



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: YEAR END REVIEW | VOLUME 16 NUMBER 6 | NOV / DEC 2008

In celebration of LIA's 40th anniversary, we have taken a look back at how the laser was born, how it influenced our daily lives, and the role LIA has played in this extraordinary journey. If you missed the previous articles, you can access the Mar/April and Aug/Sept issues of LIA TODAY online at www.laserinstitute.org.

LIA: CELEBRATING 40 YEARS OF INNOVATION, INGENUITY AND INSPIRATION

By Heather Teague

In the first article, we examined how the combined ingenuity and determination of early laser pioneers, such as Arthur Schawlow and Theodore Maiman, fueled historical discovery into the practical applications we depend on today. In part two, we learned that as the market for lasers expanded, so did LIA and its role in the laser industry. The demand for continuing education, especially safety training, expanded rapidly.

Today, 40 years later, LIA trains more laser safety officers than any other organization in the world. As we look into the future, we identify trends such as the growing number of non-expert laser users across many different industries, collaboration opportunities with this fast-growing segment, and meeting the increased global demand in Europe and China. In addition, LIA's conference proceedings continue to define state-of-the-art applications in (Con't. pg. 6, see **Celebrating**)

ICALEO 2008 A LASER APPLICATIONS FIELD PACESETTER

Held Oct. 20-23, 2008 at the Pechanga Resort & Casino in Temecula, Calif., the 27th International Congress on Applications of Lasers & Electro-Optics (ICALEO®) 2008 was another resounding success for LIA, the conference organizer. ICALEO, the premier source of technical information in the field of laser materials processing, is known for bringing the best and brightest of laser and optics professionals and scientists together.

Kicked off on Sunday, Oct. 19 by the Meet & Greet Fiesta, the following four days of ICALEO 2008 provided a platform for the current issues on the forefront of laser materials processing while also predicting which way the future will take this rapidly developing and evolving industry. Yongfeng Lu, a professor at the University of Nebraska-Lincoln, was the ICALEO 2008 general chair.

ICALEO 2008 had over 500 participants with attendees coming from over 35 states and more than 30 countries to attend all the high quality presentations that included scientific papers, short courses, and panel discussions. Of course none of this would have taken place without the vendors and (Con't. pg. 8, see **ICALEO**)

LIA ANNOUNCES NEW LASER ADDITIVE MANUFACTURING WORKSHOP FROM LIA

LIA's first ever Laser Additive Manufacturing (LAM) Workshop will be held March 3-4, 2009 at the Holiday Inn Riverwalk in San Antonio, Texas. LAM will bring together academic researchers, universities, government researchers, national labs, and several industry specialists from around the world with the goal of advancing this state-of-the-art process to effectively and affordably meet the needs of today's manufacturing challenges. The workshop's results are expected to have a significant impact on the widespread industrial implementation of the laser additive manufacturing processes (cladding, sintering and rapid manufacturing).

Engineers, supervisors, technical and sales staff, OEMs, and anyone interested in laser additive manufacturing – come find solutions to your technology challenges, gain understanding of the laser cladding, sintering and rapid manufacturing processes, source new products, meet suppliers and network (Con't. pg. 19)

Don't miss photos from ICALEO 2008 on pg. 10 and 11. Plus Schawlow Award winner on pg. 12.



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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CALENDAR OF EVENTS

Laser Safety Officer Training	
May 13-15, 2009	Las Vegas, NV
Aug. 4-6, 2009	St. Louis, MO
Dec. 7-9, 2009	Orlando, FL
Laser Safety Officer with Hazard Analysis*	
Feb. 2-6, 2009	Orlando, FL
Mar. 8-13, 2009	San Diego, CA
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*	
Feb. 20-21, 2009	Orlando, FL
May 1-2, 2009	San Diego, CA
Sept. 19-20, 2009	San Francisco, CA
*Certified Medical Laser Safety Officer exam offered after the course.	
Advanced Laser Safety Officer	
Mar. 10-12, 2009	Orlando, FL
Laser Additive Manufacturing Workshop	
Mar. 3-4, 2009	San Antonio, TX
ILSC® 2009	
Mar. 23-26, 2009	Reno, NV
ALAW 2009	
May 12-14, 2009	Plymouth, MI
ICALEO® 2009	
Nov. 2-5, 2009	Orlando, FL

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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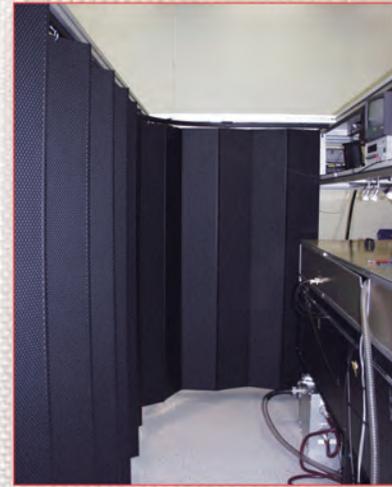
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Visit <http://careers.laserinstitute.org> today to post your job or search job listings.

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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PRESIDENT'S MESSAGE



It looks like “change” is the most important word of these days. The world around us changes very quickly and it seems there is no stability. People change their jobs and sometimes lose them; financial conditions have changed and, last but not least, political systems change and influence our daily lives. This was

the general environment of ICALEO® 2008, held in October in Temecula, Calif. It was obvious that attendees from around the world were talking not only about the scientific developments in laser materials processing, but also about the recent changes in the world.

However, the general atmosphere was not characterized by caution or panic, but was obviously more characterized by chances. A good example was the plenary session where the presenters discussed laser-based solutions to global energy problems. Also within the technical sessions many presenters focused on the big future challenges like health, energy, mobility, green production and environmental aspects. If laser technology can contribute to solutions within these fields, we will definitely see a further growth of our branch. As a consequence, we have to realize that “change” and “chance” are not too far away from each other. Maybe the laser community has realized its opportunities already and is well prepared for the future.

On a personal note, my presidential term has come to an end and I am pleased to hand over the reigns to Raj Patel, LIA's president for 2009. Like every change, this includes a chance as well.

Andreas Ostendorf
President
Laser Institute of America

EXECUTIVE DIRECTOR'S MESSAGE

LASERS FOR A GREENER PLANET

My early days were spent in England where nothing was wasted or thrown away. Our carbon footprint was microscopic.

Ever since I came to the U.S. it has amazed me how we waste colossal amounts of everything – gasoline, hot water, cold water, electricity, everything. Now, in the current economic panic we have had an epiphany, we must not waste anymore, we must not pollute, we must save! We must have a greener planet!



Fortunately, lasers already play an important role in fuel efficiency. The millions of oblique, laser-drilled cooling holes in turbine blades allow jet engines to run more efficiently. Laser processing of automobiles reduces waste in manufacturing and allows cars to be lighter and achieve better fuel mileage.

At last month's ICALEO® there were three very interesting papers in the plenary session on the topic of energy. Thomas Fehn of JENOPTIK showed how energy from the sun is one of the promising concepts for renewable energy. He showed how lasers are used in drilling, cutting and other applications in the manufacturing of solar cells allowing increased efficiency and productivity.

Takashi Yabe of the Tokyo Institute of Technology and CEO of Electra Co. Ltd. discussed the intriguing possibility of using fuel cells powered by magnesium, lithium and other metals instead of hydrogen. Metals provide much more energy/kg and are safer to store. In a car, for instance, it would be possible to ride around for many miles then just go to a store for a fresh magnesium pack. Dr. Yabe then showed how the combustion residue, MgO, can be reduced back to Mg using a solar powered laser, thereby achieving a clean, renewable cycle. He also pointed out how this technology could be used in desalination plants to meet the coming need for fresh water.

Tomás Diaz de la Rubia of Lawrence Livermore National Laboratory showed how a Laser Inertial Confinement Fusion-Fission Energy (LIFE) system has the possibility to meet increased energy demand, stabilize the increase of atmospheric CO₂ and mitigate the concomitant climate change. The proposed system incorporates a large bank of lasers similar to the NIF laser and de la Rubia outlined the various challenges to be met over 15-20 years in order for LIFE to be viable. If successful, the system would eliminate the need for uranium enrichment and spent nuclear fuel (SNF) reprocessing. Moreover, LIFE engines can burn the existing inventories of SNF and excess plutonium, drastically reducing stockpiles of these materials. Attractive indeed!

So remember, lasers are your friend for a greener planet!

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

laser material processing.

MORE PEOPLE ARE USING LASERS THAN EVER BEFORE

While the laser industry has a finite number of laser experts, estimated to be around several thousand in the world, there is a huge and expanding number of “non-experts” using lasers as tools, estimated to be in the millions.

As lasers become more reliable and affordable, the number of non-expert users will continue to increase in every field including material processing, construction, medicine, communications, and energy production. Consider the number of automobile, aircraft, and boat manufacturers using lasers to increase productivity and save costs. These are just a few examples of “non-expert users” of reliable, low-cost lasers.

To support and educate this fast-growing end-user community, LIA is drilling deeper into the application side of the industry. For example, in conjunction with the Fabricators & Manufacturers Association International, LIA has partnered to further develop ALAW, Laser Applications Workshop. Aimed directly at end users, ALAW is the springboard for LIA to reach and help this rapidly growing group.

Designed for fabricators, job shops and automotive manufacturers, ALAW is comprised of helpful, practical sessions on increasing productivity, reducing manufacturing costs, improving quality and providing flexible laser manufacturing. LIA is also forming a new workshop on laser cladding to provide practical, hands-on education including how to save and make money.

Rapid manufacturing, the quick production of highly customized products, is another advancement that promises to bring a whole new group of non-expert users to the forefront. Rapid manufacturing is being applied to a wide variety of industries including automotive, jewelry, dentistry, orthodontics, medicine and collectibles. Another area to

watch is laser applications for the development of fuel cells, solar cells, and even lithium batteries.

As end users increase, more laser safety programs are being implemented in a wide variety of organizations and work environments. With the goal of keeping the workplace safe from hazards associated with lasers, LIA formed an alliance with the Occupational Safety and Health Administration (OSHA) in 2005. The program provides guidance, and access to training resources to help organizations protect their employees’ health and safety by reducing and preventing exposure to laser beam and non-beam hazards in the workplace.

As LIA expands in response to this exploding market for laser applications across many industries, the organization seeks

to collaborate with laser end users in all fields.

INTERNATIONAL INFLUENCE

Thanks to growing demand from Europe and China, LIA is becoming more visible on a global scale. Innovations in laser applications have made a tremendous impact in Europe and across the Pacific, and have certainly influenced future growth opportunities for LIA.

When it comes to laser research and technology, Europe is the current leader. The government contributes to laser research, and universities step in to solve problems for laser corporations — all leading to an enhanced economic environment. China is also making significant advancements, banking on the benefits of laser innovations and also investing money in research.

LIA brought together the most influential chief executives from major laser and photonics companies from around the world for the first International Enterprise Summit held in Beijing in April during LIA’s Pacific International Conference on Applications of Lasers and Optics (PICALO). This unique opportunity for face-to-face collaboration on the opportunities and challenges of globalization in the laser industry created an unprecedented forum.

The extraordinary success of the International Enterprise Summit, as well as the record-breaking attendance at PICALO this year, serve as excellent indicators that LIA’s worldwide programs are making an impact across the globe.

GUIDESTARS TO THE FUTURE

As LIA continues to refine and build upon its mission (40 years later) to foster lasers, laser applications, and laser safety worldwide, it has defined three strategic guidelines that will lead the organization into the future.

Guidestar 1 – LIA will protect, nurture and develop its position as “the source” of laser applications and safety knowledge.

Guidestar 2 – LIA will seek strategic alliances at its boundaries.

Guidestar 3 – LIA will adapt and package its laser application and safety knowledge and become a preferred source for the global end-user community.

LIA was founded in 1968 by a group of academic scientists, journalists, developers and engineers who were truly passionate about taking an emerging new laser technology and turning it into a viable industry. These first members of LIA believed in the importance of sharing new ideas about lasers. This belief, as it remains today and in the future, is to promote laser applications and their safe use through education, training and symposia.

“As a result of LIA’s unwavering dedication to the laser industry, we continue to be the world’s leading authority on laser applications and safety 40 years later,” said Peter Baker, executive director of LIA. “There’s no doubt that as laser applications become more versatile and global expansion drives our growth initiatives, the future looks bright for LIA. We invite everyone to become part of this historic journey into the next generation of laser innovation, ingenuity and inspiration.” ■

Heather Teague is a freelance writer in Orlando, Fla.



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sponsors that participated in the conference, lending their patronage and support. Special thanks also goes out to the cooperating societies that helped promote the conference: American Welding Society, Association of Laser Users, Club Laser et Procédés, European Laser Institute, Italian Association of Laser Users, Japan Laser Processing Society, Society of Manufacturing Engineers, and WLT.

PLENARY SESSION

The ICALEO plenary session had four eminent leaders in science, engineering, and business give talks on different aspects of laser applications in energy. Tomas Diaz de la Rubia spoke on “Laser-Fusion Related Energy Opportunities”; Takashi Yabe presented “A Sunny Solution to Global Warming by Sunlight Laser”; Thomas Fehn spoke about the state-of-the-art technologies of solar cells, and to help celebrate LIA’s 40th anniversary, Milton Chang gave a talk titled “40 Years of Experience on the Next 10 Years of Laser Entrepreneurship.” (See page 9 for more details).

After the exciting opening act of the plenary session came the three major conferences held at ICALEO 2008 – the Laser Materials Processing Conference, Laser Microprocessing Conference, and the return of last year’s inaugural Nanomanufacturing Conference.

LMP AND LMF

The Laser Materials Processing Conference (LMP) was full of excellent abstracts that made the selection of the most interesting presentations difficult. The abstracts characterized the trends in research and interest of the attendees so this year had over 40 papers related to the deposition of materials, or cladding. Other topics covered were rapid prototyping, tailored structures, repair, modeling, and process control. In addition to the deposition of materials, the LMP, as always, covered such areas of interest as processing with high brightness lasers and hybrid welding. Additional areas covered were the more mature processes such as laser cutting and drilling, micromachining, unique and plastic processing, and optics. Paul Denney of the Connecticut Center for Advanced Technology, East Hartford, Conn., was the conference chair for the LMP.

ICALEO’s 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. Fortunately, Chairman Xinbing Liu of Panasonic Boston Laboratory, Cambridge, Mass., and the LMF committee organized an exciting program covering the laser microprocessing technologies that are an active area of research and development as more and more universities and



ICALEO 2008 General Chair Yongfeng Lu.

companies are taking advantage of the availability of higher average power ultra-fast lasers and high power lasers with high beam quality. This year the LMF had a joint session with the LMP conference of ICALEO on high average power materials processing. Ultra-fast laser processing and nanosecond pulse micromachining were also main topics for LMF.

NANOMANUFACTURING

The Nanomanufacturing Conference of ICALEO presented optical and laser-related nanotechnologies for nanomanufacturing and their scale-up for mass production. Much progress was reported as having been achieved in far and near-field electromagnetic materials processing and manufacturing, the design and utilization of novel photonic structures, as well as in the multi-scale integration for the fabrication of functional devices. This conference highlighted research in emerging nanomanufacturing technologies in laser nanopatterning, nanoparticle generation, pulsed laser deposition and sintering, micro/nanomachining, multi-photon polymerization, laser-assisted characterization and scanning probe lithography/microscopy. Costas Grigoropoulos of the University of California Berkeley, Berkeley, Calif. was the nanomanufacturing conference chair.

ADDITIONAL EVENTS

In addition to the technical conferences, ICALEO 2008 also organized a Business Forum & Panel Discussion that provided conference attendees an opportunity to listen to and interact with five distinguished, invited leaders from business, academic, and governmental organizations around the world on the important issues related to the laser and photonics industry.

ICALEO’s Laser Solutions Short Courses were ideal for those wanting to receive a complete overview on the state-of-the-art in laser processing. A series of six short courses taught by industrial photonics experts addressed fundamentals related to lasers, optics, material processing, and applications.

The Laser Industry Vendor Night is always one of the special events at ICALEO 2008 and this year was no exception as it brought together over 75 vendors and sponsors from around the world. This relaxed-setting reception provided vendors and attendees the opportunity to discuss equipment and applications for cutting-edge laser tools and services. The President’s Reception was also a highlight of the conference as it was held at the La Cerez Winery on Monday evening. The Spanish-Mediterranean-style winery is in the heart of the Temecula Wine Country. Hosted by LIA President Andreas Ostendorf, the reception was a great opportunity for attendees to meet, mingle and network.

This year’s Arthur L. Schawlow Award was bestowed upon Prof. Eckhard Beyer. (See page 12 for the complete story.)

LOOKING AHEAD

ICALEO 2008 was a premier laser conference for 2008. Attendees were presented with the most up-to-date and insightful information for lasers and optics. Offering such a wide range of presentations and courses shows that LIA and ICALEO set the pace for this field. For more information about ICALEO 2008 or to order the conference proceedings, visit www.icaleo.org. Mark your calendars now for ICALEO 2009, which will be held Nov. 2-5 in Orlando, Fla. ■

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STUDENT PAPER AWARDS

LIA would like to extend congratulations to the ICALEO® Student Paper Award Winners who receive a cash award, a certificate of achievement and their manuscripts will enter the peer review process for publication in LIA's *Journal of Laser Applications*®.

1st Place – Simulation of Surface Profile Formation in Oxygen Laser Cutting of Mild Steel (1502); Grigoriy Ermolaev, Khristianovich Institute of Theoretical and Applied Mechanics, Novosibirsk, Russia

2nd Place – Laser Welding of 18ct Gold and Stainless Steel (608); Denis Favez, Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland

3rd Place – Pre-heated Substrate Effects on Melt-mediated Laser Crystallization of NiTi Thin Films (M703); Andrew Birnbaum, Columbia University, New York, NY, USA

MILTON CHANG SHOWS HOW TO MOVE FORWARD IN TODAY'S ENVIRONMENT

By Peter Baker

The business community has the “Oracle of Omaha,” Warren Buffet to disperse financial wisdom. In the laser community we are fortunate to have our own Milton Chang, the “Sage of Silicon Valley” to give us guidance. Dr. Chang, a past president of LIA and winner of LIA's prestigious Schawlow award, was a plenary speaker at ICALEO in Temecula, California on Oct. 20th.

Overall, Chang expects that we will work together through the current difficult situation and emerge healthier in due time, perhaps three years. The U.S. would still be dominant, but in a flatter world with the continued growth of China, India and others.

For laser and optics companies there will be a modest slowdown. Investors will no longer be willing to fund promising ideas only, but will be looking for solid earning as the industry matures. Companies must think globally and compete on execution and scale.

In preparation for the turnaround Chang advised:

- Trim fat, tune up
- Stay liquid to be opportunistic
- Cash is king
- Keep an eye on receivables
- Cut back on head count
- Hold off making non-urgent capital investments

Dr. Chang then turned his attention to advice for engineers. He pointed out that capable engineers are always in demand, a technical education provides a stepping stone to unlimited opportunities, especially for those who keep learning to broaden their skills.

In particular Chang stated that, “managing is not an option.” In fact, managing is a vital necessity for a successful career; engineers should seek out the opportunity to gain project management skills. This is a stepping-stone to engineering and general management positions or possibly to an entrepreneurial venture.

Near term he advised us to stay calm, value job security in a solid company and build a nest egg that would be valuable for the great investment opportunities that will come soon.

Chang then turned his attention to entrepreneurs and start-up companies, here his advice included:

- Understand (and demonstrate) how you can provide adequate returns to your investors in order to get funded
- Close your current financing round at any valuation
- Redirect product towards serving needs than wants
- Reduce burn rate to survive
- Cut back to survive under the worst scenario: Half of a loaf is better than no bread at all
- Strengthen core competencies
- Founders assume business development responsibilities

Dr. Chang closed with his typically excellent advice on moving forward. We should proceed with our long-term strategy but be prepared to modify it as circumstances change and we should always practice the Golden Rule. He stated that there is no limit to what we can accomplish if we have the wisdom to capitalize on our strengths, self-confidence to acknowledge our weaknesses, and humility to learn and seek help.

This will prepare us for continued success in the “one world” we live in. ■

Peter Baker is the executive director of the Laser Institute of America, Orlando, Fla. Milton Chang is managing director of iNCUBiC LLC, Santa Clara, Calif.



Plenary Speaker Dr. Milton Chang.

SCENES FROM ICALEO 2008

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Reinhart Poprawe and Eckhard Beyer at the Meet & Greet.



The Vendor Reception booths, such as Precitec, had plenty of action through the night.

The Vendor Reception was a relaxed setting in which attendees could learn from exhibiting companies.



The plenary session was a great kick-off for ICALEO 2008.



Plenary Speaker Tomás Díaz de la Rubia.



Thomas Fehn, plenary speaker.



Attendees had a great time at the wine tasting during the President's Reception.



Bo Gu, Peter Herman and Michael Scaggs at the President's Reception, which was held at the La Cereza Winery.



LIA's Peter Baker presenting Andreas Ostendorf with the 2008 president's plaque.



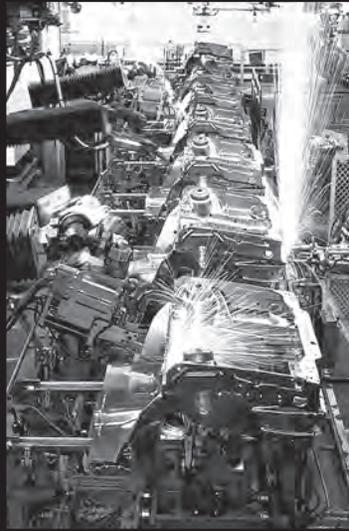
LIA staff from left: Pat Moroney, Kim Truelove, Kristen Childs, Gail LoIacono, Peter Baker, Robin Devor, Jim Naugle, and Amanda Criner.



Takashi Yabe, plenary speaker.

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BEYER RECEIVES 2008 SCHAWLOW AWARD

Eckhard Beyer, Ph.D., a pioneer in laser materials processing research and development, received the 27th Arthur L. Schawlow Award from the LIA during ICALEO® 2008.

Beyer has made outstanding contributions to the field of laser technology and applications worldwide during the last 25 years. A professor at the University of Technology Dresden and executive director of the Fraunhofer Institute for Material and Beam Technology IWS in Dresden, Germany, Beyer is also recognized as one of LIA's most valuable leaders and contributors.

One of Beyer's first significant achievements was the development of a rotating hollow needle for beam diagnostics, which is still in production worldwide. In the late 1980s, he achieved several important patents in the field of intelligent process control for laser cutting and welding. In 1994, he presented the first laser hybrid process for deep penetration welding at ICALEO, and he is a recognized authority in laser hybrid welding, laser coating and novel laser beam techniques.



Past President Bill Shiner presenting Eckhard Beyer with the Schawlow Award.

In addition, Beyer became the executive director of the Fraunhofer IWS in 1997, where his leadership has helped to launch the organization into world-class status as a research and development center for laser surface engineering and coatings, and laser materials processing. During this year, he was also appointed as professor of Laser and Surface Technology at the University of Technology at Dresden.

Beyer has presented research at many international conferences and served as co-chair of ALAW and general chair of ICALEO. Plus he has been a loyal and steadfast supporter of LIA, serving on the board of directors, as president in 2002, and now is a fellow of LIA. ■

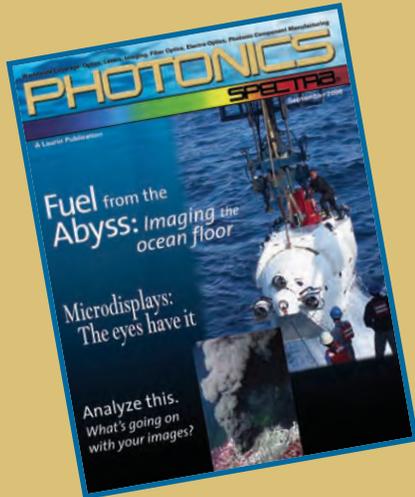
LIA ANNUAL MEETING REPORT

The 2008 Annual Meeting of the Laser Institute of America was held on Wednesday, October 22, at the Pechanga Resort & Casino, Temecula, Calif., in conjunction with ICALEO® 2008. President Andreas Ostendorf thanked LIA Executive Director Peter Baker and the LIA staff for another successful year and presented Baker with a plaque "in recognition of 20 years of devoted and invaluable service to the Laser Institute of America."

Treasurer Stephen Capp reported the consolidated financial statements for LIA and the Board of Laser Safety, Inc. for fiscal year ending March 31, 2008. The society had revenues of \$2,663,140, expenses of \$2,580,321, contribution of \$82,819, and net assets of \$847,303. For year-to-date through September 30, 2008 the society had revenues of \$1,135,092, expenses of \$1,200,555, and contribution of \$(65,272) (compared to budget of \$(75,087)).

After the treasurer's report, Baker thanked Andreas Ostendorf for his leadership as LIA president and presented him with a plaque. Baker then gave a short talk entitled "20 Years of Changing and Staying the Same." What had stayed the same was the consistent excellence of LIA's leaders and Baker reviewed the contribution of the last 20 LIA presidents (and two treasurers). What had changed, of course, was everything else – more conferences, courses, standards and so on. This resulted in a five-fold increase in revenue and a sixteen-fold increase in net worth, putting LIA in a sound position for the difficult times ahead. Baker applauded the LIA staff, members, speakers, session chairs, conference chairs, instructors, board members and officers and thanked everyone for their contributions to ensure the success of LIA.

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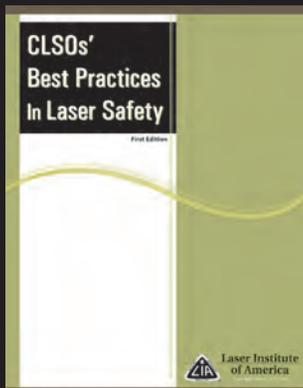
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CORPORATE MEMBER PROFILE

BUFFALO FILTER

An LIA corporate member since 2006, Buffalo Filter, Amherst, NY, is a medical device manufacturer with a primary focus on manufacturing and engineering products for the evacuation and filtration of hazardous smoke plume generated during laser/electrosurgical procedures.

COMPANY ORGANIZATION

Buffalo Filter was founded in 1991 and is a division of Medtek Devices, Inc., a privately held company owned by Christopher Palmerton, the company's chief executive officer. There are currently 61 employees between two locations in the Buffalo, NY area.

Buffalo Filter was founded and initially operated as an engineering-based company with a goal of becoming the world's leader in surgical smoke evacuation technology. With the purchase by Medtek Devices, Inc., the company was provided with the sales and marketing expertise to carry its technologies to the medical marketplace in a successful fashion.

"Since its inception, Buffalo Filter has been focused primarily on ridding the world of the hazards associated with surgical smoke plume. This focus has led Buffalo Filter to a leadership position not only in product solutions, but also education relating to the hazards inherent in surgical smoke plume," said Joe Lynch, Buffalo Filter's director of marketing.

For instance, Buffalo Filter's website is a place for all medical and laser professionals to learn about the surgical by-products created by medical lasers and other surgical instruments along with the methods available for controlling these hazards. The company continually enhances and expands the clinical resources available on the site.

COMPANY PRODUCTS

Buffalo Filter offers a complete line of surgical smoke plume capture and filtration devices to meet the unique dynamics of various surgical settings and procedures, such as surgical smoke evacuators, ULPA/HEPA replacement filters, and accessories (tubes, adapters, and wands) for various medical specialties. Whether it's capturing small amounts of smoke with wall suction devices, or large amounts of plume with portable and surgical boom-based systems, Buffalo Filter offers a product solution to meet a myriad of surgical applications and locations. The

company currently holds eight patents and has more pending

"Additionally, Buffalo Filter employs a dedicated team of researchers and engineers that design and develop new technologies not only for our own proprietary products, but also to meet the needs of our OEM partners throughout the medical device industry," said Lynch.

As a leader in the industry, Buffalo Filter continues to expand its smoke evacuation product portfolio in emerging areas such as minimally invasive surgery. With the introduction of a unique laparoscopic smoke evacuator in 2007, the LapEvac[®], the company continues to monitor the surgical landscape for new techniques and technologies that create opportunities and challenges for the evacuation of surgical smoke plume.

STRONG FORECAST

In the last five years, Lynch has seen the medical/surgical marketplace continue to evolve with demands for lower cost, faster recovery, and less invasive surgical processes. "Surgical techniques such as laparoscopy, single port laparoscopy, and natural orifice techniques continue to gain acceptance and implementation in facilities worldwide. Additionally, elective procedures in the areas of aesthetics and plastic surgery continue to increase yearly as the population ages and seeks treatment options," he said.

"As an industry, the dynamics of the clientele our customers serve is changing. With growth in areas such as bariatric, aesthetic, plastic, and minimally invasive surgeries, a clear indication is made as to the demands and challenges faced by health care providers.

"As applications for lasers in the medical marketplace continue to expand and develop, it is essential that Buffalo Filter stay abreast of new research and new technologies that impact the products, services, and solutions we offer, and membership with LIA greatly assists us in this. Our primary objective is to rid the world of the hazards associated with surgical smoke plume across all spectrums of surgical instruments and applications."

For more information visit www.buffalofilter.com. ■



Buffalo Filter's products are used to filtrate the air of hazardous smoke plumes during laser electro-surgical procedures.



JLA UPDATE

The *Journal of Laser Applications*[®] offers the latest refereed papers by leading researchers in the laser community. The November 2008 issue includes papers from materials processing and safety. Look for the online version at www.laserinstitute.org/publications/jla/. To view the journal online, please make sure your membership is current. Online figures have been in color since the August 2007 issue. 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.

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

ASC Z136 UPDATE

The annual meeting of ASC Z136 will be held on Sunday, March 22, 2009 in conjunction with the 2009 International Laser Safety Conference (ILSC[®]) at the John Ascuaga's Nugget Resort Hotel, Reno, Nevada. The meeting is scheduled to begin at 9 a.m.

Hotel Accommodations – Committee members who make their reservations prior to February 20 can receive the same conference-special hotel rate of \$110 plus taxes (single or double) as conference attendees. Reservations can be made by telephoning 1-800-648-1177 or 1-775-356-3434 and referencing group code GILSC9; by downloading, completing and faxing the hotel registration form available on the ILSC website, or online at <http://www.janugget.com/jump/909>.

This meeting is open to the public; however, RSVP is required for meal planning purposes. If you would like to attend as an observer, please contact Barbara Sams at bsams@laserinstitute.org or call 407-380-1553 for more information. ■



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WELCOME NEW MEMBERS

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- Laser Safety Industries, Minneapolis, MN
- RAYLASE AG, Wessling, Germany
- University Medical Center At Princeton, Princeton, NJ

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

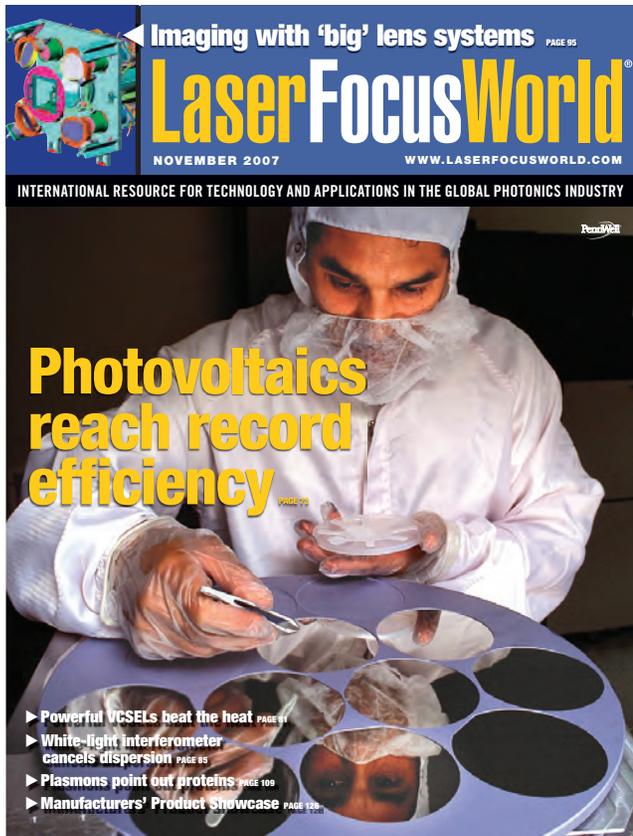
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 Bill Baggett, Tallassee, AL
 Dallas Weldon, Tallassee, AL
 Glen Conley, Colton, CA
 Richard Romano, Corona, CA
 Daniel Ricardo Arriero, Grass Valley, CA
 Jacqueline Erbe, Oakland, CA
 Carolyn Martinez, Petaluma, CA
 Michael Lefebvre, San Diego, CA
 Anchun Tien, San Jose, CA
 Carol Dar-Jen Chan, San Mateo, CA
 Stephen Rousseau, Santa Clara, CA
 Betty Minor, Aurora, CO
 Bryan Brownlow, Celebration, FL
 Colin Hawthorn, Des Plaines, IL
 Dana Poulain, Lenexa, KS

Steven Snay, Lowell, MA
 Jeff Allsion, Maple Grove, MN
 Matt Jordan, Plymouth, MN
 Gary Wimmer, Somerset, NJ
 Ross Muenchausen, Los Alamos, NM
 Mohamed Elbandrawy, Austin, TX
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 Elizabeth Hole, Houston, TX
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MEMBERS IN MOTION

ALD ADVANCED PROFICIENCY CERTIFICATION REVIEW & EXAM

The Academy of Laser Dentistry (ALD) is currently accepting applications for the advanced proficiency certification review and written examination online for the 2008-2009 program. Candidates for advanced level recognition must demonstrate an advanced level of clinical competency in safety and clinical use. Eligible members have until March 2, 2009 to complete the online review and take the 175 multiple choice written exam. The clinical simulation exam can be taken in the same year as the written exam and must be completed in person in conjunction with ALD 2009, the academy's 16th Annual Conference & Exhibition in Las Vegas, Nev., April 22-25. For more information call 954-346-3776 or visit www.laserdentistry.org.

RAPID MANUFACTURING OF ALUMINUM COMPONENTS

At the international conference ICAA11 in September 2008 the Fraunhofer Institute for Laser Technology ILT (Aachen, Germany) gave for the first time an extensive presentation on the successful results of the analysis of mechanical properties of generated aluminum components by selective laser melting (SLM). Fraunhofer ILT demonstrated on a high-volume-production valve made of AlSi10Mg the feasibility to reduce

the manufacturing process for six serial-identical functional prototypes from 120 days by use of die casting and 30 days by conventional prototyping (combining milling, eroding, turning) to seven days by SLM processes. Aluminum alloys are largely used in all kind of industries, e.g. in the car industry, mechanical engineering and aerospace industry. For more information visit www.ilt.fraunhofer.de.

LASERS PROVIDE RECYCLING OPPORTUNITY

Joining Technologies, Inc., East Granby, Conn., headlined a recent article in the *Hartford Courant* titled, "Repair, For the Air". The article features Joining Technologies' newest industrial Laser Applied Powdered workstation (LAPTM), an advanced laser cladding technology that can help the aerospace industry's challenge to refurbish worn parts. The article describes how the airline industry warehouses worn or in-need-of-repair parts but that recent advances in precision laser welding techniques could help get these parts back on the planes. Company founder Michael Francoeur states that the firm's LAP "is going to allow us to offer repairs on some very expensive aircraft parts where repairs didn't exist before." He hopes "the process will revolutionize the recycling of high value components across many industries." ■



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MEMBER INNOVATIONS

BMI-500 AUTO GAS PURIFICATION SYSTEM

Miyachi Unitek, Monrovia, Calif., has released the BMI-500 Auto Gas Purification System for Glovebox Applications. The new system is capable of removing moisture and oxygen to maintain less than 1 ppm moisture and oxygen levels in a glovebox. Features of the new BMI-500 include an LCD touch screen that displays unit status and provides a simple operator interface; dual purification columns; optional remote touch screen, and I/O for interface with third party systems. For more information visit www.muc.miyachi.com.

EYE SAFE WAVELENGTH LASERS

Photonics Industries International, Bohemia, NY, has broadened its product line to now include an air-cooled version of its diode pumped eye safe wavelength laser. These lasers are produced at a fixed wavelength selected in the 1.5 um to 3.4 um (NIR) wavelength range. The new DC-ES series offers eye safe laser wavelengths in the 1.5 um to 1.6 um, at up to 10 mJ/pulse with 6-10 ns pulse widths in a very compact air-cooled package. The repetition rate for this DC-ES series can be from single shot to 200 Hz. Applications include eye safe wavelength illumination, target range finder, and coastal defense LIDAR, NIR and mid-IR spectrometry, and chemical detection spectroscopy. For more information visit www.photonix.com.

FOCAL SPOT ANALYZER

Ophir-Spiricon, Logan, Utah, has announced the YAG Focal Spot Analyzer, the next generation of a real-time system for measuring focus spot characteristics of high power lasers. The Focal Spot Analyzer is a compact, laser beam sampler/attenuator for camera-based laser beam profiling systems. Designed for material processing applications, such as drilling, ablating, and marking, the analyzer attenuates high power, 1064 nm YAG lasers with short, compact path lengths. A modular, C-mount unit, the analyzer can easily be added to virtually any CCD camera. For more information visit www.ophir-spiricon.com.

ENTRYWAY CONTROLS SOLUTION

Laser Sasfety Systems, Williamsburg, Va., has devised a system for implementing ANSI Z136.1 defeatable access/entryway controls on Class 3B and Class 4 indoor laser areas. The LSS-2386 Defeatable Access Module is a defeatable access controller that works with the Codelock 5210 electronic mortise latch mechanism. Attached to the Codelock 5210 is a hand proximity detector and transmitter module that sends a coded signal to the LSS-2386 when an authorized bypass is detected. This bypass signal is generated when a hand approaches the interior handle or when a proper access code is entered from outside the room. For more information visit www.lasersafetysystems.com. ■

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Laser companies are being invited to exhibit during the conference, and sponsorships are currently being sought. Both are a great way to market your company's products and services to this division of the laser industry. For more information about exhibiting or sponsoring, contact Jim Naugle at 407-380-1553 or e-mail jnaugle@laserinstitute.org. For more information on LAM, visit www.laserinstitute.org/conferences/lam.



LIA AND FMA INTRODUCE LASER END-USER SUPPLEMENT

LIA and the Fabricators & Manufacturers Association (FMA) are partnering to co-produce a laser technology supplement that will be in the March 2009 issue of *The FABRICATOR*. The supplement will feature content on laser technology for fabricating applications, as well as a preview of the ALAW 2009 Laser Applications Workshop, which will be held May 12-14, 2009 in Plymouth, Mich.

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.

"We're looking forward to being a part of the laser technology supplement," said Jim Naugle, LIA's marketing director. "Anyone involved in laser technology and how it relates to fabricating applications will want to read this supplement."

For more information about the conference visit www.alawlaser.org.

LIA CONTINUES ITS SUPPORT OF LPC

The 4th International Conference on Laser Processes and Components (LPC) will be held Mar. 17-18, 2009 in Shanghai, China and is being organized by the LIA, Munich International Trade Fairs, Laser Zentrum Hannover, and the Chinese Optical Society-Laser Processing Committee. The purpose of the conference is to promote the cooperation and the technology transfer between science and industry in the field of

laser technology. The two-day event focuses on laser processing technologies, laser components, and current developments and trends in optical technologies. All presentations will be translated simultaneously in English and Chinese. For more information, visit www.laser-zentrum-hannover.de/en/lpc/2009/.

SAVE THE DATE!

Mark your calendars now for the International Laser Safety Conference (ILSC®), which will be held Mar. 23-26, 2009 at John Ascuaga's Nugget Resort Hotel in Reno, Nev. ILSC 2009 is a comprehensive four-day conference covering all aspects of laser safety practice and hazard control. Technical sessions and workshops will address developments in regulatory, mandatory and voluntary safety standards for laser products and laser use. You should receive the ILSC Advance Program shortly in the mail.

ILSC sponsorship opportunities are also available, 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.

UNDERSTANDING LASERS PUBLICATION

Updated to reflect advancements since the publication of the previous edition, *Understanding Lasers: An Entry-Level Guide, 3rd Edition* is an introduction to lasers and associated equipment and is now available at the LIA Bookstore. You need only a minimal background in algebra to understand the non-technical language in this book, which is a practical, easy-to-follow guide for beginners. By studying the conceptual drawings, tables, and multiple-choice quizzes with answers provided in the back of the book, you can understand applications of semiconductor lasers, solid-state lasers, and gas lasers for information processing, medicine, communications, industry, and military systems.

Written by Jeff Hecht, the 478-page *Understanding Lasers* can be ordered by calling 1-800-345-2737 or online at www.laserinstitute.org/store/LMPPUBS/202.

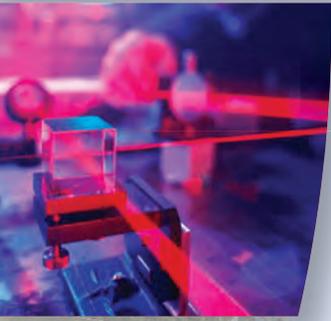
CALL FOR LIM PAPERS

A call for papers has been issued for Lasers in Manufacturing (LiM) 2009, which will be held June 15-18 in Munich, Germany and co-located with LASER – World of Photonics. LiM is an ideal platform to gather information on the latest developments within the laser industry and laser-based applications and for exchanging ideas between industry and research. Hosted by the Scientific Society for Laser Technology, LIA will again be a cooperating society of the conference. To submit an abstract by the Jan. 26 deadline, visit www.lzh.de/LiM2009-WTL.

THANKS FOR 40 YEARS!

The LIA staff would like to thank the LIA members and laser community at large for the last 40 years. The society is stronger than ever and continually evolving in its mission to foster lasers, laser applications, and laser safety worldwide. Also, happy holidays from the LIA! ■





The 2009 International Laser Safety Conference (ILSC) is a comprehensive 4-day conference covering all aspects of laser safety practice and hazard control. Technical sessions and workshops will address developments in regulatory, mandatory and voluntary safety standards for laser products and laser use.

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