

### More R&D Investment Needed for a Competitive European Industry

#### Editorial by Professor Jan Misiewicz

The Wrocław University of Technology through its Centre for Advanced Materials and Nanotechnology joined EPIC in 2004. Shortly afterwards EPIC proposed to us a collaboration to organize a symposium on photonics technologies in a new EU-member state. Wrocław was a good choice for this meeting because it is the leading city in Europe for both economic growth and creation of employment, much of it in the high-tech sector. Working with EPIC made all the difference between producing a small conference of regional interest and an international symposium that addressed each of the 7 pillars of Photonics21 Technology Platform. I am convinced that the scientific presentations made at the Wrocław Symposium which took place 12-14 October will have a positive effect on the quality and strength of photonics projects in FP-7.

Professor Jerzy Buzek, (Member of European Parliament and former Prime Minister of Poland) addressed the Symposium on the critical challenge to restore the competitiveness of Europe's industries and universities. For me it was a high point of the conference. Buzek (MEP, Committee on Industry, Research and Energy) was responsible in EU Parliament for negotiating a stronger budget for R&D in the 7th European Framework Programme.



Dr. Jerzy Buzek during his conference in Wrocław

Prof. Buzek emphasized that Europe is lagging dangerously behind the United States and Asia in its investment in R&D. The Dept. of Trade and Industry in the UK has recently published its R&D Scoreboard for 2006. In this report we can see that Samsung invests more in R&D on an annual basis than the entire European Commission!

Prof. Buzek also underlined the role of photonics as one of the 3 pillars of information & communications technologies, as well as for its role in biology and health-related sciences, showing where his committee in Parliament has introduced successfully specific amendments to support optics, nano-optics and photonics. Dr. Buzek elaborated on the availability of structural funds to enhance innovation and of new initiatives to facilitate the participation of SMEs. The "Knowledge Society" is based on the triangle of education-research-innovation. Dr. Buzek proposed linking research to technological innovation by developing industrial R&D centers, technology parks, technology incubators, and the creation of spin-offs. The Photonics Platform and FP-7 may offer an effective way to reach these objectives. I urge you to read through his presentation on the CD-ROM that EPIC has edited for this meeting.



Professor Jan Misiewicz  
Director of the Centre for Advanced Materials and Nanotechnology  
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[www.zenyo.com](http://www.zenyo.com)

## EPIC New Members

2 new members have recently joined EPIC. We wish them a warm welcome.



### The University of Naples Federico II

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## Members Vote for Workshop Topics 2007

As usual in September, the annual questionnaire regarding the choice of the upcoming workshops to be organised in 2007 was sent out to the EPIC Membership.

The list of suggested topics was the following:

- Photonic Components on Silicon ICs
- Optical interconnects
- InP integrated optical devices
- Photonics for Biology and Medicine / Photonics for the Life Sciences / Photonics for bio photonics based diagnostics
- Sensors for security and biometric identification, etc.
- Manufacturing and packaging of Light Emitting Diodes (everything outside the chip: materials, assembly tools and processes, and thermal management)
- Quantum Cryptography
- Photonic Components for Broadband Communication (follow-up session)
- O-LEDs (follow-up session)
- New laser sources: waveguides and fibers
- New materials for photovoltaic cells (in particular polymers)

When voting closed on October 6, EPIC members indicated a preference for: Photonic Components on Silicon ICs and Manufacturing & Packaging of LEDs.

EPIC presented these results to the Governing Board at the quarterly meeting on November 3, 2006. The Board approved two workshops in 2007. The Workshop on Photonics Components on Silicon ICs will take place during ECOC on September 16-20, 2007 in Berlin. EPIC will also organise a workshop on Manufacturing & Packaging of LEDs in 2007. Date and location still have to be defined.

## Modulight Receives 2006 Frost & Sullivan Award for Product Innovation

Modulight received the Frost & Sullivan's 2006 Award for its innovative approaches and remarkable efforts to develop high- power laser diodes.



According to Frost & Sullivan, the Product Innovation Award "recognizes the company's successful adoption or invention of new technology that has become a part of a well-designed product family. This award also recognizes the company's successful product development strategies and the degree the product has met customer stated needs and requirements. Such innovation is expected to significantly contribute to the industry in terms of market acceptance."

"The selection process included primary participant interviews and/or interviews with end users, distributors, suppliers as well as extensive primary and secondary research via the bottom-up approach. Companies' products were analyzed based on the degree of innovation, the estimated market penetration rate, and the acceptance of the product by intended end users. Industry participants were ranked and the top performing company was chosen for the award."

"We are very honoured to receive this recognition from a top-tier market profiler like Frost & Sullivan. This award is a clear sign that Modulight has gained in the last year more recognition as an important player in the high-power lasers market. It is a confirmation of the successful strategy changes we pursued over the last two years", says Dr. Petteri Uusimaa, President & CEO of Modulight.

More information: [www.modulight.com](http://www.modulight.com) and [www.frost.com](http://www.frost.com)  
Contact: Dr. Petteri Uusimaa: [peteri.uusimaa@modulight.com](mailto:peteri.uusimaa@modulight.com)

## ASML to Deliver Advanced Resolution Techniques to SEMATECH for Manufacturing Research

ASML Holding NV announced that semiconductor R&D consortium SEMATECH has



awarded ASML a contract to qualify the imaging performance of advanced logic patterns, metrology structures and defect designs for the 45-nanometer (nm), 32-nm, and 22-nm technology nodes.

SEMATECH, together with its subsidiary, the International SEMATECH Manufacturing Initiative (ISMI), is creating these advanced designs which will incorporate ASML's resolution enhancement techniques (RETs) in the form of proprietary and patented mask technologies as well as scanner optimization settings. "We're proud that SEMATECH and ISMI chose ASML to participate in developing lithography solutions for advanced manufacturing," said Dinesh Bettadapur, president and CEO, ASML MaskTools. "As a company, we are committed to providing the semiconductor industry with a complete and tightly integrated solutions portfolio as exemplified by our leading edge immersion scanners, innovative mask technologies, and software products for scanner-mask optimization."

ASML will supply advanced RET mask patterns for the SEMATECH design structures and deliver a fully qualified set of masks together with a set of validation wafers. ASML will also develop optimized scanner settings for the mask patterns which will be exposed on a TWINSCAN™ XT:1700i scanner at ASML's demo lab facility in Veldhoven. The company will further assist SEMATECH by measuring the imaging performance of the exposures through SEM measurements and simulations.

For more information: <http://www.asml.com>  
Your contact: Paul Van Dijk - [paul.van.dijk@asml.com](mailto:paul.van.dijk@asml.com)

## IQE Completes Acquisition of EMD

IQE, EPIC member and a leading global outsource supplier of customised wafer products and services, has completed the acquisition of the Electronic Materials Division from EMCORE Corporation Inc.



IQE has acquired the assets and business of EMD for a total of \$16 million. The acquisition has created

the leading global outsource supplier of epitaxial wafers to the wireless market, providing significant opportunities to accelerate sales into existing and new customers by providing the broadest range of current and next generation products.

### Details of the business

EMD provides foundry based production of high performance compound semiconductor electronic epitaxial materials, with a focus on the wireless markets. EMD is based in the US, has approximately 50 employees, ten advanced epitaxial tools and is one of the top five third-party suppliers of epitaxial wafers in the world.

EMD has pursued a similar strategy to that of IQE, in building a strong outsource foundry model for the supply of epi wafers. They have concentrated on HBT based technologies for power amplifier applications, as well as integrated BiFET and GaN structures, and consequently supply a range of highly complementary products to a range of customers different to that of IQE's own customer base.

The acquisition positions IQE as the leading global outsource supplier of current and next generation products into the wireless marketplace including PHEMT, HBT, integrated BiFET and advanced GaN technologies. The Directors believe this will create significant opportunity to grow revenues within existing IQE and EMD customers by offering all major technology platforms to the enlarged customer base, from the largest, state of the art production capacity in the industry.



Dr. Drew Nelson,  
Group CEO

Dr Drew Nelson, President & CEO of IQE plc commented: "We are very happy to have completed this acquisition, which represents a key step forward in IQE's development as the leading outsource wafer supplier worldwide to the global semiconductor industry. The joining of the two companies allows IQE to offer a truly one stop wafer outsource service to its customers, with a complete range of current and next generation products. This transaction assures EMD's current customers that as part of a larger wafer outsource group all the necessary resources are in place to fully support the joint customer base as their wafer demands continue to grow."

For more information: [www.iqep.com](http://www.iqep.com)  
Your contact: Dr. Drew Nelson - [DNelson@IQEP.com](mailto:DNelson@IQEP.com)

## Obducat Granted Key US Patent for Nano Imprint Lithography

EPIC member Obducat has been granted a US patent for its unique Soft Press™ technique which represents an important part of Obducat's technology for nano imprint lithography (NIL). The technique offers performance advantages in comparison with competing techniques such as hard-press-based NIL. One of the main benefits with using the Soft Press™ technique is the high cost-efficiency that can be achieved for pattern replication in high volume manufacturing.



The process enables the customer to obtain very even pressure across surfaces when fabricating structures using the Obducat NIL technology. The Soft Press™ function allows the customer to produce structures in very thin polymer layers. Competing technologies require several additional process steps, which in turn increases the yield loss and thereby manufacturing costs. It is also possible to produce structures with very high density without losing CD (Critical Dimensions) control. The Soft Press™ function also allows for high repeatability of the imprint result, which is of vital importance in industrial manufacturing.

Patrik Lundström, Obducat's CEO, says: "During 2006 we have received patent protection in key markets regarding several core parts of the HVM (High Volume Manufacturing) solution that we are offering to the market. It is clear that the decision we made about one year ago, to request accelerated review process at the different patent offices, is now showing results. This year alone we have been awarded eight new patents. The overall position of our offer to the market and the status of our technology will clearly be further strengthened which is important for the continued commercialisation."

For more information: <http://www.obducat.com/>

Your contact: Frédéric Hervier  
[frederic.hervier@obducat.com](mailto:frederic.hervier@obducat.com)



**The Obducat 2.5- and 3-inch NIL equipment supports R&D work for both industrial and academic users conducting single layer imprinting with any stamp and substrate size up to 3-inch (77 mm) in diameter.**

## SOITEC Breaks Ground on Singapore Fab



Soitec, the world's leading manufacturer of silicon-on-insulator (SOI) wafers and other engineered substrates, today broke ground on its new 300-mm wafer fab in Singapore. The groundbreaking ceremony marked the start of construction at the company's newest state-of-the-art production facility. Designated Fab 3, the facility is expected to start supplying the Group's global customer base with SOI wafers in mid-2008, as it ramps to a final production capacity of one million wafers per year.

Fab 3 is Soitec's first fab in Asia, and is a critical part of the Group's strategic investment plan to expand its worldwide production capacity, enhance its ongoing R&D efforts, and forge closer relationships with its customers worldwide. The total investment in Fab 3 is expected to be approximately 350 million Euros; and when completed, it is anticipated that approximately 500 people will work inside this state-of-the-art facility.

"The construction of this, our newest and most advanced fab, represents the success of our business strategy to drive adoption of SOI and build the production capacity necessary to satisfy growing industry demand," noted Soitec CEO André-Jacques Auberton-Hervé. "The performance and power-usage benefits associated with SOI are enabling a growing number of advanced electronic devices, especially leading-edge consumer digital products that are increasingly manufactured in Asia. With its strategic location in the heart of Asia, this new fab will help us develop even closer working relationships with our growing customer base in the region while also giving us access to the world-class business environment and talented workforce we were seeking in selecting the location of our third production facility."

The Group is also currently expanding the production capacity of its Bernin II Fab in France. Ongoing capacity expansion efforts will open the door to a greater number of integrated device manufacturers, foundries and fabless companies planning to tap the powerful benefits of SOI. Today, approximately 95 percent of all SOI wafers acquired for production are built using Soitec's patented Smart Cut™ process, which is now considered the de facto industry standard due to the quality, productivity and cost effectiveness of this process.

For more information: <http://www.soitec.com/>

Your contacts:

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## CDT Co-Operates in UK DTI-Supported Process Development

### Project will be significant in development of flexible displays

Cambridge Display Technology, EPIC member and a pioneer in the development of polymer light

C | D | T

emitting diode (P-OLED) technology, has begun collaborative work on a metal deposition project which is expected to be important in the field of flexible displays. This is one of a number of projects which CDT expects to be able to announce in the near future which together will make a major contribution to the development of flexible displays.

The project is part-funded by the UK Department of Trade and Industry (DTI), and is an example of the support now being given to UK innovation in key technology areas which have been identified as strategically important - in this case 'plastic electronics'. CDT is involved in a number of calls for participation in advanced display related projects.

This particular project involves the development of a process to deposit high conductivity, very thin metal tracks onto glass and plastic substrates. The process, which is seen as an alternative to conventional inkjet printing methods, involves the use of lasers to expose selected material, and is capable of resolutions of less than 5µm.

Flexible displays are expected to require a technology such as this for the formation of the TFT backplane, and the process under development would be applicable to plasma (PDP) and LCD displays and even organic photovoltaics as well as P-OLEDs.

CDT partners in the project are Conductive Inkjet Technology (CIT), a subsidiary of Carclo plc, a specialist in technical plastic products, and Exitech, supplier of laser processing equipment.

"This interesting project could have important implications for the development of next generation displays", comments Dr David Fyfe, CEO of CDT, "We look forward to being able to announce further activity in the field of flexible displays." CDT expects to be able to report the outcome of this work by mid 2007.

For more information: [www.cdttld.co.uk](http://www.cdttld.co.uk)  
Your contact: Jonathan Halls - [jhalls@cdttld.co.uk](mailto:jhalls@cdttld.co.uk)

## SUSS Starts Exclusive Remanufacturing Business



SUSS MicroTec, a leading supplier of precision manufacturing equipment for the semiconductor and emerging markets and EPIC member, announced that it has started SUSS MicroTec REMAN GmbH, a subsidiary dedicated to the refurbishment, sale and service of used SUSS equipment.

SUSS MicroTec REMAN will ensure that the equipment offered to the market conforms to the quality, accuracy and uniformity standards that SUSS is renowned for. Furthermore they will be responsible for selling spare parts and the after-sale support of the systems sold.

"SUSS stands for high quality both in its new equipment and in its customer support. Our products are however also in high demand by those who due to budget constraints cannot purchase equipment first hand. Generally they have had to buy from dealers without warranty or any kind of service.

With SUSS REMAN these customers have the chance to purchase systems from a source that they can rely on to get the support they need." says Dr. Stefan Schneidewind, CEO of SUSS MicroTec.

Toni Wolejnik heads up the new REMAN team and brings with him over 14 years of experience in the used-equipment market, many of these closely tied to SUSS. "The demand for quality remanufactured SUSS equipment is very great indeed and as such I am confident that the service we provide will make SUSS MicroTec REMAN a highly successful subsidiary of the SUSS Group"

For more information: [www.suss.com](http://www.suss.com)  
Your contact: Fiona Kemp - [f.kemp@suss.de](mailto:f.kemp@suss.de)

## Spectra-Physics develops a laser diode bar with world-record power: ProLite diode laser delivers 714 W of CW output

EPIC member Spectra-Physics has announced 714 W of continuous wavelength operation using its ProLite diode laser. The result was achieved in a non-destructive test with 940 nm diode laser bars that incorporate Spectra Physics' latest epitaxial design and a "start-of-the-art" growth process. "Our diode laser performance has shattered previously recorded data. As well as the output, we have observed peak power conversion efficiency of more than 65% from our diode laser bars," said Franck Leibreich, marketing director at Spectra-Physics. "Even at 714 W efficiency was above 57%. Temperature sensitivity was low: 714 W at 15°C, 702 W at 25°C and 680 W at 35°C."



"Once again Spectra-Physics has achieved a tremendous breakthrough in diode laser performance and has shattered any previous recorded data. We are very excited to announce over 700W of output power and a peak power conversion efficiency of more than 65% from our diode laser bars," said Franck Leibreich, Marketing Director, Spectra-Physics, a Division of Newport.

Leibreich continued, "Because the results of this experiment were limited by the power supply, we have only scratched the surface of the capabilities of our new platform. We look forward to transitioning these new devices to manufacturing."

Spectra-Physics' ProLite diode lasers includes a range of products covering the 780 to 980 nm range. Single emitter and fiber-coupled single emitter lasers typically offer several watts of direct output. Multi-emitter laser bars and fiber-coupled bars enable operation at 10 W and above. The Monsoon stacks provide output from 50 W to the kilowatt range for power intensive applications.

For more information: <http://www.spectra-physics.com/>  
Your contact  
Wolfgang Griess [wolfgang.griess@spectra-physics.com](mailto:wolfgang.griess@spectra-physics.com)



## Intel Sells its Optical Networking Components Business to Cortina Systems

Intel Corporation has announced the sale of product lines and associated assets of Intel's optical-networking components business to Cortina.



Cortina has emerged as a leading supplier of advanced optical communications semiconductor components and systems. The acquisition will give Cortina a large portfolio of enterprise and infrastructure communications products and might position it to become a major competitor to Finisar and Bookham. The sale will enable Intel to focus its investments on its core communications and embedded businesses.

Cortina has purchased a broad selection of Intel's Ethernet Media Access Controllers (MACs) and Physical Layer Devices (PHYs) portfolio, and its entire portfolio Transport and Service Framers, Optical transport Forward Error Correction (FEC) framers, and T1/E1 line interface products. Cortina plans to continue to work closely with Intel as an active member of the Intel® Communications Alliance.

"We're honing Intel's focus in the communications and embedded market segments to

align with our core businesses," said Bill Chatwell, general manager of Intel's Optical-Networking Components Division. "The optical-networking components segment remains a strong market opportunity, and we believe this business and its assets are an optimal fit for Cortina.

Founded in 2001, Cortina is funded by leading private venture capital organizations and is based in Sunnyvale, California. Additional information about Cortina is available at [www.cortina-systems.com](http://www.cortina-systems.com)

## IMEC demonstrates feasibility of double patterning immersion litho for 32nm node

IMEC showed in collaboration with ASML the potential of double patterning 193nm immersion lithography at 1.2NA for 32nm node Flash and logic.



These results prove that double patterning might be an intermediate solution before extreme ultraviolet (EUV) lithography and very high NA (beyond water) 193nm immersion lithography will be ready for production. Meanwhile, installation of both ASML's XT:1700i immersion scanner and EUV alpha demo tool (ADT) runs at full speed in IMEC's 300mm clean room.

The very promising double patterning results were obtained by splitting gate levels of 32nm half pitch Flash cells as well as logic cells in two complementary designs. The splitting was done automatically using software from EDA partners in IMEC's lithography program. After splitting, both designs received optical proximity corrections (OPC) and a classical lithography approach "litho-etch-litho-etch" was performed. Exposures of both lithography steps have been carried out on a XT:1700i at ASML.

These results prove that the XT:1700i 193nm immersion tool, which has a maximum NA of 1.2, can be extended beyond the 45nm node. Since both hyper NA 193nm immersion lithography using high-index liquids and EUV still require a lot of research, IC manufacturers welcome double patterning as a solution to continue their research on material integration for the 32nm node.

During the last week of September, the ASML XT:1700i was delivered at IMEC and is currently being installed around the clock. The XT:1700i system is expected to pass the site acceptance tests by the end of the month and will be the workhorse for the double patterning work at IMEC. Future research on double patterning will focus on improving the overlay to make it a reproducible process.

Although quite some development is required to bring EUV production ready, EUV lithography is the preferred option for many companies for the 32nm half pitch node due to its extendibility to 22nm and beyond. Since the arrival of ASML's EUV advanced

demo tool (ADT) mid August, significant progress has been made in the installation. Integration of the system (including the projection optics box of Carl Zeiss and the EUV light source of Philips Extreme UV) has started and will continue over the next months. During and after this period, ASML will work on the verification and qualification of the various sub-modules in the tool. Also the TEL Clean Track Act12, connected to the EUV tool, is under installation.

"We are very pleased with the progress that we've made the last months both on immersion and EUV lithography," said Luc Van den hove, Vice President Silicon Process and Device Technology at IMEC. "We are convinced that our advanced lithography program will offer our partners early lithography solutions to continue CMOS scaling beyond 32nm."

More information:

[http://www.imec.be/ovinter/static\\_general/start\\_en.shtml](http://www.imec.be/ovinter/static_general/start_en.shtml)

Your contact:

Peter Van Daele – [peter.vandaele@intec.UGent.be](mailto:peter.vandaele@intec.UGent.be)

## Industrial Research: Three EPIC members in the top-fifty world-wide

The European Commission has released a report tracking investment by industry world-wide in research and development. EPIC members Siemens-Osram (n° 8), Ericsson (n° 28), Philips (n° 35) and Alcatel (n° 49) are among the top fifty companies world-wide. In addition, the R&D budget at Alcatel grew by more than 15% in 2006, putting the company in the top-ten for the fastest growth in R&D investment. The average increase in R&D budget for 1000 European countries was 5.3% last year.

The list is headed by automotive and pharmaceutical companies. All in all, there are 18 European companies in this list, in a draw with the USA. A complete graphic chart of the results can be found at [www.lesechos.fr/documents](http://www.lesechos.fr/documents)

Commissioner Janez Potocnik, who introduced the report, emphasized however that the overall level of investment in R&D in Europe remains close to 2% of Gross Domestic Product, far below the Lisbon objective of 3%.

For more information: <http://www.epic-assoc.com>

Your contact: Tom Pearsall - [pearsall@epic-assoc.com](mailto:pearsall@epic-assoc.com)

# Workshops



## OPERA-2015 Symposium on Photonics Technologies for Framework Programme 7 – Wroclaw, October 12-14, 2006

After a year of planning, the OPERA-2015 Symposium on Photonics Technologies for the Framework Programme 7 took place in Wroclaw, Poland. More than 200 scientists came from 18 European countries as well as from Japan, Israel, Canada and Australia. In total there were 16 plenary talks, 99 invited and contributed presentations as well as more than 70 posters. These scientists presented results concerning the laser structures based on quantum dots, application of nanocrystals, organic materials, the hottest topics in nitrides, new optical instrumentation and



techniques, sensors, detectors, new optical fiber solutions, and new trends in the life sciences. The European Programme OPERA-2015 seeks to build a bridge between optics and photonics activities in the 6th Framework Programme and R&D in the new era of the Photonics Technology Platform, Photonics21, a leading European initiative for Framework Programme 7. The objective of this symposium is to stimulate interaction of European Research and Industry in Optics and Photonics and to develop and implement a joint strategy for research. The symposium was organized by EPIC and the academic staff from the Wroclaw University of Technology led by Prof. W. Urbańczyk.

A large and international audience attended a very rich 3-day program including following presentations:

### Thursday, October 12, 2006

Advanced Photonics for the 21st century  
**Y. Arakawa**, University of Tokyo, Japan

Developments and challenges in optoelectronics for next generation telecommunications networks  
**M. J. Wale**, Bookham Technology, UK

Photonics devices based on semiconductors quantum dots  
**Dr. A. Forchel**, Universität Würzburg, Germany

CVD for inorganic and organic technology in mass production  
**F. Schulte**, Europe Corporate Research & Development, AIXTRON AG, Aachen, Germany

Photonics at work in Framework Programme 7  
**R. Burgess**, European Commission, Brussels, Belgium

Renewed perspectives in molecular photonics at the micro- and nano-scales  
**J. Zyss**, Ecole Normale Supérieure de Cachan, France

Fast and sensitive long wavelength photodetectors operating without cryocooling  
**J. Piotrowski**, Vigo System, Warsaw, Poland

Laser microbeams as versatile tools for the isolation and manipulation of cells  
**K. Schütze**, P.A.L.M. Microlaser GmbH Bernried, Germany

### Friday, October 13, 2006

High-power fiber-based sources – recent progress and future directions  
**A. Clarkson**, Optoelectronics Research Centre University of Southampton, UK

Recent progress in technology of photonic crystal devices and circuits  
**N. Johnson**, Department of Electronics & Electrical Engineering, University of Glasgow, UK

Femtosecond laser frequency combs and precision spectroscopy  
**T. Udem**, Max-Planck-Institute of Quantum Optics, Garching, Germany

Photonic crystal fibres: keeping a tight focus on light  
**Ph. S. J. Russell**, University of Erlangen-Nuremberg, Germany

### Saturday, October 14, 2006

Welcome address  
**T. Luty**, Rector of Wroclaw University of Technology

Strengthening European competitiveness in Hi-Tech domain  
**J. Buzek**, European Parliament, Committee on Industry, Research and Energy

LEDs for general lighting applications?  
**K. Brunner**, CTO-Office, Philips Lighting, Eindhoven, The Netherlands

Holographic data storage by nanostructured gratings  
**H. J. Eichler**, Optical Institute, Technical University, Berlin, Germany

Role of dislocation free GaN substrates in blue optoelectronics  
**S. Porowski**, Institute of High Pressure Physics, Polish Academy of Sciences, Warsaw, Poland



A CD-Rom including all presentations, has been produced and sent to all EPIC Members.

<< Some of the speakers and participants at OPERA-2015 Symposium in Wroclaw

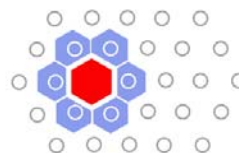


**MONA exhibits at OPTO 2006**

The European project MONA (Merging Optics with Nanotechnologies) had a booth at OPTO 2006 in Paris from October 16-19, 2006. The main goal was to inform a large audience about the progress of the MONA project and the upcoming MONA Symposium and Workshop II to be held at MINATEC in Grenoble on November 28-29, 2006. With 200 exhibitors, more than 4000 visitors and 600 delegates, OPTO 2006 was a great success.



Within the conference program of the European Optical Society (EOS) which has been held alongside the OPTO exhibition in Paris, Krassimir Krastev, Optics-Valley, as a partner of the MONA project, made a presentation about MONA, Merging Optics and Nanotechnologies in FP-7: the Nanophotonics Technology Roadmap.



**MONA**  
Merging Optics & Nanotechnologies

## Workshop on “Design & Manufacturing of Optical Components and Hardware: Do we Need it in Europe?” at ECOC 2006

The workshop “Design and Manufacturing of Optical Components and Hardware: Do we Need it in Europe?” was organized jointly by Tom Pearsall, EPIC and Lars Thylén, KTH Royal Institute of Technology. It took place on Sunday, September 24, 2006 at the ECOC conference in Cannes and was characterised by strong attendance and enthusiastic audience participation.



The working group WG6 of the newly-established Photonics Technology Photonics21 focusing on design and manufacture of photonics components organized this conference in order to treat a number of issues raised from the significant changes that have taken place in recent years, regarding the fabrication of photonic hardware components in Europe.

The programme was a mixture of invited presentations mostly by industry players and discussions with the attendees who had been invited to interact after each topic and who contributed to the lively and open exchanges which took place during this workshop.



The Palais des Festivals in Cannes where the workshop took place

### Welcome and Introduction

T. Pearsall, EPIC, France  
L. Thylén, KTH, Sweden

### Research and Development: is it a sustainable and viable scheme to perform R&D and design in Europe and fabrication in low-cost countries?

- Manufacturing rules - Dr. Martin Schell, Heinrich-Hertz-Institut Berlin, Germany

### Foundries for Materials, Device Processing or Packaging: is it desirable and possible to operate hardware foundries in Europe, based on standardized processes, at constant deficit, so that clusters of surrounding companies may utilize them make it into an overall profitable situation for the EU?

- Foundries for Materials, Device Processing and Packaging - Michael D. Scott, IQE Cardiff, United Kingdom  
- Foundries for Components - Dr. John J.E. Reid, CEDOVA Eindhoven, The Netherlands  
- Foundry Initiatives USA - Michael Lebby, OIDA, USA

### Off-shoring and Out-sourcing: can outsourcing to low-labour-cost areas be used as part of a profitable manufacturing process for photonics components and systems in Europe?

- Economics of Offshoring - Thomas Meyer, Deutsche Bank Research Frankfurt, Germany  
- Manufacturing in Europe - Dr. Thomas Manth, Global Light Industries GmbH Kamp-Lintfort, Germany

### What are Photonics Components Worth, Anyway? When will photonics components become a commodity item?

- When will photonic components become a commodity item? – Dr. Mike Wale, Bookham Technologies Towcester, United Kingdom
- Commodity components: a Must - Dr. Dag Wagner, Schefenacker Vision Systems Schwaikheim, Germany



The programme has been edited, and the CD-ROM including all the presentations has been sent to all EPIC members.



Dag Wagner



John Reid



Lars Thylén



Martin Schell



Michael Lebby



Mike Scott



Mike Wale



Thomas Meyer



Thomas Manth



Tom Pearsall