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Exhibition: 8–10 April 2008
Conference: 7–10 April 2008
Palais de la Musique et des Congrès, Strasbourg, France
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Exhibitor List

Exhibitor list as of 3 March 2008
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Palais de la Musique et des Congres Floor Plan
Photoniques: the magazine of the French Optical Community

Photoniques, magazine of the French Optical Society, establishes links and partnerships between all the entities working in Optics-Photonics: at national level with AFOP (French Manufacturers Association in Optics and Photonics) and in each region of France.

Photoniques:

The source of information for all the professionals in the field of Optics-Photonics in France. In each issue: industry news, technical articles written by specialists, new products…

A useful and efficient circulation: 7 500 copies

After 7 years of existence, cooperation and networking with the specialists of the optic world in France, Photoniques has built a large qualified database of potential users: researchers, technicians, engineers and managers, from industry such as communications, industrial vision, lasers, test and measurements, imaging/displays…

Are you interested in the French optics and photonics markets? Photoniques is your partner!

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For additional information, contact: Olga Sortais: +33 1 34 04 21 44 o.sortais@photoniques.com to request an issue of Photoniques and a media kit
As a new addition to Photonics Europe, the Industry Perspectives Programme will provide a series of executive briefings covering key technologies and sectors.

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

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

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**Tuesday 8 April**

**Morning Session**

**Photovoltaics**

10.15 to 10.45 hrs.
**Photovoltaics - Market and Technology Trends**
Gaëtan Rull, Market Analyst for New Energy Technologies, Yole Développement

10.45 to 11.15 hrs.
**High Throughput Manufacturing for Bulk Heterojunction PVs**
Markus Scharber, Head of Materials Group, Konarka

11.15 to 11.45 hrs.
**Managing JGrowth in the Production of Thin Films**
(To be confirmed.)
Dr. Immo Kotschau, Director of Research and Development, Centrotherm GmbH

11.45 to 12.30 hrs.
**End to End Mass Production of Silicon Thin Film Modules**
Detlev Koch, Head of BU Solar Thin Films & Senior Vice President, O C Oerlikon Balzers AG

Break – 12.30 to 14.00 hrs.

**Afternoon Session**

**MEMS/MOEMS**

14.00 to 14.30 hrs.
**Market Trends and Technical Advances in M(O)EMS**
Dr. Eric Mounier, Manager for MEMS & Optoelectronics and Micronews Chief Editor, Yole Développement

14.30 to 15.00 hrs.
**Inorganic/Organic Hybrid Polymers (ORMOCER) for Optical Interconnects**
Dr. Michael Popall, Head of Microsystems and Portable Power Supply, Fraunhofer ISC

15.00 to 15.30 hrs.
**Future MOEMS and Photonic Microsystems**
Dr. Thomas Hessler, Director Axetris, Leister Process Technologies

15.30 to 16.15 hrs.
**Innovations in MOEMS product development**
Prof. Hubert Karl, Director, Fraunhofer IPMS

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**Wednesday 9 April**

**Morning Session**

**Multimedia, Displays and Lighting**

10.15 to 10.45 hrs.
**Plasmonics for Photonics: Challenges and Opportunities**
Ross Stanley, Section Head: MOEMS & Nanophotonics, CSEM

10.45 to 11.15 hrs.
**Photonic Microsystems for Displays**
Edward Buckley, VP Business Development, Light Blue Optics Ltd.

11.15 to 11.45 hrs.
**Matrix-Beam – the antiglaring LED-high beam**
Benjamin Hummel, Research for Concept Lighting Technologies, Audi

11.45 to 12.30 hrs.
**High Brightness OLEDs for Next Generation Lighting**
Peter Visser, Project Manager, OLLA Project, The Netherlands

Break – 12.30 to 14.00 hrs.
Industrial Perspectives Programme

**Thursday 10 April**

**Morning Session**

**Imaging**

10.15 to 10.45 hrs.

*High Resolution Imaging detectors for invisible light—Development and Industrialisation*

Hans Hentzell, CEO, Acreo

10.45 to 11.15 hrs.

*(Presentation to be confirmed.)*

11.15 to 11.45 hrs.

*Raman Spectroscopy, Raman Imaging and Future Trends*

Sopie Morel, Sales Manager, Molecular & Microanalysis Division, HORIBA Jobin Yvon

11.45 to 12.30 hrs.

*World Markets for Lasers and Their Application*

Steve Anderson, Associate Publisher/Editor-in-Chief, Laser Focus World

**Break — 12.30 to 14.00 hrs.**

**Afternoon Session**

**Biomedical and Healthcare Photonics**

14.00 to 14.30 hrs.

*Photonic Systems for Biotechnology Research*

Karin Schuetze, Director of R&D, Carl Zeiss Microimaging

14.30 to 15.00 hrs.

*Photonics 4 Life*

Prof. Jeürgen Popp, Director, IPHT Germany

15.00 to 15.30 hrs.

*Laser System Development for Biophotonics*

Chris Dorman, Managing Director, Coherent Scotland

15.30 to 16.15 hrs.

*Supercontinuum Light - a paradigm shift in laser sources for biophotonics*

Jakob Dahlgren Skov, CEO, Koheras

Husain Imam, Business Development Manager, Koheras

**Final Open Discussion**

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

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**Wednesday 9 April**

**Afternoon Session**

**OPERA 2015: European Photonics - Corporate and Research Landscape**

13.30 to 13.45 hrs.

*Optics and Photonics in the 7th Framework Programme*

Gustav Kalbe, Head of Sector - Photonics, Information Society and Media, Directorate General, European Commission

13.45 to 14.00 hrs.

**OPERA 2015: Aims, Results and link to Photonics21**

Markus Wilkens, VDI

14.00 to 14.20 hrs.

*European Photonics Industry Landscape*

Bart Snijders, TNO

14.20 to 14.40 hrs.

**European Photonics Research Landscape**

Marie-Joëlle Antoine, Optics Valley

14.40 to 15.00 hrs.

*Resources for Photonics Development*

Peter Van Daele, IMEC

**Break — 15.00 to 15.15 hrs.**

15.15 to 15.35 hrs.

**Towards the Future on Optics and Photonics Research**

Dr. Eugene Arthurs, SPIE Europe (UK)

15.35 to 16.15 hrs.

**Strategic Opportunities for R&D in Europe**

Mike Wale, Bookham, UK

16.15 to 16.45 hrs.

**A Sustainable Business Model for Optics and Photonics**

David Pointer, Managing Director, Point Source (Pending)

16.45 to 17.15 hrs.

**Final Open Discussion**

Chaired by: Gustav Kalbe, Head of Sector - Photonics, Information Society and Media, Directorate General, European Commission
Photonics Innovation Village

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

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

Join us for the Photonics Innovation Village Awards 2008 which will take place on Wednesday, 9th April 2008, from 17.00 hrs. in the Galerie de Marbre.

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

Point of care sensor for non-invasive multi-parameter diagnostics of blood biochemistry
Belarusian State University, Belarus; Ruhr-Universität-Bochum, Germany; Second Clinical Hospital, Belarus
Compact fibre optical and thermal sensor for noninvasive measurement of blood biochemistry including glucose, hemoglobin and its derivatives concentrations is developed as a prototype of the point-of-care diagnostic devices for cardiology, tumour and diabetic patients. Integrated platform for data acquisition, data processing and communication to remote networks has been developed on the pocket PC.

Polarization-holographic gratings and devices on their basis
Laboratory of Holographic Recording & Processing of Information, Institute of Cybernetics, Georgia
We have developed the technology of obtaining of polarization-holographic gratings that have anisotropic profile continuously changing within each spatial period and also the technology of obtaining of polarization-holographic elements on the basis of such gratings. Special highly effective polarization-sensitive materials developed by us are used for obtaining such gratings and elements. We can present samples of gratings and elements and give a demonstration of their work.

Ultra-miniature omni-view camera module
Image Sensing group of the Photonics Division of CSEM (Centre Suisse d’Electronique et de Microtechnique), Switzerland
A live demonstration with a working prototype of a highly integrated ultra-miniature camera module with omni-directional view dedicated to autonomous micro flying devices is presented.

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

Flexible artificial optical robotic skins
Department of Applied Physics and Photonics (VUB-TONA) and Robotics & Multibody Mechanics Research Group (VUB-R&M) of the Vrije Universiteit Brussel, Belgium; Thin Film Components Group (UG-TFCG) and Polymer Chemistry & Biomaterials Research Group (UG-PBM) of the Universiteit Gent, Belgium
We will present a paradigm shifting application for optical fibre sensors in the domain of robotics. We propose fibre Bragg gratings (FBGs) written in highly-birefringent microstructured optical fibres integrated in a flexible skin-like foil to provide a touch capability to a social pet-type robot for hospitalized children named “Probo”. The touch information is complementary to vision analysis and audio analysis and will be used to detect where Probo is being touched and to differentiate between different types of affective touches such as tickling, poking, slapping, petting, etc.
3D tomographic microscope
Lauer Technologies, France
The 3D tomographic microscope generates 3D high-resolution images of non-marked samples. The demonstration will show 3D manipulation of images obtained with this microscope.

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

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

Diffractive/refractive endoscopic UV-imaging system
Institut für Technische Optik (ITO) of the University of Stuttgart, Germany
We present a new optical system with an outstanding high performance despite of demanding boundary conditions of endoscopic imaging to enable minimal invasive laser-based measurement techniques. For this purpose the system provides a high lens speed of about 10 times the value of a conventional UV-endoscope, a multiple broad band chromatic correction and small-diameter but wide-angle access optics. This was realized with a new design concept including unconventional, i.e. diffractive components. An application are UV-LIF-measurements on close-to-production engines to speed up the optimization of the combustion and produce aggregates with less fuel consumption and exhaust gases like CO2.

Light-converting materials and composition: polyethylene film for greenhouses, masterbatch, textile, sunscreen and aerosol
Usefulsun Oy, Finland; Institute Theoretical and Experimental Biophysics Russian Academy of Sciences, Russia
The composition for the production of the material comprises (wt. %) composite compound (inorganic photoluminophore particles with sizes 10-800nm) -0.01-10.0; coordination compound of metal E (the product of transformation of europium, samarium, terbium or gadolinium) - 0.0-10.0 and the balance is a matrix-forming agent, such as a polymer, a fiber, a glass-forming composition or gel, aerosol, lacquer/adhesive-forming substance. The present invention relates to composite materials, in particular to light-converting materials used in agriculture, medicine, biotechnology and light industry.

HIPOLas - a compact and robust laser source
CTR AG (Carinthian Tech Research AG), Austria
The prototype covers a robust, compact and powerful laser ignition source for reciprocating gas and petrol engines that could be mounted directly on the cylinder.

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

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

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

Analyze-iQ
Nanoscale Biophotonics Laboratory, School of Chemistry, and Machine Learning / Data Mining Group, Department of Information Technology, National University of Ireland, Galway, Ireland
Analyze-iQ is the next generation spectral analysis software tool for optical and molecular spectrosopies such as Raman, Mid-IR, NIR, and fluorescence. The Analyze-iQ software is based on patented machine-learning algorithms and a model based approach in which the software learns to recognise the relevant information in complex mixtures from sample spectra. It then uses these models to rapidly and accurately identify or quantify unknown materials such as narcotics and explosives, in complex mixtures commonly found in law-enforcement and industrial applications.

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

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Special Events

**ACCORD Project Presentations**

*Salon Leicester*

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

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

ACCORD’s purpose is to:

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

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

**Recruitment Corner**

*Sponsored by:*

[Image]

Local Universities have been encouraged to post their vacancies at the Recruitment Corner.

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

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

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**European Photonics Clusters Meeting**

*Location: Arp 2*

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

Rhenaphotonics Alsace and the Photonics Unit of the European Commission’s DG INFSO, in cooperation with SPIE Europe, are organising a meeting on 10 April 2008 of the photonics clusters across Europe.

The purpose of the meeting is for us all to get to know one another better and also to introduce the various players in the photonics field, learn about ongoing research activities and funding opportunities, exchange best practices, present the Photonics21 technology platform, and address other issues which are of interest. A workshop will also be held to explore the needs of the clusters’ members for technical support and access to advanced research facilities, so that these can be better addressed in future national and European research programmes.

**PROGRAMME:**

- **09:30** Registration
- **10:00** Introduction
  - Short presentation of the meeting and its goals
- **10:10** Clusters presentation
- **11:30** European Clusters - the story so far: Overview and experiences, discussion
- **12:30** Lunch
- **14:30** Photonics21 presentation
- **14:50** EU actions and photonics clusters: EU photonics activities
- **15:10** Workshop / discussion: Support at regional/national/EU level for clusters and their members
- **16:30** Conclusions and wrapping up
- **16:45** Close and reception

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Raman Spectroscopy and Spectroscopic Ellipsometry

Presented by HORIBA Jobin Yvon
Location: Salon Leicester
Wednesday, April 9 · 09.00 to 12.00
Attend this tutorial to find out the latest on Raman spectroscopy and spectroscopic ellipsometry. Specific topics include:

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

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

For more information:
www.jobinyvon.com/photonicseurope2008

Optical Sensing

Sponsored by SphereOptics, SensL and Avantes
Palais de la Musique et des Congrès, Salons Arp 3 and Arp 5
Friday, April 11 · 08.30 to 17.00

Registration Fee
20.00 Euro, includes lunch and tutorial materials

Tutorial agenda available on-line at:
www.sphereoptics.com
www.avantes.com
www.sensl.com

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

Presentation Tutorials include:
- basics of light radiometry and photometry
- techniques for spectroscopic analysis
- low light detection solutions
PLUS information on how to:
- specify an integrating sphere
- select and configure the right spectrometer
- choose the appropriate low light detector

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

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

Tutorial Presenters

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

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

Dr. Carl Jackson - SensL
Dr. Jackson obtained a B.Sc. and M.Sc. in Electrical Engineering from Clemson University, South Carolina. He received a Ph.D. in Microelectronic Engineering from the National University of Ireland, Cork. His research has been focused on the development of silicon low light detectors for microarrays, low cost optical immunoassay instruments, integrated microfluidic sensors, and the integration of detectors into new detection systems. Prior to SensL, Dr. Jackson founded Photon Detection Systems which focused on the design of optical detector modules. In 2004 he co-founded SensL and is the company’s Chief Technology Officer responsible for SensL’s product development and application of SensL’s technology in customer applications. cjackson@sensl.com.
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- **CEIT**, Spain
  *booth 323*
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- **Heinrich-Hertz-Institute**, Germany, *booth 321*
  [http://www.hhi.fraunhofer.de](http://www.hhi.fraunhofer.de)

- **Horiba Jobin Yvon**, France
  *Booth 327*

**EPIC Contact**
Thomas P. Pearsall, General Secretary Email: pearsall@epic-assoc.com
Martine Keim-Paray Email: keim-paray@epic-assoc.com
Website: [http://www.epic-assoc.com](http://www.epic-assoc.com)
Effective Technical Presentations

Tuesday 8 April ................................. 08:30 to 12:30
Course Level: Introductory · CEU: 0.35
WS897 · Price: €90 SPIE Member / €130 nonmember

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

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

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

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

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

Tuesday 8 April ................................. 13:30 to 16:00
Course Level: Introductory · CEU: 0.25
WS852 · Price: €7 SPIE Member / €15 nonmember

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

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

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

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

Monday 7 April ................................. 13.30 to 17.30
SC787 · Price: €230 SPIE Member / €265 nonmember
Course Level: Introductory · CEU: 0.35

Students save 50% on registration.

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

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

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

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

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

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

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

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

Onsite Registration Hours
Palais de la Musique et des Congrès, Erasme Foyer
- Sunday 6 April: 13.00 to 17.30
- Monday 7 April: 07.30 to 17.00
- Tuesday 8 April: 08.00 to 17.00
- Wednesday 9 April: 08.00 to 17.00
- Thursday 10 April: 08.00 to 16.00

Exhibition Hours
- Tuesday 8 April: 12.00 to 19.30
- Wednesday 9 April: 10.00 to 17.00
- Thursday 10 April: 10.00 to 14.00

Policies

Children on the Show Floor
For safety and insurance reasons, no person under 16 years old will be allowed on the exhibit floor during move-in and move-out. During open exhibition hours, only children over 12 years old accompanied by an adult will be allowed on the exhibit floor.

Photography/Video Policy
In the Exhibition Hall: For security and courtesy reasons, photographing or videotaping individual booths and displays in the exhibition hall is allowed ONLY with explicit permission from on-site company representatives. Individuals not complying with this policy will be asked to surrender their film and to leave the exhibition hall.

No Suitcasing Policy
Suitcasing is the act of soliciting business in the aisles during the exhibition or in other public spaces associated with the exhibition. Please note that while all meeting attendees are invited to the exhibition, any attendee who is observed to be soliciting business in violation of any portion of SPIE Europe Exhibition Policy will be asked to leave immediately. Additional penalties may be applied. Please report any violations you observe to show management.

Food and Beverage Services

Coffee Breaks
Tuesday, Wednesday, Thursday . . . 10.00 to 11.00 and 15.00 to 16.00
Coffee will be served during the morning and afternoon breaks in the exhibition hall.

Cash Lunches
A cash lunch buffet will be held in the Exhibition Hall, Tuesday–Thursday starting at 11.30. Lunch tickets may be purchased for €20 each from the Cashier at Registration. Cash lunches may also be purchased at the Bar Agora. Lunch can also be purchased at the surrounding hotels and restaurants.

Desserts
Exhibition Hall
Tuesday and Wednesday
Dessert snacks will be served during the afternoon coffee break. Complimentary tickets for the dessert snacks will be included in conference and exhibitor registration packets.

SPIE Europe Onsite Services

Messages for Attendees
Messages for attendees at Photonics Europe can be left by calling the Palais de La Musique et des Congrès at Tel: +33 3 88 37 67 67, Fax +33 3 88 35 38 17 and asking for the SPIE Europe conference registration desk. Messages will be taken during registration hours Monday through Thursday. Attendees should check the message boards at the message centre on a daily basis to receive their messages.

Internet Access/WiFi
The Internet Café will be open from Monday to Thursday during registration hours. Several internet access terminals will allow attendees to access their internet e-mail during the conference. There will be a 10-minute time limit for each internet session.
The Palais de la Musique et des Congrès also has WiFi capability. Prices at the point of going to press are: 60 minutes' access in 24 hours: €10.00; 24 hour access: €22.00; 7-day access: €88.00. Access can be purchased online by starting up your browser at the venue.

SPIE Marketplace and Membership Services
The SPIE Marketplace is your source for the latest SPIE Press books, Proceedings, and Education and Professional Development materials. Become a member of SPIE, explore the Digital Library, and take home a souvenir.

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Monday–Thursday . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 7.30 to 18.00
There will be a minimal cost for coat and luggage storage as required by the Convention Centre.
Exhibition Directory

AMA Association for Sensor Technology #209
Friedlaender Weg 20, Goettingen, Germany, D-37085
+49 551 21695; fax +49 551 25155
info@ama-sensorik.de; www.ama-sensorik.de
Independent European non-profit association of more than 440 industrial and research organizations involved in sensor technology research, development, manufacture, distribution, services or supply, including optical methods. Activities include seminars, workshops, special interest committees, a directory of services, community stands at trade shows (AMA Sensor Centers) and hosting the SENSOR-TEST trade show with accompanying conferences, including Opto and IRS2. Contact: Thomas Simmons, General Secretary.

A.T. Wall Company #224
55 Service Ave, Warwick, RI, 02886
401/739-0740; fax 401/732-5784
sales@atwall.com; www.atwall.com

AFOP - French Optics and Photonics Manufacturers Association #124
185 rue de Bercy, Paris cedex 12, France, F-75579
+33 1 43 46 57 50; fax +33 1 43 46 27 58
www.gifo.org
French Optics and Photonics Manufacturers Association (AFOP) is a trade association dedicated to photonics professionals for the promotion and the defense of the industry interests in France and abroad: exhibitions, market survey, business intelligence, bulletin of bids for tender, delegation in the standardization committee(s). Contact: Ivan Testart, AFOP Manager, ivan.testart@gifo.org.

AHF analysentechnik AG #316
Kohlplattenweg 18, Tuebingen, Germany, 72074
+49 7071 83203; fax 49 7071 83203
info@ahf.de; www.ahf.de
With more than 15 years experience in assembling of optical filters AHF analysentechnik provides spectral solutions for life sciences analysis like single-/multiphoton resp., singlemolecule fluorescence, STED, Raman, CARS. Individual optical set-ups will be provided in cooperation with Semrock, Inc. and Chroma Corp. AHF analysentechnik will guarantee best optical performance according to the customers’ demands. Contact: Michael Sommerauer, Sales Director, ms@ahf.de; Ingrid Feuerbacher, Andreas Braunwarth.

Alcatel Thales III V Lab #329
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+33 1 3077 68 93; fax +33 1 30 77 67 86
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New Product: QWIP and InGaAs Focal Plane Arrays, IR laser diodes and QCLs, InGaAs PINs and APDs, epitaxial wafers.
Alcatel Thales III-V Lab is an industrial R&D organization jointly owned by Alcatel-Lucent and Thales. Its purpose is to perform research and development on III-V compound semiconductor components, from basic research to pilot line production, for applications addressed by Alcatel-Lucent and Thales, telecom, space, defense and security, as well as for other applications such as environment and health-care. Current products include QWIP Focal Plane Arrays, InGaAs photodiodes, mid-infrared lasers. Contact: Denis Mazerolle, Business Development Executive, denis.mazerolle@3-5lab.fr.

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49 711 952 9510; fax 49 711 952 9519
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New Product: Photonik international Trade Journal on Optical Technologies.
Photonik international issues are English specials of the German-language magazine Photonik. 20 selected technical articles from the 2007 issues each, translated into English, provide a broad overview of current knowledge in Optical Technologies worldwide. Contact: Norbert Schöne, Marketing Manager, schoene@at-fachverlag.de.
Avantes
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Avantes, a leading company in the field of fiber optic spectroscopy, now offers the possibility of Store to RAM. This new feature makes it possible to store a high amount of spectra in a very short time. These spectra are saved in the internal memory (RAM) of the spectrometer before they are sent to the PC. Implementation of the Store To RAM function, which allows the storing of scans at high speed (as fast as 1.1. msecs per scan for the AvaSpec-2048-USB2, and 0.1 msces per scan for the AvaSpec-128-USB2) in the spectrometer, without the overhead of USB communication. Contact: Caroline Bach, Marketing Coordinator; Peter Hiddinga, Sales Engineer.

Typical 3D spectral graph of a fluorescence lamp.

Becker & Hickl GmbH
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BRO's optical software products help engineers turn creative visions into working prototypes and the company’s own engineers work on beyond-state-of-the-art projects for enterprise companies, research institutions and top government labs. In over three decades of innovation, BRO has contributed to the success of engineering projects for thousands of clients. Contact info@breault.com for information concerning BRO’s software products and engineering services. Contact: Donna Hart, Global Sales Manager, dhart@breault.com; Dr. Bernhard Michel, ASAP Representative, Germany, info@simuloptics.de.

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Brush Ceramic Products

New Product: New BW3250 conducts heat at 325W/mK!

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Microscanning stage for increasing resolution of IR/visible camera detector.

Cedrat Technologies

New Product: Microscanning stage for increasing resolution of IR/visible CCD and CMOS detectors.

Cedrat Technologies is a high tech SME of Cedrat group and is specialised in mechatronic engineering. Micro & nano positioning, fast & precise actuation, generation & active control of vibrations, active & adaptive optics, fast tool servo, micro-scanning, fast shutters. CEDRAT TECHNOLOGIES owns unique technologies of low-voltage piezo-actuators, piezo-transducers and piezo-motors. These technologies are patented and innovative according to the patent search reports. Piezoelectric devices are both available as off-the-shelf products and as customised products. CEDRAT TECHNOLOGIES also masters several technologies of low-power electromagnetic rotating and linear drives, including their control/command and their power supply. Contact: Thomas Maillard, Sales Engineer, thomas.maillard@cedrat.com.

CILAS

New Product: Laser interference lithography system that can define nanopatterns with resolutions down to 100 nm.

For over 40 years, CILAS has been at the leading edge of the modern technology sector thanks to its unique expertise in LASER and OPTRONICS technologies. CILAS shareholders are EADS and AREVA. With a 30 M€ turnover in 2007, CILAS addresses the following markets: Defence and Security, Space, Astronomy, Scientific, Medical, Industry. Contact: PALOMO Richard, Sales and Contract Manager, palomo@cilas.com; VIARD Priscilla, Sales Engineer, viard@cilas.com.
Conerefringent Optics SL #508
Avda Cubelles 28, Vilanova i la Geltru, Barcelona, 08800
+34 93 815 6839
sales@croptics.eu; www.croptics.eu
New Product: Elements for conical refraction.
Conerefringent Optics SL was registered in 2006 with a principal aim development and production of elements for conical refraction. The destinations of the products are universities and research photonics labs. Contact: Maria Atanasova, Sales.

Our products make the Conical Refraction effect at work.

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Parc Des Industries Artois Flandres, Billy Berclau, Haisnes Cedex, France, 62092
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Draka, headquartered in Amsterdam, the Netherlands, is a € 2.5 billion, publicly listed (Euronext) company with 9,145 employees worldwide. Draka handles the production and sale of optical fibre and specialty optical fibre products as well as low-voltage and special purpose cable. Draka is a global leader in optical fibre technology and cabling solutions, with a comprehensive suite of network design and engineering services. For more information please visit www.draka.com. Contact: Patrick Bourghelle, Specialty fibre Sales Manager, patrick.bourghelle@draka.com; Aurelien Bergonzo, Specialty fibre product line manager, aurelien.bergonzo@draka.com.

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New Product: PL10100 series DPSS ultrafast picosecond laser for micromachining and other processing applications.
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EPIC: European Photonics Industry Consortium #331
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EPIC is an independent association with a mission to build sustainable growth for European Photonics Industries. We execute our mission by: 1. Creating, developing or supporting business opportunities involving our members; 2. Providing our membership with timely information concerning technology developments, market opportunities, access to R&D resources; 3. Facilitating access to resources for technology research and development, for innovation and for product engineering. Contact: Thomas Pearsall, General Secretary, pearsall@epic-assoc.com; Martine Keim-Paray, Member of Staff, keim-paray@epic-assoc.com.
The ePIXnet silicon photonics platform provides cost-sharing access to high-end CMOS facilities for wafer-scale research and prototyping of silicon photonic integrated circuits. User designs are processed together on 200mm wafers. The 193nm deep UV lithography supports large-scale photonic integration based on submicron silicon photonic structures. By sharing the mask and processing in regularly announced processing runs, the cost per user is affordable for all. Contact: Pieter Dumon, Platform Coordinator, Pieter.Dumon@imec.be.

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78 Kingsland Ave, Brooklyn, NY, 11222-5603  
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New Product: A new range of ultra-low temperature photomultipliers designed for use in Astrophysics. ET Enterprises is now manufacturing and supplying the range of photomultipliers from the former Electron Tubes Ltd. The company also supplies light detection system hardware such as amplifiers, photon counting modules and photomultiplier housings. Contact: Ron Stubberfield, Director of Sales; Graham Sperrin, Europe Sales Manager.

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44 (0) 1895 630773; fax 44 (0) 1895 631774  
info@electron-tubes.co.uk; www.electron-tubes.com

New Product: A new range of ultra-low temperature photomultipliers designed for use in Astrophysics. ET Enterprises is now manufacturing and supplying the range of photomultipliers from the former Electron Tubes Ltd. The company also supplies light detection system hardware such as amplifiers, photon counting modules and photomultiplier housings. Contact: Ron Stubberfield, Director of Sales; Graham Sperrin, Europe Sales Manager.
**European Optical Society**

European Optical Society #536
Hollenthallee 8, Hannover, Germany, 30419
49 511 2788155; fax 49 511 2788119
nowitzki@myeos.org;

The European Optical Society (EOS) serves as the joint forum for all individuals, companies, organizations, educational institutions and learned and professional societies. Organizes Topical Meetings and sponsors other scientific meetings. Publishes the electronic Journal of the European Optical Society Rapid Publications (JEOS:RP); is continuously working to establish collaboration or coordination agreements with other learned societies active in optics and related sciences. Contact: Petra Bindig, Marketing and Communications, bindig@myeos.org; Judith Herzog, Event and Account Management, Herzog@myeos.org.

**EuroPhotonics**

EuroPhotonics #100
2 South St, Berkshire Common, Pittsfield, MA, 01201
413/499-0514; fax 413/442-3180
 photonics@laurin.com; www.photonics.com

EuroPhotonics magazine provides accurate, readable and up-to-the-minute information about photonic products available in the European marketplace. Its focus is strongly European and its content covers photonics technologies from conventional optics and electro-optics to lasers, fibre optics and imaging. Published bi-monthly, it is distributed free to readers in Europe and Israel who use or apply photonics. Contact: Penny Pretty, Regional Manager, advertising@laurin.com.

**Fibercore Ltd.**

Fibercore Ltd. #515
+44(0) 23 8076 9893; fax +44(0) 23 8076 9895
info@fibercore.com; www.fibercore.com

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**Fibercryst**

Fibercryst #426
La Doua - Bat l’Atrium, Boulevard Latarjet,
Villeurbanne Cedex, France, 69616
33 688 023 226; fax 33 426 689 874
contact@fibercryst.com; http://www.fibercryst.com

FIBERCRYST produces single crystal fibers, tubes and shaped crystals for laser, high energy radiation detectors and sapphire applications. The high and unique properties of single crystal materials are now available for any application that requires long length of crystal (up to 1 meter), light guiding properties and thin diameters (down to 0.2 mm). FIBERCRYST also provides general optics, laser crystals, non linear optics, polarization optics.

**FiberTech Optica Inc.**

FiberTech Optica Inc. #415
330 Gage Ave Ste 11, Kitchener, ON, Canada, N2M 5C6
519/745-2763; fax 519/578-0007
 jeffdup@fto.ca; www.fibertech-optica.com

New Product: Imaging fiber arrays with up to 25x25 fused silica fibers (minimum core diameter 100um) available.

Designer and manufacturer of specialty multimode silica fibers optic assemblies. Featuring high power laser cables, patchcords, pigtailed, spot-to-line converters, bundle, reflectance probes, vacuum feedthrough, linear and spaced v-groove arrays, imaging arrays. Spectral bands coverage from deep UV to MIR, Core diameters 10 to 2000um. Contact: Jeff Dupuis, Sales and Marketing Manager; Joanna Mazur, Sales Assistant, jmazur@fto.ca.

**Fischer Connectors**

Fischer Connectors #122
37/ 41 Rue Louise Weiss, PARIS, France, 75013
+33 1 55 78 25 78; fax +33 1 55 78 25 75
mail@fischerconnectors.fr; www.fischerconnectors.fr

Fischer Connectors looks for the optimum solution for an efficient and reliable connection. Our connectors have an excellent reputation, in sectors whose applications require customized development and faultless quality: Medical equipment, industrial instrumentation, controlling and measuring devices, audio-video, telecommunications, military applications. We are always prepared to invest as much time and effort as necessary to ensure you get the connector best suited to your needs. Contact: Guy Lacroix, Director.
Flexible Optical BV

Rontgenweg 1, DELFT, The Netherlands, 2624 BD
+31 15 2851547; fax +31 15 2851548
www.okotech.com

New Product: Low-cost piezoelectric deformable mirror with 109 actuators.
Flexible Optical B.V. (aka OKO Technologies) develops, manufactures and delivers adaptive optical systems for wavefront correction and generation in scientific, industrial and medical applications, based on MEMS and piezoelectric deformable mirrors. Contact: Gleb Vdovin, Chief Executive Officer, gleb@okotech.com.

FRAMOS GmbH

Semiconductor, Dauthendeystr 2, Munich, Germany, 81377
49 89 710 6670; fax 49 89 710 66766
info@framos.de; www.framos.de

Framos Imaging Solutions has been active in the industrial image processing sector for more than 25 years. In our branches in Germany, England, France and Italy, we offer a comprehensive range of image processing components and solutions. Through our proximity to acclaimed partner companies (including Sony Imaging Sensors), we help our customers to continually be one step faster informed about the new technological developments and offer the best service, quality and conditions. Contact: Emmanuel Maridor, Sales Manager, e.maridor@framos.fr.

ET Enterprises offer ultra-low temperature photomultipliers for operation at -200 °C

Our range of photomultipliers for ultra-low temperature applications includes diameters from 25mm to 200mm, hemispherical, convex, plano-concave and flat window options.

These photomultipliers are suitable for
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- liquid argon and xenon detectors
- Inorganic scintillators
- UV light detection
- Ultra low background

ET Enterprises Limited
Bury Street
Ruislip, Middlesex, UK
tel: +44 (0)1895 630773
fax: +44 (0)1895 631774
info@electron-tubes.co.uk

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Frank Optic Products GmbH

Heidelberger Str 63-64, Berlin, Germany, 12435
+49 30 530249 0; fax +49 30 530249 21
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New Product: Fibre based THz Systems at 1.5 µm.

Photonic Components from sensing to information technology - this is the range of applications developed at the HHI LEDs, Lasers, THz devices, fast diodes and the integration of these devices make up the scope of components. There is also profound competence in DOEIs and polymer devices. We develop according to customer specifications and fabricate in small volumes. Contact: Wolfgang Schlaak, Head Business Development, schlaak@hhi.fhg.de; Bernd Sratorius, Project Manager, sartorius@hhi.fhg.de.


We develop and manufacture the most up to date light related sensors and instruments: Photomultipliers; Photodiodes; CMOS and CCD sensors; Infrared detectors; Microchannel plates and image Intensifiers; Mini spectrometers; Detectors and sources for X rays: Xenon - Xenon-Mercury and Deuterium lamps; Laser diodes; Equipments for semi-conductor and pharmaceutical industries; Microscope slides digitalization machines; Digital CCD board cameras and high grade digital cameras. Contact: Anne Llorens, Communication Coordinator, allorens@hamamatsu.fr.


HC Photonics specializes in optical wavelength converters based on Periodically Poled Nonlinear Materials: PPMgO:CLN/SLT/SLN. With SHG/OPG/OPO/SFG/DFG configurations to cover 400 to 5500 range for full spectrum applications including RGB display, biophotonics, scientific and others. Contact: Karin Wu, Sales Manager, karin@hcphotonics.com.


HC Photonics Corp #501
Science Based Industrial Park, 4F No 2 Technology Rd, Hsinchu, Taiwan, 300 886 3 666 2123; fax 886 3 666 2124 service@hcphotonics.com; www.hcphotonics.com
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19, Rue du Saule Trapu, Parc du Moulin de Massy, Massy Cedex, France, F-91882 33 1 69 53 7100; fax 33 1 69 53 7110 infos@hamamatsu.fr; www.hamamatsu.fr


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Heptagon #521
Moostrasse 2, Zurich, Switzerland 8803 +41 44 497 30 25; fax +41 44 497 30 01 sales@heptagon.fi; www.heptagon.fi
Heptagon develops, designs and manufactures optics for a variety of applications, including mobile phones, communications, LED-based projectors, and general illumination systems. Heptagon's components are based on novel diffractive optics and micro-optics. Heptagon's micro optical components are produced by a propriety batch wafer-scale REEMO® UV-replication process. This enables low-cost in mass production and high robustness. Materials are available that can withstand a lead-free reflow process (temperatures up to 280°C), long-term storage and humidity and temperature shocks (in conformance with Telcordia/JEDEC regulations).
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fc@institutoptique.fr; www.institutoptique.fr  
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The Institut d’Optique Graduate School is a private higher education and research institution. Its Continuing Education Department proposes short training courses in optics from basics to advanced courses, specializations until optics and related domains. They are dedicated to all categories of employees; researchers, engineers, operators, technicians. It also meets specific needs for companies through dedicated courses, that can take place in the Institut d’Optique premises or in-house. Contact: Nathalie Cerre, Continuing Education Development and Marketing Manager, nathalie.cerre@institutoptique.fr.

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International Society for Stereology  #529
Korytkova 2, Ljubljana, Slovenia, SI-1000  
386 1 5437 300; fax 386 1 5437 301  
www.wise-t.com/ias  
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KLASTECH-Karpushko Laser Technologies GmbH develops and manufactures single frequency TEM00 DPSS-lasers. The products are based on proprietary DENICAFC technology (Double ENhanced Intra-Cavity Frequency Conversion) that inherently features stable single longitudinal mode and low noise operation. KLASTECH offers standard products and customized laser development. Product range includes DPSSL at 1064 nm up to 4 W, 532 nm up to 2 W, 488 nm up to 50 mW, 442 nm up to 20 mW and 347 nm up to 100 mW. Contact: Ralf Rohmert, Chief Financial Officer, rohmert@klastech.de.
Laser Components GmbH
Werner von Siemens Str 15, Olching, Germany, 82140
49 8142 28640; fax 49 8142 286411
info@lasercomponent.com; www.lasercomponents.com

New Product: Avalanche Photodiodes with Integrated Filter and Large Area APDs, multi-junction PLDs @ 905 nm.

The LASER COMPONENTS Group specializes in the production and distribution of high-tech components for the optoelectronic and laser industries. Main products are avalanche photodiodes and high power pulsed laser diodes. We also make hard dielectric coatings for laser optics, offering the complete spectral range from 3 - 25 µm and include QCLs. High quality laser diode modules complete our product range. Contact: Sven Schreiber, Export Manager, s.schreiber@lasercomponents.com.

Laser Focus World
98 Spit Brook Rd, Nashua, NH, 03062
603/891-0123
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Laser Focus World is a monthly magazine for engineers, researchers, scientists and technical professionals providing comprehensive global coverage of optoelectronic technologies, applications and markets. The magazine reports on and analyzes the latest developments and significant trends in both technology and business in the worldwide optoelectronics and photonics industry. Contact: Katrina Frazer, Group Exhibits Director, katrinaf@pennwell.com; Sharon MacLeod, sharonm@pennwell.com.

Laser Zentrum Hannover e.V. (LZH)
Hollerithallee 8, Hannover, Germany, 30419
49 511 2788 0; fax 49 511 2788 100
info@lzh.de; www.laser-zentrum-hannover.de

The Laser Zentrum Hannover e.V. (LZH) carries out customer-oriented research, development and consulting in all fields of laser technology. Interdisciplinary teamwork and close cooperation with industry has helped the LZH achieve a leading position among the laser centers in Germany and abroad. The main fields of work for the LZH are customer-specific problem solving of practical applications, technical, scientific and economic consulting and industry-oriented training in laser technology.

LEONI Fiber Optics GmbH
Mühlendamm 6, Neuhaus-Schierschmitz, Germany, 96524
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New Product: Light guides for medical and industrial laser applications and light guiding high bride cables.

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Leukos
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New Product: Get your light where you need it: Laser coupler, fiber, collimator.

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Exhibition Directory

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**Menlo Systems GmbH**

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Menlo Systems is a leading developer and global supplier of instrumentation for high-precision metrology. Known for its Nobel Prize winning optical frequency comb technology, the Munich-based company supplies ultrastable lasers, femtosecond phase stabilization units and a broad spectrum of high-sensitivity ultrastable photodetectors. Contact: Ida Kozma, Head of Sales and Marketing.

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604/733-9006; fax 604/733-3188
sales@lumerical.com; www.lumerical.com

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38 rue de la Station, Franconville, France, F-95130
33 1 3415 2822; fax 33 1 34 15 28 86
mcse95@orange.fr; www.mcse.fr

**Mad City Labs, Inc.**

2524 Todd Drive, Madison, WI, 53713
608/298-0855; fax 608/298-9525
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**Materials Today**

The Blvd, Langford Ln, Oxford, United Kingdom, OX5 1GB
44 1865 843000; fax 44 1865 843971
materialstoday@elsevier.com; www.materialstoday.com

Materials Today is the international review magazine for all researchers with an interest in materials science and technology. Available for free to researchers, it offers the best coverage of fast-moving and emerging topics in advanced materials. Peer-refereed review articles assess the latest findings and examine the future challenges for research. Our news covers significant advances across the whole of materials research. Free subscription, go to http://www.materialstoday.com/register.html. Contact: Helena Stewart, Senior Marketing Manager.

**Menlo Systems GmbH**

Dual femtosecond fiber laser ASOPS system for fast optical sampling.

**Messe Stuttgart**

Am Kochenhof 16, Stuttgart, Germany, 70192
49 711 2589 0; fax 49 711 2589 440
info@messe-stuttgart.de; www.messe-stuttgart.de

New Product: LASYS-systems for laser material processing; MINAT-micro+nano technologies; VISION-machine vision.


**MICOS GmbH**

Freiburger Str 30, Eschbach, Germany, 79427
49 7634 5057 230; fax 49 7634 5057 393
sales@micos-online.com; www.micos.ws

New Product: MICOS is offering new linear and rotary stages with new controllers and piezo components.

MICOS is offering a wide range of positioning systems and optical benches. Linear, rotary and multiaxes stages for standard applications as well as high performance systems can be purchased and custom designed. MICOS is specialized in hexapodic systems especially for telecommunication and optoelectronic. We supply many products to the electronic industry, semiconductor and telecommunication technologies and provide comprehensive customer support, systems integration and after-sale service. Contact: Wolfgang Meienburg, Manager Sales; Maucher, Sales.

**Messe Stuttgart**

New Product: LASYS-systems for laser material processing; MINAT-micro+nano technologies; VISION-machine vision.


**MICOS GmbH**

Piezo based system for nanopositioning in vacuum.
**Exhibition Directory**

**NEYCO**

#212

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+33 14053 0753; fax +33 16053 0752
contact@neyco.fr; www.neyco.fr

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**NIL Technology**

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Bldg 347, Oerstedens Plads, Kongens Lyngby, Denmark, 2800
45 3111 1797; fax 45 7014 1916
contact@nilt.com; www.nilt.com

NIL Technology manufactures and sells stamps for nanoimprint lithography (NIL), provides imprint service, production by NIL, consultancy and enters into joint development of novel applications benefiting from nano-scale structures. Our stamps are engineered to order from customer defined specifications regarding patterns materials and formats. Contact: Lars Hansen, Director of Sales, lars.hansen@nilt.com; Theodor Nielsen, Chief Executive Officer, theodor.nielsen@nilt.com; Brian Bilenberg, Chief Technology Officer, bbl@nilt.com.

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**NP Photonics**

#501

9030 S Rita Rd, Tucson, AZ, 85747
520/799-7496; fax 520/799-7403
info@npphotonics.com; www.npphotonics.com

NP Photonics, a leading fiber laser company, produces and delivers a new class of advanced optical light sources for sensing, medical and R&D markets. The company has developed a broad family of products including Narrow-Line width/low phase noise Fiber Lasers, ASE Sources and High Power Single Frequency Light Sources. Contact: Christine Spiegelberg, spiegelberg@npphotonics.com.

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**NuSil Technology**

#525

2740 route des Crêtes, Sophia Antipolis, CA, France, 06906
+33 (0)4 92 96 93 31; fax +33 (0)4 92 96 06 37
nusil.sophia@nusil.com; www.nusil.com

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**New Focus, Inc.**

#317

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408/919-1500; fax 408/919-1501
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**Newport Spectra-Physics**

#205

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33 1 60 91 68 15; fax 33 1 60 91 68 69
france@newport-fr.com; www.newport.com


Newport Spectra-Physics is a leading global supplier of solution to make, manage and measure light to the semiconductor, communications, electronics, research and life and health sciences markets. Contact: Dalila Ait Amir, Sales Engineer, dalila.altaimir@newport.com; Claude Minard, Sales Engineer, claude.minard@newport.com.

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**Newton 842-PE Handheld Power/Energy Meter.**

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**NEMO (Network of Excellence on Micro-Optics)**

#208

Pleinlaan2, Brussels, Belgium, 1050
0032 2629 3568; fax 0032 2629 3450
info@micro-optics.org; www.micro-optics.org

NEMO (Network of Excellence on Micro-Optics) is a Network of Excellence (NoE) for the micro-optics community. Its mission is to develop and demonstrate the benefits of micro-optics components for the benefit of all stakeholders. The vision of NEMO is that micro-optics is an established discipline that makes a significant contribution to European and world economies.

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#208

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Contact: Nature Publishing Group.

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**Nufern**

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7 Airport Park Rd, East Granby, CT, 06026
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info@nufern.com; www.nufern.com

Nufern® is a leading U.S. manufacturer of specialty optical fibers, fiber lasers and amplifiers serving diverse markets. Current products include over 300 standard fibers and range from sub-assemblies to complete turn-key fiber lasers and amplifiers. From its headquarters in East Granby, Conn., USA, Nufern’s integrated fiber and fiber laser teams also provide rapid and cost-effective OEM fiber laser design, assembly and contract manufacturing services. Contact: Kristoff Felisik, Director of Sales-Europe, kfelisik@nufern.com; Andrej Szkotnicki, Sales Representative, askotnicki@nufern.com.

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**NP Photonics**

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7 Airport Park Rd, East Granby, CT, 06026
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NP Photonics is a leading fiber laser company, produces and delivers a new class of advanced optical light sources for sensing, medical and R&D markets. The company has developed a broad family of products including Narrow-Line width/low phase noise Fiber Lasers, ASE Sources and High Power Single Frequency Light Sources. Contact: Christine Spiegelberg, spiegelberg@npphotonics.com.

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Bldg 347, Oerstedens Plads, Kongens Lyngby, Denmark, 2800
45 3111 1797; fax 45 7014 1916
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NIL Technology manufactures and sells stamps for nanoimprint lithography (NIL), provides imprint service, production by NIL, consultancy and enters into joint development of novel applications benefiting from nano-scale structures. Our stamps are engineered to order from customer defined specifications regarding patterns materials and formats. Contact: Lars Hansen, Director of Sales, lars.hansen@nilt.com; Theodor Nielsen, Chief Executive Officer, theodor.nielsen@nilt.com, www.nilt.com.; Brian Bilenberg, Chief Technology Officer, bbl@nilt.com.

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**NuSil Technology**

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9030 S Rita Rd, Tucson, AZ, 85747
520/799-7496; fax 520/799-7403
info@nssilicon.com; www.nusil.com

NuSil Silicones is a leading U.S. manufacturer of specialty silicones for high performance applications in the electronics, medical and aerospace industries. NuSil products include adhesives, potting compounds, encapsulants, sealants, plastics, and other specialty products. NuSil’s broad range of products is designed to meet the needs of today’s demanding electronics and medical industries.

Contact: Isabelle Richardt.
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sales@oceanoptics.com; www.oceanoptics.com

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The new Jaz (onboard processor & display) and Maya (with back-thinned detectors).

**OLLA Project**  
Philpastrasse 8 (PVI.538), Aachen, Germany, 52068  
+49 241 539 3161; fax +49 241 539 2399  
visser@olla-project.org; www.olla-project.org

**Omega Optical, Inc.**  
Delta Campus, Omega Drive, Brattleboro, VT, 05301  
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Omega Optical offers standard and custom optical filters. The extensive range of products includes bandpass, longpass/shortpass, rejection bands, dichroic beamsplitters/mirrors, neutral density, laser line, analytical, astronomy and fluorescence filters. Omega Optical adds in Dual Magnetron Reactive Sputtering coating capability to satisfy requirements for high-performance surface coatings. Contact: Ruth Gorham-Houle, Vice President of Business Development, rgorham@omegafilters.com.

**OpTIC**  
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Specializing in developing and formulating lapping/polishing consumables and machinery for glass, plastic, crystals, infrared, semiconductor, electro, laser and fiber optics. Including high precision polishing pads and compounds, ultra-pure alumina, diamond powders and water-based nano-sized alpha alumina diamond slurries, precision optical pitch and new Synthetic Pitch, plus wide assortment of waxes and cements and more. Contact: Dave Keller, Vice President European Operations/Sales, davek@universalphotonics.com; Justin Mahanna, Director Field Application Engineering, justinm@universalphotonics.com.

VTT Technical Research Centre of Finland #129
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VTT is an impartial expert organisation developing technologies, creating innovations and bringing added value to products. With the know how together with global networking, VTT produces R&D services to industry and organisations. VTT promotes the realisation of innovative solutions and growing new businesses. VTT is focusing on the fabrication and integration methods of electronics and optics as well as development of optical instruments. Contact: Pentti Karioja, Research Professor, pentti.karioja@vtt.fi; Mikko Karppinen, Team leader, mikko.karppinen@vtt.fi.

Wiley-VCH GmbH & Co. KGaA #523
Boschstr 12, Weinheim, Germany, 69469
49 6201 606 555; fax 49 6201 606 100
info@wiley-vch.de; www.wiley-vch.de
New Product: XVL-1.06-Q-5HG: Reliable 213nm q-switched high repetition rate q-switched laser with 100mW power.

Xiton Photonics produces high beam quality q-switched kHz repetition rate laser systems for science and industry. Our competence is especially the nonlinear frequency conversion to generate powerful fixed and tunable laser light in the wavelength range between 4, 5µm-200nm. Contact: Juergen Bartschke, Chief Executive Officer.

213nm XVL-1.06-Q-5HG. Reliable industry proven DPSS lasers at various wavelengths are offered by Xiton Photonics GmbH, Germany.

Microscope Calibration Standard with 100nm Dot Pitch.
Corporate members as of 11 February 2008

3DIcon Corp.
4D Technology Corp.
A&I Ltd.
A*STAR Institute for Infocomm Research/A*STR/Kent Ridge
ABET Technologies, Inc.
AcuityLight Corp.
Adimec Electronic Imaging, Inc./North America
Advanced Optowave Corp.
Aerotech, Inc./World Headquarters
AF Optical Inc.
AFL Telecommunications LLC/Corporate
AgilOptics, Inc.
Alfalight, Inc.
ALIO Industries
Alpion Corp.
Alpine Research Optics Corp./Headquarters
Alson E. Hatheway, Inc.
Altos Photonics, Inc.
Amplex Data Systems Corp.
Amplitude Laser
Andor Technology plc/North American Office
Apollo Instruments, Inc.
Applied Image, Inc./Imaging Division
Applied Photonics, Inc.
Archer OptX, Inc.
Arden Photonics Ltd.
Arroyo Instruments
Asahi Spectra USA Inc.
ASD Inc.
ASML US, Inc.
asphericon GmbH
Avantes, Inc./Avantes USA
Avo Photonics, Inc.
Axsys Technologies, Inc./Imaging Systems
Ayase America Inc.
AZ Electronic Materials USA Corp./USA Corp.
Azure Photonics Co.
B&W Tek Inc.
Barr Associates, Inc.
BaySpec, Inc.
Beamtech Optopics Co. Ltd.
Berliner Glas U.S.
Blue Ridge Optics LLC
Boston Applied Technologies, Inc.
Boston Micromachines Corp.
Breault Research Organization, Inc.
Brewer Science, Inc./North America Headquarters
Brighten Optics Ltd.
Bristol Instruments, Inc.
Cabot Microelectronics Corp.
Cadence Design Systems, Inc./DFM Division
Calmar Optom Inc.
Cambridge Research & Instrumentation, Inc./Headquarters
Cambridge Technology, Inc.
Canon U.S.A., Inc./Semiconductor Equipment Div
Carl Zeiss, Inc./Camera Lens Div.
Cascade Optical Corp.
Cascade Technologies Ltd.
Central Electronics Engineering Research Institute/CEERI, Ctr
Central Research Institute Cyclone
CeramOptec Industries, Inc./bioletec Div/USA
China Daheang Group, Inc.
Chroma Technology Corp.
Chroma Technology GmbH
CI Systems, Inc./California Office/Simi Valley
Coastal Optical Systems, Inc./Production/Shop
Coherent, Inc./Corporate Headquarters
College of Optical Sciences/The Univ. of Arizona
Continuum, Inc.
Contrast Optical Design & Engineering, Inc.
CorActive High-Tech Inc.
Cristal Laser S.A.
CrystalLaser
Cytantek Corp.
DataRay Inc.
Davidson Optronics Inc.
Del Mar Photonics, Inc.
Deposition Sciences, Inc.
Diemat, Inc.
Digilab, Inc./Spectroscopy Div
DILAS Inc.
Directed Perception, Inc.
Doctor Optics Inc.
Dongjin Semichem Co., Ltd./Electronic Materials Div
dopa Diamond Tools
DRS Technologies, Inc.
Dyna Technologies, Inc.
Edmund Optics Inc./Main Office
EKSPLA UAB
Electro-Optical Imaging, Inc.
Elite Engineering Corp.
Elliot Scientific Ltd.
EM4, Inc.
Engineering Synthesis Design, Inc.
ET Precision Optics Inc.
Even Systems
Excell Technology
Fairfield Crystal Technology, LLC
Femtochrome Research, Inc.
FerntoLasers, Inc.
Fiberguide Industries, Inc.
Fibertech Optica, Inc.
Fibre Photonics Ltd.
Firebird Technologies Inc.
Flexible Optical B.V.
FLIR Systems, Inc./Boston Division
FOCtek Photonics, Inc.
Foreal Spectrum, Inc.
Frankfurt Laser Co.
Fresnel Technologies Inc.
GE Fanuc Intelligent Platforms
General Atomics/Photonics Div
Gentec Electro-Optics Inc.
Gist Optics Co., Ltd.
Glass Fab, Inc.
Goodrich Corp./Optical & Space Systems Div
GrinTech GmbH
G-S PLASTIC OPTICS/A Germanow-Simon Co.
GS1 Group Inc./Corporate Office-Mfg. Ctr.
Guangdong Precision Industrial Co., Ltd.
Halbo Optics Ltd.
Hamamatsu Corp.
Hangzhou Yongying Optics & Electronic Co., Ltd.
Hardin Optical Co.
Headwall Photonics Inc.
Heidelberg Instruments Inc./Service USA
Heliot USA, Inc.
High Plains Optics, Inc.
Hinds Instruments, Inc.
Hitachi High Technologies America, Inc./Electron Microscope Div/Headquarters
HOLLEYE Photonics AG
HORIBA Jobin Yvon Inc./OEM Div
Image Engineering
Imperx Inc.
IMPEX High-Tech GmbH
IMRA America, Inc./Headquarters & Research Facility
## Product Categories

### Abrasives, Chemicals & Process Materials
- NEYCO
- Thales Laser
- Universal Photonics, Inc.

### Astronomy
- Epner Technology, Inc.
- Flexible Optical BV
- FRAMOS GmbH
- Frank Optic Products GmbH
- OptiGrate
- Photon Cleaning Technologies
- Spacelight SRL
- SphereOptics GmbH

### Cameras and CCD Components
- FRAMOS GmbH
- Hamamatsu
- Kimoga Material Technology Co., Ltd.
- Optronis GmbH
- Photon Cleaning Technologies
- SphereOptics GmbH
- Spiricon GmbH

### Clinical, Chemical and Biological Instrumentation
- Fibertech Optica

### Communications
- DRAKA
- Fraunhofer Heinrich Hertz Institut
- International Society for Stereology
- OptiGrate
- RSsoft Design Group
- Spectroscopy Magazine

### Displays
- Breaull Research Organization
- Fraunhofer Heinrich Hertz Institut
- OpTIC

### Distributor or Reseller
- AHF analysentechnik AG
- FRAMOS GmbH
- GWU-Lasertechnik GmbH
- Opton Laser International
- TSP Diffusion

### Electron-Beam Lithography
- XLITH GmbH

### Electronic Imaging Components, Equipment, Systems
- SEMELAB PLC

### Fiber Optic Components, Equipment, Systems
- Avantes
- Crystal Fibre
- DRAKA
- Frank Optic Products GmbH
- iXFiber
- LINOS Photonics France
- Litolite
- Newport Spectra-Physics
- Ocean Optics
- Santec Europe Ltd.
- Sill Optics GmbH & Co., KG
- Thorlabs GmbH
- Unice E-O Services Inc.

### Finished Optics, Filters, & Coatings, Optical Fabrication Equipment
- AHF analysentechnik AG
- CVI Melles Griot Ltd.
- EKSPLA Co.
- Epner Technology, Inc.
- KERDRY
- Kimoga Material Technology Co., Ltd.
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- LINOS Photonics France
- Omega Optical, Inc.
- OptiGrate
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### High Speed Imaging and Sensing
- Hamamatsu
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- Optronis GmbH
- Santec Europe Ltd.
- Scientec

### Illumination Engineering
- Sill Optics GmbH & Co., KG

### Infrared Sources, Detectors, Systems
- Alcatel Thales III V Lab
- EPIC: European Photonics Industry Consortium
- Epner Technology, Inc.
- ET Enterprises Ltd
- Fraunhofer Heinrich Hertz Institut id Quantique SA
- Institut d’Optique Graduate School
- Laser Components GmbH
- SphereOptics GmbH
- ZODIAC

### Lasers and Other Light Sources, Laser Accessories, Laser Systems
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- Alcatel Thales III V Lab
- Crystal Fibre
- CVI Melles Griot Ltd.
- EKSPLA Co.
- EPIC: European Photonics Industry Consortium
- Frank Optic Products GmbH
- Fraunhofer Heinrich Hertz Institut
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- Institut d’Optique Graduate School
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- SEMELAB PLC
- Sill Optics GmbH & Co., KG
- Thales Laser
- Xiton Photonics GmbH
- XLITH GmbH
- ZODIAC

### Law Enforcement Technologies
- Photon Cleaning Technologies

### Life Sciences
- AHF analysentechnik AG
- ET Enterprises Ltd
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- International Society for Stereology
- Optronis GmbH
- Royal Society of Chemistry
- Spacelight SRL

### Metrology, Inspection and Process Control
- Fibertech Optica
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- Institut d’Optique Graduate School
- Loyalite
- Melo Systems GmbH
- Ocean Optics
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- Spacelight SRL

### Nanotechnology
- CEDRAT Technologies
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- ePIXnet
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- Photonic Cleaning Technologies
- Quantel
- Royal Society of Chemistry
- RSsoft Design Group
- RSsoft Design Group
- Scientec
- Springer
- XLITH GmbH

### Non-Optical Lithography
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### Optical Components
- AHF analysentechnik AG
- Conerefringent Optics SL
- Crystal Fibre
- CVI Melles Griot Ltd.
- EKSPLA Co.
- EPIC: European Photonics Industry Consortium
- ePIXnet
- Epner Technology, Inc.
- ET Enterprises Ltd
- Flexible Optical BV
- FRAMOS GmbH
- Frank Optic Products GmbH
- Fraunhofer Heinrich Hertz Institut
- Fujian CASTECH Crystals, Inc.
- GWU-Lasertechnik GmbH
- HC Photonics Corp
- IMPEX HighTech
- iXFiber
- Kimoga Material Technology Co., Ltd.
- Laser Components GmbH
- Laser Zentrum Hannover e.V. (LZH)
- LEONI Fiber Optics GmbH
- LINOS Photonics France
- Loyalite
- Newport Spectra-Physics
- Omega Optical, Inc.
- OptiGrate
- Opton Laser International
- Raicol Crystals Ltd.
- Santec Europe Ltd.
- SEMELAB PLC
- Sill Optics GmbH & Co., KG
- Thales Laser
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- XLITH GmbH
- ZODIAC

### Optical Detectors
- ET Enterprises Ltd
- Hamamatsu
- id Quantique SA
- Institut d’Optique Graduate School
- Melo Systems GmbH
- Newport Spectra-Physics
- Ocean Optics
- RSsoft Design Group
- SEMELAB PLC
- Spiricon GmbH
Optical Fibers
Crystal Fibre
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Fibercore Ltd.
Fibertech Optica
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Laser Components GmbH
LEONI Fiber Optics GmbH
Ocean Optics
Sill Optics GmbH & Co., KG
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Optical Materials and Substrates
Alcatel Thales III V Lab
Brush Ceramic Products
CVI Melles Griot Ltd.
EKSPLA Co.
EPIC: European Photonics Industry Consortium
Fujian CASTECH Crystals, Inc.
GVU-Lasers Technik GmbH
HC Photonics Corp
Kimoga Material Technology Co., Ltd.
NEYCO
Raicol Crystals Ltd.
RSF Soft Design Group
RSP Technology BV
SphereOptics GmbH
Springer

Optical Test and Measurement Equipment, Interferometer
Avantes
Flexible Optical BV
Institut d’Optique Graduate School
MICOS GmbH
Opton Laser International
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Santec Europe Ltd.
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