OIDA News
OPTOELECTRONICS INDUSTRY DEVELOPMENT ASSOCIATION

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SPECIAL POINTS OF INTEREST:

- Communities of Interest: Silicon Photonics
- Displays - Guest Editorial

INSIDE THIS ISSUE:

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OIDA's Marko Slusarczuk Receives Award,

Named SID 2008 Business Conference Committee Chair

On May 21, 2007, at its annual meeting in Long Beach, the Society for Information Display presented Dr. Marko M. G. Slusarczuk with a Special Recognition Award "For his leadership in creating and managing the DARPA high definition-display program, which advanced a wide range of display technologies, including active-matrix liquid-crystal, plasma and projection displays and for developing innovative equipment to commercially manufacture these displays." As Program Manager at the Defense Advanced Research Projects Agency (DARPA), he managed the flat panel display program for which he reviewed hundreds of proposals and companies. Since that time, he has been heavily involved in the display industry in positions with Candescent Technologies, CLCEO, and the World Technology Evaluation Center.

Marko Slusarczuk
OIDA's Director of Government Programs

Dr. Slusarczuk, currently OIDA's Director of Government Programs, was also named to chair next year's Business Conference at the SID 2008 Conference. In the five years since the Business Conference debuted in 2003, the worldwide display market has increased almost 70%, and in 2007, is expected to exceed $100 billion for the first time, by OIDA estimates. As the display industry continues to grow, the SID Business Conference is the preeminent forum for exploring how this dynamic business has reached its current state, and where it will go from here.

Why is the Display Industry of Interest to Photonics Suppliers?

By Chris Chinnock, President, Insight Media (Guest Editorial)

The display industry is vast, ranging from mobile phone displays to notebook LCDs to Plasma TVs to full digital cinema projection systems. There are a lot of optical and optoelectronic components, coatings and materials, and now, LEDs and lasers in these display systems. This market is growing quite nicely and needs continuous innovation. This should be music to the ears of photonic component suppliers.

Naturally, each segment of the display industry has its own dynamics and needs. Insight Media is a market research, publishing, and consulting firm that aims to track what is going on in this industry. Let's highlight a few of these display markets and try to let you know where some of the optical and photonic needs and opportunities lie.

See Display Industry, page 4

President's Letter

Changes at OIDA as we enter our 17th year

Michael Lebby, OIDA President & CEO

Many changes have taken place at OIDA over the past year. I would like to review these changes and their affect on the industry:

Membership trends

Dr. Arpad Bergh founded OIDA in July of 1991 when he was at Bellcore (currently Telcordia). Over the past 16 years, Figure 1 showing the last 14 years, OIDA has lived through a number of cycles in the optoelectronics industry. In the early 90s, most of OIDA's members were communications companies, and as a result, OIDA experienced strong growth in 1993 and 1996 while this industry boomed. In 2000, OIDA became involved with the Department of Energy solid-state lighting initiative and supported Congressional staff and industry advocates working on new legislation promoting LED use. When the tech bubble burst in 2002, membership declined significantly as companies went belly-up, were acquired, or shrank to realign strategies. In 2005, the emergence of new markets for optoelectronics in communications, computers, and consumer/entertainment had a profound affect on OIDA membership–taking it to record levels. OIDA now has nearly 70 members, a historic record for OIDA. Figure 1 shows total membership in red (top line) and Board membership in blue (bottom line).

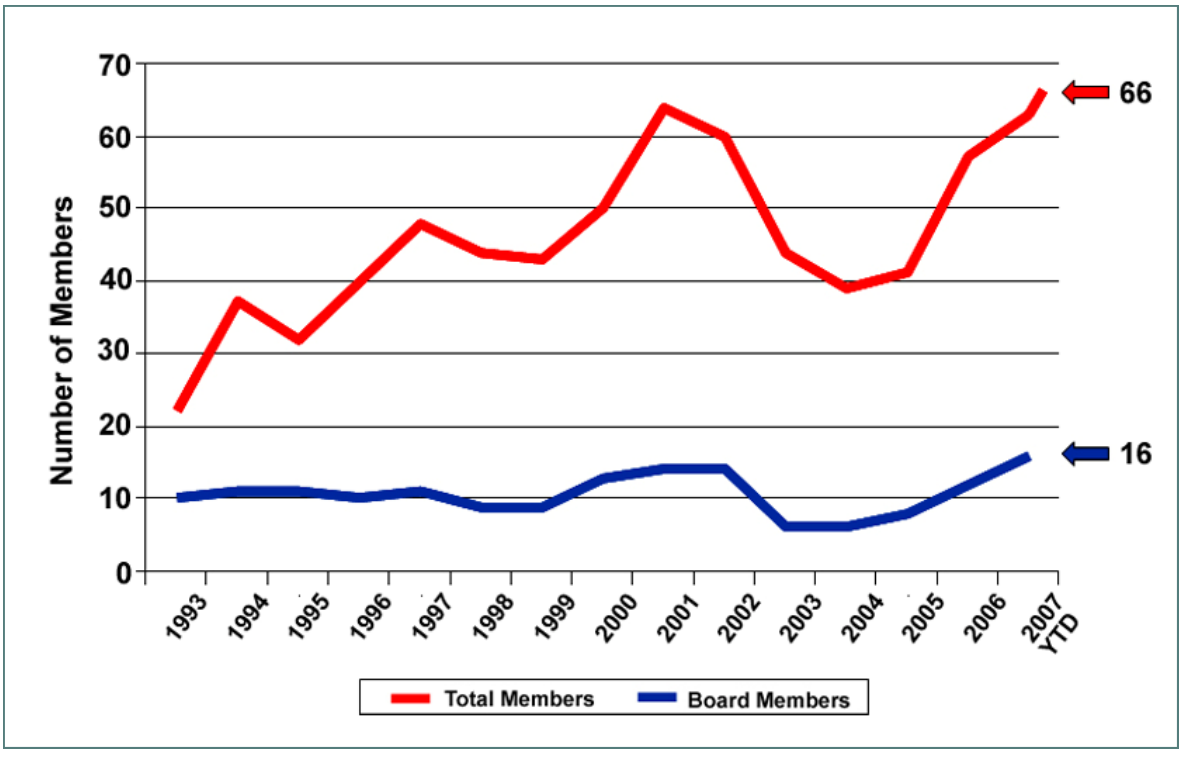

Figure 1. OIDA Membership, 1993-2007 YTD

Membership benefits

A larger membership base has allowed OIDA to become a stronger voice for the optoelectronics industry. Examples of the benefits of larger size include:

1. OIDA is more credible and influential with the government. It can address issues like export regulations, visas, and FCC rulings, and provide viewpoints representing a bigger segment of the industry.
2. OIDA can create working groups that address the more focused interests of some members. Examples of recently created groups are 100Gbps Optical Communications and the Silicon Photonics Alliance. We hope to create a number of these Centers of Interest (COI) in which competitors can work together on common, non-competitive issues that help drive the industry forward and benefit everyone.
3. With its diverse membership, OIDA has a more balanced perspective on where the optoelectronics industry is heading and what we can do to help. Examples include advising the government and the financial sector on R&D investment and identifying how U.S. companies can invest in foreign countries for more competitive products and manufacturing.
4. OIDA is a better forum for industry leaders to exchange information and can assist them strategically in areas such as R&D investment strategies, workshops, forums, training, roadmaps, market data, out-sourcing, and off-shoring.
5. OIDA has a better opportunity to work with members to report on industry trends though market data collection and technology status updates.

Figure 2 is a list of our current members (which is also on our website at http://www.oida.org), with a current total of 66.

Voting Members (16)
Avago
Avanex
Bookham
Ciena
Cisco
Corning
CyOptics
EMCORE
Finisar
General Dynamics
Infinera
IQE
Opnext
Telcordia
Tessera
Translucent

Associate Members (40)
Arasor International
BinOptics
Calient Networks
Canadian Photonics Consortium
CEA LETI
Canadian Institute of Photonics Innovation (CIPI)
CMC Microelectronics
CRi
CSEM
Dow Corning
DTI
DuPont Photonics Technologies
EM4 Photonics
Incubic
Infotonics Center
Innolume
Instrument Systems
JDSU
Kotura
Light Wave Venture
LxSix
MergeOptics
Nat'l Optics Institute, Canada
Nat'l Research Council of Canada
NP Photonics
OptiComp
Optiphase
Optronic Laboratories
Panasonic Boston Lab
Philips Lumileds Lighting
Princeton Lightwave
Redfern Integrated Optics
RSoft Design Group
SCHOTT North America
Silicon Light Machines
SiOnyxSyntune
Teraxion
Xponent
Xtellus

University Affiliate Members (10)
Boston University Photonics Center
Lehigh University
Massachusetts Institute of Technology–CIPS
Michigan State University–Biophotonics Solutions
Ontario Centres of Excellence
Rensselaer Polytechnic Inst.
Univ. Estadual de Campinas
Univ. of California, Los Angeles
Univ. of New Mexico–CHTM
Univ. of N. Carolina, Charlotte

Figure 2. OIDA Membership List 2007 YTD

While a majority of our members are from the communications market segment, OIDA staff has continued to increase OIDA's presence in a broader cross section of the optoelectronics community over the past year. As a result, we now have members which represent optoelectronics in fields that are outside the communications sector, including high power lasers, LEDs for solid-state lighting, silicon photonics, solar cells, military optoelectronics, consumer optoelectronics, displays, and software/modeling.

See President's Letter, page 6

Guest Editorial

Display Industry

Continued from page 1

Projection systems probably offer some of the best opportunities as they use a lot of optics. What's interesting here is that there are many manufacturers who perform a lot of design engineering on their products which are offered by nearly 100 brand names. There are big players, but no dominant players. The largest, Epson, has less than a 15% market share of the professional projection market. Each projection maker has a lot of component suppliers. This makes it easier for outsiders to enter the market.

Consumer projection products consist mainly of rear projection TVs (RPTV) and home theater front projectors. RPTVs came on strong in the last year or two, but are now under assault by LCD and plasma TVs. But the big buzz in this segment is around LED- and laser-based RPTVs, the first of which are in the market now. These light sources will replace the arc lamp and will offer better lifetimes, color performance and slimmer cabinet designs. Most laser based systems use frequency doubling technology to move standard IR lasers into the visible spectrum, while LEDs use RGB LEDs.

The home theater market is growing steadily with products that run the gamut from DVD-projector combo products for around $1,000 to high-end projectors costing more than $100K. Innovations in video signal processing, optics and illumination are sought after in this market.

New and exciting product categories are emerging in consumer projection including personal projectors, LED-based pocket projectors, and laser-based pico- or nano-projectors. These are designed to open up projection to a whole new set of consumers who will use them to play movies, to connect to game consoles, as an accessory display for their iPod or iPhone, and eventually, as a projector embedded in the mobile phone. These tiniest pico projectors are marvels of miniaturization and require complex optics, lasers, LEDs and packaging–areas where telecom and photonics companies shine.
The professional side of the projection market is also on a steady growth curve. Projectors aimed at education, corporate meeting rooms and traveling presentation needs dominate this market. Here, the focus is on raw light output and cost reduction. If you have mid-to-high performance optical technologies at low cost, it may be suitable for this segment.

High-lumen projection products serve the needs of auditoriums, arenas, houses of worship, and even digital cinemas. Digital cinema is hot right now as the transition from film is in full swing. The three authorized digital cinema projector makers are working 24/7 to fill orders. Here, performance optics, thermal management and ways to lower costs in lower-volume components are key needs.

Turning to direct-view LCD technology, perhaps the biggest trend is the one to replace the cold cathode fluorescent (CCFL) backlight in the LCD with an LED backlight. The backlight must provide uniform white light over the entire area of the LCD panel. For smaller-sized displays, the CCFL light is coupled into a lightguide from the edge. The light is homogenized and directed perpendicular to the LCD panel using optical films, reflectors and light management structures. For larger sized panels, the lightguide is eliminated in favor or an area array of CCFL tube and films to homogenize the light.
LEDs are already replacing CCFLs in LCDs. Today, most mobile phone displays use LED backlights. This is now migrating to larger screens. The first notebooks and monitors with LED backlights are on the market and are expected to continue to make inroads.

For larger LCDs, two technology paths are emerging–one favors the extension of the edge-lit approach from smaller to larger panels using ever-brighter LEDs; the other emulates the CCFL area approach, plastering hundreds of LEDs over the area of the LCD panel. Both approaches have advantages and disadvantages.

The benefits of LED illumination depend on the application. For portable applications, designers use white

LEDs, which have high luminous efficacy and can lower power consumption vs. the CCFL alternative.

In avionic or industrial applications, the LEDs can operate over wider temperature ranges, require no EMI shielding, have great dimmability and are all solid state (rugged) with long lifetimes.

In video-centric applications like TVs, color performance is the key benefit of LEDs. Here, most designers favor using individual red, green and blue LEDs instead of the white emitting type because you can get a better color gamut by being able to modulate each color independently. The dimmability of LEDs can also be used to boost the contrast of the LCD. Here, green LEDs are still the Achilles heel. Two emitters are required for every single red and blue emitter because their efficiency is significantly lower than blue or red.

LCDs are a behemoth in the display industry, so finding a customer in this segment is probably a good move. Interestingly, the panel makers, the TV makers and the retailers have not all prospered in the LCD boom and bust cycles. But the component and materials suppliers have fared quite well–a good omen for those of you in the photonics, telecom, and optics industries looking at the display industry.
One of the other display technologies getting a lot of attention is organic light emitting diodes (OLEDs). These are emissive displays that can offer extremely thin form factors, eye-popping colors, and wide viewing angles with no motion blur issues. That's why there is some much interest in them.

Passive matrix versions have been commercialized for MP3 player displays and secondary displays on mobile handsets, but significant price reductions in competing LCD displays has stalled market growth of passive OLEDs.

The active-matrix OLEDs are also drawing considerable interest as these are well suited for video. Samsung is leading the charge commercializing smaller panel OLEDs now for mobile phones and other applications. But most others are taking a more cautious approach waiting to see how Samsung fares before committing large resources. Sony is jumping in, but tepidly offering an 11" OLED TV later this year, but probably at very high prices.

The opportunity in OLEDs is more in materials and electronics as opposed to optical solutions. But, there are many other display technologies in various cycles of development and commercialization. For example, E-paper displays are now reaching maturity and are entering mass production. Flexible displays will follow. And, 3D displays are also hot, with digital cinema currently driving excitement and TVs likely to follow soon.

It is an exciting industry that keeps us enthusiastic and engaged every day.

Chris Chinnock is the President if Insight Media, a market research, publishing, and consulting firm focused on the entire electronic display value chain. It publishes daily and monthly news and commentary and in-depth annual reports. Consulting services include technology and IP due diligence, strategy planning services and distribution advisement. The company also offers educational webinars and on-site seminars and organizes several conferences each year. For more, visit www.insightmedia.info.

Did you know?

There are over 200 presentations from OIDA events available for download from the OIDA website? Check out this valuable resource today!

http://www.oida.org/presentations.html

President's Letter

Continued from page 3

Membership breakdown
OIDA members include a number of companies that produce optoelectronic devices. This provides a strong technical base from which OIDA can derive industry technology roadmaps. The recent addition of larger systems-based companies such as DuPont, Cisco, Ciena, and General Dynamics differentiates OIDA from a typical industry association, which has a horizontal membership base. OIDA has a vertical perspective of optoelectronics: from the material substrate through epitaxial growth, device design, modules, sub-systems to full systems. This means that OIDA can look at industry issues, problems, and opportunities in the context of the complete value chain.

Membership on the OIDA Board
Historically, the OIDA Board has consisted of major corporations. One of the innovations we have implemented is a reduction in Board membership fees for smaller revenue companies. This has allowed lower-revenue companies to participate in Board-level activities. We believe that a healthy mix of large, medium, and small member companies benefits the optoelectronics industry because it gives OIDA a window on a wide cross-section of perspectives. We encourage our smaller associate and affiliate member companies to work with their counterparts on the OIDA Board to represent their views. Over the next year, we are planning a number of member-orientated receptions to provide networking opportunities.

Membership map
When we visit with government representatives, one of the things that they like to see is where our member companies have employees. This allows Senators, Congressmen, and staff members to connect much more closely with OIDA. When OIDA can show that we have constituents with employees in their states, we become more influential in our efforts. We are assembling a map which lists our members' employment figures by state. This data will help OIDA to be more effective on the Hill.

Final words on membership
OIDA is stronger, healthier, and more vibrant today than in the last few years. Additionally, over two thirds of members have significant or primary interests outside of the traditional telecommunications market. We're on a strong growth trend and are beginning to address the opportunities that open up as OIDA membership increases. Representing the industry is our goal whether the membership is large or small. The fact that our industry is now vibrant makes our responsibilities to our members more exciting. I hope to motivate non-members to join OIDA because by supporting OIDA's growth, you will help grow your own company as well as the professional community.

Cheers,
Michael

Optoelectronics Industry Development Association

The Optoelectronics Industry Development Association (OIDA) is a Washington DC-based, not-for-profit association that serves as the *focal point for vision, transformation, and growth* of the optoelectronics industry. OIDA advances the competitiveness of its members by focusing on *the business of technology*, not just technology itself.

Chairman, David Morse, *Corning*

President, Michael Lebby, *OIDA*

Treasurer, John Dexheimer, *First Analysis*

Secretary, Clark McFadden, *Dewey Ballantine*

www.OIDA.org

Washington News

OIDA Co-sponsors Capitol Hill Day

As a special event during CLEO/QELS 2007 in Baltimore, OIDA joined with the CLEO/QELS sponsors — OSA, APS, and IEEE — to organize visits to members of Congress. Twenty-seven participants visited a total of 34 House and Senate offices in teams, and all participants met with Congressman David Wu (D-OR) in the Rayburn Room of the Capitol. Congressman Wu is a member of the House Science and Technology Committee and the Chairman of its Subcommittee on Technology and Innovation.

Congressman David Wu (D-OR) with members of the CLEO/QELS Capitol Hill Day visitors May 10, 2007

Key messages were as follows (links to supporting documents):

- Improving Our Quality of Life Through Light (PDF, 230 KB) (http://www.oida.org/pdfs/CLEO_CVD_2007_1.pdf)
- Support Increased Investments in R&D (PDF, 54 KB) (http://www.oida.org/pdfs/CLEO_CVD_2007_RDSupport.pdf)
- Support for the Advanced Technology Program (PDF, 28 KB) (http://www.oida.org/pdfs/CLEO_CVD_2007_ATP.pdf)
- Support for STEM Education (PDF, 50 KB) (http://www.oida.org/pdfs/CLEO_CVD_2007_STEM.pdf)

Commerce Releases China Export Regulations

On June 15, the Department of Commerce, Bureau of Industry and Security (DoC/BIS), issued its awaited rules on the export of dual use technology to China. Details can be found on the DoC/BIS website: (http://www.bis.doc.gov/usChinaExportRule.htm).

In a press release, Commerce Secretary Carlos M. Gutierrez said "This new rule strikes the right balance in our complex relationship with China." Most of the changes were first circulated by BIS in a proposal released in July 2006. The new rule retains much of that proposal, including the Validated End-User (VEU) program, which is a way to facilitate exports to trusted customers in China. Companies in China that qualify for VEU will be authorized to receive certain U.S.-controlled items without individual export licenses. The scope of products covered was modified somewhat in response to comments that BIS received on the proposal. OIDA was one of 57 organizations that raised objections to the initial proposal.

Status of FY2008 Appropriations

After a year in which the normal appropriations process broke down completely, only two of the normal twelve appropriations bills were enacted, and much of the government has been operating on a continuing resolution, the process for FY2008 is proceeding in a more normal fashion.

On May 17, the House and Senate agreed on a Budget Resolution setting limits for FY2008 Federal spending and the appropriations committees are at work drafting legislation. The Library of Congress tracks the Status of Appropriations Legislation (http://thomas.loc.gov/home/approp/app08.html) for each Fiscal Year, and provides links to legislation and reports. Both the American Physical Society (http://www.aps.org/policy/issues/research-funding/index.cfm#CP_JUMP_91153) and the AAAS (http://www.aaas.org/spp/rd/approp08.htm) monitor appropriations for key science and technology agencies

See Washington News, page 8

Washington News, continued

As of this date, seven of the twelve appropriations bills have been passed by the House and three others have been reported by committee. Senate versions of the same ten bills have been reported by committee, but have not moved to the floor for votes. Neither chamber has advanced appropriations bills for either Agriculture or Defense.

Generally, bills funding science have included strong increases over FY2007. Some highlights thus far:

NSF	Senate:	+10.8%
	House:	+9.9%
NIST Laboratories	Senate:	+15.6%
	House:	+21%
ATP	Senate:	$100M
	House:	$90M
DoE Office of Science:	Senate:	+18.4%
	House:	+18.9%
DoE EERE*	Senate:	+16%
	House:	+27%
NASA	Senate:	+7.2%

*Energy Efficiency and Renewable Energy, which includes photovoltaics and solid state lighting.

The latest Washington News can be found on the OIDA website:

http://www.oida.org

Silicon Photonics—Communities of Interest

OIDA's membership is now at historic levels, with current membership at 67 industry-leading companies. The membership interest is diverse, from high power lasers to solid-state lighting. Recently, OIDA and its members have created some clusters of activity which are focused into subsets of the overall membership. Examples include the Photonic Sensors Consortium and the 100 GbE Working Group. To address the diverse interests of our members, we are creating "Communities of Interest" (COI) which will provide a mechanism for such groups to operate within OIDA.

COI groups will be created around common subjects and goals, which can vary significantly from group to group. They will be supported from within OIDA by unique web pages, logistical support, and necessary staffing. The groups will be formed whenever there are three OIDA members or potential members with intent to join the COI. A group's policies will vary, e.g., leadership of the group, level of resources needed from OIDA, membership requirements, depending on the COI's goals and needs. A COI will have no preset fees for OIDA members unless the group determines that a fee is needed to achieve its goals. Non-member companies, if allowed, will pay a nominal fee to cover expenses.

The first formal COI is the Silicon Photonics Alliance, which will have its first meeting at OIDA's *Perspective on the Optoelectronics Industry Forum* in San Jose, September 11-12. The group will initially be headed by Tom Palkert from Luxtera, and will include OIDA members Kotura, Translucent, and Xponent. The primary objectives will be marketing related to raise the profile of silicon photonics in the discourse, finding opportunities to participate in applications forums, looking at key areas for standardization, and other goals to be developed by the group. If you are interested, please contact David Iams (iams@oida.org) to get involved. This group is limited to OIDA members only. More details will be announced soon.

Upcoming Webinar:

Green Tech Lighting, Seeking Efficiencies Through Solid State Technologies

Event Date: 08/15/2007 12 Noon EDT

Michael Lebby, President and CEO of the OIDA, will conduct a one-hour webinar examining the role solid state lighting technologies will play in addressing global demand for more efficient lighting solutions than incandescent and even fluorescent lighting. It is estimated that more than 20% of electricity use can be conserved with SSL when used for applications ranging from task lighting to wide area lighting and specialty lighting. Special emphasis in this webinar will be on high brightness LEDs (HB-LEDs) and their role in the emerging "greentech lighting" market.

You must register to participate.
Please visit the OIDA website for more details.

OIDA Calendar

Please note: Events are subject to change. Please refer to the OIDA website (www.oida.org) for the latest news & events

DATE	EVENT	LOCATION
August 15 (12 noon)	**Webinar:** Green Tech Lighting, Seeking Efficiencies Through Solid State Technologies	Webinar (See above)
September 11-12	**OIDA (DARPA) Forum** Optoelectronics - The Next Step (1st of 3)	San Jose, CA
November 7-8	**OIDA Forum** Next Generation Networking	Baltimore, MD
December 4-5	**OIDA Annual Forum**	Washington, DC
December 5 (pm)	**OIDA Board Meeting**	Washington, DC

Upcoming industry events and many valuable resources can be found on the OIDA website:

www.OIDA.org

OIDA Membership Update

OIDA has added four new members since our last newsletter in April, bringing OIDA membership to historic levels: DuPont Photonics Technologies, SiOnyx, Princeton Lightwave, and QPC Lasers.

DuPont Photonics Technologies designs and manufactures dynamic integrated optical components and modules for telecommunication and data communication networks. The company's core strength lies in its powerful materials and optical device technologies that enable cost effective, high performance, and multifunctional planar lightwave circuits (PLC) for WDM and other optical networks. DuPont Photonics' products allow networking system providers to offer low cost, reliable, remotely reconfigurable solutions to voice, data, and video service providers as well as enterprises.
(http://www.photonics.dupont.com)

SiOnyx, located in Cambridge, Massachusetts, is a spinout of Harvard University. SiOnyx is developing silicon-based optoelectronic products enabled by its proprietary, "Black Silicon."
(http://www.sionyxinc.com),

Princeton Lightwave applies its unique expertise in indium phosphide-based optical semiconductor devices, such as high power lasers and avalanche photodetectors, to design and manufacture advanced optical modules and systems for emerging applications. The company's core capabilities enable it to deliver solutions offering higher performance, reduced system costs and easier deployment to its customers in the fields of optical networking, industrial processing, aerospace and defense, and bio-medical instrumentation.
(http://www.princetonlightwave.com)

QPC Lasers is a young and dynamic company at the cutting edge of the new optoelectronics technology. The company's strength lies in the innovative designs and manufacturing processes it has developed for high performance, inexpensively manufactured semiconductor laser diodes and associated optical components. QPC Lasers is creating a new generation of versatile components that will have revolutionary impact on multiple sectors of the communications, defense, and manufacturing industries.
(http://www.qpclasers.com)

Sponsorship Opportunities

Maximize your exposure with an OIDA sponsorship. With specific event coverage and general OIDA website and annual report visibility, OIDA sponsorship is the most cost-effective way to promote your company to the OIDA membership and forum attendees. OIDA events and website draw traffic from senior industry leaders...OIDA sponsorships offer the best repeated exposure program for this target audience. OIDA sponsorships include special briefings by senior OIDA staff as an added service.

These options provide strong alternatives for communicating your company's uniqueness to a highly focused and senior audience.

Learn more about OIDA sponsorship opportunities on the OIDA website:
(http://www.oida.org/sponsorships.html)

Upcoming OIDA Forum:

Perspectives on the Optoelectronics Industry – Advances, Challenges, and Growth

September 11-12, 2007 - Doubletree Hotel San Jose, San Jose, CA

OIDA announces "Perspectives on the Optoelectronics Industry," a two-day DARPA-sponsored forum to help define issues and clarify trends for the optoelectronic industries. This first of three forums focuses on six industry applications sectors with presentations from more than 35 industry leading experts, including:

- Keynote Presentations
  – **Henry Kressel**, Managing Director, Warburg Pincus LLC
  – **David Morse**, Senior VP and Director, Science and Technology, Corning, Inc.
- Consumer / Personal – Yves Karcher, Director, Logitech
- Communications – Keith Cambron, President and Chief Executive Officer, AT&T Labs
- Computers / Interconnects – Marc Taubenblatt, Senior Manager, Optical Communications Group, IBM
- Industrial / Professional – Douglas Baney, Agilent Laboratories
- Defense / Homeland Security – Jonathan Saint Clair, Associate Technical Fellow, Boeing
- Transportation – Holger Schlueter, Director of Laser Production and Development, Trumpf

Important developments will be highlighted in each sector and open discussions and will be held. The Full agenda can be found on the OIDA website.

Two additional forums, "Manufacturing Issues" and "Seeds for Innovations," will follow closely behind this first forum. The ensuing reports will serve as useful reference documents for the optoelectronics industry.

The registration fee includes two-day forum admission, continental breakfast and lunch on both days, an evening networking reception, and a CD of the presentations. Register before August 10 and save $100 on the registration fee. **See you in San Jose!**

Register Online at:
http://www.oida.org