

EOS NEWSLETTER

THE OFFICIAL PUBLICATION OF THE EUROPEAN OPTICAL SOCIETY

Annual meeting comes to Paris in October

The 2006 EOS annual meeting will host six topical meetings covering the latest exciting research in optics and photonics.

The 2006 annual meeting of the EOS will take place in Paris, France, on 16–19 October and will be collocated with the OPTO conference and trade show at the Porte de Versailles. It will feature a total of six topical meetings, two of which are jointly organized with the Quantum Electronics and Optics Division of the European Physical Society. The topical meetings are dedicated to the following areas:

- biophotonics/biomedical optics;
- extreme optics;
- nanophotonics, metamaterials and optical

microcavities;

- micro-optics, diffractive optics and optical MEMS;
- photonic devices in space;
- nonlinear optics: from sources to guided waves.

A call for papers has now been issued and the deadline for the submission of abstracts is 31 May 2006. Contributions should be sent to Silke Kramprich at the EOS office in Hanover, Germany (e-mail: info@myeos.org). For more information visit the EOS homepage at www.myeos.org.

A brief description of the focus of each meeting

Biophotonics/biomedical optics

Optical and photonic technologies continue to drive progress in biological research and clinical diagnostics. The emerging field of biophotonics, which is developing rapidly in industrial and clinical sectors as well as in the academic field, offers new opportunities for biomedicine. These are arising through the development of new tools and technologies for imaging, manipulating and analysing biological samples and processes.

Extreme optics (QEOD/EPS and EOS)

In many of today's applications of optics, extremes are being explored. In optical communication and information sciences, the extremes are being sought in ultrafast, ultra-low-power and ultra-compact, as well as in single-photon and photon entanglement. In metrology, the extremes are in the accuracies of time and frequency measurements and standards. This topical meeting will provide a forum for scientists who are actively exploring the extremes in optics in light of new applications and technology development.

Nanophotonics, metamaterials and optical microcavities (QEOD/EPS and EOS)

Nanophotonics, metamaterials and optical microcavities include a family of nanoscale photonic structures and devices, where light-matter interaction takes place at the wavelength and subwavelength scale. The physical, chemical and structural nature of artificially or naturally nanostructured matter determines these interactions. This conference will address various aspects of basic science, design, fabrication and applications of the nanoscale photonics.

Micro-optics, diffractive optics and optical MEMS

Micro-optics and diffractive optics include a family of optical components and systems that are fabricated using modern micromachining, such as optical

lithography, direct laser and e-beam writing, reactive ion-etching, nanoimprint lithography and soft embossing. Micro-optics has emerged as a powerful tool to realize various optical functions that have not previously been possible using conventional optical elements. Elements utilizing either refractive or diffractive surfaces are now found in applications ranging from laser-beam shaping for laser material processing to optical interconnects in telecom applications. Further progress in fabrication will lead to novel subwavelength nanostructures.

Photonic devices in space

Photonics provides many advantages for applications in space through the combination of micro-, nano-, integrated-optic and fibre-optic technologies. The benefits of photonic systems for space include reduced susceptibility of systems to EMI, reduction in the weight of signal harnesses, higher information transmission capacity, reduced weight and volume, opto-isolation of critical spacecraft subsystems, high-speed optical processing of radio frequency and microwave signals and low propagation loss.

Nonlinear optics: from sources to guided waves

Nonlinear optics extends from the generation of new frequencies and ultrashort pulses up to novel resonator structures, such as optical parametric oscillators. Strong nonlinear effects also create structures such as soliton-induced waveguides and optically induced photonic lattices. Nonlinear optics is also strongly connected to the world of materials science, and organic materials are now a field of growing interest due to their potential easy fabrication and wide variety of applications, ranging from optical data storage to waveguiding. This meeting will address various aspects of the basics and applications in modern nonlinear optics.

Photonics21 launch in Brussels



**NEWS
FROM BRUSSELS**

**In excess of
200 optics
professionals
gather to launch
Photonics21.**

Photonics21, a new European Technology Platform (ETP) dedicated to the field of optics, optoelectronics and lasers, has launched. More than 200 experts from 16 European member states and 120 companies and R&D institutes celebrated the event in Brussels on 2 December.

The launch was attended by the European commissioner for information society and media, Viviane Reding, who opened a workshop on the new platform where the participants laid the foundations for a common strategic research agenda.

“Photonics is one of the most important future industries for Europe. The benefit of photonics can only be fully exploited by international and European co-operation. Photonics21 is a first very important step towards a European leadership,” stated Commissioner Reding. “With the technology platforms the European Commission establishes a close co-operation, especially with industry, to ensure that research and development contribute effectively to an improved competitiveness of Europe.”

Photonics21 is the result of a long process of consultations between the European Commission (Vivian Reding and the commissioner for research, Janez Potočnik) and high-level representatives of the European photonics industry and academia. The ETP is based on the vision document *Photonics for the 21st Century*, which was published in 2005 and which proposes a coordinated action plan at the European level to reap the expected benefits in terms of creating both jobs and wealth.

Through a shared vision between industry and the public sector, Photonics21 will create the environment necessary for visionary and industrially relevant R&D in photonics components, systems and applications. The platform aims to establish Europe as leader in the development and deployment of photonics in five areas (information and communication, lighting and displays, manufacturing, life science and security), as well as in research, education and training.

Its strategic research agenda will include a coordinated approach for R&D investment at the European, the national and the regional levels. The European Commission and the stakeholders will work closely to make sure that photonics plays an important role in the upcoming 7th Framework Programme. Photonics21 is headed by the chairmen of internationally leading companies like Jenoptik, Bookham, TRUMPF Lasertechnology, Carl Zeiss, Philips Lighting and SAGEM, together with Chris Dainty from the European Optical Society.

“We need to join forces at the European level to make full use of the potential photonics offers for Europe’s economy. Only a coordinated



Leading figures in industry head Photonics21 and were present for the launch in Brussels in December 2005.

“Photonics is one of the most important future industries for Europe.”

approach enables us to further improve the competitive advantage Europe has today and will need more than ever in the future,” explained Alexander von Witzleben, president of Photonics21 and CEO of Jenoptik AG. “We are confident that our close dialogue and co-operation with the European Commission, and especially with Commissioner Viviane Reding, will lead to a strong focus on photonics in the upcoming 7th Framework Programme.”

Working group chairs

WG information and communication

Giorgio Anania, CEO Bookham

WG industrial production/manufacturing and quality

Peter Leibinger, CEO Trumpf Lasertechnik

WG life sciences and health

Michael Kaschke, CTO Carl Zeiss

WG lighting and displays

Peter Stormberg, CTO Philips Lighting

WG metrology and sensors

Jean-Francois Coutris, vice-president, SAGEM

WG design and manufacturing of optical components and systems

Lars Thylen, Royal Institute of Technology (KTH)

WG photonics research, education and training

Chris Dainty, EOS

The working groups may decide to establish subgroups. For further information, see www.photonics21.org or contact Klaus Nowitzki, executive director, European Optical Society, Hollerithallee 8, 30419 Hannover, Germany (tel: +49 511 2788 115; fax: +49 511 2788 100; e-mail: nowitzki@myeos.org).

Optics in Finland

Optical research in Finland flourishes from the paper industry.

Today, optics and optoelectronics are two of the most successful and fast-growing areas in Finland's scientific community and high-tech industry. They are also a key technology area within the national electronics miniaturization R&D programme funded by the Technology Development Agency (Tekes). A total of 21 optics-related research projects have taken place between 2002 and 2005 on topics such as fibre lasers, photonic components and modules, diffractive optics and printable optics. The programme has also provided Finland with a future roadmap for photonics.

Historically, Finland's strength in optoelectronics comes from the development of optical instrumentation for the paper industry, which has resulted in a range of successful products for online paper and pulp measurements and automation. Over the years an R&D and manufacturing network consisting of SME companies and research partners has been established in the area. Research efforts are now focusing on new application areas. For example, the pharmaceutical giant GlaxoSmithKline has started a joint programme together with VTT Electronics (Technical Research Centre of Finland in Oulu) to develop process analytical technologies for use with pharmaceuticals production.

The country has also made great progress in developing semiconductor and fibre lasers as well as new technologies, such as biophotonics and nanophotonics. For example, research efforts in printable optics and electronics are helping to build links between two strong Finnish industries, namely information technology and paper. The Tekes FinNano programme, which runs from 2005 to 2009, is supporting projects to develop and exploit both nanotechnology- and photonics-based innovations.

Below are three case-studies to illustrate the current activities of Finnish optics.

Laser Competence Centre Finland

Laser Competence Centre (LCC) Finland launched on 7 June 2005. The centre's activities are based on laser technology developed by the Optoelectronics Research Centre (ORC), institutes of Tampere University of Technology (TUT) and training activities offered by Technology Centre Hermia.

LCC Finland brings together entrepreneurs and researchers in the field of lasers. Its activities cover laser research and development, integration with production equipment, laser testing and end-user training. It currently has the support of 25 organizations, companies and university institutes, and this number is expected to double by the end of the year.



Avantone's Diftone optical effects system uses holographic and diffractive optics technology to improve the visual appearance of packaging.

Optics River

"Optics River" is a useful catchword for describing the optical activities in the Joensuu area. At the University of Joensuu, Prof. Jari Turunen's group is well known for its work in the design and fabrication of micro- and nanostructured diffractive optical elements.

Some of the topics being studied are polarization optics, the mass-replication of micro-optical components in plastic-type materials by microinjection moulding, and the development of diffractive optics for mobile applications. The department has all of the necessary tools to manufacture complicated diffractive structures for both academia and industry. The university's physics department also has a spin-off called Nanocomp Ltd, which focuses on the design and manufacture of diffractive optical elements.

Joensuu is also strong in colour research. InPhotonics Center Joensuu is a research and business service centre at the University of Joensuu that specializes in wave-optical engineering and spectral colour research. The organization plays an important role in co-operating with industrial R&D, especially with firms involved in paper and plastic manufacture.

Avantone

Avantone Oy was established in 2004 to develop and commercialize high-tech optical solutions for use in consumer packaging and printed media. Its shareholders include Nokia, Metso and Hansaprint, a Finnish print house.

The aim is to improve the visual appeal and information content of packaging and printed products. Avantone's first commercial product is the Diftone optical effects system. Based on the integration of diffractive optics and holography, this gives printed material a new dynamic layer, which not only looks stunning but is also information rich.

Calendar

DATE	EVENT	LOCATION
3–7 April	Photonics Europe	Strasbourg, France
16–19 May	LAMP 2006 International Congress on Laser Advanced Materials Processing	Kyoto, Japan
5–7 June	WIO 06 Fifth International Workshop on Information Optics	Toledo, Spain
19–22 June	CGIV 2006 Third European Conference on Colour in Graphics, Imaging and Vision	Leeds, UK
10–14 July	7th National Symposium on Display Holography	St Asaph, UK
28–31 August	ROMOPTO 2006 Micro- to Nano-Photonics	Sibiu, Romania
13–15 September	Speckle 2006	Nimes, France
16–19 October	EOS Annual Meeting and Topical Meetings	Paris, France
6–8 December	ODF 06 Fifth International Conference on Optics-Photonics Design and Fabrication	Nara, Japan

For more information about any of these events, visit www.myeos.org.

Are you a member of EOS?

Look at the benefits

Individual members are eligible for:

- a regular *EOS Newsletter* e-mail;
- reduced conference fees;
- reduced prices for the EOS journal;
- free subscription to *Optics & Laser Europe*;
- and, for those living outside Germany, a 50% discount on a subscription to the German-language journal *Photonik*, published by AT-Fachverlag.

Additional benefits for corporate members:

- a company profile in the EOS directory;
- a presence on the EOS website;
- free advertisements for jobs in the EOS market;
- reduced conference fees for all employees.



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EOS **IoP**

EOS 2006 membership fees

Individual members (who do not belong to a branch or affiliated society of the EOS):	€40
Students (who do not belong to a branch or affiliated society of the EOS):	€10
Corporate members (regardless of the number of employees of the company or members of the institute):	€200

Individual members of the branches Dga0 (Germany), SFO (France), SSOM (Switzerland), SOS (Sweden) and SIOF (Italy) are automatically full individual members of the EOS. Individual members of the affiliated societies Promoptica and CBO-BCO (Belgium), CSSF (Czech and Slovak Republic), DOPS (Denmark), FOS (Finland), the Optics Division of the Norwegian Physical Society (Norway), the Optics Division of the Polish Physical Society (Poland), ROS (Romania), SEDO (Spain), LAS (Russia) and the Optical Group of the Institute of Physics (UK) are automatically associate members of the EOS.

Membership information

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