



LIA TODAY

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

FOCUS: LASER SAFETY | VOLUME 17 NUMBER 3 | MAY / JUNE 2009

ADVENTURES AT ILSC HIGHLIGHTS FROM LIA'S SAFETY CONFERENCE

By Susan Winfree

The 2009 International Laser Safety Conference (ILSC®) was held in March in Reno, Nev. Presented by the LIA, it was a comprehensive four-day conference covering all aspects of laser safety practice and hazard control techniques and was the place to be for new and experienced laser safety professionals working with or in a laser environment. Held at the John Ascuaga's Nugget Resort in Reno, the venue provided a comfortable conference location with a variety of restaurants and the additional attraction of gambling in the casinos. ILSC reached new levels of attendance with 15 countries represented by 225 professionals from manufacturing, government, military, medical and educational institutions. Approximately 30% were first timers coming together to network and exchange laser safety ideas, knowledge, practices, research and to gain insight into emerging products and their uses.

KICKING OFF THE CONFERENCE

Sunday afternoon's Meet and Greet Reception brought additional excitement to the LIA team from Florida as they gathered on the outdoor patio to experience their first snowfall. Additional fun was had by all as new arrivals brought their travel stories related to the snowy weather; breaking the ice further was (Con't. pg. 6, see ILSC)

INSPIRING ALAW HIGHLIGHTS FROM LIA'S AUTO WORKSHOP

By William Lawson

ALAW 2009 Laser Applications Workshop was held May 13-14 in Plymouth, Mich. The workshop is designed to improve productivity and reduce manufacturing costs with laser processing for manufacturers, job shops, automotive manufacturers and their suppliers. This year's ALAW was separated into two simultaneous tracks, one for fabricators and the other for laser applications in the automotive industry. Following is a summary of the automotive laser applications sessions.

The workshop began Tuesday evening with a tour and reception of the Fraunhofer USA lab and demonstration facility. The demonstrations, utilizing both fiber and disc lasers, showed impressive cladding applications and the lab's ability to develop laser applications. In a special touch, guests were treated to a great meal with German brats and beer imported from Dresden.

GOING GREEN

Reducing energy costs – Wednesday started with a very timely talk by Andreas Sterzing from the Fraunhofer IWU in Dresden about energy efficient production, i.e. how to reduce energy usage in manufacturing by:

(Con't. pg. 10, see ALAW)

LIA ANNOUNCES 2009 VERSION OF MASTERING LIGHT RELEASED

LIA has released a 2009 version of its popular laser safety training DVD, *Mastering Light – An Introduction to Laser Safety & Hazards*. As a cost-efficient and effective training tool, *Mastering Light* serves as an excellent resource for laser safety officers tasked with one of the most significant responsibilities in the organization – training new employees and keeping the team updated on current safety issues and practices. Laser operators, researchers and students will also benefit from the DVD's helpful overview of laser safety.

As the number of laser end-users continues to increase, more laser safety programs are being implemented in a wide variety of organizations and work environments. This has increased the need for laser safety training options that are easy to administer in the workplace. Written and produced by LIA, the *Mastering Light* DVD fulfills both the ANSI Z136.1 *Safe Use of Lasers* and the Occupational Safety and Health Administration's (OSHA) training requirements for (Con't. pg. 23)

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Laser Institute
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Laser Applications and Safety

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LIA TODAY

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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.

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CALENDAR OF EVENTS

Laser Safety Officer Training	
Aug. 4-6, 2009	St. Louis, MO
Dec. 7-9, 2009	Orlando, FL
Laser Safety Officer with Hazard Analysis*	
June 15-19, 2009	Washington DC
Sept. 28-Oct. 2, 2009	San Francisco, CA
Nov. 2-6, 2009	Orlando, FL
*Certified Laser Safety Officer exam offered after the course.	
Medical Laser Safety Officer Training*	
Sept. 19-20, 2009	San Francisco, CA
Nov. 14-15, 2009	New Orleans, LA
*Certified Medical Laser Safety Officer exam offered after the course.	
Advanced Medical Laser Safety Officer	
Sept. 10-13, 2009	Atlanta, GA
LASER World of Photonics Munich	
June 15-18, 2009	Munich, Germany
ICALEO® 2009	
Nov. 2-5, 2009	Orlando, FL
PICALO 2010	
Mar. 23-25, 2010	Wuhan, China

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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FIND A JOB FILL A POSITION

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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EXECUTIVE DIRECTOR'S MESSAGE

TWO SECRETS

On the way to our Automotive Laser Applications Workshop (ALAW) LIA Marketing and IT Director Jim Naugle asked me, "What is the secret of managing during a downturn?" I told him, first, it is what you did in the good times that really matters, you need to be conservative and build your reserves. If you were profligate and wasteful when times were good, if you spent everything you had and expected the good times to go on forever, then your options would be bad, worse, or disastrous when the downturn came.



Second, in bad times, it is important not to cut blindly and savagely, just to trim prudently. It is vital to continue to invest in capability, products and services that will enhance your ability to recover strongly and take advantage of opportunity when the tide turns.

Here at LIA we have been practicing what we preach. In the vast majority of the last 20 years we have had a modest surplus and, during this period we built our cash reserves up tenfold.

Now, during this difficult period, we are completing work on migrating our database to a web-based system and finishing the first phase of our improved website. We are developing new online courses, new publications and planning new workshops based on the success of our Laser Additive Manufacturing (LAM) workshop.

Like everyone else, we will be relieved and glad when the turnaround comes, but when it does we will be there, carrying out the LIA mission, even better than before.

Editor's note: For another perspective on managing in hard times see LIA Past President Bill Lawson's article on page 14.

A handwritten signature in black ink that reads "Peter Baker".

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

a drawing for gift baskets donated by the LIA. A delicious array of appetizers was provided for everyone to feast upon before the reception ended and guests struck out to gamble or dine.

Greg Makhov from Lighting Systems Design, Inc. launched the plenary session the next day with an exciting laser light show, and opening remarks were delivered by LIA Executive Director Peter Baker and ILSC Conference General Chair Benjamin Rockwell. Cynthia Toth from Duke University presented the newest techniques with lasers in ophthalmology and Van Nakagawara presented data on the increase of sales in green laser pointers and the correlation to the seemingly intentional illumination of commercial airplanes. Interesting to all was Australia's policy changes and the ban on imports of high power laser pointers.



ILSC Plenary Speaker Cynthia Toth.

GETTING TECHNICAL

ILSC technical sessions, chaired by Ben Edwards, covered topics in outdoor lasers, bioeffects, safety standards, measurements, laser eye protection, medical laser safety, laser safety training, high power laser issues, practical laser safety, unique applications of laser safety, safety considerations (non-beam hazards and fume extraction), hazard and risk assessments, and control and protective measures. Every session and speaker offered information to pique interest and challenge the audience to ask questions, resulting in a few lively debates that continued outside the sessions.

The Practical Applications Seminar (PAS) with Jay Parkinson as seminar chair had its second year running in conjunction with the technical sessions. Frequent movement between the technical sessions and PAS occurred as attendees attempted to extract the most information out of the combined sets of presentations and timing was critical to hear the speaker of choice. Capturing everyone's attention were the images presented from facilities around the world and the methods organizations use to keep their employees and visitors safe. From practical eyewear storage solutions to the video surveillance usage, best practices were shown to be effective in keeping safety a priority. Participants were ready with many questions and took full opportunity to gain



The round table luncheon proved to be a great format for discussing timely and relevant "hot topics".

knowledge from the expert presenters.

Workshops gave attendees the opportunity to receive professional training from leading experts in laser safety, covering the topics of laser product classifications, laser safety program design from the ground up in hospital and research settings, laser training enhancements and lamps and other non-laser sources. Workshop speakers were swarmed after their lectures with requests for contact information and additional training. Barbara Robinson from Alfred I. DuPont Hospital for Children in Newark, Del., shared a comment that stands out particularly well when attempting to gain cooperation and alignment from various departments in a large setting, "invite me into your arena," ensuring they include her in their laser purchases, training, and eyewear needs.

Additional highlights and activities at ILSC were the presentations on laser usage in forensics, the laser driven space elevator contest and use of lasers as bird dissuaders on the campus of U.C. Davis. LIA was selling laser safety products and promoting laser safety training and reminding CLSOs and CMLSOs about certification maintenance (CM) points. ANSI standards and technical subcommittees met during the conference and gained ground on the many updates in progress and the Z136.5 committee, developer of the *Safe Use of Lasers in Educational Institutions* announced the completion and release of the Z136.5-2009 safety standard revision. The Bay Area Laser Safety Officers (BALSO) of California were well represented by a majority of members who meet throughout the year to promote laser safety and rely on each other to answer questions on tough hazard calculations or protective equipment requirements and were strong partners in chairing the PAS sessions.

AWARDS, LUNCHEONS AND SPONSORS

The 2009 George M. Wilkening Award in Laser Safety was presented to Joseph Zuclich, Ph.D., a research laser biophysicist retired from Northrop Grumman. The award recognizes his exceptional contributions to laser bioeffects research and his development of human exposure limits and safety standards, especially in the area of optics. The 2009 R. James Rockwell Jr. Educational Achievement Award went to Ken Barat, a Certified Laser Safety Officer (CLSO) at Lawrence Berkeley National Laboratory, U.C. Berkeley, Calif. in recognition of outstanding contributions in laser safety education. Both gentlemen entertained those present with their humble acceptance speeches while referring to the Grammy Awards and the images they used to help them prepare their speeches. Barat also spoke about safety through cooperation and Zuclich was called a "true pioneer." Congratulations to both!



Ben Rockwell, left, with the 2009 George M. Wilkening Award in Laser Safety recipient Joseph Zuclich.

(Con't on page 8)



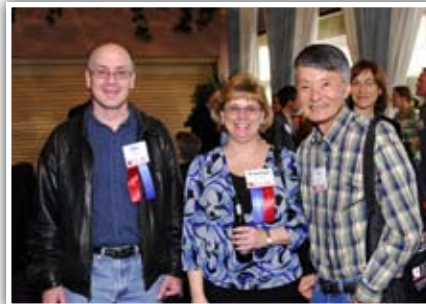
The Sponsor Reception offered plenty of new and emerging technologies for attendees to investigate.



ILSC's Meet & Greet Reception was one of the many networking opportunities for attendees.



On left, Arie Klerk, David Sliney and Jeffrey Pfoutz and on right, Paul Sorensen, Penny Galoff and Van Nakagawara enjoying the Meet & Greet Reception.



The LIA onsite staff consisted of from left back row Breanna Armand, Kim Truelove, Gus Anibarro, Amanda Criner and front row Gail LoIacono, Peter Baker and Barbara Sams.



Networking with peers is a large part of ILSC, and many opportunities are presented.



INTERNATIONAL LASER SAFETY CONFERENCE

MANY THANKS TO THE ILSC 2009 SPONSORS:

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- DoD Tri-Service Laser Bioeffects Group
- Kentek
- Laser Safety Industries
- Laser Safety Systems
- NoIR
- Ophir-Spiricon, Inc.
- Rockwell Laser Industries
- Sperian Protection



LIA's Peter Baker presenting ILSC General Chair Ben Rockwell, left, and the 2009 R. James Rockwell Jr. Educational Achievement Award recipient Ken Barat, right, with their plaques.

Barbara Sams, director of the Board of Laser Safety (BLS) sponsored a CLSO and CMLSO (certified medical laser safety officer) appreciation breakfast where participants were rewarded with new laser pointers and dual LED light combinations in slick little cases. Peter Baker was quick to point out safety requirements were met with the proper labeling attached. Sams requested assistance from the group in growing the BLS with new certified laser safety officers and held a drawing where the lucky ticket holders won BLS ball caps, t-shirts and backpacks.

Ken Barat coordinated the extremely well attended Hot Topics Roundtable Luncheon where participants discussed 14 laser safety topics ranging from basic laser safety concepts to enclosure designs for Class 1 requirements. Best practices and new ideas emerged for participants to take back to their facilities, departments and organizations to implement. Participants contributed to the education and edification of new and experienced laser users and offered guidance towards resources to enhance their laser safety programs, training and practices.

The Sponsor Reception was another excellent networking event offering additional exposure to new and emerging laser safety products available for examination. Exhibitors included the BLS, ASC Z136, Rockwell Laser Industries, Kentek, Sperian,

BALSO, NOIR, Laser Safety Industries, DoD Tri-Service, Adapt, Ophir-Spiricon, Buffalo Filter, and once again the laser light show was displayed, fascinating the audience. Greg Makhov along with Anthony Zmorski from Walt Disney World® were on hand to answer questions about laser light shows and pyrotechnics at the “happiest place on Earth.”

Overall, the pulse of the conference was strong and supportive and the number one response and recurring theme to the question, “What do you hope to gain from ILSC and why are you here?” was, “Networking, networking and more networking!” Additionally, to take away an increased understanding of laser safety standards, practices, techniques, technical and practical solutions and the discovery of new products and uses for lasers. Sessions were very well attended and enjoyed by all and the LIA is to be applauded for its contributions and management of ILSC 2009 along with the session and conference chairs. Thanks to the sponsors for their support of ILSC for without them we would not have the opportunity to have ILSC and we are all looking forward to ILSC 2011, which is promising to be even more exciting. ■

Certified Laser Safety Officer Susan Winfree is an LIA member.



Ben Rockwell, top left, presenting Ben Edwards with the ILSC conference chair plaque and bottom, presenting Jay Parkinson with the Laser Safety Practical Applications Seminar chair plaque.



The Plenary Session speakers were extremely captivating.



The Plenary Session focused on lasers in ophthalmology and featured renowned speakers.

ILSC® PLENARY SESSION ON OPHTHALMOLOGY

by David H. Sliney, Ph.D., CLSO

We were treated to two very interesting plenary presentations. In the opening presentation, the attendees were delighted with a fascinating talk on the “Changing World of Lasers for Imaging and Treatment in Ophthalmology” by a renowned academic ophthalmologist. Cynthia Toth spoke of her long association with lasers and the human eye. She became interested in the 1980s as a medical student while working on a US Army-funded research project to examine laser-induced retinal effects under Dr. Reese Landers at the University of California, Davis, Department of Ophthalmology. She briefly described the wide range of laser applications in ophthalmology — from argon-laser retinal photocoagulators of past decades to Nd:YAG laser photodisruptors, excimer laser refractive surgery, picosecond-laser cutting of corneal flaps for refractive surgery and diode lasers for a variety of clinical applications.

In the Duke University Eye Clinic, where she now works, she noted that lasers have become highly portable compared to the older, quite sizeable argon laser photocoagulators with special electrical supply and plumbing for water cooling. Today, a common shout in the eye clinic is “Where is the diode laser?” Such now highly portable instruments pose a problem for proper hazard control. She spoke of the challenge of expecting clinicians to keep track of which laser has what wavelength. She gave an example of some ophthalmic lasers without the wavelength clearly marked and how some ophthalmologists moving from clinic to clinic encountered slightly different diode laser systems (e.g., the 532-nm, vs 810-nm wavelength).

Tuning to diagnostic instruments, she described time-domain optical coherence tomography (OCT), which employed a super-luminescent diode (SLD) as the source. She explained that she first used this technology to follow the time course of retinal injury after experimental laser retinal exposures while doing research with William Roach, Ben Rockwell, Clarence Cain et al at the US AF Research Laboratory (USAFRL) when she served in the military during the 1990s. Now, with Fourier-domain OCT, ophthalmologists can visualize retinal tissues even faster, which helps perform retinal trans-location surgery (an exciting surgical technique to move retinal tissue from one location to another). Her particular interest was treating childhood blindness, such as from retinopathy of prematurity (ROP), albinism and, tragically, retinal detachment from trauma. She described a portable Bioptogen infant OCT unit that she could take to a neonatal intensive-care unit (NICU) for ophthalmic surgery — moving OCT technology from a purely diagnostic role to a critically important role in surgery. She described the laser safety challenge of adopting systems from a 17 mm focal-length adult eye to a much smaller infant’s eye, and the safety implications for that enhanced retinal exposure.

Van Nakagawara, an optometrist with the U.S. Federal Aviation Administration (FAA) in Oklahoma City spoke on the

problems of laser use in the airspace. He stated that as a typical American boy, he grew up with an introduction to lasers and ray guns from Flash Gordon, Buck Rodgers and Star Trek. So he had some preconceived notions when at the FAA he became involved in the applications of refractive laser surgery in vision care. About 15 years ago he became involved in the implications of outdoor laser light shows and astrophysical applications of lasers in the airspace. He explained that prior to 1995 the FAA limited the use of lasers in the airspace to levels below the MPE. However, as pilots were exposed to visible laser levels below the MPE and still experienced transient visual impairments at night, the policy had to be revised. In 1995, the FAA received reports of 52 incidents in or near Las Vegas McCarran International Airport. The FAA requested the FDA issue a moratorium ceasing all outdoor laser activities in the Las Vegas area in December 1995. This led to a revision of FAA Order 7400.2 that related to this subject. Within a few years, the FAA collaborating with the SAE Aerospace working groups, the ANSI Z136.6 committee, and ICAO worked to develop more detailed guidance.

Nakagawara stated that in 2004 the proliferation of inexpensive red laser pointers led to new concerns, particularly when green lasers appeared on the scene, which were 35 times brighter than the red laser brightness. And over 86% of recent laser incidents appear to be related to green, 532 nm laser pointers. On January 12, 2005, the Secretary of Transportation, Norman Mineta, announced the issuance of FAA AC 70-02 requiring the reporting of laser incidents. He said that the arrest of laser-dazzle perpetrators has significantly increased since that publication. He showed a chart that identified a steady increase year-after-year in laser incident reports over the last decade. He gave an example of a man who showed off a 532 nm laser pointer to his daughter by shining it at a Cessna aircraft on final approach into the Teterboro, N.J. airport. The man was initially charged under the Patriot Act. In another incident the FBI arrested a man with a Class 3B laser in Clint, Tex. who had apparently been involved in a number of similar incidents. Another Cleveland, Ohio man is actually serving a three-year prison term in connection with laser illumination of aircrafts. Similar police enforcement actions were reported in Lancashire, England and in Australia. Indeed, in Sydney, a cluster of lasers were used against incoming aircrafts in 2008, and more severe prison terms were soon introduced in that country. In the U.S., most incidents occur in the southwest and west and between the hours of 7 and 11 p.m. He argued for better consumer awareness of the misuse and potential penalties. He suggested that CDRH require laser-pointer manufacturers to require additional information be supplied to customers on this issue. ■

David H. Sliney, Ph.D., is recently retired as program manager for the U.S. Army Center for Health Promotion and Preventive Medicine Laser/Optical Radiation Program and a Certified Laser Safety Officer.

1. Increasing efficiency: reduce scrap.
2. Emphasizing sustainability: total energy management so as to use as much of the available energy as possible.
3. Utilizing substitution: move to renewable or more available energy sources.

Reducing the weight of automobiles – A big theme of the conference was how laser processes can help reduce the weight of automobiles by several hundred pounds on average, improving fuel economy to meet the new standards.

Laser welding and brazing – David Reed of Chrysler LLC showed how laser welding and brazing can reduce weight by decreasing the flange width and thickness of steel to make lighter structures as strong and stiff as spot-welded ones.

Reducing chiller energy use – In his presentation, Steffen Voigtmann of Riedel Cooling explained how to dramatically reduce the power consumption of laser cooling systems by intelligently using ambient air-cooling in combination with conventional coolers.

INNOVATIONS

Lasers help make using high strength steels practical – Klaus Löffler of Trumpf and Thomas Ralle of Thyssen-BraunCar Tech explained that these high strength steel parts are hard enough that conventional trim dies have a very short life. The new three-axis and five-axis laser trimming systems are fast enough to do the trimming reliably while keeping up with the forming presses. This eliminates die changes and maintenance and saves space as there is no need to store trim dies and saves time as part change over is much quicker. An innovative side benefit of using high strength steels is that by having different cooling rates in different parts of the forming die, a single part can be made with hard, very strong sections and softer, tougher areas to help make one part fulfill different functions.

Laser blanking – It appears that cutting blanks directly from coil stock, an application that has been talked about for some time, is actually coming of age. The blanks can be nested in contact with each other because there is no need for some scrap around

the edge for the blanking die to work correctly. The material savings resulting from laser blanking are especially important for more expensive new materials. The greater flexibility of such a system allows a variety of blanks to be cut without any delay for changing blanking dies. In addition, the system eliminates the need to store blanking dies.

Laser welding complex parts – An intriguing application shown by Peter Hoffman of ERLAS was welding a very complex shift fork for a manual transmission and a gearshift controller out



of several stampings and machined parts. This was lighter and cheaper than the conventional design machined from a casting. The gear shift controller was laser welded from seven separate parts that were formed, sintered, cast, and welded to tolerances better than + 0.02 mm in critical areas. This shows the potential for laser welding to help reduce the cost of even high tolerance complex parts by eliminating any additional machining to meet required tolerances.

Invisible welds on tailored welded blanks – Mathias Binder of Soutec discussed using tailored welded blanks to reduce weight and their intriguing process for welds in visible areas of the car where the weld is absolutely not visible on the finished painted part.

Remote laser welding – Markus Lingner of Rofin Sinar Laser described the vast array of remote welding applications and developments in that area. He explained in several applications the details of the tooling that was necessary for the application to be successful. Good tooling and clamping designs are absolutely necessary for successful remote welding of sheet metal parts. Thomas Ralle of Thyssen-BraunCar Tech showed applications using remote welding for body-in-white applications.



The ALAW automotive sessions covered topics such as laser welding and blanking, greener applications and weight reduction.



ALAW's sessions were well attended and provided timely topics and captivating information.

Welding unweldable materials – Berndt Brenner of Fraunhofer IWS, in a summary of the various techniques for welding difficult materials, discussed welding heat-treated steels, case-hardened steel, free-machining steels and cast iron using various techniques such as pre- and post-heat treating, induction heating and a hybrid process using the laser to remove a case hardened layer before doing the weld. He showed that many very difficult to weld materials and material combinations can be successfully welded with the right combination of processes.

Airbag cutting – Achim Zinke of Held Systems explained the advantages of laser cutting single layer airbags at high speeds.

Cutting and welding automobile batteries – The move to electric power in automobiles is pushing the development of lightweight, reliable, long-lasting battery technology. This non-traditional automotive laser application was highlighted in the session chaired by Stan Ream of the Edison Welding Institute. The four interesting presentations showed how laser processing is key to cutting and welding the thin materials used in batteries.

LASER ENHANCEMENTS

Laser technology: smaller, better beam quality, improved lifetime – The conference closed with presentations of latest developments by key laser suppliers. IPG Photonics showed a 5 Kw fundamental mode fiber laser, systems with increases in power to 50 Kw and several other substantial advances in fiber laser system capabilities. Rofin Sinar showed its newest laser sources. Trumpf showcased its new disc laser design with much improved pump technology eliminating microchannel cooling and enabling up to 4 Kw out of one disc and up to 16 Kw from four discs delivered through a 200 micron fiber with a BPP of 8. Trumpf is able to deliver a BPP of 2 from 1 Kw disc laser and a BPP of 4 at up to 5 Kw. Trumpf also showed its new 100-Watt direct diode laser that will be able to be ganged to provide up to 3,000 Watts from a 600 micron fiber. Laserline again showed new systems with greatly improved beam quality from direct diode lasers. An example was a 4,000-Watt direct diode system with a BPP of 30 from a 1.2 NA 600 micron fiber and a 10 Kw system using a 1,000 micron fiber.

SPACE: “THE FINAL FRONTIER”

Lasers power elevator to space – At the evening open house at Trumpf there were lots of good laser demonstrations and many interesting discussions, including one about building a space elevator. Both Dilas and Trumpf are supplying lasers to power the climbers at the July 14 NASA-sponsored space elevator competition in California with a \$4 million prize. Dilas is supplying a 10,000 Watt diode laser operating at 808, and Trumpf an 8 Kw disc laser with a 200-micron fiber delivery operating at 1,030. More information can be found at www.spaceward.org (see more photos next page). ■

William E. Lawson, P.E. (wlawsonntd@usa.net) is founder of NewTech Development LLC (www.newtechdev.com), which specializes in advising technological companies on management and marketing and in helping organizations implement high technology solutions with new manufacturing and design capabilities. He is a Past President and Treasurer of LIA and holds 14 patents, primarily for laser processing.



LIA's Executive Director Peter Baker welcomes all workshop attendees (top), and below, Baker presenting Trumpf's Klaus Löffler with a chairman's plaque.



MANY THANKS TO THE ALAW 2009 SPONSORS!

Fraunhofer USA Center for Coating
& Laser Applications
IPG Photonics
Laserline
Trumpf



ALAW's vendors showed off their latest technology to attendees.



The first day of ALAW had attendees enjoying the annual golf tournament.



Keynote Speaker Bernard Swiecki, Center for Automotive Research, delivers his speech on the Benchmark of Automotive Production in North America.



Peter Baker, LIA's executive director, presenting Rick Neff of Cincinnati Laser with his chairman plaque for the laser fabricators sessions.



Gregg Simpson, Ohio Laser LLC, is presented with the fabricators chairman plaque from FMA's Executive Director Jerry Shankel.



Prof. Dr. Reinhart Poprawe, Fraunhofer Institute für Laser technik, delivers his presentation on trends and new developments in fuel cells and batteries.

LASER World of PHOTONICS China

Global laser and photonics industry in China has promising future - The International Society for Laser Applications and Safety - LIA - is there!

by Jim Naugle, LIA Marketing Director

LASER World of PHOTONICS China 2009 took place at the Shanghai New International Expo Center from March 17-19, 2009. Although the international economic slowdown faces headwinds in the global laser and photonics industry, the industry is still exhibiting strong growth in China. The growth in exhibitor participation combined with the increase in attendee quantity and quality provided ample evidence that the laser and photonics market in China has a promising future. This growing trade fair again joined hands with Electronica & Productronica China, SEMICON China and the CPCA Show under the umbrella of the Shanghai International IT and Electronics Fair (SIIEF). This synergy produced China's largest electronics and photonics trade show and provided attendees with a comprehensive platform for communicating and sharing ideas.

LASER World of PHOTONICS China maintained its positive growth trend this year. It occupied a total exhibition area of 9,000 square meters. In addition, 220 exhibitors (up from 170 last year) from 14 countries participated, which represents an improvement of 6.8% over 2008. Key international LIA corporate members who participated consisted of Trumpf, Newport/Spectra-Physics, Coherent, IPG, GSI, II-VI, LZH, Miyachi, Lasertel, Photonics Industries, Scanlab, Laserline, Lee Laser, Laser Mech, Synova and Laservall. The show also included important domestic players, such as Han's Laser, Chutian, Huagong and Ncrieo.

There was much discussion and interaction during the three-day exhibition for LIA. Attendee participation greatly outpaced the expectations compared to prior years. Even more importantly, attendee quality also improved. Experts, industry leaders, decision-makers and buyers stopped by the LIA booth to learn more about who we are, what impact we have on North American sales abroad, as well as heightened interest in laser safety training. The best-represented countries outside of China were Korea, the U.S., Taiwan, Germany and Hong Kong.



LASER World of PHOTONICS China had increased attendance over 2008's conference.

ACCOMPANYING EVENT DISCUSSES INDUSTRY TRENDS

Another highlight at the show was the LIA-sponsored event: the 4th International Conference on Laser Processes and Components (LPC 2009) which discussed laser micro processing, macro processing, optics components, laser systems and safety and facilitated cooperation and exchanges between the laser-photonics research community and industrial applications. LPC runs on the show grounds (during show hours) and is organized by the Chinese Optical Society, Munich Trade Fairs, Laser Zentrum Hannover and LIA.



Jim Naugle with interpreter Miss Li at Laser China.

The program contains a mix of Chinese, European and North America presenters and features individual papers on laser processing technologies, laser components and current developments and trends in laser technology. Sound familiar? It should. There is a common theme that aligns with LIA's PICALO and ICALEO® conferences. Total attendance this year was around 468 according to the show organizers.

LIA will continue to support this event and the trade fair in order to establish its international presence. ■

LIA VISITS IPG'S SHANGHAI OFFICE

On my first day in Asia I paid a cordial visit to LIA Corporate Member IPG Photonics' Shanghai office where I met with LIA Executive Committee member Bo Gu, Jianmin Lv, sales engineer, and office administrator Karen. The IPG office is located in Pudong, Shanghai and is responsible for sales and support in Shanghai, the surrounding area and if needed elsewhere in China to complement their office in Beijing. A special thank you to the IPG staff for their hospitality.



From right, LIA Executive Committee member Bo Gu, Jianmin Lv, IPG sales engineer, and office administrator Karen.

Managing Through Tough Times

by William Lawson

Down times are as much a part of business as up times. In the 25 years we owned a company in the laser business we went through four major downturns. Through each downturn I tried to manage with the goal of coming out the other side with as much capability intact as possible. Each time economic conditions did improve and we were able to grow.

The ideas in this article are ones we learned but are by no means a complete list. You will need to analyze your individual situation and consult with knowledgeable people to develop a plan of action that fits your organization. I hope the ideas in this article will be useful in your quest to survive these difficult times.

RESPONDING TO A DOWNTURN

Decide main goals – First, decide on two or three main goals to guide your decisions and actions from here on. The two primary goals I used for long-term survival were 1) cash is king; in hard economic times, keeping a positive cash flow is often more important than the ultimate profit of each job, and 2) good people are your most important asset; it is worth finding ways to keep them if at all possible.

Gather employee input on reducing costs – It is a good idea to have a meeting to explain the situation and get employees' ideas how to reduce costs and/or improve sales. Do not sugarcoat the problem, as they know sooner and better than you what is happening. The best way I found to retain people was to always be open and honest with them, and work to bring them into the process. I first looked at how we could save money without layoffs, basically looking for expenses that could be reduced, such as turning down the heat or reducing inventory. Employees will have good ideas but may not offer them unless specifically asked.

Cut your salary – If cost cutting wasn't enough, next I cut my own salary to what I could reasonably live on. Don't cut too much as the boss cannot be worried about paying his mortgage. His number 1 focus must be on running the business. This is a great action to help the troops see you're sincerely looking at all expenses.

Ask for voluntary layoffs – Then ask if anyone wants to go on voluntary layoff. Amazingly there are almost always people for whom a few months off would be nice. Make sure in this process you do not make any promises you can't keep about bringing people back. Only tell them what is true and make only the promises you know you can keep.

Let go those you should already have let go in good times – If a few people no longer fit their job well, lay them off first. Early on we had a supervisor who had not grown with the job. We agonized for a year before letting him go but not long after we finally did he became a well respected local small business owner. He found the right niche for his talents. That taught me I was not helping anyone by dragging things out.

Do necessary layoffs and then cut everyone's salary equally or by a formula – Once the necessary number of people

has been laid off, cut everyone's time equally, or by a formula. This type of action is very situational. Incremental layoffs are very demoralizing and should be avoided but may be necessary through the course of the downturn.

Keep communicating with bankers and investors – Talk to the people you owe money to before you're in great danger of not paying the bills. As hard as it is to go and talk to the bank or key suppliers, it's of utmost importance to let them know you're taking actions to reduce costs. Ask them also for things like extended terms or even discounts. It's amazing how much slack people will give you if they know you've already taken many of the steps they're expecting you to take.

Know what's happening with your customers – Increase your visits to current customers and contact old ones. This is, first, to see if you can get more business and, second, to watch your customers carefully for signs that they are in trouble. When you visit, look around for signs of a slowdown, such as not as many people around, less production activity, etc. If one month they ask for very large orders, do not accept the orders without making sure they will be good for the money.

Search out other kinds of work your company can do – Get creative; figure out how you might generate other work with the people and equipment you have. When we were small, five or six people, I paid both my salary and a few bills for the company through a consulting job for four months until things turned around. Later, building special machines for a totally different industry helped support the company for a year or so.

Move people to other work within the company – If one area is down, see if key people will work elsewhere. In one slowdown we experienced, one of the designers became the fastest operator of a particular production job. It wasn't what he was being paid to do but his willingness to do a production job for a few months allowed us to keep him when otherwise he might have been laid off.

Seek input from knowledgeable outside people – Talking to advisors outside the company is important to get different perspectives and to test ideas. The problem with consulting the company's regular advisors and your inside management group is that your "what if" thought could be mistakenly seen as a final plan of action, causing unnecessary, possibly harmful shockwaves to go through the company.

Seek advice from outside people who have



Bill Lawson has over 30 years experience as a company owner.

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“been there, done that” and who do not have a stake in what happens to your organization. Consult with someone with real-life experience, in a similar business setting as your own.

Do not hesitate to pay for good advice. Finding the right course of action can be money well spent. Typically, you get what you pay for. You want advice from someone totally on your side with your best interests in mind.

PLANNING & PREPARATION

Start as soon as you can to plan ahead for the next hard times – The most important advice I can give, which is useless if you’re now in the middle of the slowdown, is to prepare for hard times when times are good. The more eventualities you’ve prepared for, the less you’ll need to figure out in a hurry.

1. Build a relationship with your bank. Get an adequate line of credit and use it sparingly. From my experience the line should be enough for three to six months of direct expenses but used on average only 10% to 20%. This will cost you some interest, but, as the bank gets used to you borrowing and repaying money, they will be much more comfortable when you need to use most of the line in a slowdown. If you don’t already have the line of credit

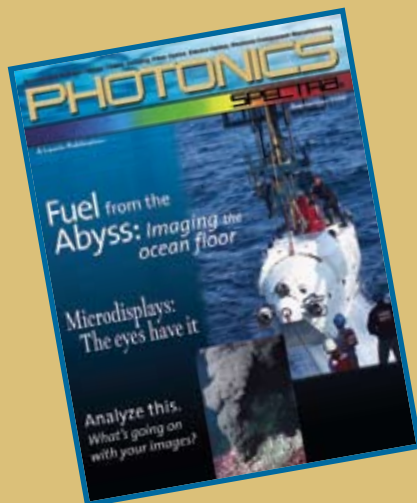
in place, it’s almost impossible in hard times to get one or get an increase in the one you have.

2. Take calculated risks. When you invest in another piece of equipment or more people, expect to support the additional cost for at least a year out of existing business.

3. Set up your relationships as much as possible so you have outs. Leasing equipment can be advantageous, especially with terms allowing you to send it back and not be responsible for the balance. Hiring people on a contract basis allows personnel costs to be reduced much easier in the future if necessary. ■

William E. Lawson, P.E., founded NewTech Development LLC in 2005 to specialize in advising technological companies on management and marketing and in helping organizations implement high technology solutions with new manufacturing and design capabilities. He founded Laser Machining, Inc. in 1978 and grew it to over 200 people before selling it in 2002. Bill is a past president and treasurer of LIA. He holds 14 patents, primarily for laser processing, and has taught laser material processing courses for University of Wisconsin-Madison – Continuing Education. For more information, visit www.newtechdev.com or e-mail wlawsonntd@usa.net.

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LIA corporate member Laser Safety Industries, located in Minneapolis, Minn., is a laser safety products manufacturing company providing professional-grade safety products for all laser applications – from health care and education to military and industrial. Laser Safety Industries products include laser eye protection, barriers, windows, signs and labels, safety publications, and safety training.

Laser Safety Industries was founded in 2008 by Richard K. Poppe, a visionary 20-year veteran of the laser safety industry. The company's mission is to provide quality laser safety products and services at an economical price.

PRODUCTION & MANUFACTURING

The first product developed by the company was fit-over style polycarbonate laser glasses with the lowest optical distortion in the laser industry. All products are manufactured/assembled in the U.S.A. Laser Safety Industries is a U.S. company with small business disabled veteran-owned status. With its own R&D department, Laser Safety Industries is constantly looking for new ways to improve current products and well as create new ones.

Currently, Laser Safety Industries is in the process of developing patented new products. In fact, Keith Poppe, Laser Safety Industries founder, has been named as an inventor on numerous patents in the past.



**Laser Safety
Industries** LLC

Today's product/services line-up includes laser eyewear, laser barriers, laser windows, laser safety signs and laser publications. Laser Safety Industries also offers free help with selecting correct laser protection and OD calculation.

Laser Safety Industries believes in reaching out to its customers and listening to their needs for safety products. The company also works with laser manufacturers, researchers and institutions to develop products for their newest laser systems.

Here's a few of the advancements the company is working on or has recently developed:

- Large glass viewing windows that are tempered and meet both ANSI and CE standards.
- Laminated glass and polycarbonate laser filters.

- Improved permanent marking systems for laser protection and customized application marking.

- Lighter weight dielectric coated polycarbonate laser filter eyewear.

- More environmentally friendly and less expensive lit laser warning signs.

- New, more stylish laser safety glasses frame styles.

- Retractable barrier for optical tables.

INDUSTRY INNOVATORS

Laser Safety Industries President Richard Poppe has seen the largest industry growth in the last five years in specialty optics. He's also seen a move away from polycarbonate to more durable glass eyewear in the same timeframe.

Having only been an LIA member for a year, Poppe realizes LIA's importance in the industry.

"LIA servers an important role to the laser industry and being a corporate member of the LIA shows your support for that community. Having a central hub for the development of laser safety and regulations in an environment where technologies are constantly changing is essential. The knowledge curve of the laser community is vast, ranging from Ph.D. scientists to people with little or no understanding of what a laser is. Equally vast is the number of different kinds of lasers. LIA brings all these groups and technologies together.

"Laser Safety Industries' involvement in the LIA gives us opportunities to stay in touch with the changes in the laser industry as well as keep our products outperforming the regulations for laser safety. We strive to be an innovator in the laser safety industry so we find this relationship crucial. If you are in the laser industry you "shall" be a corporate member of the Laser Institute of America," he said.

Visit www.lasersafetyindustries.com or call toll-free 1-888-752-7370 for more information. ■



Doubled Nd:YAG fit-over style laser safety glasses offer virtually no distortion and high optical density for 532 nm and 1064 nm.

JLA UPDATE

The *Journal of Laser Applications*[®] offers the latest refereed papers by leading researchers in the laser community. The May 2009 issue includes papers from materials processing and biomedical. Look for the online version at www.laserinstitute.org/publications/jla/. To view the journal online, please make sure your membership is current. In addition, articles are now posted online as the production cycle is completed ensuring timely publication. These articles are 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.

Sign up at <http://scitation.aip.org/jla/alert.jsp> to receive your JLA table of content e-mail alerts.

BLS UPDATE

The Value of Becoming Certified

From the American Heritage[®] Dictionary of the English Language, as a verb **certified** means “to confirm as true, accurate, or genuine; to guarantee as meeting a standard.” As an adjective, it is “endorsed authoritatively as having met certain requirements”; and “holding appropriate documentation and officially on record as qualified to perform a specified function or practice a specified skill.” (WordNet[™] 3.0)

Certification involves a process that evaluates one’s level of expertise in a specialty area – in our case laser safety – and validates one’s level of competency. BLS certification demonstrates that individuals serving in the field of laser safety have agreed to adhere to higher standards of safety and professional practice than those who have not achieved this recognition.

The question, especially in today’s troubled economic time, is how to impress upon employers the value of certification. In addition to the obvious – increased safety and increased competence level of employees – certification can increase confidence in the employee’s abilities (for employee, staff and clientele), demonstrate the employers commitment to competence and provide compliance with industry regulations and/or government requirements.

It would appear that now is the time to acknowledge the value of certification. If you have any questions regarding laser safety officer (LSO) or medical laser safety officer (MLSO) certification, please contact the Board of Laser Safety by e-mail at bls@lasersafety.org, call 407-380-5833 or visit www.lasersafety.org. ■



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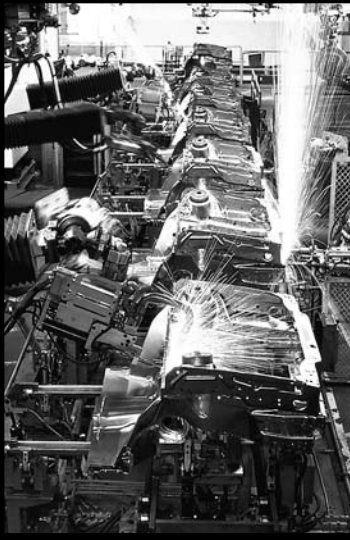
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ASC Z136 UPDATE

ASC Z136 Annual Laser Safety Committee Meeting

by Dave Ermer, CLSO, EWG Member

The American National Standards Institute (ANSI) Accredited Standards Committee (ASC) Z136 for Safe Use of Lasers met in Reno, Nev. on March 22 immediately preceding the 2009 International Laser Safety Conference (ILSC®), also being held in Reno. The meeting consisted of an update on actions regarding the work of the Administrative Committee (ADCOM), Standard Subcommittees (SSC), Technical Subcommittees (TSC) and the Editorial Working Group (EWG). LIA acts as the ANSI secretariat of the ASC Z136.

Following are the meeting's highlights.

- Election of officers: Bob Thomas was appointed secretary, Ron Peterson appointed chair, and Sheldon Zimmerman appointed vice chair.
- Election of subcommittee chairs:

Standards Subcommittees	Chair	Technical Subcommittees	Chair
SSC-1	Benjamin Rockwell	TSC-1	Bruce Stuck
SSC-2	Ron Petersen	TSC-2	Robert Thomas
SSC-3	Joel White	TSC-4	William Ertle
SSC-4	Sheldon Zimmerman	TSC-5	Gene Moss
SSC-5	Fred Seeber	TSC-7	Wes Marshall
SSC-6	Robert Aldrich		
SSC-7	James Sheehy	Editorial Working Group	Nikolay Stoev
SSC-8	Ken Barat		
SSC-9	Tom Lieb		
SSC-10	Jay Parkinson		

- Election of appeals pool members: Robert Aldrich, Tim Hitchcock, Ami Kestenbaum, William Pat Roach, Bruce Stuck, and Sheldon Zimmerman.

- Bob Weiner and Jay Parkinson were recognized with awards for their exemplary service to the ADCOM committee.

- The North American Association of Laser Therapy (NAALT) was accepted as a new organizational member with Raymond Lanzafame, M.D. as its representative. Lanzafame's appointment was viewed as a "wonderful addition" with "significant experience."

- Emphasis was made regarding the importance of voting members to return ballots even if abstaining on an issue. This is organizationally important to the timely processing of voting results.

- There was discussion over requesting interpretations and explanations concerning standards. The ADCOM was tasked with reviewing and making recommendations on how best to serve the standard reader/user in this regard.

In addition to status reports given by each of the subcommittee chairs, two special presentations were delivered immediately following a lunch hosted by the LIA.

- John O'Hagan gave an interesting and sage overview of the European Optical Radiation Directive. The directive is expected to become national law across the participating European nations by April 2010.

- Bob Weiner gave an IEC Laser Subcommittee Standards update. The emphasis was on the work of Technical Committee 76. The IEC has a manufacturing self-certification "no variance" procedure. The CDRH will accept the IEC manufacturing classification standard with certain limitations. Interested parties were referred to CDRH Laser Notice No. 50.

IN OTHER NEWS

- There was discussion over what constituted "consensus" with regard to standards rating. Currently, consensus is a simple majority of eligible voters voting (not counting

abstentions) and that two-thirds or more of those voting “yeas” constitutes passage. The question was asked whether the “yea” majority should be 80% or more. The ADCOM was charged to study this issue and develop a recommendation.

• Ron Petersen, ASC Z136 chair thanked the LIA for hosting the committee and its support as secretariat. Barbara Sams was singled out for specific appreciation in her work for the committee. Many seconded this comment and noted the substantive progress being made in large part due to her dedication. The next meeting is Friday, March 12, 2010, in San Jose, Calif.

To learn more about the work of the ASC Z136 and its component committees, visit www.z136.org. Applications for participation are welcome. Interested persons can apply online at the aforementioned website. E-mail Barbara Sams at bsams@laserinstitute.org for additional information. ■



The annual meeting of the ASC Z136 committee consisted of several voting moments.



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NEW FIBER LASER LINE

IPG Photonics Corporation, Oxford, Mass., has introduced a new line of cost effective fiber lasers specifically designed for cladding, brazing and annealing applications. The new YLS-CL series are available operating at 2, 3 or 4 kilowatts, feature a choice of round or square fiber deliveries with various output fiber core sizes and beam shapes, come with a three-year full warranty and are extremely compact. The company states that this solution allows users to utilize the highest efficiency, plug and play with rapid fiber replacement, rapid switching capability and tremendous total reliability demonstrated by IPG with fiber laser technology. For more information, visit www.ipgphotonics.com.

PHOTODARKENING RESISTANT FIBERS

nLIGHT Corporation, Vancouver, Wash., has introduced new, highly doped, photodarkening resistant ytterbium fibers with up to 60 percent higher absorption at 920 nm and pump conversion efficiencies routinely over 75 percent. Today's large mode area (LMA), low numerical aperture (NA) fibers exhibit a fivefold decrease in loss under accelerated stress testing conditions. The loss of LMA, high NA fibers is even below the measurement capability of the accelerated test. For more information, visit www.nlight.net.

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The new Genesis™ 355 lasers from Coherent Inc., Santa Clara, Calif., are the first all solid-state lasers to provide true CW output in the ultraviolet (355 nm). Based on the company's unique, optically pumped semiconductor laser (OPSL) technology, Genesis 355 products are available with output powers of 40, 60, 80 and 100 mW. As with other OPSLs, Genesis lasers feature excellent beam quality ($M^2 < 1.2$) and low noise ($< 0.5\%$ rms). They have already proven their superior performance and reliability in extensive beta testing in target bio-instrumentation UV applications, such as flow cytometry and confocal microscopy. For more information, visit www.coherent.com. ■



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COHERENT'S CATALOG

A new 52-page product catalog from Coherent Inc., Santa Clara, Calif., details the largest selection of excimer lasers and related products available anywhere. Specifically, this guide provides detailed specifications, selection guides and an application matrix for Coherent's offering of over 40 different excimer laser products. These include lasers in the ExciStar XS, Xantos XS, BraggStar Industrial, IndyStar, COMPexPro, LPXpro and LAMBDA SX series. Additionally, VarioLas UV material processing systems, GeoLasPro UV optical systems for LA-ICP-MS and relevant laser measurement and control are also included. Coherent excimer lasers are utilized in a wide range of applications, including marking, material processing, surface treatment, measurement and metrology and medical procedures. For more information, visit www.Coherent.com.

OPHIR'S CATALOG

Ophir-Spiricon, Logan, Utah, has released its 2009 *Laser Measurement Catalog* that covers a wide range of laser power/energy measurement instruments and beam diagnostics for medical, industrial and research applications. The catalog is an encyclopedic reference that covers virtually all laser measurement and analysis needs, from photodiode, thermal and pyroelectric power/energy detectors to portable displays and high power, high accuracy beam profilers. It also provides in-depth technical

articles on laser power and energy meters, information about the company's newest products, and provides tutorials on power/energy measurement and beam profiling. In addition, it highlights some of the greatest advances in the field of laser measurement. You may download a copy at www.ophir-spiricon.com or call 800-383-0814 to order a print version.

NEW OPTICAL PROGRAM AND WORLD'S FIRST

Beginning in the summer of 2011, production technology students at RWTH Aachen University, Aachen, Germany, one of Europe's largest mechanical engineering faculties, will be able to choose an in-depth specialization in optical technologies. This new offering is in close cooperation with Fraunhofer Institute for Laser Technology (ILT) and is in line with the Excellence Initiative embraced by the German federal and Länder governments. For more information visit www.ilt.fraunhofer.de/eng/100031.html.

Additionally, Fraunhofer introduced a 400 W femtosecond laser for ultra-precise materials processing in June. It currently holds the world record for average output among lasers with pulse durations of less than 1 picosecond. This was made possible by reinterpreting the InnoSlab technology that has been under development at Fraunhofer for over a decade. The laser was developed in part under the Lasertron joint project with funding from the German Ministry of Education and Research. ■

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employees working with or around Class 3B or Class 4 lasers and laser systems.

“Our goal with the 2009 version of the *Mastering Light* DVD was to upgrade and enhance this comprehensive training tool and provide the LSO with a more effective learning solution for training others,” said Gus Anibarro, Education Director for LIA. “*Mastering Light* is a great supplement foundation for all in-house laser safety training programs.”

Presented in an easy-to-understand format, the approximately 20-minute DVD covers the basic fundamentals of laser safety including beam hazards, control measures, bioeffects, classifications, non-beam hazards and much more. This comprehensive DVD will enable the LSO to expand their knowledge, easily train others (even if they don't work directly with lasers), and contribute to a safer work environment.

Mastering Light – An Introduction to Laser Safety & Hazards is available to order online at www.laserinstitute.org/store or by calling LIA at 1-800-34-LASER. The single user version price is \$450 for LIA members or \$495 for non-members; the site license price is \$1150 for LIA members or \$1200 for non-members.

ICALEO COMING SOON, REGISTRATION NOW OPEN

Mark your calendars now for the 28th International Congress on Applications of Lasers & Electro-Optics (ICALEO® 2009), which will be held Nov. 2-5 in Orlando, Fla. ICALEO 2009 will include three conferences – the Laser Materials Processing Conference, the Laser Microprocessing Conference, and the Nanomanufacturing Conference – as well as a Poster Presentation Gallery, the Laser Solutions Short Courses, a Business Development Session and plenty of networking opportunities. Topics to be covered include processes such as rapid prototyping, surface modification and cutting and drilling, lasers including diode-pumped and advanced laser sources, applications in energy, biomanufacturing, nanoelectronics, information technology and education, and laser sources. For complete details on ICALEO, to register online and also for sponsorship information, visit www.icaleo.org; call 1-800-34-LASER or e-mail conferences@laserinstitute.org.

MEDICAL PUBLICATIONS FROM LIA

LIA is proud to announce the addition of two new medical publications to its bookstore.

When you need the most trusted resource for perioperative practice, look no further than AORN's classic reference – *Perioperative Standards and Recommended Practices, 2009 Edition* – which brings together all of the association's official positions and recommendations for perioperative nursing ranging from professional practice standards to laser safety, patient positioning to environmental cleaning, clinical pathways to patient safety. The 2009 edition features two revised recommended practices for cleaning and processing flexible endoscopes and endoscope accessories and high-level disinfection. In addition, a sample policy and procedure template and two sample policies for moderate sedation and patient positioning are included to

help you integrate the recommended practices into your facility. The cost of *Perioperative Standards and Recommended Practices* is \$188 (\$168 for LIA members).

Lasers: The Perioperative Challenge, 3rd Edition provides valuable insight into the responsibilities of nursing personnel in virtually every laser procedure and includes a section on the administrative aspects of a laser program, from forming the program to financing and staff member education. It also discusses various laser systems used by health care professionals, laser biophysics, laser safety and significant updates on specialties in which laser use has changed dramatically during the past five years. Written by Kay Ball, *Lasers: The Perioperative Challenge* is available at a cost of \$29 or \$25 for LIA members.

Visit www.laserinstitute.org/store or call 1-800-34-LASER to order either publication.

SAVE THE DATE FOR PICALO

Mark your calendars now for the Pacific International Conference on Applications of Lasers and Optics (PICALO), which will be held Mar. 23-25, 2010 in Wuhan, People's Republic of China. PICALO focuses on the growth and application of lasers and optics in the Pacific region. It brings together researchers, engineers, equipment suppliers



PACIFIC INTERNATIONAL CONFERENCE
ON APPLICATIONS OF LASERS & OPTICS

and industry personnel to share the latest developments and progress in lasers and applications and to share knowledge, experiences and visions. PICALO offers an exciting technical and social program in cities that represent laser growth in the Pacific region. The general chair of PICALO will be Xiaoyan Zeng of the Huazhong University of Science and Technology, Wuhan, China. For more information, visit www.laserinstitute.org/conferences/picalo, call 1-800-34-LASER, or e-mail conferences@laserinstitute.org.

UPCOMING TRAINING COURSES

LIA will be holding a Laser Safety Officer (LSO) course Aug. 4-6 in St. Louis, Mo. and Aug. 17-19 in Milton, Ontario, Canada. This course is a non-mathematical approach designed to teach the duties of the LSO as described in the ANSI Z136.1 Safe Use of Lasers standard. Information on lasers and optics, bioeffects, beam and non-beam hazards, control measures and training requirements are covered with an emphasis placed on laser safety program development and administration. Visit www.laserinstitute.org/education for more information on either course, or contact Gus Anibarro at gus@laserinstitute.org or 1-800-34-LASER. ■



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