
2011
ANNUAL REPORT
EPIC-ASSOC
EPIC
European Photonics
Industry Consortium

TABLE OF CONTENTS

EPIC priorities and challenges for 2012

Dr. Drew Nelson, President

Photonics manufacturing in Europe was a 62 billion euro business in 2011. EPIC members were leaders in the development of the photonics economy. Here is a summary of the events that marked the past year:

- Optical communications
  Laser revenues rose overall by 7% to 2.2 billion euro, but the floods in Thailand hurt earnings. EPIC member Oclaro is merging with Opnext.

- Lasers for manufacturing
  The world-wide laser market grew by 14% in 2011 to 5.8 billion euro. EPIC member Rofin saw revenues grow by 41%.

- LEDs for lighting
  LED chip revenues rose by 7% in 2011 to 9 billion euro. Unit prices declined by 45%, and massive capital investment is needed to keep revenues constant. LED-related revenues for EPIC member Philips topped 900 million euros.

- Photovoltaics
  27.4 GWatts of PV generation capacity were installed world-wide, half of it in Europe. This is an increase of 38% from 2010 when 17.5 GWatts were installed. Germany continued to lead with 7.5 GWatts installed.

The Photonics Public Private Partnership will be an important resource for EPIC members for building business and business relationships. I am pleased to report that EPIC is working with the Executive Board of Photonics21 to help make this initiative a success. We will continue the value-chain mapping that we started this year. The results will make an important contribution to the terms of reference of the PPP.

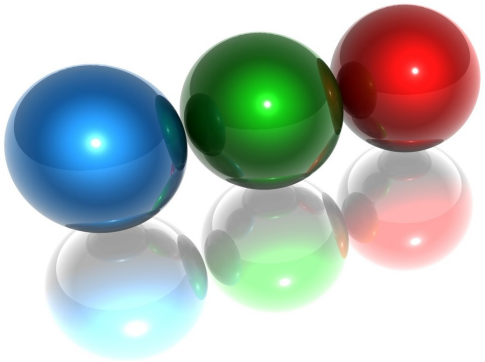
REACH is the European Community Regulation on chemicals and their safe use. EPIC supports this initiative. Recommendations on use and restrictions should be based on scientific evaluations that measure the effect of the actual chemical under consideration. In 2011, EPIC has registered as a stakeholder with ECHA, the European Chemicals Agency. EPIC represents its members on classification hearings being carried out by ECHA for the REACH directive. Every material used in photonics, including gallium nitride and organics used in solid-state lighting, gallium arsenide, used for PV and lasers, will be examined by ECHA. Working together as a group, the Photonics community can assure the minimum negative impact of REACH regulation, while assuring a safe, risk-free and competitive manufacturing environment. We will keep our members informed about the on-going situation concerning GaAs and InP, as well as the opening of new cases involving other important chemicals and compounds used in photonics.

At the end of this year, Tom Pearsall will complete his tenure as Secretary General. Tom developed EPIC from an idea to Europe's leading photonics associations, and an influential industry leader world-wide. He leaves EPIC in strong financial condition and in good hands for the future. EPIC members participated at every level of the recruiting process for Tom's successor which was planned over two years and completed as planned. Carlos Lee is designated as EPIC's new Director General, and took office on 18 April 2012. I look forward to supporting Carlos as he leads EPIC into its 10th year of operations.

Dr. Drew Nelson, President of EPIC

REPORT OF THE SECRETARY GENERAL

by Thomas P. Pearsall



EPIC Members in 2011
In 2011, EPIC membership included 80 voting member organizations. Through our members we maintain direct communication with more than 550 member employees, our associate members. The EPIC extranet gives each of these associates direct access to our considerable and growing library of reports, market studies and proceedings of key conferences and workshops.

During 2010, EPIC worked with member PERFOS in France to develop a plan to grow from a technology platform into an industry cluster. In 2011, we were pleased to see that this plan was accepted and funded by the French government, creating Photonics-Bretagne.

In 2011, several EPIC-member companies were successful in raising significant investment funds, demonstrating the growing value of companies exploiting photonics technologies in Europe. EPIC is actively working on the next edition of Invest in Photonics, which brings together growing SMEs and the investment community, to be held in Bordeaux at the end of 2012.

Building revenues for members
EPIC was pleased to announce at its annual meeting in Brussels that EPIC-led programmes returned more than 2.2 million euros in direct benefits to our members. This return is 10 times the amount of all the membership dues paid in 2010. Twenty-five EPIC member companies benefit directly from participation in European projects that EPIC has organised.

Building cooperation with regional photonics clusters, EPIC implemented business-to-business (B2B) roundtables in photonics sensors. This B2B roundtable promotes business development by bringing together technology innovators and large-company integrators. During the past year, B2B meetings were held in Edinburgh, UK and Tallinn, Estonia.

Photonics Public-Private Partnership
In 2011, the Commission proposed to the Photonics21 platform the concept of a public-private partnership (PPP) to be implemented in the next framework programme Horizon 2020. The PPP, if approved, would earmark significant additional funding for photonics innovation, helping to convert advanced technology to commercial products. The Commission will require significant matching funds of at least 5-times public funding. EPIC has worked during the last year to develop the Key Performance Indicators that will measure industry co-investment.

New Business Partnerships
EPIC has focused on proposing and building bi-lateral business collaborations for its members. In 2011, we created discussions leading to serious negotiations involving 4 EPIC members, representing large and established companies as well as SMEs. Of course the details must remain confidential, but with some successes in hand we can expand this service to members.

Passing the torch
This report marks the completion of my term as Secretary-General. In 2011, EPIC, with the help of its members completed a 2-year search for my successor. Carlos Lee, formerly Director of SEMI Europe will lead EPIC as your Director-General.

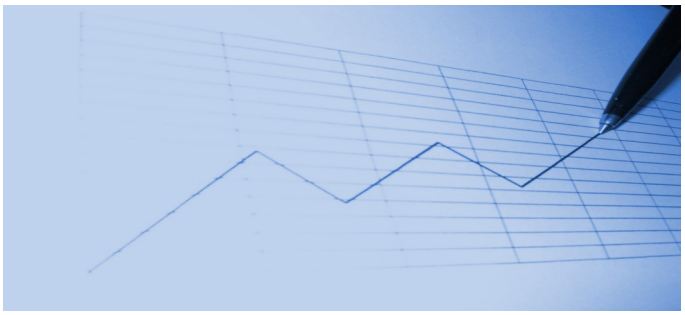
During the past 8 years, thanks to your support and active collaboration, EPIC has been able to focus on interesting and revolutionary initiatives.

- We introduced photonics as a strategic technology to the European Commission
- We asked the Commission for a technology platform, and we all worked hard and continue to work hard to make this a functioning reality
- We develop and distribute key studies and information about photonics technologies and markets
- We have proposed and developed many initiatives to support SMEs, including the ACCORD – NEXPRESSO programme that a number of our members have benefited from. In these programmes we introduced the idea of the «Valley of Death» the no-funding zone that innovation has to cross to achieve commercial exploitation.

I take a certain satisfaction that we have delivered all these initiatives on-time and on-budget.

EPIC started as an idea in 2002
Thanks to the faith and effort of its members, EPIC has become an important force of ideas that have put photonics on the map of Europe's key technologies. EPIC will grow and prosper because it is based on the shared commitment and ownership of the photonics community. Vision and energy will ensure that EPIC continues to serve the photonics community in Europe and around the world. I am pleased to hand the leadership of EPIC to Carlos Lee who has this vision and energy.

SUMMARY BALANCE SHEET



ASSETS

	2011	2010
Fixed Assets	**102 688**	**3 820**
Current Assets	**315 802**	**327 954**
Membership fees to be paid	37 656	34 529
Cash in bank (BNP)	220 431	286 677
Charges paid in advance	17 718	6 748
Deposits on purchases	169	0
Misc debts	39 828	0
Total Assets	**418 490**	**331 774**

LIABILITIES

	2011	2010
Retained Earnings	**65 034**	**49 974**
Result	**3 451**	**15 059**
Investment Subsidy	**168 093**	**175 000**
Provision for payments and charges		
Owed to suppliers	44 847	13 891
Social charges to be paid	34 995	39 112
Subtotal	**79 482**	**53 003**
Income paid in advance	102 070	38 738
Total Liabilities	**418 490**	**331 774**

INCOME

	2011	2010
Annual membership fees billed	215 150	191 905
European programmes participation	97 708	136 255
Sale of services	41 145	11 699
Interest of savings accounts	9 908	1 356
Total Revenues	**363 911**	**341 215**

EXPENSES

	2011	2010
Supplies, charges, operating expenses	143 506	109 486
Taxes	1 408	12 196
Salaries and consulting fees	146 099	144 150
Social charges	58 884	59 630
Provision for depreciation	9 661	694
Financial charges	902	
Total Expenses	**360 460**	**326 156**

PRESENTATIONS, CONFERENCES & SYMPOSIA

Green Middle East in Dubai, 12 September 2011

EPIC presented an invited paper on Intelligent Lighting during the Green Middle East show which took place on 12 September 2011 in Dubai.

IOA (International Optoelectronics Association) Annual Meeting, Geneva, 18 September 2011

Symposium on World-Wide Developments in Internet Technologies, ECOC Geneva, 19 September 2011

EPIC and the IOA organized a Symposium on World-wide Developments in Internet Technologies which featured invited presentations from the International Optoelectronics Association. The presentations were given during the European Conference on Optical Communications. EPIC-organized symposia are a regular feature of ECOC every year since 2004.

The programme of the Symposium includes following presentations:

- Ganesh K. Gopalakrishnan, OIDA, Washington, USA - 100 G broadband in the United States
- Peter Shih, PIDA, Taipei Taiwan - Optical Fibre Communications Industry Status in Taiwan
- Christoph Harder, Swiss LaserNet, Zürich, Switzerland - Swiss Way of FTTH
- Yasuhisa Odani, OITDA, Tokyo, Japan - Optical Communication Industry and Technology in Japan
- Tom Pearsall, EPIC, Paris, France - Research and Development Initiatives Supporting Communications in Europe
- K.Z. Cho, KAPID, Gwangju, Korea - FTTH in Korea
- Dirk Kalinowski, OpTech-Net, Duisburg, Germany - FTTH and FITH - Complementary and Converging Networks
- Chris Gracie, SOA, Livingston, UK - Component Development in Europe for Fiber Optic Communications.

Seminar Smart Lighting Systems 2011, Dresden 10 October 2011

EPIC presented a Market Overview during the Seminar on Smart Lighting Systems which took place on 10 October 2011 in Dresden.

China International Forum on Solid State Lighting, Guangzhou, China, 8-10 November 2011

Tom Pearsall was a keynote speaker at the 8th edition of the China International Forum on Solid State Lighting (SSL) which was held in Guangzhou on LEDs – European Developments in Solid-State Lighting.

Growth in general lighting applications will be enabled by significant technology and manufacturing efficiency improvements that will allow the cost per lumen of packaged LED to be reduced 10-fold between 2010 and 2020:

- Economies of scale
- LED efficiency improvement, including at high power (droop effect)
- Improved phosphors
- Improved packaging technologies
- Significant improvements in LED epitaxy through yield and throughput
- But more is needed. Improvement based on Haitz's Laws is not enough.

WORKSHOPS, ROUNDTABLES & SUMMER SCHOOLS

Roundtable on Photonics Sensors

PHOTONICS SENSORS
Innovation and Integration

EPIC organized 2 roundtables on Sensors in 2011. The mission of theses roundtables is to create business relationships between Photonics SMEs who are leaders in sensor innovations and Technology Integrators who are typically larger companies seeking specific capabilities and performance for energy, environment and security systems.

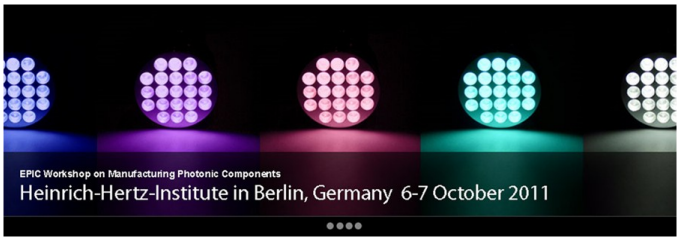
The Roundtable accelerates the presence in the market of key competitive technologies in energy, environment and security applications.

EPIC organized the first meeting in collaboration with the Scottish Optolectronics Association and Pacte PME. It took place on 24 March in Edinburgh, UK, on **Photonic Sensors in Harsh Environments.**

The second roundtable was organized in cooperation with the Baltic Photonics Cluster and was held on 8 September 2011 in Tallinn, Estonia, on **Sensors for Defense Environment and Security.**

These 2 meetings brought together 28 SMEs, 12 large companies and resulted in 75 follow-up contacts.

Workshop on Manufacturing Processes for Photonic Components, Berlin, Germany – 6-7 October 2011



EPIC and the Fraunhofer Institute for Telecommunications / Heinrich-Hertz Institute, Berlin, organized a Workshop on Manufacturing Processes for Photonics Components. The workshop concept was based on oral presentations and poster presentations with the single aim of preparing participants for the discussions and work of the break out groups.

The goal was to produce results from the break-out sessions that will be influential and helpful in building business among European companies involved in photonic manufacturing.

The programme focused on Current Situation and Challenges

- Market Overview
- Materials Growth future opportunities and challenges
- Manufacturing Technologies
- Device Handling

The Break-out Topics considered:

- More photonic functionality on the chip: the right direction?
- Photonic production and simulation design software: what should be inside?
- Competitive wafer-level test and quality control for photonics.
- Packaging: delivering desired product functionality at a competitive price.

The output from this workshop has been captured and analysed by Harlin Ltd in a report published in April 2012. The five areas discussed in the report are:

- Photonics Integrated Circuits
- Optics
- Sensing, Imaging and Projection
- Packaging
- Test, Measurement and Reliability

The report was delivered to EPIC members as part of their membership benefits

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International Summer School on "Lighting the Way with OLEDs"
Krögis, Germany
May 23-29, 2011

Nearly 90 students and lecturers combined to make a successful Summer School on OLED technologies, held in Krögis, Germany, from 23 to 29 May 2011.

The school was organised by the European projects OLED100.eu. The School was conceived as a high-level and highly intensive scientific event focusing on cutting-edge knowhow on OLEDs but also covering organic photovoltaics, organic FETs, and OLED displays.

Information exchange between students and lecturers was based on formal lectures, presentations by students, interactive poster presentations, expert consulting sessions, and a congenial atmosphere that promoted discussions and exchanges during meals and the social programme.

The scientific programme included following lectures:

- Karl Leo, TU Dresden, Germany - *Organic Electronics: Where we are and where we go*
- Reinder Coehoorn, Philips Research/TU Eindhoven, The Netherlands - *OLED simulations 1 and OLED simulations 2*
- Karsten Diekmann, OSRAM Opto Semiconductors, Germany - *OLED Application Requirements - Reliability and Safety*
- Herbert Boerner, Philips Research, Germany - *Triplet excitons in OLEDs*
- Karsten Diekmann, OSRAM Opto Semiconductors, Germany - *OLED Requirements - Market Acceptance Criteria*
- Alexander Doust, Cambridge Display, UK - *Polymer OLED device materials and device operation*
- JJ Kim, University of Seoul, South Korea - *Light out-coupling on OLEDs*
- Ok-Keun Song, Samsung Mobile Display, South Korea - *Effective charge injections for low power consumption of OLED*
- Ok-Keun Song, Samsung Mobile Display, South Korea - *Highly efficient WOLED for lighting applications*
- Chihaya Adachi, Kyushu University, Japan - *Control of molecular aggregation in organic thin films aimed for high device performance*
- Gilles Horowitz, University of Paris, CNRS, France - *Organic Semiconductors - Organic Diodes*
- Wladimir Dyakonov, University of Würzburg, Germany - *Probing Charge Transfer and Triplet States in Organic Semiconductors - Elementary Processes of Organic Photovoltaics*
- Qiang Huang, Novaled, Germany - *White pin OLEDs for lighting applications*
- Björn Lüssem, TU Dresden, Germany - *Highly efficient white OLEDs: The all-phosphorescent and triplet-harvesting approach*
- Ian Underwood, University of Edinburgh UK
  - *OLED Microdisplays - the first and best Active Matrix OLEDS*
  - *The role and benefits of OLEDs for future 3D Displays*
  - *Impedance spectroscopy and SPICE modelling for OLED characterization*
- Norman Bardsley, Bardsley Consulting, Danville, USA - *Challenges for European Manufacturers of OLED Lighting*
- Jörg Amelung, LEDON Lighting, Germany - *OLED application requirements/luminaire integration issues*
- Thorsten Gerloff, Physikalisch-Technischen Bundesanstalt, Germany - *Optical measurements on OLEDs - Calibration vs. Testing*

EPIC Participation in European Projects

European projects help EPIC to stay up-to-date on technology developments, creating synergies among EPIC members and building a solid revenue base to support operations and growth. We seek to participate in projects where we can bring added value. In 2011, EPIC participated in 4 projects.

LIFT, *Leadership in Fiber Laser Technologies* is an Integrated Project involving 20 partners (including 13 EPIC members) with a budget of €17 million. The LIFT project will establish international leadership for Europe in the science, application and production technologies for material processing by fibre lasers through the development of innovative laser sources. The project started in September 2009 and will end in August 2013.

The Consortium includes: **Fraunhofer IWS, Fraunhofer IOF,** Germany; **EPIC,** France; **Oclaro,** Switzerland; **Eolite Systems,** France; **Quantel,** France; **Time-Bandwidth Products,** Switzerland; **Gooch & Housego,** UK; **Rofin Sinar Laser,** Germany; Tampere University of Technology, Finland; **3S Photonics**, France; **Politecnico di Torino,** Italy; **University of Swansea,** UK; **SPI Laser,** UK; Dilas Diodenlaser, Germany; **PERFOS,** France; NKT Photonics, Denmark; Optoskand, Sweden; **iXFibre,** France; Raicol Crystals, Israel; Corelase, Finland.
www.lift-project.eu

EuroPIC, *European manufacturing platform for Photonic Integrated Circuits* aims to effect a funda-mental change in the way applications based on photonic integrated circuits (PICs) are designed and manufactured in Europe. The key development is to facilitate access by small companies (SMEs) to development and manufacturing of photonic microsystems in the form of advanced but very cost-effective PICs.

The Consortium includes: *Project Coordinator:* COBRA, TU Eindhoven (TU/e), Netherlands; Willow Photonics, UK; **Oclaro**,UK; PhoeniX Software, Netherlands; **CIP Technologies,** UK; BB Photonics, Netherlands; Alcatel-Thales III-V Lab**,** France; **Genexis,** Netherlands; Photon Design, UK; Filarete, Italy; University of Cambridge, UK; FiberSensing, Portugal; Baas B.V., Netherlands; **Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institute,** Germany; **MiPlaza, Philips Research,** Netherlands; VanderHoek-Photonics, Netherlands; **EPIC,** France.
www.europic.org/

EPIC was part of **OLED100.eu,** an integrated research project which brings together a consortium of experts from leading industry and academic organizations to accelerate the development of OLED technologies in Europe. The project received €12.5 million funding by the European Community's Seventh Framework Programme to form the technological basis for efficient OLED applications for the general lighting industry in Europe. Targets set by the project include achieving 100 lumens per watt power efficiency, more than 100,000 hours lifetime, a unit area of 100cm by 100cm, and costs of €100 per square meter or less.

The website, designed and updated by EPIC won 1st prize and 10 000€ in the contest sponsored by the Commission ICT – 4 Energy Efficiency.

Partners in the OLED100.eu consortium are:
Bartenbach LichtLabor, Austria; **EPIC,** France; Evonik Degussa, Germany; Fraunhofer Institute for Photonic Microsystems, Germany; Microsharp Corporation, UK; Novaled, Germany; Océ Technologies, The Netherlands; OSRAM OS, Germany; **Philips Technologie, Business Center OLED Lighting,** Germany; **Philips Technologie Forschungslaboratorien,** Germany; Physikalisch -Technische Bundesanstalt, Germany; Saint- Gobain Recherche, France; Siemens, Germany; Technische Universität Dresden, Institut für Angewandte Photophysik, Germany; Universiteit Gent, Belgium.

The project was completed end of August 2011.
www.oled100.eu

NEXPRESSO, the "Network for EXchange and PRototype Evaluation of photonicS componentS and Optical systems" is a EC-funded project involving 8 EPIC members which aims to provide support for SMEs in commercializing their prototypes. NEXPRESSO has started on 01/06/2010 and will end on 31/05/2013.

Objectives of the NEXPRESSO projects are:

- Purchase at marginal cost pre-competitive photonic devices from innovative European 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 and
- Facilitate transfer of device evaluation results to potential end-users, assisting companies to access new markets and new applications.

The key challenge for the NEXPRESSO project is to find a sustainable funding mechanism. In the NEXPRESSO project, we have to find people that are interested to adopt these exchange programs. We think those people are regional development or national development authorities. The project team will work to transfer ownership of the NEXPRESSO programme to national and regional development agencies. By planting these seeds throughout Europe, the NEXPRESSO programme will live on after European funding ends.

The NEXPRESSO Consortium partners are: **Interuniversity Microelectronics Center, IMEC**, Belgium; **European Photonics Industry Consortium**, France; **Multitel,** Belgium; **Haute Ecole Arc**, Switzerland; **Wroclaw University of Technol**ogy, Poland; **Sagem Défense Sécurité**, France; Scottish Optoelectronics Association, United Kingdom; **PERFOS**, France; **Opticsvalley,** France.
www.nexpresso.eu/

EPIC members are in bold

REPORTS AND PUBLICATIONS

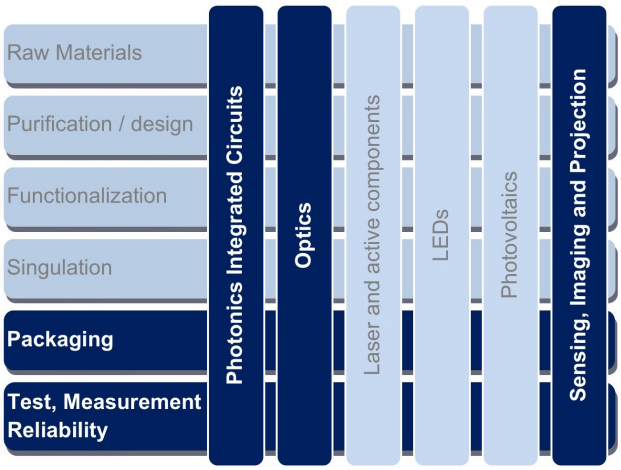
1. Key Enabling Technologies for Growth, Europhotonics, May 2011, pp. 18-20
"Photonic Technologies are poised to grow industry and innovation in Europe…"

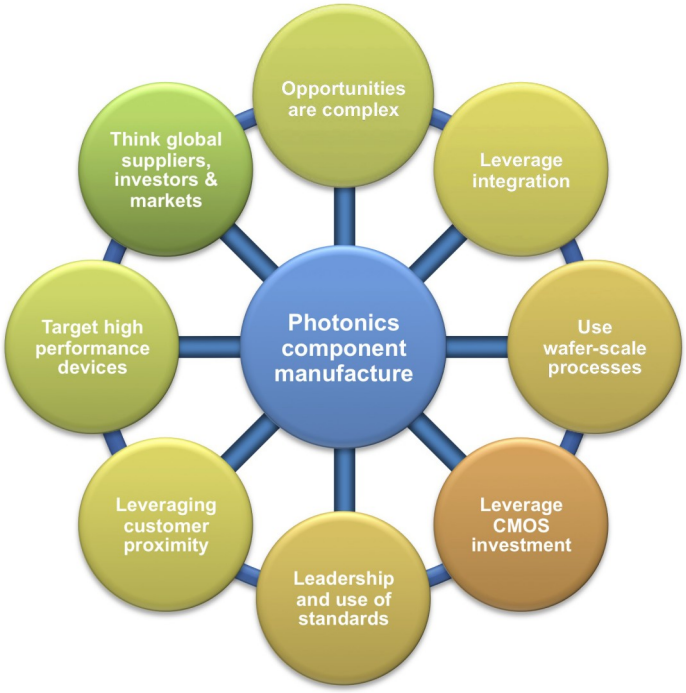
2. EPIC Report on Photovoltaics, June 2011, pp 1 – 67
"The worldwide sales of photovoltaic panels reached $US 82 billion in 2010, according to the Solarbuzz 2010 Market Report. This represents a 120% increase over 37.2 billion in 2009. During the same period, the electrical generation capacity installed was 17.8 Gigawatts. Our data show that installations grew by 137% compared to 2009."

3. Euro Fibre, the LIFT Project, Electro-Optics July 2011, pp. 18-20
"The European Commission is careful about where it puts its money when it comes to science and technology funding, but €17 million was put aside by both the Commission and industry in October 2009 to fund the LIFT Project. The four-year programme aims to keep European industry at the forefront of both fibre-laser development and applications …."

4. A Positive Outlook for PV, Electro-Optics PV 2011, pp. 4-6
"Photovoltaic Production and sales broke all records by more than doubling in 2010. The major market for PV is Europe, where more than 75% of the worldwide installations occurred."

5. Manufacture of Photonics Components: A European Perspective, Harlin Ltd and EPIC, Feb 2012, pp. 1 – 148.
"Photonics component manufacturing is a strong and dynamic industry, producing ~€9.3 bn (2010) worth of components in Europe annually, and growing by 7% per year."





NEW MEMBERS 2011

1. CSEM - Swiss Center of Electronics and Microtechnology

The Swiss Center for Electronics and Microtechnology, founded in 1984, is a private applied research and development center specializing in micro and nanotechnology, system engineering microelectronics and communications technologies. It offers its customers and industry partners custom-made innovative solutions based on its knowledge of the market and technological expertise derived from applied research.

EPIC contact is Christian Bosshard, Section Head Optics & Packaging
Email: christian.bosshard@csem.ch
www.csem.ch

2. IREC - Institute for Research on Energy of Catalonia

The IREC is the leading energy research center in Catalonia. It specializes in R&D of technology related to energy savings and efficiency and renewable energy. IREC aims to contribute to the sustainable development of society and increase corporate competitiveness via: Innovation and development of new technological products, medium and long-term research and development of scientific and technological knowledge in the field of energy.

EPIC contact is Josep Carreras, Group Leader of the Lighting Group
Email: jcarreras@irec.cat
www.irec.cat

3. Konica - Minolta photonic recording and display

Konica Minolta Group, headquartered in Japan, has defined a group-wide technological strategy with 12 core technologies in four business areas - materials, optics, nanofabrication, and imaging.

Konica Minolta is promoting creation of new value by upgrading these core technologies, and further combining and integrating them. Specifically, KM is developing OLEDs lighting manufactured by coating process, on the basis of its state-of-the-art organic materials synthesis technology, optical design technology, and film-making and coating technologies, which have been nurtured over the years of experience in photosensitive materials, lenses, and films manufacturing. Konica Minolta currently is investigating various areas of participation in the European Research Community.

EPIC contact is Markus Maresch, Research Consultant
Email: markus.maresch@hl.konicaminolta.us
www.konicaminolta.com

4. Oxxius - disruptive innovation in laser technologies

Oxxius was established in 2002 to bring disruptive innovations to the market of lasers in the visible wavelengths domain. They develop advanced laser modules. Oxxius products leverage an innovative, patented solid-state laser architecture offering major advances in compactness, reliability and cost of ownership.

EPIC contact is Thierry Georges, CEO
Email: tgeorges@oxxius.com
www.oxxius.com

5. PopSud Optitec - the photonics competivity Pole in Marseille

POPSud / OPTITEC
is the photonics cluster located in Marseille and covering South East of France. EPIC has worked with this cluster for many years to evaluate proposals for R&D support.

EPIC contact is Katia Mirochnitchenko
Email: katia.mirochni@popsud.org
www.popsud.org

6. University of Barcelona

The Electronics Department of the Faculty of Phyisic of the University of Barcelona joined EPIC in early June 2011. The University of Barcelona carries out various projects to promote knowledge and technology transfer of basic research from the university to the production sectors, in order to boost the level of R&D and technological innovation in companies.

EPIC contact is Blas Garrido, Department of Electronics
Email: blas@el.ub.es
www.el.ub.edu

7. Vertilas - Vertical lasers for optical fiber communications

VERTILAS GmbH, headquartered in Garching (near Munich), Germany, develops, produces and markets innovative laser diodes from 1.27 µm to 2.3 µm for optical communications and tunable diode laser spectroscopy (TDLS).
The lasers are available in a wide range of cooled and uncooled packaging options. VERTILAS high-performing InP VCSEL technology enables customers to reduce power consumption by up to 50% and offers products for wide tunability and high performance, incl. laser solutions for 10 Gbps, 40 Gbps and 100 Gbps modules.
VERTILAS is one of the leading global providers in the field of long wavelength InP Vertical Cavity Surface Emitting Laser diodes (VCSEL), deploying reliable and cost efficient production methods. VERTILAS' technology has been proven in a wide variety of applications, including demanding spectroscopy and communications applications. Furthermore, VERTILAS is ISO9001 certified and has excelled in a range of core competencies for components development and manufacturing, including wafer processing, assembly and test and package design.

EPIC contact is Christian Neumeyr, CEO
Email: neumeyr@vertilas.com
www.vertilas.com

LIST OF EPIC MEMBERS

Acreo
Electronics, Optics and Communication technologies

Aifotec Fiberoptics
Photonic components manufacturing

AIM Infrarot-Module
Infrared detectors

Aixtron
Thin-Film Deposition Equipment

ALSI
Laser Separation and Dicing

Alphanov
Lasers, Photonics Applications, Laser micromachining

Amplitude Systèmes
Ultrafast solid-state Lasers

ASE Europe
Packaging, Assembly & Test

Cambridge Display Technology
Optoelectronic Polymer Technology

CEA-LETI
Microphotonics Technology Development

Centre for Nanophotonics FOM
Nanophotonic Technologies

Chalmers University of Technology
Education and Research

CIP Centre for Integrated Photonics
Optoelectronic Components

CSEM
Photonics Packaging

DLR - German Aerospace Center
Project Funding and Management

Dow-Corning
Photonics Materials & Custom Services

Edmund Optics
Passive Optical Components

Eolite Systems
Fiber Laser

Ericsson
Microelectronics

Exalos
Superluminescent Diodes

FiconTEC
Advanced Packaging & Test Equipment for Photonic System

Fraunhofer Institute for Applied Optics and Engineering
Precision Optical Coatings

Fraunhofer Institute for Laser Technology
Laser Sources and Applications

Fraunhofer Institute for Material and Beam Technology
Laser Materials and Surface Processing

Fraunhofer Institute for Reliability and Microintegration
Photonics Packaging

Fraunhofer Institute for Telecommunications
Heinrich Hertz Institute
Technology for Communications

Genexis
Equipment for FTTH Networks

Gooch & Housego
Precision optical components & sub-assemblies

Haute Ecole ARC Ingénierie
Education and Research

Horiba Jobin Yvon
Optical Spectroscopy

ICFO – Institute of Photonic Sciences
Education and Research

Imagine Optic
Sensing equipment & adaptive optics

IMB-CNM (Microelectronics Institute of Barcelona, CSIC)
Education and Research

Innolume
Quantum-dot Lasers

INSA-Lyon
Education and Research

INTEC Department of Information Technology
Education and Research

IREC – Catalonia Institute for Energy Research
Lighting & Photovoltaics

IQE
Epitaxial Thin Film Fabrication

Istituto Superiore Mario Boella / Politecnico di Torino
Education and Research

iXFiber
Specialty Optical Fibers & Components

Konica Minolta
Imaging Technologies

Laser Diagnostic Instruments
Laser- and spectroscopy based sensors and systems

LioniX BV
Integrated optics, microfluidics & optofluidics

MiPlaza
Optoelectronic Device Fabrication

Multitel
Fibre based Components

Multiwave Photonics
Pulsed Fiber Lasers

Oclaro
Optical Communications Components

Onefive
OEM Laser Modules

ONERA
Aerospace Laboratory

Opticsvalley
Photonics Industry Development

Optoelectronics Research Centre Finland
Photonics Industry Development

Orange Labs
Telecommunications

OXXIUS
Advanced Laser Modules

Photonics Bretagne
Cluster of Research Centers, Schools & Companies

Philips Lighting
Solid-State Lighting

PolyPhotonix
OLED Lighting Solutions

PopSud
Industrial Association

Quantel
Solid-State Lasers

Quebec Photonic Network
Photonics Industry Development

Robert Bosch
Electronics, Lighting and Photovoltaics

Rofin Sinar Laser
Laser Technologies

SAES Getters
Photonics Components and Materials

Sagem Défense Sécurité
Defence, Space and Aeronautics

Scuola Superiore Sant'Anna
Eduction & Research

Sharp Laboratories Europe
Optical Imaging

Silitec Fibers
Optical Fibers

SPI Lasers
Fibre Lasers

Süss MicroOptics
High-quality Micro-Optics

Swisslaser
Industrial Association

3S Photonics Group
Optical Communications Components

Technical University Berlin
Education and Research

Time-Bandwidth Products
Laser Sources and Applications

TNO
Netherlands Organisation for Applied Sientific Research

Tridonic
High-performance LED Light Sources

University of Barcelona
Education and Research

University of Sheffield
Education and Research

University of Swansea
Education and Research

u^{2}t Photonics
Optical Communications Components

Vertilas
Laser Diodes

VI Systems
Optoelectronic Devices

Vrije Universiteit Brussel
Education and Research

Wrocław University of Technology
Education and Research

Yenista
Fiber Optic Test & Measurement Equipment

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