

2010

ANNUAL REPORT
EPIC-ASSOC



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EPIC priorities and challenges for 2011



Dr. Drew Nelson, President

It is a pleasure to address you at the beginning of my first year as President of EPIC. One of my main objectives in the next year will be to strengthen the relevance and impact of EPIC among the photonics business community in Europe and around the world. In 2011, I look forward to working with EPIC members on these important challenges:

Common Strategic Framework

The Common Strategic Framework will be the follow-on from FP-7. The Commission is proposing to shift the emphasis from pre-competitive research toward innovation and capturing the value of intellectual property created in Europe. This change is excellent news for EPIC and its members. Photonics-21 is one of our best resources for helping the Commission to make the right decisions as they develop this new funding framework. In 2011 we will work with our members in order to coordinate and advance ideas and proposals to strengthen the effectiveness of Photonics-21. (http://ec.europa.eu/research/csfr/index_en.cfm)

REACH

REACH is the European Community Regulation on chemicals and their safe use. EPIC believes that the initiative is a good idea. However, 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 in the REACH process, and 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. (http://echa.europa.eu/reach_en.asp)

Building Business

EPIC has proven its ability to organise R&D projects. EPIC should be equally successful at building business for its members, by its contribution to better conditions for building business and by helping to build bilateral business deals. In 2011, EPIC will continue its work to find funding for SMEs (Invest in Photonics) to move prototypes to the commercial stage (Project Nexpresso), and bringing technology innovators and integrators together (Business Roundtable). We will continue our offering of market and technology updates, and custom business services to EPIC members.

Strengthening membership

The strength of EPIC as force for photonics depends on both its size and also on its strategic focus. EPIC will execute a value-chain analysis on the six principal sectors where we operate (Communications, Lasers, Lighting, Sensors, Components and Photovoltaics). We will use the results to develop a strategy for inviting photonics organizations to join the EPIC group. Recruiting these members can help to increase our impact and influence in photonics both in Europe and around the world.

Recruiting Secretary General

During the next year, EPIC will recruit a new Secretary General to lead EPIC into its 10th year of operations and to chart new directions for EPIC as Europe's leading photonics industry association. EPIC members can help by encouraging qualified candidates to make themselves known, and by serving on the reading committee to evaluate applications. Your EPIC board will meet regularly during the year to interview promising candidates, with the goal of concluding a successful negotiation prior to the 2012 General Assembly.

Dr. Drew Nelson, President of EPIC

REPORT OF THE SECRETARY GENERAL

by Thomas P. Pearsall

EPIC actions in 2010

In 2010, EPIC membership included 78 voting member organizations. Through our members we maintain direct communication with more than 450 people, our associate members. An innovation that we put in place this year was the EPIC extranet which gives each of these associates direct access to our considerable and growing library of reports, market studies and proceedings of key conferences and workshops.

Building more revenues for members

EPIC was pleased to announce at our 2011 annual meeting in Paris that EPIC-led programmes returned more than 2.2 million euros in direct benefits to our members. This return is 11.4 times the amount of all the membership dues paid in 2010. The NEXPRESSO programme for components and systems exchange started up. Seven EPIC members are participating: HE-Arc, IMEC, Multitel, Opticsvalley, PERFOS, Sagem, and Wroclaw University of Technology. Three EPIC member organizations are among the award winners in a European-wide competition.

EPIC organized and implemented the first European business-to-business (B2B) Roundtable in sensors for harsh environments. This B2B Roundtable promotes business development by bringing together technology innovators and large-company integrators such as Total, Thales, FMC, BP and Sagem. Seats at the first meeting in Edinburgh were highly sought-after, and excellent networking was reported. EPIC solicited collaboration with the regional photonics cluster, Scottish Optoelectronics Association and also the Pacte PME in France who has more than 10 years of experience in building relationships between small businesses and industry majors.

Photonics is a Key Enabling Technology

EPIC worked successfully with its Board members to ensure that its members were represented at all levels

of the Key Enabling Technologies discussion. Frequent discussions with members of the High Level Group has ensured that we could be aware of new developments as they occurred, as well as giving us access to argue for implementation actions that integrate photonics with other KETs in transformative initiatives in the coming years.

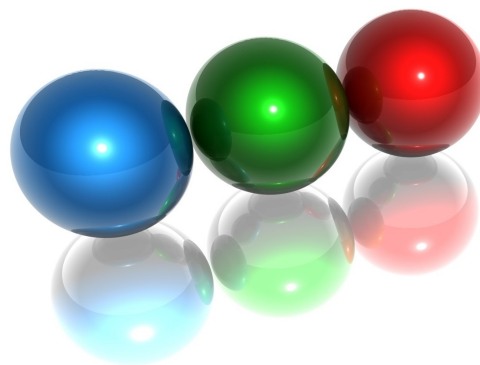
KETs will play an important organising role in the next EU programme, the Common Strategic Framework. Funding through this framework will emphasise innovation: that is using ideas to make money, rather than research, which is more like using money to make ideas. EPIC members should appreciate the difference. EPIC is supporting this change by furnishing the Commission with vision papers in sectors that represent member interests.

New Business Partnerships

During the past year, interested EPIC members worked together with Yole Développement to produce a major industry study for high- brightness LEDs. We explored this collaboration as a complement to the successful workshops for which EPIC is well-known. The study, which was six months in preparation gives an unprecedented view of LED manufacturing technologies, LED markets, and LED manufacturing resources. The report, in 3 volumes was distributed to EPIC members at no additional cost. However, we have also marketed the 11 000€ package to the industry. I am pleased to report that sales are strong, and that EPIC's share of the revenues will help fund further studies and workshops in 2011.



Thomas P. Pearsall
EPIC Secretary General



SUMMARY BALANCE SHEET



ASSETS

	2010	2009
Fixed Assets	3 820	3 986
Current Assets	327 954	190 008
Membership fees to be paid	34 529	67 859
Cash in bank (BNP)	286 677	92 240
Charges paid in advance	6 747	2 305
R&D Contracts		27 604
Total Assets	331 774	193 994

LIABILITIES

	2010	2009
Retained Earnings	65 034	49 974
Investement Subsidy	175 000	
Provision for payments and charges		
Owed to suppliers	13 891	19 745
Social charges to be paid	39 111	42 970
Subtotal	53 302	62 715
Income paid in advance	38 738	81 305
Total Liabilities	331 774	193 994

INCOME

	2010	2009
Annual membership fees billed	191 905	190 648
European programmes participation	136 255	216 368
Sale of services	11 699	41 834
Interest of savings accounts	1 356	1 243
Total Revenues	341 215	450 093

EXPENSES

	2009	2008
Supplies, charges, operating expenses	109 448	251 481
Taxes	12 196	11 936
Salaries and consulting fees	144 150	141 402
Social charges	59 630	60 942
Provision for depreciation	694	668
Total Expenses	326 118	466 429

EPIC CONFERENCES & SYMPOSIA 2010

EPIC FTTH Symposium in Lisbon, 24-26 February 2010

The Fibre to the Home Council Europe held its annual convention in Lisbon 24-26 February.

The FTTH annual convention draws more than 100 companies and 2500 people that build and install optical fibre access to the home. The EPIC symposium attracted a large and active audience.



The FTTH Symposium programme consisted of 14 invited and contributed papers.

- WDM-PON technologies for FTTH access: *Joerg Peter Elbers, Adva Networking*
- Ultradense access network architecture serving >1000 clients, including coherent technologies: *Curt Badstieber, Nokia Siemens Networks*
- 10G PON and Point-to-Point PON, How Much Bandwidth do We Need? *Gerlas van den Hoven, Genexis*
- Energy conservation strategies for the FTTH Network: *Michael Robertson, CIP*
- Cost optimal design of FTTx networks: *Maren Martens, Axel Werner, ZIB; Sebastian Orlowski, Roland Wassaly, Atesio*
- FTTX-PLAN – Planning the Upgrade of Today's Passive Optical Networks: *André Richter, VPI Systems*
- Low-cost tunable lasers for high performance, flexible access networks: *Rosie Cush, Oclaro*
- Remote Amplified Modulators: Key components for 10Gb/s WDM PON : *Christophe Kazmierski, Alcatel Thalès III-V Lab*
- 10Gb/s burst mode receivers: *Xing Zhi Qiu, INTEC*
- Polymer based integration platform for access components: *Norbert Grote, Heinrich-Hertz-Institute*
- Silicon photonics multichannel transceivers enable 100+ channel point-to-point FTTH central office linecards: *Jonathan Schrauwen, Caliopa Silicon Photonics*
- Reflective SOAs in Customer Premises Equipment: *Tony Kelly, Amphotonix*
- Electronic equalisation technologies for FTTH access networks: *Ioannis Tomkos, Athens Information Technology*
- Datacenters and LAN trends with particular emphasis on datacenters as an FTTH application: *James Lott, VI systems*

EPIC has edited the CD-ROM with all presentations, pictures and contact information for the two-day event. This report has been sent to all EPIC members and symposium attendees.



The 2010 FTTH Symposium attracted a large and enthusiastic audience

Invest in Photonics®, Bordeaux, 18 -19 March 2010

EPIC was an organizer of Invest in Photonics, a two-day international partnering convention that brings together photonics entrepreneurs and leading investors. C-level directors (CEOs, CFOs, CSOs etc) made up the majority of the attendees (64 per cent).



Bernard Couillaud, board member of **Oclaro** and chairman of the Invest in Photonics 2010 said, "On the financial side, we see that investors are cautiously optimistic. In 2010, there are signs of a gradual increase in investment levels and exit transactions. While we are not out of the woods yet, we are clearly in better shape than in 2008."



Gerlas van den Hoven, CEO of EPIC-member Genexis addressed the Invest in Photonics forum on business developments in fiber to the home.

The 12 companies selected for the special funding session were seeking potential financing in the range of EUR 30 million. Presented projects included optical transport, medical equipment, and intelligent lighting. Event organizers awarded the prize for the "Best of the Convention" to LED Linear, a maker of scalable interior and exterior lighting systems using LED technology, based in Germany, for the originality of its product concept and fit with the market.

Symposium on Optical Networking for Future Broadband Internet Services, ECOC Torino, 22 September 2010



EPIC and the University of Peloponnese co-organized and presented the Symposium on Optical Networking for Future Broadband Internet Services, a main event of ECOC 2010 on 22 September 2010 in Turin.

Optical Networking for future broadband internet services is the promise to enable access to a vast array of information resources, unlimited by our location or time of day. Without an infrastructure able to guarantee a pre-specified performance, the Internet will remain a locally restricted event. Universal access to broadband services in Europe cannot be supported by today's core network, with architectures that are in fact local, and poorly-designed to handle and distribute digital video and other broadband services.

Presentations covered the effect and challenges of universal broadband access on the core network and addressed holistic solutions for a new end-to-end European network optimised using Quality of Service criteria.

About 100 participants attended following program:

Technical Program Committee:

- Stephane Gosselin, Orange Labs
- Andrew Houghton, European Commission
- Ken-ichi Sato, Nagoya University
- Christian Simonneau, Alcatel-Lucent
- Martin Schell, Heinrich Hertz Institute

Introduction

An Essential Infrastructure for the Future Internet
Alexandros Stavdas, University of Peloponnese, Greece

The Challenges

Role of optics and electronics in creating future broadband network

Ken-Ichi Sato, Nagoya University, Japan

GEYSERS: a Generalized Architecture for Services over Dynamic Infrastructures

Sergi Figuerola, I2CAT, Spain

Network evolution and the impact in Core networks

Esther Le Rouzic, Orange Labs, France Telecom, France

Architectures

Evolutionary approach towards Ultra-High Capacity and QoS aware transport networks

Juan Fernández-Palacios, Telefonica, Spain

Optical technologies, the enabler of the efficient Internet?

Andreas Gladisch, Deutsche Telekom, Germany

On the influence of High Split, Long Reach, High Data Rate Access Technologies on the Core Network Services

Klaus Schmidt-Schylkowski, Nokia Siemens Networks, Germany

New Generation Access and Metro Networks: challenges and opportunities

Dominique Chiaroni, Alcatel-Lucent, France

Conclusions

Andy Houghton, European Commission, Belgium &
Tom Pearsall, EPIC, France

EPIC PUBLICATIONS

1. EPIC report LED markets 2009 - March 2010
2. EPIC report Photovoltaic markets 2009 - June 2010
3. EPIC-Yole LED Manufacturing Technologies Report - December 2010
4. LED Has Competition for Lighting - Compound Semiconductor pp 46-49, June 2010

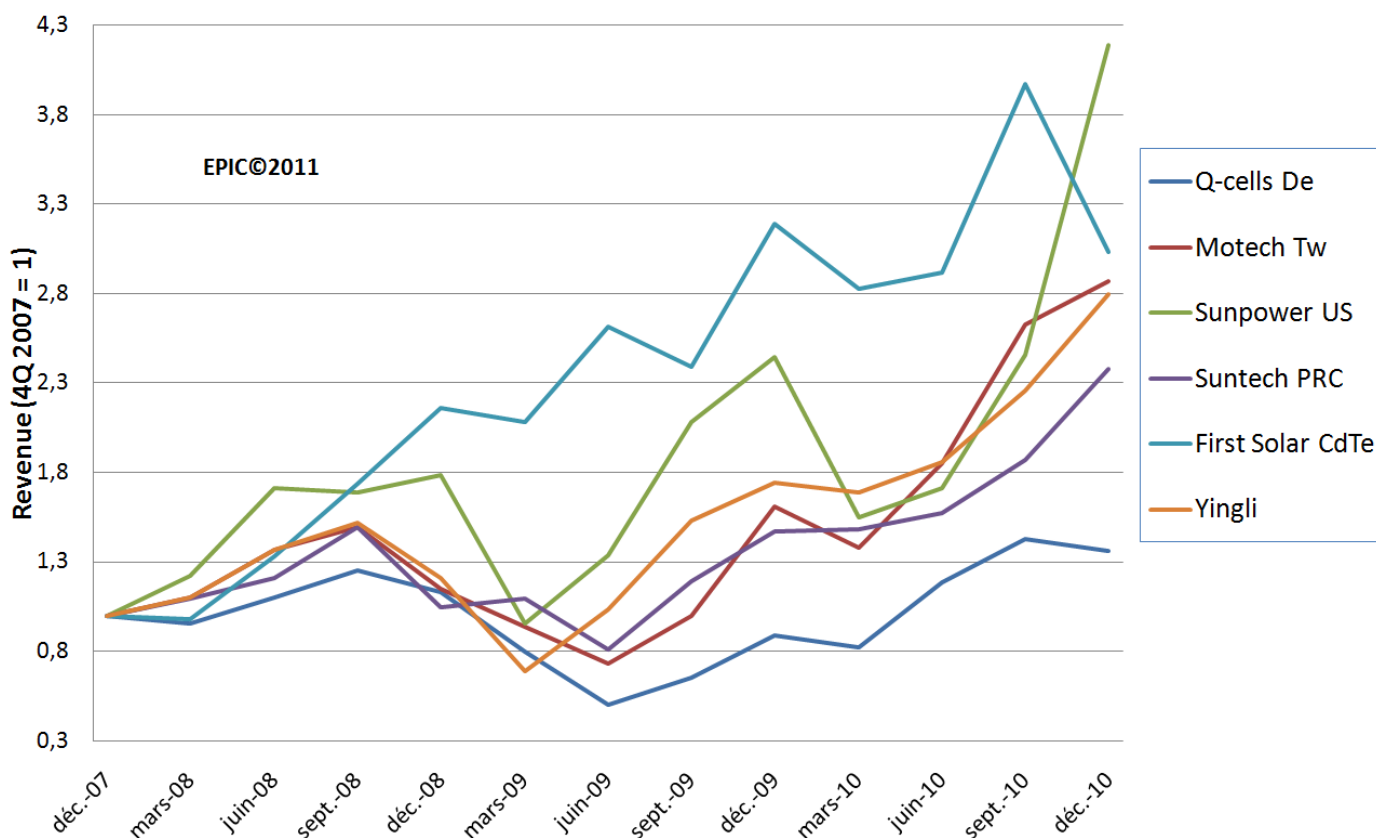
MARKET REPORTS

Photovoltaics 2009 Market Review

EPIC prepared and published an overview of the Photovoltaics market in 2009. This report shows that in 2009, more than 7.3 Giga Watts of PV power were installed world-wide with over half the installations occurring in Germany. Manufacture in China was the leading regional source of PV panels, and the leading manufacturer was First Solar who is focussed on thin-film CdTe PV technology.

The euro value of the market stayed constant, due to declining prices for PV panels. Although most European companies remained profitable during the economic crisis there was turmoil at Q-cells, the largest PV producer in 2008, and Masdar PV (backed by the Mubadala Development Agency of Abu Dhabi). Senior management has been changed in both organisations. The prospects for PV are uncertain due to cuts in feed-in tariff incentives in Germany, the world's leading market.

More than half the electrical power installed in Europe in 2009 is renewable. Wind power is the leader where 30 Giga Watts were installed in 2009, followed by gas, and PV. The PV market grew by about 15% compared to 2008 for power installations.



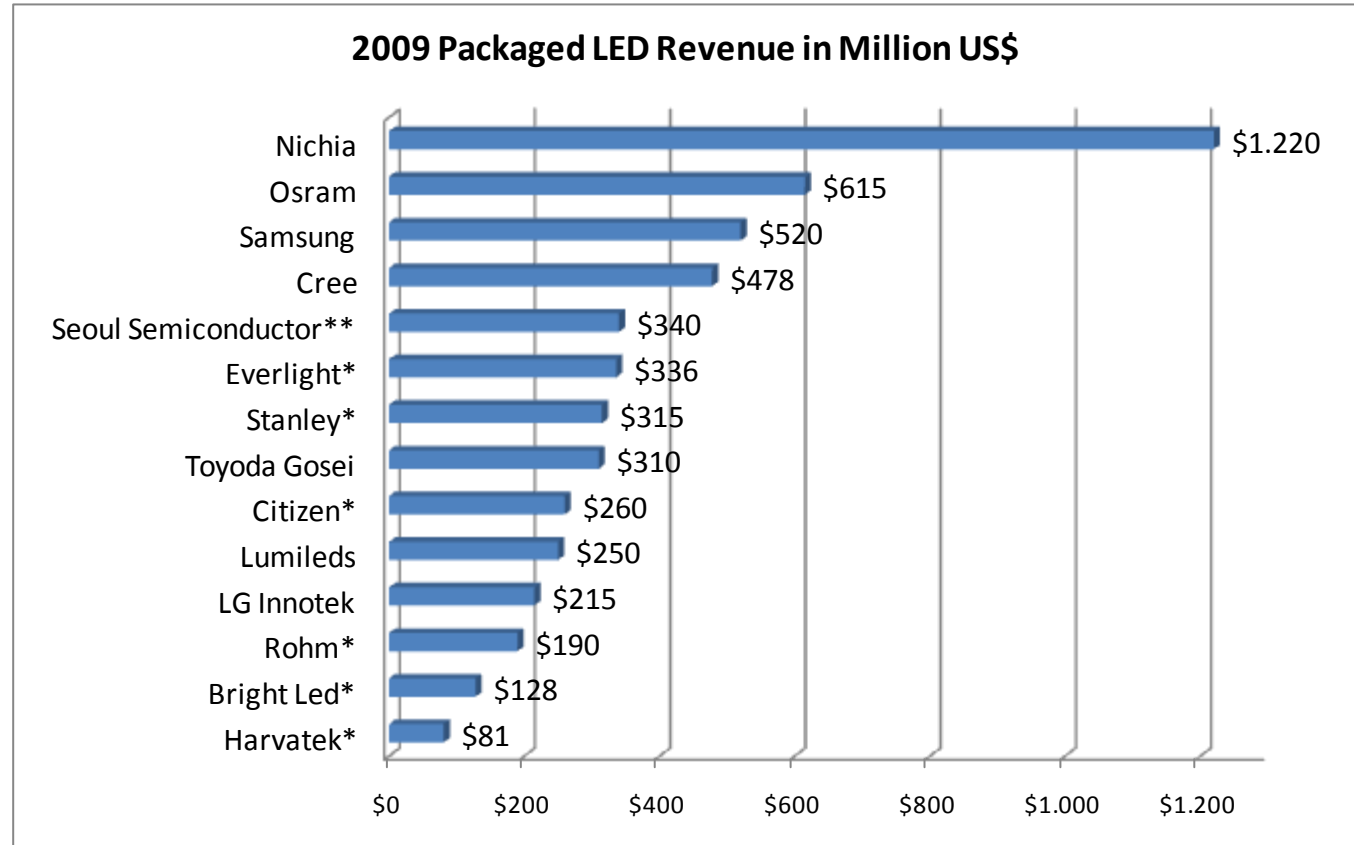
The revenue for EPIC's Bellwether companies shows that business recovery that started in March 2009 has continued worldwide in 2010. Sunpower overtook First Solar in 2010 as the industry-wide revenue leader.

LED Manufacturing Technologies

EPIC and Yole Développement co-authored a comprehensive, three-volume report on LEDs for lighting applications. A number of EPIC members contributed to the report content helping to ensure relevance and timeliness. The 3-volume set was published in December 2010 and distribution was made to EPIC members through the EPIC Extranet. The report has been made available for sale to non-members.

The main results of our study are:

1. The packaged LED market is experiencing tremendous growth with an expected CAGR of 28.2% between 2009 and 2015. Revenue will reach 7 billion euros in 2010 and grow to 20 billion euros in 2015 and exceed 24 billion euros by 2020. In terms of volume, LED die surface will increase from 6.3 billion mm² in 2009 to 51 billion mm² by 2015.
2. The equipment market will experience a dramatic growth cycle with demand driving the installation of close to 1,400 reactors in the 2010-2012 period.
3. Growth is being driven by large LCD backlight applications.
4. Growth from general lighting applications will be enabled by significant technology and manufacturing efficiency improvements that will allow significant performance improvement and a 10-fold reduction in the cost per lumen of packaged LED between 2010 and 2020:
 - Economy of scale
 - LED efficiency improvement, including at high power (droop effect)
 - Improved phosphors
 - Improved packaging technologies
 - Significant improvements in LED epitaxy cost of ownership through yield and throughput
 - More is needed. Improvement based on Haitz's Laws is not enough.



Revenue leaders world-wide for packaged LEDs in \$US millions. Nichia continued to dominate the industry in 2009. Samsung is driving very high growth because of application of LEDs in flat panel displays and television screens. (© Status of the LED Industry, EPIC-Yole 2010)

EPIC Workshops & Summer Schools

Accord Workshop 14 April 2010 at Photonics Europe in Brussels

The ACCORD project purchases pre-commercial components and systems from SMEs and places them in universities through a competitive award process. Both the participating companies and universities have been very enthusiastic about the results, some of which have led to follow-on collaborations and sales revenues. EPIC played a major role in structuring the project and in writing the proposal to the European Commission. At the close of the project in 2010, the ACCORD project presented a workshop at Photonics Europe where some of the 22 benefiting companies and universities talked about their experiences in this radical approach to promoting the



transfer of innovation to the market. The program was as follows:

- **Peter Van Daele, IMEC, Project coordinator**
 - ACCORD Project highlights and the follow on Programme
- **Miguel Llera, Haute Ecole Arc, project partner**
 - Examples of ACCORD projects and their success
 - A high throughput terahertz spectroscopic imaging system for security applications presented by **Lukas Krainer of Onefive**
 - Adaptive optics for improved resolution in optical sectioning microscopy presented by **Miguel Llera of Haute Ecole Arc**
 - Development of GaN Based LEDs using ZnO/c-sapphire Templates presented by **David Rogers** of Nanovation
- **Chris Gracie** of Scottish Optoelectronics Association, representing the **OIDA**
 - International involvement
- **Fiona Gerente, Opticsvalley**

International Summer School on “Organic Optoelectronics on the Move” Krutyn, Poland, June 22-28, 2010

Sixty five students and lecturers combined to make a successful 5th International Summer School on OLED technologies, held in Krutyn Poland, from 22 to 28 June 2010.

The school was organised jointly by the European projects: OLED100.eu and Fast2Light. The programme focused on technologies for high-efficiency materials and structures, technologies for improving life time, roll-to-roll printing on flexible substrates, and applications beyond basic lighting. To complement the technical presentations, there was a “soft skills” programme that treated topical subjects like Intellectual Property Development and Protection and a course on Design of Experiments.

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.

Workshop on Status of LED Industry at ForumLED - 8 December 2010

EPIC and Yole Développement took their joint project: Status of the LED Industry to the ForumLED Conference which took place on December 7-8 during the Festival of Light in Lyons, France. Demand for information was strong throughout the meeting. On December 8, EPIC and Yole organized the Market Briefing Seminar with up-to-date progress in LED synthesis, LED fabrication and LED lighting systems. The workshop looked at the entire value chain for high brightness LEDs, from epitaxial deposition through smart lighting.

Some major results of the school discussions were:

The OLED recombination region should be widened to reduce recombination at interfaces. Dr. Kido of Yamagata University promoted the idea of continuous grading from Electron Transport Layer to Hole Transport Layer.

OLED luminance at lighting levels should be achieved by a triple stack of OLEDs in series. This dramatically lowers current density and heating for a given level of luminance. Dr. Todd of the Fraunhofer IPMS said that this eliminates also the need for current bus bars.

Search for efficient phosphorescent blue emitters based on Ir(ppy)_3 compounds may have reached a plateau. Peter Djurovich of the University of Southern California said that he is looking elsewhere for efficient blue emitting materials.



Richard Kirk, of EPIC member Polyphotonix presented flexible designer OLEDs in displays and fabrics.

The programme consisted of 4 presentations:

- **Thomas P. Pearsall, EPIC**
Status of the LED Industry
- **Frank Schulte, AIXTRON**
MOCVD Tendencies and Challenges for LED Mass Production
- **Milan Bilejic, CREE**
LED Efficacy and reliability: Tipping the balance on LED Street Lighting
- **Bruno Smets, Philips**
Intelligent Lighting with LEDs
- Panel Discussion

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 2010 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; **IXFiber**, France; **Raicol Crystals**, Israel; **Corelase**, Finland.

Website: www.lift-project.eu

EuroPIC, *European manufacturing platform for Photonic Integrated Circuits* aims to effect a fundamental 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 project started in September 2009.



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.

Website: www.europic.org/

EPIC is 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 organic light-emitting diode (OLED) technologies in Europe. The project receives €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 'lifetime hours', a unit area of 100cm by 100cm and costs of €100 per square meter or less.



Partners in the OLED100.eu consortium are: Bartenbach LichtLabor Austria; **EPIC**, France; Evonik Degussa, Germany; Fraunhofer Institute for Photonic Microsystems, Germany; Microsharp Corporation, UK; Novald, 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 European Commission's ICT for Energy Efficiency (ICT4EE) has granted its Best ICT4EE Award to the OLED100.eu project. OLED100.eu has received the First Place Award for its ICT contribution by showing that adoption of OLED lighting can lead to substantial improvements in energy efficiency and for its efforts to educate the public and disseminate the OLED (organic LED) lighting vision.

Website: 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 Technology**, Poland; **Sagem Défense Sécurité**, France; Scottish Optoelectronics Association, United Kingdom; **PERFOS**, France; **Opticsvalley**, France

www.nexpresso.eu/

NEW MEMBERS 2010

In 2010 EPIC welcomed **6 new members**

AIM Infrarot-Module - Detection and Sensing



AIM Infrarot-Module, located in Heilbronn, Germany, develops, manufactures and sells premium infrared detectors and thermal sights as well as Stirling cooling engines required for the operation of detectors at cryogenic temperatures. AIM also offers customer specific solutions. AIM products' applications are research, industrial processes, safety & security technologies, environmental protection and space.

EPIC contact is Rolf Muentner, CEO
Email: rolf.muentner@aim-ir.de
www.aim-ir.de

ASE - Electronic and Photonic Packaging



ASE GROUP

The ASE Group is the world's largest provider of independent semiconductor manufacturing services in assembly and test. ASE's European headquarters are in Brussels. The Group develops and offers a wide portfolio of technology and solutions including IC test program design, front-end engineering test, wafer probe, wafer bump, substrate design and supply, wafer level package, flip chip, system-in-package, final test and design manufacturing services. In the photonics market, ASE's portfolio includes packages for optical sensors and LEDs as stand-alone components and modules.

EPIC contact is Bradford Factor, Director Packaging Technology
Email: Bradford.Factor@aseeu.com
www.aseglobal.com/index.html

Süss MicroOptics - Precision Optical Components



SÜSS MicroOptics, located in Neuchâtel, Switzerland, is a leading company for high-quality micro-optics, optical design, micro-fabrication and metrology. SÜSS MicroOptics is offering high-quality microlens arrays in 200 mm wafer technology (Fused Silica and Silicon). SÜSS MicroOptics' microoptical components are used in Medical applications, Laser materials processing, Semiconductor applications, Fiber coupling, Shack Hartmann, Metrology, Confocal microscope (Nipkow), Deep UV and UV illumination, etc.

EPIC contact is Reinhard Voelkel, CEO
Email: voelkel@suss.ch
www.suss-microoptics.com/

Amplitude-Systèmes - Industrial Lasers and Laser Systems



Amplitude Systèmes, located near Bordeaux, France, develops and manufactures diode-pumped ultrafast solid-state lasers for scientific and industrial applications. Amplitude Systèmes, together with its sister company Amplitude Technologies offers all ultrafast laser technologies available today, from industrial fiber lasers to high energy Petawatt class Ti:Sapphire lasers.

EPIC contact is Eric Mottay, President & CEO
Email: emottay@amplitude.com
www.amplitude-systemes.com/

Rofin-Sinar Laser - Industrial Lasers and Laser Systems



Rofin-Sinar Laser, located in Hamburg, Germany is one of the leading manufacturers of laser sources and laser-based solutions for industrial materials processing including laser cutting, laser welding, laser marking and surface treatment. ROFIN is supplying the widest range of laser sources including CO2 lasers, fiber lasers, solid-state, diode and various q-switched lasers. ROFIN participates in the LIFT project which is developing the next generation of fibre lasers.

EPIC contact is Ulrich Hefter, CTO
Email: u.hefter@rofin.com
www.rofin.de/index.php

Vrije Universiteit Brussel - University Research



The Brussels Photonics Team at the Vrije Universiteit Brussel in Belgium is working on Photonics innovation that is increasingly needed to solve important technological, societal, economical and ecological problems. The B-Phot team's core business is photonics research: fundamental, applied and industrial photonics for a brighter, lighter and healthier world.

EPIC contact is Prof. Tom Guldemont
Email: tguldemo@vub.ac.be
www.b-phot.org/

LIST OF EPIC MEMBERS

[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

[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

[ESKO Graphics](#)

Graphics Reproduction and Display

[Exalos](#)

Superluminescent Diodes

[FiconTEC](#)

Advanced Packaging & Test Equipment for Photonic Systems

[France Telecom R&D](#)

Telecommunications

[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

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Fiber Optic Test & Measurement Equipment



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