OIDA News

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President's Letter

OIDA has had a strong and fruitful relationship with the Defense Advanced Research Projects Agency (DARPA) over the past decade. This spring, DARPA approached OIDA for assistance in connecting industry with academia in the optoelectronics arena. This request has now led to a seedling project for a new optoelectronics centers program in which DARPA is planning to fund optoelectronics research in academia in the amount of $50 million later in 2008.

OIDA's role this spring is to seek industry involvement and leadership from senior executives in this new program. The new program will allow industry to match, lead, and create specific areas that align with industrial interests on a 5-10 year horizon. Historically, optoelectronics-funded programs such as the Universities Photonics Research do not having matching requirements. The new program is expected to demonstrate collaborative ideas, concepts, and

OIDA President, Michael Lebby

opportunities in optoelectronics that should align with industrial long-term research goals.

Industry will be encouraged to participate in the program, and even have a strong say in the research direction. A number of companies have already indicated to OIDA that they would love to see a stove-pipe, or focused research, approach in which each participating company can choose what stove-pipe they would like to work with. For example, the following stove-pipe areas have already been promoted:

- Very high speed optical communications devices (100 Gbps and beyond)
- Integrated solar device platforms
- Plastics photonics (organic PVs, displays, lighting)
- Green photonics (energy efficiency technological solutions for sustainability)

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New Community of Interest (CoI) Groups Form

Two new CoIs – Test and Measurement of Optical Components (TMOC) and Electronics for Optics (EFO) – were initiated at OFC this February. Sponsored jointly by Cisco and Ciena, these two groups will address key areas of cost and performance for next generation systems.

TMOC will pull together test companies, component and system engineers to look at test cost through the value chain. Where, and how often, is comprehensive testing required? How can test results be more reliable such that testing at integration is not required? How can test cost be reduced through the value chain?

EFO will look at the next generation formats for transmission and determine reasoned approaches to implementing next generation systems with feasible component technology. Long-haul systems will need to implement 100 Gb/s and faster technology in the near future, and electronics are needed to address these requirements. This group will pull together optoelectronics and electronics companies to achieve this goal.

The sponsors have offered to support a workshop in the fall to further discuss and refine these

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President's Letter

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- Smart fabric photonics for sensing, display, and PV ability
- Optofluidics and bio-photonic integration

What is not known yet, is how much industry would be willing to contribute to the new program. Stay tuned…you'll hear from OIDA soon on this subject!

Connecting industry with academia is going to be a recurring theme at OIDA in the coming months: there will be other details that will be raised from IP, patents, industrial influence, to even the creation of an advisory board.

Having just concluded a forum in San Jose on manufacturing overseas and innovation/ corporate research, we look forward to seeing you at our next forums in the fall (details in this newsletter), and we look forward to your participation in the new DARPA optoelectronics initiative later this year!

Michael

"Perspectives in Optoelectronics" Series' Successful Conclusion

Forum topics included the impact of market segment on manufacturing requirements, automation, and integration in photonics.

On April 16 and 17th, OIDA concluded its DARPA-sponsored Perspectives in Optoelectronics series with two day-long forums. The first forum in the series, last September, provided a broad overview of the state of the industry in several segments, including consumer electronics, communications, defense, industrial, and transportation/ aerospace. The series continued this April with a closer focus on manufacturing for the 21st century and innovation in optoelectronics.

Manufacturing for the 21st Century

Organized by Bill Ring of WSR Optical Device Solutions, the first day focused on manufacturing in North America and the impact of global trends and competitiveness on the industry. This has been a hot topic in the last few years because of (1) significant growth in high tech goods traded from Asia at the expense of North America, and (2) the increasing GDP growth of China since its entry into the world trade organization.

Several topics were discussed, including the impact of market segment on manufacturing requirements, automation, and integration in photonics. Gerry Fine, President and CEO of SCHOTT, N.A., addressed several key aspects related to the market opportunities for investing in manufacturing in North America. This included a controversial analysis on the labor rates as a function of the dollar (highlighting that wages are rising in South East Asia), which will make Mexico a lower labor cost area than China in the next few years. State incentives for facility expansion are key closers on deals to move manufacturing on-shore. Additional factors included the government, raw materials, and the ability to serve the customer with other key talking points. For SCHOTT, proprietary manufacturing processes were highlighted as a key decision point for a company to outsource or maintain in-house manufacturing.

The importance of on-shore manufacturing for the U.S. defense market was highlighted by Alex Rosiewicz, CTO of EM4, and Keith Kennedy, Product Line Manager of nLight, both companies supplying optical components into U.S. defense contracts.

Other companies, including contract manufacturers Celestica and Fabrinet, gave alternative views for both supply chain and the value aspects of contract manufacturing. Harpal Gill, Executive Vice President of Fabrinet, discussed several of the challenges in contract manufacturing and highlighted the efficient use of six-sigma and kaizen enabled CMs to reduce cycle time and ship to request times. The role of automation and the impact of integration in optical components came under review during one session. Torsten Vahrenkamp, CEO of ficonTEC, discussed several advantages of automation in production for high power industrial laser assembly and other aspects of component manufacture. This was contrasted by Erika Fuchs of Carnegie Mellon by both the financial aspects of costing and the optoelectronic semiconductor integration direction of companies. Two leaders in the field of optoelectronics integration, Fred Kish, Vice President, PIC Development and Manufacturing at Infinera and Cary Gunn, CTO of Luxtera, discussed integration aspects and how it

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Upcoming OIDA Forums

Optoelectronics for the Green Revolution — September 9-10 in Lakewood, CO

It's hard to miss the increased focus on sustainable technologies… and optoelectronics has a key role to play in the "green revolution."

OIDA and Greentech Media have teamed up to deliver a comprehensive and thought-provoking *Green Light Forum and Exhibition*, September 9-10, in Lakewood, CO. You'll want to mark your calendar to attend this timely forum!

Efficiency, monitoring, and energy generation are areas where photonic technology will be important. "Green photonics" impacts energy generation (photovoltaic), lighting (solid state lighting), display (emissive and other efficient technologies), and communications (intra and inter chip, board, and system). The two-day forum will not only present industry leaders and experts who will offer their insights and views about these key technologies but the concurrent exhibition will showcase companies that will enable optoelectronics to play a major role in the green revolution and their latest technologies.

For forum details, an exhibitor prospectus, and to reserve your seat now, go to www.oida.org.

OIDA forums bring together leaders from industry, government, and academia to address markets, R&D, and future directions.

Photonic Integration — October 7-8 in Monterey, CA

Integrated photonics will be the topic at OIDA's forum in Monterey, CA, on October 7-8. Integration of multiple optical elements, often with electronics, onto single die of InP, Si, or CMOS platform will provide the next major advances in complexity of optoelectronic systems. Problems as complex as multiterabit on-chip data busses and optical modulation modems will need the advances of photonic integration to achieve cost, efficiency, and performance goals.

Novel integration processes have made major strides to accommodate diverse device elements and materials in the laboratories. We will discuss the commercial viability of these technologies in manufacturing. This in-depth look at the technical and business aspects will portend the future of optoelectronics. See the latest technical and business advances in this exciting area this fall.

More details will be available soon!

OIDA's 17th Annual Forum — November 19-20 in Baltimore, MD

Now in its 17th year, the OIDA Annual Forum brings together CEOs and other senior leaders from North American optoelectronics companies to provide a review of optoelectronics markets and to discuss the industry going forward. Senior officials from government will put forward details on legislative and regulatory changes being proposed to improve competitiveness in the coming decade. Dialogue and debate on OE strategy, policy, trends and markets, combined with unparalleled networking opportunities, are the hallmarks of OIDA's Annual Forum.

This dynamic two-day forum will provide the highest quality content with CEOs and other senior leaders…you won't want to miss it!

SID Business Conference Chaired by OIDA's Slusarczuk

OIDA's Director of Government Programs, Marko Slusarczuk, is the Chair of the Society for Information Display's [SID] 2008 Business Conference. The Business Conference is being held May 19th and 20th in conjunction with SID's annual meeting in Los Angeles.

The agenda includes a variety of market-related talks as well as talks on emerging "hot" technologies such as touch screens, LED backlit displays, and OLEDs. As an indicator that flat panel displays have become a ubiquitous and mature technology, this year's agenda also includes a talk on key patent issues that are starting to play an increasingly important role as more manufacturers enter the market.

For more details on the Business Conference and the full program, go to www.sid2008.org.

"Perspectives in Optoelectronics" Series' Successful Conclusion

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Waguih Ishak of Corning, Inc., discussed the different aspects of innovation.

The transfer of knowledge, the creation of new products, and the role of research at universities were highlighted.

is impacting their markets. When looking at the differences in manufacturing of Silicon photonics and InP integration technologies, Silicon photonics would more likely move off-shore with volume due to the entrenched foundry supply base in Taiwan and South East Asia. As no real foundry model exists in the United States, InP OEICs are more likely to stay on-shore.

During the breakout session, there were lively discussions on the economic impacts and the role of innovation due to manufacturing co-location. One of the key points drawn from the meeting for the semiconductor industry is that it may be time for a III-V Semitech organization. The role of the U.S. government in manufacturing and maintaining the economic innovation environment were also discussed. The forum was a success for OIDA and provided valuable input for the meeting sponsor DARPA.

Innovation in Optoelectronics

Organized by Fred Leonberger, of EOvation Technologies, the second day of the forum focused on innovation and its role in the United States. This forum discussed aspects of innovation for commercialization and the role of university and government for the optical industry in the U.S.

The two keynote speakers from industry, Rod Alferness, Research Senior Vice President of Alcatel-Lucent and Bernie Meyerson, Telcommunications Technology Director for IBM, discussed several key aspects of innovation. Rod Alferness discussed several of the current innovation issues in communications. The inverted triangle of the communications industry is impacting component and device technology development. When reviewing the bubble years and production output, more components are made today than in the peak of 2000 and 2001. The difference in market is that costs have come down by a factor of six or more. This reduction in pricing of components has dramatically impacted new R&D in the devices that run the Internet we know today. After the breakout of component development and production from Lucent in the 1990s, basic research on components still occurs today. Licensing and collaboration are key ingredients for Alcatel-Lucent to maintain its leadership in innovation of optical devices.

Bernie Meyerson provided an overview of innovation from a semiconductor electronics viewpoint. Several historical facts concerning development of the devices and thermal generation were discussed. One key discussion point concerned Moore's Law and how scaling problems have led to more innovation in the electronics sector. When viewing the 'pre-competitive' and competitive nature of the business, it was fascinating to understand the partnerships on basic research that occur at IBM in New York. A center of excellence for semiconductor research, collaboration had been a key element in recent years. The budget for electronic R&D for IBM is around $33 billion, compared to the lone player Intel at $19 billion. The two approaches are at opposite ends of the playing field. The idea of collaboration in the industry to achieve new technology does not occur in optoelectronics. Is it a model for the future in optoelectronics? Time will tell. Other key speakers from industry included Waguih Ishak, Vice President and Director, West Coast Research at Corning, who discussed the different aspects of innovation. The examples he highlighted concerned the development of VCSEL technology at HP and several key items on process and practice. An entertaining discussion by Greg Olsen, entrepreneur and former owner of Epitax/Sensors Unlimited and now President of GHO Ventures, provided the idea that goals can be achieved, even if they entail going to the international space station!

From the university perspective, several well-known professors and innovators discussed the topic, including John Bowers of UCSB, Tom Baer of Stanford University, Derek Cheung of UCLA, Steven DenBaars of UCSB, Richard Osgood of Columbia University, Rajeev Ram of MIT, and M. J. Soileau of UCF-CREOL. The transfer of knowledge, the creation of new products, and the role of research at universities were highlighted. Discussions on IP and the role of government and industry provided insights on innovation. Universities were incubators for enterprising students to start their own business. How the government and DARPA played a role in this were extremely well vocalized during the breakout sessions. Innovation occurs in the U.S. and naturally in Silicon Valley.

How both innovation and manufacturing tie together will be discussed in the OIDA reports from these forums due to be released later this year.

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Welcome to New OIDA Members

OIDA is very pleased to welcome our newest members:

Hamamatsu Photonics, K.K., headquartered in Hamamatsu City, Japan, enjoys a global presence with production facilities, business locations and associated companies located throughout Asia, Europe, and North America. The company's research facilities are specialized and include: solid state, electron tube center, systems group, and laser group. Hamamatsu is known for its research into both the basic and applied aspects of the science of light.

IntexyS Photonics is a private venture-backed company which develops, manufactures and markets 10 Gbit-class, ultra-dense optical sub-assemblies integrating electronic and optical components on the same chipset for telecommunications, data communications, and storage industries. IntexyS patented hybridization technology enables the intimate integration of photonic components, detector, optical modulator, edge emitting or VCSEL lasers, to high-speed Silicon VLSI-electronics.

National Semiconductor creates high performance analog devices and subsystems. National's leading-edge products include power management circuits, display drivers, audio and operational amplifiers, communication interface products and data conversion solutions. National's key analog markets include wireless handsets, displays and a variety of broad electronics markets, including medical, automotive, industrial, and test and measurement applications.

OIDA members enjoy many benefits, including the availability of presentations from all OIDA forums.

Photonics Knowledge Transfer Network (KTN). With over 700 small companies developing specialist photonics applications in the UK, there is an opportunity to change the fragmented nature of the photonics industry to achieve wide-scale success. The Photonics KTN will tap into the wealth of knowledge in UK universities and other government-funded research centres, attract more large companies, and identity technology partnering opportunities to meet the requirements of the industry.

The aim of **SwissLaser Net**, a society of partner companies and universities, is to bundle the energies of its partners to improve their position toward a stronger collaboration with industries and national or international organizations and networks. Since 2006, SLN has focused on the problems and solutions in the field of laser-based processes from the analysis to the industrial preproduction model. Its main product is the knowledge about laser based processes and the underlying physics and technology.

Vrije Universiteit Brussel, Centre for Business Economics and Strategic Management. The Centre focuses on the multidimensional nature of firm level entrepreneurship and strategy. A first area of expertise relates to the interactions between government and business. Government, as the regulatory stakeholder, to a large extent influences firm level strategic decision making. As a result, business leaders need to develop strategies, reacting to changes in their firms' external environment (new regulation, trade liberalization, etc.).

New CoI Groups Form

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objectives. The CoI chairs will work to develop an agenda with interested parties.

For more details on these and other OIDA Community of Interest groups, visit the OIDA web site at www.oida.org.

Membership in a CoI group is free to OIDA members. There is a nominal fee to join as a non-OIDA member.

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submitted. This year, as in the recent past, the number of applications quickly exceeded the quota for the year. Microsoft Chairman Bill Gates used the opportunity of his March 12 testimony before the House Science and Technology Committee to call for increasing the present cap on H-1B visas, to allow high-tech companies to meet their recruiting needs. On the other side, a recent article in Business Week argues that the H-1B system holds down American wages. Perhaps more importantly, in a subsequent article, the magazine points out that eight of the ten top recipients of H-1B visas in 2007 (companies own H-1Bs, not the employees) are either headquartered in India or have most of their operations there. This raises a concern that the H-1B program strengthens foreign competition. Some H-1B critics argue that the right answer is therefore to expand permanent immigration of high tech workers by making it easier for them to obtain Green Cards.

OIDA Washington News

OIDA and OSA Representatives Join in Congressional Visits Day

On March 5th, OIDA and OSA representatives were among 250 scientists and engineers from about 30 societies and associations who visited offices on Capitol Hill as advocates for increased investments of research in the physical sciences. Prior to the visits, participants had the opportunity to hear briefings from hill staff and policy professionals on the current legislative and budget situation. Former House Science and Technology Chairman Sherwood Boehlert of New York spoke at a breakfast meeting of the full group and Congressman Bart Gordon of Tennessee, the current Chairman, spoke to and answered questions from the OIDA/OSA Group in the Committee's hearing room. Participants worked in teams and generally visited the offices of Congressmen and Senators from their home districts and states. OSA and OIDA had prepared briefing materials on the importance of optics and photonics and federal research for their teams to leave behind. These materials, and additional pictures from the day, can be found on the OSA website www.osa.org.

Rebecca Anderson of Opnext and Ann VonLehmen of Telcordia talk with Congressman David Wu (D-OR). Wu is Chairman of the subcommittee that oversees NIST and NSF.

Funding for Research

As has been noted previously in this column, FY2008 was not a good appropriations year for Federal R&D agencies. Most received increases of 1% or less in their base programs. Several congressional offices are still working to obtain supplemental funding for this year, though the odds of success now in the second half of the year are not great. Nonetheless, OIDA has been working with several interest groups as an advocate for supplemental funding.

Meanwhile, this is the time of year when discussions about funding for the following fiscal year, in this case FY2009 which begins October 1, are in full force. OIDA is also working this front, both directly and in collaboration with other groups, again promoting R&D investments.

Patent Legislation

The fate of patent reform legislation in the present (110th) Congress remains uncertain. Last year the House passed a broad patent reform bill. The Senate counterpart has not yet reached the floor because of controversies over apportionment of damages, a switch to first-to-file priority, and post-grant review. It is likely that Senate leadership will schedule a vote only when they have a draft that 60 Senators support.

Earlier this year, OIDA attempted to develop a position statement on patents, but found that there is not a consensus on reform among its board members.

High Tech Immigration

April 1 is that first day each year that applications for H-1B visas can be

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