



LaserFocusWorld  
**Lasers & Photonics Marketplace**

S E M I N A R ®

**EPIC Members Event Report**  
**Lasers & Photonics Marketplace Seminar**

San Francisco, CA, USA

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[www.marketplaceseminar.com](http://www.marketplaceseminar.com)



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**About the EPIC Members Event Reports**

Initiated by the founder of EPIC Dr. Thomas Pearsall in 2003, these reports are prepared by members of EPIC to the benefit of the wider community. If you did not have a chance to attend the event but would like to know some key highlight, this report is for you. Emphasis is placed on exploring technical and business opportunities for the members of EPIC.



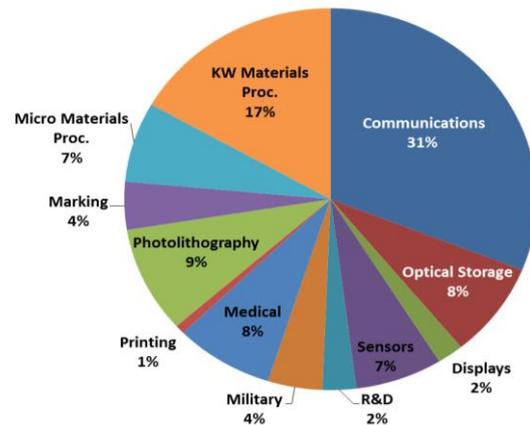
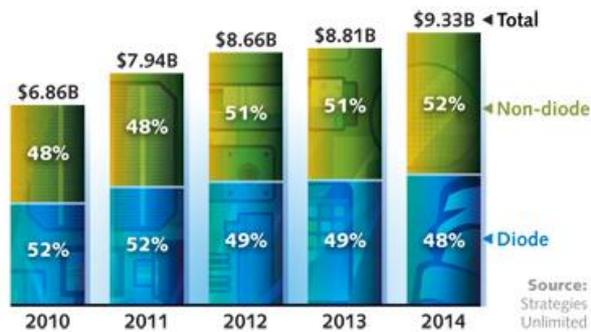
The 26<sup>th</sup> Lasers & Photonics Marketplace Seminar took place as usual on the Monday prior to the SPIE Photonics West conference and exhibition. There were about 120 attendees including more than two-thirds from the US. Many discussions turned around the fact that the Economy has a large impact on the laser and photonics market. The Photonics industry is strong in most areas, but evolving in many. New uses and applications will drive the future.



Attendees at the Laser & Photonics Marketplace 2014 in San Francisco, CA, USA

### The Global Laser Marketplace

Allen Noguee, Strategies Unlimited



Laser sales by application 2013

### Evolution of the laser market

It is reported that the 2013 laser market grew less than expected at 1.7% to \$8.8 B\$ with some application sectors and regions of the world growing faster and others feeling the effects of government spending cuts and economic slowdown. Each year, the number of lasers manufactured in China increases and now more than 90% of lasers come from companies headquartered in just four countries: US, Germany, Japan and China. Communications lasers are still leading the applications followed by materials processing and medical lasers. The market of laser sources for instruments and sensors remains strong in particular for spectroscopy and flow cytometry. But there is a clear decrease in the market of lasers for optical storage, lithography, R&D, and military.

### Photonics Industry Update: Outlook and Challenges

Dr. Mark Douglass, Vice President, Senior Equity Analyst, Longbow Research

Mark Douglass provided data on markets relevant to lasers and photonics and a global economic outlook. He also discussed the recent and future industry consolidation. In summary, global economy is gathering steam and there are trends on growing optimism. The US is a clear outperformer, EU is improving (especially Germany) and China is in transition: expanding but at a weaker pace. His economic overview clearly shows that the laser sales are closely tied to the global economy. Mark Douglass has also shown interesting figures on employment. In the US, they have only recovered 22% of the jobs lost in the 2008/2009 recession versus an 82% recovery in production. It means that less people can do more, leaving more people unemployed. In conclusion, the main laser industry challenges are the following:

- At the commercial level: drive down costs which are often prohibitive even with unique properties and productivity yields, develop new applications and drive adoption;
- At the technical level: improve reliability and performance and develop versatility: material removal and addition!

### **The Optics Market: From the Exotic to Commodities**

*Dr. Tom Hausken, Senior Engineering and Applications Advisor, OSA and OIDA*

Tom Hausken reviewed the global market for passive optics. He highlighted that there are three different optics manufacturing platforms: free-space optics, optical fiber and planar waveguides. The optics industry sales are 24.5 B\$ in free-space optics, 11 B\$ in optical fiber, 0.5 B\$ in planar technologies, and 20 B\$ in vision correction for a total of 56 B\$. For Tom Hausken, sensing and medical applications will be key for future growth in the optics industry. As a conclusion, he noted that optics is fundamentally fragmented and customized, favoring a “local touch.” Start-up companies are necessary to innovate, especially in new directions. But many companies do M&A to integrate vertically or horizontally, access wider markets, and then manage the complexity of the value /supply chain.

### **Biophotonics: Markets and Technology Trends**

*Dr. Dennis Matthews, Director, Center for Biophotonics Science and Technology, UC Davis*

Dennis Matthews described the Biophotonics field and market, presenting many applications from Raman spectroscopy to intracellular optical probes and quantum dots. He is currently doing a market study with the support of SPIE but the results are not yet available and he only gave figures about the 2007 market which was around 50 B\$ worldwide including 37 B\$ for diagnostics, 6.2 B\$ for therapeutics, and the rest for research and other areas. He also discussed emerging technologies, potential markets, and underserved markets where new technology development is needed. In particular, he

highlighted the following challenges for Biophotonics:

- Adoption by clinicians has been slow (competition with MRI, X-ray, ultrasound ...)
- Important patents are expiring
- There is a need to develop clinical and lab standards
- Investment in med devices companies and products is way down
- There are opportunities in non-medical markets: agriculture, environment, nutrition ...

### **The European Perspective: Photonics21 and Key Enabling Technologies**

*Dr. Drew Nelson, President and CEO of IQE, President of EPIC*



*Drew Nelson at Laser Marketplace Seminar 2014*

Dr. Drew Nelson presented Photonics21 and EPIC, along with the European Commission’s Horizon 2020 funding plans and Key Enabling Technologies (KETs) including Photonics. He is a member of the high-level industry group that advises the European Commission on implementing KETs. Dr. Nelson stressed the point that the big Problem in Europe is “**Losing Manufacturing**” and that “Once Manufacturing is lost, it never comes back!!” Moreover, Europe is losing its global IP position and that is increasingly true for Photonics and other KETs which are then seen as essential for Europe to maintain and regain a global leadership position. In fact, KETs are integral to all advanced products and span the entire value chains. The high-level group highlighted that a “valley of death” lies between R&D government funding and private product development. To avoid this, the European Commission launched Horizon

2020: a 80 B€ research and innovation funding program with a Key Goal to get fund much closer to Market activities. In conclusion, Europe has recognized the need for a completely new industrial policy based on KETs and implemented through an ambitious new initiative called Horizon 2020. This strategy in Photonics is enabled and implemented by three key partners, European Commission, Photonics 21, and EPIC.

### **Executive Panel: Global Photonics Markets, Trends, and Opportunities**

*Moderator: Martin Seifert, President, Nufern  
Panelists: Dr. Søren Isaksen (NKT), Dr. Peter Leibinger, (Trumpf), Sri Venkat (Coherent)*

The panel discussed the trends and opportunities for photonics essentially in laser and biophotonics domains. Concerning laser materials processing, there is clearly a race between IPG with fiber lasers and Trumpf with disk lasers. The model of these two companies is vertical integration and this policy is the key to the success in this domain. But vertical integration is not always possible, so consolidation is necessary in some markets. In biophotonics, OCT and photoacoustic technologies are ready for “prime time”. Life sciences are the place to play. The panel sees good growth in that sector. There was a discussion about Asia and, in particular, China. The feeling is that, at the same time, China is a threat and an opportunity for photonics companies in Europe and US.

### **Laser Projection Displays**

Bill Beck, Chairman, Laser Illuminated Projector Association

Bill Beck made a presentation on the growing market for laser-projection displays. He described the history, challenges, and growth opportunities in this emerging market. He explained that the drivers to use laser in this domain are: increase brightness beyond that of lamps, enhance image quality, lower total cost of ownership, and enable off-board illumination (fiber delivery). Finally, there is a need that regulations for laser projection are being rationalized. This is made slowly but accelerating due to the efforts of LIPA (Laser Illuminated Projector Association).

### **3D Printing/Laser Additive Manufacturing**

*James Ricchiuti, Managing Director, Equity Research, Needham & Company*

James Ricchiuti presented the history and future of 3D printing and, in particular, LAM (Laser Additive Manufacturing). The technologies associated with 3D printing and additive manufacturing have been the subject of great attention in the past few years and the market increases rapidly. In fact, 3D printing moves into mainstream manufacturing with companies like GE, Boeing, BAE, Siemens, etc... using it for components in their products (e.g. 32 laser sintered components on 787 Dreamliner). James Ricchiuti concluded the presentation by indicating that we are at an inflection point with large-scale manufacturing with 3D printing technology likely to emerge on the horizon.



*EPIC Member Alastair Wilson  
and Drew Nelson during a break*

The conference facilitated networking and discussions among attendees during breaks, lunch and cocktail.

**For additional information, please contact the author of this event report:**

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**135 EPIC Members (1 February 2014)**

3S Photonics Group, ACREO Research Center, Advanced Fibre Optic Engineering, AIFOTEC Fiberoptics, AIM Infrarot-Module, AIXTRON SE, ALEDIA, ALPHA Route des Lasers, Alphanov, ALSI, ALTER Technology, AMO, Amplitude Systèmes, art photonics, ASE Europe, ASE Optics Europe, Australian National University, Avantes, Bright Photonics, CAILabs, CALIOPA, CD6, CEA-LETI, Centre for Nanophotonics FOM, Centre for Physical Sciences & Technology, Chalmers University of Technology, CIP Centre for Integrated Photonics, COBRA Research School, CSEM, DIAFIR, Dilas, Dow-Corning, Edmund Optics, Eolite Systems, ESP KTN, EXALOS, ficonTEC, FOTOTNIKA - LV, Fraunhofer for Solar Energy Systems ISE, Fraunhofer Institute for Applied Optics and Engineering, Fraunhofer Institute for Laser Technology, Fraunhofer Institute for Material and Beam Technology, Fraunhofer Institute for Reliability and Microintegration, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Glyndwr University Integrated Photonics, Hamamatsu Photonics, Haute Ecole ARC, Heraeus Noblelight, Hisilicon Technologies, Horiba Jobin Yvon, Huawei, ICFO - Institute of Photonic Sciences, IDIL Fibres Optiques, IHP Innovations for High Performance Microelectronics, IKO Science, Imagine Optic, IMT, Innolume, Institut d'Optique Graduate School, INTEC Department of Information Technology, IPHT Jena, IQE, IREC - Catalonia Institute for Energy Research, ixFiber, JePPIX, KONICA MINOLTA, Laser & Medical Devices Consulting, LayTec, Lionix BV, Luger Research, Messe Munich International, Microelectronics Institute of Barcelona, CSIC, Multiphoton Optics, Multitel, Nanovation, Next Scan Technology, nlight, NOVAE, Oclaro, Ofive, OPI Photonics, OpTecBB, Opticsvalley, Optitec, Optoelectronics Research Centre Finland, Optoelectronics Research Centre UK, Phoenix Software, Photonics Bretagne, Pie Photonics, PNO Consultants, PolyPhotonix, Powerlase, Prima Electro, Quantel, Quebec Photonic Network, Resolution Spectra Systems, Robert Bosch, Rofin Sinar Laser, SAES Getters, SAFC Hitech, Scuola Superiore Sant'Anna, SensUp, SMART Photonics, SOITEC, SPI Lasers, SQS Vlaknova optika, STMicroelectronics, Süss MicroOptics, SWISSPHOTONICS, Technical University of Berlin, Technobis Group, Technobis Group, Technospark Nanocenter, TEMATYS, Thorn Lighting, Time-Bandwidth Products, TNO, Tridonic, Tyndall National Institute, u2t Photonics, Umicore EOM, University College London, University of Barcelona, University of Nottingham, University of Sheffield, Vertilas, VI Systems, VLC Photonics, VTT, WJA Electron, Wrocław University of Technology, XiO Photonics, YELO, Yenista, Yole Développement, Zumtobel.