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Plan Now to Participate and Present Your Research

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.

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Hot Topics in Photonics

Hot Topics in Photonics Chairs:

Francis Berghmans, Hugo Thienpont, Vrije Univ. Brussel (Belgium)

Hot Topics in Photonics is a series of plenary sessions aimed at giving researchers, engineers, and students an overview of the most important developments in the field of photonics on a tutorial level. Top scientists who are also outstanding speakers will introduce the latest progress in their respective domains of expertise.

In their presentations, Hot Topic Speakers will highlight major advances, describe novel applications and tell what can be expected in the years to come.

The Hot Topics in Photonics session during the 2008 symposium exceeded all expectations. Encouraged by the many positive reactions to the third edition, we fall to the task of organizing Hot Topics in Photonics IV with continuing enthusiasm.

Cooperating Organisations



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Metamaterials (EPE101)

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This conference aims to bring together the international community of researchers in the burgeoning and exciting field of metamaterials and interaction of electromagnetic radiation with wavelength and sub-wavelength scale structures.

This year the conference focus will be on photonic and terahertz metamaterials.

In addition to invited talks, the conference programme will feature oral and poster presentations on the following topics that include, but are not limited to:

- engineering electromagnetic properties with metamaterials
- active and tunable metamaterials
- quantum and nonlinear phenomena in metamaterials
- gain and compensation of losses in metamaterials
- metamaterial devices antennas and waveguides
- transformation optics with metamaterials
- sub-wavelength concentration of light and imaging.

Nanophotonics (EPE102)

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)

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The highly distinctive field of nanophotonics continues to experience phenomenal growth at both the fundamental research and applications level. In structures whose optical response is determined by nanoscale features, the character of optical propagation and measurement commonly involves an interplay of structural and quantum optical features, concisely exhibited by the term 'nanophotonics'. It is the purpose of this conference to address the latest developments in the physical optics and physics-related aspects of this exciting area, with an emphasis on fundamental principles and mechanisms, identifying new directions for further exploration and applications, and reporting new technical advances.

The conference will cover a broad range of topics in nanophotonics including the detailed theoretical foundations, mechanisms, optical techniques, characterization principles, novel fabrication methods and device applications. Contributed papers are solicited from researchers, practitioners and commercial organizations working in these broad areas, especially focusing on the following or related topics:

- nanoscale optical transmission
- plasmonics and surface nanostructuring
- optical nanofabrication and characterization
- nanomaterials for energy conversion
- quantum confined lasers
- control of nanoscale optical and electronic processes
- optically driven molecular motors
- energy harvesting in multichromophore polymers
- quantum optical computing
- photoactive arrays, materials and devices
- quantum and nonlinear optics in nanostructures
- near-field optics, microscopy and associated technologies
- optical tweezers and spanners; nanomanipulation with light
- optical lattices and holographic trapping
- photonic propagation in biological nanostructures
- quantum dots; fluorescence labeling and imaging
- polariton propagation and dispersion
- surface plasmons and devices.

Critical Dates

Abstract Due Date: 9 November 2009

Manuscript Due Date: 15 March 2010

Please Note: Submissions imply the intent of at least one author to register, attend the conference, present the paper as scheduled, and submit a full-length manuscript for publication in the conference proceedings.

Photonic Crystal Materials and Devices (EPE103)

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

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The conference will be focused on recent advances in the field of photonic crystals and related materials, aiming particularly at the design and development of novel devices with enhanced performance. Special emphasis will be put on materials processing, and new photonic architectures with multiple functionalities, theoretical and experimental investigations of novel optical phenomena in fundamental and applied domains. Presentations on integration of photonic nanostructures into devices, and evaluation of the added value (higher efficiency, better control, lower thresholds) they provide are expected. Submissions that address potential applications in telecommunications, colour displays, LEDs, lasers, photovoltaics, and chemical and biological sensing are encouraged. It is anticipated that the European Community dimension will be reflected in both invited and contributed presentations.

Topics include, but are not limited to:

- recent advances in materials processing for the fabrication of novel photonic micro- and nanostructures
- recent advances in the design of novel photonic structures and devices
- intrinsic and extrinsic disorder effects in the optical properties of ordered structures
- multifunctional photonic micro- and nanostructures
- anomalous wave propagation in photonic crystals
- nonlinear optical effects in periodic and nonperiodic or disordered structures
- photonic crystal-based integrated optics
- photonic crystal waveguides and microcavities
- magnetic photonic crystals
- metal-dielectric periodic electromagnetic and plasmonic structures
- photonic crystal-based electro-optic displays
- applications of photonic crystals in biology and chemistry
- light managing in photovoltaic devices using photonic crystals.

Photonic Crystal Fibres (EPE104)

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

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Photonic crystal fiber (PCF) promises to give us control over photon propagation in the most intricate of ways with great flexibility; enabling selective confinement, routing, dispersion or filtering to occur directly in the optical domain. We have far more control over the properties of photonic crystals than we do over the electronic properties of semiconductors.

This conference will expand on the existing innovations that relate to photonic crystal fibers, detailing progress in the areas of fiber manufacture, devices, and applications that target the fields of optical communications, sensing and spectroscopy; and incorporating modeling of novel fiber geometries.

The conference Programme will consist of oral and poster presentations covering the aspects of experimental, theoretical and applied research related to the following topics:

- advances in photonic crystal fiber manufacture, e.g. silica-, chalcogenide- and multi-component-glass PCF, rare-earth doped PCF, single crystal material fiber and polymer PCF
- modeling and simulation of linear and nonlinear characteristics of novel PCF, e.g. modal analysis, birefringence, polarization and dispersion properties, confinement and bending losses, evanescent coupling in multi-core fiber, tapers and nonlinear effects
- characterisation of PCF, e.g. measurements of fiber geometry, birefringence, dispersion, non-linearity and distributed measurements
- PCF-based devices and their applications cover a broad spectrum of research areas that can include:
- supercontinuum generation, wavelength conversion, fiber lasers and amplification, ultra-high power and ultra-short pulse delivery, optical clocks, pulse shaping, dispersion compensation, micro fluidic devices, liquid crystal fibers, and optical transport of microparticles
- optical sensors, e.g. chemical and biosensors, vectorial (multi-core structures) and birefringent sensors (temperature and pressure), PCF-based Bragg and long period grating sensors
- near-field microscopy, spectroscopy of gases and liquids.

Considering the growth in the field of photonic crystal fiber sensors a joint session will be organized with the Optical Sensing and Detection conference.

On behalf of the conference organizing committee, researchers are invited to participate in the conference and to submit an abstract.



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Biophotonics: Photonic Solutions for Better Health Care (EPE105)

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. (United States)

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The research area of biophotonics provides novel photonic technologies and tools for medical diagnosis and therapy. Its solutions for an efficient and affordable health care help encounter the challenges of aging societies and exploding health care costs. Furthermore, biophotonics research aims for a deeper understanding of the processes within living cells, which is a prerequisite for the early recognition and targeted treatment of diseases. The importance of biophotonics is obvious not only from the impressive annual growth rates of the related industries, but also from the significant amount of research funding in this field.

However, the highly interdisciplinary character of this field of research requires an intensive dialogue between scientists from the various disciplines in order to align, promote and amplify their efforts. This is one of the major aims of the conference.

A broader notion of health includes the environment and food as its determining factors; thus the conference will cover applications of light in environmental and food analysis as well.

Contributed papers are solicited concerning, but not limited to, the following areas:

Photonics and nanobiophotonics for analysis and diagnosis

- advanced microscopic methods
- spectroscopic methods on a cellular and molecular level
- optical biochips and array technology
- optical nanoprobe and nanobiosensors
- fiber and photonic crystal biomedical technologies

New photonic nanomanipulation tools

- nano-optical tools and methods for biophotonics and biomedical optics
- light-tissue interaction
- optical tweezers and laser catapulting
- cell sorting and cell positioning

Biomedical optics in clinical routine

- coherence domain optical methods and optical coherence tomography
- optical diffuse tomography
- in vivo cellular and tissue diagnostics, telepathology
- minimally invasive surgery
- photodynamic therapy
- skin therapy

Photonic solutions for environmental, food, and drug analysis

- microscopic and spectroscopic methods for food and drug analysis
- optical sensors for hazardous substances in air, soil, and water
- detection and identification of infectious germs (epidemiology)
- optical technologies for process analytics and quality control.

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:



Micro-Optics (EPE106)

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)

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Micro-optics is a generic technology that allows the manipulation of light and the management of photons with 'micron'- and 'submicron'- scale structures and components. Combined with MEMS structures complex optical systems emerge. Micro-optics is therefore the cornerstone technology to interface the macroscopic world we live in with the microscopic world of opto- and nanoelectronic data processing. It is recognized as the key link between photonics and nano-electronics, the two dominant information technologies of tomorrow's society.

This conference aims at providing a forum to bring together designers, process- and packaging engineers, and researchers as well as people from various application fields to present the latest developments in micro-optics and MOEMS fabrication, components, integration and systems and to discuss challenges and to present solutions related to design, prototyping, low-cost volume fabrication, packaging, assembly and integration, reliability, and standardization of micro-optical components and modules, and micro-optics-based sub-systems and systems. The conference will also be a forum devoted to micro-optics and micro-optics systems in applications, such as optical interconnects, lighting and display, data communications, sensors and many others.

The conference should stimulate inter-disciplinary discussions and cross-fertilization over the boundaries of the specific research areas and seek new solutions bearing in mind lower manufacturing costs. Papers are solicited on all aspects of this rapidly evolving multidisciplinary field.

Examples of topics that are welcome include, but are not limited to:

- optical materials for micro-optics
- modeling and design of novel refractive and diffractive microoptical components and systems
- tolerance and sensitivity analysis of micro-optical components
- prototyping, mastering and fabrication of micro-optical components and systems
- mass-fabrication of micro-optics
- optical MEMS components, systems, and applications
- large area micro-optics
- free-form micro-optics
- holographic optical elements
- microactuators and micromechanical components
- microfluidics, bioMEMS, and medical microsystems
- packaging and assembly of micro-optical components and systems
- integration of optical, micromechanical and/or fluidic devices
- reliability of micro-optical components and systems
- micro-optics and standardization challenges
- MEMS display and imaging systems
- RF MEMS components, systems, and applications
- micromachined optical, physical, chemical and biological sensors
- photonic interconnects and computer architectural issues
- modeling, design, fabrication and characterization of VCSELs for photonic interconnects
- VCSEL-based smart pixels
- VCSEL-based WDM schemes for short distance photonic interconnects

Optical Modelling and Design (EPE107)

- modeling, design, tolerancing, and scaling of VCSEL-and MQW-modulator-based photonic interconnect systems
- novel detector devices and schemes for photonic interconnects
- free-space and guided-wave optical interconnect modules
- optical interconnects at the PCB level
- micro-optical components and modules for photonic interconnection, switching and routing
- monolithic and hybrid integration of VCSELs, MQW modulators and detectors with CMOS
- heterogeneous integration and packaging aspects of photonic device-based interconnection modules
- flip-chip mounting
- fiber-coupling
- photonic device-based system demonstrators
- reconfigurable optical interconnects
- optical clock distribution.

A special session on Micro-Optics, VCSELS, and Photonic Interconnects

Jointly organized with the conference on
'Semiconductor Lasers and Laser Dynamics'.

Conference Chairs: **Frank Wyrowski**, Friedrich-Schiller-Univ. Jena (Germany); **John T. Sheridan**, Univ. College Dublin (Ireland); **Jani Tervo**, Univ. of Joensuu (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 (United States); **Norbert Lindlein**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **M. G. Moharam**, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States); **Cristian Neipp**, Univ. de Alicante (Spain); **Vladimir S. Pavelyev**, Image Processing Systems Institute (Russian Federation); **Hagen Schimmel**, LightTrans GmbH (Germany); **Colin J. R. Sheppard**, National Univ. of Singapore (Singapore); **Boris Spektor**, Technion-Israel Institute of Technology (Israel); **Jari P. Turunen**, Univ. of Joensuu (Finland)

The ability to efficiently model and design optical systems and devices and to analyse and calibrate the performance of optical materials and fabrication techniques are central to modern optical engineering.

In order to develop such tools it is necessary to have available a fundamental physical and chemical understanding of such materials and systems, to develop appropriate models based on this knowledge, and to implement such models in computationally efficient ways. Iterative comparisons with experimental outcomes then permits design optimization under a variety of practical constraints. In this way, combining fundamental expertise, (i.e., electromagnetics, solid state physics, etc.), optical engineering techniques, (i.e., design and analysis software and hardware tools, etc.), and appropriate materials and fabrication knowledge, (i.e. micromachining, lithography, interferometric-holographic etc.) very flexible manipulation of light in time and space can be achieved.

Follow the above description this conference seeks to not only attract papers which deal with the requirement to fundamentally understand such physical processes and to calibrate and analyse the outputs of specific optical systems. We also seek to attract submissions which combine and apply such knowledge to model and design optical systems. Papers of interest include those dealing with devices involving diffractive, refractive, and guided-waves effects and those dealing in which general optical signal processing, for example imaging/non-imaging, coherent/incoherent radiation etc., are employed.

This conference is specifically being organised to provide a forum where workers from a variety of specialist and engineering backgrounds can promote and exchange ideas. It is intended to be very broad and inclusive, suitable for those interested in presenting work on optical materials, devices, systems and fabrication technologies, which allow novel optical signal processing, (i.e. optical signal processing systems: including metrology, microscopy and imaging, 3-D holographic etc.), and/or optoelectronic control of power transfer (i.e. switching networks).

Applications under discussion shall include beam splitting, shaping, forming, multiplexing, switching, encryption and compression for use in the areas of optical computing, optical data and information processing, imaging, sensing and metrology. The presentation of work involving both analysis and design techniques and the development of simulation tools based on the use of pure and hybrid geometric, paraxial, Fourier, Wigner, and generalised electromagnetic optical models, are also of interest. Modelling and calibration of fabrication processes, including both material effects and production tolerances are also of concern.

Topics include but are not limited to:

- wave-optical engineering
- 2- and 3D optical signal processing, encryption and compression
- diffractive optics and holography
- optical engineering techniques and simulation tools
- light source modelling and characterisation
- beam switching and multiplexing
- modelling of light propagation in systems
- design strategies for photon management
- novel image forming concepts
- splitting, shaping and diffusing light
- subwavelength and novel diffractive structures
- temporal pulse shaping
- novel materials, devices and systems
- fabrication, assembly and tolerancing of systems.

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Research driving technological innovation

Optical Micro- and Nanometrology (EPE108)

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

Programme Committee: **Peter J. de Groot**, Zygo Corp. (United States); **Pietro Ferraro**, Istituto Nazionale di Ottica Applicata (Italy); **Cosme Furlong**, Worcester Polytechnic Institute (United States); **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)

Microsystems and particularly MEMS or MOEMS ask integration of heterogeneous technologies including micromechanical components, optics, electronics, sensors and actuators. Since wafer stack of ICs and discrete electronic components are being assembled in the same package with MEMS/MOEMS and/or photonic or optoelectronic devices, there is a need of new measurement techniques for characterization and testing, operating during the chip-production and for lifetime cycle prediction. Fortunately, optical inspection systems provide an ideal way to validate and verify product quality. Optical probes are non-destructive, non-contact diagnostics and particularly appropriate for probing materials destined for use in optoelectronic and photonic devices, where the interaction of light with the material provides the basis for device operation.

This conference will focus on the application of optical and related measuring techniques in nano- and micro-measurements, reliability study, failure analysis of MEMS/MOEMS and characterization with special emphasis in microelectronics, micromechanical structures and nanostructures. The complete research and development process including modeling, simulation, and implementation and testing shall be demonstrated on different examples. Special emphasis is directed to the development of new methods and algorithms into modern sensor systems. The application of these systems close-to-production is of general interest.

Topics will include:

- wafer-scale metrology
- unification of modeling, simulation and measurement
- interferometry, holography, speckle, moiré and grating imaging
- classical microscopy and confocal systems for measurement
- scanning electron microscopy and thermal imaging
- near-field scanning microscopy and atomic force microscopy
- nanometric probes and nano-lithography
- fiber optic sensors and waveguide devices
- ellipsometry and scatterometry
- image correlation
- laser Doppler vibrometry and micro PIV
- electro-optic techniques
- polarimetry and diffractometry
- optical phase conjugation
- image processing
- rigorous modeling and simulation
- and others.

With applications in:

- shape, contour, diameter, angle and length
- temperature, pressure, refractive index and magnetic fields
- micro- and nano topographic inspection
- nano-scale measurements and thin films characterization
- near-field optics, fluorescence, local spectroscopy
- sub-wavelength structure inspection
- smart material characterization
- investigation of photonic structures and cavities
- local analysis of material properties and defects including reliability aspects such fracture, fatigue and wear and life cycle predictability
- contact and surface problems
- failure analysis including identification of failure modes and mechanisms
- reliability methodology and long term stability investigation of microstructures, devices and systems
- deformation, displacement, vibration, stress, strain, fatigue and fracture, shock waves analysis
- line width/cd-metrology, defectoscopy
- line edge roughness measurement
- fluid mechanics and microfluidics
- qualification of devices or systems and environmental testing
- packaging and integration or/and interface to macro world
- and others.

Silicon Photonics and Photonic Integrated Circuits (EPE109)

Conference Chair: **Giancarlo C. Righini**, Istituto di Fisica Applicata Nello Carrara (Italy)

Cochairs: **Seppo K. Honkanen**, Helsinki Univ. of Technology (Finland); **Bahram Jalali**, Univ. of California, Los Angeles (United States); **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 (United States); **Louay A. Eldada**, HelioVolt Corp. (United States); **Jean-Marc Fédéli**, CEA-LETI (France); **Helmut Heidrich**, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); **Mile Ivanda**, Institut Ruder Boskovic (Croatia); **El-Hang Lee**, Inha Univ. (Korea, Republic of); **Sebastian Lourduoss**, Royal Institute of Technology (Sweden); **Mario J. Paniccia**, Intel Corp. (United States); **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); **Juha T. Rantala**, Silecs Oy (Finland); **Manijeh Razeghi**, Northwestern Univ. (United States); **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)

Smaller, faster, more complex and less expensive component solutions are needed for the today's and tomorrow's photonic systems. Thus, integrated optical circuits (IOCs) - now being considered the building blocks of any subsystem - and photonic integrated circuits (PICs) - the subsystems themselves - are being designed and developed with the goal of achieving higher performance and functionality at lower cost.

Advances in knowledge of the fundamental phenomena, as well as in photonic materials, structures, and technologies, are needed in order to properly respond to these demands.

It is clear that the successful development of this field depends on the productive collaboration between industry and research groups at all levels of technology development and adoption. An important objective of this symposium will be to contribute towards building a dialogue and generating cooperative actions between industry and the R&D communities.

Of significant commercial interest, silicon photonics should play an important role in:

- optical interconnects and integration with microelectronics
- filtering, switching and routing in communications
- remote and high-resolution imaging
- disposable photonics for medical applications.

Creating the synergy that fires industry development leading to commercial products is the challenge. The solution requires a good understanding of industry needs for making the technology commercially viable as well as robust and innovative technology advances.

The development of the silicon photonics platform, in particular, is a challenging goal. Silica-on-silicon (SOS), silicon oxynitride (SiON) and silicon-on-insulator (SOI) structures represent viable and efficient routes to the implementation of low-cost optoelectronic circuits. Indeed, the maturity of Si process technology provides many ways to integrate optoelectronic and electronic components on the same substrate, taking benefit in particular of the high compactness offered by SOI microphotonics.

Nanowires, microfibers, microresonators and photonic crystals are nowadays viable platforms for nanophotonics where new phenomena and new devices are frequently proposed and demonstrated. Nonlinear optics, slow-light effects, and negative refraction are only a few examples of where novelties can be expected.

Furthermore, the convergence of microelectronics and photonics within the silicon chip is dictated by the needs to allow large quantity of data to be exchanged at bit rates in excess of 10 Gbit/s.

A specific event will be devoted to CMOS Photonics, a technology which emerged showing a profound impact on how we communicate and build communication networks. Another big challenge is represented by the move towards new wavelengths, up to the region of Terahertz frequencies for imaging and communications, and down to short wavelengths for optical sensing.

Semiconductor Lasers and Laser Dynamics (EPE110)

Conference Chairs: **Krassimir Panayotov**, Vrije Univ. Brussel (Belgium); **Marc Sciamanna**, École Supérieure d'Electricité (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 (United States); **Weng W. Chow**, Sandia National Labs. (United States); **Wolfgang E. Elsässer**, Technische Univ. Darmstadt (Germany); **Jerome Faist**, ETH Zürich (Switzerland); **Karlheinz H. Gulden**, Avalon Photonics (Switzerland); **Fritz Henneberger**, Humboldt-Univ. zu Berlin (Germany); **Diana L. Huffaker**, Univ. of California, Los Angeles (United States); **Anders G. Larsson**, Chalmers Univ. of Technology (Sweden); **John G. McInerney**, Univ. College Cork (Ireland); **Włodzimierz Nakwaski**, Technical Univ. of Lodz (Poland); **K. Alan Shore**, Bangor Univ. (United Kingdom); **Atsushi Uchida**, Takushoku Univ. (Japan)

As to application areas, even if optical communications and computing remain a major one, sensing (especially for security), lighting and biophotonics are growing up, and dedicated photonic components and circuits are requested.

This conference intends to provide a forum to discuss the latest development in these different areas, and to review technologies relevant to integration of active and passive photonic components, with the aim of eventually developing full photonic systems. Original theoretical and experimental contributions are solicited from the international guided-wave and photonic community in the general areas listed below:

Modeling and Theory

- optical system and network modeling
- models for integrated photonic circuits
- numerical and semi-analytical methods for the modeling of guided-wave optics, active, passive and nonlinear components.

Semiconductor Devices and Silicon Photonics

- advances in materials and processes
- semiconductor modulators, integrated amplifiers, filters, switches
- Si-based photodetectors
- compound semiconductor WDM components
- integration of optical functionality in silicon ICs
- photonic crystals
- silica-on-silicon photonics platform
- silicon micro and nanophotonics.

Dielectric Waveguides and Integrated Circuits

- active and passive waveguide components, modulators and switches
- glass integrated optics
- silicon oxynitride based integrated optics
- lithium niobate integrated optics
- polymer photonic components
- rare-earth-doped lasers and amplifiers
- microresonators
- dielectric nanowires
- photonic components for microwave and Terahertz systems.

Characterization and Testing

- novel methods and instruments for testing optical waveguides, photonic components and integrated circuits
- characterization of linear and nonlinear photonic devices and systems.

Applications

- components and subsystems for optical telecommunications
- photonic components for optical networks on and out of the chip
- integrated optical and photonic circuits for optical signal processing
- on-chip optical interconnects
- components and circuits for optical and optoelectronic sensors
- components and circuits for measurement and screening in biological, clinical, genomics, proteomics, environmental applications
- sensing and imaging systems at THz frequencies.

The conference will be concerned with all types and all aspects of semiconductor lasers, covering such areas as growth, processing, integration, system applications, physics, theory, modeling, simulations, nonlinear dynamics, optical feedback and injection, high-speed dynamics, new phenomena, new designs, new applications. Submissions of papers addressing one or more of these items are welcome.

Topics include, but are not limited to:

- laser diode dynamics
- external feedback
- optical injection
- noise
- spectral properties
- VCSELS including polarization and transverse mode behavior of VCSELS
- DFB laser diodes
- tunable laser diodes
- mode locked semiconductor lasers
- multisegment semiconductor lasers
- complex semiconductor laser systems
- semiconductor laser modulation
- coupled semiconductor lasers
- chaotic semiconductor lasers
- synchronization
- patterns in semiconductor lasers
- localized structures in semiconductor lasers
- dilute nitride lasers
- short wavelength semiconductor lasers
- pump laser diodes
- high-power semiconductor lasers
- high-brightness lasers
- semiconductor optical amplifiers
- quantum dots and low-dimensional structures
- novel materials and fabrication processing and integration
- photonic crystal semiconductor lasers
- numerical methods and simulations.

A special session on
VCSELS, Micro-Optics and Photonic Interconnects
 Jointly organized with the conference on Micro-Optics.

Critical Dates

Abstract Due Date: 9 November 2009

Manuscript Due Date: 15 March 2010

Please Note: Submissions imply the intent of at least one author to register, attend the conference, present the paper as scheduled, and submit a full-length manuscript for publication in the conference proceedings.

Solid State Lasers and Amplifiers (EPE111)

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 (United States); **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)

The scope of the Solid-State Lasers and Amplifiers conference is broad, covering recent advances in many areas such as spectroscopy of novel solid-state gain media, design and development of new solid-state laser systems, ultrashort pulse generation, nonlinear frequency conversion schemes, and high-power solid-state lasers. Emerging industrial, medical, and scientific applications of solid state lasers will also be covered.

Topics will include but are not limited to:

- spectroscopy of novel solid-state gain media
- tunable solid-state lasers
- rare-earth lasers
- fibre lasers and amplifiers
- microchip lasers
- diode-pumped systems
- laser Q switching
- solid-state saturable absorbers
- ultrafast lasers and mode locking
- ultrashort pulse amplification
- resonator design
- novel laser architectures
- laser applications
- fiber-optic beam delivery components
- beam shaping elements
- frequency conversion
- state-of-the-art solid-state-laser performance
- novel laser architecture concepts
- new wavelength regimes.

High-Power Lasers (EPE112)

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); **Karel Jungwirth**, Institute of Physics (Czech Republic); **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)

The conference will be concerned with all types and aspects of Terawatt and Petawatt lasers. This includes development of such lasers as well as their applications.

Topics include, but are not limited to:

- pump laser development
- contrast improvement
- pulse diagnostics
- new amplifier media
- new pump schemes
- optical parametric amplification
- laser particle acceleration
- particle injection in conventional accelerators
- X-ray generation
- surface harmonic generation
- warm dense matter
- relativistic ionization
- strong-field QED.

Critical Dates

Abstract Due Date: 9 November 2009

Manuscript Due Date: 15 March 2010

Please Note: Submissions imply the intent of at least one author to register, attend the conference, present the paper as scheduled, and submit a full-length manuscript for publication in the conference proceedings.

Organic Photonics (EPE113)

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); **Richard H. Friend**, Univ. of Cambridge (United Kingdom); **Gunther Haas**, MicroOLED (France); **Alan J. Heeger**, Univ. of California, Santa Barbara (United States); **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 S. Sariciftci**, Johannes Kepler Univ. Linz (Austria); **Paul van der Schaaf**, Ciba Specialty Chemicals Holding, Inc. (Switzerland)

This conference aims at bringing together a broad forum of scientists and engineers working on opto-electronics and photonics enabled by molecular, organic and polymer materials. The purpose is to trigger lively interaction between the chemistry, physics and engineering aspects of this research domain. The call topics have therefore been selected to cover materials, devices, physics, optics, technology and applications. The call also explicitly includes new and emerging nano-optoelectronics and nano-photonics materials, devices and concepts. There will be oral presentations as well as poster sessions.

Topics include, but are not limited to:

- organic displays
- materials and devices for lighting
- materials and devices for organic photovoltaics
- organic materials and devices for optical sensors
- emerging nano-optoelectronic and nano-photonics materials and devices
- OLEDs and PLEDs
- organic solar cells
- technology and manufacturing of OLEDs and organic solar cells
- organic light-emitting transistors
- organic lasers and amplifiers
- organic photodetectors
- optical storage
- electroactive and photonic materials
- organic materials for light manipulation and management
- charge injection and transfer processes
- junctions and interfaces relevant to organic optoelectronics
- transport and exciton phenomena
- optical nonlinear phenomena and devices
- ultrafast processes involving energy and charge transport
- excited states at single molecule level
- theoretical modeling of optoelectronic and photonic processes
- optical micro- and nano-probes of organic materials and devices
- scanning probe mapping of materials and devices
- advanced approaches for materials nanostructuring for opto-electronic devices.

Optical and Digital Image Processing (EPE114)

Conference Chairs: **Peter Schelkens**, Vrije Univ. Brussel (Belgium); **Touradj Ebrahimi**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Gabriel Cristóbal Perez**, Consejo Superior de Investigaciones Científicas (Spain); **Frédéric Truchetet**, Univ. de Bourgogne (France); **Pasi R. O. Saarikko**, Nokia Research Ctr. (Finland)

Programme Committee: **Janne K. Aikio**, VTT Elektronikka (Finland); **Jan T. Bosiers**, DALSA Corp. (Netherlands); **Jacques W. Duparré**, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); **Boris Escalante-Ramirez**, Univ. Nacional Autónoma de México (Mexico); **Pascuala García-Martínez**, Univ. de València (Spain); **Tom R. L. Kimpé**, Barco, Inc. (Belgium); **Maria S. Millán García-Varela**, Univ. Politècnica de Catalunya (Spain); **Martin Schrader**, Nokia Research Ctr. (Finland); **Michael Schwind**, OSRAM Opto Semiconductors GmbH (Germany); **Colin J. R. Sheppard**, National Univ. of Singapore (Singapore); **Athanasios N. Skodras**, Hellenic Open Univ. (Greece); **Ari Tervonen**, Helsinki Univ. of Technology (Finland); **Andrew G. Tescher**, AGT Associates (United States); **Gerald Zauner**, Upper Austria University of Applied Sciences (Austria)

In recent years, Moore's law has fostered the steady growth of the field of digital image processing, though computational complexity remains a significant problem for most of the digital image processing applications. At the same time, also research in the field of optical image processing has matured, potentially bypassing the limitations of digital approaches and giving rise to new applications. Additionally, from image acquisition perspective the rapid convergence of digital multimedia devices is driving a strong industrial growth of photonics technologies. Already, photonics based enablers can be found in a myriad of multimedia applications such as displays and image sensing, illumination systems, and high-performance light engines - all of which have major volume positions in the photonics market. Along with the growing interest for emerging multimedia applications the demand for new photonics enablers is steadily increasing, and new technologies are continuously created to meet the needs.

One example is the use of compact visible laser sources for laser projection systems, which are attracting considerable interest. In miniaturizing digital cameras new challenges emerge when striving for high performance combined with mass volume production. This requires the design of sophisticated lens elements and new types of imaging optics; optimized image processing pipelines; compact high-performance sensors etc. In addition, photonics has enabled fully digital media, with accompanied growth in image processing, in multimedia storage, retrieval and transmission techniques, and in related hardware and software. These new applications all have their specific requirements and put new challenges on the optical designs.

This conference is the result of the merger of two conferences organized at SPIE Photonics Europe 2008, namely Optical and Digital Image Processing and Photonics in Multimedia. The aim of this conference is to create a joint forum for both research and application communities to share expertise, to solve present-day application bottlenecks and to propose new application areas. Consequently, this conference has a broad scope, ranging from basic and applied research to dissemination of existing knowledge. The conference sessions will address (but not be limited to) following topics:

- image acquisition (new sensors, image reconstruction, phase image restoration, image fusion)
- miniature camera optics (imaging lenses, design, flashes, adaptive optics, wafer-level optics, novel lenses, extended depth of focus, etc.)
- miniature image sensors (CCD, CMOS, and others like OPD arrays)
- camera systems and characterization (system design, testing, metrics, standards, image processing chains)
- photonics components and enabling technologies for multimedia (micro-optics, lens arrays, filters, optical interconnects, optical storage)
- image transformations (wavelet theory, space theory, geometrical transforms, restoration)
- image analysis (motion estimation, segmentation, object tracking, pattern recognition)
- image information management (coding, cryptography, watermarking, storage and retrieval systems, resolution enhancement)
- scientific visualization
- multimedia displays and applications (3D visualization, near-eye, projection, holographic)
- optical engines for displays (LED and RGB-laser based engines, holographic modulators)
- display illumination (light guide solutions, micro-optics, design)
- interaction between architectures, systems or devices for optical and digital image processing
- applications (medical imaging, surveillance, security, remote sensing, industrial inspection, multimedia).

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Real-Time Image and Video Processing (EPE115)

Conference Chairs: **Nasser Kehtarnavaz**, The Univ. of Texas at Dallas (United States); **Matthias F. Carlsohn**, Computer Vision and Image Communication (Germany)

Programme Committee: **Mohamed Akil**, École Supérieure d'Ingénieurs en Electronique et Electrotechnique (France); **Philip P. Dang**, STMicroelectronics (United States); **Barak Fishbain**, Univ. of California, Berkeley (United States); **Mark N. Gamadia**, Texas Instruments, Inc. (United States); **Sergio R. Goma**, Qualcomm, Inc. (United States); **Pierre Graebbling**, Ecole Nationale Supérieure de Physique de Strasbourg (France); **Christos Grecos**, Univ. of Central Lancashire (United Kingdom); **Rastislav Lukac**, Epson Canada Ltd. (Canada); **Ruby Mehrubeoglu**, Texas A&M Univ.-Corpus Christi (United States); **Volodymyr I. Ponomaryov**, Instituto Politécnico Nacional (Mexico); **Fatih M. Porikli**, Mitsubishi Electric Research Labs. (United States); **Luis L. Salgado**, Univ. Politécnica de Madrid (Spain); **Jorge Santos**, European Commission (Belgium); **Mukul V. Shirvaikar**, The Univ. of Texas at Tyler (United States); **Stephan C. Stilkerich**, EADS Deutschland GmbH (Germany); **Shan Suthaharan**, The Univ. of North Carolina System (United States); **Leonid P. Yaroslavsky**, Tel Aviv Univ. (Israel)

Real-time image and video processing involves algorithmic, hardware, and software aspects of making an image or video processing system to operate in real-time. The SPIE Real-Time Image and Video Processing Conference is the only conference that is dedicated to the subject of real-time image and video processing. It is intended to be the field catalyst bringing together scientists and researchers from industry and academia working in real-time image and video processing to present recent research results pertaining to new real-time algorithmic, hardware, and software approaches as well as real-time system designs and applications.

Papers addressing real-time issues are solicited but not limited to the following topics:

- real-time image and video processing algorithms
- real-time embedded image/video processing systems
- real-time image and video processing hardware including FPGA, DSP, GPU, GPP, ASIC, SoC, and SiP implementations
- real-time software optimizations and related design paradigms
- real-time computational photography, augmented reality and 3D applications
- real-time video post-processing including video (sub-) shot and episode detection, OCR of video inserts and ticker information, face detection in videos for automatic annotation of video content
- real-time image and video processing applications including digital, cell-phone, and smart cameras, machine vision, surveillance and security, image and video compression for transmission and for database storage and retrieval, biomedical imaging, spectral imaging, etc.

Photonics for Solar Energy Systems (EPE116)

Conference Chair: **Ralf B. Wehrspohn**, Martin-Luther Univ. Halle-Wittenberg (Germany)

Programme Committee: **Benedikt Bläsi**, Fraunhofer-Institut für Solare Energiesysteme (Germany); **Christoph J. Brabec**, Konarka Austria Forschungs und Entwicklungs GmbH (Austria); **Mark L. Brongersma**, Stanford Univ. (United States); **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); **Hiroyo Yugami**, Tohoku Univ. (Japan)

The conference will be concerned with novel optical approaches for use in solar energy systems. It will cover basic physics, new phenomena, materials properties, modeling, device design, fabrication technologies, and characterization. Developments in optics, in nanostructures, in materials, and in fabrication technologies such as photonic crystals, plasmonics, quantum dots, rare-earth systems, conjugated polymers, and self-organisation or microreplication are stimulating the research on solar energy conversion significantly. A broad range of optical concepts exists for the application of micro- and nanostructures in solar thermal systems and photovoltaic cells and modules.

Submissions that address optical effects in nano- and microstructured materials for management of solar radiation and daylight are highly welcome.

Topics include, but are not limited to:

- wavelength selective and antireflective surfaces
- surfaces, which are selective with respect to the angle of incidence
- switchable coatings
- fluorescence collectors
- radiation steering incl. concentration
- windows, transparent covers, and receivers
- novel light trapping concepts
- up- and down conversion
- multi-stage solar radiation conversion
- intermediate band gap solar cells
- organic, dye inorganic, and hybrid solar cells.

Critical Dates

Abstract Due Date: 9 November 2009

Manuscript Due Date: 15 March 2010

Please Note: Submissions imply the intent of at least one author to register, attend the conference, present the paper as scheduled, and submit a full-length manuscript for publication in the conference proceedings.

Optical Sensing and Detection (EPE117)

Conference Chairs: **Francis Berghmans**, Vrije Univ. Brussel (Belgium); **Anna G. 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. (United States); **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. (United States); **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)

The optical sensing and detection conference will emphasize the principles, characteristics and performance of photonic sensor and measurement systems. The former consider new and advanced optical- and photo-detector technologies, while the latter include point sensor, distributed sensor, inspection and remote sensing systems based either on guided or free space optics.

The conference welcomes contributions on essentially all aspects of optical sensors, including transduction principles, measurand encoding principles, data-processing, user interfacing and field trials. Materials, components, architectures, structures, sources, detectors and analyzers for optical sensors will be presented. A wide variety of application areas will be considered, including safety & security, manufacturing industry, energy production, mining and extraction, entertainment, robotics, environmental and structural health monitoring, non-destructive evaluation, aerospace, chemical industry, food and drug processing and control, medicine and health.

Considering the growth in the field of photonic crystal fiber sensors a joint session will be organized with the Photonic Crystal Fiber conference.

The objective in bringing these technologies and application fields together is to provide a forum for interchange among researchers and users of the various techniques and to support crossfertilization of ideas which may benefit research and development in future photonic sensing and optical instrumentation systems.

We therefore encourage the research and development community to submit contributions to the conference in the broad field of optical sensing systems and more particularly on:

- detection and transduction materials, technologies and techniques
- technological advances in photodetectors
- components for sensor systems: detectors, analyzers, packages, etc.
- optical and electronic signal handling, processing, routing and user interfacing
- data analysis for multi-sensor arrays, multi-component sensing and data fusion
- fibre optic sensors
- sensitivity enhancement in optical sensing techniques such as for example interferometry, spectroscopy, laser ranging
- sensor component, system and network reliability
- applications of optical sensing techniques in the various fields given above
- field trials, both successes and failures.

Quantum Optics (EPE118)

Conference Chairs: **Victor N. Zadkov**, Lomonosov Moscow State Univ. (Russian Federation); **Thomas Durt**, Vrije Univ. Brussel (Belgium)

Programme Committee: **Alain Aspect**, CNRS (France); **Vladimir Buzek**, Institute of Physics of the Slovak Academy of Sciences (Slovakia); **Berthold-Georg Englert**, National Univ. of Singapore; **Arno Rauschenbeutel**, Univ. Mainz (Germany); **Alexander V. Sergienko**, Boston Univ. (United States); **Paolo Tombesi**, Univ. degli Studi di Camerino (Italy); **Anton Zeilinger**, Univ. Wien (Austria)

This conference will be devoted to the recent scientific advances at the interface between photonics and quantum physics. During the last decades, the studies of fundamental issues in quantum mechanics exploded from their originally confidential circle of specialists and became a major field of research that covers a large range of sub-disciplines, from nanotechnologies to quantum optics, including Bose-Einstein condensates, technologies for engineering quantum states and manipulating single atoms and ions, as well as quantum dots, etc. Although those researches are clearly foundationally oriented, they fit closely to experiments and already found amazingly successful applications in top-level metrology (spectroscopy, atomic clocks, measure of fundamental constants and so on).

The conference will bring a great opportunity to listen to some of the world renowned experts in these interconnected disciplines, as well as to discover new trends that result from the convergence of these fields. It will offer an updated review of recent activities both in theoretical and experimental research. The conference programme will consist of oral and poster presentations on the following topics that include, but are not limited to:

- nonclassical field states
- quantum entanglement
- quantum states engineering and reconstruction
- single-photon sources
- neutron, atom, and molecular quantum optics
- quantum memory for light, quantum interfaces, slow light, EIT
- cavity quantum electrodynamics
- quantum communication and information processing
- cold atom ensembles and Bose-Einstein condensates in atomic gases and solid-state systems.

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Nonlinear Optics and its Applications (EPE119)

Conference Chairs: **Benjamin J. Eggleton**, The Univ. of Sydney (Australia); **Alexander L. Gaeta**, Cornell Univ. (United States); **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. (United States); **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 (United States); **Leif K. Oxenløwe**, Technical Univ. of Denmark (Denmark); **David J. Richardson**, Univ. of Southampton (United Kingdom); **John E. Sipe**, Univ. of Toronto (Canada)

This conference on Nonlinear Optics and Applications is focused on the most recent advances in nonlinear optics and its applications. The objective is to update the research and applications in the field providing a forum of discussion and interaction to all people working in the area or interested to the new results. Papers describing advances in every aspect of nonlinear optics and its applications particularly in, but not limited to, the following areas are welcome:

- all-optical processing
- ultrafast optical communications
- slow light
- functional nonlinear materials
- highly nonlinear and emerging waveguides
- plasmonics and metamaterials
- ultrafast measurement and pulse characterization
- frequency combs and optical clocks
- nonlinear propagation and filamentation
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Technical Programme

Available January 2010

The comprehensive Advance Technical Programme for this symposium will list conferences, paper titles, and authors in order of presentation; an outline of all planned special events; and hotel and registration information. All those who submit an abstract will receive a copy.

Registration

Photonics Europe registration will be available January 2010

All participants, including invited speakers, contributed speakers, session chairs, co-chairs, and committee members, must pay a registration fee.

Fee information for conferences, courses, a registration form, and technical and general information will be available on the event website in January 2010.

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Hotel Reservations

An abundance of hotel rooms within 10 minutes walking distance of the congress centre will be available to book via the Hotel Booking office starting in November 2009. Please check back then for online reservations.

Definition of SPIE Europe Block Rooms

SPIE Europe will make every effort to secure the best possible group nightly room rate(s) for you at this event. We recommend participants book before the hotel reservation deadline which will be published in late Autumn to be guaranteed a room. After the deadline, the local agency will assist attendees on a case-by-case basis.

Travel information

As the seat of the European Commission, Brussels Airport is serviced by all major as well as a large number of smaller airlines, which will allow business travellers to arrive in the city in the morning, take care of business, and return to their European home town in the evening. In addition to that, Brussels is also a hub in the TGV and Eurostar network, with direct connections to London, Paris and the central European region via Paris. The new venue of Photonics Europe 2010 is located right next to the Central Station for Brussels (Brussels Zentraal), and no further connection via the public transport system is required.

Official Carrier



Brussels Airlines has been confirmed as the Official Carrier for Photonics Europe. Participants booking European travel between 7 and 20 April 2010 will be awarded a reduction on full fares. For further information, please see the travel section on www.photonicseurope.org



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- Please also submit a 300-word abstract suitable for early release. If accepted, this abstract text will be published prior to the meeting in online or printed programmes promoting the conference.
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- Have all contact information (full names, affiliations, addresses, phone numbers, and emails) for your coauthors ready.
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- Abstracts should contain enough detail to clearly convey the approach and the results of the research.
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