



LIA TODAY

THE OFFICIAL NEWSLETTER OF THE LASER INSTITUTE OF AMERICA
The international society dedicated to fostering lasers, laser applications, and laser safety worldwide.

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In celebration of LIA's 40th anniversary, LIA TODAY is honoring the advancements in laser applications by featuring 40 articles written by the professionals who have contributed to this beneficial technology over the past four decades.

INTELLIGENT MANUFACTURING: ROLE OF LASERS AND OPTICS

By Jyoti Mazumder

Intelligent manufacturing in many ways is like “beauty”; it is in the eye of the beholder. It has different facets involving different disciplines. In general, it means application of artificial intelligence (AI) and knowledge-based technologies to manufacturing. Different communities with different vocabularies identify themselves to the general term of “intelligent manufacturing.”

Different functions of manufacturing enterprise such as design, process planning, production planning, operations and process control play a role in making the manufacturing process intelligent. For final products, quality control and subsequent corrective measures are needed. For production line, diagnostics and predictive maintenance are required. For processes and operation, automation, and simulation, an optimization is critical to make it intelligent.

Physics-based and statistics-based modeling are also intelligent tools often applied. Data management and expert system cannot be ignored as a member of the intelligent manufacturing family. One can see the extent of interdisciplinary knowledge needed for total quality management and thus, application of the quantitative and heuristic knowledge for manufacturing has been embodied in the term intelligent manufacturing. (Con't. pg. 6, see **Intelligent**)

LASER PROGRAMS IN ACADEMIA

By Stephen Lumbert

When lasers entered the mainstream of research and industry nearly 40 years ago, many fine individuals devoted their entire careers to pursuing improvements in laser technology, applications, and an increased awareness of laser safety. Many of these pioneers have left us with only their work and the fond memory of their time with us. Others are near retirement, creating an ever increasing need for new people to enter the convergent fields of lasers and optics.

As the number of industrial and outpatient laser applications increase, so does the need for qualified personnel to perform their respective tasks. Some of the basic areas of study include fiber optics, laser/material interaction, and laser safety. Using grants from a combination of public and private sources, these programs attempt to push the envelope of current laser techniques and knowledge. Laser technicians, operators, and safety officers are in short supply and (Con't. pg. 8, see **Academia**)

IN THE NEWS

Laser Changes Heartbeat, Ablates Cancer Cells

Researchers from Osaka University (OU) in Japan have shown that a train of femtosecond laser pulses can cause heart muscle cells to contract and synchronize to laser exposure, reported the May 30 issue of *Optics.org*.

“Calcium regulates the contraction of cardiomyocytes (heart muscle cells),” Nicholas Smith from OU said. “We knew that if we could artificially perturb the calcium levels in the cell, we could control the beating and change its frequency. We used periodic femtosecond laser irradiation to synchronize the cell beat frequency and effectively create a laser pacemaker for the cells.”

The team used a Ti:sapphire laser operating at 780 nm and emitting 80 fs pulses at a repetition rate of 82 MHz to stimulate the contraction. The laser synchronization works by causing a transient leak from the cell's calcium stores. When the laser is switched off, the researchers say that the target cells continue contracting for around 64 seconds, but when the (Con't. pg. 22)

Don't miss part 2 of 40 years of LIA on page 12 or the ICALEO 2008 preview on page 14.



Laser Institute
of America

Laser Applications and Safety

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LIA TODAY

THE OFFICIAL NEWSLETTER OF THE LASER INSTITUTE OF AMERICA

LIA TODAY is published bimonthly and strives to educate and inform laser professionals in laser safety and new trends related to laser technology. LIA members receive a free subscription to *LIA TODAY* and the *Journal of Laser Applications*[®] in addition to discounts on all LIA products and services.

The editors of *LIA TODAY* welcome input from their readers. Please submit news-related releases, articles of general interest and letters to the editor. Mail us at *LIA TODAY*, 13501 Ingenuity Drive, Suite 128, Orlando, FL 32826, fax 407.380.5588, or send material by e-mail to lia@laserinstitute.org.

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*Certified Medical Laser Safety Officer exam offered after the course.

ICALEO 2008
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Mar. 23-26, 2009 Reno, NV

ABOUT LIA

Laser Institute of America (LIA), founded in 1968, is the international society for Laser Applications and Safety. It is comprised of laser researchers, manufacturers, integrators, and end users working together to increase the use and safe application of laser technologies. LIA individual and corporate members receive significant discounts on all LIA materials, training courses, and conferences.

Laser Institute of America started with the sole intention of turning the potential of a powerful new technology into a viable industry. The LIA was forged from the heart of the profession – a network of developers and engineers – people who were actually using lasers. These were the first “members” of the LIA, the people who decided that sharing new ideas about lasers is just as important as developing them. The belief, as it remains today, is to promote laser applications and their safe use through education, training, and symposia.

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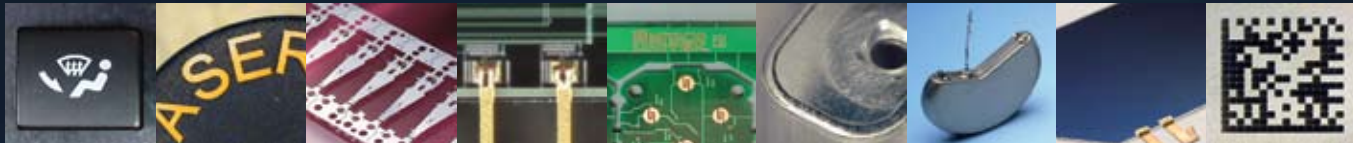


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PRESIDENT'S MESSAGE



Recently, when I visited YouTube searching for "laser," I found many interesting things on the Web. There are marketing reports on (almost all) new laser systems uploaded by the different laser suppliers, as well as experience documentation provided by laser users. Moreover, you can get university lectures or conference presentations (maybe recorded by mobile phone cameras). Also, television documentation about, for example, the National Ignition Facility in Livermore can be viewed.

The question with respect to this powerful database would be whether we actually have to leave our desks in order to meet each other. We can have phone or teleconferences, we can learn and somehow experience on the Internet (besides Youtube and Yahoo, there are many more sources like Wikipedia, etc.). During times when the travel costs are rising, these sources are becoming even more popular.

However, these new communication and information channels cannot fully substitute real meetings with real people, face-to-face communication, or watching another person on the podium describing a technical problem or solution. A real-life effect cannot be presented on the Internet. Therefore, conferences like ICALEO® are still irreplaceable and successful. Nevertheless, our society has to deal with these new media, and we also have to find ways how to bring networking into the virtual world.

Especially with regard to laser safety, you will find many bad examples on YouTube where people use high-power compact green lasers at home without any protection. There's a huge need out there for action in order to prevent imitation, which means a great opportunity for LIA to further its mission to foster lasers, laser applications, and laser safety worldwide.



Andreas Ostendorf
President
Laser Institute of America

EXECUTIVE DIRECTOR'S MESSAGE

THE GREAT OAK AT PECHANGA

Gail LoIacono, our director of executive services and conferences, and I recently visited the Pechanga Resort and Casino in Temecula, California to work on preparations for ICALEO® 2008, which will be held there October 20-23.



Temecula is home to the Pechanga people who have lived there for 10,000 years. Gail and I were privileged to visit the Great Oak on the Pechanga Reservation,

which is the largest indigenous live oak in the United States and is estimated to be over 1,000 years old. It serves as both a gathering place and a symbol of the Pechanga people.

As part of our preparation, we took the transit van shuttle from the airport to the resort (LIA has negotiated discount rates for attendees, see pg. 15). It was a relaxing ride passing through rolling hills to the Temecula valley, home to over 30 wineries.

The AAA Four Diamond resort itself is only six years old and is very unusual in design. Half of the building is a very nice hotel and meeting space, the other half is a full-on casino with slots, a comedy club, big name entertainment and, best of all, about 14 restaurants, three of which are open 24 hours.

The weather in October should be pleasant and we've planned for the President's Reception to be held at the La Cereza Winery (yes, Gail and I diligently checked it out, the Gewurztraminer is very good!). So, once again, ICALEO should be a memorable event. Go ahead, register now and don't forget to book your shuttle.

See you there!



Peter Baker
Executive Director
Laser Institute of America
pbaker@laserinstitute.org

Enquiring minds will ask why **LIA TODAY** is interested in the topic and where is the role of lasers in this crowded field?

QUALITY CONTROL

Among all the various technologies under the umbrella of intelligent manufacturing, lasers play an important role in in-situ diagnostics, measurements, and closed loop control. It also has a large role in post-process metrology and quality control. Many of the applications are already in the manufacturing floor and probably equal numbers, if not more, are in the laboratory in various stages of development.

One of the most edible examples is sorting of corn kernels using a laser and photo detector for selection of good quality corn (Ref: U.S. Patent #6059117). Grain Marketing and Production Research Center (Ref: eru.gmpcr.ksu.edu) has a long list of publications on detection of quality, insect infestation, fungi growth, etc. from wheat to pistachios. Automated optical inspection (AOI) is being adapted in a wide variety of areas due to accurate and high-speed inspection capability (B. Dawson, archive.evaluationengineering.com). AOI is now replacing mechanical measurements and human vision by using cameras, vision computers and various light sources including lasers. Typical applications of AOI include:

1. Gauging diameter and concentricity of holes in automotive components
2. Checking for accurate labeling in the food and pharmaceutical industry
3. Evaluating needed parts against 3-D CAD data

4. Ensuring all parts are present during assembly
5. Checking for cracks and other defects
6. Optical character recognition
7. Grading of agricultural products such as seep corn and fruit (Ref. Dawson)

MANUFACTURING INTELLIGENTLY

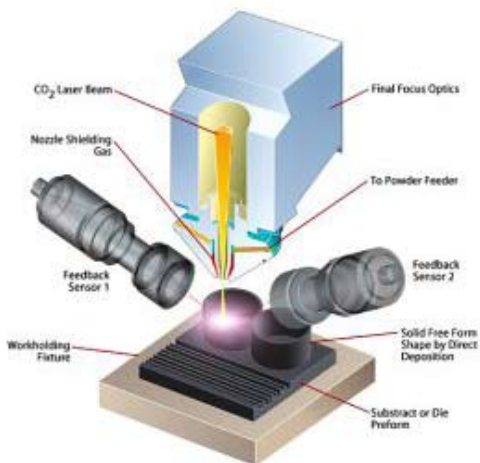
For the manufacturing industry, in-situ diagnostics and measurement is ensuring high quality at high yield. Various definitions have been attributed to “intelligent manufacturing”. One of the definitions we like is provided by Nam Suh, ex-MIT professor and presently president of KAIST (Korea Advanced Institute of Science & Technology). This definition is concisely presented as follows: “An intelligent manufacturing process has the ability to self-regulate and/or self-control to manufacture the product within the design specification.”

According to Suh, intelligent manufacturing can be achieved in three different ways:

- a) The existing manufacturing process can become intelligent by monitoring and controlling the state of the manufacturing machine.
- b) Existing processes can be made intelligent by adding sensors to monitor and control the state of the product being processed.
- c) A new process can be intelligently designed to produce parts of desired quality without the need for sensing and control of the process.

Sensing and control is an important part of manufacturing

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and laser integrated with a computer plays a major role in sensing and control. One of the widely adapted laser-based sensing technologies is “in-line optical coordinate measuring machines” (OCMM). This enabled the U.S. auto industry to manufacture “body in white” (BIW) with accuracy within 2 mm. Its predecessor, “coordinate measuring system,” which measures dimensions in sub-millimeter accuracy, is now ubiquitous in the industry worldwide. It is estimated that OCCM, along with allied technologies, saves up to \$25/car in production cost. (Advanced Technology Program Case Study: The Development of Advanced Technologies and Systems for Controlling Dimensional Variation in Automobile Body Manufacturing, March 1997, prepared by CONSAD Research Corporation, Pittsburgh, Penn.)

AUTOMOTIVE MANUFACTURING

Various laser-based manufacturing processes, such as laser welding, drilling and direct metal deposition, are highly amenable to laser sensing and control for robust and intelligent production methods. Intelligent manufacturing techniques can drastically reduce the need for periodic destructive testing to ensure quality. Many auto manufacturers are adapting laser welding and automated tailor blanks for cars are almost exclusively laser welded.

BIW assemblies are also getting laser welded. The VW Golf has almost 70 meters of laser welding in each car. Often, they are galvanized steel in lap welding form. Zinc sandwiched between two plates often creates explosions leading to defects.

A major auto manufacturer now licenses laser-based diagnostics developed at the University of Michigan at Ann Arbor. Another auto manufacturer is working with the university to adapt the sensors for online diagnostics of defects. These sensors add decision-making features during the manufacturing process where quality of the product is monitored during the process and appropriate action can be taken to satisfy the definition proposed by Nam Suh for intelligent manufacturing.

Multiple companies now commercialize near net shape manufacturing, using direct metal deposition (DMD). POM Group, Inc. has adapted the closed-loop control system for DMD developed at the University of Michigan by myself and co-workers (see diagram). This allows the user to deposit layers within predetermined height by processing the light emitted during the process. The emitted light not only has geometric information, but also has temperature and composition information. Extensive work is now going on to adapt composition control, which is required for a few sensitive alloys.

The above few examples give some ideas about the role of lasers and lights for intelligent manufacturing. There are also specialized journals on intelligent manufacturing. Often, laser-related articles can also be found in the *Journal of Laser Applications*® published by the LIA. ■

Jyoti Mazumder is a Robert H. Lurie professor of engineering at the University of Michigan at Ann Arbor. Mazumder is also editor-in-chief of the Journal of Laser Applications®.

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academia strives to fulfill that need. Additionally, we may soon find ourselves facing a dilemma in which there are not enough talented young minds interested in the field of laser and photonics research. Meeting this challenge requires a renewed emphasis on recruiting new students into the study of lasers and photonics.

ACADEMIC LASER PROGRAMS

Helping to fulfill this need are a number of laser programs in academia. These programs have traditionally started at the community college level and progress to post graduate studies and certifications. There is, however, a growing trend to include high school students in programs geared toward future recruitment into the collegiate regimen. The following 2008 overview provides a sampling of current laser programs including some of their hot topics of interest.

At the community college level there are some very exciting program offerings. For example, Three Rivers Community College in Norwich Connecticut (TRCC) offers an associates degree in Laser and Fiber Optic Technology¹ (LFOT). Additionally, TRCC has a new certificate in Laser and Fiber Optic Technology. This 15-credit academic certificate is designed for the electronic, mechanical or manufacturing technician in the



photonics industry and is open to anyone who meets program and course prerequisites. The certificate may also be used to fulfill open and technical electives in the AAS in general engineering technology and AS in technological studies.

At the university level, CREOL, the University of Central Florida's College of Optics & Photonics, has the Research Experiences for Undergraduates² (REU) programs in optics and lasers, offering student research experiences that cover a range of topics in both science and engineering.

Looking forward, CREOL has entered into a partnership with the Orange County Public Schools and the Orlando Science Center to create The Greater Orlando Graduate Teaching Fellows in K-12 Education (GO GK-12). This National Science Foundation funded agenda establishes a program of science, technology, engineering, and mathematics (STEM) where graduate students are partnered with 6th to 9th grade science teachers in the Orange County Public Schools system. The goal of the program is to improve the quality of science education and to create long-lasting partnerships between the graduate students, the school system, and the University of Central Florida.

Another example of the state of current laser education and research takes place at the University of Texas at the San Antonio and Austin campuses (UTSA and UTA). These schools comprise two of five research universities in a nationwide consortium awarded \$1.4 million from the National Science Foundation. The Nanoscale Interdisciplinary Research Team³ (NIRT) grant supports research into exploring new methods of

concentrating optical energy on a scale of nanometers and to develop means of controlling optical energy for applications in nanoscience and nanotechnology. The other NIRT consortium member institutions include Harvard University, Cornell University and Case Western Reserve.

Oklahoma State University⁴ (OSU) has laser programs reaching not only into areas of veterinary medicine but also through its Photonics Advanced Degree Program. This program explores the technology associated with optical communications, optical computation, holographic storage, ultrafast laser applications, and photonic materials and devices.



At the University of Michigan-Ann Arbor's Center for Lasers and Plasmas for Advanced Manufacturing⁵ (CPLAM), ongoing programs continue to explore the fundamental science behind laser-aided intelligent manufacturing working towards the goal of reducing the lead-time for manufacturer's concept-to-product cycle. UM-Ann Arbor is also part of the Global Alliance of Research and Education on Laser Aided Advanced Manufacturing⁶ (GARELAM). This confederation is growing into a global platform for creating the culture and process of innovative and sustainable collaborative engineering research and education in the 21st Century. GARELAM is working on the development of innovative and sustainable manufacturing technology through global collaboration between technical and industrial experts of the participants. The definitive attribute of each GARELAM project will be its concept-to-market approach in a global context.

GOING GLOBAL

North America is not the only arena, there are several academic programs located abroad. Finland is home to the Optoelectronics Research Centre⁷ (ORC), operating under auspices of the Council of Tampere University of Technology (TUT). ORC facilitates under-graduate and post-graduate studies in optoelectronics for masters and Ph.D. degrees. Additionally, the school offers jobs to post-doctoral researchers and currently oversees more than 20 research projects with about 50 universities and companies globally.

The International Laser Center of Moscow State University⁸ is another example of laser and photonic education on the global scene. Moscow State offers laser education programs and directs the activity of the Basic Optics and Spectroscopy Education and Research Center, an organization supporting scientific conferences, workshops, and competitions for young scientists, as well as the support of students and Ph.D. students attending international conferences and symposia.

All of these programs, along with many others, are just a small sample of how our industry, working with academia, has

raised the bar on recruiting the next generation of laser and photonic students. The key is to start as early as possible to entice future students to follow in the footsteps of those pioneering laser educators and professionals that started the paradigm shift to the safe uses of coherent light. ■

Stephen Lumbert is a freelance technical writer in Orlando, Fla.

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- ¹<http://www.lasertechnonline.org/>
- ²<http://www.creol.ucf.edu/Academics/REU/>
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- ⁴<http://www.research.okstate.edu/report97/CENTERS/uclr.html>
- ⁵<http://www.engin.umich.edu/research/lamircuc/index.html>
- ⁶<http://www.engin.umich.edu/research/lamircuc/GARELAM.html>
- ⁷<http://www.orc.tut.fi/index.html>
- ⁸<http://ilc.phys.msu.ru/index.phtml?lang=eng>



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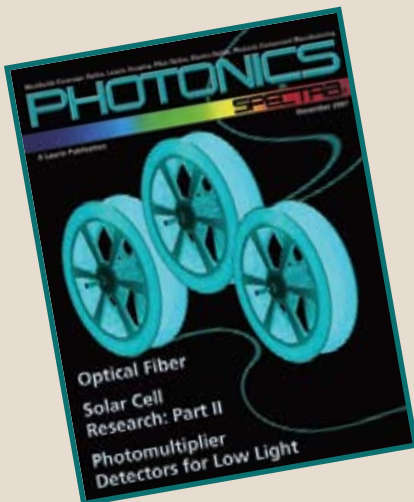
The National Center for Optics and Photonics Education, or OP-TEC, is a consortium of secondary to post secondary academia, national laboratories, industry partners, and professional societies. OP-TEC is committed to fostering a 'pipeline' of highly motivated quality students to help satisfy the critical need for technicians well versed in optics and photonics. The center will serve primarily one and two-year postsecondary programs that focus on lasers, optics, and photonics technology and those devoted to technologies that are enabled by optics and photonics.

OP-TEC is funded by the National Science Foundation's Advanced Technological Education (ATE) program and has four stated goals:

- Serve as a national resource center for optics and photonics education and training.
- Create, assemble, align, and distribute coordinated curriculum materials designed to support optics, laser, and photonics education in high schools, two-year colleges, and retraining of adult workers.
- Support established and new photonics education programs in high schools, community and technical colleges, universities, and professional societies.
- Provide education and training for administrators, counselors, high school teachers, and community college faculty members to prepare them to design new photonics technology programs that meet their local needs; infuse photonics into programs in photonics-enabled technologies; and teach optics, photonics, and lasers using curriculum materials distributed by OP-TEC.

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ALL'S AWESOME AT ALAW

The Automotive Laser Application Workshop (ALAW) was held May 13-15, 2008 in Plymouth, Mich. and continues to be the premier North American industrial laser industry event. Now in its 16th year, ALAW is designed to improve productivity and reduce manufacturing costs with laser processing for manufacturers and job shops as well as automotive manufacturers and their suppliers. This year's expanded conference focused on laser solutions for new product design and real-world manufacturing challenges.

ALAW was hosted by LIA in cooperation with the Fabricators & Manufacturers Association (FMA). The conference co-chairs were Eckhard Beyer of Fraunhofer WLT and Stanley Ream of Edison Welding Institute.

TECHNOLOGY GALORE

The plenary keynote session opened ALAW 2008. The first speaker, Franz-Josef Wetzel of BMW Group, Germany, presented the talk "Advanced Propulsion Applications at BMW." The second presenter was Mark Mathias of GM Fuel Cell who presented the talk "Technology Hurdles in the Fuel-Cell and Battery-Powered Vehicle Commercialization Race." Both topics by these leaders in advanced propulsion were a great way to kick off the conference.

The Fabricators Track was titled "Lasers for Fabricators — Your Competitive Edge" and covered the benefits of using laser technology for new or different applications and the costs associated with them. The sessions covered topics such as new application-driven technologies, high-powered lasers, fiber laser applications, lean manufacturing, and part design criteria. Case studies were also presented, as was a panel discussion comprised of laser suppliers. Importantly, these sessions showed effective ways to implement these technologies on the shop floor.

The Automotive Track was titled "Automotive: Advanced Propulsion, Power Train, Established Laser Applications and Non-Traditional Laser Applications" and covered such topics as laser cladding and welding applications, new welding machines, future powertrain welding applications, and mass reduction in tailor welded blanks.

The Body-in-White Track covered the use and development of flexible applications for automotive material processing systems to reduce costs, improve quality and provide flexible laser manufacturing. Topics presented included 3D high-speed laser welding, process monitoring for body-in-white, laser brazing with diode lasers, and welding of tubular components for body structure.

Over 200 attendees convened to hear from the automotive industry and suppliers during the Automotive and Body-in-White Tracks, and to learn from the popular case studies presented by job shop and OEM manufacturers during the Fabricators Track. Automotive manufacturers and tier 1 and 2 suppliers from the

global automotive industry delivered presentations on laser processing for automotive components, diode, fiber, and disk laser applications for welding and cutting, and how lasers are being used worldwide in the automotive industry.

NETWORKING GALORE

This year ALAW held a golf outing the day before the conference sessions began. Twenty golfers signed up to play. Attendees were also invited to network during two open houses, one hosted by Fraunhofer USA, Center for Coatings and Laser Applications and the other by TRUMPF Laser. There was also a reception hosted by IPG Photonics. Fraunhofer provides process development/consulting services for high power laser applications and has a state-of-the-art laser facility. TRUMPF is a technology leader in the area of industrial lasers and laser systems, and IPG Photonics is a manufacturer of active fiber lasers, direct diode and amplifiers for application in several industries. All of these companies are LIA corporate members.

In addition to the above outings, 25 vendors set up exhibits for the reception and sponsor night, which included a body-in-white frame (Ford Focus) displayed by the Tailored Steel Product Alliance.

SEE YOU NEXT YEAR!

Next year's ALAW Laser Conference will be held on May 12-14, 2009 at the Inn at St. John's Conference Center, Plymouth, Mich. Visit www.alawlaser.org for more details. ■



From left, Conference Co-Chair Eckhard Beyer, Conference Chair Emeritus Frank DiPietro, Conference Co-Chairs Klaus Loëffler and Mariana Forrest.



Fabricators & Manufacturers Association, International®



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Laser Applications and Safety

ALAW 2008



The Networking Lunch was a great opportunity for attendees to get acquainted in a relaxed setting.



The reception and sponsor exhibits showcased the latest innovations from several prominent companies.



From left, Bo Lindgren, Frank DiPietro, and Klaus Loëffler.

From left, Klaus Loëffler, Eckhard Beyer, LIA Executive Director Peter Baker, and FMA's Executive Director Jerry Shankel at the Trumpf open house.

LIA – CELEBRATING 40 YEARS OF INNOVATION, INGENUITY AND INSPIRATION

By Heather Teague

In celebration of LIA's 40th anniversary, this is the second installment of our three-part feature article. We invite you to continue our retrospective journey over the last 40 years to remember how the laser was born, how it has influenced our lives, and the role LIA has played in this remarkable story. If you missed the first article, you can access the March/April issue of LIA TODAY online at www.laserinstitute.org.

PART II – LIA BECOMES THE WORLD'S AUTHORITY ON LASER APPLICATION AND SAFETY

In the past 20 years, we have seen advancements in laser applications that our laser pioneers could have only imagined. There has been a revolution in world fiber-optic communications, amazing advancements in medicine, and highly developed national defense systems. This multi-trillion dollar global market is made up of everything from compact disc players to laser surgery.¹

As the market for lasers expanded, so did the LIA and its role in the laser industry. The demand for continuing education, especially safety training, exploded beyond expectation. LIA launched its first laser safety training program in 1988 and quickly became the leading laser safety source. In 1997, LIA assumed ownership and management of the International Laser Safety Conference, which has become the world's top forum on laser safety.

Today, 40 years later, LIA trains more laser safety officers than any other organization in the world. With the goal of making laser safety education more accessible, LIA has made training available via the

classroom, online, or even on-site at a facility.

To further enhance LIA's mission of fostering lasers, laser applications, and laser safety worldwide, it became the secretariat and publisher of the American National Standards Institute (ANSI) Z136 series of laser safety standards. This is the foundation of laser safety programs nationwide. In 2005, LIA formed an alliance with the Occupational Safety and Health Administration (OSHA) with the overall goal of keeping the workplace safe from hazards associated with lasers.

With the use of lasers growing so rapidly in the last 10 years, the demand for trained laser safety professionals has

increased profoundly. As a result, the Board of Laser Safety (BLS) was formed in September 2002 as a nonprofit organization affiliated with LIA. It offers two types of certification – Certified Laser Safety Officer and Certified Medical Laser Safety Officer.

"The goal of the BLS is to improve the practice of laser safety by providing opportunities for education, assessment, and recognition of laser safety professionals," stated BLS Executive Director Barbara Sams.

Another feather in LIA's cap is its world-renowned *Journal of Laser Applications*[®]. Launched 20 years ago, it serves as the major international forum for exchanging ideas and information in disciplines that apply laser technology. Editors, reviewers, and columnists from around the globe contribute to the journal. They deliver the latest research results concerning the diverse, practical applications of photonic technology.

A NEW CHAPTER BEGINS

In 1988, after an extensive search for a new LIA leader, Peter Baker was appointed as executive director of LIA and continues in that role today. Soon after, the LIA headquarters moved to Orlando, Florida in proximity to the University of Central Florida and several thriving laser companies. Baker has made tremendous contributions to the success and growth of LIA over the past 20 years.

Also contributing to the sustained growth of LIA has been the rapid transition of laser applications to the military, manufacturing industry, and medical fields. In the military, lasers are used for many tactical applications including targeting, range finding, and navigation. The use of night vision imagers and missile guidance units provide our U.S. armed forces with a formidable advantage.¹

As more reliable and lower-cost lasers have become available, the manufacturing industry has implemented many new applications. Industries such as automobile, aircraft, boats, printing, and even construction are now utilizing lasers to increase productivity and save costs.

One of the most exciting areas of laser advancement is in the medical field. It has enabled numerous noninvasive procedures such as bloodless surgery, kidney stone treatment, knee repair, laser eye surgery, and dentistry. The future is very bright for laser progress in the health and sciences.¹

LIA AND LEARNING

To coincide with these phenomenal laser advances in the past two decades, LIA expanded its offering of publications and conferences. As membership continued to increase, so did the demand for more education and training.

The first International Congress on Applications of Lasers & Electro-Optics (ICALEO[®]) was held in 1981. From its inception, ICALEO has focused on laser materials processing and is now viewed as the premier source of technical information in the field. Attendance has grown from approximately 150 in the



early years to 550 people in attendance at last year's event.

The laser community is certainly not limited to the U.S. Innovations in laser applications have made a tremendous impact in Europe and across the Pacific. Gaining an international perspective is a key initiative for LIA, which led to the formation of the Pacific International Conference on Lasers and Optics (PICALO) in 2004. This world-renowned conference brings together researchers, engineers, equipment suppliers and industry personnel to hear the latest developments and progress in lasers and applications. They share knowledge, experiences, and their vision for the future.

In addition to these popular conferences, specialized areas of training emerged. As noted earlier, one of the fastest-growing segments of laser application is the medical field. Early on, LIA recognized a need for specialized laser safety training in this area of expertise and created the Medical Laser Safety Officer training program.

As the technology for online learning continued to evolve, LIA determined this would be an excellent course delivery method for busy professionals who needed more flexible and convenient learning options. LIA now offers several of its most popular training courses online.

Four decades since the inception of LIA, it provides numerous safety and application publications, training videos,

as well as several education courses, conferences, and events. As a result of its continued dedication to the laser industry, LIA continues to be the world's leading authority on laser applications and safety. ■

Heather Teague is a freelance writer in Orlando, Fla.

Reference

1. National Research Council. (1998). *Harnessing Light*. Washington, DC: National Academy Press.

LOOKING AHEAD

Look for the November/December issue of **LIA TODAY**, where we take a look into the future with Part III of our series: Beaming Ahead-What's Next?

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Many job seekers and employers are discovering the advantages of searching online for industry jobs and for qualified candidates to fill them. But when it comes to making career connections in the field of laser technology, the mass market approach of the mega job boards may not be the best way to find exactly what you're looking for.

The **Laser Institute of America (LIA)** has created the **LIA Career Center** to give employers and job seeking professionals a better way to find one another and make that perfect career fit.



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ICALEO 2008 ON THE HORIZON

The International Congress on Applications of Lasers & Electro-Optics (ICALEO®) has a 26-year history as the conference where researchers and end-users meet to review the state-of-the-art in laser materials processing and predict where the future will lead. From its inception, ICALEO has been devoted to the field of laser materials processing and is viewed as the premier source of technical information in the field.

The 27th ICALEO will be held Oct. 20-23, 2008 at the Pechanga Resort & Casino in Temecula, Calif. ICALEO 2008 will include three conferences, the Laser Materials Processing Conference, the Laser Microprocessing Conference, and the Nanomanufacturing Conference will be back for its second year. Additional features include a Poster Presentation Gallery, the Laser Solutions Short Courses, and a Business Forum & Panel Discussion.

If you are interested in laser materials processing from the basic understanding of the interaction between a laser beam and a material to how a process can be integrated and optimized for an application, you won't want to miss this congress. According to ICALEO 2008 General

Chair Professor Yongfeng Lu of the University of Nebraska-Lincoln, the ICALEO program committee has put together a very interesting program with a high number of contributions from research and engineering groups covering all parts of the world in areas of traditional and emerging laser applications.

PLENARY AND TECHNICAL SESSIONS

With energy shortage emerging as one of the major challenges to the future of mankind, can laser communities provide solutions to sustainable energy for the future? This is the topic covered during the plenary session, "Lasers for Sustainable Energy Future". Four eminent leaders in science, engineering and business will give talks on different aspects of laser applications in energy. You won't want to miss this enlightening plenary session.



ICALEO 2008 General Chair Yongfeng Lu.

As always, the abstracts in the Laser Materials Processing Conference (LMP) will characterize the trends in research and interest of the attendees. Over 40 papers are related to the deposition of materials. This topic, once simply called cladding, now takes many forms and the presentations will deal with rapid prototyping, tailored structures, repair, modeling, and process control that relate to deposition of materials. The LMP will also continue to include such areas of interest as processing with high

brightness lasers and hybrid welding, laser cutting, and drilling.

The Laser Microprocessing Conference (LMF) continues to be the global forum for scientists and engineers from advanced academic research labs and industrial R&D departments to discuss and exchange ideas and results in this dynamic and exciting field. Ultrafast laser processing and nanosecond pulse micromachining continue to be main topics for LMF. Other sessions include laser micro-welding, micro deposition, micro fabrication, medical and biomedical applications, and novel processing techniques.

This year, the LMF will have a joint session with the LMP on high average power materials processing, which used to be LMP's exclusive domain, but with micrometer-level resolution that is appropriate for LMF.

Back for a second year, the Nanomanufacturing Conference will highlight research in emerging nanomanufacturing technologies in laser nanopatterning, nanoparticle generation, pulsed

laser deposition and sintering, micro/nano-machining, multiphoton polymerization, laser-assisted characterization and scanning probe lithography/microscopy. These studies encompass a variety of applications, including nanocomposites, photonic crystals and metamaterials, flexible electronics, solar devices, biosensors and tissue scaffolds.

ADDITIONAL EVENTS

In addition to the technical conferences on laser materials processing, laser microprocessing, and nanomanufacturing, ICALEO 2008 has organized a Business Forum & Panel Discussion that will provide conference attendees an opportunity to listen to and interact with leaders from business, academic, and governmental organizations around the world on the important issues related to the laser and photonics industry. This year's theme is "Laser Research and Development Activities and Funding Opportunities under Globalization". Five distinguished, invited speakers from different regions of the world will discuss research priorities and program selection process as well as the available funding opportunities from their own organization, country, or regional perspective. The forum is open to everyone.

Moreover, the Laser Solutions Short Courses are ideal for those who want to receive a complete overview on the state-of-the-art in laser processing. This series of short courses, taught by industrial photonics experts, will address fundamentals related to lasers, optics, material processing, and applications, and are designed to complement the other ICALEO activities. No additional fee is required.

The ICALEO 2008 Vendor Tabletop Display & Reception will be an important networking opportunity to discuss individual

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ideas with industry representatives. Exhibit space and sponsorships are still available. Please contact Kim Truelove (ktruelove@laserinstitute.org) or David Evans (devans@laserinstitute.org) for more information.

Additional social events include the President's Reception, the LIA Annual Meeting & Awards Luncheon, and the Meet & Greet Fiesta.

The ICALEO Advance Program, which provides details for all the technical sessions, poster presentations, vendor exhibits, short courses and events offered during ICALEO, is available on www.icaleo.org. Also visit this site to register, or e-mail the LIA conference department at conferences@laserinstitute.org.

GROUP TRANSPORTATION

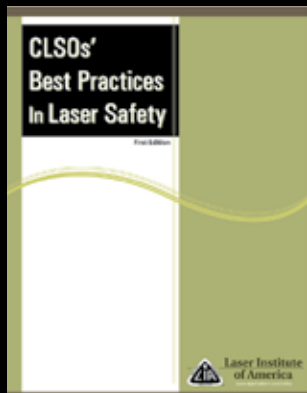
Once you have made your flight arrangements, it is highly recommended that you pre-book your transportation to the hotel. Discounted group transportation is available for roundtrip purchase only. You can reserve on-line at www.transitvan.net or by calling 1-866-261-3114 or +951-719-3274.

EARLY BIRD REGISTRATION SPECIAL

LIA is offering a special promotion for ICALEO registrations. If you register online by the early bird deadline of Sept. 5, you will receive \$50 off a full conference registration. After Sept. 5, the higher rates apply. Discount does not apply to one- or two-day registrations. This discount only applies to online registrations. ■

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CORPORATE MEMBER PROFILE

MIYACHI UNITEK CORP.

LIA Corporate Member Miyachi Unitek, Monrovia, Calif., designs and manufactures a broad range of pulsed Nd:YAG lasers from 0.2 – 600 W lasers for welding with up to 10 kW peak power and multiple output beams for OEMs or as turnkey systems with multi-axis CNC motion hardware. Miyachi also offers both Nd:YVO4 and fiber laser markers for high quality, high speed marking of metals and plastics.

The company also designs, builds and supports both standard and custom workstation systems with CDRH Class I enclosures, multi-axis motion control, flexible laser sources, vibration isolation, inert gas glovebox systems, CCTV vision for inspection and vision-assisted motion, laser control software, and a wide range of standard laser welding beam delivery components and accessories.

COMPANY ORGANIZATION

Miyachi Unitek was founded in 1948 as Weldmatic Division of Unitek Corporation to manufacture resistance-welding equipment for small parts assembly. Bristol-Myers and then 3M later acquired this division. Once divested from 3M in 1988, it became Unitek Equipment until merging with Miyachi America in 1994, the U.S. subsidiary of Miyachi Technos Corporation of Japan.

Today, Miyachi Unitek's parent company is Miyachi Corporation (MHC), which is based in Noda City, Japan, and is listed on the Tokyo Stock Exchange. The CEO/president of Miyachi Unitek Corporation is Jack Lantz. There are currently 200 employees, and in addition to the corporate office, the company has offices in Mexico, Brazil, and China, and, through a subsidiary company, The Netherlands and Germany. The company has been



ISO certified since 1995, has its own R&D department and holds 19 patents with two patents pending.

Miyachi Unitek was established to manufacture and market semiconductor-related measuring instruments and welding control equipment in response to the demand for quality control in the automobile and electronics industries. The company was quick to incorporate microprocessors and other electronic devices into its resistance welders to enable high quality precision joining and the monitoring and analysis of that process. Its weld checkers quickly became the worldwide standard for weld monitoring.

For more than 60 years, Miyachi Unitek has been a pioneer in the design and manufacture of welding systems; innovative technologies and processes developed to solve difficult joining requirements, from large metal parts to sub-micron positioned

components.

“We’ve built our business and reputation by providing the industry’s finest, most reliable and complete line of state-of-the-art resistance welding and reflow soldering power supplies, welding heads, monitors, accessories, laser welders, laser markers, hermetic sealing systems, projection welding systems, atmospheric enclosures, and customized production systems,” said Geoff Shannon, product manager, Laser & Systems Division.

COMPANY PRODUCTS

The first products released by Miyachi Unitek were orthodontic dental welders. Today’s product/services line-up includes resistance welding and reflow soldering power supplies, welding heads, monitors, accessories, laser welders, laser markers, laser systems, hermetic sealing systems, projection welding systems,

atmospheric enclosures (gloveboxes), and customized production systems. A new product soon to be released is the LMF2000 fiber-marking laser.



Miyachi Unitek’s A-Series family of pulsed Nd:YAG lasers.

“Miyachi Unitek has long been recognized as the technology leader for precision parts joining. We developed the world’s first micro-processor controlled power supplies and we continue to lead the industry with the superior performance and control available in our high frequency DC inverter and linear DC power supplies, integrated statistical process control solutions, power-feedback laser technology and customized system solutions. We take pride in providing high technology solutions for the diverse needs of our wide customer base. Today, Miyachi Unitek offers the broadest selection of precision parts joining solutions in the market, and we continue to invest engineering resources in expanding our product technology to meet specific customer needs,” said Shannon.

COMPANY GOALS

“All Miyachi Unitek employees and partners are the source of our strength and success. Our unique blend of people, products, quality and service makes Miyachi Unitek a good place to work and is the basis for our present and continued success,” Shannon said. “And being an LIA member is important to us as it keeps the company connected with the key industry body.”

For more information visit www.miyachiunitek.com. ■



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- Safety Professionals
- Nurses & Allied Health
- Biomedical Technicians
- Teachers & Students

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- Complimentary subscription to LIA Today, our bi-monthly newsletter.
- Special member rates on all LIA publications (including the ANSI Z136 series of laser safety standards), videos and safety training guides.
- Substantial discounts on LIA courses, conferences and seminars. This includes laser safety officer training, the International Congress on Applications of Lasers and Electro-Optics (ICALEO®), the International Laser Safety Conference (ILSC®), the Pacific International Conference on Applications of Lasers and Optics (PICALO) and the Automotive Laser Applications Workshop (ALAW).
- Discounts on ANSI eStandards store purchases. Access to a network of information and opportunities. Affiliation with the leaders of the laser industry.

TO RECEIVE AN APPLICATION, OR ADDITIONAL INFORMATION, CONTACT LIA AT
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ASC Z136 UPDATE

Revisions to ASC Z136 Procedures for the Development of Z136 American National Standards were unanimously approved by the committee on June 19, 2008. These revisions were made to resolve findings identified during the routine audit conducted by ANSI in October 2007. Audits for accredited standards developers who currently have approved American National Standards are regularly scheduled at a minimum of once every five years.

Changes to the procedures included clarification of committee diversity, specification of balloting on substantive issues whether arising from a negative or affirmative vote, and consideration of unrelated comments (to a proposal) to be submitted as a new proposal. In addition, to remain in compliance with ANSI's Essential Requirements it was necessary to update the Patent Policy and add a Commercial Terms and Conditions statement to the procedures. These revised procedures have been submitted to ANSI for approval/reaccreditation.

If you have any questions about ASC Z136 Procedures for the Development of Z136 American National Standards or the activities of the committee, please contact Barbara Sams at 407-380-1553 or e-mail bsams@laserinstitute.org. Current ASC Z136 procedures can be downloaded from www.z136.org. ■



CCAT RECEIVES DOE GRANT

The Connecticut Center for Advanced Technology, Inc. (CCAT), an LIA corporate member, has received a two-year grant from the Department of Energy (DOE) to promote hydrogen and fuel cell technology in early market applications. CCAT will engage in a "partnership-building" effort with the DOE, state and municipal decision makers using an approach designed to facilitate fuel cell and hydrogen installations, improve state/regional municipal relations, and provide community-supported solutions to address local and regional energy issues.

CCAT plans to develop resources to educate decision makers, integrate local energy plans with state transportation, energy, and climate change action plans, and identify financial and investment opportunities for early market deployment. The project is designed for potential use by other states as a model for the development of federal, state, local and industry partnerships to facilitate the deployment of hydrogen and fuel cell technology.

As a current world leader in the research, design, and manufacture of hydrogen and fuel cell related technology, Connecticut is uniquely positioned to execute a smooth transition from conventional hydrocarbon fuels using conventional combustion technology to use of advanced high efficiency electrochemical fuel cell technology and other efficient, clean, hydrogen technologies.

Connecticut's hydrogen and fuel cell industry employs 1,156 employees; an increase of 229 jobs since early 2006.

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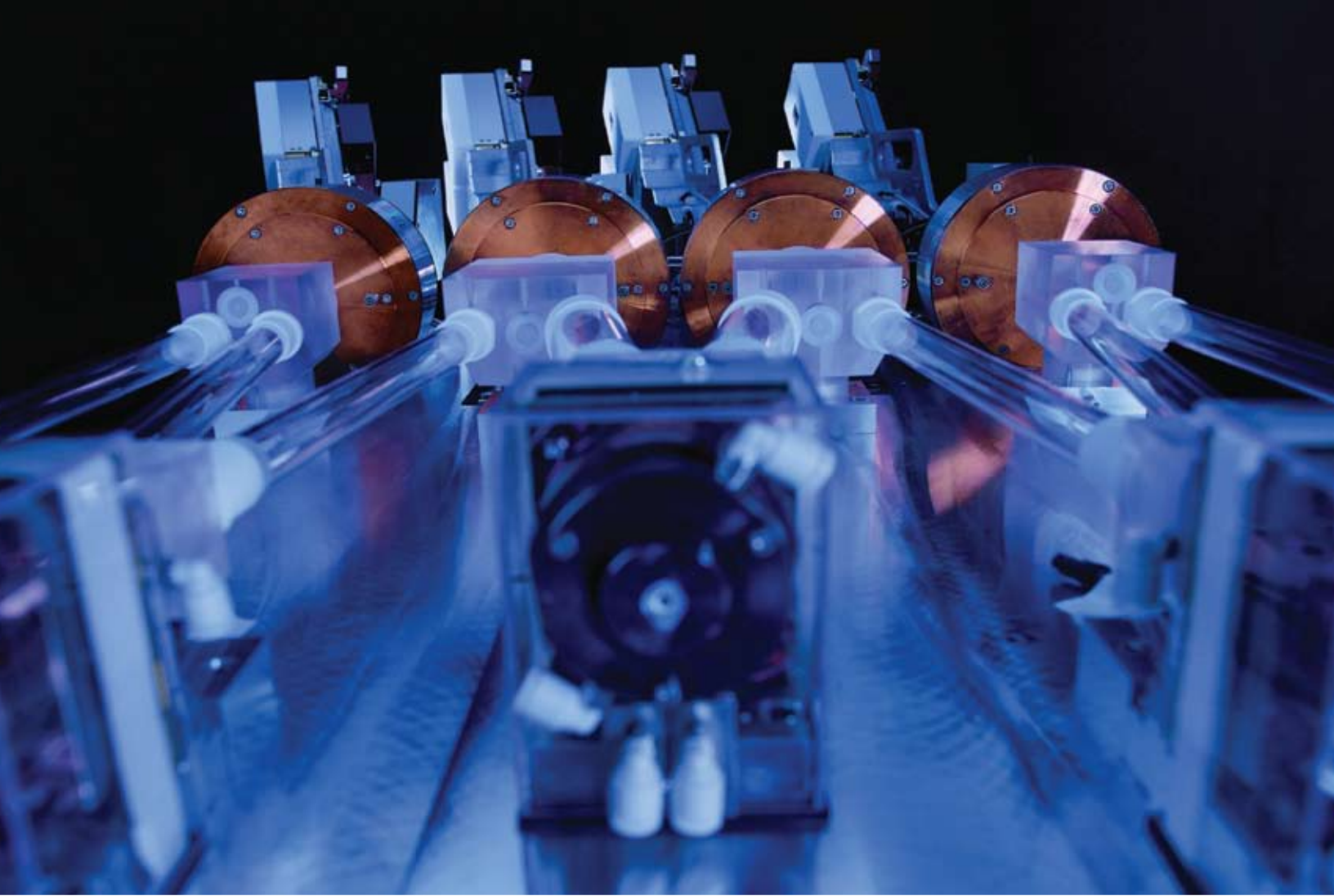
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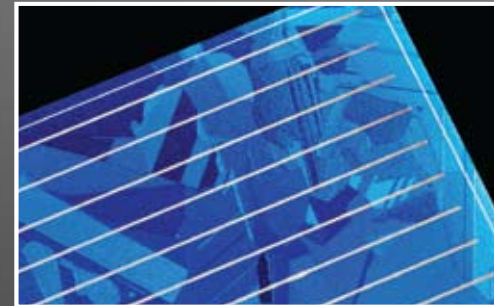
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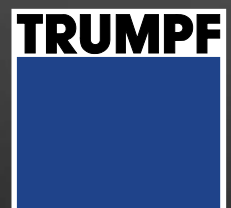


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- CourierTronics, LLC, Troy, NY
- Haas Laser Technologies Inc., Flanders, NJ
- Photonics Industries International, Inc., Bohemia, NY
- Shanghai Jue Hua Laser Technology Development Co., Ltd., Shanghai, Peoples Republic of China

For a complete list of corporate members, visit our corporate directory at www.laserinstitute.org.

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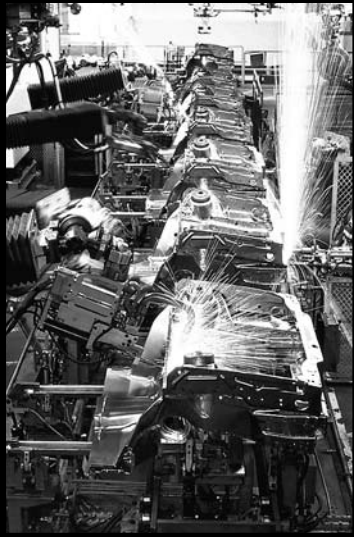
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IN THE NEWS | Continued From Page 1

laser is switched back on, the cell cannot contract because of the high intracellular calcium levels. "Short-term damage can be negligible for a range of laser powers, but long-term degradation of cell health can and will occur," said Smith.

Additionally, researchers from the universities of Texas and Stanford have demonstrated a miniaturized probe that enables ablation of single cells and subcellular structures at high precision. The tool combines two-photon microscopy and femtosecond laser microsurgery, reported the July 4 issue of *Optics.org*. In the approach, high-energy pulses sear the targeted cell so rapidly and accurately that the heat has no time to spread and damage nearby healthy cells. This ablation process is guided and monitored by an equally precise and penetrating 3D imaging technique.

The system uses a single photonic-crystal fiber to deliver the femtosecond laser pulses for both microsurgery and fluorescence excitation, thus providing visualization of the exact site of ablation. Its other key components include a microelectromechanical systems (MEMS)-based scanning mirror, a miniature relay lens system and a gradient index objective lens.

The researchers tested the capabilities of the experimental probe using breast-cancer cells grown in a single layer and labeled dye. Following laser microsurgery with a single 280 nJ pulse, two-photon images of the target cell showed a loss of the fluorescence signal – indicating cell ablation. Adjacent cells remained intact. Future applications could include the ablation of small vocal-cord tumors, cancer cells left behind after the removal of solid tumors, individual cancer cells scattered throughout brain or other tissue, and plaque in arteries.

LASER OR DRUGS?

Russian newspaper *Kommersant* reported that Moscow ophthalmologists are questioning Russian officials' determination that retina damage in 12 young people who attended a techno music festival, held in Russia's Vladimir region July 6, is due to improper use of a laser gun reportedly directed at the audience. The paper reported that these 12 audience members may have permanently lost much of their vision after a laser used during the concert burned their

retinas. One attendee told *Kommersant* that he "had a spot like when you look at the sun for a long time" after the lasers were used. Others reported damage to their cameras and video recorders. Russian officials named the laser gun as the possible reason for the damage, which was shined into the audience several times in violation of safety rules.

All patients had hemorrhages around their retinas. Because no retina burns were found, eye doctors told the newspaper that the real cause could be drug consumption, although that theory has yet to be proven. For more information, visit www.kommersant.com. (Found at www.Photonics.com).

PHOTOVOLTAIC EQUIPMENT MANUFACTURERS FORM ASSOCIATION

The International Photovoltaic Equipment Association (IPVEA) is an independent organization of manufacturers and suppliers of photovoltaic (PV) fabrication equipment and related raw materials used in PV ingot, wafer, cell (crystalline and thin film), and panel manufacturing. More than 30 companies from Europe, the USA, and Asia committed themselves directly for the new association. The association's member companies represent the wide spectrum of equipment and materials, including that related to crystal growth, diffusion furnaces, glavnics, laminators, laser systems, materials handling, metallization, printing, process integration, solar simulators, substrate handling, testing, vacuum systems, waste gas abatement, wet chemical systems, and related materials and professional services.

The overall goal of the new association is to provide members with a forum for information, discussion and exchange of ideas, as well as ways to develop business opportunities and strategic partnerships.

IPVEA President Hans-Juergen Stangl (CEO of Stangl Semiconductor AG), states, "The new association of photovoltaic equipment suppliers soon will play an important role in the future development of further steps in solar technology and will provide a single voice for the fabrication industry."

For more information, visit www.ipvea.com. ■

BLS UPDATE

VA TO REIMBURSE COST OF LSO CERTIFICATION FOR VETERANS

The reimbursement of fees associated with becoming a Certified Laser Safety Officer (CLSO) and Certified Medical Laser Safety Officer (CMLSO) has been approved for veterans' benefits by the State of Florida, Department of Veterans' Affairs. These certifications are available through the Board of Laser Safety (BLS). In March 2001, the VA established rules to allow the cost for certifications and licenses to qualify for VA reimbursement. Under the GI Bill, if veterans qualify, the VA will reimburse them for taking a license or certification test. Recently, the CLSO and CMLSO certification exams were added to its list of approved tests.

"This is an excellent opportunity for veterans to utilize their reimbursement benefits to gain a competitive edge in their workplace," said BLS Executive Director Barbara Sams. "Becoming a CLSO or CMLSO validates their level of competency and enables them to achieve higher recognition as a laser safety officer."

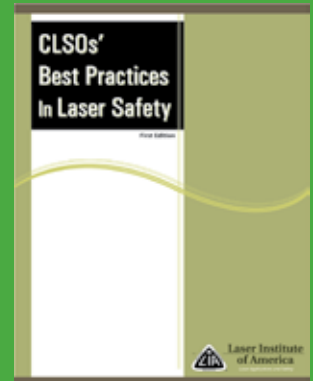
BLS certification demonstrates that individuals serving in the field of laser safety have agreed to adhere to high standards of safety and professional practice. It can play a key role in career advancement, and reentry into the work force. Veterans who are interested in obtaining reimbursement for the CLSO and CMLSO certification programs must submit an application at www.gibill.va.gov for approval. Certain standards must be met in order to qualify. To learn more about the VA reimbursement program, call 1-888-GIBILL-1 or visit www.gibill.va.gov. To learn more about the CLSO and CMLSO certification programs from the Board of Laser Safety, visit www.lasersafety.org. ■

The Board of Laser Safety is affiliated with the Laser Institute of America. The mission of the Board of Laser Safety is to provide a means for improvement in the practice of laser safety by providing opportunities for the education, assessment, and recognition of laser safety professionals.



CLSOs' Best Practices in Laser Safety

CLSOs' Best Practices in Laser Safety is a new book from LIA that concentrates on how to address Class 3B and Class 4 laser hazards and their safe operation. It is a compendium of procedures, policies and practical advice to be used by laser safety professionals. Cost for pub. #214 for LIA members is \$120 or \$140 for nonmembers. To order your copy, visit www.laserinstitute.org/store.



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JLA UPDATE

The *Journal of Laser Applications*[®] offers the latest refereed papers by leading researchers in the laser community. The August 2008 issue includes papers from materials processing. Look for the online version at www.laserinstitute.org/publications/jla/. To view the journal online, please make sure your membership is current. Starting with the August 2007 issue, online figures will be in color. In addition, articles will now be posted online as the production cycle is completed ensuring timely publication. These articles will be fully citable.

The JLA is published four times a year by the Laser Institute of America in February, May, August and November. It is sent to all LIA members as a member benefit. For nonmembers of LIA, call the American Institute of Physics at 1.800. 344.6902 for subscription information.

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LIA PRESENTED LASER SAFETY AWARENESS AT SAIL 2008

The Office of Naval Research, Naval Sea Systems Command, and the Institute for Manufacturing and Sustainment Technologies (IMAST) hosted the 2nd International Forum on Shipbuilding Applications for Industrial Lasers (SAIL 2008) in Williamsburg, Va. August 18-19. SAIL's goal was to provide the shipyard community and maintenance organizations with current, state-of-the-art laser technology, practices, and equipment related to this industry.

LIA, the leader in laser safety training, was asked to deliver an industrial laser safety awareness presentation to address the biological effects of exposure to hazardous laser radiation, non-beam hazards, and ways to protect against injury in an industrial setting. LIA's Education Manager Gus Anibarro presented the content. "Powerful lasers pose a greater risk of injury to the user and therefore injuries can be more severe," said Anibarro. "It is important to understand laser safety when using high-powered lasers so the user can prevent serious injury."

SAIL stressed the application of laser processing technologies being utilized or planned for new construction and maintenance activities of existing platforms, included aspects for designing structures that enable laser processes to be fully exploited, and also included the use of laser-assisted measurement techniques for ship construction. This forum offered an exciting and productive opportunity for everyone involved in shipbuilding, repair, maintenance, and depot activities. For more information on SAIL 2008, visit www.arl.psu.edu/sail2008.html.



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MEMBERS IN MOTION

LIA PRESIDENT IN MOTION



LIA's President Andreas Ostendorf receives a check from Annette Schavan, the German Federal Minister of Education and Research.

SYNOVA RECEIVES MULTI-SYSTEM ORDER

Synova, Lausanne, Switzerland, a world pioneer and patent holder of water jet-guided laser technology, has announced a milestone follow-on order for its Laser MicroJet® (LMJ) systems

from a European-based solar cell manufacturer. Representing one of Synova's largest equipment orders to date, the 25 LMJ systems will be integrated into its customer's edge-defined film-fed growth (EFG) process -- a leading-edge, proprietary silicon-efficient technology -- at its European-based solar lab. These LMJ modules, the core of Synova's Laser MicroJet technology, will be used to cut the venture's 125- and 156-mm polysilicon EFG-octagonal tubes into wafers for solar cell manufacturing. Wafering, the cutting of silicon tubes into wafers, is a new application area for Synova's Laser MicroJet, which offers a superior alternative to conventional approaches, especially traditional lasers. For more information visit www.synova.ch.

SERVO-ROBOT TIES-UP WITH SLV

Servo-Robot, a producer of robotic laser vision and sensing systems for welding and automated manufacturing, has linked up with Schweisstechische Lehr und Versuchsanstalt (SLV) Munich, one of the 10 largest welding institutes within the GSI group in Germany, to promote the use of advanced laser vision and digital technology in order to save energy, reduce manufacturing cost and waste, and to optimize joining processes. For this purpose, SLV and Servo-Robot will work together to provide feasibility studies and training services to highly qualified personnel, and will undertake research and development projects. For more information, visit www.servorobot.com.

NEW WEB SITE, TECH RESOURCE

Ophir-Spiricon, Logan, Utah, announced the launch of the new Ophir-Spiricon website at www.ophir-spiricon.com. The site provides quick and easy access to a wide range of technical resources for power/energy measurement, laser beam profiling, and spectrum analysis, and features a growing knowledge base of technical information for scientists and engineers. Resources include technical white papers, tutorials, frequently asked questions, and application notes. The site also includes a version of the company's catalog of state-of-the-art products for laser measurement applications. The catalog includes detailed specifications and application notes on smart heads and displays; PC interfaces; beam diagnostic software; beam propagation and spectrum analyzers; YAG, CO₂, and UV laser profilers and more. ■

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MEMBER INNOVATIONS

ATMOSPHERIC ENCLOSURE

Miyachi Unitek's (Monrovia, Calif.) new AX5000 Glovebox is the most advanced atmospheric enclosure in the industry, according to the company. AX5000 is a rugged, tight, Windows®-controlled atmospheric enclosure. It provides a safe, easy to use and easy to access enclosure optimized for hermetic sealing. The new glovebox conforms to ergonomic standards, allowing comfortable use for a broad range of body types. It provides maximum dexterity, visibility, comfort and range of motion. For more information visit www.muc.miyachi.com.

ILSC CALL FOR PAPERS

The 2009 International Laser Safety Conference (ILSC®) will be held Mar. 23-26 in Reno, Nev. ILSC is a four-day comprehensive conference covering all aspects of laser safety practice and hazard control. LIA is currently seeking abstracts for the conference in the areas of safety standards, bioeffects, practical laser safety, laser safety training, control measures, outdoor laser use and safety, eye protection and measurements to name just a few. All abstracts must be submitted by Sept. 8, 2008. To submit an abstract online, visit www.laserinstitute.org/conferences/ilsc.

ILSC SPONSORSHIPS AVAILABLE

ILSC offers various level sponsorship opportunities to help create a lasting impression with attendees. Sponsors are acknowledged in a number of ways ranging from onsite signage to visibility on the ILSC website. Sponsors are also included in the Advance Program & Technical Digest, which is distributed to all attendees, and all sponsor levels include booth space at the Sponsor Reception. From general refreshments to receptions, ILSC can highlight your company both online and onsite! If you are interested in being an ILSC sponsor, please contact the LIA Conference Department at 407-380-1553, e-mail Kim Truelove at ktruelove@laserinstitute.org or David Evans at devans@laserinstitute.org, or visit www.laserinstitute.org/conferences/ilsc.

MARK YOUR CALENDAR FOR ALAW 2009

The ALAW conference is designed to improve productivity and reduce manufacturing costs with laser processing for manufacturers and job shops as well as automotive manufacturers and their suppliers. The conference focuses on laser solutions for new product design and real-world manufacturing challenges. Mark your calendars now to attend as ALAW 2009 will be held May 12-14 in Plymouth, Mich. For more information visit www.alawlaser.org.

LASER ENERGY DETECTOR

Ophir-Spiricon, Logan, Utah, has introduced the PE9-F Pyroelectric Detector. The PE9-F accurately and repeatably measures laser pulse energy over an extensive range of conditions. The detector measures repetitive pulses at up to 25,000 pulses per second when used with the company's Pulsar-4 Multi-Channel USB Smart Head to PC Interface. It has a wide dynamic range, capable of measuring from 300 nJ to 1 mJ. Calibrated spectrally for wavelengths from 190 nm to 12 um, the PE9-F works with all Ophir smart displays and features a "smart connector" interface that automatically configures and calibrates the display when plugged into one of the company's measurement heads. For more information, visit www.ophir-spiricon.com.

LARG RETURNING IN FALL

LIA's *Laser Application Resource Guide* (LARG) was developed to help our corporate members reach laser end-users only accessible through LIA. This guide not only correlates all participating LIA corporate members by areas of interest, but also provides each company with a full-page capability statement highlighting a more comprehensive listing of their services. Each issue will be distributed to over 10,000 laser professionals (including both direct mail and website) as well as attendees of LIA conferences and trade shows, members, subscribers of LIA newsletters/journal and more will receive this complimentary guide.

The LARG will again be published in the fall and is available for all corporate members of LIA. The areas of interest are: Laser manufacturers, R&D, safety, beam delivery, job shops, system integrators, OEMs and ancillary equipment. To be included in the Fall 2008 issue, please contact Jim Naugle (jnaugle@laserinstitute.org) or Kim Truelove (ktruelove@laserinstitute.org) or call 407-380-1553.

IT'S TIME TO VOTE!

Attention all LIA members – your official LIA ballot has been mailed. Please take a moment to vote for your society's officers and board members and return your ballot promptly. Every vote counts!

NEW ANSI STANDARD NOW AVAILABLE

Don't forget that the newly released *American National Standard for Testing and Labeling of Laser Protective Equipment* (ANSI Z136.7) is now available. This standard provides reasonable and adequate guidance on the test methods, protocols, specifications, report format, and labeling for devices used for eye protection from lasers and laser systems that operate at wavelengths between 180 nm and 1 mm. The test procedures provided in this document ensure that eyewear, windows, and barriers maintain their specified level of protection throughout the useful life of the product. The ANSI Z136.7 can be ordered at www.laserinstitute.org/ANSI or by calling 407-380-1553.

MARK YOUR CALENDARS

The 27th International Congress on Applications of Lasers & Electro-Optics (ICALEO® 2008) will be held Oct. 20-23, 2008 in Temecula, California. ICALEO 2008 will include three conferences, the Laser Materials Processing Conference, the Laser Microprocessing Conference, and the Nanomanufacturing Conference as well as the Laser Solutions Short Courses, a Business Development Session and plenty of networking opportunities. For complete details on ICALEO or for sponsorship information, see article on page 14, visit www.icaleo.org or call 800.34.LASER or e-mail conferences@laserinstitute.org. ■

Save the Date

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