirror: theoretical modelling and cavity design, Jean-Baptiste Dherbecourt, Jean-Michel Melkonian, Myriam Raybaut, Antoine Godard, Michel Lefebvre, Emmanuel Rosencher, ONERA (France) . . . . . .[7721-14]

Saturable absorbers based on semiconductor A3B5 nanostructures, Nataliya N. Rubtsova, Sergey A. Kochubei, Alexander A. Kovalyov, Valery V. Preobrazhenskii, Mikhael A. Putyato, Oleg P. Pchelyakov, Timur S. Shamirzaev, Institute of Semiconductor Physics (Russian Federation); Nikolay V. Kuleshov, Viktor E. Kisel, Sergey V. Kurilchik, Belarusian National Technical Univ. (Belarus). . . . . .[7721-15]

All solid state mode locking laser of LD-Yb:YAG crystal in V-shape cavity and application, Li Wang, Beijing Univ. of Technology (China) . . . . . .[7721-16]

SESSION 4 . . . . . Tues. 11.00 to 12.30

Frequency Conversion of SSL

Development of an intracavity EUV Source based on a high power Ti:sapphire oscillator *(Invited Paper)*, Enikoe Seres, Christian Spielmann, Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7721-17]

Optical parametric oscillators with high pulse energy and beam quality, Øystein Farsund, Gunnar Arisholm, Gunnar Rustad, Norwegian Defense Research Establishment (Norway). . . . . .[7721-18]

High power SHG at 515 nm by extracavity frequency conversion of sub-picosecond pulses from a mode-locked Innoslab MOPA, Bastian Gronloh, Torsten G. Mans, Peter Russbueldt, Bernd Jungbluth, Rolf Wester, Hans-Dieter Hoffmann, Fraunhofer-Institut für Lasertechnik (Germany). . . . . .[7721-19]

Gain-switching of a fibre laser: experiment and a simple theoretic model, Rok Petkov?ek, Univ. of Ljubljana (Slovenia); Ferdinand Bammer, Technische Univ. Wien (Austria); Vid Agre?, Univ. of Ljubljana (Slovenia). . . . . .[7721-36]

Lunch Break . . . . . .12.30 to 14.00

SESSION 5 . . . . . Tues. 14.00 to 15.30

Thin-Disk Lasers

Improving the brightness of a multi-kW thin-disk laser with a single disk by an aspherical phasefront correction *(Invited Paper)*, Birgit Weichelt, David Blázquez-Sánchez, Armin Austerschulte, Andreas Voss, Thomas Graf, Univ. Stuttgart (Germany); Alexander Killi, TRUMPF Laser GmbH & Co. KG (Germany); Hans-Christoph Eckstein, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) . . . . . .[7721-20]

Microjoule mode-locked oscillators: issues of stability and noise, Vladimir L. Kalashnikov, Technische Univ. Wien (Austria); Alexander A. Apolonski, Ludwig-Maximilians-Univ. München (Germany). . . . . .[7721-21]

Experimental measurements and finite-elements modeling of thermal effects in Yb $^{3+}$ doped sesquioxides thin disk lasers, Emilie Marmois, Vanessa Cardinali, Geoffroy Le Touzé, Bruno Le Garrec, Commissariat à l'Énergie Atomique (France) . . . . . .[7721-22]

Modeling and Designing of a Side-Pumped Composite Yb:YAG/YAG Hexagonal Disk Laser, Mohammad Javadi Dashcasan, National Iranian Ctr. for Laser Science and Technology (Iran, Islamic Republic of); Fereshteh Hajiesmaeilbaigi, laser and optics research school (Iran, Islamic Republic of); Fatemeh Aghaeifar, Elham Barati, National Iranian Ctr. for Laser Science and Technology (Iran, Islamic Republic of); Mohsen Ruzbehani, laser and optics research school (Iran, Islamic Republic of) . . . . . .[7721-23]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

POSTERS—Tuesday . . . . . Tues. 17.40 to 19.10

A poster session will be held on Tuesday 17.40 to 19.10. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Phase-locking of optical fiber with hexagonal cores array doped with neodymium, Marcin Kochanowicz, Dominik Dorosz, Jan Dorosz, Jacek Zmojda, Politechnika Bialostocka (Poland) . . . . . .[7721-34]

Room-temperature lasing, gain-switched bulk, tunable Fe:ZnSe laser, Helena Jelinkova, Petr Koranda, Czech Technical Univ. in Prague (Czech Republic); Maxim E. Doroshenko, A. M. Prokhorov General Physics Institute (Russian Federation); Jan Sulc, Michal Jelínek, Miroslav Cech, Czech Technical Univ. in Prague (Czech Republic); Tasoltan T. Basiev, A. M. Prokhorov General Physics Institute (Russian Federation); Valerii V. Badikov, Dmitri V. Badikov, Kuban State Technological Univ. (Russian Federation) . . . . . .[7721-35]

Nd:YAG/V:YAG microchip laser generating 1 ns long pulses at 1338 nm, Jan Sulc, Jakub Novak, Helena Jelinkova, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Václav Skoda, Crytur Ltd. (Czech Republic) . . . . . .[7721-37]

Passively Q-switched resonantly pumped Er:YAG laser, Michal Nemec, Helena Jelinkova, Jan Sulc, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Václav Skoda, Crytur Ltd. (Czech Republic) . . . . . .[7721-38]

The eye-safe Q-switched Er:YAG laser, Waldemar Zendzian, Jan K. Jabczynski, Lukasz Galecki, Lukasz Gorajek, Jacek Kwiatkowski, Military Univ. of Technology (Poland); Helena Jelinkowa, Jan Sulc, Michal Nemec, Czech Technical Univ. in Prague (Czech Republic) . . . . . .[7721-39]

Passively mode locked quasi-continuously pumped 2.4% doped crystalline Nd:YAG laser in a bounce geometry, Michal Jelínek, Václav Kubecek, Miroslav Cech, Petr Hirsl, David Vyhlidal, Czech Technical Univ. in Prague (Czech Republic) . . . . . .[7721-40]

Finite-difference time-domain model of lasing performance in a thin disk laser, Ahmad Khayat Jafari, Bonab Univ. of Technology (Iran, Islamic Republic of) . . . . . .[7721-41]

Intracavity frequency-doubling of Pr:YAlO $_3$ laser resulting in blue emission, Martin Fibrich, Helena Jelinkova, Jan Sulc, Miroslav Cech, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Václav Skoda, Crytur Ltd. (Czech Republic) . . . . . .[7721-42]

Maximum amplification and single amplified pulse selection in the amplifiers chain, Junewen Chen, Chung-Hua Univ. (Taiwan) . . . . . .[7721-43]

Comparison of V:YAG and V:LuAG saturable absorbers for Nd:YAG 1338 nm microchip laser Q-switching, Jan Sulc, Jakub Novak, Helena Jelinkova, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Václav ?koda, Crytur Ltd. (Czech Republic) . . . . . .[7721-44]

Wavelength tunable Er-Yb double-clad fiber laser, Baldemar Ibarra Escamilla, Evgeny A. Kuzin, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Olivier Pottiez, Ctr. de Investigaciones en Óptica, A.C. (Mexico); Joseph W. Haus, Peter E. Powers, Qiwen Zhan, Univ. of Dayton (United States) . . . . . .[7721-45]

Helical core optical fibre made of Nd $^{3+}$/Yb $^{3+}$-doped oxyfluoride silicate glass, Dominik Dorosz, Marcin Kochanowicz, Jacek Zmojda, Jan Dorosz, Politechnika Bialostocka (Poland) . . . . . .[7721-46]

Generation of self-imaged optical bottle beam by using axicons, Fengtie Wu, Wenhe Lu, Bin Liu, Huaqiao Univ. (China) . . . . . .[7721-47]

Wednesday 14 April

SESSION 6 . . . . . Wed. 08.50 to 10.20

Fibre Amplifiers

440 W polarized single-transverse-mode CW fiber amplifier with thin-disk laser seed source *(Invited Paper)*, Andreas Popp, Christoph Jocher, Marwan Abdou-Ahmed, Andreas Voss, Thomas Graf, Univ. Stuttgart (Germany) . .[7721-24]

Analysis of a multi-pump optimization in Raman+EDFA hybrid amplifiers with pump recycling for WDM systems, Marcia J. Martini, Carlos E. S. Castellani, Maria José Pontes, Moises R. N. Ribeiro, Univ. Federal do Espírito Santo (Brazil); Hypolito J. Kalinowski, Univ. Tecnológica Federal do Paraná (Brazil) . . . .[7721-25]

A study of the quantitative impact of pump-pump interaction in wide-band Raman amplifiers in the S, C and L bands, Maria A. Martinez, Ctr. Federal de Educação Tecnológica do Rio de Janeiro (Brazil); Maria Thereza Rocco Giraldi, Instituto Militar de Engenharia (Brazil); Maria José Pontes, Univ. Federal do Espírito Santo (Brazil); Pedro H. Belisario, Instituto Militar de Engenharia (Brazil); Rafael Façanha, Ctr. Federal de Educação Tecnológica do Rio de Janeiro (Brazil) . . . . . .[7721-26]

Novel oxyfluoride glass and transparent glass-ceramics for fiber lasers and fiber amplifiers, Takenobu Suzuki, Shin-ichiro Masaki, Kento Mizuno, Yasutake Ohishi, Toyota Technological Institute (Japan) . . . . . .[7721-27]

SESSION 7 . . . . . Wed. 11.00 to 13.10

Novel Solid State Laser Architecture

Thermo-optical measures of ytterbium doped sesquioxides ceramics at low temperature *(Invited Paper)*, Vanessa Cardinali, Emilie Marmois, Bruno Le Garrec, Commissariat à l'Énergie Atomique (France); Gilbert L. Bourdet, Ecole Polytechnique (France) . . . . . .[7721-28]

Efficient fiber-laser pumped Ho:LuLiF $_4$ laser, Ji Won Kim, Jacob I. Mackenzie, Univ. of Southampton (United Kingdom); Daniela Parisi, Stefano Veronesi, Mauro Tonelli, Univ. di Pisa (Italy); W. Andrew Clarkson, Univ. of Southampton (United Kingdom) . . . . . .[7721-29]

Simulation, eigenmode analysis and tolerancing for stable laser resonators, Michael Kuhn, LightTrans GmbH (Germany); Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany); Christian Hellamnn, Torsten Schöning, LightTrans GmbH (Germany) . . . . . .[7721-30]

Design of a miniaturized solid state laser for automated assembly, Max C. Funck, Valentin Morasch, Jan Dolkemeyer, Peter Loosen, RWTH Aachen (Germany) . . . . . .[7721-31]

Nd:YAG-laser-Q-switching with a photo-elastic modulator and applications, Ferdinand Bammer, Gerhard Liedl, Technische Univ. Wien (Austria); Hugo Dominguez, Technische Univ. Wien (Austria) and Univ. de Vigo (Spain); Rok Petkov?ek, Univ. of Ljubljana (Slovenia) . . . . . .[7721-32]

Stability of a high power diode-pumped Nd:YLF laser system for photo-injector applications at CERN, Marta Csatari Divall, Eric Chevallay, Valentine Fedosseev, Nathalie Lebas, Roberto Losito, Massimo Petrarca, CERN (Switzerland); Mihail A. Martyanov, Vladimir V. Lozhkarev, Grigoriy A. Luchining, Institute of Applied Physics (Russian Federation) . . . . . .[7721-33]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany; **Ursula Keller,** ETH Zurich, Switzerland; **Mike Dunne,** Science & Technology Facilities Council, UK

Thursday-Friday 15-16 April 2010 • Part of Proceedings of SPIE Vol. 7721

High-Power Lasers

Conference Chairs: **Gerhard G. Paulus,** Friedrich-Schiller-Univ. Jena (Germany); **Vincent Bagnoud,** Gesellschaft für Schwerionenforschung GmbH (Germany); **Catherine Le Blanc,** Ecole Polytechnique (France)

Programme Committee: **Philippe Balcou,** Ecole Nationale Supérieure de Techniques Avancées (France); **Antonio Giulietti,** Consiglio Nazionale delle Ricerche (Italy); **C. Hernandez-Gomez,** Science and Technology Facilities Council (United Kingdom); **Malte C. Kaluza,** Friedrich-Schiller Univ. Jena (Germany); **Stefan Karsch,** Max-Planck-Institut für Quantenoptik (Germany); **Peter-Viktor Nickles,** Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); **Luis Roso,** Univ. de Salamanca (Spain); **Ulrich Schramm,** Forschungszentrum Dresden-Rossendorf e.V. (Germany); **Oswald Willi,** Heinrich-Heine-Univ. Düsseldorf (Germany)

Thursday 15 April

SESSION 8 . . . . . Thurs. 08.30 to 10.20

High-Power Lasers

Extreme light infrastructure: laser architecture and major challenges *(Invited Paper)*, Karoly Osvay, Jean-Paul Chambaret, Ecole Nationale Supérieure de Techniques Avancées (France); John L. Collier, Klaus Ertel, Rutherford Appleton Lab. (United Kingdom); Joachim Hein, Friedrich-Schiller-Univ. Jena (Germany); Stefan Karsch, Georg Korn, Max-Planck-Institut für Quantenoptik (Germany); Gerard A. Mourou, Ecole Nationale Supérieure de Techniques Avancées (France); Peter-Viktor Nickles, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Bedrich Rus, Institute of Physics of the ASCR, v.v.i. (Czech Republic) . . . . . .[7721-50]

Gain narrowing and spectral shifting control in Apollon-10P, petawatt hybrid CPA laser system, Fabio Giambruno, Christophe Radier, Gilles Cheriaux, Ecole Nationale Supérieure de Techniques Avancées (France) . . . . . .[7721-51]

Numerical and experimental study of a high-energy dissipative-soliton fiber laser, Caroline Lecaplain, Ammar Hideur, Univ. de Rouen (France); Bülend Ortac, Jens Limpert, Friedrich-Schiller-Univ. Jena (Germany). . . . . .[7721-52]

Thermoinduced distortions of radiation in large aperture laser amplifiers, Alexey V. Kuzmin, Efim A. Khazanov, Andrey A. Shaykin, Institute of Applied Physics (Russian Federation) . . . . . .[7721-53]

Broadband amplification at Kr_2F trimer transition for short-pulse high-power laser applications, Alexey O. Levchenko, Nikolai N. Ustinovskii, Vladimir D. Zvorykin, P.N. Lebedev Physical Institute (Russian Federation). . . . . .[7721-54]

SESSION 9 . . . . . Thurs. 11.00 to 12.30

Attosecond, Strong-field, and Nuclear Laser Physics

Attosecond, strong-field, and nuclear laser physics *(Invited Paper)*, Mark J. J. Vrakking, FOM Institute for Atomic and Molecular Physics (Netherlands) . . . . . .[7721-55]

Relativistic ionization dynamics at super-intense laser fields, Farhad H. Faisal, Univ. Bielefeld (Germany) . . . . . .[7721-56]

Proton Radiography of Laser Driven Cylindrical Implosion, Rashida Jafer, Dimitri Batani, Luca Volpe, Univ. degli Studi di Milano-Bicocca (Italy); Michel Koenig, Frederic Perez, Sophie Baton, Erik Brambrink, Ecole Polytechnique (France); Fabien Dorchies, Joao J. Santos, Claude Fourment, Sébastien Hulin, Benjamin Vauzour, Phillipe Nicolai, Univ. Bordeaux 1 (France); Kate Lancaster, Marco Galimberti, Robert Heathcote, Chris Spindloe, Martin Tolley, Rutherford Appleton Lab. (United Kingdom); Petra Koester, Luca Labate, Leonida Gizzi, Istituto per i Processi Chimico-Fisici (Italy); Carlo Benedetti, Andrea Sgattoni, Univ. degli Studi di Bologna (Italy); Maria Richetta, Univ. degli Studi di Roma Tor Vergata (Italy); John Pasely, The Univ. of York (United Kingdom); Farhat Beg, Sugreev Chawla, Drew P. Higginson, Univ. of California, San Diego (United States); Andrew J. Mackinnon, Andrew G. Macphee, Lawrence Livermore National Lab. (United States) . . . . . .[7721-57]

Attosecond, strong-field, and nuclear laser physics, Gerhard G. Paulus, Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7721-58]

Lunch Break . . . . . 12.30 to 13.40

SESSION 10 . . . . . Thurs. 13.40 to 15.10

Laser-generated Physics

Laser-generated X-rays *(Invited Paper)*, Jorge J. Rocca, Colorado State Univ. (United States). . . . . .[7721-59]

Tuning the high-order harmonic lines of a Nd:Glass laser for x-ray laser seeding, Daniel Hochhaus, Gesellschaft für Schwerionenforschung GmbH (Germany); Jozef Seres, Friedrich-Schiller-Univ. Jena (Germany); Bastian Aurand, Boris Ecker, Thomas Kuehl, Gesellschaft für Schwerionenforschung GmbH (Germany); Christian Spielmann, Friedrich-Schiller-Univ. Jena (Germany); Bernhard Zielbauer, Daniel Zimmer, Gesellschaft für Schwerionenforschung GmbH (Germany) . . . . . .[7721-60]

Demonstration of an efficient pumping scheme for an 7.36 nm Ni-like samarium soft x-ray laser, Daniel Zimmer, GSI Helmholtzzentrum für Schwerionenforschung GmbH (Germany) and Johannes Gutenberg Univ. Mainz (Germany) and Univ. Paris Sud 11 (France) . . . . . .[7721-61]

Efficient low debris hard x-ray source based on intense, femtosecond laser irradiation on multi-walled carbon nano-tubes, Prem Kiran Paturi, Suman Bagchi, Univ. of Hyderabad (India); Manoj K. Bhuyan, M. Krishnamurthy, Tata Institute of Fundamental Research (India); Keqin Yang, A. M. Rao, Clemson Univ. (United States); G. Ravindra Kumar, Tata Institute of Fundamental Research (India). . . . . .[7721-62]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

High energy and high stability optical parametric chirped pulse amplifier for seeding the petawatt beamlines of the Orion laser facility, Mark Girling, Stefan Parker, Dianne Hussey, Nick W. Hopps, Atomic Weapons Establishment (United Kingdom) . . . . . .[7721-75]

Theoretical investigation of negative influence of the small-scale self-focusing and induced birefringence on developing and using contemporary PW lasers systems, Maryana S. Kochetkova, Efim A. Khazanov, Anatoly K. Poteomkin, Mikhail A. Martyanov, Institute of Applied Physics (Russian Federation) . . . . . .[7721-76]

Direction dependent asymmetric expansion of laser induced shockwaves in air, Prem Kiran Paturi, Leela Chelikani, Suman Bagchi, Surya P. Tewari, Univ. of Hyderabad (India) . . . . . .[7721-77]

Study of the dissociation probability of methane in intense laser fields, Elnaz Irani, Sharif Univ. of Technology (Iran, Islamic Republic of) . . . . . .[7721-78]

Interaction of sub relativistic laser pulse with ramped underdense plasma, Hamzeali Navid, Masoumeh Moshkelgosha, Mahdi Ettehadi-abari, Rasoul Sadighi-Bonabi, Sharif Univ. of Technology (Iran, Islamic Republic of) . . . . . .[7721-79]

Narrowing of the energy of monoenergetic electrons in the ellipsoid bubble model, Rasoul Sadighi-Bonabi, Shahriyar Rahmatollahpur, Sharif Univ. of Technology (Iran, Islamic Republic of) . . . . . .[7721-80]

Ion block acceleration by KrF excimer laser irradiation with initial Rayleigh density profiles, Elnaz Yazdani, Amirkabir Univ. of Technology (Iran, Islamic Republic of); Heinrich Hora, The Univ. of New South Wales (Australia); Rasoul Sadighi-Bonabi, Sharif Univ. of Technology (Iran, Islamic Republic of) . . .[7721-81]

Conference 7721B

Friday 16 April

SESSION 11 . . . . . Fri. 08.30 to 10.00

High-power Laser Technology I

High-power laser technology *(Invited Paper)*, Joachim Hein, Friedrich-Schiller-Univ. Jena (Germany) . . . . . [7721-63]

Temporal intensity contrast ratio enhancement of petawatt level laser pulses based on second harmonic generation, Sergey Y. Mironov, Vladimir V. Lozhkarev, Vladislav Ginzburg, Ivan V. Yakovlev, Grigory A. Luchinin, Efim A. Khazanov, Alexander M. Sergeev, Institute of Applied Physics (Russian Federation); Gerard Mourou, Ecole Nationale Supérieure de Techniques Avancées (France) . . . . . [7721-64]

Ultrafast OPA for Contrast Improvement at the PHELIX Laser Facility, Jerome Fils, Vincent Bagnoud, Thomas Stöhlker, GSI Helmholtzzentrum für Schwerionenforschung GmbH (Germany) and Helmholtz Institut Jena (Germany); Markus Wolf, Joachim Hein, Malte C. Kaluza, Gerhard G. Paulus, Institut für Optik und Quantenelektronik, Friedrich-Schiller-Universität Jena (Germany) and Helmholtz Institut Jena (Germany) . . . . . [7721-65]

Generation of high-power femtosecond green pulses based on an OPCPA-SFG scheme, Mark Mero, Gabor Kurdi, Hungarian Academy of Sciences (Hungary); Aron Sipos, Karoly Osvay, Univ. of Szeged (Hungary) . . . . . [7721-66]

SESSION 12 . . . . . Fri. 10.40 to 12.10

High-power Laser Technology II

High-power laser technology *(Invited Paper)*, Alexander M. Sergeev, Institute of Applied Physics (Russian Federation) . . . . . [7721-67]

Alkali lasers: a new type of scalable high power lasers, Boris V. Zhdanov, Michael K. Shaffer, Randall J. Knize, U.S. Air Force Academy (United States) . . . . . [7721-68]

Metal-multilayer dielectric diffraction gratings for pulse compression applications, Nicolas Bonod, Institut Fresnel (France); Stéphanie Palmier, Jérôme Néauport, Commissariat à l'Énergie Atomique (France) . . . . . [7721-69]

Simulation of ultra-short pulse propagation through optical systems, Frank Wyrowski, Friedrich-Schiller-Univ. Jena (Germany); Christian Hellmann, René C. Krieg, Hagen Schweitzer, LightTrans GmbH (Germany) . . . . . [7721-70]

Lunch Break . . . . . 12.10 to 13.30

SESSION 13 . . . . . Fri. 13.30 to 15.00

Laser Particle Acceleration

Laser particle acceleration *(Invited Paper)*, T. Ditmire, Lawrence Livermore National Lab. (United States) . . . . . [7721-71]

Laser ion acceleration in shaped mass-limited targets, Alexander A. Andreev, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) . . . . . [7721-72]

200MeV electron bunch generated by PEtawatt pARametric Laser (PEARL), Efim A. Khazanov, Vladislav Ginzburg, Eugeny V. Katin, Alexey V. Kirsanov, Vladimir V. Lozhkarev, Grigory A. Luchinin, Anatoly N. Mal'shakov, Mikhail A. Martyanov, Sergey Y. Mironov, Oleg V. Palashov, Anatoly D. Poteomkin, Alexander M. Sergeev, Andrey A. Shaykin, Alexander Soloviev, Mikhail Starodubtsev, Ivan V. Yakovlev, Victor Zelenogorsky, Institute of Applied Physics (Russian Federation) . . . . . [7721-73]

Finding a tailored two rectangular femto-second laser pulse initiated by a gradient optimization method in the dissociation process of methane, Rasoul Sadighi-Bonabi, Sharif Univ. of Technology (Iran, Islamic Republic of) . . . [7721-74]

Organic Photonics

Conference Chairs: **Paul L. Heremans,** IMEC (Belgium); **Reinder Coehoorn,** Philips Research Nederland B.V. (Netherlands); **Chihaya Adachi,** Kyushu Univ. (Japan)

Programme Committee: **Heinrich Becker,** Merck OLED Materials GmbH (Germany); **David Beljonne,** Univ. de Mons-Hainaut (Belgium); **Paul W. M. Blom,** TNO Science and Industry (Netherlands); **Herbert F. Boerner,** Philips Research (Germany); **Donal D. C. Bradley,** Imperial College London (United Kingdom); **Franco Cacialli,** Univ. College London (United Kingdom); **Gunther Haas,** MicroOLED (France); **Alan J. Heeger,** Univ. of California, Santa Barbara (USA); **Richard H. Friend,** Univ. of Cambridge (United Kingdom); **Rene A. Janssen,** Technische Univ. Eindhoven (Netherlands); **Junji Kido,** Yamagata Univ. (Japan); **Guglielmo Lanzani,** Politecnico di Milano (Italy); **Uli Lemmer,** Univ. Karlsruhe (Germany); **Karl Leo,** Technische Univ. Dresden (Germany); **Rainer F. Mahrt,** IBM Zürich Research Lab. (Switzerland); **William R. Salaneck,** Linköping Univ. (Sweden); **Niyazi Serdar Sariciftci,** Johannes Kepler Univ. Linz (Austria); **Paul van der Schaaf,** Ciba Specialty Chemicals Holding, Inc. (Switzerland)

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

SESSION 1 . . . . . Mon. 13.20 to 15.00

OLED Devices and Applications I

Session Chair: **Paul L. Heremans,** IMEC (Belgium)

White OLED devices and processes for lighting applications *(Invited Paper)*, Nobuhiro Ide, Panasonic Electric Works Co., Ltd. (Japan) . . . . . .[7722-01]

OLEDs: from research to application *(Invited Paper)*, Volker van Elsbergen, Philips Research (Germany) . . . . . .[7722-02]

Optimized performance of fluorescent OLEDs by controlled charge carrier supply, Carsten Rothe, Sven Murano, Omrane Fadhel, Jan Birnstock, Novaled AG (Germany) . . . . . .[7722-03]

Four-colour stacked white organic light-emitting diodes utilising the concept of triplet harvesting, Thomas C. Rosenow, Selina Olthof, Sebastian Reineke, Björn Lüssem, Karl Leo, Technische Univ. Dresden (Germany) . . . . . .[7722-04]

SESSION 2 . . . . . Mon. 15.40 to 17.50

Organic Lasers

Session Chair: **Chihaya Adachi,** Kyushu Univ. (Japan)

Optical environments and resonators for gain based polymer thin-film structures *(Invited Paper)*, Paul N. Stavrinou, Cora Cheung, Thomas Wellinger, Colin R. Belton, Xuhua Wang, Ruidong Xia, Donal D. C. Bradley, Imperial College London (United Kingdom) . . . . . .[7722-05]

Laser emission saturation in a small mode volume organic microcavity, Robert Brückner, Martin Teich, Markas Sudzius, Hartmut Froeb, Vadim G. Lyssenko, Karl Leo, Institut für Angewandte Photophysik (Germany). . . . . .[7722-06]

Oblique angle lasing from organic microcavities via spatially periodic excitation, Susanne I. Hintschich, Markas Sudzius, Vadim G. Lyssenko, Bernd Schütte, Hartmut Fröb, Karl Leo, Technische Univ. Dresden (Germany) . .[7722-07]

The optical properties of hybrid organic-inorganic L3 nano-cavities, Ali M. Adawi, Mohamed M. Murshidy, Paul W. Fry, David M. Whittaker, David G. Lidzey, The Univ. of Sheffield (United Kingdom) . . . . . .[7722-08]

Ambipolar light-emitting transistors utilizing organic single crystal for realizing electrically-driven amplified spontaneous emission, Satria Z. Bisri, Tohoku Univ. (Japan); Taishi Takenobu, Tohoku Univ. (Japan) and Japan Science and Technology Corp. (Japan); Kosuke Sawabe, Tohoku Univ. (Japan); Takeshi Yamao, Shu Hotta, Kyoto Institute of Technology (Japan); Yoshihiro Iwasa, Tohoku Univ. (Japan) and Japan Science and Technology Corp. (Japan) . . . . . .[7722-09]

Organic light-emitting devices free of exciton-charge quenching and electrode photon losses, Michele Muccini, Raffaella Capelli, Stefano Toffanin, Gianluca Generali, Istituto per lo Studio dei Materiali Nanostrutturati (Italy); Antonio F. Facchetti, Northwestern Univ. (United States) . . . . . .[7722-10]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.50 to 10.20

OLED Physics and Modelling I

Session Chair: **Reinder Coehoorn,**
Philips Research Nederland B.V. (Netherlands)

Fundamental processes governing operation and ageing in state of the art P-OLEDs *(Invited Paper)*, Matthew Roberts, Michael Cass, Clare L. Foden, Simon King, Andrew Lee, Martina Pintani, Cambridge Display Technology Ltd. (United Kingdom) . . . . . .[7722-11]

Evidence of non-parallel dipole emitter orientation in polymeric OLEDs, Michael Flämmich, Stephan Roth, Norbert Danz, Dirk Michaelis, Andreas H. Bräuer, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Malte C. Gather, Klaus Meerholz, Univ. zu Köln (Germany) . . . . . .[7722-12]

Determination of the light emission profile in small molecule based double-layer OLEDs, Marco Carvelli, Alexander van Reenen, René A. J. Janssen, Technische Univ. Eindhoven (Netherlands); Reinder Coehoorn, Philips Research Nederland B.V. (Netherlands) . . . . . .[7722-13]

The influence of the optical environment and energetic disorder on the shape of emission zones in OLEDs and methods of their determination, Benjamin Perucco, FLUXiM, Inc. (Switzerland); Evelyne Knapp, Nils A. Reinke, Zürcher Hochschule für Angewandte Wissenschaften (Switzerland); Felix Müller, Daniele Rezzonico, FLUXiM, Inc. (Switzerland); Beat Ruhstaller, Zürcher Hochschule für Angewandte Wissenschaften (Switzerland) and FLUXiM, Inc. (Switzerland) . . . . . .[7722-14]

SESSION 4 . . . . . Tues. 11.00 to 12.50

OPV Devices

Session Chair: **David Hartmann,** Siemens AG (Germany)

Efficient and long-term stable organic vacuum deposited tandem solar cells *(Invited Paper)*, Christian L. Uhrich, Martin P. Pfeiffer, Bert Maennig, Gregor Schwartz, Wolf-Michael Gnehr, heliatek GmbH (Germany) . . . . . .[7722-15]

Charge separation at molecular donor-acceptor interfaces: correlation between interface morphology and solar cell performance, Andreas Opitz, Julia Wagner, Wolfgang Brütting, Univ. Augsburg (Germany) . . . . . .[7722-16]

Microwave annealing of polymer solar cells with various transparent anode materials, Harald Flügge, Hans Schmidt, Technische Univ. Braunschweig (Germany); Thomas J. Riedl, Bergische Univ. Wuppertal (Germany); Wolfgang Kowalsky, Technische Univ. Braunschweig (Germany) . . . . . .[7722-17]

Formation and control of LiF nanoparticle islands at the organic/ electrode interface in organic photovoltaic devices, Ayse Z. Turak, Felix Maye, Carmen Munera, Max-Planck-Institut für Metallforschung (Germany); Helmut Dosch, Deutsches Elektronen-Synchrotron (Germany) and Max-Planck-Institut fuer Metallforschung (Germany) . . . . . .[7722-18]

Comparison of different conditions for accelerated ageing of small molecule organic solar cells, Martin Hermenau, Moritz K. Riede, Karl Leo, Technische Univ. Dresden (Germany) . . . . . .[7722-19]

Lunch Break . . . . . .12.50 to 14.20

SESSION 5 . . . . . Tues. 14.20 to 15.30

OLED Physics and Modelling II

Session Chair: **Matthew Roberts,**
Cambridge Display Technology Ltd. (United Kingdom)

Advanced modeling of charge transport and recombination in organic light-emitting diodes *(Invited Paper)*, Jeroen J. M. van der Holst, Frank W. A. van Oost, Jeroen Cottaar, Technische Univ. Eindhoven (Netherlands); Reinder Coehoorn, Philips Research Nederland B.V. (Netherlands); Peter A. Bobbert, Technische Univ. Eindhoven (Netherlands) . . . . . .[7722-20]

Ultrafast dynamics of carrier mobility in a conjugated polymer probed at molecular and microscopic length, Dirk Hertel, Univ. zu Köln (Germany)[7722-21]

Investigation of the presence of correlated disorder in organic semiconductors, Rein J. de Vries, Technische Univ. Eindhoven (Netherlands) and Dutch Polymer Institute (Netherlands) and Philips Research Nederland B.V. (Netherlands); Siebe L. van Mensfoort, Technische Univ. Eindhoven (Netherlands) and Philips Research Nederland B.V. (Netherlands); René A. J. Janssen, Reinder Coehoorn, Technische Univ. Eindhoven (Netherlands). . . . . .[7722-22]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

POSTERS—Tuesday . . . . . Tues. 17.40 to 19.10

A poster session will be held on Tuesday 17.40 to 19.10. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Organic Light Emitting Diodes

Device history dependent effects in dark injection transient current measurements of charge mobility in organic light emitting diodes, Steven D. Knox, National Physical Lab. (United Kingdom); Helen Jones, Univ. of Southampton (United Kingdom); Trevor Esward, National Physical Lab. (United Kingdom) . . . . . .[7722-43]

Dynamic characterisation of organic light-emitting devices, Kai A. Brossi, Beat Ruhstaller, Evelyne Knapp, Nils A. Reinke, Martin T. Neukom, Zürcher Hochschule für Angewandte Wissenschaften (Switzerland) . . . . . .[7722-44]

A concept for single carrier transport characterization in organic light-emitting diodes, Matthias Schober, Selina Olthof, Björn Lüssem, Karl Leo, Technische Univ. Dresden (Germany) . . . . . .[7722-45]

IR studies on the interaction of Ca and Mg with the blue emitter material Ir(cn-pmbic)$_3$, Tobias Glaser, Martin Binder, Annemarie Pucci, Ruprecht-Karls-Univ. Heidelberg (Germany); Christian Lennartz, Christian D. Schildknecht, BASF SE (Germany). . . . . .[7722-46]

Improving OLEDs characteristics by red fluorescent emitter with reduced quenching, Iryna Gozhyk, Eléna Ishow, Ecole Normale Supérieure de Cachan (France); Sébastien Forget, Sébastien V. Chenais, Univ. Paris-Nord (France); Melanie Lebental, Ecole Normale Supérieure de Cachan (France); Denis Tondelier, Bernard Geffroy, Ecole Polytechnique (France) . . . . . .[7722-47]

White organic light-emitting diodes with top-emitting structure for high color quality and forward directed light emission, Patricia Freitag, Sebastian Reineke, Mauro Furno, Björn Lüssem, Karl Leo, Institut für Angewandte Photophysik (Germany) . . . . . .[7722-48]

Organic light emitting diodes on metals foils, Ludovic L. Avril, Facultes Univ. Notre Dame de la Paix (Belgium); Philippe Guaino, Fabrizio Maseri, ArcelorMittal Liège (Belgium); Jean-Jacques Pireaux, Facultes Univ. Notre Dame de la Paix (Belgium) . . . . . .[7722-49]

Balanced carrier accumulation in organic field effect transistors and their bright electroluminescence, Hajime Nakanotani, Chihaya Adachi, Kyushu Univ. (Japan). . . . . .[7722-50]

Organic Laser Structures and Applications

Second-order distributed feedback lasers based on films containing perylenediimide derivatives, Maria A. Diaz-Garcia, Victor Navarro-Fuster, Pedro G. Boj, Igor Vragovic, Jose M. Villalvilla, Jose A. Quintana, Univ. de Alicante (Spain); Vera Trabadelo, Aritz Juarros, Aritz Retolaza, Santos Merino, Tekniker (Spain) . . . . . .[7722-51]

Azobenzene based surface relief gratings for thin film distributed feedback lasers, Sebastian Döring, Torsten Rabe, Regina Rosenhauer, Olga Kulikovska, Niko Hildebrandt, Joachim Stumpe, Fraunhofer-Institut für Angewandte Polymerforschung (Germany) . . . . . .[7722-52]

Optical spectroscopy with organic semiconductor lasers, Sönke Klinkhammer, Thomas Woggon, Christoph Vannahme, Timo Mappes, Uli Lemmer, Karlsruhe Institute of Technology (Germany) . . . . . .[7722-53]

High efficiency lasing action in advanced organic materials, Daniele E. Lucchetta, Francesco Vita, Univ. Politecnica delle Marche (Italy); Riccardo Castagna, Ecole Normale Supérieure de Cachan (France); Francesco F. Simoni, Univ. Politecnica delle Marche (Italy). . . . . .[7722-54]

Organic Photovoltaics

Effect of substrate temperature induced subphthalocyanine molecule orientation in organic photovoltaic cells, Chi-Ta Chou, Wei-Li Tang, Yang-Chih Lin, Chin-Hsin J. Liu, National Taiwan Univ. of Science and Technology (Taiwan); Kuei-Hsien Chen, Li-Chyong Chen, National Taiwan Univ. (Taiwan) . . . . .[7722-55]

Hybrid solar cells based on water soluble polymers: charge transport properties and photovoltaic characterization, Gopala Krishna, Jean-Christophe Bolsée, Abay Gadisa Dinku, Univ. Hasselt (Belgium); Mikhail Parchine, XIOS Univ. College Limburg (Belgium); Jan D'Haen, Bert Conings, Univ. Hasselt (Belgium); Jean V. Manca, Univ. Hasselt (Belgium) and IMEC (Belgium). . . . . .[7722-56]

Nano-structure control in bulk heterojunction layer for organic solar cell, Shizuyasu Ochiai, Daichi Yamanaka, Shintaro Watanabe, Aichi Institute of Technology (Japan) . . . . . .[7722-57]

Fabrication, performance and morphology of organic thin film solar cells using the brush painting method, Shizuyasu Ochiai, Hirohumi Ishihara, Teruyoshi Mizutani, Kenzo Kojima, Aichi Institute of Technology (Japan). . . . . .[7722-58]

Organic solar cell performance and nano-morphology of poly(3-hexylthiophene-2,5-diyl) (P3HT)/PCBM thin film using poly(3-ocxylthiophene), Shizuyasu Ochiai, Kenta Sakai, Teruyoshi Mizutani, Kenzo Kojima, Aichi Institute of Technology (Japan) . . . . . .[7722-59]

Island size effects in organic optoelectronic devices, Minh Nguyen, Ayse Z. Turak, Felix Maye, Max-Planck-Institut für Metallforschung (Germany); Joerg Wachtrup, Univ. Stuttgart (Germany); Helmut Dosch, Deutsches Elektronen-Synchrotron (Germany) and Max-Planck-Institut für Metallforschung (Germany) . . . . . .[7722-60]

The appropriateness of organic solar cells for indoor lighting conditions, Ben Minnaert, Peter Veelaert, Hogeschool Gent (Belgium) . . . . . .[7722-61]

Charge transport and recombination in Poly(3-alkylthiophene)/Fullerene bulk heterojunctions solar cells studied by charge extraction by linearly increasing voltage, Donato F. Spoltore, Abay Gadisa, Univ. Hasselt (Belgium); Mikhail Parchine, Univ. Hasselt (Belgium) and XIOS Univ. College (Belgium); Wibren Oosterbaan, Krishna Gopala, Veerle Vrindts, Laurence J. Lutsen, Dirk J. Vanderzande, Jean V. Manca, Univ. Hasselt (Belgium) . . . . . .[7722-62]

2D excitons diffusion in oligoacenes thin films, Evguenia V. Emelianova, Stavros Athanasopoulos, David Beljonne, Univ. de Mons-Hainaut (Belgium); Robert J. Silbey, Massachusetts Institute of Technology (United States) . . . . . .[7722-63]

Nano-morphology studies of highly efficient organic solar cells by low-energy electron transmission microscopy, Marina Pfaff, Erich Mueller, Dagmar Gerthsen, Michael F. G. Klein, Jens Czolk, Manuel Reinhard, Andreas Puetz, Alexander Colsmann, Uli Lemmer, Karlsruhe Institute of Technology (Germany) . . . . . .[7722-64]

Photophysics

Radiative and nonradiative deactivation of phosphorescent Pt(II) Schiff base complexes for OLED applications, Andreas F. Rausch, Univ. Regensburg (Germany); Siu-Wai Lai, Chi-Chung Kwok, Chi-Ming Che, The Univ. of Hong Kong (China); Hartmut Yersin, Univ. Regensburg (Germany). . . . . .[7722-65]

Materials

Electroabsorption and photoluminescence in well defined semiconducting carbon nanotubes, Nicolas Izard, Etienne Gaufrès, Institut d'Électronique Fondamentale (France); Saïd Kazaoui, National Institute of Advanced Industrial Science and Technology (Japan); Yoichi Murakami, Tokyo Institute of Technology (Japan); Shigeo Maruyama, The Univ. of Tokyo (Japan); Laurent Vivien, Institut d'Électronique Fondamentale (France) . . . . . .[7722-66]

Photoinduced processes in novel materials for polymer solar cells, Benjamin Dietzek, Ronald Siebert, Friedrich-Schiller-Univ. Jena (Germany); Andreas Winter, Technische Univ. Eindhoven (Netherlands); Ulrich S. Schubert, Michael Schmitt, Jürgen Popp, Friedrich-Schiller-Univ. Jena (Germany). . . . . .[7722-67]

Development of Suzuki surface initiated polycondensations of conjugated polymers for opto-electronical devices, Kseniya Boyko, Tetyana Beryozkina, Volodymyr Senkovskyy, Natalya Khanduyeva, Anton Kiriy, Manfred Stamm, Leibniz-Institut für Polymerforschung Dresdene e.V. (Germany) . . . . . .[7722-68]

New synthesized bi-polar carbazol derivatives as host materials for electroluminescence, Aivars Vembris, Janis Latvels, Martins Porozovs, Inta Muzikante, Univ. of Latvia (Latvia); Juozas V. Grazulevicius, Kaunas Univ. of Technology (Lithuania) . . . . . .[7722-69]

New indandione based materials for organic solar cells: electrical and photoelectrical properties, Janis Latvels, Inta Muzikante, Kaspars Pudzs, Univ. of Latvia (Latvia); Valdis Kampars, Riga Technical Univ. (Latvia) . . . . . .[7722-70]

Influence of molecular structure of azobenzene molecules on reversible photoinduced processes in polymer films, Elina Laizane, Univ. of Latvia (Latvia); Daina Gustina, Elga Markava, Latvian Academy of Sciences (Latvia); Inta Muzikante, Baiba Niparte, Univ. of Latvia (Latvia). . . . . .[7722-71]

Photo-induced surface modification of polymer substrates, Jinxin Guo, Shui Liu, Michael R. Gleeson, Feidhlim T. O'Neill, Denis Dowling, John T. Sheridan, Univ. College Dublin (Ireland) . . . . . .[7722-72]

Influence of particle plasmon resonance on the photoluminescence of exciplex in the organic semiconductor blend film, Fei Dou, Chunzeng Peng, Hongmei Liu, Xinping Zhang, Beijing Univ. of Technology (China). . . . . .[7722-73]

Nonlinear Optics, Holography and Optical Storage

Polymer composites containing photochromic dye solution, Mitsunori Saito, Kohei Sakiyama, Kenji Ohashi, Ryosuke Mochizuki, Ryukoku Univ. (Japan). . . . . .[7722-74]

Initiator system in holographic photopolymer materials, Manuel Ortuño, Elena Fernandez, Rosa Fuentes Rosillo, Sergi Gallego, Andrés Márquez Ruiz, Univ. de Alicante (Spain) . . . . . [7722-75]

EO coefficient determination of the azobenzole and indadione side chain polyurethane thin films by MZI technique, Edgars Nitiss, Martinsh A. Rutkis, Oskars Vilitis, Univ. of Latvia (Latvia). . . . . [7722-76]

Towards a unifying theory for the first-, second- and third-order molecular (non)linear optical response, Javier Pérez-Moreno, Katholieke Univ. Leuven (Belgium); Koen J. Clays, Katholieke Univ. Leuven (Belgium) and Washington State Univ. (United States); Mark G. Kuzyk, Washington State Univ. (United States) . . . . . [7722-77]

Light-sensitive organic systems and multilayer polymer structures for optical recording media, Valery A. Barachevsky, Olga I. Kobeleva, Tatyana M. Valova, Anton O. Ait, Photochemistry Ctr. (Russian Federation); Mikhail M. Krayushkin, Konstantin S. Levchenko, Vladimir N. Yarovenko, Zelinsky Institute of Organic Chemistry (Russian Federation); Vadim V. Kiiko, A. M. Prokhorov General Physics Institute (Russian Federation); Evgeny P. Grebennikov, Technomash, Ltd. (Russian Federation) . . . . . [7722-78]

Multi-photon absorption in polydiacetylenes adsorbed on metal nanostructures, Robertino Pilot, Renato Bozio, Univ. degli Studi di Padova (Italy); Anna Demartini, Marina Alloisio, Giovanna Dellepiane, Univ. degli Studi di Genova (Italy); Emilia Giorgetti, Consiglio Nazionale delle Ricerche (Italy). . . . . [7722-79]

Conjugated polymers: a linear and nonlinear optical study, Inge Asselberghs, Koen J. Clays, Thierry Verbiest, Guy Koeckelberghs, Katholieke Univ. Leuven (Belgium) . . . . . [7722-80]

Solvent dependence second-order nonlinear optical properties of Zwitterionic chromophores, Ayele Teshome, Katholieke Univ. Leuven (Belgium); Andrew J. Kay, Industrial Research Ltd. (New Zealand); Matthew Reish, Univ. of Otago (New Zealand); Koen J. Clays, Inge Asselberghs, Katholieke Univ. Leuven (Belgium) . . . . . [7722-81]

Low polymerization-shrinkage nanoparticle-polymer composite films based on thiol-ene photopolymerization for holographic data storage, Yasuo Tomita, Eiji Hata, Koji Omura, Satoru Yasui, The Univ. of Electro-Communications (Japan). . . . . [7722-82]

Z-scan characterization of nonlinear optical effects in polymer films incorporating hyperbranched polymer-metallic nanoparticle complex, Xiangming Liu, Yasuo Tomita, The Univ. of Electro-Communications (Japan); Kei Yasui, Keisuke Kojima, Katsumi Chikama, Nissan Chemical Industries, Ltd. (Japan). . . . . [7722-83]

Wednesday 14 April

SESSION 6 . . . . . Wed. 08.40 to 10.20

OLED Devices and Applications II

Session Chair: **Lambert Jan Anton Koster,**
Technische Univ. Eindhoven (Netherlands)

Organic TFT-driven Flexible Displays *(Invited Paper)*, Kazumasa Nomoto, Sony Corp. (Japan). . . . . [7722-23]

Towards efficient next generation light sources: Combined solution processed and evaporated layers for OLEDs *(Invited Paper)*, David Hartmann, Wiebke Sarfert, Siemens AG (Germany) . . . . . [7722-24]

Light-outcoupling enhancement strategies in organic light emitting diodes, Wolfgang Brütting, Jörg Frischeisen, Stefan Nowy, Tobias Schmidt, Univ. Augsburg (Germany) . . . . . [7722-25]

Highly efficient inverted top-emitting organic electroluminescent devices with doped charge transport layers, Michael Thomschke, Mauro Furno, Björn Lüssem, Karl Leo, Technische Univ. Dresden (Germany). . . . . [7722-26]

SESSION 7 . . . . . Wed. 11.00 to 12.50

OPV Physics and Modelling II

Session Chair: **Wolfgang Brütting,** Univ. Augsburg (Germany)

A molecular description of pentacene/C60 interfaces: vacuum level shift and geminate pair dissociation *(Invited Paper)*, Stijn Verlaak, David Cheyns, Cedric Rolin, Alexander Mityashin, IMEC (Belgium); Frederic Castet, Univ. Bordeaux 1 (France); David Beljonne, Jerome P. Cornil, Univ. de Mons-Hainaut (Belgium); Paul L. Heremans, IMEC (Belgium) . . . . . [7722-27]

Charge transport in bulk heterojunctions: Influence of morphology, electric field, and charge carrier concentration, Lambert Jan Anton Koster, Technische Univ. Eindhoven (Netherlands) . . . . . [7722-28]

Influence of fullerene nanomorphology on the charge transfer state energy of polymer:fullerene bulk heterojunction solar cells, Fortunato Piersimoni, Sylvain Chambon, Univ. Hasselt (Belgium) and IMEC (Belgium); Tine Boonen, Koen Vandewal, Abay Gadisa, Raoul Mens, Univ. Hasselt (Belgium); Jun Zhao, Vrije Univ. Brussel (Belgium); Salvatore Filippone, Nazario Martin, Univ. Complutense de Madrid (Spain); Guy Van Assche, Bruno Van Mele, Vrije Univ. Brussel (Belgium); Laurence J. Lutsen, Peter Adriaensens, Dirk J. Vanderzande, Jean V. Manca, Univ. Hasselt (Belgium). . . . . [7722-29]

Transient photocurrent response of organic bulk heterojunction solar cells, Martin T. Neukom, Kai A. Brossi, Nils A. Reinke, Zürcher Hochschule für Angewandte Wissenschaften (Switzerland); Beat Ruhstaller, Zürcher Hochschule für Angewandte Wissenschaften (Switzerland) and Fluxim AG (Switzerland); Evelyne Knapp, Zürcher Hochschule für Angewandte Wissenschaften (Switzerland) . . . . . [7722-30]

Modeling of the transient photoresponse of organic solar cells including trap states, Nico S. Christ, Sebastian Valouch, Simon Züfle, Siegfried W. Kettlitz, Uli Lemmer, Karlsruhe Institute of Technology (Germany). . . . . [7722-31]

Lunch at the Exhibition Hall/Exhibition-Only Time. . . . . 13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany; **Ursula Keller,** ETH Zurich, Switzerland; **Mike Dunne,** Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 8 . . . . . Thurs. 09.00 to 10.20

Materials and Photonic-enhanced Materials I

Session Chair: **Michele Muccini,**
Istituto per lo Studio dei Materiali Nanostrutturati (Italy)

New materials for opto-electronic applications, Antonio F. Facchetti, Polyera Corp. (United States). . . . . [7722-32]

Photoluminescence enhancement of carbon nanotube based thin films, Nicolas Izard, Institut d'Électronique Fondamentale (France) and National Institute of Advanced Industrial Science and Technology (Japan); Etienne Gaufrès, Xavier Le Roux, Delphine Marris-Morini, Institut d'Électronique Fondamentale (France); Said Kazaoui, National Institute of Advanced Industrial Science and Technology (Japan); Eric Cassan, Laurent Vivien, Institut d'Électronique Fondamentale (France) . . . . . [7722-33]

Efficient up conversion of exciton from triplet to single excited states in organic thin films and their electroluminescence, Ayataka Endo, Chihaya Adachi, Kyushu Univ. (Japan) . . . . . [7722-34]

Ultrafast all-optical switching based on the chromoprotein bacteriorhodosin, Lazlo Fabian, Biological Research Ctr. (Hungary); Mark Mero, Univ. of Szeged (Hungary); Zsuzsanna Heiner, Biological Research Ctr. (Hungary); Károly Osvay, Univ. of Szeged (Hungary); András Dér, Biological Research Ctr. (Hungary) . . . . . [7722-35]

SESSION 9 . . . . . Thurs. 11.00 to 12.10

Materials and Photonic-enhanced Materials II

Session Chair: **Antonio F. Facchetti,** Polyera Corp. (USA)

Hybrid nanocomposites combining fluorescent dyes and ultra-small metal-nanoparticles in a block copolymer micelle *(Invited Paper)*, Gabriele Raino, Thilo Stöferle, IBM Zürich Research Lab. (Switzerland); Ho-Cheol Kim, Teya Topuria, IBM Almaden Research Ctr. (United States); In-Joo Chin, Inha Univ. (Korea, Republic of); Robert D. Miller, IBM Almaden Research Ctr. (United States); Rainer F. Mahrt, IBM Zürich Research Lab. (Switzerland) . . . . . [7722-36]

Fluorescence enhancement assisted by surface plasmons, Gaetan Leveque, Tyndall National Institute (Ireland); Vincent Reboud, Timothy Kehoe, Institut Català de Nanotecnologia (Spain); Marinella Striccoli, Tiziana Placido, Maria Lucia Curri, Consiglio Nazionale delle Ricerche (Italy); Eoin P. O'Reilly, Brian Corbett, Tyndall National Institute (Ireland); Clivia M. Sotomayor Torres, Institut Català de Nanotecnologia (Spain) . . . . . [7722-37]

Exciton-surface plasmon interactions in organic semiconductor-metal nanoparticle thin-films and their application to solar cells, Bjoern Niesen, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium); Barry P. Rand, Andriy Kadashchuk, Pol Van Dorpe, Tom Aernouts, Jan Genoe, IMEC (Belgium); Paul L. Heremans, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium) . . . . .[7722-38]

Lunch Break . . . . . 12.10 to 13.40

SESSION 10 . . . . . Thurs. 13.40 to 15.00

OPV Physics and Modelling II

Session Chair: **Barry P. Rand,** IMEC (Belgium)

Modelling exciton diffusion in disordered organic materials, Stavros Athanasopoulos, Evguenia V. Emelianova, Univ. de Mons-Hainaut (Belgium); Luca Muccioli, Univ. degli Studi di Bologna (Italy); Theodoros Papadopoulos, Univ. of Bath (United Kingdom); Claudio Zannoni, Univ. degli Studi di Bologna (Italy); Alison B. Walker, Univ. of Bath (United Kingdom); David Beljonne, Univ. de Mons-Hainaut (Belgium) . . . . . .[7722-39]

Delayed luminescence spectroscopy of organic donor: acceptor photovoltaic blend films, Panagiotis E. Keivanidis, Imperial College London (United Kingdom); Valentin Kamm, Max-Planck-Institut für Polymerforschung (Germany); Clare Dyer-Smith, Weimin Zhang, Imperial College London (United Kingdom); Frederic Laquai, Max-Planck-Institut für Polymerforschung (Germany); Iain McCulloch, Donal D. C. Bradley, Jenny Nelson, Imperial College London (United Kingdom) . . . . .[7722-40]

Origin of recombination via charge transfer excitons in conjugated polymer/fullerene blends, Markus Hallermann, Enrico Da Como, Josef M. Berger, Jochen Feldmann, Ludwig-Maximilians-Univ. München (Germany) . . . . . .[7722-41]

Quantifying bimolecular recombination losses in organic blend solar cells, Lambert Jan Anton Koster, Martijn Kemerink, Martijn M. Wienk, Klará Maturova, René A. J. Janssen, Technische Univ. Eindhoven (Netherlands) . . . . . .[7722-42]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

Monday-Thursday 12-15 April 2010 • Proceedings of SPIE Vol. 7723

Optics, Photonics and Digital Technologies for Multimedia Applications

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

Keynote Session . . . . . Mon. 13.00 to 13.40

Wavelets, Van Gogh and Lady "6mm under" *(Invited Paper)*, Ingrid Daubechies, Princeton Univ. (United States) . . . . . [7723-01]

SESSION 1 . . . . . Mon. 13.40 to 15.10

Superresolution

Session Chair: **Gabriel Cristóbal,** Consejo Superior de Investigaciones Científicas (Spain)

Aperiodic pixel layout for super-resolution *(Invited Paper)*, Moshe Ben-Ezra, Zhouchen Lin, Bennett S. Wilburn, Microsoft Research Asia (China) . . . . .[7723-02]

Compressive coded apertures for high-resolution imaging, Roummel F. Marcia, Univ. of California, Merced (United States); Zachary T. Harmany, Rebecca M. Willett, Duke Univ. (United States) . . . . . .[7723-03]

Single-image super-resolution using sparsity constraints and non-local similarities at multiple resolution scales, Hiep Q. Luong, Tijana Ruzic, Aleksandra Pizurica, Wilfried R. Philips, Univ. Gent (Belgium) . . . . . .[7723-04]

Construction of super resolution imaging system considering spatially varying sub-pixel registration, Sang Wook Park, Joonyoung Chang, Jongseong Choi, Moon Gi Kang, Yonsei Univ. (Korea, Republic of). . . . . .[7723-05]

SESSION 2 . . . . . Mon. 15.50 to 18.00

Optical and Digital Image Processing

Session Chair: **Pascuala García-Martínez,** Univ. de València (Spain)

Use of spatial light modulators in wavefront coding for field imaging: adaptation of the filter design procedure *(Invited Paper)*, Carme Ferran, Santiago Vallmitjana Rico, Guillem Carles, Salvador Bosch Puig, Univ. de Barcelona (Spain) . . . . . .[7723-06]

Test results of optimal phase diversity selection using a LCOS-SLM for remote sensing adaptive optics, Norihide Miyamura, The Univ. of Tokyo (Japan). . . . . .[7723-07]

Image processing for alignment of aspheric optics without fiducials, Babak N. Saif, Perry E. Greenfield, Warren Hack, Space Telescope Science Institute (United States); Ritva A. Keski-Kuha, Lee D. Feinberg, NASA Goddard Space Flight Ctr. (United States); David Chaney, Ball Aerospace & Technologies Corp. (United States) . . . . . .[7723-08]

wide viewing angle holographic display with a multi spatial light modulator array, Grzegorz F. Finke, Tomasz Kozacki, Malgorzata Kujawinska, Warsaw Univ. of Technology (Poland) . . . . . .[7723-09]

Compact slot-in type optical correlator, Shota Yamamoto, Hirotoshi Kuboyama, Shinichi Arai, Kenzo Yamaguchi, Mitsuo Fukuda, Toyohashi Univ. of Technology (Japan); Makoto Kato, Tadahiko Kawaguchi, Papa Lab. Co., Ltd. (Japan); Mitsuteru Inoue, Toyohashi Univ. of Technology (Japan) . . . . . .[7723-10]

Requirements on illumination's monochromaticity for images formation by optical-digital systems with optical coding, Mikhail V. Konnik, Sergey N. Starikov, Moscow Engineering Physics Institute (Russian Federation). . . .[7723-11]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.30 to 10.10

Image Quality Assesment and Enhancement I

Session Chair: **Boris Escalante-Ramírez,** Univ. Nacional Autónoma de México (Mexico)

Matching the quality of rendered and real world images by digital image processing, Carles Mitjà, Antoni Bover, Miquel Bigas, Jaume Escofet Soteras, Univ. Politècnica de Catalunya (Spain) . . . . . .[7723-12]

Perceptual auality assessment of JPEG, JPEG 2000 and JPEG XR, Tim Bruylants, Joeri Barbarien, Adrian Munteanu, Peter Schelkens, Vrije Univ. Brussel (Belgium) . . . . . .[7723-14]

Blind quality assessment of multi-focus image fusion algorithms, Uriel R. Nava, Boris Escalante-Ramírez, Univ. Nacional Autónoma de México (Mexico); Gabriel Cristóbal, Consejo Superior de Investigaciones Científicas (Spain) . . . . . .[7723-15]

Image enhancement based on gamma map processing, Chen-Yu Tseng, Sheng-Jyh Wang, Yi-An Chen, National Chiao Tung Univ. (Taiwan) . . . . .[7723-16]

Linearization of raw data from commercial photo cameras for optical-digital imaging systems, Mikhail V. Konnik, Sergey N. Starikov, Moscow Engineering Physics Institute (Russian Federation) . . . . . .[7723-13]

SESSION 4 . . . . . Tues. 10.50 to 12.20

Steganography and Watermarking for Multimedia Content and Services I

Session Chair: **Athanassios N. Skodras,** Hellenic Open Univ. (Greece)

Ensuring integrity and authenticity for images in digital long-term preservation *(Invited Paper)*, Maik Schott, Christian Krätzer, Norman Specht, Jana Dittmann, Otto-von-Guericke-Univ. Magdeburg (Germany); Claus Vielhauer, Fachhochschule Brandenburg (Germany). . . . . .[7723-17]

Estimating JPEG2000 compression for image forensics and digital watermarking using the generalised Benford's law, Ghulam Qadir, Xi Zhao, Anthony T. Ho, Univ. of Surrey (United Kingdom). . . . . .[7723-18]

Labelling bins, Dieter Bardyn, Ann Dooms, Peter Schelkens, Vrije Univ. Brussel (Belgium) . . . . . .[7723-19]

On the use of the discrete Pascal transform in hiding data in images, Eleni E. Varsaki, Vassilis E. Fotopoulos, Athanassios N. Skodras, Hellenic Open Univ. (Greece) . . . . . .[7723-20]

Lunch Break . . . . . 12.20 to 14.00

SESSION 5 . . . . . Tues. 14.00 to 15.10

Steganography and Watermarking for Multimedia Content and Services II

Session Chair: **Athanassios N. Skodras,** Hellenic Open Univ. (Greece)

Imperceptible yellow dot watermarking for printed binary documents *(Invited Paper)*, Johann A. Briffa, Christopher J. Culnane, Helen Treharne, Univ. of Surrey (United Kingdom). . . . . .[7723-21]

Content-based audio authentication using a hierarchical patchwork watermark embedding, Michael Gulbis, Erika Mueller, Univ. Rostock (Germany) . . . . . .[7723-22]

Statistical counter-attacks in MPEG-4 AVC watermarking, Mihai P. Mitrea, Adriana Garboan, Francoise J. Preteux, TELECOM & Management SudParis (France) . . . . . .[7723-23]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

POSTERS—Tuesday . . . . . Tues. 17.40 to 19.10

A poster session will be held on Tuesday 17.40 to 19.10. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

A Low Resolution 3D Holographic Volumetric Display, Javid Khan, Heriot Watt University (United Kingdom) and Holoxica Ltd (United Kingdom); Ian Underwood, Edinburgh University (United Kingdom); Alan Greenaway, Heriot Watt University (United Kingdom). . . . . .[7723-47]

A novel fingerprint verification using dynamic time warping and triangular matching, Kathir Eswaran, Kabil An, Syed Ammal Engineering College (India). . . . . .[7723-48]

Multimedia application for the conservation of energy in a working environment through the use of a renewable energy sources (RES) hybrid system, Ioannis Karras, Hellenic Open Univ. (Greece); Harry D. Kambezidis, National Observatory of Athens (Greece); Dimitrios Zevgolis, Hellenic Open Univ. (Greece). . . . . .[7723-49]

Three dimensional reconstruction of neuron morphology from confocal microscopy images, Zian Fanti, M. Elena Martínez-Pérez, Univ. Nacional Autónoma de México (Mexico) . . . . . .[7723-50]

Minimizing camera-eye optical aberrations during the 3D reconstruction of retinal structures, Javier A. Aldana Iuit, Maria E. Martinez Perez, Univ. Nacional Autónoma de México (Mexico); Arturo Espinosa Romero, Univ. Autónoma de Yucatán (Mexico); Rufino Diaz Uribe, Univ. Nacional Autónoma de México (Mexico). . . . . .[7723-51]

Design and simulation of programmable relational optoelectronic time-pulse coding processors as base elements for sorting neural networks, Vladimir G. Krasilenko, Vinnitsa Social Economy Institute (Ukraine); Alexander I. Nikolsky, Alexander A. Lazarev, Vinnitsa State Technical Univ. (Ukraine); Maria V. Lazareva, Vinnitsa Social Economy Institute (Ukraine) . . . . . .[7723-52]

Pulse holographic technologies, Nadejda D. Vorzobova, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation) . . . . . .[7723-53]

Local vector space operators for detection of differences in images under varying illumination, Pascuala García-Martínez, Univ. de València (Spain); Henri H. Arsenault, Abdellatif Gherabi, Univ. Laval (Canada); Carlos Ferreira, Univ. de València (Spain). . . . . .[7723-54]

Using CMOS Image Sensors to Detect Photons, Chenzhi Xu, Xiaobo Tong, Xiang Zhou, Yunfei Xu, Zhejiang Univ. (China) . . . . . .[7723-55]

Deterministic phase encoding encryption in arbitrary phase-step digital holography, Chi-Ching Chang, MingDao Univ. (Taiwan); Wang-Ta Hsieh, Wen-Ho Wu, National Defense Univ. (Taiwan) . . . . . .[7723-56]

A hybrid energy model for extracting boundaries of multiple overlapped objects on images, Janghee Lee, Suk In Yoo, Seoul National Univ. (Korea, Republic of) . . . . . .[7723-57]

Using dual modulation modes in spatial light modulator (SLM) for a novel single-beam image storage and retrieval system, Po Sheun Chung, City Univ. of Hong Kong (Hong Kong, China) . . . . . .[7723-58]

Digital image restoration for phase-coded imaging system, Chen-Yu Tseng, Sheng-Jyh Wang, National Chiao Tung Univ. (Taiwan); Chir-Weei Chang, Po-Chang Chen, Chuan-Chung Chang, Industrial Technology Research Institute (Taiwan); Yi-An Chen, National Chiao Tung Univ. (Taiwan). . . . . .[7723-59]

Iterative design of mesh-defined phase masks for wavefront coding, Guillem Carles, Artur Carnicer, Salvador Bosch, Univ. de Barcelona (Spain) . . . . .[7723-60]

New approach to image database design for testing and improvement of advanced image reconstruction algorithms, Petr Pata, Karel Fliegel, Milos Klima, Czech Technical Univ. in Prague (Czech Republic) . . . . . .[7723-61]

Highly parallel SPAD detector for time-resolved lab-on-chip systems, Michele Benetti, Univ. degli Studi di Trento (Italy); Daniele Iori, Univ. degli Studi di Trento (Italy) and Fondazione Bruno Kessler (Italy); Lucio Pancheri, Fausto Borghetti, Laura Pasquardini, Lorenzo Lunelli, Cecilia Pederzolli, Lorenzo Gonzo, Fondazione Bruno Kessler (Italy); Gian-Franco Dalla Betta, Univ. degli Studi di Trento (Italy); David Stoppa, Fondazione Bruno Kessler (Italy) . . . . . .[7723-62]

Subpixel centroid position error analysis in particle tracking velocimetry induced by the CCD pixel binning, Alisher A. Kholmatov, TÜBITAK Uekae (Turkey); Basak Akselli, TÜBITAK UME (Turkey); Humbat Nasibov, TÜBITAK Uekae (Turkey) . . . . . .[7723-63]

Multifrequency multisampling fluorescence lifetime imaging using a high speed line-scan camera, Zhuang Lin, Michael Erz, Ruprecht-Karls-Univ. Heidelberg (Germany); Bernd Jaehne, Ruprecht-Karls-Univ. Heidelberg (United States) . . . . . .[7723-64]

Lesion segmentation algorithm for contrast enhanced CT images, Aneta Markova, Vrije Univ. Brussel (Belgium) and IBBT (Belgium); Frederik Temmermans, Rudi Deklerck, Edgard Nyssen, Vrije Univ. Brussel (Belgium); Johan Demey, Univ. Ziekenhuis Brussel (Belgium) . . . . . .[7723-65]

Artifact-free reconstruction from off-axis digital holograms through nonlinear filtering, Nicolas Pavillon, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Chandra Sekhar Seelamantula, Indian Institute of Science (India); Michael Unser, Christian D. Depeursinge, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7723-66]

Wednesday 14 April

SESSION 6 . . . . . Wed. 08.30 to 10.00

Industrial Processing

Session Chair: **María S. Millán García-Varela,** Univ. Politècnica de Catalunya (Spain)

Feature extraction of the wear label of carpets by using a novel 3D scanner *(Invited Paper)*, Sergio A. Orjuela Varga, Ewout Vansteenkiste, Filip Rooms, Simon De Meulemeester, Didier Van Daele, Robin de Keyser, Wilfried Phillips, Univ. Gent (Belgium) . . . . . .[7723-24]

Unsupervised flaw segmentation in textile materials under visible and NIR illumination, María S. Millán García-Varela, Jaume Escofet Soteras, Miquel Ralló, Univ. Politècnica de Catalunya (Spain) . . . . . .[7723-25]

In-process 3D laser measurement to control the fiber tape-laying for composite production, Robert Schmitt, Christoph Mersmann, RWTH Aachen (Germany) . . . . . .[7723-26]

Measurement of shafts in the production process based on x-rays, Robert Schmitt, Björn Damm, RWTH Aachen (Germany); Rolf Behrendt, Christoph Funk, Randolf Hanke, Jochen Hiller, Stefan G. Kasperl, Michael Krumm, Fraunhofer-Institut für Integrierte Schaltungen (Germany); Ernst Neumann, HOMMEL-ETAMIC GmbH (Germany); Arno Rehbein, RWTH Aachen (Germany); Frank Sukowski, Norman Uhlmann, Fraunhofer-Institut für Integrierte Schaltungen (Germany); Raimund Volk, HOMMEL-ETAMIC GmbH (Germany); Alexander Warrikhoff, rtw RÖNTGEN-TECHNIK DR. WARRIKHOFF GmbH & Co. KG (Germany) . . .[7723-27]

SESSION 7 . . . . . Wed. 10.40 to 12.50

Display and Light Sources

Session Chair: **Tom R. Kimpe,** Barco N.V. (Belgium)

Fast-switching frequency-converted laser light source for display applications *(Invited Paper)*, Janne Konttinen, Pietari Tuomisto, Tuomas H. Vallius, Tomi Jouhti, EpiCrystals, Inc. (Finland) . . . . . .[7723-28]

Scanning laser beam displays based on a 2D MEMS *(Invited Paper)*, Maarten Niesten, Taha Masood, Joshua Miller, Microvision, Inc. (United States) . .[7723-29]

Near-to-eye display based on a scanning mirror engine and a diffractive exit-pupil expander, Pekka Ayras, Pasi Saarikko, Nokia Corp. (Finland) . . . . .[7723-30]

LED light sources for mobile embedded projection, Stefan Morgott, OSRAM Opto Semiconductors GmbH (Germany) . . . . . .[7723-31]

Color uniformity in compact LED illumination for DMD projectors, Stijn Roelandt, Lawrence Bogaert, Youri Meuret, Vrije Univ. Brussel (Belgium); Aykut Avci, Herbert De Smet, Univ. Gent (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7723-32]

Highly integrated near-to-eye display and gaze tracker, Toni Jarvenpaa, Pekka Ayras, Nokia Research Ctr. (Finland). . . . . .[7723-33]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50

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Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany; **Ursula Keller,** ETH Zurich, Switzerland; **Mike Dunne,** Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 8 . . . . . Thurs. 08.30 to 10.10

Image Processing and Representation

Session Chair: **Frédéric Truchetet,** Univ. de Bourgogne (France)

MPEG-4 interactive image transmission on mobile thin clients, Mihai P. Mitrea, Bojan Joveski, Francoise J. Preteux, TELECOM & Management SudParis (France) . . . . . .[7723-34]

Spatially-adaptive bases in wavelet-based coding of meshes, Leon Denis, Ruxandra M. Florea, Adrian Munteanu, Peter Schelkens, Vrije Univ. Brussel (Belgium) . . . . . .[7723-35]

An automated real time microscopy system for analysis of fluorescence resonance energy transfer, Andre Bernardini, Univ. Duisburg-Essen (Germany) and Fachhochschule Dortmund (Germany); Christoph Wotzlaw, Univ. Duisburg-Essen (Germany); Hans-Gerd Lipinski, Fachhochschule Dortmund (Germany); Joachim Fandrey, Univ. Duisburg-Essen (Germany) . . . . . .[7723-36]

A new local feature descriptor for object recognition based on the Rényi entropy, Gabriel Cristóbal, Salvador Gabarda, Consejo Superior de Investigaciones Científicas (Spain) . . . . . .[7723-37]

Liver segmentation by an active contour model with embedded Gaussian mixture model-based classifiers, Yanfeng Shang, Rudi Deklerck, Aneta Markova, Edgard Nyssen, Vrije Univ. Brussel (Belgium); Xin Yang, Shanghai Jiao Tong Univ. (China); Johan Demey, Univ. Ziekenhuis Brussel (Belgium) . . . . . .[7723-38]

SESSION 9 . . . . . Thurs. 10.50 to 12.20

Camera Optics

Session Chairs: **Martin Schrader,** Nokia Research Ctr. (Finland); **Pasi Saarikko,** Nokia Research Ctr. (Finland)

Wafer-Level Optics for miniature cameras *(Invited Paper)*, Markus Rossi, Heptagon (Switzerland) . . . . . .[7723-39]

Image quality and wafer-level optics, Yehudit Dagan, Tessera, Inc. (United States) . . . . . .[7723-40]

Small form-factor VGA camera with variable focus by liquid lens, Kari A. Oikarinen, Mika Aikio, VTT Technical Research Ctr. of Finland (Finland) . .[7723-41]

Phase coded optics for computational imaging systems, Chir-Weei Chang, Yung-Lin Chen, Chuan-Chung Chang, Po-Chang Chen, Industrial Technology Research Institute (Taiwan) . . . . . .[7723-42]

Lunch Break . . . . . 12.20 to 13.40

SESSION 10 . . . . . Thurs. 13.40 to 15.00

Sensing and Transport

Session Chairs: **Jan T. Bosiers,** DALSA Corp. (Netherlands); **Ari Tervonen,** Helsinki Univ. of Technology (Finland)

Finite-difference time domain based electro-optical methodologies to improve CMOS image sensor pixels performances, Flavien Hirigoyen, Axel Crocherie, Pierre Boulenc, Jérôme M. Vaillant, Clément Tavernier, Didier Hérault, STMicroelectronics (France) . . . . . .[7723-43]

Analysis of connected components in video spacetime for the detection of small floating objects, Alexander Borghgraef, Fabian D. Lapierre, Royal Belgian Military Academy (Belgium); Wilfried R. Philips, Univ. Gent (Belgium); Marc Acheroy, Royal Belgian Military Academy (Belgium). . . . . .[7723-44]

A low-power, low-noise, wide dynamic range readout circuit for NIR image sensor, Trong-Hieu Ngo, Tae-Woo Lee, Hyo-Hoon Park, Korea Advanced Institute of Science and Technology (Korea, Republic of) . . . . . .[7723-45]

The influence of CCD pixel binning option to its modulation transfer function, Humbat Nasibov, Adalat Nasibov, Fikret N. Hacizade, TÜBITAK Uekae (Turkey) . . . . . .[7723-46]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

Real-Time Image and Video Processing

Thursday 15 April

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Two novel motion-based algorithms for surveillance video analysis on embedded platforms, Julien A. Vijverberg, Marijn J. H. Loomans, VDG Security B.V. (Netherlands) and Technische Univ. Eindhoven (Netherlands); Cornelis J. Koeleman, VDG Security B.V. (Netherlands); Peter H. N. de With, Cyclomedia Technology B.V. (Netherlands) and Technische Univ. Eindhoven (Netherlands) . . . . . .[7724-17]

An arbitrary shaped ROI image coding algorithm using run-length coding and extended Exp-Golomb coding, Yong Xu, Zhiyong Xu, Qiheng Zhang, Yao Zhang, Junping Xu, Institute of Optics and Electronics (China) . . . . . .[7724-18]

Dim point target detection against bright background, Yao Zhang, Qiheng Zhang, Zhiyong Xu, Jun-ping Xu, Institute of Optics and Electronics (China) . . . . . .[7724-19]

Real-time indoor positioning using range imaging sensors, Tobias K. Kohoutek, Rainer Mautz, Andreas Donaubauer, ETH Zürich (Switzerland) [7724-20]

Object tracking using multiple camera video streams, Mehrube Mehrubeoglu, Diego Rojas, Texas A&M Univ. Corpus Christi (United States); Lifford McLauchlan, Texas A&M Univ.-Kingsville (United States) . . . . . .[7724-21]

Comparing methods of FD-OCT signal processing via computer simulations, Marcus P. Raele, Marcello M. Amaral, Nilson D. Vieira, Jr., Anderson Zanardi de Freitas, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . . . . . .[7724-22]

Time budget evaluation for image-based reconstruction of sewer shafts, Sandro Esquivel, Reinhard Koch, Christian-Albrechts-Univ. zu Kiel (Germany); Heino Rehse, IBAK Helmut Hunger GmbH & Co. KG (Germany) . . . . . .[7724-23]

Fast DCT-based image convolution algorithms and application to image resampling and hologram reconstruction, Leonid Bilevich, Leonid Yaroslavsky, Tel Aviv Univ. (Israel) . . . . . .[7724-24]

The research on infrared small target detection technology under complex background, Lei Liu, Xin Wang, Jilu Chen, Nanjing Univ. of Science & Technology (China) . . . . . .[7724-25]

A survey of algorithms and architectures for sub-pixel motion estimation, Mohammad Reza H. Fatemi, Univ. of Malaya (Malaysia); Hasan F. Ates, Isik Univ. (Turkey); Rosli Salleh, Univ. of Malaya (Malaysia) . . . . . .[7724-26]

Friday 16 April

SESSION 1 . . . . . Fri. 08.30 to 10.00

Real-time Algorithms I

Session Chair: **Matthias F. Carlsohn,** Univ. Bremen (Germany)

Real-time robust estimation of vanishing points through nonlinear optimization *(Invited Paper)*, Marcos Nieto, Luis Salgado, Univ. Politécnica de Madrid (Spain) . . . . . .[7724-01]

Super-resolution algorithms based on atomic wavelet functions in real time processing of video sequences, Volodymyr I. Ponomaryov, Francisco Gomeztagle Sepulveda, Instituto Politécnico Nacional (Mexico); Victor Kravchenko, Institute of Radio Engineering and Electronics (Russian Federation) . . . . .[7724-02]

Real-time multi barcode reader for industrial applications, Eran A. Edirisinghe, Iffat Zafar, Usman Zakir, Loughborough Univ. (United Kingdom) . . . . . .[7724-03]

Fast algorithms for computing image local statistics in windows of arbitrary shape and weights, Leonid Bilevich, Leonid Yaroslavsky, Tel Aviv Univ. (Israel) . . . . . .[7724-04]

SESSION 2 . . . . . Fri. 10.40 to 12.10

Real-time Hardware I

Session Chair: **Mehrube Mehrübeoglu,** Texas A&M Univ. Corpus Christi (USA)

Real-time 3D light field transmission *(Invited Paper)*, Tibor Balogh, Peter Tamas Kovacs, Holografika Kft. (Hungary) . . . . . .[7724-05]

Programming Cell/BE and GPUs systems for real-time video encoding, Svetislav Momcilovic, Leonel Sousa, Univ. Técnica de Lisboa (Portugal) .[7724-06]

Two-dimensional systolic-array architecture for low-level vision tasks, Julien A. Vijverberg, VDG Security B.V. (Netherlands) and Technische Univ. Eindhoven (Netherlands); Peter H. N. de With, Cyclomedia Technology B.V. (Netherlands) and Technische Univ. Eindhoven (Netherlands) . . . . . .[7724-07]

Near real-time endmember extraction from remotely sensed hyperspectral data using NVidia GPUs, Sergio Sanchez, Gabriel Martin, Antonio J. Plaza, Javier Plaza, Univ. de Extremadura (Spain) . . . . . .[7724-08]

Lunch Break . . . . . 12.10 to 13.20

SESSION 3 . . . . . Fri. 13.20 to 15.10

Real-time Algorithms II

Session Chair: **Volodymyr I. Ponomaryov,** Instituto Politécnico Nacional (Mexico)

Real-Time Face and Gesture Analysis for Human-Robot Interaction *(Invited Paper)*, Frank Wallhoff, Tobias Rehrl, Christoph Mayer, Bernd Radig, Technische Univ. München (Germany) . . . . . .[7724-09]

Real-Time detection and implementation of logos in video, Mel K. George, Nasser Kehtarnavaz, Mohammad T. Rahman, The Univ. of Texas at Dallas (United States); Matthias Carlsohn, Univ. Bremen (Germany) . . . . . .[7724-10]

Laser based method for real-time three-dimensional monitoring of chest wall movement, Matija Jezersek, Univ. of Ljubljana (Slovenia); Matjaz Flezar, Univ. Clinic Golnik (Slovenia); Janez Mozina, Univ. of Ljubljana (Slovenia) . . . . .[7724-11]

Real-time speaker identification for videoconferencing, Eran A. Edirisinghe, Sara Saravi, Iffat Zafar, Loughborough Univ. (United Kingdom) . . . . . .[7724-12]

Real-time structured light coding for epipolar-dependant patterns, Xavier Maurice, Pierre Graebling, Christophe Doignon, Univ. de Strasbourg (France) . . . . . .[7724-13]

SESSION 4 . . . . . Fri. 15.50 to 17.00

Real-time Hardware II

Session Chair: **Matthias F. Carlsohn,** Univ. Bremen (Germany)

Realtime preview for layered depth video in 3D-TV production *(Invited Paper)*, Anatol Frick, Bogumil Bartczak, Reinhard Koch, Christian-Albrechts-Univ. zu Kiel (Germany) . . . . . .[7724-14]

Challenges for the manycore shift in real-time image processing systems, Johannes Fürtler, Austrian Research Ctrs. GmbH (Austria); Franz Daubner, Austrian Institute of Technology (Austria) . . . . . .[7724-15]

Comparative analysis of local binocular and trinocular depth estimation approaches, Sergey Smirnov, Atanas P. Gotchev, Tampere Univ. of Technology (Finland); Miska Hannuksela, Nokia Research Ctr. (Finland) . . . . . .[7724-16]

Tuesday-Thursday 13-15 April 2010 • Proceedings of SPIE Vol. 7725

Photonics for Solar Energy Systems

Conference Chairs: **Ralf B. Wehrspohn,** Martin-Luther Univ. Halle-Wittenberg (Germany); **Andreas Gombert,** Concentrix Solar GmbH (Germany)

Programme Committee: **Benedikt Bläsi,** Fraunhofer-Institut für Solare Energiesysteme (Germany); **Mark L. Brongersma,** Stanford Univ. (USA); **Christoph J. Brabec,** Konarka Austria Forschungs und Entwicklungs GmbH (Austria); **Gion Calzaferri,** Univ. Bern (Switzerland); **Claes-Göran Granqvist, Sr.,** Uppsala Univ. (Sweden); **Olle Inganäs,** Linköping Univ. (Sweden); **Zbigniew T. Kuznicki,** Univ. Louis Pasteur (France); **Yunosuke Makita,** Tateyama Kagaku Ind. Co., Ltd. (Japan); **Martin P. Pfeiffer,** heliatek GmbH (Germany); **Geoffrey B. Smith,** Univ. of Technology, Sydney (Australia); **Hiiro Yugami,** Tohoku Univ. (Japan)

Tuesday 13 April

SESSION 1 . . . . . Tues. 08.30 to 10.30

Photonics for Crystalline Solar Cells

Session Chair: **Ralf Boris Wehrspohn,** Martin-Luther Univ. Halle-Wittenberg (Germany)

Nanostructured SIS solar cells, Kevin Fuechsel, Ulrike Schulz, Norbert Kaiser, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Thomas Käsebier, Ernst-Bernhard Kley, Friedrich-Schiller-Univ. Jena (Germany); Andreas Tünnermann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) . . . . . [7725-01]

Optimal light trapping in ultra-thin photonic crystal crystalline silicon solar cells, Shrestha Basu Mallick, Stanford Univ. (United States); Mukul Agrawal, Applied Materials, Inc. (United States); Peter Peumans, Stanford Univ. (United States) . . . . . [7725-02]

Realisation and evaluation of diffractive systems on the back side of silicon solar cells, Pauline Berger, Marius Peters, Hubert Hauser, Stefan Janz, Benedikt Blaesi, Martin Hermle, Fraunhofer-Institut für Solare Energiesysteme (Germany) . . . . . [7725-03]

Optical modelling of needle like silicon surfaces produced by an ICP-RIE process, Matthias Kroll, Thomas Käsebier, Friedrich-Schiller-Univ. Jena (Germany); Martin Otto, Martin-Luther-Univ. Halle-Wittenberg (Germany); Roland Salzer, Fraunhofer-Institut für Werkstoffmechanik (Germany); Ralf B. Wehrspohn, Ernst-Bernhard Kley, Martin-Luther-Univ. Halle-Wittenberg (Germany); Thomas Pertsch, Friedrich-Schiller-Univ. Jena (Germany) . . . . . [7725-04]

Highly reflective intermediate layers in crystalline silicon thin film solar cells, S. Lindekugel, M. Kuenle, S. Janz, S. Reber, Fraunhofer-Institut für Solare Energiesysteme (Germany) . . . . . [7725-05]

Photoabsorption efficiency of a honeycomb solar cell nanostructure enhanced by diffraction, Alexandre I. Fedoseyev, Frantisek Cajko, CFD Research Corp. (United States) . . . . . [7725-06]

SESSION 2 . . . . . Tues. 11.00 to 12.10

Photonics for Concentrating Photovoltaics

Session Chair: **Benedikt Bläsi,** Fraunhofer-Institut für Solare Energiesysteme (Germany)

Recent progress in concentrator photovoltaics *(Invited Paper)*, Andreas Gombert, Inka Heile, Johannes Wüllner, Tobias Gerstmaier, Sascha van Riesen, Eckart Gerster, Michael Röttger, Concentrix Solar GmbH (Germany) . . . . [7725-07]

Down scaling of micro-structured Fresnel lenses for solar concentration - a quantitative investigation, Fabian Duerr, Youri Meuret, Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . [7725-08]

Temperature and wavelength dependent measurement and simulation of Fresnel lenses for concentrating photovoltaics, Thorsten D. Hornung, Andreas Bachmaier, Peter Nitz, Fraunhofer-Institut für Solare Energiesysteme (Germany); Andreas Gombert, Concentrix Solar GmbH (Germany) . . . . . [7725-09]

Lunch Break . . . . . 12.10 to 13.40

SESSION 3 . . . . . Tues. 13.40 to 15.30

Photonics for Organic Solar Cells

Session Chair: **Andreas Gombert,** Concentrix Solar GmbH (Germany)

Optimization and measurement of the absorption of thin film organic solar cells *(Invited Paper)*, André Merten, Mauro Furno, Uwe Dierks, Ronny Timmreck, Jan Meiss, Karl Leo, Moritz K. Riede, Technische Univ. Dresden (Germany) . . . . . [7725-10]

Highly efficient organic solar cells based on a PSBTBT:fullerene blend with extended absorption to the infrared, Andreas Puetz, Michael F. G. Klein, Alexander Colsmann, Uli Lemmer, Karlsruhe Institute of Technology (Germany) . . . . . [7725-11]

Laser scribing of organic solar cells, Jens Haenel, Christian Scholz, Maurice Clair, 3D-Micromac AG (Germany) . . . . . [7725-12]

Improved photon harvesting by employing C70 in bulk heterojunction solar cells, Steffen Pfuetzner, Karl Leo, Moritz K. Riede, Technische Univ. Dresden (Germany) . . . . . [7725-13]

Increased efficiency for DSC coupled to one-dimensional photonic crystal, Silvia Colodrero, Hernán R. Míguez, Instituto de Ciencia de Materiales de Sevilla (Spain) . . . . . [7725-14]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

POSTERS—Tuesday . . . . . Tues. 17.40 to 19.10

A poster session will be held on Tuesday 17.40 to 19.10. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

The lowest reflectance of surface texturing on silicon solar cells, B. Lin, National Nano Device Labs. (Taiwan) . . . . . [7725-37]

Hierarchically structured porous honeycomb films for enhanced solar cell and photocatalyst applications, Olaf Karthaus, Kenichi Kon, Kosuke Hidaka, Chitose Institute of Science and Technology (Japan) . . . . . [7725-38]

Optical characterization of 3D photonic structures for light trapping in crystalline silicon solar cells, Sebastian Knabe, Sebastian Wilken, Carl von Ossietzky Univ. Oldenburg (Germany); Johannes Üpping, Ralf B. Wehrspohn, Martin-Luther-Univ. Halle-Wittenberg (Germany); Gottfried H. Bauer, Carl von Ossietzky Univ. Oldenburg (Germany) . . . . . [7725-39]

Simulating the effects of photonic crystals in solar cells, Marius Peters, Marc Rüdiger, Martin Hermle, Benedikt Blaesi, Fraunhofer-Institut für Solare Energiesysteme (Germany) . . . . . [7725-40]

Iron oxide coated metal solar panels, Manpreet Singh, Raj Kumar, Government of India (India); Gagneet S. Kler, Lovleen Kaur, PEC Univ. of Technology (India) . . . . . [7725-41]

Simulation of tandem thin-film silicon solar cells, Christine Jandl, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Wilma Dewald, Fraunhofer-Institut für Schicht- und Oberflächentechnik (Germany); Ulrich W. Paetzold, Forschungszentrum Jülich GmbH (Germany); Christoph Pflaum, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Helmut Stiebig, Malibu GmbH & Co. KG (Germany) . . . . . [7725-42]

Plasmonic losses at metal back contacts of thin-film silicon solar cells, Ulrich W. Paetzold, Forschungszentrum Jülich GmbH (Germany); Florian Hallermann, RWTH Aachen (Germany); Uwe Rau, Reinhard Carius, Forschungszentrum Jülich GmbH (Germany); Gero von Plessen, RWTH Aachen (Germany) . . . . . [7725-43]

Optimization of the electrical and optical properties of ALD-deposited TCOs on black silicon surfaces, Martin Otto, Martin-Luther-Univ. Halle-Wittenberg (Germany); Thomas Käsebier, Matthias Kroll, Friedrich-Schiller-Univ. Jena (Germany); Ralf B. Wehrspohn, Martin-Luther-Univ. Halle-Wittenberg (Germany) . . . . . [7725-44]

Inverted opal structures for ultra light trapping in solar cells, Johannes Üpping, Ralf B. Wehrspohn, Martin-Luther-Univ. Halle-Wittenberg (Germany); Christian Helgert, Thomas Pertsch, Friedrich-Schiller-Univ. Jena (Germany); Carolin Ulbrich, Thomas Kirchartz, Uwe Rau, Forschungszentrum Jülich GmbH (Germany); Lorenz Steidl, Rudolf Zentel, Johannes Gutenberg Univ. Mainz (Germany) . . . . . [7725-45]

Investigating dye-sensitised solar cells, Laura L. Tobin, Thomas P. O'Reilly, Dominic Zerulla, John T. Sheridan, Univ. College Dublin (Ireland) . . . . . [7725-46]

Electromagnetic propagation in multilayered, nanomodified, heavily doped Si:P media, Zbigniew T. Kuznicki, Marek Basta, Univ. de Strasbourg (France) . . . . . [7725-47]

Wednesday 14 April

SESSION 4 . . . . . Wed. 08.40 to 10.00

Photonics for Antireflection Coatings

Session Chair: **Ralf B. Wehrspohn,**
Martin-Luther Univ. Halle-Wittenberg (Germany)

Latex-templated porous silica films for antireflective applications, François Guillemot, Ecole Polytechnique (France) and Saint-Gobain Recherche (France); Aline Brunet-Bruneau, Univ. Pierre et Marie Curie (France); Elodie Bourgeat-Lami, Univ. Claude Bernard Lyon 1 (France); Etienne Barthel, Saint-Gobain Recherche (France); Thierry Gacoin, Jean-Pierre Boilot, Ecole Polytechnique (France)[7725-15]

Large-surface broad-band anti-reflection coatings based on graded-index nanoporous multilayers, Gaëtan Wicht, Rolando Ferrini, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Stefan Schüttel, ILFORD Imaging Switzerland GmbH (Switzerland); Libero Zuppiroli, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . .[7725-16]

Amorphous silicon carbide layers for electrically conductive Rugate filters in silicon based solar cells, Stefan Janz, Marius Peters, Matthias Kuenle, Fraunhofer-Institut für Solare Energiesysteme (Germany) . . . . . .[7725-17]

PV Metamaterial Based on Nanostructured Si, Zbigniew T. Kuznicki, Patrick P. Meyrueis, Ecole Nationale Supérieure de Physique de Strasbourg (France) . . . . . .[7725-18]

SESSION 5 . . . . . Wed. 10.40 to 12.50

Photonics for Thin Film Photovoltaics

Session Chair: **Stefan Schweizer,**
Martin-Luther-Univ. Halle-Wittenberg (Germany)

3D self organized photonic crystal structure in a textured micromorph tandem solar cell *(Invited Paper)*, Johannes Üpping, Andreas Bielawny, Martin-Luther-Univ. Halle-Wittenberg (Germany); Thomas Beckers, Forschungszentrum Jülich GmbH (Germany); Lorenz Steidl, Johannes Gutenberg Univ. Mainz (Germany); Seung-Mo Lee, Mato Knez, Max-Planck-Institut für Mikrostrukturphysik (Germany); Rudolf Zentel, Johannes Gutenberg Univ. Mainz (Germany); Reinhard Carius, Forschungszentrum Jülich GmbH (Germany); Ralf B. Wehrspohn, Martin-Luther-Univ. Halle-Wittenberg (Germany). . . . . .[7725-19]

Efficient plasmonic nanostructures for thin film solar, Valeria Marrocco, Marco Grande, Politecnico di Bari (Italy); Maria Antonietta Vincenti, AEgis Technologies Group, Inc. (United States) and Politecnico di Bari (Italy); Giovanna Calò, Vincenzo Petruzzelli, Antonella D'Orazio, Politecnico di Bari (Italy) . . . . . .[7725-20]

Design and fabrication of photonic crystal thin film photovoltaic cells, Guillaume Gomard, Ounsi El Daif, Emmanuel Drouard, Xianqin Meng, Ecole Centrale de Lyon (France); Anne Kaminski, Alain Fave, Mustapha Lemiti, Institut National des Sciences Appliquées de Lyon (France); Enric Garcia-Caurel, Pere Roca Cabarrocas, Ecole Polytechnique (France); Christian Seassal, Ecole Centrale de Lyon (France) . . . . . .[7725-21]

Fourier analysis for the study of light scattering properties of randomly textured ZnO films, Karsten Bittkau, Melanie Schulte, Thomas Beckers, Reinhard Carius, Forschungszentrum Jülich GmbH (Germany). . . . . .[7725-22]

Intermediate reflectors in thin film solar cells comprising randomly textured surfaces, Stephan Fahr, Carsten Rockstuhl, Falk L. Lederer, Friedrich-Schiller-Univ. Jena (Germany) . . . . . .[7725-23]

Enhanced quantum efficiency by directionally selective optical filters applied to silicon thin film solar cells, Carolin Ulbrich, Forschungszentrum Jülich GmbH (Germany); Marius Peters, Fraunhofer-Institut für Solare Energiesysteme (Germany); Thomas Kirchartz, Forschungszentrum Jülich GmbH (Germany); Jan Christoph Goldschmidt, Fraunhofer-Institut für Solare Energiesysteme (Germany); Andreas Gerber, Forschungszentrum Jülich GmbH (Germany); Benedikt Blaesi, Fraunhofer-Institut für Solare Energiesysteme (Germany); Uwe Rau, Forschungszentrum Jülich GmbH (Germany). . . . . .[7725-24]

Lunch at the Exhibition Hall/Exhibition-Only Time. . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50 hrs

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany; **Ursula Keller,** ETH Zurich, Switzerland; **Mike Dunne,** Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 6 . . . . . Thurs. 08.20 to 10.30

Down- and Upconversion Systems for Solar Cells I

Session Chair: **Ralf Boris Wehrspohn,**
Martin-Luther Univ. Halle-Wittenberg (Germany)

Optimising wavelength-selective filters for luminescent solar concentrators *(Invited Paper)*, Dick K. de Boer, Philips Research Nederland B.V. (Netherlands) . . . . . .[7725-25]

Selectivity of fluorescence collectors in tandem systems, Gerda C. Gläser, Liv Prönneke, Univ. Stuttgart (Germany) . . . . . .[7725-26]

Increasing fluorescent concentrator light collection efficiency by restricting the angular emission characteristic of the incorporated luminescent material: the 'Nano-Fluko' concept, Jan-Christoph Goldschmidt, Marius Peters, Fraunhofer-Institut für Solare Energiesysteme (Germany); Lorenz Steidl, Rudolf Zentel, Johannes Gutenberg Univ. Mainz (Germany); Benedikt Bläsi, Martin Hermle, Fraunhofer-Institut für Solare Energiesysteme (Germany). . . . . .[7725-27]

Photon down-conversion in terbium(III)-doped thin dielectric films and fluorozirconate glasses for thin film solar cells, Bernd Ahrens, Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany); Katharina Baumgartner, Forschungszentrum Jülich GmbH (Germany); Orlin Angelov, Marushka Sendova-Vassileva, Doriana Dimova-Malinovska, Central Lab. of Solar Energy and New Energy Sources (Bulgaria); Bernhard Holländer, Forschungszentrum Jülich GmbH (Germany); Stefan Schweizer, Martin-Luther-Univ. Halle-Wittenberg (Germany); Reinhard Carius, Forschungszentrum Jülich GmbH (Germany). . . . . .[7725-28]

Synthesis and characterization of transparent luminescent ZnS:Mn/PMMA nanocomposites for down converting lenses, Alessandro Martucci, Marta Dai Pre, Univ. degli Studi di Padova (Italy); Joao Antonio Bomfim, Ctr. Ricerche Plast-Optica (Italy) . . . . . .[7725-29]

Exploring the possibilities of Eu $^{3+}$:La $_2$O $_3$ nanoparticles as an approach for down conversion processes in solar energy systems, Joan J. Carvajal, Maria Mendez, Yolanda Cesteros, Lluis Marsal, Univ. Rovira i Virgili (Spain); Eugenia Martinez-Ferrero, ICIQ (Spain); Alexandre Giguère, Dominique Drouin, Univ. de Sherbrooke (Canada); Pilar Salagre, Pilar Formentin, Josep Pallares, Magdalena Aguilò, Francesc Diaz, Univ. Rovira i Virgili (Spain). . . . . .[7725-30]

SESSION 7 . . . . . Thurs. 11.00 to 12.10

Down- and Upconversion Systems for Solar Cells II

Session Chair: **Andreas Gombert,** Concentrix Solar GmbH (Germany)

Frequency converter layers based on terbium and ytterbium activated HfO $_2$ glass-ceramics, Guillaume Alombert-Goget, Cristina Armellini, Andrea Chiappini, Alessandro Chiasera, Maurizio Ferrari, Univ. degli Studi di Trento (Italy); Simone Berneschi, Massimo Brenci, Stefano Pelli, Giancarlo Righini, Istituto di Fisica Applicata Nello Carrara (Italy); Matteo Bregoli, Alfredo Maglione, Optoelettronica Italia Srl (Italy); Georg Pucker, Giorgio Speranza, Fondazione Bruno Kessler (Italy) . . . . . .[7725-31]

Progress on up-converted fluorescence in Er-doped fluorozirconate-based glass ceramics for high efficiency solar cells *(Invited Paper)*, Stefan Schweizer, Martin-Luther-Univ. Halle-Wittenberg (Germany) and Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany); Bastian Henke, Bernd Ahrens, Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany); Paul-Tiberiu Miclea, Fraunhofer-Ctr. für Silizium-Photovoltaik (Germany) and Martin-Luther-Univ. Halle-Wittenberg (Germany); Jacqueline A. Johnson, The Univ. of Tennessee Space Institute (United States) . . . . . .[7725-32]

Calculation of up-conversion efficiency of Er $^{3+}$ ions near noble-metal nanoparticles, Florian Hallermann, RWTH Aachen (Germany); Jan-Christoph Goldschmidt, Stefan Fischer, Philipp Löper, Fraunhofer-Institut für Solare Energiesysteme (Germany); Gero von Plessen, RWTH Aachen (Germany) . . . . . .[7725-33]

Lunch Break . . . . . .12.10 to 13.50

SESSION 8 . . . . . Thurs. 13.50 to 15.00

Photonics for Building-integrated Photovoltaics

Session Chair: **Benedikt Bläsi,**
Fraunhofer-Institut für Solare Energiesysteme (Germany)

Optimized infra-red spectral response of surfaces for sub-ambient sky cooling as a function of humidity and operating temperature *(Invited Paper)*, Geoffrey B. Smith, Angus R. Gentle, Univ. of Technology, Sydney (Australia). . . . . .[7725-34]

TBA, , ...[7725-57]

Introducing validation into bidirectional reflection and transmission measurements of facade materials, Lars O. Grobe, Stephen K. Wittkopf, National Univ. of Singapore (Singapore); Peter Apian-Bennewitz, PAB Advanced Technologies Ltd. (Germany); Jacob C. Jonsson, Mike D. Rubin, Lawrence Berkeley National Lab. (United States) . . . . . .[7725-36]

Photonics Europe 2010: Hot Topics Session II
Tuesday 13 April, 16.10 to 17.30 hrs
For details, please see pages 8–10.

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Toroidal heliostat field in solar tower power system, Xiudong Wei, Changchun Institute of Optics, Fine Mechanics and Physics (China) . . . . . .[7725-48]

Spectral down-conversion in Sm-doped borate glasses for photovoltaic applications, Marcel Dyrba, Martin-Luther-Univ. Halle-Wittenberg (Germany); Paul T. Miclea, Fraunhofer Ctr. for Silicon Photovoltaics (Germany); Stefan Schweizer, Martin-Luther-Univ. Halle-Wittenberg (Germany) and Fraunhofer Ctr. for Silicon Photovoltaics (Germany). . . . . .[7725-49]

Methane steam reforming by resonant excitation of vibrational levels using spectrally controlled thermal radiation, Yuriko Maegami, Fumitada Iguchi, Hiroo Yugami, Tohoku Univ. (Japan) . . . . . .[7725-50]

Design, simulation and optimization of a solar collector using photometric analysis method, Sara Recuero, Asociacion Industrial De Optica, Color E Imagen (Spain); Vicente Micó, Univ. de València (Spain); Teresa Molina-Jiménez, Asociacion Industrial De Optica, Color E Imagen (Spain); Vicent Garcia-Llorens, Prosolia (Spain); Ian R. Wallhead, Asociacion Industrial De Optica, Color E Imagen (Spain) . . . . . .[7725-51]

The effect of broadband organic wavelength selective mirrors on luminescent solar concentrator performance, Paul Verbunt, Dirk J. Broer, Cees W. M. Bastiaansen, Michael G. Debije, Technische Univ. Eindhoven (Netherlands) . . . . . .[7725-52]

Photoluminescence method for silicon materials diagnostic, Jan Dolensky, Ales Vesely, Jiri Vanek, Brno Univ. of Technology (Czech Republic) . . . . .[7725-53]

Improving up-conversion efficiency of rare earth ions by metallic nanoparticles, Stefan Wackerow, Marcel Dyrba, Stefan Schweizer, Gerhard Seifert, Martin-Luther-Univ. Halle-Wittenberg (Germany) . . . . . .[7725-54]

Current-voltage curves of PV metamaterial based on the nanostructured Si, Zbigniew T. Kuznicki, Univ. de Strasbourg (France) . . . . . .[7725-55]

Dielectric functions and optical parameters of heavily doped and/or highly excited Si:P, Marek Basta, Zbigniew T. Kuznicki, Univ. de Strasbourg (France) . . . . . .[7725-56]

Conference 7726

Monday-Thursday 12-15 April 2010 • Proceedings of SPIE Vol. 7726

Optical Sensing and Detection

Conference Chairs: **Francis Berghmans,** Vrije Univ. Brussel (Belgium); **Anna Grazia Mignani,** Istituto di Fisica Applicata Nello Carrara (Italy); **Chris A. van Hoof,** IMEC (Belgium)

Programme Committee: **Francesco Baldini,** Istituto di Fisica Applicata Nello Carrara (Italy); **Brian Culshaw,** Univ. of Strathclyde (United Kingdom); **Douglas A. Herr,** Lepton Technologies, Inc. (USA); **Jiri Homola,** Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Leszek R. Jaroszewicz,** Military Univ. of Technology (Poland); **Robert A. Lieberman,** Intelligent Optical Systems, Inc. (USA); **Alexis Mendez,** MCH Engineering LLC (USA); **Luc Thevenaz,** Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Moshe Tur,** Tel Aviv Univ. (Israel); **Waclaw Urbanczyk,** Wroclaw Univ. of Technology (Poland); **Johan Vlekken,** OpticalFiberSensors.org BVBA (Belgium); **David J. Webb,** Aston Univ. (United Kingdom)

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

SESSION 1 . . . . . Mon. 13.00 to 15.10

Optical Fibre Sensors I

Session Chair: **Francis Berghmans,** Vrije Univ. Brussel (Belgium)

Fiber-optical microphones and accelerometers based on polymer optical fiber Bragg gratings *(Invited Paper)*, Wu Yuan, Alessio Stefani, Ole Bang, Technical Univ. of Denmark (Denmark); Torben Jacobsen, Bjarke Rose, Nicolai Herholdt-Rasmussen, Ibsen Photonics A/S (Denmark); Finn K. Nielsen, Søren Andresen, Brüel & Kjær Sound & Vibration Measurements A/S (Denmark); Ole Brøsted Sørensen, Knud Styhr Hansen, DPA Microphones A/S (Denmark)[7726-01]

Optical fiber sensors embedded in flexible polymer foils, Bram Van Hoe, Geert Van Steenberge, Erwin Bosman, Jeroen Missinne, Univ. Gent (Belgium); Thomas Geernaert, Francis Berghmans, Vrije Univ. Brussel (Belgium); David J. Webb, Aston Univ. (United Kingdom); Peter Van Daele, Univ. Gent (Belgium). . . . . .[7726-02]

Photonic skin for pressure and strain sensing, Xianfeng Chen, Chi Zhang, Aston Univ. (United Kingdom); Bram Van Hoe, Univ. Gent (Belgium); David J. Webb, Aston Univ. (United Kingdom); Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus); Geert Van Steenberge, Univ. Gent (Belgium); Gang-Ding Peng, The Univ. of New South Wales (Australia) . . . . . .[7726-03]

Dynamic response of fibre Bragg grating strain sensors embedded in polymeric rigid foams, Fabian Dortu, Multitel A.S.B.L. (Belgium); Anabel Crespo, AIMPLAS - Technological Institute of Plastics (Spain); Arnim Kraatz, Deutsches Kunststoff Institut (Germany); Cédric Chluda, Domenico Giannone, Multitel A.S.B.L. (Belgium) . . . . . .[7726-04]

First results from in line strain measurements with FBG sensors on the pantograph collector of underground trains, Lorenzo Comolli, Giuseppe Bucca, Marco Bocciolone, Andrea Collina, Politecnico di Milano (Italy). . . . . .[7726-05]

Infrared radiation detector using a pair of fiber Bragg gratings, Jean-Michel Renoirt, Univ. de Mons-Hainaut (Belgium); Christophe Caucheteur, Patrice Mégret, Faculté Polytechnique de Mons (Belgium); Marc Debliquy, Univ. de Mons-Hainaut (Belgium) . . . . . .[7726-06]

SESSION 2 . . . . . Mon. 15.50 to 17.40

Optical Fibre Sensors II

Session Chair: **Francis Berghmans,** Vrije Univ. Brussel (Belgium)

Chemical composition gratings in germanium doped and boron-germanium co-doped fibers *(Invited Paper)*, David Barrera, Univ. Politécnica de Valencia (Spain); Vittoria Finazzi, Gianluca Coviello, ICFO - Instituto de Ciencias Fotónicas (Spain); Antonio Bueno, Salvador Sales, Univ. Politécnica de Valencia (Spain); Valerio Pruneri, ICFO - Instituto de Ciencias Fotónicas (Spain) . . . . . .[7726-07]

Macro-bend optical fiber linear displacement sensor, Kalaga V. Madhav, Yuliya V. Semenova, Gerald T. Farrell, Dublin Institute of Technology (Ireland) . .[7726-08]

Low temperature and UV curable sol-gel coatings for long lasting optical fiber biosensors, Deitze Otaduy, Garikoitz Beobide, Eneko Gorritxategi, Raquel Prado, Estibaliz Aranzabe, Arrate Marcaide, Tekniker (Spain) . . . . . .[7726-09]

Distributed fiber optical sensing of molecular oxygen with OTDR, Susanne Eich, Elmar Schmälzlin, Carsten Dosche, Hans-Gerd Löhmannsröben, Univ. Potsdam (Germany). . . . . .[7726-10]

Pigtailed electro-optic probes for vectorial electric field mapping, Adriana Warzecha, IMEP-LAHC (France); Gwenaël Gaborit, Kapteos SAS (France) and IMEP-LAHC (France); Mickael Ruaro, Lionel Duvillaret, Kapteos SAS (France) . . . . . .[7726-11]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.30 to 10.20

Spectroscopy

Session Chair: **Anna Grazia Mignani,**
Istituto di Fisica Applicata Nello Carrara (Italy)

High resolution spectroscopy with a microparticle array sensor *(Invited Paper)*, Thomas Weigel, Ralf Nett, Gustav Schweiger, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany) . . . . . .[7726-12]

The identification of chromophores in ancient glass by the use of UV-VIS-NIR spectroscopy, Wendy Meulebroeck, Kitty Baert, Hilde Wouters, Peter Cosyns, Andrea Ceglia, Vrije Univ. Brussel (Belgium); Simone Cagno, Koen Janssens, Univ. Antwerpen (Belgium); Karin Nys, Herman Terryn, Hugo Thienpont, Vrije Univ. Brussel (Belgium). . . . . .[7726-13]

Hyperspectral imaging for diagnosis and quality control in agri-food and industrial sectors, Pilar Beatriz Garcia-Allende, Olga M. Conde, Jesus M. Mirapeix, Adolfo Cobo, Jose M. Lopez-Higuera, Univ. de Cantabria (Spain) . . . . . .[7726-14]

Welding diagnostics based on feature selection and optimization algorithms, Jesus M. Mirapeix, Pilar B. Garcia-Allende, Adolfo Cobo, Olga M. Conde, Antonio Quintela, Jose M. Lopez-Higuera, Univ. de Cantabria (Spain) . . . . . .[7726-15]

Detection of heavy metals in waste polymers by laser-induced breakdown spectroscopy: a comparison of UV and IR lasers as ablation source, Norbert Huber, Richard Viskup, Johannes Kepler Univ. Linz (Austria); Thomas Linsmeyer, Hermann Scherndl, AVE Österreich GmbH (Austria); Johannes D. Pedarnig, Johannes Heitz, Johannes Kepler Univ. Linz (Austria) . . . . . .[7726-16]

SESSION 4 . . . . . Tues. 11.00 to 12.30

Gas Sensors

LTCC based differential photo-acoustic cell for ppm gas sensing *(Invited Paper)*, Kimmo Keränen, Jyrki Ollila, Kari T. Kautio, VTT Elektroniikka (Finland); Ismo Kauppinen, Gasera Oy (Finland); Tom Kuusela, Univ. of Turku (Finland); Boris A. Matveev, Ioffe Physico-Technical Institute (Russian Federation); Mark E. McNie, QinetiQ Ltd. (United Kingdom); Pentti Karioja, VTT Elektroniikka (Finland). . . . . .[7726-17]

Optical gas sensing properties of porous TiO_2 sol-gel film doped with noble metal nanoparticles, Enrico Della Gaspera, Alessandro Martucci, Univ. degli Studi di Padova (Italy); Michael L. Post, National Research Council Canada (Canada) . . . . . .[7726-18]

Design of a NDIR gas sensor with two non-symmetric Fabry-Perot absorber-structure working as IR-emitter and IR-detector, Johann Mayrwöger, Johannes Kepler Univ. Linz (Austria); Wolfgang Reichl, E+E Elektronik (Austria); Christian Krutzler, Integrated Microsystems Austria GmbH (Austria); Bernhard Jakoby, Johannes Kepler Univ. Linz (Austria). . . . . .[7726-19]

Wireless enabled multi gas sensor system based on photonic crystals, Hazem A. Awad, Imad I. Hasan, Univ. of Ottawa (Canada); Khaled Mnaymneh, National Research Council Canada (Canada); Sawsan Majid, Trevor J. Hall, Univ. of Ottawa (Canada); Ivan Andonovic, Univ. of Strathclyde (United Kingdom). . . . . .[7726-20]

Lunch Break . . . . . 12.30 to 13.50

SESSION 5 . . . . . Tues. 13.50 to 15.40

Industrial Sensors

Advances in Hybrid Wireless-Wired Optics Physical Sensors for Extreme Environments *(Invited Paper)*, Nabeel A. Riza, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States). . . . . .[7726-21]

A low cost mid-infrared sensor for on line contamination monitoring of lubricating oils in marine engines, Lhoucine Ben Mohammadi, Frank Kullmann, Markus Holzki, Susanne Sigloch, Institut für Mikrotechnik Mainz GmbH (Germany); Jan Spiesen, Martechnic GmbH (Germany); Toomas Tommingas, IB Krates LLC (Estonia); Peter Weismann, OELCHECK GmbH (Germany); Geoff Kimber, BP p.l.c. (United Kingdom); Thomas Klotzbücher, Institut für Mikrotechnik Mainz GmbH (Germany) . . . . . .[7726-22]

Optoelectronic leak detection system for permanent monitoring of sub sea structures, David G. Moodie, Laurie Costello, Daniel McStay, FMC Technologies Ltd. (United Kingdom) . . . . . .[7726-23]

Laser profiling for subsea hydrocarbon production systems, Ala Al-Obaidi, Smart Light Devices Ltd. (United Kingdom); Daniel McStay, Alan Graham, FMC Technologies Ltd. (United Kingdom). . . . . .[7726-24]

Miniaturised Optical sensors for industrial applications, Michael L. Jakobsen, Steen G. Hanson, Technical Univ. of Denmark (Denmark) . . . . . .[7726-25]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

Wednesday 14 April

JOINT SESSION. . . . . Wed. 08.30 to 10.20

Photonic Crystal Fibre Sensors

Joint Session with Conference 7714, Photonic Crystal Fibres

TBD *(Invited Paper)*, , ...[7726-26]

Liquid crystal filled photonic crystal fibers for voltage sensing applications, Sunish J. Mathews, Yuliya V. Semenova, Gerald T. Farrell, Dublin Institute of Technology (Ireland) . . . . . .[7726-27]

Evaluation of serial multiplexed photonic crystal fiber interferometric sensors, David Barrera, Univ. Politécnica de Valencia (Spain); Joel Villatoro, Vittoria Finazzi, ICFO - Instituto de Ciencias Fotónicas (Spain); Salvador Sales, Univ. Politécnica de Valencia (Spain); Valerio Pruneri, ICFO - Instituto de Ciencias Fotónicas (Spain) . . . . . .[7726-28]

Bragg fibre for sensing applications, Orlando Frazão, José M. Baptista, José L. Santos, INESC Porto (Portugal); Philippe Roy, Raphaël Jamier, Sébastien Février, Univ. de Limoges (France). . . . . .[7714-32]

Sensing characteristics of long period gratings and rocking filters based on highly birefringent boron doped photonic crystal fiber and fabricated by a CO_2 laser, Joel P. Carvalho, INESC Porto (Portugal); Gabriela Statkiewicz-Barabach, Alicja Anuszkiewicz, Wroclaw Univ. of Technology (Poland); Orlando Frazão, INESC Porto (Portugal); Jan Wojcik, Univ. Marii Curie-Sklodowskiej (Poland); José M. Baptista, José L. Santos, INESC Porto (Portugal); Waclaw Urbanczyk, Wroclaw Univ. of Technology (Poland) . . . . . .[7714-33]

SESSION 6 . . . . . Wed. 11.00 to 13.00

Interferometric and Wavefront Sensing

Low cost varying synthetic wavelength technique for absolute distance measurement, Sébastien Le Floch, Yves Salvadé, Haute Ecole Arc Ingénierie Siège (Switzerland) . . . . . .[7726-29]

Optical tomography based on phase-shifting schlieren deflectometry, Emmanuel Foumouo, Univ. Catholique de Louvain (Belgium); Jean-Luc Dewandel, Luc C. Joannes, LAMBDA-X sa (Belgium); Philippe Antoine, Univ. Catholique de Louvain (Belgium) . . . . . .[7726-30]

Evaluation of LCD monitors for deflectometric measurement systems, Marc Fischer, Marcus Petz, Rainer Tutsch, Technische Univ. Braunschweig (Germany) . . . . . .[7726-31]

Measuring phase aberrations using a pyramid wave-front sensor, Elizabeth M. Daly, Christopher J. Dainty, National Univ. of Ireland, Galway (Ireland) . . .[7726-32]

Phase-shift error in quadrature-detection-based interferometers, Peter Gregorcic, Toma? Po?ar, Janez Mozina, Univ. of Ljubljana (Slovenia). . . .[7726-33]

A highly-sensitive optofluidics-based refractometer in a Young interferometer design, Sarun Sumriddetchkajorn, Kosom Chaitavon, National Electronics and Computer Technology Ctr. (Thailand) . . . . . .[7726-34]

Lunch at the Exhibition Hall/Exhibition-Only Time. . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany; **Ursula Keller,** ETH Zurich, Switzerland; **Mike Dunne,** Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 7 . . . . . Thurs. 08.30 to 10.10

Industrial IR Detection

Session Chair: **Chris A. van Hoof,** IMEC (Belgium)

Low cost, high performance Far Infrared microbolometer *(Invited Paper)*, Audun Roer, Adriana Lapadatu, Anders Elfving, Gjermund Kittilsland, Erling Hohler, Infineon Technologies SensoNor AS (Norway); Jan-Erik Källhammer, Dick Eriksson, Autoliv Development AB (Sweden) . . . . . .[7726-35]

Sensor fusion to enable next generation low cost Night Vision systems *(Invited Paper)*, Roland Schweiger, Stefan Franz, Otto Löhlein, Werner Ritter, Daimler AG (Germany); Jan-Erik Källhammer, Autolic Development AB (Sweden); John Franks, Umicore Coating Services (United Kingdom); Thomas Krekels, Umicore Electro-Optic Materials (Belgium) . . . . . .[7726-36]

Low-Cost Uncooled Microbolometers for Thermal Imaging, Niclas Roxhed, Frank Niklaus, Fredrik Forsberg, Royal Institute of Technology (Sweden); Per Ericsson, Acreo AB (Sweden); Anders Elfving, Infineon Technologies SensoNor AS (Norway); Kaiying Wang, Nils Hoivik, Vestfold Univ. College (Norway). . . .[7726-37]

Thin film encapsulated 1D thermoelectric detector in an IR microspectrometer, Huaiwen Wu, Emadi Arvin, Ger de Graaf, Reinoud F. Wolffenbuttel, Technische Univ. Delft (Netherlands). . . . . .[7726-38]

SESSION 8 . . . . . Thurs. 10.50 to 13.00

CMOS and Detector Technology

Session Chair: **Chris A. van Hoof,** IMEC (Belgium)

A 3D chip architecture for optical sensing and concurrent processing *(Invited Paper)*, Ángel B. Rodríguez-Vázquez, Ctr. Nacional de Microelectrónica (Spain) . . . . . .[7726-39]

Integrated streak camera in standard (Bi)CMOS technology, Martin Zlatanski, Wilfried Uhring, Jean-Pierre Le Normand, Chantal-Virginie Zint, Daniel Mathiot, Institut d'Électronique du Solide et des Systèmes (France) . . . . . .[7726-40]

A 160x120 pixel CMOS range image sensor based on current assisted photonic demodulators, Lucio Pancheri, David Stoppa, Nicola Massari, Mattia Malfatti, Lorenzo Gonzo, Fondazione Bruno Kessler (Italy); Quazi D. Hossain, Gian-Franco Dalla Betta, Univ. degli Studi di Trento (Italy) . . . . . .[7726-41]

A 128-element CMOS linear array for high-sensitivity and high-resolution micro-spectrometer, Chi Liu, Arvin Emadi, Huaiwen Wu, Ger de Graaf, Reinoud F. Wolffenbuttel, Technische Univ. Delft (Netherlands). . . . . .[7726-42]

AlGaN-on-Si backside illuminated photodetectors for the extreme ultraviolet (EUV) range, Pawel E. Malinowski, IMEC (Belgium); Jean-Yves Duboz, Ctr. de Recherche sur l'Hétéro-Epitaxie et ses Appliations (France); Joachim John, Charles Sturdevant, Johan Das, Joff Derluyn, Marianne Germain, Piet De Moor, Kyriaki Minoglou, IMEC (Belgium); Jean-Francois Hochedez, Boris Giordanengo, Royal Observatory of Belgium (Belgium); Chris A. Van Hoof, Robert P. Mertens, IMEC (Belgium) . . . . . .[7726-43]

Analysis and design of a CMOS-based terahertz sensor and readout, Daniele Perenzoni, Matteo Perenzoni, Lorenzo Gonzo, Fondazione Bruno Kessler (Italy); Antonio D. Capobianco, Francesco Sacchetto, Univ. degli Studi di Padova (Italy) . . . . . .[7726-44]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

POSTERS—Thursday . . . . . Thurs. 18.00 to 19.30

A poster session will be held on Thursday 18.00 to 19.30. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Evolution of optical fibers exposed to aggressive environments, Rochdi El Abdi, Univ. de Rennes 1 (France); Alexandru D. Rujinski, Polytechnical Univ. of Bucharest (Romania); Marcel Poulain, Univ. de Rennes 1 (France); Irina V. Severin, Polytechnical Univ. of Bucharest (Romania) . . . . . .[7726-45]

An optical method for measuring metal surface temperature at harsh environment condition, Chayan Mitra, GE Global Research (India); Ayan Banerjee, Indian Institute of Science Education and Research (India); Sandip Maity, GE Global Research (India) . . . . . .[7726-46]

Stray light compensation for dust analyzers based on light scattering, Cesare Molfese, Vincenzo Della Corte, Pasquale Palumbo, Francesca Esposito, Luigi Colangeli, Osservatorio Astronomico di Capodimonte (Italy) . . . . . .[7726-47]

Evolution of optically nondestructive and data-non-intrusive credit card verifiers, Sarun Sumriddetchkajorn, Yuttana Intaravanne, National Electronics and Computer Technology Ctr. (Thailand) . . . . . .[7726-48]

Influences of semiconductor laser on Mach-Zehnder interferometer based fiber-optic distributed disturbance sensor, Sheng Liang, Chunxi Zhang, Wentai Lin, Qin Li, Xiang Zhong, Lijing Li, BeiHang Univ. (China) . . . . . .[7726-49]

Laser microcavities as sensing devices for environmental monitoring, Sergey Lozenko, Djibril Faye, Melanie Lebental, Joseph Lautru, Isabelle N. Ledoux-Rak, Isabelle Leray, Jean-Pierre Lefevre, Jacques A. Delaire, Joseph Zyss, Ecole Normale Supérieure de Cachan (France) . . . . . .[7726-50]

Optical spectroscopy applied to the analysis of medieval and post-medieval plain flat glass fragments excavated in Belgium, Wendy Meulebroeck, Hilde Wouters, Kitty Baert, Andrea Ceglia, Herman Terryn, Karin Nys, Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7726-51]

A novel optical emission spectroscopy by using laser ablation combined with electric discharge, Weidong Zhou, Kexue Li, Zhejiang Normal Univ. (China) . . . . . .[7726-52]

Multicolor-LED based temperature and O_2-pressure sensor, Volker Lange, Dietrich Kühlke, Frederico Lima, Hochschule Furtwangen Univ. (Germany); Sergey Borisov, Technische Univ. Graz (Austria) . . . . . .[7726-53]

All-fiber intrinsic sensor of partial discharge acoustic emission with electronic resonance at 150 kHz, Jose A. Garcia-Souto, Julio E. Posada, Jesus Rubio Serrano, Univ. Carlos III de Madrid (Spain) . . . . . .[7726-54]

Simulation modelling of a micro-system for time-resolved fluorescence measurements, Marina Repich, Univ. degli Studi di Trento (Italy) and Fondazione Bruno Kessler (Italy); David Stoppa, Fondazione Bruno Kessler (Italy); Bruce R. Rae, Robert K. Henderson, The Univ. of Edinburgh (United Kingdom); Gian-Franco Dalla Betta, Univ. degli Studi di Trento (Italy) . . . . . .[7726-55]

Spatial and temporal beam profiles for the LHC using synchrotron light, Adam Jeff, Andrea Boccardi, Enrico Bravin, CERN (Switzerland); Alan S. Fisher, SLAC National Accelerator Lab. (United States); Aurelie Goldblatt, Ana Guerrero Ollacarizqueta, Stephane Bart Pedersen, Thibaut Lefevre, CERN (Switzerland); Carsten Welsch, Univ. of Liverpool (United Kingdom) . . . . . .[7726-56]

Refractive index sensing for online monitoring water and ethanol content in biofuels, Stefan Belle, Steffen Scheurich, Ralf Hellmann, Univ. of Applied Sciences Aschaffenburg (Germany); Sik So, Ian J. G. Sparrow, Gregory D. Emmerson, Stratophase Ltd. (United Kingdom). . . . . .[7726-57]

Use of single-multiple-single mode fiber filters for simultaneously measuring strain and temperature, Qiang Wu, Yuliya V. Semenova, Agus M. Hatta, Pengfei Wang, Gerald T. Farrell, Dublin Institute of Technology (Ireland) . . . . . .[7726-58]

Reduction of dark current and unintentional background doping in InGaAsN photodetectors by ex situ annealing, Siew Li Tan, Lionel J. J. Tan, Yu Ling Goh, Shiyong Zhang, Jo Shien Ng, John David, The Univ. of Sheffield (United Kingdom); Igor P. Marko, Jeremy Allam, Stephen J. Sweeney, Alfred R. Adams, Univ. of Surrey (United Kingdom) . . . . . .[7726-59]

Feature-level fusion of video and radar, David Tahmoush, U.S. Army Research Lab. (United States). . . . . .[7726-60]

The applied research of ESPI-method for detecting inner columnar disfigurement in aluminum alloy materials, Bin Li, Guobiao Yang, Fan Ni, Tongji Univ. (China) . . . . . .[7726-61]

Comparison of transverse strain sensitivities of fibre Bragg gratings in different types of optical fibres, Florian Jülich, Johannes Roths, Hochschule München (Germany) . . . . . .[7726-63]

Recovery of acetylene absorption line profile basing on tunable diode laser spectroscopy with intensity modulation and photoacoustic spectroscopy, Li Li, Jilin Univ. (China); George Stewart, Graham J. Thursby, Norhana Arsad, Deepak G. Uttamchandani, Brian Culshaw, Univ. of Strathclyde (United Kingdom); Yiding Wang, Jilin Univ. (China) . . . . . .[7726-64]

Research on deformation of fixed damaged teeth with ESPI, Fan Ni, Guobiao Yang, Bin Li, Tongji Univ. (China) . . . . . .[7726-65]

Thermally induced regeneration of fiber Bragg gratings in photosensitive fibers and their use as high temperature sensors, Eric Lindner, IPHT Jena (Germany); Christoph Chojetzki, FBGS Technologies GmbH (Germany); Sven Brueckner, Martin Becker, Manfred Rothhardt, Hartmut Bartelt, IPHT Jena (Germany) . . . . . .[7726-66]

Interrogation system for miniature all fiber Fabry-Perot temperature sensor using temperature control of DFB laser diode and reference FP interferometer, Matej Njegovec, Denis Donlagic, Univ. of Maribor (Slovenia) . . . . . .[7726-67]

Light coupling for integrated optical waveguide-based sensors, Michael A. Steindorfer, Karl-Franzens-Univ. Graz (Austria); Christian Sommer, Bernhard Lamprecht, Volker Schmidt, JOANNEUM RESEARCH Forschungsgesellschaft mbH (Austria); Joachim R. Krenn, Karl-Franzens-Univ. Graz (Austria) . . . .[7726-68]

Measurement of vibrations caused by railroad with fiber optic sensors, Amparo Barreda Benavent, Teresa Molina-Jimenez, Estela Valero-Villar, Sara Recuero, Asociacion Industrial De Optica, Color E Imagen (Spain); Julia Real, Univ. Politécnica de Valencia (Spain) . . . . . .[7726-69]

Characterization of liquid crystal coated photonic crystal fiber interferometers, Ginu Rajan, Sunish J. Mathews, Gerald T. Farrell, Yuliya V. Semenova, Dublin Institute of Technology (Ireland) . . . . . .[7726-70]

Optical fiber distributed temperature sensor in cardiochirurgical surgeries, Jan Skapa, Jan Látal, Marek Penhaker, Petr Koudelka, Franti?ek Hanácek, Vladimír Va?inek, Technical Univ. of Ostrava (Czech Republic) . . . . . .[7726-71]

An application of fibre optic temperature sensing for under insulation monitoring of subsea infrastructure, David M. Faichnie, Alan Graham, Daniel McStay, FMC Technologies Ltd. (United Kingdom) . . . . . .[7726-72]

Response of fibre Bragg grating strain sensors embedded in carbon fibre reinforced polymer laminates during curing and under static and dynamic loading, Fabian Dortu, Multitel A.S.B.L. (Belgium); Damien P. Kinet, Univ. de Mons-Hainaut (Belgium); Didier Garray, Sirris (Belgium); Cédric Chluda, Multitel A.S.B.L. (Belgium); Marc Wuilpart, Univ. de Mons-Hainaut (Belgium); Domenico Giannone, Multitel A.S.B.L. (Belgium) . . . . . .[7726-73]

A novel design of a compact S shaped load cell with FBG sensors for the panthograph-catenary contact force measurement, Pietro Crosio, Lorenzo Comolli, Marco Bocciolone, Politecnico di Milano (Italy) . . . . . .[7726-74]

The general characteristic of CsTe ultraviolet image intensifier, Rongguo Fu, Nanjing Univ. of Science & Technology (China) . . . . . .[7726-75]

Monitoring of a steel incrementally launched bridge construction with strain and temperature FBGs sensors, Antonio Bueno, Benjamín Torres, David Barrera, Pedro Calderón, Salvador Sales, Univ. Politécnica de Valencia (Spain). . .[7726-76]

Analysis of laser speckle patterns from fingertips, Theis F. Q. Iversen, OPDI Technologies A/S (Denmark); Steen G. Hanson, Technical Univ. of Denmark (Denmark) . . . . . .[7726-77]

Sensitive and stable SiC APD for UV detection, Susan M. Savage, Adolf Schöner, Ingemar Petermann, Mietek Bakowski, Acreo AB (Sweden). . . .[7726-78]

A macrobending fiber based vibration sensor using a bend fibre half-loop, Pengfei Wang, Yuliya V. Semenova, Qiang Wu, An Sun, Gerald T. Farrell, Dublin Institute of Technology (Ireland) . . . . . .[7726-79]

Investigation of CMOS photodiodes integrated on an ASIC by a 0.5 µm analog CMOS process, Huanping Luo, Ubbo Ricklefs, Werner Bonath, Fachhochschule Giessen-Friedberg (Germany) . . . . . .[7726-80]

Use of the plasma RMS signal for on-line welding quality monitoring, Jesus M. Mirapeix, Adolfo Cobo, Pilar B. Garcia-Allende, Olga M. Conde, Francisco Anabitarte, Jose M. Lopez-Higuera, Univ. de Cantabria (Spain) . . . . . .[7726-81]

Loading condition monitoring on Soil Using Stimulated Brillouin Scattering Fiber Sensor, Qingsong Cui, Lehigh Univ. (United States); Sibel Pamukcu, Douglas Herr, Wen Xiao, ...[7726-82]

The research on infrared small target detection technology under complex background, Lei Liu, Xin Wang, Jilu Chen, Nanjing Univ. of Science & Technology (China) . . . . . .[7726-83]

An absolute radiometer based on InP photodiodes, Ana Luz Muñoz Zurita, Univ. Autonoma de Coahuila (Mexico); Joaquin Campos Acosta, Consejo Superior de Investigaciones Científicas (Spain); Rodrigo Uribe, Ramon Gomez, Univ. Autonoma de Coahuila (Mexico). . . . . .[7726-84]

Study of some optoelectronics characteristics of gap and InGaAs/InP photodetectors, Ana Luz Muñoz Zurita, Univ. Autonoma de Coahuila (Mexico); Joaquin Campos Acosta, Consejo Superior de Investigaciones Científicas (Spain); Jorge Rojas Domenico, Ramon Gomez, Univ. Autonoma de Coahuila (Mexico); Alexandre S. Shcherbakov, Instituto Nacional de Astrofísica, Óptica y Electronica (Mexico) . . . . . .[7726-85]

Polarimetric single-mode fibre optic sensor for low level and low frequency vibration measurements, Antoine Lebrun, Bruno Serio, Pierre Pfeiffer, Sylvain S. Lecler, Ayoub Chakari, Ecole Nationale Supérieure de Physique de Strasbourg (France) . . . . . .[7726-86]

Microstructured multimode optical fiber sensor for multiphysic applications, Anthony Bichler, PHOSYLAB S.A.S. (France); Sylvain S. Lecler, Ecole Nationale Supérieure de Physique de Strasbourg (France); Sylvain G. Fischer, PHOSYLAB S.A.S. (France); Bruno Serio, Ecole Nationale Supérieure de Physique de Strasbourg (France). . . . . .[7726-87]

Visible and near-infrared spectral signatures for adulteration assessment of extra virgin olive oils, Anna G. Mignani, Leonardo Ciaccheri, Istituto di Fisica Applicata Nello Carrara (Italy); Heidi Ottevaere, Hugo Thienpont, Vrije Univ. Brussel (Belgium); Leopoldo Conte, Univ. degli Studi dell'Insubria (Italy); M. Marega, Univ. degli Studi di Udine (Italy); A. Cichelli, Univ degli Studi G. d'Annunzio (Italy); Cristina Attilio, Antonio Cimato, Istituto di Fisica Applicata Nello Carrara (Italy) . . . . . .[7726-88]

On-line remote tailings dam health condition monitoring system based on fiber optic seepage sensors, Chang Wang, Shandong Academy of Sciences (China) . . . . . .[7726-89]

Assessment and development of novel transition metal oxide materials as a photovoltaic sensor, Ahmad M. Subahi, Jennifer A. Griffiths, Univ. College London (United Kingdom); Samjid Mannan, King's College London (United Kingdom); Jeffery Boardman, Paul Moir-Riches, Daresbury Lab. (United Kingdom); Gary J. Royle, Univ. College London (United Kingdom) . . . . . .[7726-90]

Conference 7727

Tuesday-Wednesday 13-14 April 2010 • Proceedings of SPIE Vol. 7727

Quantum Optics

Conference Chairs: **Victor N. Zadkov,** Lomonosov Moscow State Univ. (Russian Federation); **Thomas Durt,** Vrije Univ. Brussel (Belgium)

Programme Committee: **Alain Aspect,** Institut d'Optique (France); **Vladimir Buzek,** Institute of Physics of the Slovak Academy of Sciences (Slovakia); **Berthold-Georg Englert,** National Univ. of Singapore (Singapore); **Gerard J. Milburn,** The Univ. of Queensland (Australia); **Arno Rauschenbeutel,** Johannes Gutenberg Univ. Mainz (Germany); **Alexander V. Sergienko,** Boston Univ. (USA); **Paolo Tombesi,** Univ. degli Studi di Camerino (Italy); **Anton Zeilinger,** Univ. Wien (Austria)

Tuesday 13 April

SESSION 1 . . . . . Tues. 08.20 to 10.20

Quantum Optics I

Session Chair: **Victor N. Zadkov,**
Lomonosov Moscow State Univ. (Russian Federation)

Photons "in vivo": manipulating and measuring light in a cavity without destroying it *(Invited Paper)*, Serge Haroche, Lab. Kastler Brossel (France) . . . . . .[7727-01]

Generation of twin beams using four-wave mixing: theory and experiments, Thomas Coudreau, Quentin Glorieux, Romain Dubessy, Samuel Guibal, Luca Guidoni, Jean-Pierre Likforman, Univ. Paris Diderot-Paris 7 (France) and Ctr. National de la Recherche Scientifique (France); Ennio Arimondo, Univ. di Pisa (Italy) . . . . . .[7727-02]

Spontaneous rotational symmetry breaking as a resource for perfect non-critically squeezed light, Eugenio Roldán, Germán J. de Valcárcel, Ferran V. Garcia-Ferrer, Robert Höppner, Carlos Navarrete-Benlloch, Univ. de València (Spain) . . . . . .[7727-03]

Second order coherence of parametric light determined by two photon absorption in semiconductors, Fabien Boitier, ONERA (France); Aleksandr I. Ryasnyanskiy, Nicolas Dubreuil, Philippe Delaye, Lab. Charles Fabry (France); Antoine Godard, Emmanuel Rosencher, ONERA (France); Claude Fabre, Univ. Pierre et Marie Curie (France) . . . . . .[7727-04]

Cavity nano-optomechanics: a nanomechanical system in a high finesse optical cavity, Ivan Favero, Univ. Paris Diderot-Paris 7 (France); Sebastian Stapfner, David Hunger, Ludwig-Maximilians-Univ. München (Germany); Jakob Reichel, Ecole Normale Supérieure (France); Khaled Karrai, Eva Weig, Ludwig-Maximilians-Univ. München (Germany). . . . . .[7727-05]

SESSION 2 . . . . . Tues. 10.50 to 12.50

Quantum Optics II

Session Chair: **Serge Haroche,** Lab. Kastler Brossel (France)

Exploring Quantum Physics with Single Neutral Atoms *(Invited Paper)*, Artur Widera, Wolfgang Alt, Dieter Meschede, Institute of Applied Physics, University of Bonn (Germany). . . . . .[7727-06]

Adiabatic passage methods in cooling trapped molecular ions, Constantinos Lazarou, Sofia Univ. "St. Kliment Ohridksi" (Bulgaria); Matthias Keller, Barry M. Garraway, Univ. of Sussex (United Kingdom). . . . . .[7727-07]

Quantum optical pulse sequencer, Mahdi Hosseini, Ben M. Sparkes, Gabriel Hetet, Ping Koy Lam, Ben C. Buchler, The Australian National Univ. (Australia). . . . . .[7727-08]

Phase transition and storage of optical information using spatially-periodical quantum atom-light structures, Alexander P. Alodjants, Igor O. Barinov, Eugenii S. Sedov, Sergei M. Arakelian, Vladimir State Univ. (Russian Federation) .[7727-09]

Ultralong quantum optical storage using an optical locking, Byoung S. Ham, Inha Univ. (Korea, Republic of) . . . . . .[7727-10]

Lunch Break . . . . . 12.50 to 14.00

SESSION 3 . . . . . Tues. 14.00 to 15.40

Quantum Optics III

Session Chair: **Mikhail I. Kolobov,**
Univ. des Sciences et Technologies de Lille (France)

Chip-based quantum information with photons *(Invited Paper)*, Alberto Politi, Jonathan C. F. Matthews, Anthony Laing, Alberto Peruzzo, Pruet Kalasuwan, Xiao-Qi Zhou, Maria I. Rodas Verde, Univ. of Bristol (United Kingdom); Andre Stefanov, Federal Office of Metrology METAS (Switzerland); Martin J. Cryan, Siyuan Yu, Mark G. Thompson, John G. Rarity, Jeremy L. O'Brien, Univ. of Bristol (United Kingdom) . . . . . .[7727-11]

Wave function formalism in quantum optics and generalized Huygens-Fresnel principle for N-photon states: derivation and applications, Edouard Brainis, Philippe Emplit, Univ. Libre de Bruxelles (Belgium) . . . . . .[7727-12]

Design of a tunable single photon interferometer based on modal engineered tapered optical fibers, Manfred Niehus, Gil G. Martins Fernandes, Armando Nolasco Pinto, Instituto de Telecomunicações (Portugal) . . . . . .[7727-13]

Frequency-modulation high-precision spectroscopy of coherent dark resonances, Julia V. Vladimirova, Victor N. Zadkov, Lomonosov Moscow State Univ. (Russian Federation); Aleksey V. Akimov, Aleksey Y. Samokotin, Aleksey V. Sokolov, Vladimir N. Sorokin, Nikolai N. Kolachevsky, P.N. Lebedev Physical Institute (Russian Federation) and Moscow Institute of Physics and Technology (Russian Federation) . . . . . .[7727-14]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

POSTERS—Tuesday . . . . . Tues. 17.40 to 19.10

A poster session will be held on Tuesday 17.40 to 19.10. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Tunneling time in a ferromagnetic graphene barrier, Farhad Sattari, Mahdi Esmaeilzadeh, Edris Faizabadi, Iran Univ. of Science and Technology (Iran, Islamic Republic of) . . . . . .[7727-25]

Comments on 'the dual nature of photons', Narahari V. Joshi III, Univ. de Los Andes (Venezuela) . . . . . .[7727-26]

Polarization-statistical methods of the management for nonlinear optical information systems, Sergey S. Bednarjevsky, Interregional Association 'Siberian Accord' (Russian Federation); Gennady I. Smirnov, Institute of Automation and Electrometry (Russian Federation); Boris P. Kashnikov, V. Lashkaryov Institute of Semiconductor Physics (Russian Federation). . . . . .[7727-27]

Trapping and cooling of Sr+ ions: strings and large clouds, Sebastien Removille, Romain Dubessy, Brice Dubost, Quentin Glorieux, Thomas Coudreau, Samuel Guibal, Jean-Pierre likforman, Luca Guidoni, Univ. Paris Diderot-Paris 7 (France) . . . . . .[7727-28]

Long lifetime of single atom in optical tweezer with laser cooling, Junmin Wang, Jun He, Baodong Yang, Tiancai Zhang, Shanxi Univ. (China); Kunchi Peng, Shanxi Univ. (China) and State Key Lab. of Quantum Optics and Quantum Optics Devices (China) . . . . . .[7727-29]

Wednesday 14 April

SESSION 4 . . . . . Wed. 08.20 to 10.20

Quantum Optics IV

Session Chair: **Thomas Durt,** Vrije Univ. Brussel (Belgium)

Efficient verification of states, detectors and memories *(Invited Paper)*, Martin B. Plenio, Univ. Ulm (Germany) . . . . . .[7727-15]

Extended uncertainty relations for mixed states, Aikaterini D. Mandilara, Evgueni Karpov, Nicolas J. Cerf, Univ. Libre de Bruxelles (Belgium) . . . . .[7727-16]

Spatio-temporal properties of multipartite entanglement, Mikhail I. Kolobov, Giuseppe Patera, Univ. des Sciences et Technologies de Lille (France) . .[7727-17]

Capacity of bosonic additive noise channels, Evgueni Karpov, Joachim Schäfer, Nicolas J. Cerf, Univ. Libre de Bruxelles (Belgium) . . . . . .[7727-18]

Unscented quantum filtering, Marco O. Lanzagorta, Bryan O'Gorman, ITT Advanced Engineering & Sciences (United States); Jeffrey K. Uhlmann, Univ. of Missouri-Columbia (United States) . . . . . .[7727-19]

SESSION 5 . . . . . Wed. 11.00 to 13.00

Quantum Optics V

Session Chair: **Martin B. Plenio,** Univ. Ulm (Germany)

Six-photon entangled Dicke state enabled by a UV enhancement cavity as novel SPDC photon source *(Invited Paper)*, Witlef Wieczorek, Roland Krischek, Akira Ozawa, Max-Planck-Institut für Quantenoptik (Germany); Geza Toth, Univ. del País Vasco (Spain); Nikolai Kiesel, Institut für Quantenoptik und Quanteninformation (Austria); Patrick Michelberger, Thomas Udem, Max-Planck-Institut für Quantenoptik (Germany); Harald Weinfurter, Ludwig-Maximilians-Univ. München (Germany) . . . . . .[7727-20]

A semiconductor ridge microcavity source of quantum light at room temperature, Adeline Orieux, Xavier Caillet, Univ. Paris Diderot-Paris 7 (France); Aristide Lemaître, Ctr. National de la Recherche Scientifique (France); Pascal G. Filloux, Ivan Favero, Giuseppe Leo, Sara Ducci, Univ. Paris Diderot-Paris 7 (France) . . . . . .[7727-21]

An electrically pumped on-demand single photon source in the visible spectral range, Matthias Reischle, Christian Kessler, Wolfgang M. Schulz, Marcus Eichfelder, Univ. Stuttgart (Germany); Gareth J. Beirne, Univ. of Cambridge (United Kingdom); Robert K. Rossbach, Michael Jetter, Peter Michler, Univ. Stuttgart (Germany) . . . . . .[7727-22]

A highly efficient single-photon source based on a quantum dot in a photonic wire, Julien Claudon, Joël Bleuse, Nitin S. Malik, Maela Bazin, Périne Jaffrennou, Jean-Michel Gérard, Commissariat à l'Énergie Atomique (France); Christophe Sauvan, Jean-Paul Hugonin, Philippe Lalanne, Lab. Charles Fabry (France); Niels Gregersen, Torben R. Nielsen, Jesper Mørk, Technical Univ. of Denmark (Denmark) . . . . . .[7727-23]

Single-photon emission from Ni-related color centers in CVD diamond, David Steinmetz, Elke Neu, Christian Hepp, Roland Albrecht, Univ. des Saarlandes (Germany); Jan A. Meijer, Ruhr-Univ. Bochum (Germany); Wolfgang Bolse, Univ. Stuttgart (Germany); Christoph Becher, Univ. des Saarlandes (Germany) .[7727-24]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50 hrs

Best student papers will be awarded at the 2010 Photonics Europe Symposium. As a committed supporter of excellence in student research, SPIE supports Best Student Paper Awards at SPIE sponsored events across the globe. The awards are designed to encourage and acknowledge excellence in oral and poster student paper presentations.

Advancing the Laser: 50 Years and into the Future

Wednesday 14 April, 16.50 to 18.30 hrs

Celebrate the golden anniversary of the laser at SPIE Photonics Europe and join us for the Laser 50th Anniversary Plenary Session featuring lectures by:

Wolfgang Sandner, Director, Max Born Institute Berlin, FR Germany

Ursula Keller, ETH Zurich, Switzerland

Mike Dunne, Science & Technology Facilities Council, UK

Conference 7728

Monday-Thursday 12-15 April 2010 • Proceedings of SPIE Vol. 7728

Nonlinear Optics and its Applications

Conference Chairs: **Benjamin J. Eggleton,** The Univ. of Sydney (Australia); **Alexander Luis Gaeta,** Cornell Univ. (USA); **Neil G. R. Broderick,** Univ. of Southampton (United Kingdom)

Programme Committee: **Arnaud Couairon,** Ecole Polytechnique (France); **Richard M. De La Rue,** Univ. of Glasgow (United Kingdom); **Christophe Dorrer,** Univ. of Rocheser and Laser Energetics, Inc. (USA); **John M. Dudley,** Univ. de Franche-Comté (France); **Majid Ebrahim-Zadeh,** ICFO - Instituto de Ciencias Fotónicas (Spain); **John D. Harvey,** The Univ. of Auckland (New Zealand); **Yuri S. Kivshar,** The Australian National Univ. (Australia); **Thomas F. Krauss,** Univ. of St. Andrews (United Kingdom); **Colin J. McKinstrie,** Alcatel-Lucent (USA); **Leif Katsuo Oxenløwe,** Technical Univ. of Denmark (Denmark); **David J. Richardson,** Univ. of Southampton (United Kingdom); **John E. Sipe,** Univ. of Toronto (Canada

Monday 12 April

Photonics Europe 2010: Hot Topics Session I

Monday 12 April, 09.00 to 11.50 hrs

For details, please see pages 8–10.

SESSION 1 . . . . . Mon. 13.00 to 15.00

Past and Future of Nonlinear Optics

Session Chair: **Benjamin John Eggleton,** The Univ. of Sydney (Australia)

Half a century of nonlinear optics *(Invited Paper)*, Robert W. Boyd, Univ. of Rochester (United States) . . . . . .[7728-01]

Optical sampling of ultrahigh bitrate signals using highly nonlinear chalcogenide planar waveguides or tapered fibers, Jurgen Van Erps, Vrije Univ. Brussel (Belgium); Feng Luan, Mark Pelusi, Eric Mägi, Tim Iredale, The Univ. of Sydney (Australia); Steve Madden, Duk Yong Choi, Douglas Bulla, Barry Luther-Davies, The Australian National Univ. (Australia); Hugo Thienpont, Vrije Univ. Brussel (Belgium); Benjamin J. Eggleton, The Univ. of Sydney (Australia) .[7728-02]

Tunable, repetition rate selective, passive mode-locked fibre laser with a repetition rate up to 640~GHz, Jochen Schröder, Trung Duc Vo, Benjamin J. Eggleton, The Univ. of Sydney (Australia) . . . . . .[7728-03]

High repetition rate pulse train generation at GHz repetition rates from nonlinear breather reshaping in standard single mode fibre, Robert Maher, Prince M. Anandarajah, Liam P. Barry, Dublin City Univ. (Ireland); John M. Dudley, Univ. de Franche-Comté (France) . . . . . .[7728-04]

SESSION 2 . . . . . Mon. 15.40 to 17.50

Semiconductor Based Nonlinear

Session Chair: **Alexander Luis Gaeta,** Cornell Univ. (USA)

Nonlinear silicon photonics *(Invited Paper)*, Richard M. Osgood, Jr., Columbia Univ. (United States) . . . . . .[7728-05]

Silicon based ultrafast all-optical waveform sampling, Hua Ji, Minhao Pu, Michael Galili, Leif K. Oxenløwe, Palle Jeppesen, Technical Univ. of Denmark (Denmark); Torben Veng, Lars N. Grüner, OFS (Denmark) . . . . . .[7728-06]

Propagation losses in GaAs/AlO $_x$ nonlinear waveguide and their impact on parametric oscillation threshold, Erwan Guillotel, Marc Savanier, Filippo Ghiglieno, Sara Ducci, Ivan Favero, Giuseppe Leo, Univ. Paris Diderot-Paris 7 (France) . . . . . .[7728-07]

Investigation of on-chip all-optical quantization and novel encoding method: paving the way for optical analog-to-digital conversion chip, Ravi Pant, Chunle Xiong, The Univ. of Sydney (Australia); Steve Madden, Barry Luther-Davies, The Australian National Univ. (Australia); Benjamin J. Eggleton, The Univ. of Sydney (Australia). . . . . .[7728-08]

All-fibered ultrafast optical switch in a 2D InP-based photonic crystal nanocavity, Maia Brunstein, Alejandro M. Yacomotti, Remy Braive, Isabel Sagnes, Ctr. National de la Recherche Scientifique (France); Laurent Bigot, Univ. des Sciences et Technologies de Lille (France); Ariel Levenson, Ctr. National de la Recherche Scientifique (France) . . . . . .[7728-09]

Reservoir computing: a photonic neural network for information processing, Yvan Paquot, Univ. Libre de Bruxelles (Belgium); Joni Dambre, Benjamin Schrauwen, Univ. Gent (Belgium); Marc Haelterman, Serge Massar, Univ. Libre de Bruxelles (Belgium) . . . . . .[7728-10]

Welcome Reception

Monday 12 April, 19.30 to 21.30 hrs

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

Tuesday 13 April

SESSION 3 . . . . . Tues. 08.30 to 10.20

Photonic Crystal Fibres

Session Chair: **Neil G. Broderick,** Univ. of Southampton (United Kingdom)

Dispersion-varying photonic crystal fibres *(Invited Paper)*, Jonathan C. Knight, Univ. of Bath (United Kingdom). . . . . .[7728-11]

Non-linear spectral broadening across multiple bandgaps of all solid photonic crystal fibers, Vincent Pureur, Univ. de Franche-Comté (France); Alex Judge, The Univ. of Sydney (Australia); Boris Kuhlmey, The Univ. of Sydney (China); John M. Dudley, Univ. de Franche-Comté (France) . . . . . .[7728-12]

Experimental investigation of a parabolic pulse generation using tapered microstructured optical fibres, Natasha A. Vukovic, Francesca Parmigiani, Angela Camerlingo, Marco Petrovich, Periklis Petropoulos, Neil Broderick, Univ. of Southampton (United Kingdom) . . . . . .[7728-13]

Impact of third-order dispersion on the evolution of parabolic pulses, Sonia Boscolo, Brandon Bale, Aston Univ. (United Kingdom) . . . . . .[7728-14]

Role of dispersion profile in controlling emission of dispersive waves by solitons inside optical fibers, Samudra Roy, Shyamal K. Bhadra, Central Glass and Ceramic Research Institute (India); Govind P. Agrawal, Univ. of Rochester (United States). . . . . .[7728-15]

SESSION 4 . . . . . Tues. 11.00 to 12.50

Slow Light Effects

Session Chair: **John M. Dudley,** Univ. de Franche-Comté (France)

Slow light enhanced third order nonlinear effects in silicon photonic crystal waveguides *(Invited Paper)*, Christelle Monat, The Univ. of Sydney (Australia). . . . . .[7728-16]

Glass microfibers: use in nonlinear optics and near-field characterization, Aurelien Coillet, Benoit Cluzel, Univ. de Bourgogne (France); Guillaume Vienne, A*STAR - Data Storage Institute (Singapore); Frédérique A. De Fornel, Philippe Grelu, Univ. de Bourgogne (France) . . . . . .[7728-17]

Chirped pulse amplification in a fiber optical parametric amplifier, Christophe Caucheteur, Faculté Polytechnique de Mons (Belgium); Damien Bigourd, Emmanuel Hugonnot, Commissariat à l'Énergie Atomique (France); Pascal Szriftgiser, Alexandre Kudlinski, Univ. des Sciences et Technologies de Lille (France); Miguel Gonzalez-Herraez, Univ. de Alcalá de Henares (Spain); Arnaud Mussot, Univ. des Sciences et Technologies de Lille (France) . . . . . .[7728-18]

Multi-resonant microresonators for optical frequency conversion, Koku Kusiaku, Xavier Letartre, Jean-Louis Leclercq, Pedro Rojo-Romeo, Christian Seassal, Pierre Viktorovitch, Ecole Centrale de Lyon (France) and Institut des Nanotechnologies de Lyon UMR CNRS 5270 (France) and Ecole Centrale de Lyon (France) . . . . . .[7728-19]

Energy density characterization of complex ultrashort laser pulses, Antonio Lotti, Univ. degli Studi dell'Insubria (Italy) and Centre de Physique Théorique, École Polytechnique (France); Arnaud Couairon, Ecole Polytechnique (France); Daniele Faccio, Paolo Di Trapani, Univ. degli Studi dell'Insubria (Italy) . . . . . .[7728-20]

Lunch Break . . . . . .12.50 to 14.00

SESSION 5 . . . . . Tues. 14.00 to 15.30

New Frontiers in Nonlinear Optics

Session Chair: **Stéphane Coen,** The Univ. of Auckland (New Zealand)

Analogue gravity and ultrashort laser pulse filamentation: from Hawking radiation to the dynamical Casimir effect *(Invited Paper)*, Daniele Faccio, Univ. degli Studi dell'Insubria (Italy) . . . . . .[7728-21]

Properties of metamaterial cavity modes, Daria O. Saparina, Anatoly P. Sukhorukov, Lomonosov Moscow State Univ. (Russian Federation) . . . . .[7728-22]

Dynamic localization of light in two dimensions, Ivan L. Garanovich, The Australian National Univ. (Australia); Alexander Szameit, Technion-Israel Institute of Technology (Israel); Andrey A. Sukhorukov, The Australian National Univ. (Australia); Matthias Heinrich, Felix Dreisow, Stefan Nolte, Andreas Tunnermann, Friedrich-Schiller-Univ. Jena (Germany); Stefano Longhi, Politecnico di Milano (Italy); Yuri S. Kivshar, The Australian National Univ. (Australia) . . . . . .[7728-23]

Power measurements of nonlinearity of metamaterials operating at mm-wave range, Irina Jaeger, Amna Elhawil, Johan Stiens, Roger A. Vounckx, Vrije Univ. Brussel (Belgium). . . . . .[7728-24]

Photonics Europe 2010: Hot Topics Session II

Tuesday 13 April, 16.10 to 17.30 hrs

For details, please see pages 8–10.

POSTERS—Tuesday . . . . . Tues. 17.40 to 19.10

A poster session will be held on Tuesday 17.40 to 19.10. Posters will be on display after 10.00 Thursday morning in the Conference Centre. Conference attendees are invited to attend the Photonics Europe poster session on Thursday. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

All-optical set-reset flip-flop by nonlinear coupling of microring resonators, Amin Ghadi, Saeed Mirzanezhad, Farshad Sohbatzadeh, Univ. of Mazandaran (Iran, Islamic Republic of) . . . . . .[7728-50]

Two photon absorption effect on all-optical semiconductor based switching nonlinear directional coupler, Amin Ghadi, Saeed Mirzanezhad, Farshad Sohbatzadeh, Univ. of Mazandaran (Iran, Islamic Republic of) . . . . . .[7728-51]

Structure optimization of electro-optic polymer waveguides for low half-wave voltage modulators, Mahe Hind, Dominique Bosc, Nicolas Gayet, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); Fabrice Odobel, Univ. de Nantes (France); Pierre-Antoinne Bonnardel, PCAS (France); Duc Minh Nguyen, Univ. de Rennes 1 (France); Jean-Pierre Vilcot, Institut d'Electronique, de Microélectronique, et de Nanotechnologie (France) . . . . . .[7728-52]

Characterization of the spectral red-shift during the propagation of femtosecond laser pulse in air, Takamitsu Otsuka, Shohei Sakai, Takeshi Higashiguchi, Noboru Yugami, Toyohiko Yatagai, Utsunomiya Univ. (Japan). . . . . .[7728-53]

Multiple-bit all-optical logic gate based on cross gain modulation in a single SOA, Miguel Cabezon, Asier Villafranca, Juan José Martínez, David Izquierdo, Univ. de Zaragoza (Spain); Jose Pozo, Technische Univ. Eindhoven (Netherlands); Juan Ignacio Garcés, Univ. de Zaragoza (Spain) . . . . . .[7728-54]

An interferometer based on slow light, Yundong Zhang, Yuanxue Cai, Caobo Yang, Harbin Institute of Technology (China); Yuhua Zhang, Harbin Normal Univ. (China); Boshi Dang, Ping Yuan, Sheng Qiang, Harbin Institute of Technology (China) . . . . . .[7728-55]

Terahertz pulse detection by the GaAs Schottky diodes, Tina Laperashvili, Orest Kvitsiani, Ilia Imerlishvili, David Laperashvili, Institute of Cybernetics (Georgia) . . . . . .[7728-56]

Fabrication and characterization of compact chalcogenide planar waveguides for nonlinear optical devices, Duk Yong Choi, Steve Madden, Douglas Bulla, Rongping Wang, Andrei Rode, Barry Luther-Davies, The Australian National Univ. (Australia). . . . . .[7728-57]

Waveform monitoring based on symmetric Mach-Zehnder interferometer optical switch and low-bandwidth PIN, Yi Yang, Donghua Univ. (China); Zheng Zheng, Zheng Li, BeiHang Univ. (China) . . . . . .[7728-58]

Phthalocyanines for photonic applications: a new perspective, Venugopal R. Soma, Univ. of Hyderabad (India) . . . . . .[7728-59]

Single and dual wavelength pumped composite chalcogenide-tellurite microstructured fiber parametric amplifier, Chitrarekha B. Chaudhari, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan). . . . . .[7728-60]

Supercontinuum emission from tightly focused femtosecond pulses in air: beyond intensity clamping, Prem Kiran Paturi, Suman Bagchi, Univ. of Hyderabad (India); Siva RamaKrishnan, Sri Sathya Sai Univ. (India); Arnold L. Cord, Ecole Polytechnique (France); G. Ravindra Kumar, Tata Institute of Fundamental Research (India); Couairon Arnaud, Ecole Polytechnique (France). . . . . .[7728-61]

Optical characterization of thermal evaporated and spin coated composite films of Ga-Sb-Ge-Se, R. Tintu, Cochin Univ. of Science & Technology (India). . . . . .[7728-62]

Optical transistor action by nonlinear coupling of stimulated emission and coherent scattering, D. L. Andrews, D. S. Bradshaw, Univ. of East Anglia Norwich (United Kingdom). . . . . .[7728-49]

Nonlinear resonant Bragg scattering phenomena, Nasrullah Khan, COMSATS Institute of Information Technology (Pakistan); Naeem Abas, Univ. of Gujrat (Pakistan). . . . . .[7728-63]

Photorefractive effect in InP:Fe under Gaussian illumination at telecommunication wavelengths, D'havh Boumba Sitou, Univ. de Metz (France) and Laboratoire des Propriétés Optiques des Matériaux et Applications (France); Nicolas Fressengeas, Univ. de Metz (France); Hervé Leblond, Univ. d'Angers (France) . . . . . .[7728-64]

Soliton mediated quantization transmission in shallow Bragg-gratings, Falk Eilenberger, Friedrich-Schiller-Univ. Jena (Germany) and University of Sydney (Australia); C. Martijn de Sterke, Benjamin J. Eggleton, The Univ. of Sydney (Australia). . . . . .[7728-65]

Multiple scattering and speckle instability in Kerr random media, Patrick Sebbah, Parimal Bala, Umberto Bortolozzo, Univ. de Nice Sophia Antipolis (France); Stefania Residori, Institut Non Linéaire de Nice Sophia Antipolis (France) . . . . . .[7728-66]

Ultrafast Bessel beams for high aspect ratio taper free micromachining of glass, Manoj K. Bhuyan, Francois Courvoisier, Pierre-Ambroise Lacourt, Maxime Jacquot, Luca Furfaro, Univ. de Franche-Comté (France); Michael J. Withford, Macquarie Univ. (Australia); John M. Dudley, Univ. de Franche-Comté (France) . . . . . .[7728-67]

Generation of ultrafast Bessel micro-beams and applications to laser surface nanoprocessing, Francois Courvoisier, Maxime Jacquot, Pierre-Ambroise Lacourt, Manoj K. Bhuyan, John M. Dudley, Univ. de Franche-Comté (France) . . . . . .[7728-68]

Reconciling expressions for terahertz generation by optical rectification, Colin Bleasdale, Roger A. Lewis, Univ. of Wollongong (Australia) . . . . . .[7728-69]

Terahertz time-domain spectroscopy of liquid crystals, Elise Pogson, Roger A. Lewis, Univ. of Wollongong (Australia); Markus Koeberle, Rolf Jacoby, Technische Univ. Darmstadt (Germany). . . . . .[7728-70]

Measurement of inverse Faraday effect in NiO using ultrashort laser pulses, Kazuo Kuroda, Takuya Satoh, Sung-Jin Cho, Ryugo Iida, Tsutomu Shimura, The Univ. of Tokyo (Japan). . . . . .[7728-71]

Tuning characteristics of optical parametric oscillator of the periodically poled $RbTiOAsO_4$ in multi-grating period and temperature tuning, Li Wang, Beijing Univ. of Technology (China) . . . . . .[7728-72]

Two-photon absorption and Kerr coefficients of CdTe at 1064 nm, Shahryar Rahmatollahpur, Abbas Sharifi, Ramin Shiri, Islamic Azad Univ. (Iran, Islamic Republic of) . . . . . .[7728-73]

Self-compression dynamics for ultrashort optical laser pulses in nonlinear dispersive media, Olga I. Paseka, Valery E. Lobanov, Anatoly P. Sukhorukov, Lomonosov Moscow State Univ. (Russian Federation) . . . . . .[7728-74]

Wednesday 14 April

SESSION 6 . . . . . Wed. 08.20 to 10.10

Nonlinear Optics for Telecommunications

Session Chair: **David J. Richardson,** Univ. of Southampton (United Kingdom)

Nonlinear optics in telecommunication/regeneration of optical signals *(Invited Paper)*, Juerg Leuthold, Univ. Karlsruhe (Germany) . . . . . .[7728-25]

Picosecond all-optical switch and pulse re-shaper based on bistable Bragg grating cavity, Irina Kabakova, C. Martijn de Sterke, Benjamin J. Eggleton, The Univ. of Sydney (Australia) . . . . . .[7728-26]

Time-resolved spectral analysis for nonlinear effects characterization in pulsed lasers, Patrick Beaure d'Augeres, Quantel Group (France) and Laboatoire Foton, CNRS UMR 6082, Enssat, BP 80518, 22305 Lannion cedex (France); Alain Mugnier, David Pureur, Quantel Group (France); Thierry Chartier, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France) . . . . . .[7728-27]

Time-lens based optical data packet retiming, Janaina L. Areal, Technical Univ. of Denmark (Denmark). . . . . .[7728-28]

Variable optical buffer for packet storage in OPS nodes, Gianluca Berrettini, Gianluca Meloni, Scuola Superiore Sant'Anna (Italy); Luca Potì, Antonella Bogoni, Consorzio Nazionale Interuniv. per le Telecomunicazioni (Italy) . . . . . .[7728-29]

SESSION 7 . . . . . Wed. 10.50 to 13.00

Pulse Generation and Manipulation

Session Chair: **Marc Hälterman,** Univ. Libre de Bruxelles (Belgium)

Temporal 1D Kerr cavity solitons: a new passive optical buffer technology *(Invited Paper)*, Stéphane Coen, The Univ. of Auckland (New Zealand) . . .[7728-30]

Advection effect in a photorefractive single feedback system: from noise- to dynamics- sustained instabilities, Nicolas Marsal, Univ. de Metz (France); Delphine Wolfersberger, Marc Sciamanna, Supélec (France); Germano Montemezzani, Univ. de Metz (France) . . . . . .[7728-31]

Compression of laser pulse in multi-resonance quantum-cascade structures, Jing Bai, Univ. of Minnesota, Duluth (United States) . . . . . .[7728-32]

Sum frequency generation in disordered quadratic nonlinear media, Fabian Sibbers, Jörg Imbrock, Cornelia Denz, Westfälische Wilhelms-Univ. Münster (Germany) . . . . . .[7728-33]

The on-off contrast in an all optical switch based on stimulated Raman scattering in optical fibers, Evgeny A. Kuzin, Ariel Flores-Rosas, Baldemar Ibarra Escamilla, Manuel Duran-Sanchez, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico); Olivier Pottiez, Ctr. de Investigaciones en Óptica, A.C. (Mexico) . . . . . .[7728-34]

Optical rogue waves and stimulated supercontinuum generation *(Invited Paper)*, Daniel R. Solli, Univ. of California, Los Angeles (United States); Claus Ropers, Georg-August-Univ. Göttingen (Germany); Bahram Jalali, Univ. of California, Los Angeles (United States) . . . . . .[7728-35]

Lunch at the Exhibition Hall/Exhibition-Only Time . . . . . .13.00 to 16.30

Student Awards

Wednesday 14 April, 16.30 to 16.50 hrs

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Advancing the Laser: 50 Years and into the Future

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Ursula Keller, ETH Zurich, Switzerland

Mike Dunne, Science & Technology Facilities Council, UK

Thursday 15 April

SESSION 8 . . . . . Thurs. 08.30 to 10.20

Supercontinuum Generation

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

XUV frequency combs *(Invited Paper)*, Akira Ozawa, Max-Planck-Institut für Quantenoptik (Germany) . . . . . .[7728-36]

Akhmediev Breather dynamics and the nonlinear modulation instability spectrum, John M. Dudley, Univ. de Franche-Comté (France); Goery Genty, Tampere Univ. of Technology (Finland); Bertrand Kibler, Univ. de Bourgogne (France); Nail Akhmediev, The Australian National Univ. (Australia) . . . . . .[7728-37]

Few-cycle nonlinear optics with a single nanoantenna, Tobias Hanke, Günther Krauss, Daniel Träutlein, Barbara Wild, Rudolf Bratschitsch, Alfred Leitenstorfer, Univ. Konstanz (Germany) . . . . . .[7728-38]

Supercontinuum generation inside a filament: white lie or reality?, Jean-Claude M. Diels, S. Rostami, C. Feng, Jeremy N. J. Yeak, The Univ. of New Mexico (United States) . . . . . .[7728-39]

Comprehensive characterization of short-scale single and multiple filamentation of ultrashort laser pulses in air, Sergey I. Kudryashov, Andrey A. Ionin, Leonid Seleznev, Dmitry Sinitsyn, Sergey Makarov, P.N. Lebedev Physical Institute (Russian Federation) . . . . . .[7728-40]

SESSION 9 . . . . . Thurs. 11.00 to 12.20

Nonlinear Photonic Crystals

Session Chair: **Daniele Faccio,** Univ. degli Studi dell'Insubria (Italy)

Synchronously pumped ZnGeP2 optical parametric oscillator in the picosecond regime, Jean-Baptiste Dherbecourt, Myriam Raybaut, Antoine Godard, Jean-Michel Melkonian, Michel Lefebvre, ONERA (France) . . . . .[7728-41]

Analysis of linear and nonlinear optical properties of diffraction gratings inscribed on the surface of single crystals of the $KTiOPO_4$ family, Joan J. Carvajal, G. Raj Kumar, Maria Cinta Pujol, Xavier Mateos, Magdalena Aguiló, Francesc Diaz, Univ. Rovira i Virgili (Spain); J. R. Vazquez de Aldana, Cruz Méndez, Pablo Moreno, Luis Roso, Univ. de Salamanca (Spain); Josep Ferré-Borrull, Josep Pallares, Lluis Marsal, Univ. Rovira i Virgili (Spain); Roberto Macovez, Jordi Martorell, ICFO - Instituto de Ciencias Fotónicas (Spain) . . . . . .[7728-42]

Management of thermal effects in high average power pulsed optical parametric oscillators, Antoine Godard, Myriam Raybaut, Thomas Schmid, Jean-Michel Melkonian, Michel Lefebvre, ONERA (France); Anne-Marie Michel, Sagem (France); Michel Péalat, Sagem Defense Securite (France) . . . . . .[7728-43]

nonlinear photonic crystals of strontium tetraborate: propeties and conversion of radiation, Aleksandr S. Aleksandrovsky, Andrey M. Vyunishev, Kirensky Institute of Physics (Russian Federation); Vitaliy V. Slabko, Siberian Federal Univ. (Russian Federation); Aleksandre I. Zaitsev, Kirensky Institute of Physics (Russian Federation) . . . . . .[7728-44]

Lunch Break . . . . . .12.20 to 13.30

SESSION 10 . . . . . Thurs. 13.30 to 15.00

Novel Nonlinear Effects

Session Chair: **Richard M. Osgood, Jr.,** Columbia Univ. (USA)

Next generation nonlinear devices *(Invited Paper)*, Mark A. Foster, Cornell Univ. (United States) . . . . . .[7728-45]

Models for coherent anti-Stokes Raman scattering in Raman devices and in spectroscopy, Nathalie Vermeulen, Christof Debaes, Hugo Thienpont, Vrije Univ. Brussel (Belgium) . . . . . .[7728-46]

Collision of optical pulses in nonlinear dispersive media: frequency tuning and velocity variation, Anatoly P. Sukhorukov, Valery E. Lobanov, Lomonosov Moscow State Univ. (Russian Federation) . . . . . .[7728-47]

Nonlinear interaction of optical beams in gradient waveguides, Anatoly P. Sukhorukov, Lomonosov Moscow State Univ. (Russian Federation) . . . . .[7728-48]

Photonics Europe 2010: Hot Topics Session III

Thursday 15 April, 15.45 to 17.50 hrs

For details, please see pages 8–10.

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