LIA TODAY

VOLUME: 30 NO: 5 | ICALEO 2022

LIA
THE LASER INSTITUTE

LIA Laser Safety Trainings

LASER SAFETY OFFICER TRAINING	
Orlando, FL	Nov. 2 - 4, 2022
Orlando, FL	Feb. 22 - 24, 2023
LASER SAFETY OFFICER WITH HAZARD ANALYSIS	
Orlando, FL	Nov. 7 - 11, 2022
Orlando, FL	Feb 27 - Mar. 3, 2023
MEDICAL LASER SAFETY OFFICER TRAINING	
Orlando, FL	Nov. 5 - 6, 2022
Virtual, Instructor-Led	Dec. 3, 2022
Orlando, FL	Feb. 25 - 26, 2023
INDUSTRIAL LASER SAFETY OFFICER TRAINING	
Novi, MI	Nov. 9 - 10, 2022

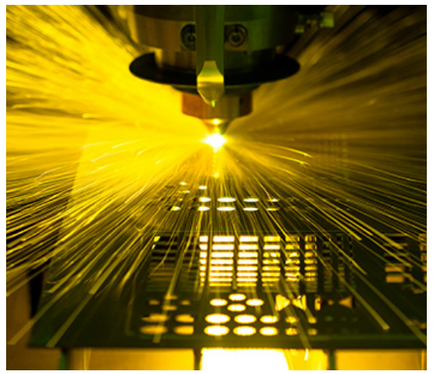
Visit www.lia.org for all course and event listings

Course Highlight

MEDICAL LASER SAFETY OFFICER TRAINING
VIRTUAL, INSTRUCTOR-LED - DEC 3, 2022

Designed to keep you on the leading-edge of safety training requirements and program administration, this course teaches a non-mathematical approach to facilitating the duties of a Laser Safety Officer. Developed and taught by LIA experts - the industry leader in laser safety education - the Industrial LSO course was designed for all levels of experience involved in industrial, and manufacturing applications of lasers. This course meets all LSO training requirements outlined by the ANSI Z136.9 Safe Use of Lasers in Manufacturing Environments standard and OSHA. This course is worth 16 CECs by AAHP and 2.0 BLS CM points by the Board of Laser Safety.

This course is hosted by LIA Corporate Member **IPG Photonics Corporation, Midwest Operations**. IPG Photonics Corporation is the world's leading provider of high power fiber lasers and fiber amplifiers that are revolutionizing performance and utility in a remarkable array of materials processing, telecommunications, medical and other advanced applications



Henrikki Pantsar
LIA President 2022

PRESIDENT'S MESSAGE

Return to Earth! Coming back to the office after ICALEO was like returning to the Earth after an exciting space flight. I actually do not know what a space flight feels like, but I assume the two are rather comparable. Although we did not have the pre-COVID attendance numbers party due to travel restrictions, ICALEO 2022 was one of the great ones.

The LIA team received so much positive feedback after the conference that we can be confident that we are on the right track with the LIA flagship event for future years. Two most often heard feedbacks were regarding the very high quality of papers and presentations, and the space theme, including the plenary presentations by Maruin Raupert (Leibniz University Hannover) on the Einstein Elevator and Josh Brost (Relativity Space) on Additive Manufacturing of Launch Vehicles. And as icing on the cake we had the pleasure to hear Veteran Astronaut Dr. Don Thomas talk about his experiences in the Shuttle program and of course Thursday's visit to the Kennedy Space Center.

Planning for ICALEO 2023 which will be held in Chicago has already started and we are excited to continue on this successful path with the event.

As for LIA in general, we are doing well. Strategic plan is moving forward as planned, especially as it relates to revenue increase, ANSI standards, trainings and partnerships. The LIA team is constantly working to advance our mission and providing our members more services. We will be starting a process to review our mission, vision and purpose to lead us into the future and we have a group of active volunteers to support us with this goal.

And speaking of volunteers, the nominations for officers and trustees are out. Please nominate active candidates for these roles and when the ballots are available, please vote and be heard.

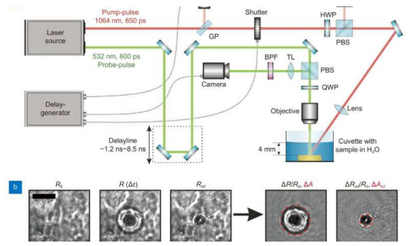
I wish everyone a great Holiday Season and stay safe!

LIA | EVENT UPDATES

A Look Ahead at LIA's Upcoming Events!

TRENDING IN THE NEWS:
LIA'S TOP 4 ARTICLE PICKS

1

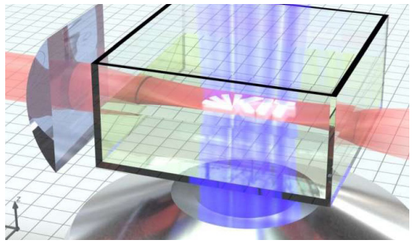


TIME RESOLVED STUDIES REVEAL THE ORIGIN OF THE UNPARALLELED HIGH EFFICIENCY OF ONE NANOSECOND LASER ABLATION IN LIQUIDS

A study, recently published in in Opto-Electronic Advances, explored pico- to nanosecond pulse duration regimes and found that pulse durations around 1–2 ns enable the most efficient laser ablation in liquid.

Read more

2



FAST-AS-LIGHTNING 3D MICROPRINTING WITH TWO LASERS

A research team developed a laser printing process that can print micrometer-sized parts in the blink of an eye.

Read more

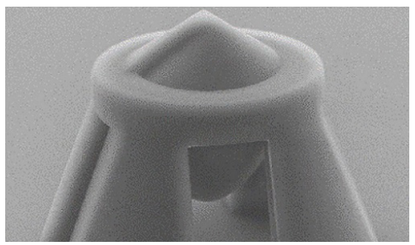
3

HIGH HARMONIC LASERS UNLOCK A RESOLUTION BOOST FOR OPTICAL MICROSCOPY

Physicists at the Australian National University say that optical microscopes should get a huge boost in magnification, after their discovery of a new high harmonic laser illumination technique, using a tiny cylinder 1/50th the width of a human hair.

Read more

4



3D-PRINTED MICRO-OPTIC ENABLES VORTEX BESSEL BEAM GENERATION

Researchers from Soreq Nuclear Research Center have shown that 3D laser printing can be used to fabricate a high-quality, complex polymer optical device directly on the end of an optical fiber.

Read more

WILLIAM M. STEEN AWARD

The Laser Institute of America is pleased to invite applications for the prestigious William M. Steen Award for significant developments in laser material processing named after one of the early pioneers in the subject. Laser Material Processing is one of the growth points in modern manufacturing. To bring focus to the many developments taking place and to promote the development of new ideas the LIA is making awards for the top idea of the year as adjudicated by a prize giving panel.

In order to qualify the innovative development should have experimental proof of concept in the use of lasers or monitoring of laser processes and should fit one of the criteria stated below:

- Open a new area of application for lasers.
- Be of benefit to manufacturing with lasers.
- Solve a problem either particular or general by the use of lasers.
- Show some novel sensing system by using optics or when monitoring laser processes.
- A development in photo chemistry.
- A development in photo-therapies.
- A development in 3D printings with lasers

2022 Steen Award Winner:
Synova, Inc.

JLA BEST PAPER AWARD

The Journal of Laser Applications Best Paper Award is given annually in recognition of outstanding laser applications research to the primary author of a selected paper published in the journal in the preceding three years. Each Editor nominates a single paper in their topical area for consideration by the full Editorial team based on the quality and significance of the work. The winning author receives free registration to ICALEO® and a Crystal Award.

2022 JLA Best Paper Award Winner:
Camilo Florian Baron
"Surface functionalization by laser-induced periodic surface structures"

FELLOWS AWARD

The grade of Fellow is the highest level of membership in the LIA. It is awarded to recognize members of the institute who have:

- Attained unusual professional distinction in the LIA mission areas of laser science and technology, laser applications and/or laser safety, and
- Provided outstanding service to their field.

Nominations are open to candidates who must have practiced the profession of laser science and engineering in academia, medicine, industry or government for at least 10 years, and fellow membership for any individual shall not be instituted or remain in effect unless his/her membership is current. For exceptional candidates, the Executive Committee may waive the eligibility requirements.

2022 LIA Fellows:
Dr. Hongqiang Chen (left)
Prof. M.J. Soileau (right)

ANNUAL ARTHUR L. SCHAWLOW AWARD

One of LIA's most prestigious honors, the Arthur L. Schawlow Award recognizes outstanding, career-long contributions to basic and applied research in laser science and engineering, leading to fundamental understanding of laser materials interaction and/or transfer of laser technology for increased application in industry, medicine, and daily life.

PREVIOUS SCHAWLOW AWARD RECIPIENTS:

1982 – Dr. Arthur Schawlow
1983 – Dr. Arthur H. Guenther
1984 – Dr. Kumar N. Patel
1985 – Mr. Leon Goldman
1986 – Prof. William Bridges
1987 – Mr. Sidney Charschan
1988 – Prof. Francis L'Esperance
1989 – Dr. Milton Chang
1990 – Mr. Herbert Dwight
1991 – Prof. Anthony Siegman
1992 – Dr. Yoshiaki Arata
1993 – Dr. James L. Hobart
1994 – Dr. Rocco Lobraico
1995 – Mr. David Belforte
1996 – Prof. William M. Steen
1997 – Mr. Conrad Banas
1998 – Prof. Robert L. Byer
1999 – Dr. William Schwartz
2000 – Prof. Theodor W. Hänsch
2001 – Prof. Walter W. Duley
2002 – Prof. Akira Matsunawa
2003 – Prof. Jyotirmoy Mazumder
2004 – Dr. Helmut Hügel
2005 – Dr. David Sliney
2006 – Dr. Edward Metzbower
2007 – Dr. Marshall G. Jones
2008 – Dr. Eckhard Beyer
2009 – Dr. Valentin Gapontsev
2010 – Dr. Steven Chu
2011 – Prof. Berthold Leibinger
2012 – Prof. Isamu Miyamoto
2013 – Prof. Ursula Keller
2014 – Prof. Reinhart Poprawe
2015 – Dr. Keming Du
2016 – Prof. Yongfeng Lu
2017 – Dr. Paul Seiler
2018 – Dr. Don Scifres
2019 – Dr. Lin Li
2020 – Dist. Prof. Milan Brandt
2021 – Prof. Aravinda Kar

2022 Schawlow Winner: Dr. Bo Gu

Laser Institute of America (LIA) Fellow, LIA Board officer Dr. Bo Gu has been selected as the 2022 Arthur L. Schawlow Award recipient in recognition to his career long contributions throughout the laser industry in the fields of micro- and nano engineering and laser applications in industrial metal processing.

With over 35 years in the laser material processing field, Dr. Bo Gu has built a reputable career which includes developing Asian and Chinese markets during his time as the Director of Asia operations and GM of IPG China. He has not only worked with IPG but for GSI group but has helped advance the laser industry with his collaborative spirit and willingness to mentor young professionals. Dr. Bo Gu continues to help professionals further their careers through his teachings including several educational courses on laser applications.

Dr. Bo Gu has had a successful research and development career and continues his contributions to the industry with the founding of BOS Photonics which specializes in photonic technologies and consulting photonic companies. He holds 75 patents on lasers and their applications and holds positions such as committee member of LIA and international advisor. One of Dr. Gu's latest achievements is contributing to the published Handbook of Laser Micro- and Nano-Engineering as a co-author in December 2021.

An Interview with the 2022 Schawlow Winner: Dr. Bo Gu

Congratulations on being the 2022 recipient of the prestigious Arthur L. Schawlow Award. What does receiving this award mean to you?

BG: First of all, I would like to thank LIA for this prestigious award. It is a lofty honor for me. It is not only an affirmation of my 40 year long professional career in lasers, but also a representation of the development of laser technology and its applications.

Has Arthur Schawlow had any personal impact on your work? Are there any other big laser names you would like to recognize?

BG: I studied the history of lasers when I was in college. Professor Arthur Schawlow and his borther-in-law Prof. Charles Townes were my mentors. Their research path towards masers and lasers was a great adventure which I am in the process of writing about it. I was fortunate to have the opportunity to invite Prof. Townes to Photonics West LASE plenary session in 2007. When he visited the exhibition halls of the Photonics West after his speech, he told us that he would never imagine what lasers can do today. Another big name in lasers is of course Dr. Theodore Maiman. Schawlow and Townes discovered Maser and proposed the path towards Laser, Maiman was the first one to make it happened. They are all my mentors and heroes.

The Schawlow award recognizes career-long contributions to basic and applied research in laser science and engineering. With numerous achievements, from teaching, and being a committee member and author, to being a driving force behind industry advancement in international countries, which contributions to the industry would you say you are most proud of?

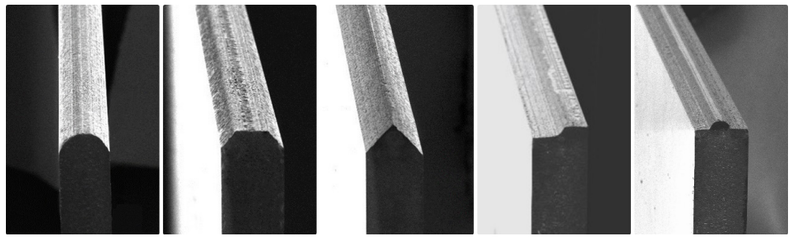
BG: First of all, I would like to point out that all my achievements would not be possible without my advisors, colleagues, and professional peers. Any scientific and technological advancement can not be made by oneself alone—it is a team work. If I have to choose the most significant ones among all my contributions, I would pick two: laser micro machining , especially its applications in microelectronics; and fiber laser development and applications and associated commercial success. Both have an estimated societal and economical impact of several thousand billon US dollars. We have made laser technology a true enabler.

You sent in a rather inspiring presentation for the ICALEO 2022 Awards Ceremony that shared some lessons you have learned throughout your career. What inspired you to go that route with the presentation?

Image of high-quality laser cut glass substrates with a straight face and a chamfered edge.

BG: When I learned that I was given this prestigious award, I immediately thought about all my teachers, professors, mentors, colleagues and peers who gave me the courage, inspiration, love, guidance and help along the way of my four decades long career. I could not think of anything better that giving back to this great community, especially to young generations because they are the future of our industry. So I decided to share some of my

lessons with the audience hoping that they would get something useful from it. I would be very happy if one person was impacted by my talk.



Menu of glass substrates with different edge contours characterized by scanning electron microscopy.

How else do you hope or anticipate your receiving this award will influence others?

BG: I would hope people can see the history of laser material processing through my personal story and would like to encourage young people to participating in this very exciting field—the next decade will be the golden decade for lasers and photonics!

What has been one of the greatest challenges you have overcome in the advanced development of this industry?

BG: The biggest challenge has always been to make the lasers as an industrial tool because no matter how advanced your lasers are, they would not be able to impact our industry unless they are accepted by the industry and widely used in the industry.

What advancements do you think we will see in the fields of micro- and nano-engineering in the upcoming years?

BG: There are several hot areas in the micro- and nano-engineering fields: additive manufacturing at micro- and nano-level; laser direct writing at nano-scales; medical and biomedical applications using micro- and nano-engineering, to name just a few.

Do you have any additional thoughts that you would like to share?

BG: Through my winning of this renowned award that bears the name of a great laser physicist and a Nobel laureate , I hope the laser technology can be promoted to a higher level by combining it with some of the emerging technologies such as artificial intelligence, big data, and quantum technology, and to be applied to a wider range of fields for the benefit of mankind.

ICALEO 2022




















OCT 17-20





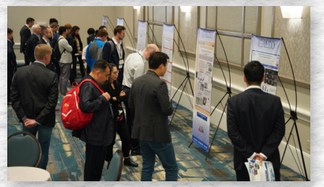


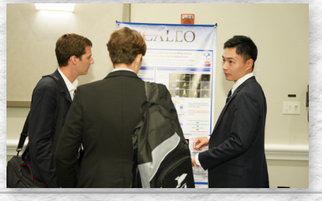










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