

LIA TODAY

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THE OFFICIAL NEWSLETTER OF LIA

On the Cover:

Entertainment Focus -
The Backstreet Boys

Also in this Issue:

- ICALEO Countdown
- Market Updates
- Science Advocacy

LIA Staff Editors: Jana Langhans; John McCormack

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I Want it That Way - ER Productions Work on the Backstreet Boys Residency

This quarter, ER Productions spotlights their groundbreaking work on the Backstreet Boys' highly anticipated Las Vegas residency at the Sphere, with lasers integrated directly into the venue's 360° video content screen.

LIA TODAY is published quarterly to educate and inform students and professionals of challenges and innovations in the field of photonic materials processing.

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Special Thanks to our Editorial Committee

Martin Barraclough - ER Productions
Dr. Youngfeng Lu - University of Nebraska - Lincoln
Dr. David Sliney

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Countdown for the Premier International Event on Lasers and Electro-Optics

ICALEO 2025 is just weeks away—join the global laser community in Orlando this October for groundbreaking research, inspiring keynotes, and unparalleled networking.



PROF. ARAVINDA KAR
LIA 2025 PRESIDENT

It is again that time of the year when the Fall season will be upon us very soon and we begin to hear the sweet sound of ICALEO'25. The 44th International Congress on Applications of Lasers & Electro-Optics will be held in sunny Orlando, Florida, from October 13-16 at Caribe Royale Orlando. This venue has much to offer for attendees; set near places of attraction like Disney World, Universal Studios, and Sea World and within a short driving distance the beautiful beaches of Florida.

The conference has been planned with interesting topics to offer the attendees a unique experience. Inspiring keynote presentations followed by a variety of exciting sessions, industrial exhibitions and other events are designed to create an illuminating environment for professional growth. The conference is also a unique venue to meet and greet with old friends, meet newcomers and others, and make connections. The spontaneity of interactions and technical exchange can spark new thoughts and new ideas for networking and potential collaboration.

The applications of lasers for materials processing and manufacturing will continue to grow, which can be accelerated with an interdisciplinary collaborative approach. The scope of laser applications and safety is broadening in other areas as well including hand-held lasers, laser medicine, microelectronics, and photonics. LIA is playing a key role in advancing these applications. Nanomanufacturing will augment the growth of laser industries with ever increasing demand on highly monochromatic light and high precision motion tools to produce structured surfaces for nanophotonics and other applications.

We hope to see you next month in sunny Orlando, FL for ICALEO.

A. Kar



SHAUN OLESON
EXECUTIVE DIRECTOR

This summer has been an active season for The Laser Institute. Our team exhibited at the AST Surgical Technology Conference, ASSP's Safety Conference and at Laser World of Photonics in Munich, where we highlighted LIA's leadership in laser safety and strengthened connections across industry, government, and academia. These events underscore the importance of collaboration in advancing lasers, laser applications, and laser safety worldwide.

Momentum is building for the 44th annual ICALEO and I am pleased to share that Prof. Bill O'Neill, Professor of Laser Engineering at the University of Cambridge, has been selected as this year's recipient of the Arthur L. Schawlow Award. Professor O'Neill's distinguished career reflects the innovation and leadership this award was created to honor, and his recognition will be a highlight of the conference.

This year's plenary program will feature presentations by Martynas Barkauskas, CEO of Light Conversion, on femtosecond laser applications; Professor Shuntaro Tani of the University of Tokyo on artificial intelligence in ultrafast laser processing; Dr. Tammy Ma of Lawrence Livermore National Laboratory on the future of laser-driven fusion energy; and Dr. Ajay P. Malshe of Purdue University on laser applications in space. Their perspectives promise to set the stage for an engaging and thought-provoking program.

The response from our community has been remarkable. Sponsorship and exhibitor participation for this year's ICALEO has already surpassed nearly every year of the past decade, a clear reflection of the strength and vitality of our global network.

Each conference and workshop is a testament to the dedication of our volunteers and contributors. Membership extends that involvement by ensuring our strategy and priorities are guided by the very stakeholders we serve. Members receive exclusive discounts on training, conferences, and publications, access to our Journal of Laser Applications, as well as opportunities for networking, recognition, and professional growth. Corporate membership extends these advantages across entire organizations while providing additional visibility in the laser community.

Member engagement underpins the collaborative spirit that defines our community. If you are not yet a member, I invite you to join today. Significant, enduring impact is only possible when we achieve it together.

Shaun Oleson

A LOOK AHEAD AT UPCOMING LASER SAFETY TRAINING!

SEPTEMBER

MEDICAL LASER SAFETY OFFICER

New York City, NY - September 6-7

LASER SAFETY OFFICER WITH HAZARD ANALYSIS

Niagara Falls, NY - September 29-October 3

NOVEMBER

LASER SAFETY OFFICER

Orlando, FL - November 3-5

LASER SAFETY OFFICER WITH HAZARD ANALYSIS

Orlando, FL - November 3-7

MEDICAL LASER SAFETY OFFICER

Virtual (Zoom) - November 8-9

INDUSTRIAL LASER SAFETY OFFICER

Santa Clara, CA - November 19-20

DECEMBER

CALCULATING LASER SYSTEMS HAZARDS

Virtual (Zoom) - December 15-19

2026

FEBRUARY

LASER SAFETY OFFICER

Orlando, FL - February 16-18

LASER SAFETY OFFICER WITH HAZARD ANALYSIS

Orlando FL - February 16-20

MEDICAL LASER SAFETY OFFICER

Virtual (Zoom) - February 21-22

\$50 OFF

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\$50 Off of the highlighted course
using discount code
LTRQ325



Recently purchased a new laser?

Request an **in-house training** to ensure your staff knows how to run the system safely and correctly.

LIA COURSE HIGHLIGHT: INDUSTRIAL LASER SAFETY OFFICER

NOVEMBER 19-20, 2025 SANTA CLARA, CA

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.

Our 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 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.



For a complete list of courses, both online and in-person, please visit lia.org/training.

A LOOK AT THIS YEAR'S INDUSTRY CONFERENCES!

1. Photonics West - Jan 27-29, 2025 (San Francisco, CA, USA)
2. ILSC - March 3-6, 2025 (Orlando, FL, USA)
3. ILAS - March 26-27, 2025 (Kenilworth, UK)
4. AORN - Apr 5-8, 2025 (Boston, MA, USA)
5. RAPID + TCT - April 8-10, 2025 (Detroit, MI, USA)
6. SPIE DCS - Apr 13-17, 2025 (Orlando, FL, USA)
7. ASLMS - Apr 24-25, 2025 (Orlando, FL, USA)
8. CLEO - May 4-9, 2025 (Long Beach, CA, USA)
9. LAMP - June 10-13, 2025 (Ise-city, Mie-prefecture, Japan)
10. Laser World of Photonics - June 23-27, 2025 (Munich, Germany)
- LIM - June 23-26, 2025 (Munich, Germany)
11. ASSP - July 22-24, 2025 (Orlando, FL, USA)
12. FABTECH - Sept 8-11, 2025 (Chicago, IL, USA)
13. ICALEO - Oct 13-16, 2025 (Orlando, FL, USA)
14. OR Managers - Oct 28-30, 2025 (Las Vegas, NV, USA)



A LOOK AHEAD AT LIA'S UPCOMING CONFERENCES!



44TH INTERNATIONAL CONGRESS ON
APPLICATIONS OF LASERS & ELECTRO-OPTICS

October 13-16, 2025 - Orlando, Florida

ICALEO Updates

The 44th annual International Congress on Applications of Lasers and Electro-Optics (ICALEO) will be returning to Orlando, Florida! We are excited to host you at the beautiful Caribe Royale on October 13-16, 2025.

Advance Program: Get a sneak peek of what you can find at this year's event in the digital Advance Program. Hear a welcome message from our General Chair Stefan Kaierle, get an overview of the agenda, learn about the conference highlights, and more!

Company Opportunities: There are still opportunities to highlight your company at the event with sponsorships and exhibit space! Contact marketing@lia.org or visit icaleo.org for more information.

Hotel Group Rate: Stay at the conference hotel for a discounted rate! Uncovering a Floridian escape where the sun is warm and the welcomes are even warmer at the Caribe Royale Orlando. Attendees receive free breakfast, wifi, networking, and more!

Kennedy Space Center: The field trip for this year will be taking you to the Kennedy Space Center! Find the ticket add-on while registering or email icaleo@lia.org to sign up.

Subscribe to our mailing list at icaleo.org/subscribe for the latest updates.



September 11, 2026 - Chicago, Illinois

ILC Updates

The Industrial Laser Conference will be taking place as part of IMTS in September of next year. This conference focuses on laser processing for manufacturing applications. We will consider laser applications from marking to cutting, to welding and heat treating, to remote welding, to cleaning and additive manufacturing, and more. If you are interested in participating in the organizing committee, please reach out to the LIA Conference Team at conferences@lia.org.



INTERNATIONAL LASER
SAFETY CONFERENCE

See you in 2027!

ILSC Updates

Be sure to subscribe to our mailing list at ilsc.ngo to be the first to know when ILSC 2027 is announced! If you are interested in participating in the organizing committee, please reach out to ilsc@lia.org.

ICALEO®



SAVE
THE
DATE

Hilton Denver City Center
OCT 5-8, 2026
Denver, Colorado

icaleo.org

The LIA Newsroom is your official source for the latest news, announcements, and updates from The Laser Institute. Stay informed with updates on LIA programs, partnerships, conferences, and educational opportunities.




Announcing the 2026 Officer and Trustee Nominees for the LIA Board

September 3, 2025 - The Laser Institute (LIA) is pleased to announce the candidates selected by the Nominating Committee for the 2026 Trustee election. The strength of The Laser Institute lies in its community, and a crucial part of this community is our Board of Trustees. These individuals embody the spirit of LIA’s mission through their work in the field and their contributions to the laser industry.
[Read the full release here.](#)



The Laser Institute Announces 2025 Award Recipients and New LIA Fellow

August 18, 2025 - The Laser Institute (LIA) is proud to announce the distinguished recipients of its 2025 Arthur L. Schawlow and William M. Steen awards as well as the induction of a new LIA Fellow, as formally resolved by unanimous vote of the LIA Board of Trustees. These awards recognizing exceptional contributions to the fields of lasers, laser applications, and laser safety worldwide will be formally presented during ICALEO on October 15, 2025, in Orlando, Florida..
[Read the full release here.](#)



Welcome New Corporate Member

NEW LIA MEMBER

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To find out more about becoming a corporate member, email membership@lia.org or visit lia.org/membership/corporate.



STUDENT SPOTLIGHT

Name: Kiva McCracken
Hometown/State: Fairbanks, Alaska
Year in School: 5th Year
Area of Study/Major: Optics and Photonics

When were you first introduced to photonics/electro-optics?

I was first introduced to photonics through Mary Lou Jepsen’s TEDx Talk on inverse holography and using IR light to conduct noninvasive scans of the body. I’ve followed that work ever since, and when I started looking into majors, photonics caught my eye as a result.

What or who inspired you to choose your line of study?

My advisor, Mike McKee, here at CREOL first introduced me to the possibilities in photonics during a freshman engineering lecture. Researching it more, I found that the field is going through the same Cambrian Explosion that electrical engineering experienced in the 50s & 60s. This presents a real opportunity to make an impact and helping to establish new technology.

Describe your favorite course that you took at UCF.

My favorite course has definitely been Geometric Optics with Dr. Stephen Eikenberry. I enjoyed learning about the different strategies in designing optical systems and his experience working with telescopes.

Are you researching anything at the moment? Can you tell us about it?

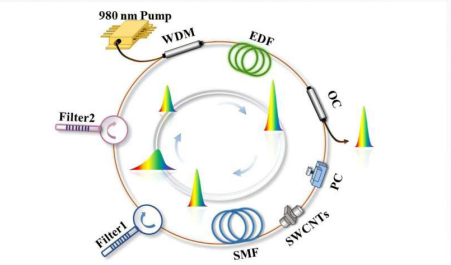
Currently, I work with Dr. Jaesung Lee researching MEMS, specifically large-payload diamagnetic levitators. I’m also the lead for the lab’s mechanical construction. For example I’ve designed multiple vacuum chambers for our experiments.

What would you like to do in the future with your studies?

I plan to pursue graduate school for a masters in electrical engineering with a specialty in RF. Optics & Photonics focuses heavily on the Visible, IR, and UV range. I want to take the opportunity to fill in some blanks in the electromagnetic spectrum.
Check out my work at kivamccr.xyz!

Email membership@lia.org to find out more about FREE student memberships!

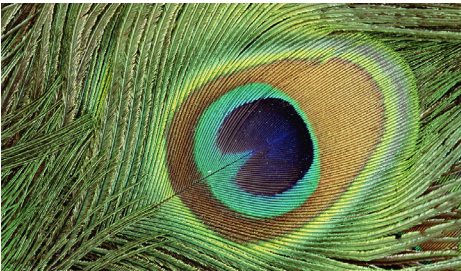
TAKE A LOOK AT THE TOP 4 ARTICLES ON LIA'S SOCIAL MEDIA!



NEXT LEAP IN MODE-LOCKED LASERS: TUNABLE PULSE DURATION IN ULTRANARROW BANDWIDTH

In a recent study, researchers have presented an innovative ultranarrow bandwidth mode-locked laser with a tunable pulse bandwidth.

[Read more](#)



PEACOCK FEATHERS CAN BE LASERS

Peacocks have a secret hidden in their brightly colored tail feathers: tiny reflective structures that can amplify light into a laser beam.

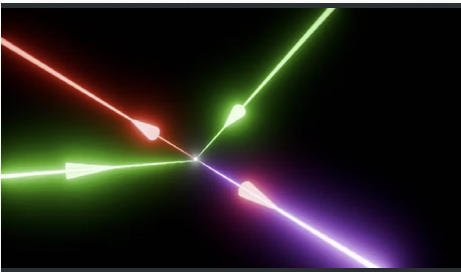
[Read more](#)



A LASER SPARK PLUG SAVES FUEL AND REDUCES EMISSIONS

Lasers may soon conquer another common application: igniting engines. Tests on a first prototype were shown to reduce fuel consumption and nitrogen oxides emissions.

[Read more](#)



PHYSICISTS SIMULATE WAY LIGHT INTERACTS WITH EMPTY SPACE

Simulations via advanced computational modeling recreate vacuum four-wave mixing—a quirky quantum phenomenon—and now this “solver” is poised to unleash new physics at extremely high intensities.

[Read more](#)



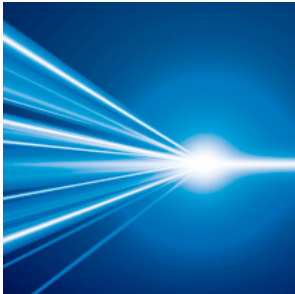
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Journal of Laser Applications

Special Topics for Open Submission

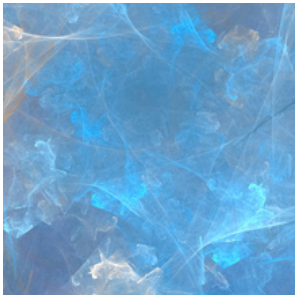


Advanced Laser Technology and Its Applications

Over the past 60 years, laser science and technology have witnessed rapid progress and penetrated into many fields such as scientific research, medical and health care, industrial processing, entertainment and leisure, as well as national defense and security, and have had a tremendous impact. This special issue aims to comprehensively overview the latest progress of laser technology and its applications in various fields.

Guest Editors: Hanbin Wang, *Beijing Jiaotong University*, Xinyang Su, *Beijing Jiaotong University*, Shuai Li, *Hebei University of Technology*

SUBMISSION DEADLINE:
OCTOBER 31, 2025



Ultrashort Laser Induced Crystallinity in Metals Thin Films

The advances in ultrashort laser pulse (\leq picosecond) have enabled many possibilities in laser material fabrication. In laser material interactions, processes dramatically change to non-linear phenomenon when the laser pulse duration becomes extremely short, much shorter than the duration of electron–lattice relaxation processes allowing a controlled manipulation of electron dynamics without inducing the melting effects in the crystal lattice.

Guest Editors: Ayesha Sharif, *University of Galway, Ireland*

SUBMISSION DEADLINE:
DECEMBER 31, 2025

Recently Published Special Topics

Laser Manufacturing for Future Mobility

This special issue highlights the newest advancements in laser material processing for the electric vehicle (EV) manufacturing industry, including laser welding, cutting, drilling, surface treatment and drying, and additive manufacturing techniques.

Guest Editors: Barbara Previtali, *Politecnico di Milano*, Ali Gökhan Demir, *Politecnico di Milano*, Joerg Volpp, *Luleå University of Technology*, Christian Hagenlocher, *Universität Stuttgart*

Laser micro/nanojoining: from fundamentals and processing to manufacturing applications

This special issue collects papers in the field of laser micro- and nanojoining, with a broad mandate extending from fundamentals that unveil the underlying physio-chemical joining processes to procedures applied in manufacturing.

Guest Editors: Dr. Anming Hu, *Department of Mechanical, Aerospace and Biomedical Engineering, University of Tennessee Knoxville, USA*, Dr. Soshu Kiriwara, *Joining and Welding Research Institute, Osaka University, Japan*, Dr. Peter Herman, *Department of Electrical and Computer Engineering, University of Toronto, Canada*



Learn more about
Open Special Topics
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MARKET UPDATES: LASER PHOTONICS MUNICH

As part of a quarterly op-ed, Geoff Shannon of Laser Markets, Inc investigates and shares his insights of current market trends and the state of the laser industry. This feature looks into Laser Munich's record attendance, rising Chinese presence, and advances in welding and high-power lasers.

It's that time again – Laser Munich, can you say kid in a candy store! With a nod to Photonics West & Laser China, Laser Munich is my personal favorite show and arguably the most important trade show for our industry, plus has the best booth parties! It has evolved and expanded recently from a laser components show to one that now includes solutions covering every level of integration up and down the tech stack – sorry, the McKinsey training coming out there! In plain speak: optics, lasers, beam delivery, focus heads, sub systems & systems – you name it, Laser Munich has it. This year the numbers were great, with a record number of exhibitors just under 1,400 and a very healthy 44,000 attendees, up 10% from 2023 (show is every two years). Worth noting here that the visitor demographic is shifting slightly with more end users attending, particularly from the Automotive industry. Feedback from vendors was very positive, noting lead numbers were at or beyond pre-COVID levels. Hopefully a bellwether of future recovery and growth.

The high-level themes included: increased Chinese vendor presence, fully loaded focus heads & scan heads, welding, and high-power ultra short pulse (USP) and fiber lasers. The free show floor forums, as always, were excellent and well worth the price of admission and ranged from USP lasers to shaped beams to how best to harness AI.

Diving a little deeper into the

themes –

I know, it's a broken record regarding Chinese growth particularly in Europe, but this was absolutely reinforced at the show. Noticeably larger portions of hall floorspace, albeit towards the back of the halls, were occupied by Chinese vendors, and while most indicated business was sluggish, commitment to both the EU and US markets is clear. At the marketplace forum Thomas Fehn, chief sales officer for Trumpf, was asked about competition from China, his paraphrased answer was – “we listen to the customer and provide the solution they need.” Solutions selling – straight from the value-add play book.

Solution selling and maintaining differentiation at the correct value propositions was no more evident than for focus heads, and in particular scan heads – with western suppliers loading up on vision, AI (of course), and in-process monitoring. These heads are now physically the size of a planet so best get your Z axes brakes and high payload robots at the ready. And, oh yeah, in most cases they are more expensive than the laser. Welcome to the new world....

Welding, welding everywhere, both handheld and semi-automated. Handheld laser welding appears to be quickly heading down the same path as laser marking, a few large global vendors with hundreds of cheap local suppliers. Now that Lincoln, Miller and ESAB have entered the market, growth will

accelerate and very likely remain at double-digit CAGR for some time. Hours to train vs weeks, and with decent fit-up 2-3x faster for thinner gauge materials than manual TIG welders. In the non-manual world, while EV welding remains largely in the doldrums, other markets such as white and yellow goods are being developed as integrators and line builders look to diversify and maintain their position as, yes, value-add suppliers.

Laser powers continue to rise, with many fiber laser vendors showing 50-60kW, USP vendors beyond the 500W mark, with Trumpf getting the gold star with a 1kW femtosecond laser. The other side of the increasing power equation is decreasing dimensions – a 60kW fiber laser is about the size of two filing cabinets with single modules at 12kW! While the high-power stuff provides great hero products, it's worth noting that the sweet spot for macro/EV welding and cutting applications lies between 2-8kW and 8-12kW respectively. Also interesting to me are the size and price points at lower power lasers; a 30W ns MOPA fiber laser the size of a large snowball – which I described to the slightly perplexed sales person as “cute”, 5-10 UV ns lasers the size of a small shoebox, and coming full circle to the CW fiber laser 1-2kW CW modules not much larger than a thick slice of bread! These will and are driving volume units for laser marking, cutting and welding, and market penetration into traditionally non-laser use cases.

So once again another great show, and well worth attending if you have the opportunity. If you do go bring your lightest business attire and drink plenty of beer, I mean water, because as per usual the temperatures were hot, and to our friends in Europe, two words – air conditioning!



About the Author

Geoff Shannon, PhD
Laser Markets Inc

Over 30 years of laser applications, product and market experience, Currently as Principal of Laser Markets offering marketing consulting services for lasers and laser systems.

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I WANT IT THAT WAY - IN DEPTH REVIEW OF THE WORK ER PRODUCTIONS DID ON THE BACKSTREET BOYS INTO THE MILLENNIUM RESIDENCY

This quarter, ER Productions spotlights their groundbreaking work on the Backstreet Boys' highly anticipated Las Vegas residency at the Sphere. By integrating lasers directly into the venue's 360° video content screen, the team delivered a fully immersive experience powered by custom workflows, cutting-edge software, and 16 of their proprietary AT-60X lasers, dazzling the crowd with a creative display of technology, artistry, and precision.

While lasers have been introduced at the world-famous Las Vegas Sphere before, ER Productions brought something entirely new to the venue, with laser integration directly into the video content of the Sphere's 360° media plane. The creative teams at Silent House and the Backstreet Boys approached ER Productions with two bold objectives. First, to incorporate lasers into an interlude during a backstage costume change, keeping the audience engaged. Second, to deliver a climactic aerial laser finale during the hit song "Everybody." What followed was a fusion of artistry, engineering, and weeks of intensive R&D by everyone involved in the production.

The Sphere's immersive environment, unlike any other venue in the world, meant that every conventional rule of stage design had to be rewritten. "It's basically like being in a massive VR headset," says Andrew Turner, one of ER's designers and programmers for the laser transition. Integrating laser beams

that interacted with content on a curved, high-resolution LED screen required advanced technical workflows. Led by Visualisation Engineer Alex Oita and facilitated by Project Manager Dan Pecora, ER Productions collaborated with developers like Matthieu Beghin of MadMapper and software experts at Pangolin to create a system capable of synchronizing lasers with complex 3D visuals in real-time.

The technical centerpiece of the show, what the team refers to internally as "the laser transition", was a fully immersive narrative moment where beams became storytellers. Lasers began by creating gentle ripples, which evolved into a collapsing black hole that exploded into a swirling galaxy. From there, constellations were drawn, a spaceship launched, and monoliths slowly emerged that revealed the Backstreet Boys in a grand cosmic reveal. The sequence was a breathtaking dance of light and motion that must be seen in person to be fully appreciated.

Bringing this moment to life required extensive collaboration across multiple platforms. Tools such as Cinema4D, After Effects, Disguise, TouchDesigner, Pangolin Beyond, and a customized version of MadMapper enabled ER to vectorize content, sync it precisely



Image of 12 of the AT-60x lasers during the song "The One" by the Backstreet Boys.

with video playback, and program beams that appeared to etch, ripple, and respond dynamically to the screen visuals.

Technically and logistically, this show pushed many of the traditional boundaries of production. Lasers were aimed toward the media surface rather than the audience, which reduced perceived brightness, which then required the use of AT-60X high-power lasers and controlled atmospheric haze to ensure the beams cut through the screen's luminance. Safety remained paramount, with strict protocols including laser mutes, designated safety zones, spotters, and multiple crew briefings.

A particularly complex challenge was adapting laser coverage to the Sphere's massive curved screen, and to effectively

"The technical centerpiece of the show, what the team refers to internally as "the laser transition", was a fully immersive narrative moment where beams became storytellers."

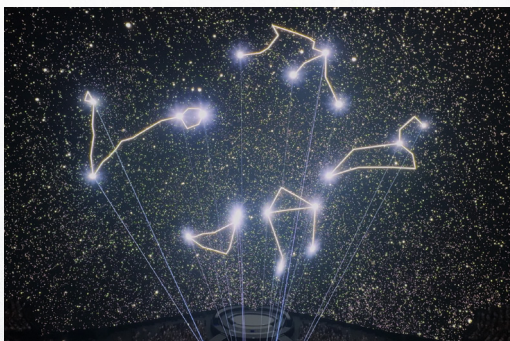


Image of the AT-60 laser transition as it maps out and traces constellations on the screens surrounding the stage and audience.

"Safety remained paramount, with strict protocols including laser mutes, designated safety zones, spotters, and multiple crew briefings."

illuminate approximately 70% of the surface, the team deployed 16 lasers, which is far more than a typical flat-panel setup would require. The curvature at the MSG Sphere eliminated the possibility of separate lasers and video workflows. ER Productions had to craft a fully integrated solution, which included dividing the media plane among multiple lasers in a way that appeared cohesive to the audience involving extensive R&D and collaboration with Silent House, Blink, BSB Production, and the MSG Sphere team.

At the core of the system were 16 proprietary AT60X laser units. Chosen for their compact size, tight scanning accuracy, and powerful output, these lasers were positioned strategically

throughout the venue, including a critical cluster on the second balcony that enabled the illusion of a "single giant laser." This setup was instrumental in helping the lasers cut through the Sphere's vibrant visuals, blending into and extending the content with immersive reach.

Though the end result may appear effortless, every element of this display was the result of tireless trial, adaptability, and precision planning at every level of production. The Sphere's vision stretched ER Productions team creatively and technically, requiring deep coordination, engineering ingenuity, and absolute attention to detail.

"Watching this show evolve from concept to reality was nothing short of surreal. Every night, the crowd's reaction to the lasers tracing the sphere's massive screens is electric. It's a moment that so many people and departments have come together to create and has become a very special part of the show," said Katy Brickman, the lead laser operator throughout the Sphere residency and programmer of the laser effects for "Everybody."

ER Productions is proud to have played a pivotal role in bringing the Backstreet Boys' vision to life and setting a new global benchmark in laser and video integration at the Las Vegas Sphere.



Second image taken during "The One" by the backstreet boys during their residency at the Sphere in Las Vegas.



Lasers going over the crowd during "Everybody" by Backstreet Boys.



About the Author

ER Productions is an international, award-winning laser and special effects specialist with an extensive portfolio spanning high-profile events, advertising campaigns, television productions, and world tours. With offices in Dartford, Lancaster, Las Vegas, Ibiza, Sydney, and Riyadh, ER Productions continues to lead the industry in innovation, safety, and cutting-edge visual experiences.



IOSH APPROVED

SAFE WORKING WITH DISPLAY LASERS



LAS VEGAS, NV DATES:

September 22nd and 24th, 2025

LANCASTER, PA DATES:

September 29th and 30th, 2025

As an IOSH approved training provider, our Safe Working With Display Lasers course is the first of its kind, developed to deliver hands-on practical sessions by industry experts and taught over 2 days. Built for the international market, it meets all the requirements for Laser Safety Operators in the US & UK, as well as meeting the training standards of ANSI & EN60825.

To sign up go to er-productions.com/safe-working-with-display-lasers

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WE MUST SPEAK OUT

This op-ed by Ken Barat warns that funding cuts and political neglect are undermining U.S. science, threatening innovation, security, and morale, and calls for urgent advocacy to protect research.

Who knew that Gary Larson was predicting the future with his Far Side Dodo cartoon. The Far Side panel shows super intelligent Dodo birds wiped out by sailors looking for food. Our present Administration is doing the same to science.

From Ben Franklin developing the lighting rod and bifocal and Earnest Lawrence developing the Cyclotron, even the laser - to thinking about how much came out of the Space Program (microelectronics) to recent inventions from the smart phone to advances in Medicine; American science has been leading the way in improving technology applications and building the economy.

But now science projects are being cut, grants stopped, research organizations defunded, Post Docs being denied access to our universities all with no clear reason other than short sighted "lets save money" or the wrong word in a grant application . Anyone who has spent time with or in the research community can tell you it is hard to restart projects once time and data is lost. Some research may have an obvious goal while others are pieces of a puzzle, waiting for someone to see where the pieces fit.

Even if one does not believe in climate change and the effects humans have on the world, the research can be extremely useful. Our farmers need weather/ drought and rainfall data for crop planning, the military needs data for war planning, builders need information on how to build better homes and where. For

many, denying climate change is strictly monetary, kicking the can for future generations to solve the problems that develop.

Other nations are trying to attract our brilliant minds with offers or research positions and funding. If politicians do not see this as a national security threat, we must explain it to them.

Several Professional Societies, Universities, and Journals have released statements addressing the attack on science. But this is preaching to the choir. We need to contact local and Federal politicians and make our concerns clear with how it will affect our voting. Safety societies cannot say they are neutral and keep their heads down. Already, government safety groups and agencies are being cut and pulling back regulations and enforcement. I have been involved in some major Science projects and have been assuring laser safety for 30 years, in and outside the US and I have not seen such low morale within the science community as right now. Safety organizations need to join the outcry, or their relevancy will be in question. We all must speak up.

During the Phoenician Wars, the Roman Senator Cato the Elder ended every speech with "Carthage must be destroyed." Every presentation and conference must start or end with a statement in support of funding science!



About the Author

Ken Barat, CLSO
Laser Markets Inc

Author of 12 laser safety texts. Writes quarterly laser safety column for Photonics Spectra. LIA Fellow and Rockwell Award winner. Former LSO National Ignition Facility and Lawrence Berkeley National Lab, laser safety adviser to many. ANSI committee member.

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ICALEO 2025 is just weeks away—join the global laser community in Orlando this October for groundbreaking research, inspiring keynotes, and unparalleled networking.

From October 13–16, 2025, the 44th International Congress on Applications of Lasers & Electro-Optics (ICALEO) will unite the global laser community at the Caribe Royale in Orlando, Florida. As the premier international conference on laser material processing and photonics, ICALEO is where breakthrough ideas, pioneering research, and industry-shaping innovation take center stage.

Why Attend ICALEO?

ICALEO attracts researchers, industry leaders, educators, and students from across the globe.

Discover the Latest Research – Immerse yourself in groundbreaking work presented by leading experts across the spectrum of laser technology. Topics range from additive manufacturing and ultrafast materials processing to medical applications, aerospace, and beyond.

Expand Your Network – Engage with leading researchers, industry executives, educators, and students from across the world. The ICALEO community is as diverse as it is influential.

Gain Practical Insights – Learn from technical sessions designed to provide knowledge you can apply directly to today's challenges and tomorrow's opportunities.

Keynotes

This year's keynote lineup features thought leaders who are redefining the possibilities of laser technology:

Dr. Tammy Ma – Lawrence Livermore National Laboratory – Fusion energy and the future of laser science.

Dr. Martynas Barkauskas – CEO, Light Conversion – Ultrafast femtosecond lasers driving research and industry impact.

Dr. Ajay “AJ” Malshe – Purdue University – The next frontier: laser applications in space exploration.

Dr. Shuntari Tani – RIKEN – The role of artificial intelligence in advancing photonics.

Highlights You Won't Want to Miss

Networking Receptions

Sunday: Welcome Reception
Monday: President's Reception
Tuesday: Women's Luncheon
Exhibitor Reception
Wednesday: Business Panel
Awards Luncheon

Exclusive Field Trip

On Thursday, October 16, join an unforgettable tour of the Kennedy Space Center. Experience the Rocket Garden, walk beneath the Space Shuttle Atlantis, step into the Astronaut Hall of Fame, and glimpse the future of space exploration through the Gateway exhibit.



Technical Focuses

- Additive Manufacturing (3D Printing)
- Beam Shaping
- Biomedical
- Brazing, Soldering, Bonding
- Cutting
- Drilling
- Glass/Ceramic Processing
- Modeling and Simulation
- Monitoring and Control (including OCT, AI)
- Optics and Systems
- Structuring, Ablation, Cleaning
- UV Laser and X-ray Processing
- Welding

Recognizing Excellence

LIA is excited to recognize this year's award winners at our annual Awards Luncheon! Join us on Wednesday, October 15th to celebrate their achievements.

Arthur L. Schawlow Award – Professor William (Bill) O'Neill, University of Cambridge, for outstanding contributions to laser-based manufacturing.

William M. Steen Award – Seurat Technologies for its groundbreaking Area Printing® platform in metal additive manufacturing.

LIA Fellow Induction – Professor Antti Salminen, University of Turku, for his pioneering research

and leadership in laser welding, additive manufacturing, and education.

Welcome to the sunshine state!

Orlando, Florida is far more than the most visited destination in the country. It is also a world-class business hub bringing together far-ranging industries with mind-blowing innovation thanks in part to our entrepreneurial culture and booming technology and medical communities. Pack your bags, book your flights, and join us for an unforgettable journey into the future of lasers!

Orlando's Don't Miss List:
Walt Disney World; Universal Studios;
Icon Park; Kennedy Space Center



Kennedy Space Center

Join us on Thursday, October 16th for an exclusive opportunity to visit and tour the Kennedy Space Center! Join the mission crew and walk through various exhibits and facilities, with chances to see the Rocket Garden, see the real Space Shuttle Atlantis, peruse the Astronaut Hall of Fame, explore the future with the Gateway exhibit, and more.

This conference add on can be found on the ICALEO registration page.

Whova App

The Whova app is returning this year - a digital community keeping attendees connected throughout the conference by sharing photos, session highlights, and key takeaways from the program. Attendees can also maintain their own agenda in the app and see an overview of all presentations and events happening throughout the conference.

See you soon!

Join us this October in Orlando and experience the spirit of innovation, collaboration, and discovery that makes ICALEO the most important laser conference of the year!

Find the program, registration, and more on icaleo.org.

Hear from last year's attendees on why they attend ICALEO!

"Great technical talks!"
"Networking contacts and updates on new laser technology"
"The friendly community of ICALEO"
"Scope of the conference and attending institutions"
"I come every year, great show for networking"
"It's the best laser applications event in the world!"

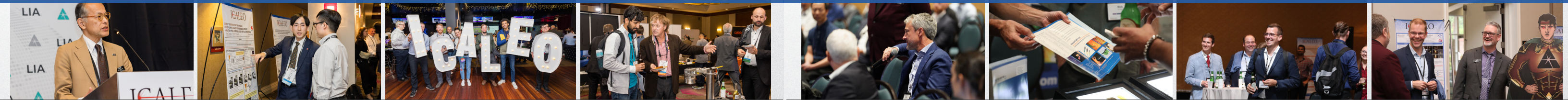
– Responses submitted from last year's survey.

2024 Conference Statistics

20
Countries Represented

160
Technical Presentations

170
Companies Represented



It takes a lot of time and effort to put together a conference like ICALEO. Meet the people behind the organization of this year's program.

Thank you to this year's program committee for their time and effort!



Stefan Kaierle
Laser Zentrum
Hannover



Eric Mottay
h-nu



Dr. Christian Hagenlocher
Universität Stuttgart



Gwenn Pallier
Cailabs



Dr. Kandice Barros Ribeiro
University of Turku



Jared Speltz
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Carlo Holly
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Dr. Markus Kogel-Hollacher
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Adam Hicks
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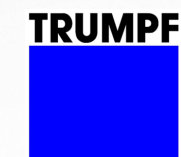
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Laser Additive Manufacturing

The Laser Additive Manufacturing (LAM) track features research in all aspects of laser based additive manufacturing technologies and applications. Topics for this year's conference reflect the diversity of the field, exploring emerging methods, equipment, materials, and system configurations across the spectrum of laser additive. From before a build begins, to post-process, and everything in between, presentations will approach the challenges of laser additive from all angles. Are more lasers always better? I think we all know the answer, but lasers are only part of the equation, and additive manufacturing has plenty of variables. Join us throughout the conference to meet leaders in the field, exchange ideas, and learn about the latest solutions in the world of Laser Additive Manufacturing!

Chaired by Adam Hicks



View this year's program at icaleo.org/program/

A look back at some of last year's peer-reviewed ICALEO presentations from the Laser Additive Manufacturing track that have been published in the Journal of Laser Applications!

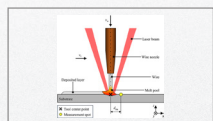
RELATING VAPOR EMISSIONS TO MELT POOL BEHAVIOR DURING LASER PROCESSING

Malte Schmidt; Knut Partes; Himani Naesstroem; Joerg Volpp

High-power laser interaction with a metal material can induce melting and even evaporation. However, the origin and content of vapor emissions based on temperature, material alloy elements, and other external conditions are not fully understood yet. Therefore, in this study, the content of laser-induced vapor was systematically examined during directed energy deposition processes. Single tracks of aluminum bronze were deposited with both continuous and periodically modulated laser powers. The duration and laser power of the modulations were set to achieve the same total line energy input. With the aid of those laser power modulations, controlled emissions were temporarily excited and observed. Optical emissions were captured with a spectrometer and a high-speed camera and related to the melt pool temperature signals and surface dynamics. The intensity of the emissions as well as the impact on the local chemical composition depend on the modulation parameters. Tracks deposited with short, high-power peaks in the modulation pattern showed chemical compositions comparable to those tracks that were continuously welded, whereby the intensity of spectral emissions was significantly increased. It can be concluded that the intensity of the measured spectral emissions correlates with the measured melt pool temperature signal and the dynamic movement of the vapor plume.

J. Laser Appl. 36, 042031 (2024) - <https://doi.org/10.2351/7.0001591>

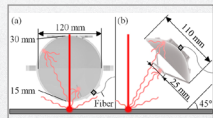
Other published presentations from this track:



Real-time monitoring and control of the layer height in laser metal deposition with coaxial wire feeding using optical coherence tomography

Christian Bernauer; Sebastian Thiem; Pawel Garkusha; Christian Geiger; Michael F. Zaeh

J. Laser Appl. 36, 042028 (2024) - <https://doi.org/10.2351/7.0001545>



In-line process monitoring in laser welding and powder bed fusion of metals using directional reflection measurements

Moritz Wittemer; Felix Ferle; Katrin Wudy

J. Laser Appl. 36, 042025 (2024) - <https://doi.org/10.2351/7.0001559>



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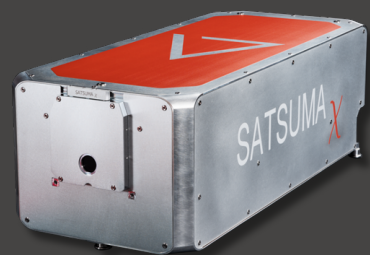
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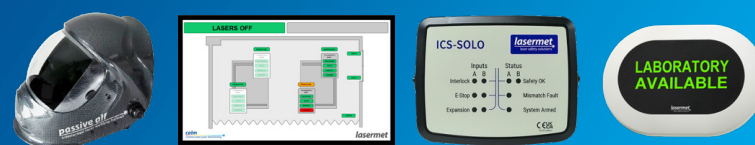


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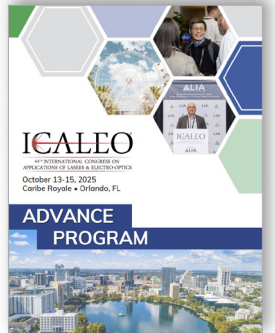
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Laser Materials Microprocessing

The Laser Microprocessing track focuses on how lasers are used at the microscale in electronics, energy, sensing, medical devices, and advanced manufacturing. Sessions will cover topics such as surface functionalization, high-precision drilling, and micro-welding of dissimilar materials. With contributions from both research and industry, the track offers a unique update on the state of the art in precision laser processing.

Chaired by Jared Speltz and Eric Mottay



View this year's program at
icaleo.org/program/

A look back at some of last year's peer-reviewed ICALEO presentations from the Laser Materials Microprocessing track that have been published in the Journal of Laser Applications!

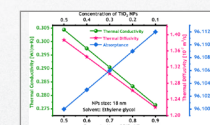
COMPLEX 3D SURFACE STRUCTURING BY MEANS OF LASER CHEMICAL MACHINING WITH MODULATED LASER POWER

Yasmine Bouraoui; Lewin Rathmann; Yang Lu; Claudia Niehaves; Andreas Fischer; Tim Radel

Laser chemical machining (LCM) utilizes the thermal induced chemical dissolution to remove the material far below the melting temperature. Material removal during LCM with modulated laser power depends on the modulation frequency applied. The spatial frequency of the depth's oscillation corresponds to the spatial frequency of the laser power up to the threshold frequency. Above this threshold, the removal depth remains constant. The aim of this work is to investigate whether modulated laser power could be used for surface structuring and its influence on the wetting behavior. Therefore, line scans with different overlaps were generated to create a surface structure on titanium grade 1 using a rectangular function of the output power with frequencies below the threshold. In addition to the modulation frequency and the line overlap, the phase angle between two neighboring lines was also studied. Subsequently, a wide range of surface structures was achieved, including wavelike and braidlike structures. The wettability investigation highlighted the considerable impact of the line overlap on the wetting behavior of the surfaces produced. While higher overlaps caused an isotropic wetting, lower overlaps induced an anisotropic wetting. These results, thus, demonstrate for the first time the possibility of achieving anisotropic wetting behavior by LCM processing.

J. Laser Appl. 37, 012030 (2025) - <https://doi.org/10.2351/7.0001561>

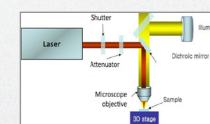
Other published presentations from this track:



CO₂ laser-assisted deposition of multilayer homogeneous TiO₂/SiO₂ nanocomposite films with varying refraction and absorption indices

Yahya Bougdid; Francois Chenard; Chandrika (John) Sugrim; Ranganathan Kumar; Aravinda Kar

J. Laser Appl. 37, 022027 (2025) - <https://doi.org/10.2351/7.0001628>



Enhancing mechanical properties of FDM 3D-printed parts with ultrafast laser postprocessing

Darshan Yadav; Ilya Mingareev

J. Laser Appl. 37, 022004 (2025) - <https://doi.org/10.2351/7.0001659>

Beam Shaping/Laser Macroprocessing

Beam shaping is emerging as a key trend in laser materials processing, enabling greater control, efficiency, and quality. While welding currently dominates its industrial applications, this track welcomes contributions across all macro-processing techniques - cutting, surface treatment, welding - as well as selected micro-scale studies where beam shaping plays a central role.

Chaired by Dr. Christian Hagenlocher and Gwenn Pallier



View this year's program at icaleo.org/program/

A look back at some of last year's peer-reviewed ICALEO presentations from the Beam Shaping/Laser Macroprocessing track that have been published in the Journal of Laser Applications!

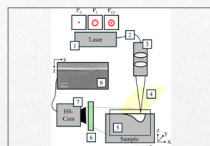
SCALING OF ULTRASHORT-PULSED LASER STRUCTURING PROCESSES FOR ELECTROMOBILITY APPLICATIONS USING A SPATIAL LIGHT MODULATOR

Christian Geiger; Alena Gruendl; Petr Hauschwitz; Ivan Tarant; Lucas Hille; Alessandro Sommer; Bolin Hou; Michael F. Zaeh

The structuring of lithium-ion battery (LIB) electrodes and the diffusion media (DM) for polymer electrolyte membrane fuel cells (PEMFCs) with ultrashort laser pulses enables improved performance characteristics of both technologies. However, the transfer of the approaches from a laboratory scale to a commercial use has previously been hindered by the low average output power of ultrashort-pulsed (USP) laser beam sources and the limited productivity of single-beam structuring using scanning optics. Recent advancements in the development of USP laser systems have led to a steady increase in the available output power, thereby enabling new fields of applications. This study aims at accelerating the USP laser structuring of LIB electrodes and DM for PEMFCs to industrially relevant processing rates by comparing a single-beam with a multibeam structuring process regarding ablation characteristics and quality. For the multibeam strategy, the shape of the laser beam was modified by a spatial light modulator (SLM). In addition to microholes, the insertion of microchannels was investigated to demonstrate the high flexibility of state-of-the-art SLMs. The geometry of the created structures was measured with a laser scanning microscope, and the different layers were tested for their geometrical and electrochemical properties to compare both technologies. The results confirmed that applying an SLM enables high-quality microstructures with significantly higher structuring rates. Furthermore, this contribution includes a theoretical analysis of the specifications required for a laser setup to reach an industrially relevant productivity of the structuring processes.

J. Laser Appl. 36, 042031 (2024) - <https://doi.org/10.2351/7.0001546>

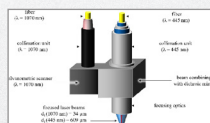
Other published presentations from this track:



Revealing the influence of ring-shaped beam profiles in high-speed laser beam microwelding by synchrotron x-ray imaging

Karen Schwarzkopf; Silvana Burger; Lova Chechik; Carola Forster; Markus Döring; Christoph Spurk; Marc Hummel; Alexander Olowinsky; Felix Beckmann; Julian Moosmann; Michael Schmidt

J. Laser Appl. 36, 042027 (2024) - <https://doi.org/10.2351/7.0001582>



Analysis of laser beam welding with superimposed 445 and 1070 nm wavelength lasers on copper by in situ synchrotron diagnostics

Christoph Spurk; Frederik Dietrich; Jan Brüggengjürgen; Marc Hummel; André Häusler; Alexander Olowinsky; Arnold Gillner; Felix Beckmann; Julian Moosmann

J. Laser Appl. 36, 042002 (2024) - <https://doi.org/10.2351/7.0001598>

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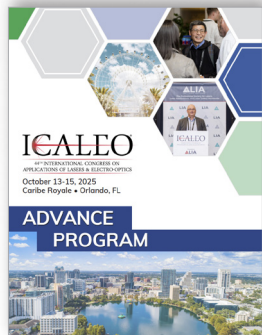
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Artificial Intelligence/Modeling/Monitoring

The AI/Modeling/Monitoring track at ICALEO 2025 showcases the latest advancements in intelligent and data-driven approaches to laser processing. Sessions will highlight innovations in artificial intelligence, modeling, and advance monitoring techniques that are transforming how laser processes are understood, optimized, and controlled. Discover how these technologies are working together to boost precision and efficiency in laser materials processing across industries.

Chaired by Prof. Carlo Holly and Dr. Kandice Barros Ribeiro



View this year's program at icaleo.org/program

A look back at some of last year's peer-reviewed ICALEO presentations from the Artificial Intelligence in Lasers track that have been published in the Journal of Laser Applications!

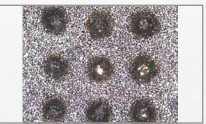
EVENT-BASED VISION IN LASER WELDING: AN APPROACH FOR PROCESS MONITORING

Patricia M. Dold; Praveen Nadkarni; Meiko Boley; Valentin Schorb; Lili Wu; Fabian Steinberg; Peter Burggräf; Ralf Mikut

Event cameras differ from conventional frame cameras: Rather than capturing images at a fixed rate, they asynchronously measure pixelwise brightness changes and stream an event sequence that includes time, location, and sign of the brightness changes. Event cameras provide attractive properties such as high temporal resolution and latency (both in the order of ms), very high dynamic range (120 dB), and low power consumptions because no routine operation needs to be recorded. Hence, event cameras have been successfully used, for instance, for object tracking, pose estimation, or image deblurring. Common in-process sensors for process monitoring in laser welding are photodiodes or high-speed frame cameras. Due to the described advantages of event cameras compared to these sensors, this paper for the first time investigates the potential of event cameras in laser welding. We present different promising ways to process the unconventional asynchronous output of event cameras for process monitoring, including time-series representations, as well as image representations. Our laser welding experiments show clear differences for different production scenarios in those event representations. Additionally, we propose a machine learning pipeline for the automatic detection of production errors with event camera.

J. Laser Appl. 37, 012040 (2025) - <https://doi.org/10.2351/7.0001526>

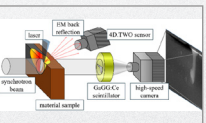
Other published presentations from this track:



Photodiode-based focus monitoring in ultrashort-pulsed laser structuring of graphite anodes for lithium-ion batteries

Pawel Garkusha; Benjamin Kasper; Christian Geiger; Christian Bernauer; Lovis Wach; Michael Kick; Michael F. Zaeh

J. Laser Appl. 36, 042055 (2024) - <https://doi.org/10.2351/7.0001565>



Analyzing multispectral emission and synchrotron data to evaluate the quality of laser welds on copper

Jan Brüggengjürgen; Christoph Spurk; Marc Hummel; Christoph Franz; André Häusler; Alexander Olowinsky; Felix Beckmann; Julian Moosmann

J. Laser Appl. 36, 032032 (2024) - <https://doi.org/10.2351/7.0001600>

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New ANSI Z136.7 for Testing and Labeling of Laser Protective Equipment



The newly revised ANSI Z136.7 (2025) has officially been released!

This standard provides reasonable and adequate guidance for consumers and manufacturers of laser protective equipment. It contains recommendations for testing and labeling laser protective materials and protective equipment such as eye protection, barriers, and windows designed for use with lasers and laser systems that operate at wavelengths between 180 nm and 106 nm.

Updates to the 2025 revision include testing of high energy laser saturation CW/Q-Switched, labeling of ultra-short and super continuum, and more.

Find these new standards, as well as the rest, on our website at lia.org/store

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Pro Tip

After adding your certification, create a post to share your achievement and tag the Board of Laser Safety on LinkedIn!

Remote Proctoring Available for BLS Exam

We are able to offer remotely proctored exams all year via appointment through ExamRoom.Ai, a Prov partner. Please note, international testing may be unavailable based on the country's current data privacy laws and US sanctions that are in effect.

Once a candidate is approved for a remotely proctored exam, candidates will receive email instructions for scheduling this exam through Prov.

More information can be found on lasersafety.org.

Write for BLS!

Looking for a way to earn BLS CM points for free? BLS is inviting CLSOs and CMLSOs to share laser safety knowledge with the laser community in it's newsletter! Published article submissions are worth 0.5 BLS Certification Maintenance (CM) points in Category 3. For more information on guidelines and regulations, email us at bls@lasersafety.org.

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Website: www.lasersafety.org

TIPS FOR RENEWING YOUR CLSO OR CMLSO CERTIFICATION

CLSO and CMLSO certificants are held to a high standard of professionalism, and that includes maintaining their working knowledge of laser safety through ongoing professional development. If your certification cycle ends on **December 31, 2025**, you have just four months remaining to complete the **10 BLS Certification Maintenance (CM) points** required for renewal.

Whether you are in this renewal cycle or planning ahead for the future, here are tips to stay on top of your certification requirements.

An Easy 6 CM Points

Many certificants already have **6 CM points** without realizing it:

- **Work Experience:** Up to **3 CM points** (1 per year) simply for serving as an LSO.
- **Memberships:** Up to **3 CM points** total for active membership in organizations such as LIA, ASSP, ASLMS, AORN, SPIE, AIHA, or HPS.

You may also have additional points from past activities:

- **Conferences:** Each day of attendance at ILSC® 2023 or 2025 was worth **1 CM point per day** (up to 4 total). The DOE LSO Workshop 2024 was worth **2 CM points**.
- **Publications:** Publishing an article related to laser safety in a peer-reviewed journal earns **1 CM point** per article (up to 3 per cycle). Non-peer-reviewed articles, such as newsletters, may be eligible for **0.5 CM points** each.
- **Presentations:** Delivering a laser safety presentation at a conference or workshop can earn **0.5 to 1 CM point** depending on length, with a cycle maximum of 2 points.
- **Standards Committees:** Participation on a national or international standards committee such as ANSI Z136 SDC or IEC TC 76 earns **1 CM point per year**, up to 3 per cycle.

Easy Ways to Earn More Points Before December

If you are still short on points, here are activities you can complete before the deadline:

- **Committee Work (up to 3 CM):** Volunteer with standards groups such as ANSI Z136 SDCs or IEC TC 76.
- **Teaching (up to 3 CM):** Deliver a laser safety course or guest lecture outside your normal job duties.
- **Publication of Papers (up to 3 CM):** Publishing a peer-reviewed paper as a primary author is worth 1 point, while publishing a non-peer-reviewed article is worth 0.5 points. Did you know if you publish an article with LIA Today you can claim CM points?
- **Other Professional Activities (up to 2 CM):** Contribute exam questions, serve as a proctor, read peer-reviewed journal articles on laser safety (up to 2 points per cycle), or volunteer as an Ask-the-Expert panelist.
 - **Peer-reviewed journal article** reading is self-reported and points are assigned based on the time spent reading. If you are a member of LIA, you have complimentary access to the Journal of Laser Applications.

Time to Renew

Staying on top of your certification not only keeps you in good standing with BLS, it also demonstrates your ongoing commitment to high standards in laser safety practice.

Action Step: Review your CM Worksheet today. If you're not at 10 points yet, make a plan to earn your remaining credits this fall, you still have time!

- **Renewal Fee:** \$155
- **Deadline:** December 31, 2025

For details, see the **Certification Maintenance Manual** at www.lasersafety.org or contact bls@lasersafety.org to request a free audit of your current CM points.

WANT TO SHARE YOUR IDEAS WITH THE LASER COMMUNITY THROUGH *LIA TODAY*?

LIATODAY

Check out the guest article guidelines below
and get in touch with an editor today!

BEFORE YOU SUBMIT:

Content: We are always looking for great newsworthy content that covers challenges and innovations in the field of photonic materials processing, laser safety, and laser market trends. This is not a paid opportunity, but does carry the benefit of publishing your work on a platform that is read by thousands of your peers. All article topics should be confirmed with an LIA TODAY editor before writing your article. Please email your article ideas to liatoday@lia.org and an editor will be in touch with you.

Potential Categories: Safety, medical applications, research and development, laser applications fundamentals, history, business, and other categories.

Potential Industries: Energy storage, aerospace, DoD non-aerospace, automotive, medical devices and biotechnology, microelectronics and IC fabrication, Internet of Things, research and development, and other industries.

SUBMISSION GUIDELINES:

Style: The tone should be editorial and informative; it should not sound like a sales pitch. It should be comprehensible by a broad audience of readers with low to expert experience with the topic, so it is important to include examples and simple explanations alongside any technical language.

Length: 600 - 1500 words

Text: Please use standard fonts such as Arial, Calibri, or Times New Roman. Fonts, font sizes, and line spacing will be reformatted by LIA for the final piece. Grammar and mechanics will be edited to the LIA style guide by LIA, but please be mindful of spelling and grammar as you are writing so that your message is clear.

Headline: Please include two newsworthy headlines suggestions for your article using action verbs.

Images & Figures: Please include images to be used with the article. Submit as an email attachment (PNG, GIF, JPG, JPEG) (min. 1000px in width or height). Images should also be placed in the body of the text where the author would like them to appear in the final article. All figures or images should include captions.

Deadlines: All material is due no later than two weeks prior to the scheduled publishing date. Check with an editor for your deadline.

Note: LIA reserves the right to abstain from publishing a submitted article for any reason.

SUBMISSION CHECK LIST:

- Full text as a Word Document
 - Abstract: A 50 – 100 word summary in plain language
 - Two (2) headline suggestions using an action verb
 - Article 600 – 1500 Words
 - Images with captions placed in the body of the article
 - Article references when applicable
 - Short author *bio* (full title, company, 50 words)
 - (optional) Professional headshot of author
- Images attached in one of the accepted file types (.png, .tiff, .jpeg, .jpg) (min. 1000px width or height).

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