



LIA TODAY

The Official Newsletter of the Laser Institute of America

The professional society dedicated to fostering lasers, laser applications, and laser safety worldwide.

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Taiwan Hits Trillion Mark

The production value of Taiwan's photonics industry topped NT\$1 trillion (USD \$30 billion/Euro 25 billion) last year, according to the latest figures from PIDA, the country's photonics industry and technology development association, reported the Jan. 5 issue of *Optics.org*. This output means that Taiwan accounts for 13% of the global photonics market and is one of the top three countries in the world for LED packaging and fabricating LCDs, CD/DVD drives and disks, digital cameras and OLEDs.

Despite rising competition from China and Korea, Taiwan's output is still growing and the latest figures compare with USD \$27.3 billion for 2004 and USD \$19.6 billion in 2003. Output is expected to rise to USD \$39 billion in 2006 and USD \$44 billion in 2007.

PIDA admits there have been significant hurdles and challenges to overcome in the past 20 years, including a vicious cycle of price slash-

(Cont. on pg. 21, see **In The News...**)

D.C. 'No Fly Zone', Laser-Free Zones & Aircraft Detection Systems Recognized in LIA's Revised ANSI Standard for Safe Use of Lasers Outdoors

by Jack Dyer, Contributing Editor

Greatly expanded attention is being paid to use of lasers in support of Homeland Security, Peter M. Baker, LIA executive director, notes in announcing the 2005 revision of the *ANSI Z136.6 Standard for Safe Use of Lasers Outdoors*.

The American National Standard provides guidance for the safe use of lasers and laser systems in an outdoor environment, including laser products that have been granted a variance or exemption from the provisions of the federal product performance standard (21 CFR 1040). Products and applications covered include laser

light shows, lasers used for outdoor scientific research, and military lasers. In addition to injurious levels of optical radiation, which are covered in other ANSI Z136 standards, this standard covers possible indirect hazards.

Enter the Laser

In regard to Homeland Security for example, the Federal Aviation Administration says restricting a wide swath of airspace over the Washington area is necessary because of continued threats of terrorism. A new visual warning

(Cont. on pg. 6, see **Standard**)

Meet LIA's 2006 President & Board

Installed as the 2006 president of LIA during ICALEO® in October, Joseph O'Brien is an entrepreneur and attorney residing in Minneapolis, Minn. Mr. O'Brien is the founder, president and CEO of Trinity Technologies, a world leader in the development and manufacture of laser protective technologies. He has experience working closely with laser professionals in research, industry, medicine, aerospace, telecommunications, and the military.

Working with laser users, manufacturers and distributors worldwide, O'Brien has developed a deep and unique understanding of our industry. Prior to founding Trinity Technologies he helped establish several early stage medical technology

companies. He served as LIA's treasurer in 2004, president-elect in 2005, and is a founding member of the Board of Laser Safety (BLS).

Trinity Technologies has been a corporate member of LIA for a number of years. "There are many benefits to membership in the LIA. LIA members are the most talented professionals in all aspects of our industry. I believe that the greatest benefit to being a member is the opportunity to cooperate with one's peers," said O'Brien.

The Year Ahead

It should be a busy year for O'Brien as he will be at the helm during the growth and

(Cont. on pg. 8 see **Board**)

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IN THIS ISSUE...

Features

LIA's Revised ANSISstandard 1
 Meet LIA's 2006 President & Board1
 A CLSOffers Advantages..10
 Register of CLSOs.....11
 Business Brainstorms & Takeaway Tips.....12
 Scenes from ICALEO® 2005 14
 IPG Photonics, No Longer a Secret16
 Ron's Rules of Business19
 LIA Forms Michigan Chpt. ..21

Department

In The News.....1
 Calendar of Events.....2
 President's Message.....5
 Executive Director's Msg.5
 Welcome New Members20
 ASC Update21
 Members In Motion.....22
 Member Innovations22
 JLAUpdate13
 LIA Announces23

Advertiser

Academy of Laser Dentistry..10
 Aerotech.....17
 BLS Certification.....24
 Kentek.....4
 Laser Focus World16
 Lee Laser23
 Photonics Spectra20
 Precitec.....19
 Noir.....22
 Spiricon.....13
 Trinity Technologies7
 Wilson Industries3

LIA TODAY

The Official Newsletter of the Laser Institute of America

2006 LIA Officers

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LIA TODAY is published bimonthly and strives to educate and inform laser professionals on 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.

If you are interested in affordable advertising space in this newsletter or a subscription, please contact Jim Naugle at 407.380.1553 or 1.800.34.LASER.

Laser Institute of America (LIA) is the professional society dedicated to fostering lasers, laser applications and laser safety worldwide. LIA is the secretariat and publisher of the ANSI Z136 series of laser safety standards, and is a leading provider of laser safety education.

LIA offers educational programs, conferences and symposia on the applications of lasers and electro-optics. LIA's annual International Congress on Applications of Lasers & Electro-Optics (ICALEO®) features the world's foremost meeting on laser materials processing. The biennial International Laser Safety Conference (ILSC®) covers all aspects of laser safety practice and hazard control.

If you would like more information about the LIA, call 407.380.1553, 1.800.34.LASER or visit our home on the Web: www.laserinstitute.org

LIA's Calendar of Events

For more information contact LIA at 1.800.34.LASER or visit www.laserinstitute.org

Laser Safety Officer Training

- May 8-10 • Pittsburg, PA
- July 17-19 • Milton (Toronto) ON, Canada
- Aug. 7-9 • Denver, CO
- Dec. 4-8 • Orlando, FL

Advanced Concepts in Laser Safety

- Mar. 13-15, 2006 • Orlando, FL

Medical Laser Safety Officer Training

- Feb. 10-11, 2006 • Portland, OR
- May 19-20, 2006 • Chicago, IL
- Sept. 22-23, 2006 • Boston, MA
- Nov. 10-11, 2006 • Las Vegas, NV

Laser Safety Officer with Hazard Analysis

- Feb. 6-10 • Orlando, FL
- Mar. 27-31 • St. Louis, MO
- June 5-9 • Boston, MA
- Sept. 18-22 • San Francisco, CA
- Oct. 30-Nov. 3, 2006 • Scottsdale, AZ

PICALO 2006

- April 3-5 • Melbourne, Australia

ICALEO® 2006

- Oct. 30-Nov. 2 • Scottsdale, AZ

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

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President's Message



LIA President Joe O'Brien

In every late December I, like many of us, take some personal time to reflect on the year gone by and look forward to the year to come. Each and every year I try to make my resolutions thoughtfully – eat healthy and exercise is always near the top of the list along with a resolution to enjoy more time with family. If all goes well, I get at least a little bit better at these things each year.

When I reflect on the LIA in 2005, I am pleased that active participation by our members combined with our exceptionally talented and dedicated LIA staff made 2005 a wonderful year. In an effort to make the LIA more vital to current and prospective members at the local level, LIA regional chapters were formed in the Northeast and Midwest in 2005. I was particularly pleased to see an exciting program and impressive turnout by our safety professionals at the ILSC (International Laser Safety Conference) in March. In early November our members looked past the bad weather and made a strong showing at ICALEO in Miami despite the record hurricane season in the Southeast.

There are a number of exciting devel-

opments on the horizon for LIA in 2006. The LIA staff, directors and officers will undoubtedly work exceptionally hard to improve the organization on behalf of our members. You will see continued advances in our technical programs and exhibitions, publications, standards activities and training programs. It is our stated objective to improve the strength and vitality of the LIA for all of our members in 2006.

My list of resolutions for the upcoming year is complete. Once again, eat healthy and exercise is very near the top. Also near the top is a pledge to make a meaningful positive contribution both as a member and president of the LIA. We are an organization of members and member participation is critical to our success. I hope you will work with the LIA to make your organization the best it can be in 2006.

Happy New Year.



Executive Director's Message

Team LIA Launches NE Chapter



From left: Bill Shiner, Peter Baker and Ron Schaeffer.

Team LIA launched its Northeast Chapter Nov. 30 with its inaugural meeting in Sturbridge, Mass. Chapter Chair Bill Shiner (our 2006 president elect) opened the meeting, I spoke briefly about the joys of membership, then Ron Schaeffer, who joins the LIA board in January, gave a talk entitled *"I Must Have Been Crazy! Founding & Operating a Precision Laser Company in New England."*

Seventy current and new LIA members attended the meeting including 1981 LIA President David Whitehouse and 1997 Schawlow

Award winner Conrad Banas. Enthusiastic chapter members are already planning meetings for January and March.

Meanwhile LIA staff members Rich Greene and Jim Naugle held a regional meeting in Michigan in December and are busy planning one for northern California to be held in March.

Go team!

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

pbaker@laserinstitute.org

system signals pilots who fly into “no-fly zones” with low-level laser beams in an alternating red-red-green light sequence. Any pilots who receive the warning must immediately contact Air Traffic Control and fly their aircraft out of the zone.

Recent examples exist of small craft drifting into D.C.’s “no-fly zones”, causing jets to scramble and spurring evacuation orders. In many cases, fighter jets, which are prepared to shoot down a plane, have escorted an errant plane to an airport. Proposed penalties are expected to be very severe.

The ground-based Visual Warning System (VWS) was developed by the U.S. Air Force North American Defense Command (NORAD) in coordination with the FAA and the Air Force Rapid Capabilities Office.

Flight Zones

Airspace near U.S. airports at low altitudes has been designated as Critical, Sensitive, or Laser-free as shown in Figure 1. The Laser-free zone extends from the runway to 2,000 feet elevation and the critical zone extends to an elevation of 8,000 feet.

The Washington area restricted airspace includes an outer ring that has a radius of about 30 miles to 45 miles and an altitude of 18,000 feet. An inner ring extends about 15 miles from the Washington

Monument. Most flights are prohibited from flying into this area, according to the FAA plan.

A beefed-up section of the 2005 standard revision, labeled Interference Levels, deals with numerous instances of reported visual interference by lasers during takeoff and landing of aircraft near commercial and military airports. These levels correspond to the designated flight zones.

Indirect Hazards

While laser illumination incidents in the 1990s did not cause any documented instances of permanent retinal injuries, the FAA placed airspace around an airport “off limits” to laser use. This addressed the important safety issue of distracting aircrew during takeoff and landing. And the LIA in 2000 dealt with the issue in the specialized ANSI Standard Z136.6, now amended in 2005.

In the May/June 2005 issue of *LIA Today*, Dr. David Sliney, program manager at the U.S. Army Center for Health Promotion and Preventative Medicine, noted that among frequently reported incidents, most are related to green laser exposures. Green laser pointers are perceived as brighter than red at the same power and have created new concerns in the aviation community. Commercial laser pointers do not pose a problem during daylight, he said, “The startling

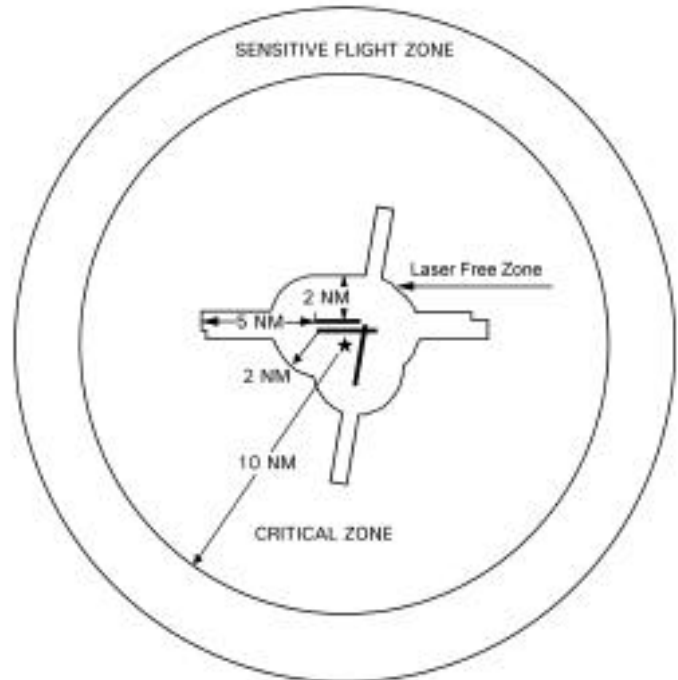


Figure 5. Interference Zones around Multiple Runways. An area within 2 NM (3.7 km) of each runway is designated as laser-free. An additional 3 NM (5.5 km) are included in the laser-free zone along the approach and takeoff paths of each runway. The critical zone extends to 10 NM from the airport reference point (marked by star), and the surrounding sensitive zone is assigned by the local FAA office (if necessary).

temporary visual effects are possible only nighttime or twilight illumination.”

Further Information Included

Coordinating with appropriate authorities for conducting an outdoor demonstration or test using high-power lasers is included. When operating a high-power laser outdoors, hazards from the beam are a concern of the FAA and the Food & Drug Administration, nearby military installations (Department of Defense), property owners, and possibly even Space Command for some types of beams.

Laser performance standards are included in the ANSI Z136.6 as well as in the ANSI Z136.1, but the ANSI Z136.6 has a special guidance

section for manufacturers building lasers specifically for DoD use outdoors.

Information is available in the appendices of ANSI Z136.6 for evaluating the hazards of lasers, for measuring critical quantities necessary for evaluation of potential hazards for outdoor use, and submitting appropriate paperwork to get approvals from various agencies. Guidance is provided on the use and limitations and several methods of alleviating outdoor laser hazards such as safety observers, co-aligned radar systems or data from other available radar systems, and infrared cameras.

The ANSI Z136.6 is available from the LIA at a cost of \$120 for LIA members or \$140 for nonmembers. Visit www.laserinstitute.org to order. ✱

Safe Use of Lasers Outdoors Subcommittee

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Vice-Chair Robert Aldrich, CLSO, NSWC Dahlgren
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development of many LIA regional chapters.

"I think the newly forming LIA regional chapters are important to the LIA. The various regional chapters will increase the vitality of our organization among existing and prospective members on the local level," he said.

As a founding member of BLS, O'Brien has been witness to the changes voluntary certification has had on the industry.



Joe O'Brien

"The BLS certification is making a positive impact on the industry. Laser users everywhere are beginning to recognize and appreciate the designation when searching for laser protective products and services."

Asked if there was anything on his presidential agenda he hopes to accomplish this year, he replied, "In general terms I hope to work with the LIA members and staff to make the organization as vital as possible to our membership." We wish him a great year.

Meet The Officers

• President-Elect –

William Shiner is director of market development for IPG Photonics in Oxford, Mass., a manufacturer of fiber lasers and fiber amplifiers sold to the telecomm, industrial, medical, scientific and government market sectors. He received his EE and MBA from

Northeastern University. Mr. Shiner began his laser career at American Optical in 1962 eventually purchasing the AO



Bill Shiner

laser group and co-founding Laser, Inc. in 1973. Laser, Inc. was sold to Coherent in 1979 and Mr. Shiner became the vice president of sales and marketing for the Coherent Industrial Group. He remained in that position when Coherent sold the industrial division to Transtec with the name being changed to Convergent Energy. Convergent Energy was sold to Prima Industries and Mr. Shiner became COO until his departure in 2001.

• **Secretary** – Nathaniel Quick is the president and chief technical officer of AppliCote Associates, LLC, Orlando, Fla., a technology development company. He holds a Ph.D. from Cornell University in materials science and engineering. He established AppliCote Associates to pursue the direct conversion of electrical phases in ceramic and semiconductor substrates. Quick is a University of Central Florida



Nat Quick

Photonics Center of Excellence advisory board member, a past guest researcher at NIST, and he currently holds 33 U.S. patents. He has served as LIA's secretary for three years and is an LIA senior member.

• **Treasurer** – Rajesh (Raj) Patel has 16 years of experience in the laser material processing field. He is currently president of 3R&M Consulting Services Company in Fremont, Calif., where his current work is focused on helping companies with projects related to implementation of laser- and optics-based technologies for manufacturing solutions. He received his Ph.D. in mechanical engineering from the University of Illinois at Urbana-Champaign in 1989.



Raj Patel

He has worked with various lasers for developing applications in microelectronics, semiconductor, biomedical, and the photonic industry. Patel is an author of 20 U.S. patents related to laser processing, optics, and the mask technology field. He is a member of LIA and SPIE, has served on LIA's executive committee for the last two years, and has co-chaired LIA's ICALEO conference four times.

Meet the Directors

• **Tony Arquisch** (no photo available) is national sales and support manager for Lasag Industrial Lasers,

Buffalo Grove, Ill., a manufacturer of pulsed Nd:YAG laser sources. He is currently responsible for all of Lasag Industrial Lasers operations in the Americas. In 1994 he had moved to Switzerland where he was employed in the marketing department for the CO₂ laser and water jet cutting systems manufacturer Bystronic. In 1987 he had completed his four-year electronics apprenticeship and worked for the Swiss telecom company, Ascom Hasler. He was born in the United States to Swiss parents.

• **Milan Brandt** is a professor of laser engineering and the director of the Industrial Research Institute Swinburne, Swinburne University of Technology, in Melbourne, Australia. The institute is a leading provider of industrial research solutions to local industry in the areas of bioengineering, microwave applications, non-contact inspection, and micro and macro machining with lasers. Professor Brandt is a leading Australian researcher in the area of macro machining with lasers. He has been involved in the organizing committees for ICALEO, has served on LIA's board, and been the organizer and general chair for PICALO 2004 and PICALO 2006.



Milan Brandt

• **Ben Edwards** is a health physicist and laser safety manager at Duke University

Medical Center in Durham, N.C. A BLS Certified Laser Safety Officer, Edwards holds a B.S. in physics and an M.S. in occupational safety. He has



Ben Edwards

over 15 years of laser safety experience spanning the biomedical research, medical, and academic environments. He serves on the ANSI Z136 Non-Beam Hazards Technical Subcommittee.

• **Mike Green** is executive secretary of the Association of Industrial Laser Users (AILU) and CEO of Pro Laser Consultants, Abingdon, U.K., founded in 1992 to provide specialist services in laser applications, projects, and safety. He is a fellow of the (U.K.) Institute of Physics and a specialist on industrial laser safety on the international IEC/TC76 laser safety committee. Dr. Green earned a doctorate in laser physics at Oxford University in 1972. AILU is a U.K.-based not-for-profit organization that brings together the key industrial



Michael Green

laser users, suppliers and researchers in the U.K. Founded in 1995, it has grown to be the largest and most active laser organization of its kind in Europe. Since AILU's beginning it has enjoyed an excellent relationship with the LIA and strives to work closer together wherever possible.

• **Bo Gu** has been working in the fields of lasers and laser applications for more than two decades. Since his postgraduate study in physics, he has held various positions in research and development, product development and management, and sales and marketing in the laser industry. He is currently a senior principal



Bo Gu

scientist at GSI Group, Laser System Division in Wilmington, Mass. His R&D activities have been the industrial applications of new laser sources including fiber/disc lasers, ultra fast lasers, and green and ultra violet lasers. Dr. Gu has reviewed articles for the *Journal of Laser Applications*®, organized, chaired and presented at ICALEO conferences, and was chosen as one of the five committee members to initialize an LIA chapter in the Northeast region.

• **Aravinda Kar** is an associate professor with the College of Optics and Photonics, Center for Research and Education in Optics and Lasers (CREOL), Mechanical,

Materials and Aerospace Engineering Department, University of Central Florida (UCF) in Orlando, Fla. Dr. Kar has established an LAM-MMP (Laser-Aided Manufacturing, Materials and Micro-Processing) laboratory at UCF. Dr. Kar works closely with LIA member companies.

These industry-university interactions broaden the scope of laser applications. Dr. Kar co-chaired the Laser Materials Processing Conference for ICALEO 1997 and also co-chairs different sessions at various ICALEO meetings. He is



Arvinda Kar

an editorial board member and reviewer of papers for the *Journal of Laser Applications*®. He is a fellow of LIA and contributed a few sections in the LIA Handbook of Laser Materials Processing.

• **Hau Chung Man** (appointed board member) received his Ph.D. in laser

The following are currently serving terms on the LIA Board of Directors:

2004-2006

- Neil Ball, Directed Light, Inc.
- Eckhard Bayer, Fraunhofer IWS
- Thomas Cellucci, Zyvex Corp.
- Paul Denney, Edison Welding Institute
- Larry Dossier, Mound Laser & Photonics Ctr.
- Andreas Ostendorf, Laser Zentrum Hannover
- Silke Pflüger, SPI Optics
- Y. Lawrence Yao, Columbia Univ.

2005-2007

- Stephen Capp, Laserage Technology Corp.
- Heinrich Endert, Newport Corporation
- John Hoopman, Univ. of Texas Southwestern Medical Center at Dallas
- Anthony Hoult, SPI Optics
- Robert Hull, Anteon Corporation
- Klaus Kleine, Laserline, Inc.
- William Lawson, Lawson, Lawson & Assoc.
- John Marshall, The Rayne Institute, St. Thomas Hospital
- Etsuji Ohmura, Department of Manufacturing Science at Osaka University
- Dean Wilson, Wilson Industries, Inc.

materials processing from Imperial College of Science and Technology, University of London, in 1984. He has worked as a process development engineer and as a principal research engineer. He returned to the academic sector in 1990 and is now professor of the Hong Kong Polytechnic University. He founded the only Laser Materials Processing Centre in Hong Kong in 1994 and has been the leader of the laser processing group since. He is a



HC Man

(Cont. on pg. 18 see **Board**)

A CLSO Offers Advantages to the Individual & Corporation

by Ken Barat

“An explanation of being certified: A certification is a designation earned by a person, as opposed to a job title.”
Ken Barat, LLNL

Certification of persons indicates that the individual has specific knowledge, skills, or abilities in the view of the certifying body. People become certified through training and/or passing an exam. Most commonly, the certification is valid for a set period of time and requires one to maintain that certification by continuing education. A commitment to one's profession is shown by being certified in one's field.

The overwhelming majority of LSOs (laser safety officers) state laser safety only occupies 30% or less of their work duties and responsibilities. So

why become a Certified Laser Safety Officer (CLSO), why take on the expense and effort in addition to maybe an existing certification? I would suggest a two-part answer.

Part one: As I stated earlier, a certification is a designation earned by a person, as opposed to a job title. Anyone can (and some have) come to work and be told they are the new LSO. With some training depending on the laser, setting, and hazard, etc., they may be able to do a decent job. As the complexity of laser applications grows, the staff want the re-assurance that the person making laser safety decisions that affect them has more than an adequate background. Why are people willing to pay a CPA \$100/hour for the same work a bookkeeper can do for

\$20? It is because of the sense of confidence and thoroughness the CPA title eludes to. A CLSO needs a broader and more extensive background and makes that all important commitment to obtain it. It is a commitment to a field of study and to those the CLSO is honored to protect.


Part two: A certification is a commitment the majority of employers recognize and have been willing to support with training dollars and salary. Experience shows that employers are more willing to support travel and training to continue a staff member's certification than one without. In these days of integrated safety management practices, quality management practices and ISO certification, the qualifications of one's staff is an asset

employers and their clients have come to recognize. With that in mind, being a CLSO is a plus for any organization one works for. The salary expectations of the CLSO should be higher than the LSO.

In summary, I go back to an earlier point, being and/or hiring a CLSO is a commitment by an individual or organization to a safety discipline that is an asset and not just a job title.

Ken Barat is currently the CLSO at the National Ignition Facility Directorate, Lawrence Livermore National Laboratory. ✱


For more information on becoming a CLSO visit www.lasersafety.org.



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- Jay Beckel, Ames Laboratory
- Jerry Bowles, The Boeing Company
- Phillip Broughton
- Chris Brown, Spectra Physics Lasers
- Jim Byars, ATK Missile Systems Co.
- Nadia Capolla, StockerYale Canada
- Howard Carter, Carter Consulting
- Marc Chateaneuf, Defence R&D Canada
- Catherine Chavez-Simonsen, Sacramento Utility Dist.
- Luz Cheng, Univ. of Texas Medical Branch
- Eddie Ciprazo, UC Berkeley Office of Radiation Safety
- Alan Clarkin, Adirontek Services
- Jonathan Colley, Trotec Laser, Inc.
- James Connolly, Hoffmann-La Roche
- Perry Crow, Paragon Laser Systems
- Paul Daniel, Jr., Delphi Corporation
- Ted de Castro, Lawrence Berkeley National Lab
- Surendra Dua, Florida Internat'l Univ.
- Ben Edwards, Duke Univ. Medical Center
- David Ermer, Johns Hopkins Univ.
- Bill Ertle, Rockwell Laser Industries
- Steven Farmer, Eli Lilly & Co.
- Thomas Floyd, Novo Nordisk Delivery Technologies
- Chiu-Lun Fok, Hong Kong Polytechnic Univ.
- Jonathan Fortkamp, ABB Inc.
- Josh Foster, Presstek, Inc.
- Mark Frankfurth, Cymer Inc.
- Jim Franks, US Army CHHPM
- Penny Galoff, USACHPPM
- Russell Gehr, Honeywell
- Karyn Giddens, Trinity Technologies
- Mary Gorschboth, NSW
- Joe Greco, Eastman Kodak
- Hongping Gu, Powerlasers ATC
- Jamie Gurney, NASA
- Douglas Gwin, Coherent Technologies, Inc.
- Klaus Hachfeld, Sunrise Laser Services
- David Han, Northrop Grumman Space Technology
- Joel Harrington, Novalux
- Pat Harris, Laser Professionals Inc.
- Joseph Hayward, Juravinski Cancer Centre
- Stephen Hemperly, Hitachi Global Storage Technologies, Inc.
- Tim Hitchcock, LightRay Consulting
- Richard Hughes, PhD., High-Rez Diagnostics
- Pak Ching Ip, Hong Kong Univ. of Science & Technology
- Arne Jansen, The Univ. of Wisconsin Madison
- Janssen Bill
- Christopher Jerger, GE Healthcare - DatexOhmeda
- Myung Jo, University of Nevada Reno
- Tom Johnson
- Martin Johnson, USAF Academy
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- Karman Klassy, INEL Bechtel
- Russ Knee, Penn State Univ., ARL
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- Jyrki Latokartano, Tampere Univ. of Technology
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- Tod Richards, Hackensack Univ. Medical Center
- Pat Roach, PhD.
- Terry Robertson, Alliant Techsystems
- Mike Robinson, Diode Laser Concepts
- Jim Rockwell, Jr.*, Rockwell Laser Industries
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- Bob Sarason, UC Davis, Environmental Health & Safety
- Bill Sargent II, Kentek Corporation
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- David Schoep, CEMRC/New Mexico State Univ.
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- Randall Scott, NASA
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- Richard Shea, Brown Univ.
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- Jon Skelly, Visteon Corporation
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- Michael Smith, ATA/AEDC White Oak
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- Braden Yake, Fort Wayne Wire Die, Inc.
- Ahsan Zaheer
- Mark Zarick, IBM Corporation
- Sheldon Zimmerman, NSW



Look for a complete listing of CMLSOs and why you should be certified in the next issue of LIA TODAY.

Business Brainstorms & Takeaway Tips

Nuggets of great advice from speakers at ICALEO® 2005

In addition to the established conferences on Laser Materials Processing and Laser Microfabrication, LIA organized a first-ever business development session at ICALEO® 2005, which was of particular interest to people planning to start their own business.

Compiled by Jack Dyer, Contributing Editor

Making Money and Having Fun in which Lori Beer, president, and Mike Adelstein, vice president, of Potomac Photonics, Inc., Lanham, Md., talk about the pleasures of specialty manufacturing.

Whether you're starting up a laser-based business or transitioning an existing equipment-based operation into a services business, specialty contract manufacturing affords a number of advantages: the ability to be selective in projects and customers



Lori Beer

to broaden out the customer base; to have cash flow early in the business cycle; and to leverage your client-paid projects into intellectual property that protects both clients and suppliers from competitive pressures. Here are a few tips on how to do it:

1. Develop a flat organization. Pare down your functional units: e.g. technology development and manufacturing, and finance and administration.

2. Attract the right people. Management who cannot

only direct functions, but who can bring in business; "pluggers" who make you money; rainmakers who bring business to the pluggers, and strategists who never lose sight of the end game.

3. Be creative. Small companies can only afford small salaries so only bring in those with a proven track record, provide incentives to compensate for lower salaries (stock options, flexible hours), find entrepreneurs who've made it and need new challenges, and hire from within.

4. Engage your staff. Allow them to take ownership by bringing in work and staying active in projects. Reward them for bringing in business, encourage them to understand markets by spending time with clients, being on committees and in general, circulating. Base sales incentives on profit as well as revenues.

5. Get your gameplan. Establish the "nut" you need to keep the company going. Understand the relationship between the "nut," growth capital requirements and "betting the farm." Baseload business from key accounts, look for new projects with key account potential (but don't be afraid to drop one if it doesn't show promise). Don't use more than 5% to 10% of revenues on investing in new markets.

6. Engage experts who can...

- Find staff who can grow the business
- Find your growth money

• Find your merger/acquisition candidates

• Understand markets and can make introductions

• Help you exit

Case in Point

Potomac Photonics was founded by Dr. Paul Christensen in 1982; he was joined in 1984 by cofounder Dr. Mike Duignan. Potomac was an incubator company of the University of Maryland. Most initial work was research in nature, funded in part by Small Business Innovation Research grants and various client and governmental projects. This led to a transition from small project laser applications to laser development, then laser systems, and ultimately to major contract manufacturing.

At present, Potomac concentrates on helping companies develop medical and electronic device products and then manufacturing their products. Product development is funded by clients in the form of non-reoccurring engineering, from governmental and industrial-consortium projects and from internal funding. Production manufacturing is the longer-term Potomac goal, which results if the client is satisfied during the product development stage.

Competitive Edge

Production success results from improved efficiency and economy. Here's our success template:

We know size doesn't

matter. Be willing to start with a small project (e.g., \$2,000) and be supportive as the client transitions into higher-volume production manufacturing.

We look for opportunities. We developed deposition and ablation technologies with help from Defense Advanced Research Projects Agency.

We think cost-effectively. It's important to be able to make simple-to-complex components and devices that are 1-100 microns in feature size and economical. Projecting the cost of ownership even at the prototype stage in order to recommend materials, design and/or process changes, guarantees that the product is manufactured efficiently and economically.

We make our clients our partners. We offer one-stop shopping: That is, we're willing to do parts assembly and even supply-chain management, which engenders client loyalty. We encourage a relationship where we work side-by-side with the client-partner from product development to production manufacturing.

We listen between the lines. We hear and understand what the client says – and more important, means – and then focus on being extremely responsive even above and beyond the call of normal customer service

For more information, contact Lori Beer at 301-459-3031, loribeer@aol.com, or Mike Adelstein, madelstein@potomac-laser.com.

Is Your Business Missing the Stage? by William E. Lawson, P.E. (715-247-3242, wlawson@newtechdev.com), formerly owner of Laser-machining, Inc., CTO for Preco Laser Systems, LLC, and now owner of NewTech Development LLC, offers some insight on tailoring a good fit between business and customer.

Technologies develop through a number of distinctly different stages; this applies not only to markets but also to individual customers. And both markets and customers have different priorities at each stage. The key to success is to understand the stage the market is in and sell to the stage the customer is in.

Stage: Pioneer Market

What's Happening – Visionary customers search out the best technology.

Keys to Success – The best mousetrap wins. Make sure customers can find you, (i.e., good signage, a clear website, papers in the appropriate societies, listings in buyers' guides, and magazine articles).

Potential customers may be difficult to find – the person doing the searching must understand both the new technology and the competitive technologies.

Stage: Emerging Market

What's Happening – Customers are looking for a better way but don't understand the technology. You've got more lookers than buyers, but they're very pragmatic and want a turnkey solution that saves them money. They tend to take the safe route by going with the industry standard, even if it's the more expensive solution.

Keys to Success – Get to the customer first with a "good enough" total solution. The

right marketing strategy, and the right people to implement it are critical to getting to the customer first.

Staff with "superstar" sales and marketing people who have the talent to identify the paying customer out of all the tire-kickers. Hire salespeople who are expert in the technology – they're the customers' only way to judge the strength of the supplier.

Put effort into educating the customers – they'll be satisfied to stay with the one workable solution they've found. Technology must work; changes to the product must both improve performance and reduce cost.

Stage: Mature Market

What's Happening – Customers often understand the technology better than the supplier. They're commodity buyers – they know what they want, and they're looking for the lowest price; they already know who the suppliers are and what they're good at.

Keys to Success Operational excellence is the key – the lowest-cost supplier at the required quality level wins.

Marketing isn't as important as sales service. Sales-people don't need to be industry experts – they just need to take good care of the customer. Small improvements suffice – focus on continuously refining the product, not coming up with revolutionary solutions.

Stage: Transitioning Between Stages
What to Watch

For – Entrepreneurs in the pioneer market, having learned the best technology is the path to success, find it almost impossible to build a "good enough" product.

Key managers who are well matched with one stage aren't necessarily right for the next stage. Their experience can keep them from seeing the signs that the next stage is coming – or has already arrived.

Moving from emerging to mature market is somewhat easier because of a natural tendency for people to become more organized – just the behavior required as a market matures.

Keys to Success – Be aware of how the new technology fits into the world; watch, learn and observe the market and its actions. Be ready to change the organization's focus



Bill Lawson

when you see a new set of customers appearing. Be ready to take the necessary steps to follow the market even though it may not fit your real talents and interests. If necessary, bring in people to run the company in the way that best matches the new market – relinquish control!

For more detailed discussion of this subject the full talk is available at www.newtech-dev.com under "white papers." *

Journal of Laser Applications® Update

The *Journal of Laser Applications*® offers the latest refereed papers by leading researchers in the laser community. The upcoming February 2006 issue includes papers from materials processing. Look for the online version at www.laserinstitute.org/publications/jla/. To view the journal online, please make sure your membership is current.

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Scenes from LIA's 24th International Congress on Applications of Lasers & Electro-Optics (ICALEO®), held in Miami, Fla. Oct. 31-Nov. 3.



Perfect weather and a great outdoor setting made for happy guests at the Meet & Greet Fiesta.



This year's President's Reception was aboard the Biscayne Lady.



The Plenary Session, left, had a packed audience as did the Annual Meeting and Awards Luncheon (above).



Student Paper Winners

1st place – “Microstructuring Using Femtosecond Pulsed Laser Ablation”, Max Groenendijk, University of Twente, Enschede, Netherlands

2nd place – “A 2-D Thermal Model for Laser Transmission Welding of Thermoplastics”, Layla Mayboudi, Queen's University, Kingston, ON, Canada

3rd place – “Laser Clad WC Reinforced Ni-Based Intermetallic-Matrix Composites to Improve Cavitation Erosion Resistance”, Muthukannan Duraiselvam, Institut für Schweiftechnik und Trennende Fertigungsverfahren, Clausthal-Zellerfeld, Niedersachsen, Germany

Many thanks to this year's judges: Tony Arquisch, Lasag Industrial Lasers, Buffalo Grove, Ill.; Neil Ball, Directed Light, Inc., San Jose, Calif., and Aravinda Kar, School of Optics, CREOL, Orlando, Fla.

Sponsored by: Fraunhofer Institut Lasertechnik

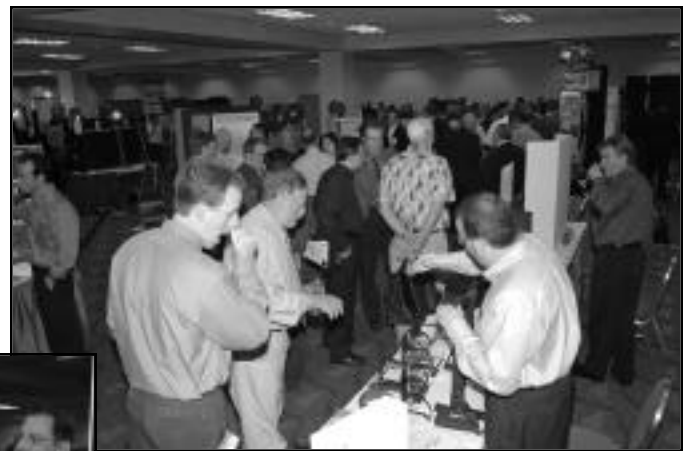
LIA appreciates the importance of student contributions to ICALEO® by offering the opportunity to have their work recognized with the Student Paper Award. Students were judged on the following criteria: originality of topic/material presented; scientific and technical merit, and presentation quality. The papers will go through the peer review process and be published in a future issue of the JLA®.

“I have been attending ICALEO for over a decade now and was most impressed with this year's student papers. Not only were the presentations well prepared and delivered with a high degree of professionalism, they were also scientifically and commercially relevant. This year's winning paper was able to demonstrate the relationship between nature and technology and how we can learn from naturally occurring phenomena in our surroundings. All of the students demonstrated the ability on how to transfer their ideas into today's latest laser applications.”

Neil Ball, Directed Light



The Laser Industry Vendor Reception was a great place to learn as well as mingle with peers.



Bill Clark, left, presents Andreas Ostendorf with his general chair plaque (below).



LIA staff from left: Peter Baker, Jim Naugle, Beth Cohen, Rich Greene, Gail Loiacono, and Gus Anibarro.



2005 Schawlow Award Presented at ICALEO

David H. Slaney, Ph.D., program manager for the U.S. Army Center for Health Promotion and Preventive Medicine Laser/Optical Radiation Program, APG, Md., received the 24th Arthur L. Schawlow Award from the Laser Institute of America (LIA) during ICALEO® 2005 (International Congress on Applications of Lasers & Electro-Optics), which was held in October.

The award is in recognition and appreciation of Dr. Slaney's extensive contributions as a pioneering leader in the field of laser safety for over 30 years and as one of LIA's most valuable supporters. His work has been the driving force behind rational science-based laser safety standards both nationally and internationally. The safety levels found in contemporary standards resulted in part from his tireless efforts as a member of the

International Commission on Non-Ionizing Radiation Protection (ICNIRP), the ANSI Z136 committee, and the IEC committees so that through his activities the resulting standards are in harmony and accepted throughout the world.

The award is also in recognition of Slaney's activity regarding the establishment of health and safety standards for protection of the eye and skin from lasers and high-intensity optical sources since 1965 where he proposed the first laser exposure limits for the Army Surgeon General's Office, and where he also played a key role in the development of the first threshold limit value exposure limits for laser radiation, for ultraviolet radiation and for visible and infrared radiation. This significant role Slaney played in the development of the maximum permissible exposure limits for laser radiation culminated in the first



David Slaney, left, receives the Schawlow Award plaque from Edward Metzbower.

ANSI Z136.1 standard in 1973.

The Arthur L. Schawlow Award was established by LIA to recognize individuals who have distinguished themselves by making outstanding contributions in the applications of lasers for science, industry or education.

IPG Photonics, No Longer a Secret

by Peter Baker

On my way to the LIA regional meeting, I visited Bill Shiner at IPG Photonics.

Due to the efforts of Bill, CEO Valentin Gapontsev, and son Denis Gapontsev, IPG's line of fiber lasers is certainly no secret. The trio are regular presenters at conferences



IPG's Bill Shiner.

worldwide including our recent ICALEO®.

The one remaining secret, however, is IPG's world headquarters, hidden deep in a quiet residential street in Webster, Mass. It was only thanks to the wonders of my GPS-equipped rental car that I successfully appeared there.

You can read technical details on IPG's lasers from the ICALEO proceedings or the company's website. What interested me, though, is the combination of technical depth and business skill exhibited by Chairman Valentin Gapontsev and his team.

As I understand it, one of the keys to their success is Gapontsev's insistence on vertical integration. IPG manu-

facturers its own diodes, fibers, modules and laser systems. Control of the manufacturing processes allows for high diode yield, high quality non-darkening active fibers and reliable proprietary combining techniques.

Dr. Gapontsev and his team also have a huge repository of intellectual property concerning active fibers and splicing technology that contributes to a steady stream of performance improvements resulting in increasing sales.

Two other things I learned were that the company has a nice mix of industrial, telecoms and R&D business that



Bill Shiner looks on as Srey Bun Cheu demonstrates fiber splicing.

helps smooth business cycles and that IPG has about equal staff levels in the U.S., Germany and Russia, with a small staff in Italy.

For me the visit was very interesting and educational. It showed why IPG is sending tremors through the industrial laser market. ✪

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senior member of the LIA and was a member of the board of directors from 1993-95.

• **Bill O'Neill** obtained a Ph.D. in 1990 from the University of Essex. He moved to the University of Liverpool where he continued his research and supported Prof. W. M. Steen in establishing one of the world's largest university-based laser research groups. He was appointed Royal Society Research Fellow (1990-94) to study the gas dynamics of laser cutting. Having completed his advanced fellowship in September 2003 and established a £5M EPSRC



Bill O'Neill

Innovative Manufacturing Research Centre in 2002, he was appointed to a lectureship in production processes within the Cambridge University Engineering Department.

• **Wayne Penn** began working with lasers at the Georgia Institute of



Wayne Penn

Technology and graduated from the School of Physics in 1977, then continued working in research at the Georgia Tech Research Institute (GTRI) developing lasers, atmospheric propagation, and spectroscopic methods until 1979. As president and founder of PRC, Ltd., which was established in 1976, Penn developed laser technologies and applications until the middle '80s. In the '80s and '90s he developed laser applications and control methods for NASA, using lasers to grow high temperature, high strength single crystal fibers for application in ceramic and metal matrix composite heat shields with Penn Laboratories, Inc. Penn was named president of Alabama Laser Systems (ALS) in Munford, Ala. in 1997.

• **Ronald Schaeffer** is CEO of PhotoMachining, Inc., Pellham, N.H., a high precision laser job shop and systems integrator. He has been involved with lasers for over 20 years, working for compa-



Ronald Schaeffer

nies such as Lambda Physik/Coherent, Laser Photonics and Resonetics before starting PhotoMachining, Inc. with his partners in 1997. Dr. Schaeffer received a Ph.D. in physical chemistry from Lehigh University in 1986 and did graduate work at both NIST (formerly NBS)

and Université de Paris – Orsay, working in the field of molecular spectroscopy. As an LIA member, he has been active in teaching and helped organize ICALEO® 2004, and has been involved in organizing regional LIA meetings, specifically in the Northeast.

• **Minlin Zhong** (appointed board member) is an associate professor and vice direc-



Minlin Zhong

tor of the Laser Processing Research Center, Mechanical Engineering Department of Tsinghua University in Beijing, China. Since 1983, Dr. Zhong has been engaged in research and development in the field of laser materials processing. He has been in charge of numerous research projects including international cooperation projects with GM and GE, Rolls Royce, Mitsubishi, ILT, and China Natural Science Fund projects. Dr. Zhong has published two books, 95 papers and holds five patents in the field. He serves as an editorial member of 19 journals. He is also director of Tsinghua-Purple Light Institute of Laser Rapid Manufacturing, secretary general and a standing committee member of the Laser Processing Committee of the China Optical Society (LPS-COS). As secretary general, he was the co-organizer of seven China National Conferences on Laser

Materials Processing. Since 1996, he has served four times as a session co-chair of ICALEO and three times as a program committee member.

• **Sheldon Zimmerman** has M.S. and B.S. degrees in electrical engineering from the University of Wyoming. Mr. Zimmerman is an internationally recognized expert in laser safety and currently manages the Laser System Safety Technical Direction Agent Program at Dahlgren in Virginia. He is convener of the IEC/TC76 Working Group 3 on Laser Radiation Measurements and the chairman of the ANSI Z136.4 Subcommittee for the American National Standard Recommended Practice for Laser Safety Measurements for Hazard Evaluation (SSC-4). Zimmerman is secretary of the ANSI Z136 Accredited Standards and Administrative Committees. He is a member of the Z136.1 Standard Subcommittees SSC-1 and SSC-6, and Technical Subcommittees TSC-1, TSC-2, TSC-4, TSC-7, and TSC-8. He participated in develop-



Sheldon Zimmerman

ment of the International Civil Aviation Organization standard on the safe use of lasers near airports around the world. Zimmerman is a fellow of the LIA and a Certified Laser Safety Officer, Navy Laser Safety Specialist, and Navy Range Laser Safety Specialist. ✱

Ron's Rules of Business

Ron Schaeffer on founding and operating a laser company

At LIA's regional meeting in November, board member Ron Schaeffer gave an excellent and interesting talk on "I Must Have Been Crazy! Founding & Operating a Precision Laser Company in New England".

Many people remember Ron from his great musical work at ICALEO® 2004 but in addition to being a free spirit and a fine musician, Ron is an army veteran with a Ph.D. in physical chemistry.

His talk showed both aspects of his personality combining thorough preparation, interesting insights and a free-flowing presentation. Ron shared keen insights on why to start a business (freedom; financial independence; can't work for anyone else – lousy employee?; early "retirement"; wealth; fame; power) but reminded us that targets are always moving and priorities will be different in future years. A start-up requires many factors including dollars and luck, but commitment is the most important.

Ron pointed out that as a company executive, you are responsible not only for the employees but for their families. He said "If you want to be "The Man", you gotta be the man all the time – not just when you want to be".

With respect to personnel he recommended to trust first impressions, pick a team to round out the founder's shortcomings, set clear

goals and expectations, and don't be afraid to "trim the tree" – the biggest mistake usually made is not acting quickly enough. Decision-making takes confidence and courage. In general he recommends action



Ron Schaeffer jamming at ICALEO® 2004.

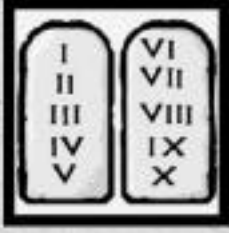
over inaction as more frequently mistakes are made or opportunities lost by inaction rather than action. If decisions are wrong then adapt and overcome. Remember Newton's Third Law "For every action there is an equal and opposite reaction".

Ron recommends thinking carefully about growing the business.

One should consider whether to grow or remain small and pointed out that growth burns cash, creates stress, involves risk and challenges, and changes team dynamics.

He closed the talk with a discussion of exit strategies. * P.M.B.

Ron's Rules



I. There are NO rules!!!

II. Break the Rules- as long as you think that it is the right thing to do.

Rules exist to serve rather than to be followed.

III. Make Your Own Rules!

So you can be the first to break them!

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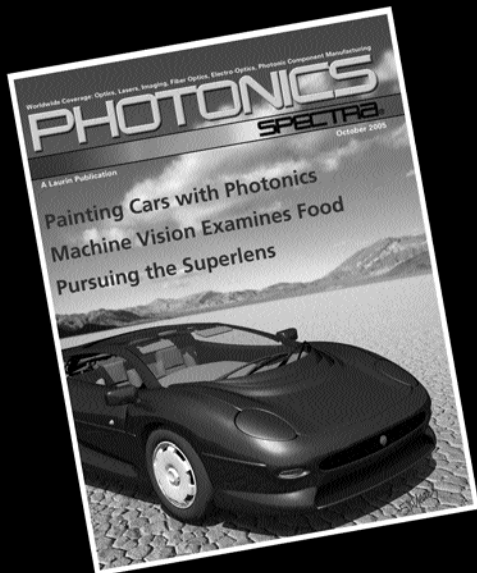
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LIA Forms Michigan Chapter

The LIA Michigan Chapter is now official. After hosting a Regional Meeting on Dec. 15, 2005 in Plymouth, Mich., participants voted to establish a local chapter that includes not only the state of Michigan but also the supporting states of Illinois, Indiana, Ohio and the province Ontario, Canada. The goal of the chapter is to create a forum for networking with laser professionals in the great lakes area and abroad that include laser end-users, manufactures of lasers and related products, safety officers, company presidents and researchers.

In today's globally competitive environment for higher productivity and quality (doing more with less), professionals

can stay "plugged in" to current technology, applications and new developments in the laser community through the LIA. Guest speaker Randy Paura's keynote presentation was "Blueprinting for Success: Harnessing the Power of Light."

LIA's Michigan Chapter has a great deal to offer LIA members, both technically and professionally. The technical and professional programs provide members with the opportunity to participate, ask questions and learn something new. The LIA encourages all LIA members in the supporting area to join the chapter and support its efforts to promote the laser industry on a regional level. Members are needed to help plan and conduct the meetings and professional programs. If you'd like to volunteer to help, or have a comment or question, e-mail jnaugle@laserinstitute.org. To join the Michigan Chapter, e-



Randy Paura gave a keynote presentation at the initial meeting.

mail membership@laserinstitute.org (if an LIA member). If not already a member of LIA, then you must join the LIA first. ✱

Chapter Criteria

- The chapter must have a minimum of 20 current (paid) LIA members.
- Formation of an organizing committee with designated chairperson.
- No chapter dues required.
- Must meet at least four times a year.
- Times and locations at discretion of chapter.

LIA's Michigan Chapter Committee

- Susan Sprentall, Precitec, Inc. (co-chair)
- Mike Klos, Laser Mechanisms, Inc. (co-chair)
- Stefan Heinemann, Fraunhofer Center for Laser Technology
- Randy Paura, NuTech Engineering Inc.
- David Bothner, NoIR Laser Company Technology

In The News, cont. from pg. 1

ing, dependence on foreign companies for technology and the need to move manufacturing plants offshore.

Distances Measured with Picometer Accuracy

A new laser-based method for measuring millimeter distances with an uncertainty of 10 picometers (trillionths of a meter) has been developed by a physicist at the National Institute of Standards and Technology (NIST). This is akin to measuring the distance from New York to Los Angeles with an uncertainty of just 1 millimeter. The technique may have applications in nanotechnology, remote sensing and industries such as semiconductor fabrication.

The method involves measuring the frequency of laser light rather than the wavelength. The laser light is stored between two highly reflective mirrors to create the optical analog of an organ pipe. The length of an organ pipe can be measured by driving the pipe with sound waves of a known frequency (pitch). The sound emitted by the pipe is loudest when it is driven at one of its "natural" frequencies. When one or

more of these frequencies is identified, the pipe length can be determined.

Laser Vibrometry Checks Heartbeat

An optical technique that provides accurate, non-contact monitoring of the heart is being trialled in Italy with promising results. Based on laser doppler vibrometry (LDV), the approach offers several advantages over electrocardiography, reported the Dec. 7 issue of *Optics.org*. Rather than collecting electrical signals from the heart the optical scheme, called VibroCardioGraphy (VCG), uses a light beam to measure the velocity and displacement of the chest wall. The VCG scheme simply illuminates the patient's chest with a low-power red laser beam and analyzes the reflection.

"In our tests, the laser head was placed about 1.5m from the patient's chest wall and a He:Ne source performs a velocity measurement with a resolution of up to 0.5µm per second," said Lorenzo Scalise of the LDV research group at Universita Politecnica delle Marche in Ancona. "The laser power is less than 1mW so no special safety measures are required." ✱

ASC Z136 Update

The annual meeting of ASC Z136 is scheduled for Thursday, Mar. 16, 2006. It will be held at the Center for Devices and Radiological Health (CDRH), 9200 Corporate Blvd., Room 20B, Rockville, Md., jointly hosted by ASC Z136 Vice Chair Jerry Dennis and the LIA.

In conjunction with the annual meeting, standards subcommittees SSC-2 (Telecommunications) and SSC-4 (Measurements) and technical subcommittee TSC-1 (Bioeffects) will be holding meetings earlier in the week. Please contact your subcommittee chair for details.

We urge all committee members to attend this important meeting. In addition to subcommittee status updates, Dr. David Sliney will present the findings of the Ad-Hoc Committee on Additional Standards. If you have any questions or are interested in attending as an observer, please contact Barbara Sams at the LIA, 407-380-1553 or bsams@laserinstitute.org for more information.

Member Innovations

Melles Griot Announces New Family of Lasers

Melles Griot, Carlsbad, Calif., has released the 56 RCS series, a new family of high-performance diode laser assemblies with output at 408nm (> 50mW), 442nm (>36mW), or 638nm (> 28mW). The 56 RCS-series

platform is designed to satisfy the requirements of both OEM and end-user applications. It incorporates advanced optics positioning techniques that provide repeatable and consistent optical performance with far field circularity of >95%, precisely controlled beam divergence, and accurate waist

location. All units are available with inputs for both digital and analog modulation with a bandwidth in excess of 300 MHz (<1nsec rise/fall time). These lasers are ideal for applications including

reprographics, fluorescence, and metrology. For information visit www.mellesgriot.com.

Workstation Software

Miyachi Unitek's Laser & Systems Division, Monrovia, Calif., has released laser workstation software that provides uniform, standard, validated control over a wide range of industrial laser welding or marking operations. The new release supports the company's economical Delta and LMW workstations and features an integrated user interface that combines laser programming and control, vision inspection, vision directed motion, and motion control programming. It interfaces to all of Miyachi Unitek's laser welder and laser marking products and is extensible to interface with other peripheral devices such as laser

power meters, bar code readers and data collection systems. For more information visit www.miyachiunitek.com.

Detector for Derm Markets

Ophir Optronics, Inc., Wilmington, Mass., has introduced the L50(300)A-IPL (intense pulsed light) detector, designed for applications in the medical and cosmetic dermatology markets where IPL technology can correct a variety of skin conditions. The L50(300)A-IPL is recommended for applications that call for very large beams, single shot energy or IPL sources. Features include a spectral range from 0.5-1 μ m, an aperture of 65mm and a high damage threshold for CW and pulses. For more information, visit www.ophiropt.com. ✱

Members In Motion

Coherent to Acquire Iolon Assets

Coherent, Inc., Santa Clara, Calif., announced it has signed a definitive purchase agreement to acquire the assets of privately held Iolon, Inc., San Jose, Calif., in an all cash transaction of approximately \$5 million. Iolon designs and manufactures optical components including widely tunable lasers and filters. Coherent intends to utilize the acquired technology in its core portfolio. The physical assets will be transferred to Coherent's existing Santa Clara facilities. For more information visit www.coherent.com.

LIA Announces

BLS Exams Now Computer-Based

Beginning Jan. 1, 2006, the Board of Laser Safety® (BLS™) has announced that the Certified Laser Safety Officer™ (CLSO™) and the Certified Medical Laser Safety Officer™ (CMLSO™) exams are now only offered in a computer-based format. Prior to switching to computer-based exams, those seeking certification had to appear in person to take the exams classroom-style on a preset date. Now, with over 325 exam locations in the U.S. and Canada, becoming certified can be easily worked into a busy professional's schedule. Exam results are given immediately whereas with the paper method there was up to a four-week wait for scoring. The application fee for either exam is \$50 with an exam fee of \$300 for CLSO and \$150 for CMLSO. For more information, contact BLS's Executive Director Rich Greene at 1.800.34.LASER/407.380.1553, e-mail bls@lasersafety.org or visit www.lasersafety.org.

LIA Now Offers Two Types of LSO Training

The LIA is pleased to announce two types of training for laser safety officers – Standard Laser Safety Officer (LSO) and Laser Safety Officer (LSO) with Hazard Analysis. Both the LSO and the LSO with Hazard Analysis courses are designed to teach the duties of a laser safety officer as described in the *American National Standard (ANSI) Z136.1 for Safe Use of Lasers*. Both courses cover information on lasers and optics, bioeffects, beam and non-beam hazards, control measures and training requirements. Which course attended depends on the specific job responsibility – those performing laser hazard analysis calculations should attend LSO with Hazard Analysis. If a person is not required to perform laser hazard analysis calculations they should attend the LSO training. Both courses meet all LSO training requirements outlined by ANSI, OSHA and ACGIH. For a list of course dates or to register, visit www.laserinstitute.org.

Call for Papers

LIA is seeking abstract submissions for the 25th International Congress on Applications of Lasers & Electro-Optics (ICALEO® 2006), to be held Oct. 30-Nov. 2 in Scottsdale, Ariz. Papers sought cover topics such as processes like rapid prototyping, surface modification and sensing and monitoring, lasers including diode-pumped and advanced laser sources, applications in medicine and biotechnology,

precision mechanics and laser sources.

Abstracts should contain original, recent unpublished results of application research, development or implementation. The abstract submittal deadline is Mar. 24, 2006. For complete details on submitting abstracts for ICALEO, visit www.icaleo.org or e-mail bcohen@laserinstitute.org.

LIA's New Publications

LIA has introduced two new publications. *Laser Processing of Engineering Material* (pub. #207) by John C. Ion is the first single volume text that treats this core engineering subject in a systematic manner. Written by an acknowledged expert in the field, this book distills cutting-edge information into a single key text essential for anyone studying or working with lasers. It covers the principles, practice and application of lasers in all contemporary industrial processes, and is packed with examples, materials data and analysis, and modeling techniques. Cost is \$60 for LIA members and \$70 for nonmembers.

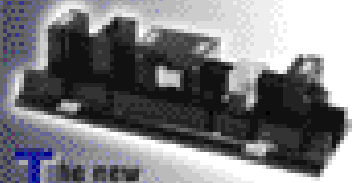
Excimer Laser Technology (pub. #208), by Dirk Basting and Gerd Marowsky, is a comprehensive survey on excimer lasers that investigates the current range of the technology, applications and devices of this commonly used laser source, as well as the future of new technologies. Additional chapters on optics, devices and laser systems complete this compact handbook. Cost is \$110 for LIA members and \$130 for nonmembers. To order either visit the bookstore at www.laserinstitute.org.

New Laser Course

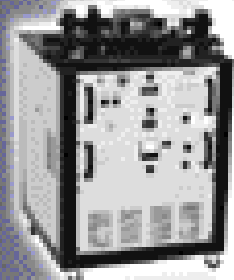
Medical Aesthetic Lasers & Light Technologies is a new course now offered by LIA. This two-day course includes a comprehensive didactic overview of the different types of lasers and pulsed light devices available. The core focus will be on laser and light practicum as it applies to clinical hair reduction, vascular lesion removal, Photofacial™, laser peels, non-ablative collagen remodeling and new emerging techniques. The course is a 12-hour category I, CME approved, clean, simple, straightforward how-to look at cosmetic light-based procedures. This is a certified course and there will be a test. Cost is \$995 per person and is limited to 20 people per course. CMEs may be purchased for an additional \$300. Spring course dates are Feb. 18-19 in Atlanta, Ga., Mar. 18-19 in New York, NY, and Apr. 15-16 in San Francisco, Calif. For additional dates and more information, visit www.laserinstitute.org. ✱

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BLS Background

The Board of Laser Safety (BLS) was incorporated in September 2002 as a nonprofit organization affiliated with the Laser Institute of America (LIA), a California nonprofit corporation. The mission of the BLS is to provide a means for improvement in the practice of laser safety by providing opportunities for the education, assessment, and recognition of laser safety professionals.

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What are you waiting for – call the BLS today for an application at 800-345-2737 or visit our website to download one at www.lasersafety.org.



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