



# LIA TODAY

## The Official Newsletter of the Laser Institute of America

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

Volume 13, Number 2

May/June 2005

### In The News . . .



#### Man Charged for Aiming Laser at Jet

A man accused of pointing a green laser beam at a small passenger jet, temporarily blinding the pilot and co-pilot, was indicted in March under the federal anti-terror Patriot Act, reported the Mar. 23 issue of *Foxnews.com*. David W. Banach, who claimed he was looking at stars with his daughter, also was accused of lying to the FBI about the Dec. 29 incident in which the jet's windshield and cabin were hit three times with a beam as the plane approached Teterboro Airport, Newark, N.J. The charges in the federal indictment were similar to those filed against Banach in an FBI complaint in January; the indictment replaces the complaint.

Attorney Gina Mendola-Longarzo said Banach was using the laser for stargazing when the plane was hit by the beam. U.S. Attorney Christopher J. Christie said in a statement officials took the actions "very seriously,

(Cont. on pg. 12,  
see **In The News...**)

## ICALEO® 2005 Preview

The International Congress on Applications of Lasers & Electro-Optics (ICALEO®), which is sponsored by LIA, has a 23-year history as the conference where researchers and end-users meet to review the state-of-the-art in laser materials processing and predict where the future will lead. From its inception, ICALEO® has been devoted to the field of laser materials processing and is viewed as the premier source of technical information in the field.

ICALEO® 2005 will be held Oct. 31-Nov. 3, 2005 in Miami, Fla., and will include two conferences, the Laser Materials Processing Conference (LMPC) and the Laser Microfabrication Conference (LMFC), as well as a Poster Presentation Gallery and Laser Solutions Short Course. The congress general chair is Andreas Ostendorf of Laser Zentrum Hannover e.V., Hannover, Germany.

This year, featured sessions include laser applications in the automotive, aerospace, electronics, bio-medical and microfabrication fields. Approximately 200 technical presentations will be given on the following areas: diode laser applications, short wavelength and short pulse processing, laser cutting, welding and drilling, rapid prototyping and forming, surface modification, photonic applications, sensing and monitoring, electronics and MES applications, precision mechanics and photonic components and laser sources, and modeling, to name just a few.

#### Who Should Attend ICALEO® 2005?

Anyone interested in laser materials processing from the basic understanding of the interaction between a laser beam and a material, to those interested in how a process can be integrated and optimized for an application. LIA's

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

## ILSC® Review

Over 160 laser industry professionals from 10 different countries attended the seventh biennial International Laser Safety Conference (ILSC®), which was held March 7-10, 2005 in Marina del Rey, Calif. The Laser Institute of America (LIA) sponsors this one-of-a-kind event.

ILSC® is a comprehensive four-day international conference covering all aspects of laser safety practice and hazard control. Eleven technical sessions and five workshops addressed developments in regulatory, mandatory and voluntary safety standards for laser products and for laser use. Laser safety experts from all over the world participated in discussions of research, programs and standards.

#### ILSC® Overview

The conference mission is to provide vital information for people in industry, medicine, government and academia with laser safety responsibilities including: laser product designers and engineers, laser safety officers, industrial hygienists, application and instrumentation engineers, entertainment lighting producers, laser physicists, physicians, surgeons and nurses, educators, biomedical and biophysical researchers and government and military personnel. In meeting this mission, ILSC® featured papers on the following topics: worldwide safety standards, operational policies and practices of lasers, bioeffects, laser light shows and displays, non-beam hazards, measurements and global acceptance, protective systems and

(Cont. on pg. 7 see **ILSC**)

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## LIA TODAY

The Official Newsletter of the Laser Institute of America

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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.

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**L**aser 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](http://www.laserinstitute.org).

## LIA's Calendar of Events

For more information contact LIA at 1.800.34.LASER  
or visit [www.laserinstitute.org](http://www.laserinstitute.org)

**Laser Safety Officer Training**  
July 11-13, 2005 • Colorado Springs, CO  
Sept. 26-30, 2005 • Portland, OR  
Oct. 31-Nov. 4, 2005 • Phoenix, AZ  
Dec. 5-9, 2005 • Orlando, FL

**Medical Laser Safety Officer Training**  
Sept. 23-24, 2005 • St. Louis, MO  
Nov. 11-12, 2005 • Phoenix, AZ

**Applied Laser Safety**  
Aug. 16-17, 2005 • Orlando, FL

**Fundamentals of Laser Safety**  
Nov. 15-16, 2005 • San Francisco, CA

**ICALEO® 2005**  
Oct. 31-Nov. 3 • Miami, FL

**PICALO 2006**  
April 3-5 • Melbourne, Australia

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## Executive Director's Message

### Another Successful Year for LIA



LIA Executive  
Director Peter Baker

LIA's most recent fiscal year ran from April 2004 through March 2005 and it was a very successful one. In April 2004 we launched our first Pacific International Conference on Applications of Lasers and Optics (PICALO) in Melbourne, Australia, co-chaired by Milan Brandt and Erol Harvey. All the attendees enjoyed the program and our first venture "down under".

ICALEO® was in October 2004 chaired by Raj Patel and ILSC® chaired by David Sliney was in March 2005. Both events were very well received and together with PICALO marked the first year in which we ran three conferences.

Our certification programs for laser safety officers (CLSO) and medical laser safety officers (CMLS), which enhance the status of laser safety professionals, picked up momentum this year. And we continue to provide both scheduled and on-site safety programs to achieve our mission to foster laser safety.

Last year was also a good year for our Laser Safety Standards program. In addition to revising committee procedures, we completed the revision

of our ANSI Z136.3 *Safe Use of Lasers in Health Care Facilities* as well as having it successfully pass an ANSI audit.

We also completed, gained ANSI approval and published the new ANSI Z136.4 *Recommended Practice for Laser Safety Measurements for Hazard Evaluation*. Sale of these documents gave a welcomed boost to our publication sales and together with increased conference revenue and continued strong revenues from safety courses and certification increased our revenues to \$2.16 million and yielded a surplus of \$73,710, more than double our projection.

In summary, we continued to carry out our mission to *foster lasers, laser applications and safety worldwide*. We provided increased conference, certification and standards activities and achieved a working surplus to contribute to our financial stability. We thank everyone who contributed to our success.

Thank you!

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**ICALEO**, cont. from pg. 1

goal for ICALEO® 2005 is to bring both academic and industrial people together who may benefit from laser technology. This includes end-users and scientists as well as engineers and technicians

engaged in developing laser technology.

**Conference Sessions and Events**

The plenary session will be held Monday, Oct. 31. The

Laser Solutions Short Courses are a multi-day program designed to provide manufacturing professionals a choice of laser-related short courses, each addressing the capabilities of lasers to improve manufacturing methods. The short courses will provide

attendees with a broad-based understanding of how the practical applications of lasers are making an impact on manufacturing and provide resources for further information.

The LMPC session coverage includes applications in the aerospace, automotive, biomedical, and laser safety fields, and processes such as advanced machining, direct metal deposition, forming and cleaning, and welding, as well as systems such as advanced laser sources, fiber lasers, and hybrid systems. The applications covered by the LMFC sessions include biomedical device fabrication, micro- and nanoelectronics production, and processes such as laser ablation, laser nanomachining, and ultrafast laser processing, as well as laser systems.

program is unique to the laser industry, offering the opportunity to exhibit at the tabletop display/reception and attend the many technical, social and networking events that ICALEO® offers. The vendor program will be held Tuesday, Nov. 1, from 5-8 p.m.

ICALEO® 2005 also offers various level sponsorship opportunities to give your company or organization added visibility. Sponsors receive a variety of value-added benefits. For a complete list, visit [www.icaleo.org](http://www.icaleo.org) or contact Beth Cohen at 800.34.LASER, or [bcohen@laserinstitute.org](mailto:bcohen@laserinstitute.org).

**Find Out More**

The ICALEO® Advance Program is now available and can be viewed and a PDF version downloaded at [www.icaleo.org](http://www.icaleo.org). For more information, visit the website or contact Beth Cohen. ✱

**ICALEO® 2005 At A Glance**

- Plenary Session
- Laser Materials Processing Conference
- Laser Microfabrication Conference
- Poster Presentation Gallery
- Laser Solutions 2005 – A series of short courses designed to provide manufacturing professionals a choice of laser related subjects.
- Student Paper Award – Student papers will be evaluated and judged by ICALEO® conference and session chairs.
- Laser Industry Vendor Reception & Table Top Display – Exhibitors and attendees have the opportunity to meet and share wine, cheese, and product ideas.
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**ILSC**, cont. from pg. 1

devices, training programs, laser safety in health care facilities, lasers in telecommunications and laser safety in R&D labs. Additionally, workshops that provided the attendee with a broad-based understanding of laser safety and hazard control were also held.

**Additional Events**

Additional activities during ILSC® included a laser safety vendor table-top display featuring 12

sent during ILSC®.

**And Lastly**

LIA would like to thank General Conference Chair David Sliney of the U.S. Army CHPPM, APG in Maryland and Conference Chair John O'Hagan of the National Radiological Protection Board, Didcot, Oxfordshire, U.K. and all the other volunteers who made ILSC® 2005 such a great success.



vendors, an awards reception and the plenary session titled "All Lasers – Large and Small."

The George M. Wilkening Award Reception was held Monday, Mar. 7. This award was first presented in 1997 and was named after the first ANSI Accredited Standards Committee Chairman George Wilkening. It recognizes individuals who have made extensive contributions to laser safety in science, medicine, industry or education. See box on page 9 for the winner.

New this year was the inaugural R. James Rockwell Jr. Educational Achievement Award. This award is intended to honor the late Jim Rockwell, an LIA past president who played a pioneering role in developing laser safety standards and training. This award was also pre-

The ILSC® conference proceedings are now available and contain all the presented papers and/or abstracts including the plenary session. They can be ordered online at [www.laserinstitute.org](http://www.laserinstitute.org) or by calling 800.34.LASER. Price for LIA members is \$110 or \$130 for non-members.

ILSC® will be held again in 2007, the site and dates are still being determined. For more information, visit [www.laserinstitute.org/conferences](http://www.laserinstitute.org/conferences) or contact Conference Director Beth Cohen at [bcohen@laserinstitute.org](mailto:bcohen@laserinstitute.org).

All in all, the well-rounded format found at ILSC® 2005 proved a tremendous source of information and overflowed with networking opportunities for professionals in all fields and applications. ✱

**ASC Z136 Annual Meeting**

Accredited Standards Committee (ASC) Z136 held their annual meeting in Marina del Rey, Calif. on Sunday, March 6, 2005 prior to the opening of the International Laser Safety Conference (ILSC®). The meeting was well attended, with a record number of observers present, many of whom are now seeking membership on the committee.

In his opening remarks, Peter Baker welcomed all to the meeting and thanked the committee for its continuing efforts. He singled out Stephen Trokel and David Sliney for their contributions to the revision of the Z136.3 standard, and Sheldon Zimmerman and Robert Thomas for the completion of the long-awaited Z136.4 Recommended Practice for Laser Safety Measurements for Hazard Evaluation. Special thanks went to Tim Hitchcock and Barbara Sams for their work on the ANSI audit.

Baker then announced the reappointments of Ron Petersen and Jerry Dennis as ASC Z136 Chair and Vice Chair, respectively. The committee unanimously approved both appointments. Sheldon Zimmerman was reappointed as committee secretary for a second term.

In addition to status reports from each subcommittee chair, the membership was briefed on proposed changes to the operating procedures deemed necessary as a result of the findings of the ANSI special audit, which took place in November 2004. Changes include re-ordering of the standard development process and clarification of the appeals process.

Robert Thomas closed the meeting with a presentation on the [z136.org](http://z136.org) website. He explained many features of the site, several of which were set up specifically to aid subcommittee chairs with management of their committee.

Following the meeting, committee members and conference attendees alike gathered in the Palm Court where all enjoyed the ILSC® Kick-off Meet & Greet Fiesta sponsored by ASC Z136.

Interested in participating on ASC Z136 or one of its subcommittees? Contact Barbara Sams at the Laser Institute of America, 407-380-1553 or email [bsams@laserinstitute.org](mailto:bsams@laserinstitute.org) for more information.

**International Laser Safety Conference**  
**"The World's Leading Conference on Laser Safety"**  
**ILSC 2005**  
March 7-10, 2005 **Marina del Rey Marriott** Marina del Rey, CA, USA



The Marina del Rey Marriott was the host hotel.



The view of the marina was outstanding.



The BALSOC crew from left: Dewey Sprague, Eddie Ciprazo, and Ken Barat.



The Meet & Greet Fiesta provided a great networking opportunity.



LIA Staff from left: Peter Baker, Beth Cohen, Barbara Sams, Gus Anibarro, Rich Greene and Jim Naugle.



David Sliney and John O'Hagan



The presentations and sessions during ILSC® were well attended and covered a range of topics.



LIA staff members Barbara Sams, above, and Rich Greene, below, were each presented with a 10-year service anniversary plaque during the conference by LIA's Peter Baker.



Diane Rockwell and son Greg receive the inaugural Rockwell Award named after her late husband Jim Rockwell.



## 2005 Wilkening Award Winner

The 2005 George M. Wilkening Award was presented by the executive committee of the Laser Institute of America Board of Directors to David H. Sliney, Ph.D. during ILSC® 2005. The award is in recognition and appreciation of Dr. Sliney's extensive contributions as a pioneering leader in the field of laser safety for the last 30 years. Sliney, a program manager for the U.S. Army Center for Health Promotion and Preventive Medicine Laser/Optical Radiation Program, was instrumental in establishing the American National Standards Institute ASC Z136 committee and has been tireless in supporting the development of laser safety standards both nationally and internationally.

He has been active in the establishment of health and safety standards for protection of the eye and skin from lasers and high-intensity optical sources since 1965 and proposed the first laser exposure limits for the Army Surgeon General's Office, and 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. His work contributed to the first ANSI Z136.1 standard in 1973.

Additionally, he has served for more than two decades as



David Sliney received the Wilkening Award from LIA's Peter Baker.

chair of the subcommittee on hazard evaluation (TSC2-2) and as chairman of the Safety Committee of the LIA; has twice been general conference chair of ILSC®; has served as a U.S. delegate to the Committee TC-76 of the International Electrotechnical Commission, and has long been the chairman of Working Group 1 of TC-76. He also serves on several other national and international committees all dealing with laser safety, and has published over 200 scientific papers on subjects related to laser hazards and laser applications in medicine and surgery.



# Do Laser Pointers Present an Aviation Hazard?

By David Sliney

Recent reports of aviator crews being “blinded” by visible green laser beams led to speculation in the media of a possible security issue, but many have wondered why there was the flurry of new reports after a period of relative quiet on the misuse of laser pointers.

Visible laser beams created a stir about a decade ago in the aviation community following a flurry of incidents of laser beam illumination of airline cockpits at night during final approach at several airports around the United States. At that time, laser lightshows, using multiwatt argon and krypton lasers, had come into common use to attract customers to casinos in Las Vegas and elsewhere. Xenon-arc searchlights had been used for decades at the opening of events or at special events to attract people in the surrounding countryside at night. Pilots had grown accustomed to such searchlights, however, and there hadn't been any strong efforts to control the use of

searchlights in regulated airspace. The laser illumination incidents in the 1990s did not cause any documented instances of permanent retinal injuries, but the FAA updated its guidance (FAA 7400.2D; now 7400.2E) for use of lasers in the airspace to address the important safety issue of distracting aircrew during takeoff and landing.

## Pilot Concerns

A survey of pilots was conducted by the Southwest Airline Pilots Association in the 1990s and reported at the International Laser Safety Conference in 1997 (Sliney; 1997). Incidents of illumination by searchlights were compared with lasers and typically most pilots felt that they had never been bothered by any high-intensity searchlight at distances of much more than 2 to 3 km; whereas, afterimages, distraction, and similar visual disturbances were experienced out to 5 or even 9 km from laser beams. The duration of afterimages or distraction after laser illumination was greater than that reported due to searchlights.

Aviators who have been frequently illuminated, such as some low-flying urban helicopter pilots, have learned to maintain aircraft control, not to stare into a laser beam and to limit any direct viewing of the laser. Proper training and situational awareness can apparently reduce startle and distraction from

visual effects. Aviators who are familiar with occasional searchlight illuminations have come to accept these, where the actual illumination levels are similar to light-show lasers and certainly greater than from laser pointers. In addition, dirty or scratched wind-screens tend to increase scatter of light and can sometimes produce a more dramatic visual effect.

## Mean Green Beams

Class 3A laser products are now also termed Class 3R laser products and have an output-power emission between 1 and 5mW. These lasers are in a transitional category between power levels at which the aversion response (blinking and turning away) provides protection against injury and power levels at which the aversion response is inadequate and retinal injury becomes more likely (Class 3B).

Amateur astronomers are now using green laser-pointer beams with output powers of 5mW and even higher, to point out objects in the night sky. Most are unaware of the potential risk to aircrews should they directly illuminate a plane. The U.S. Army Center For Health Promotion and Preventive Medicine (CHPPM) acquired a number of commercial laser pointers and noted that some lasers labeled as Class 3A were indeed 3B with output powers of the order of 10 to 20mW.

Temporary visual effects on aircrew vary, but they range from startle or distraction to discomfort and disability glare with dazzle and even after-images or flash blindness. Startle refers to an inter-

ruption of a critical task due to the unexpected appearance of a bright light such as a laser beam, whereas glare and dazzle refer to a bright light that makes it difficult to see, such as oncoming headlights or momentary laser pointer exposure. These visual effects last only as long as the light is present. As the sun sets and backgrounds become darker, a small laser at a distance becomes more visible. It is unlikely that real after images would be produced by the recently reported aircraft incidents related to ground-based laser pointers. Afterimages may occur with laser light show beams, which are a hundred to a thousand times brighter.

In most individuals the aversion response protects against risk of eye damage from accidental viewing of Class 3R commercial laser pointers even at relatively close distances. Brief exposures during the performance of critical tasks, however, can be disruptive and could cause accidents. ✱

## Editor's Note

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*David Sliney (David.Sliney@apg.amedd.army.mil) is a physicist and program manager at the U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, Maryland.*

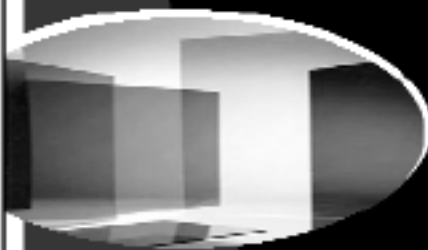


**Unexpected illumination, even from noncoherent sources such as conventional searchlights, is capable of generating visual distractions in aircraft cockpits.**

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and games,  
until someone  
loses an eye”  
- Mom**



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### In The News, cont. from pg. 1

and we will not condone lying to federal agents.”

Banach faces up to 20 years in prison if convicted of interference with pilots of an aircraft “with reckless disregard for the safety of human life,” a provision of the USA Patriot Act passed following the Sept. 11 terrorist attacks.

### Photonic Crystal Slows Down Light

Halice Altug and Jelena Vuckovic of Stanford University have succeeded in reducing the group velocity of light by a factor of more than 100 in a novel two-dimensional photonic crystal, reported the Mar. 29 issue of *Optics.org*. The device could be used for a variety of optical applica-

tions and components, including high-power photonic crystal lasers with low thresholds (*Appl. Phys. Lett.* 86 111102).

Photonic crystals are nanostructured materials in which a periodic variation of the dielectric constant of the material results in a photonic band gap. Photons with wavelengths or energies in this gap cannot travel through the crystal. By introducing defects into photonic crystals it is possible to build waveguides that can channel light along certain paths.

Two types of velocity are used to describe the propagation of a wave in a dispersive medium: the phase velocity and the group velocity. The phase velocity is the speed at which light of a single wave-

length moves. However, a pulse of light contains a range of wavelengths that all move at different speeds, so the group velocity is defined as the speed at which the pulse itself moves. Low group velocities are beneficial for many device applications because they enhance the interactions between the light and the material in the device.

Altug and Vuckovic made an array of 3600 microcavities in a slab of silicon that had an area of 100 $\mu\text{m}^2$ . The holes in the array were 400nm across and the period of the crystal was 500nm. The pair found that the group velocity of a laser pulse was reduced by more than a factor of 100 when it traveled through the array. ✱

## Members In Motion

### Ball Moves to President

Directed Light Inc., San Jose, Calif., recently announced the resignation of its president. In light of this, Directed Light's Chief Executive Officer Michael McCourt has appointed Neil Ball as Directed Light's president. Ball has over 20 years of experience in the laser industry, 13 of which have been in increasingly responsible roles at Directed Light, most recently serving as general manager. Ball is a member of the board of directors of the LIA and is actively involved in the

promotion of the laser industry throughout the world.

### Distributor Required

Bigneat Ltd., Waterlooville, UK, containment technology is looking for a distributor in the U.S. to promote its range of laser plume/fume extraction systems that provide operator protection and enhanced laser coding and marking quality. For further information contact Robert Monks at rmonks@bigneat.com, or visit www.bigneat.com.

## Journal of Laser Applications® Update

The *Journal of Laser Applications*® offers the latest refereed papers by leading researchers in the laser community. The upcoming August 2005 issue includes papers from materials processing, sensing and safety. Look for the online version at [www.laserinstitute.org/publications/jla/](http://www.laserinstitute.org/publications/jla/). To view the journal online, please make sure your membership is current.

The *JLA*® is published four times a

year by the Laser Institute of America in February, May, August and November. It is sent to all LIA members as a member benefit. For nonmembers of LIA, call the American Institute of Physics at 1.800.344.6902 for subscription information.

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## LIA Exhibits at Photonics World 2005 in Singapore

The 3<sup>rd</sup> International Exhibition on Photonics Equipment and Technologies in Southeast Asia, held May 4-6, 2005 in Suntec, Singapore, brought together a wide diversity of multi-national corporations and technical professionals from around the globe. This event provided the opportunity to source, network, establish business contacts, and discover the innovative breakthroughs of this new era.

The exhibition drew the attention of over 200 companies from more than 20 countries, as well as pavilions from many countries/areas. These pavilions include Singapore, Hong Kong, the United Kingdom, the U.S., Australia, Korea, China, Europe and Fiber to The Home (FTTH) Council, with Singapore leading as the largest pavilion to date.

Thanks to the efforts of Dr. Lim Gnian Cher from the Singapore Institute of Manufacturing Technology and his students on behalf of LIA, the society was able to reach potential customers

from Southeast Asia and abroad. Key interest items were safety training, ANSI standards, LIA's conferences, membership and laser training aides.

The LIA continues to fulfill its mission to foster lasers, laser applications and laser safety around the globe by participating and distributing information in order to grow and inform the laser industry. ✱



Attendees at the exhibit were shown information on LIA's benefits, goods and services.



### Welcome New LIA Members

#### Corporate Members

- Kaman Dayron, Inc., Orlando, FL
- NASA Langley Research Center, Hampton, VA
- Quintessence Photonics Corp., Sylmar, CA

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For a complete list of corporate members, visit our corporate directory at [www.laserinstitute.org](http://www.laserinstitute.org).

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#### Individual Members

Partiyasarathy Parishram,  
Fayetteville, AR  
Tim Rickard, Boulder, CO  
Stuart Cohen, Norwich, CT  
William Benner, Orlando, FL  
Debbie Emberton, Tipton, IN  
Susan Sharp, Kokomo, IN  
David Tyree, Vincennes, IN  
Cynthia Livingston, St. Louis, MO

Kendall Berry, Blackwood, NJ  
Thomas Cobb, Bowling Green, OH  
Robert Hainsey, Portland, OR  
Rickie Schadler, Reading, PA  
Loretta Mauldin, Frisco, TX  
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# LIA Announces

## BLS Exam Dates

The Board of Laser Safety™ (BLS) will be offering Certified Laser Safety Officer (CLSO) exams July 22 in Cincinnati, Ohio, July 30 in San Diego, Calif. and Aug. 19 in Denver, Colo. The exams will be held directly after LIA's LSO training courses.

BLS will also be offering Certified Medical Laser Safety Officer (CMLS) exams July 15 in Cincinnati, Ohio and Aug. 12 in Denver, Colo. after LIA's MLSO courses. Cost is \$300 for either exam as well as the application. For more information contact Rich Greene at [bls@lasersafety.org](mailto:bls@lasersafety.org), 800-345-2737, or visit [www.lasersafety.org](http://www.lasersafety.org).

## PICALO CFP, Date Change

A call for papers has been issued for LIA's newest conference PICALO (Pacific International Conference on Applications of Lasers and Optics). Papers sought cover such topics as aerospace, cutting and drilling, welding, manufacturing, research, software, and hybrid processes. Abstracts must be submitted by Sept. 1, 2005. They should contain original, recent unpublished results of application research, development or implementation.

Additionally, the date for PICALO was recently changed, and the conference will now be held Apr. 3-5, 2006 in Melbourne, Victoria, Australia, instead of the before-advertised May 15-17, 2006. PICALO will focus on the growth and application of lasers and optics in the Pacific region. Visit [www.laserinstitute.org/conferences](http://www.laserinstitute.org/conferences) to download the call for papers form or for more details, or contact Beth Cohen at 800-34-LASER or e-mail [bcohen@laserinstitute.org](mailto:bcohen@laserinstitute.org).

## New LIMITS

LIA is pleased to introduce LIMITS for Industrial Laser Safety, an interactive training CD designed for the laser safety officer to train others on the safe use of lasers in the industrial or research environment. LIMITS follows the training recommendations set out in the *ANSI Z136.1 Safe Use of Lasers* standard and the IEC 60825-1 international laser safety standard. This multimedia CD-ROM is dedicated to teaching you how lasers work, the hazards associated with lasers, and what kind of protective measures are required. Cost for nonmembers is \$450 or \$400 for LIA members.

## LHE Software 2.4 & 2.5

The Laser Hazard Evaluator (LHE) Software version 2.4 is a must for every LSO who is just starting to carry out laser safety responsibilities. This unique program incorporates graphics that show the interaction of the laser beam with the human eye and skin. The LHE software is based on the *ANSI Z136.1 Safe Use of Lasers* and performs repeated calculations of nominal ocular hazard distance, beam irradiance, laser classification, necessary optical density, and maximum permissible exposure. The LHE software version 2.4 (pub #302) is \$349 for nonmembers or \$299 for LIA members.

Revised and expanded, the Laser Hazard Evaluator Software version 2.5 is equipped with more features for the advanced LSO. Also based on the *ANSI Z136.1 Safe Use of Lasers* standard, this product will perform repeated calculations of maximum permissible exposure, optical density, nominal ocular hazard distance, nominal hazard zone, and laser hazard classification. Parameters can be adjusted individually on the screen. This useful tool will also give you a printed report that uses different evaluation distances for optically aided, unaided viewing, and skin. Also, the downloadable reports include user comments and user-defined laser type, both CW and pulsed values for repetitively pulsed lasers, displays diffuse reflection hazard distances for eye and skin, and the hazard classification. Cost of the 2.5 version (pub #311) is \$495 for nonmembers or \$450 for members. Visit [www.laserinstitute.org/bookstore](http://www.laserinstitute.org/bookstore) to order a copy of either version.

## Visions for Discovery Symposium

Amazing Light: Visions for Discovery, a three-day symposium, will be held Oct. 6-8, 2005 at the University of California, Berkeley, and will focus on exploring and advancing the future of innovative research in physics. Several events will take place, such as the Young Scholars Competition, which will award over \$100,000 in prizes for papers by qualified researchers under the age of 40. Deadline to enter is June 30. There is also the Amazing Light Laser Web Challenge, which will award over \$65,000 in prizes for Web site designs dealing with lasers. For more information contact Metanexus Institute at 215-789-2200, or visit [www.foundationalquestions.net/townes/ysc](http://www.foundationalquestions.net/townes/ysc) or email [info@metanexus.net](mailto:info@metanexus.net). ✱

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