

# LIA

# TODAY

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TOP 4 TRENDING  
ARTICLES

PG 9

LASER HOLOGRAPHY:  
CREATING THREE-  
DIMENSIONAL IMAGES  
WITH LIGHT

PG 10

DAVID BELFORTE – A  
GIANT IN THE FIELD OF  
INDUSTRIAL LASERS,  
BUT MUCH MORE!

PG 14



# LIA TODAY

THE OFFICIAL NEWSLETTER OF LIA

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

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

Check out the latest industry articles that were rated the highest by LIA's social media followers.

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### LASER HOLOGRAPHY: CREATING THREE-DIMENSIONAL IMAGES WITH LIGHT

By, Cort Honey

Laser holography, the art of creating three-dimensional wonders using light, opens the doors to a mind-boggling visual journey. Holography has fascinated us for a long time, but it's lasers that make holography an exceptional way to accurately model detailed three-dimensional objects.



### DAVID BELFORTE — A GIANT IN THE FIELD OF INDUSTRIAL LASERS, BUT MUCH MORE!

By, Ronald D. Schaeffer, Ph. D.

A wonderful tribute to the late David Belforte, written by Ronald Shaeffer, Ph.D. along with a collection of memories from colleagues and friends.

The acceptance and publication of manuscripts and other types of articles in LIA TODAY does not imply that the reviewers, editors, or publisher accept, approve, or endorse the data, opinions, and conclusions of the authors.

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# LIA Laser Safety Trainings

## LASER SAFETY OFFICER TRAINING

Orlando, FL	Feb. 22 - 24, 2023
New Orleans, LA	Apr. 19 - 21, 2023
Denver, CO	Aug. 15 - 17, 2023
Orlando, FL	Nov. 8 - 10, 2023

## LASER SAFETY OFFICER WITH HAZARD ANALYSIS

Orlando, FL	Feb. 27 - Mar 3, 2023
New Orleans, LA	Apr. 24 - 28, 2023
Denver, CO	Aug. 21 - 25, 2023
Niagara Falls, NY	Sep. 25 - 29, 2023
Orlando, FL	Nov. 13 - 17, 2023

## MEDICAL LASER SAFETY OFFICER TRAINING

Orlando, FL	Feb. 25- 26, 2023
Minneapolis, MN	May 6 - 7, 2023
Virtual, Zoom	July 15, 2023
Denver, CO	Aug. 18 - 19, 2023
Virtual, Zoom	Oct. 21, 2023
Orlando, FL	Nov. 11 - 12, 2023

## INDUSTRIAL LASER SAFETY OFFICER TRAINING

Novi, MI	Feb. 15 - 16, 2023
Novi, MI	May 17 - 18, 2023
Novi, MI	Aug. 9 - 10, 2023
Novi, MI	Nov. 1 - 2, 2023

## Course Highlight

### CALCULATING LASER SYSTEM HAZARDS VIRTUAL, ZOOM - DECEMBER 16,18, 20, 2023

This highly requested course is now available to you from the comfort of your home as a live, web-based training option. Over the span of two days, students will learn how the ANSI Z136.1 standard is used to quantify the hazard of a laser system. It will cover computing the Maximum Permissible Exposure (MPE) for various laser types, comparing actual laser exposure to the MPE, computing the Nominal Ocular Hazard Distance (NOHD), determining the Optical Density (OD) required to protect from a laser system, and it will provide a general overview on how lasers are classified.

Emphasis will be given to understanding how various tables are used to compute the MPE. Examples will be detailed and include discussions of the equations that are used to evaluate hazards, how they are used, and where they come from. Space is limited, so reserve your seat today!

In addition to the working knowledge you will gain, you will earn 1.5 BLS CM Points by the Board of Laser Safety upon completion of the course.



Henrikki Patsar  
LIA President 2023

## PRESIDENT’S MESSAGE

As we are heading towards the end of the summer there’s still (hopefully) some good weather ahead of us to enjoy. We are also placing an order for a nice Indian summer this fall to have great weather in Chicago during the ICALEO conference. I hope it will be delivered on time. With the leadership of Klaus Loeffler, the conference is turning out to be a great one with a lot of technical content, and as always lot of networking, the Laser Institute of America annual meeting and awards luncheon and evening events. This year we are especially excited about the Factory Tours on Thursday with the opportunity to visit Bystronic, DMG-MORI and TRUMPF facilities and see the global leaders in machine tools. I look forward to seeing all of you in Chicago!



Gilbert Haas  
Interim Executive Director

## EXECUTIVE DIRECTOR’S MESSAGE

I hope all is well with you and you are enjoying the summer. At the LIA, everything is running well and the organization is healthy. We are currently re-organizing current and new resources to better suit the organization. The internal strategic plan is being updated to accommodate the new resources to suit the goals of the LIA. We are looking forward to this fall and ICALEO where we can all get together again.

In the meantime, the Board of Trustees is working through several scenarios to find the best solution for the open Executive Director’s position. They are planning on communicating the board’s decision at ICALEO and the annual meeting.

We look forward to seeing you all of you at ICALEO this fall. Also, please help to spread the word and feel free to contact me directly anytime if you have any questions.



### Welcome New Corporate Member

Santa Barbara Infrared

To find out more about becoming a corporate member, email [membership@lia.org](mailto:membership@lia.org) or visit [lia.org/membership/corporate](http://lia.org/membership/corporate).

A Look Ahead at Upcoming Laser Industry Conferences!

- 1. Photonics West - Jan 28-Feb 2, 2023 (San Francisco, CA, USA)
- 2. MD&M West - Feb 7-9, 2023 (Anaheim, CA, USA)
- 3. ILSC - Feb 27-Mar 2, 2023 (Portland, OR, USA)
- 4. AORN - April 4-5, 2023 (San Antonio, TX, USA)
- 5. RAPID + TCT - May 2-4, 2023 (Chicago, IL, USA)
- 6. ETOP - May 15-18, 2023 (Cocoa Beach, FL, USA)
- 7. FABTECH Mexico - May 16-18, 2023 (Mexico City, Mexico)
- 8. FABTECH Canada - June 11-13, 2023 (Toronto, OT, Canada)
- 9. ALAW - June 13-15, 2023 (Plymouth, MI, USA)
- 10. Laser World of Photonics - June 27-30, 2023 (Munich, Germany)
- 11. FABTECH - Sept 11-14, 2023 (Chicago, IL, USA)
- 12. ICALEO, Oct. 16-19, 2023 (Orlando, FL, USA)

Cooperating Conferences



LIA is proud to be the on site Laser Safety Officer for the 3 international Fabtech conferences again this year.



CHICAGO, IL  
OCTOBER 16-19, 2023

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**LIA**  
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ICALEO®

See you in Chicago, IL!

The International Congress on Applications of Lasers & Electro-Optics (ICALEO), brings together the leaders and experts in the field of laser material interaction, providing the world's premier platform for sharing new ideas and discovering solutions. We are excited to welcome you back to Chicago, Illinois for 2023!

Chicago is bursting with world-class, big city culture. But at its heart, it's a Midwestern city — which means a warm welcome and genuine hospitality. No matter who you are or what you love, you'll fit right in exploring famed restaurants, world-renowned museums, a jaw-dropping waterfront, groundbreaking music, Tony Award-winning theatres, iconic architecture designed by legendary architects, and over 300 parks and green spaces.



The Palmer House Hilton

We hope to see you at this year's in-person event at the beautiful Palmer House Hilton Hotel. A timeless Chicago hotel, Palmer House offers historic charm with hip conveniences, comprehensive amenities, award-winning dining, and gracious service.

Located in the downtown area, the historic Palmer House hotel gives attendees plenty to explore and experience both within the hotel and within walking distance right outside the door. When you book through ICALEO your guest room internet access is included at no additional charge. Additionally, staying onsite provides you with easy access to network with your LIA friends and fellow conference attendees.



Sunday, Oct 15

Welcome Reception

Monday, Oct 16

Running Club  
Opening Plenaries  
Technical Sessions  
President's Reception

Tuesday, Oct 17

Running Club  
Technical Sessions  
Business Session  
Poster Gallery  
Exhibitor Reception

Wednesday, Oct 18

Running Club  
Technical Sessions  
Awards Luncheon  
Closing Plenaries  
Ice Cream Social

Thursday, Oct 19

Factory Tours  
After 3 days of sessions, it's time to explore the fascinating world of manufacturing by visiting 3 local factories on Thursday. This extraordinary opportunity to go behind the scenes of manufacturing includes stops at the TRUMPF Smart Factory, DMG Mori, and Bystronic! Get a chance to witness cutting-edge technologies, gain new perspectives, and engage with industry experts as you visit each of these facilities.

Agenda is subject to change.

ICALEO@LIA.ORG

ICALEO.ORG



## Department of Labor announces rule expanding submission requirements for injury, illness data provided by employers in high-hazard industries

WASHINGTON, DC – The U.S. Department of Labor today announced a final rule that will require certain employers in designated high-hazard industries to electronically submit injury and illness information – that they are already required to keep – to the department's Occupational Safety and Health Administration.

The [final rule takes effect on Jan. 1, 2024](#), and now includes the following submission requirements:

- Establishments with 100 or more employees in certain high-hazard industries must electronically submit information from their Form 300-Log of Work-Related Injuries and Illnesses, and Form 301-Injury and Illness Incident Report to OSHA once a year. These submissions are in addition to submission of Form 300A-Summary of Work-Related Injuries and Illnesses.
- To improve data quality, establishments are required to include their legal company name when making electronic submissions to OSHA from their injury and illness records.

OSHA will publish some of the data collected on its website to allow employers, employees, potential employees, employee representatives, current and potential customers, researchers and the general public to use information about a company's workplace safety and health record to make informed decisions. OSHA believes that providing public access to the data will ultimately reduce occupational injuries and illnesses.

"Congress intended for the Occupational Safety and Health Act to include reporting procedures that would provide the agency and the public with an understanding of the safety and health problems workers face, and this rule is a big step in finally realizing that objective," explained Assistant Secretary for Occupational Safety and Health Doug Parker. "OSHA will use these data to intervene through strategic outreach and enforcement to reduce worker injuries and illnesses in high-hazard industries. The safety and health community will benefit from the insights this information will provide at the industry level, while

workers and employers will be able to make more informed decisions about their workplace's safety and health."

The final rule retains the current requirements for electronic submission of information from Form 300A from establishments with 20-249 employees in certain high-hazard industries and from establishments with 250 or more employees in industries that must routinely keep OSHA injury and illness records.

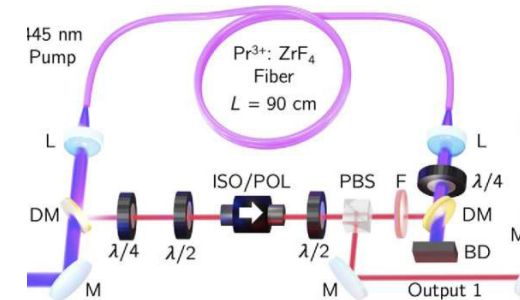
The announcement follows proposed amendments announced in March 2022 to regulations for requiring specific establishments in certain high-hazard industries to electronically submit information from their Log of Work-Related Injuries and Illnesses, and Injury and Illness Incident Report.

Original Release: July 17, 2023

Source: <https://www.osha.gov/news/newsreleases/national/07172023>

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

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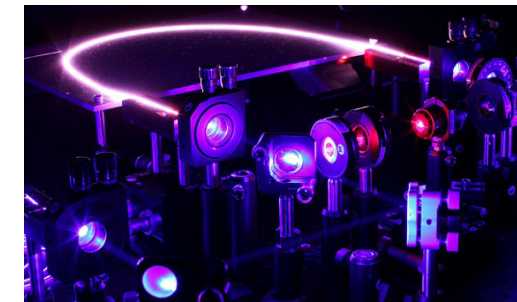


### RESEARCHERS DEMONSTRATE FIRST VISIBLE WAVELENGTH FEMTOSECOND FIBER LASER

Researchers have developed the first fiber laser that can produce femtosecond pulses in the visible range of the electromagnetic spectrum.

[Read more](#)

2

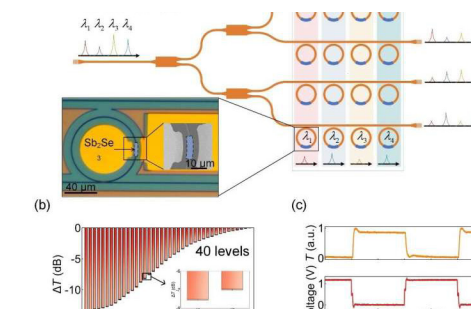


### FEMTOSECOND FIBER LASER USHERS IN NEW CLASS OF VISIBLE SOURCES

Researchers from Laval University reported the development of the first fiber laser that can produce femtosecond pulses in the visible range of the electromagnetic spectrum

[Read more](#)

3

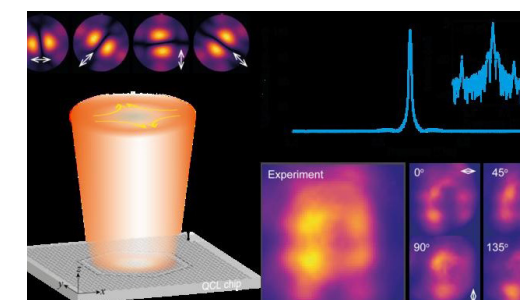


### HARNESSING THE POWER OF LIGHT: ADVANCEMENTS IN PHOTONIC MEMORY FOR FASTER OPTICAL COMPUTING

Researchers have developed a 5-bit photonic memory capable of fast volatile modulation and proposed a solution for a nonvolatile photonic network supporting rapid training.

[Read more](#)

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### COMPACT, SINGLE-MODE THZ QCLS GET BOOST FROM BICS

A team at Nanyang Technological University developed an electrically pumped, topological, bulk quantum cascade laser that operates in the terahertz frequency range

[Read more](#)

# Laser Holography: Creating Three-dimensional Images with Light

Written by, Cort Honey

Laser holography, the art of creating three-dimensional wonders using light, opens the doors to a mind-boggling visual journey. Holography has fascinated us for a long time, offering a way to capture objects in three dimensions. But it's lasers that make holography an exceptional way to accurately model detailed three-dimensional objects.

## How Does Laser Holography Work?

[Holography](#) relies on two important phenomena: interference and diffraction. When coherent light waves meet, they create patterns of light and dark called interference fringes. These patterns hold the key to capturing the object's appearance in three dimensions.

First, the laser source emits a focused beam of light with specified properties. Then, the beam splitter splits the laser beam into two parts. One part, known as the reference beam, goes directly to the recording medium. The other part called the object beam illuminates the object and captures its details. This is then recorded onto a recording medium.

To reconstruct the recorded object, the reference beam shines onto the recorded interference pattern, allowing the object's image to emerge. This brings the recorded object to life as a detailed three-dimensional projection. By using holography, the object can be viewed from different angles giving an additional sense of depth and realism.

## Applications of Laser Holography

From enhancing optical systems and performing non-destructive testing to storing data efficiently, laser holography has practical uses in a variety of industries and sciences.

### Holographic Optical Elements

[Holographic optical elements](#) (HOEs) employ the principles of holography to manipulate and control light with remarkable precision. HOEs are designed to control the behavior of light, shaping its path, focus, dispersion, or diffraction, among other optical functions. They are created by recording interference patterns generated by laser light onto a photosensitive material using the hologram recording process.

When light passes through or interacts with an HOE, the encoded interference pattern diffracts the light, causing it to behave in specific ways. For example, an HOE designed as a lens can focus or shape light beams, similar to traditional lenses, but with additional flexibility and capabilities.

By precisely engineering the interference pattern during the hologram recording process, an HOE can exhibit complex and customized light manipulation properties. This versatility allows HOEs to replace multiple conventional optical elements, reducing complexity, size, and weight in optical systems.

### Holographic Interferometry

[Holographic interferometry](#) is a powerful technique used for precise measurements and non-destructive testing. By utilizing holography to capture and analyze subtle changes in interference patterns, holographic interferometry unveils crucial insights into deformation, vibration, and surface imperfections.

Engineers, material scientists, and researchers in various fields leverage holographic interferometry. It allows them to gain a deeper understanding of structural behavior, material response under stress, and the intricate dynamics of biological systems. This technique serves as a valuable tool for evaluating structural integrity, optimizing design parameters, and advancing scientific research in numerous disciplines.

### Data Storage

Holography has also made significant strides in the realm of data storage. [Holographic data storage](#) (HDS) presents an alternative approach to conventional storage methods, overcoming their limitations.

HDS leverages the immense information-carrying capability of holograms to store large volumes of data in a three-dimensional format. By employing multiple layers and utilizing volumetric storage, HDS systems can achieve storage densities that far surpass traditional methods. This opens up possibilities for storing extensive archives of high-definition videos, complex scientific datasets, and immersive virtual reality experiences.

Moreover, HDS excels in data retrieval rates, making it well-suited for applications that demand rapid access to substantial



*Laser hologram of planets at the Oslo festival.*

*"From enhancing optical systems and performing non-destructive testing to storing data efficiently, laser holography has practical uses in a variety of industries and sciences."*

datasets. While still evolving, HDS holds the promise of transforming data storage capabilities and addressing the escalating demands for storing and accessing vast amounts of information.

Recent Advancements in Laser Holography

In recent years, laser holography has witnessed remarkable progress.

Computer-Generated Holograms

Computer-generated holograms can now be synthesized quickly, enabling high-quality holographic displays. This speed also enables real-time hologram creation using computer-integrated liquid crystals and transducers.

Holographic Data Storage

Another area of advancement is holographic data storage, which holds the potential to surpass traditional methods. Researchers have made significant strides in storing vast amounts of data in materials like photopolymers and crystals. However, efficient data rewriting is an ongoing challenge.

Components in Various Applications

Beyond public visibility, holograms play a crucial role in various applications. Security holograms continually evolve to combat counterfeiting, safeguarding valuable assets. Holographic elements enhance aircraft displays, improve automotive lighting, and enable accurate barcode scanning. They also find utility in detection instruments by interacting with chemicals to detect changes in optical properties.

Limitations and Challenges with Laser Holography

While laser holography has made impressive progress, it's important to recognize the limitations and challenges that come with this captivating technology.

Computational Complexity

Creating high-quality holograms still requires complex calculations that demand a lot of computing power. Real-time rendering of dynamic holographic scenes is especially challenging due to the computational requirements. Improvements in algorithms and hardware acceleration are needed to achieve real-time holographic displays that can be widely used.

Material Constraints

The materials used for recording and displaying holograms have their limitations. Traditional holographic films may have issues with durability, resolution, and long-term stability. Digital holography using sensors and displays offers advantages, but challenges remain in areas like pixel density, color accuracy, and optimal viewing angles. Developing materials with better properties, such as higher resolution and improved stability, is crucial for advancing holographic technology.

Manufacturing and Cost

Making holographic technology widely accessible faces challenges in manufacturing and cost. Mass-producing high-quality holographic elements and devices at an affordable price is still a hurdle. Overcoming these challenges and achieving economies of scale are necessary to bring holography into everyday use across industries.

Laser holography stands as a testament to the remarkable advancements in light-based technology and the immense potential it holds. Through the fusion of computers and holograms, this field offers the potential to advance everyday technologies and aid in new discoveries.

It goes beyond the arts and offers real-world use cases in a variety of industries and can help scientists take accurate measurements in a non-destructive manner. While challenges persist, researchers and innovators remain dedicated to overcoming them.



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# David Belforte – A Giant in the Field of Industrial Lasers, but Much More!

By Ronald D. Schaeffer, Ph. D. – CEO, HH Photonics

*Along with a collection of memories from colleagues and friends*

I joined Spectra Physics in 1985 right out of Graduate school and one of the first laser periodicals I remember reading was Industrial Laser Review (first issue in June 1986) published by a guy named David Belforte. At the time it was pretty much the only industrial laser publication available and it was mostly centered on Dave's contacts and industrial knowledge. ILR was picked up by Pennwell and turned into Industrial Laser Solutions (ILS), a monthly, stand-alone publication that Dave ran, and only Dave ran, until just a year or so ago when it was folded into Laser Focus World.

Dave was involved in the laser industry ever since Maiman actually built the first laser on 16 May, 1960, having been employed at Raytheon since March 1957 (4 months before I was born!). His life [CHRONOLOGY](#) is a study in the development and history of industrial lasers. During his 5+ decades of service to the industry, he accomplished numerous 'firsts' including:

June 1961	Co-inventor of pyrolytic boron nitride
May/June 1975	First introduction of laser sheet metal cutting into North America
May 1977	Introduction of high power laser hardening
January 1980	Introduced the first joining of heavy section pipe
November 1981	Organized and produced the first joint US/Japan laser processing conference, the predecessor to ICALEO
April 1985	Organized and produced the first international conference on laser robots
March 1986	First handbook on industrial laser material processing
June 1986	Founded the first monthly international publication on industrial laser material processing, predecessor to Industrial Laser Solutions
January 1987	Published first review of the international industrial laser market

I thought I had a pretty impressive publishing resume with almost 200 technical publications. Dave's 25 PAGES of [PUBLICATIONS](#) dwarfs mine by a long shot!

When I left Graduate School my dear old Professor was not happy that I chose to go in an industrial direction, preferring instead that I would have pursued Academics. So I made a pledge to him that as long as I was working in the laser field I would try to publish on relevant topics as much as I could so that my graduate work wouldn't 'go to waste'. Early in my career I was invited to do a panel discussion at some technical conference where the four panelists were myself, Dave, Dr. Andy Tam (IBM) and Dr. Marshall Jones (GE) – all but myself already icons in a young industry. I was the 29 year old Kid straight out of college, but they all treated me with a great deal of respect and we all got along well. From then I badgered Dave occasionally about publishing articles in his rag,

but he would politely say that his schedule was full, or he'd keep me in mind for the future or something ..... I should also point out that at

the time I was working almost exclusively with excimer lasers, and ILR/ILS was more concerned with red laser processing, so my topics were not really of great general interest at the time! Finally Dave called me and asked me if I could throw something together in a couple days as he had a last minute cancellation. Oh Boy ... this was my chance! By this time (Dec. 1996), I had published about 15 articles in other publications, so I was already pretty active and I had material ready. I gave Dave an article, it was well received by his readers, and we were off to the races. Over the years I did dozens of articles, webinars, seminars, classes and invited talks in some form of collaboration with Dave.

It was Photonics West 2004 where I ran into Dave at lunch time and we sat down and talked for the first time as just the two of us. We talked about our Army days (I had not known before this that Dave was in the Army). We talked about Music and Dave told me he had been a drummer in his early life and that his wife Virginia had never even heard him play the drums. He was a music lover with a primary interest in Big Bands. In his youth and later in life he played drums in amateur bands. While in the Army he was a founding member of the Fort Monmouth Signaleers Drum and Bugle Corps that won championship recognition in New Jersey. We found we had a lot in common despite the 25 year age difference.



Figure 1: Dave the Soldier

A little about Dave the Soldier (Figure 1)! Dave served in the U.S. Army during the closing period of the Korean War and the subsequent Cold War (1953-55) and was a graduate of the Army Signal School in Monmouth, New Jersey (1953) and the Ordnance School in Aberdeen, Maryland (1954). He served with the 1st Army at Fort Totten, Bayside, NY, and Camp Hero, Montauk, NY. He was honorably discharged in --1963 after completing active and reserve duty for his country. For this, he was recognized by the United States and Commonwealth of Massachusetts governments, the Veterans of Foreign Wars, and the American Legion. Dave also had a large collection of primarily WWII unit patches and books.

I met David Belforte in the late 1970's via LIA. He was considered a giant in the laser field even then. I was just being introduced to CO2 lasers at the time. Dave invited me to visit a laser company in the Boston area that he had connections with. That visit was an eye opener for me. Dave introduced me to the "abc's" of CO2 lasers there. He was a great teacher! During my visit at this laser company, I also met Stan Ream which helped with my network in the laser field. I was always appreciative of Dave's writings that kept the laser folks abreast of what was going on in the industrial laser field worldwide. David Belforte will be missed.

Marshall Jones

I didn't really get to know David until late in his career, however, he was the "godfather" of laser materials processing publishing for the masses that brought laser technology news to both laser and non-laser people in industry in a way that journals could never do. I'm not sure when the original Industrial Laser Solutions magazine started but as a young engineer its arrival was always highly anticipated, especially the start of year marketplace edition. Frankly it was a sad day when it was taken over.

Geoff Shannon



Figure 2: Beer's Law Band

So, here is where it ties into the LIA! At the time LIA was looking to save money at ICALEO and I suggested that instead of paying for entertainment at the opening reception, I would do a guitar gig and maybe a few others could join in as we do have a lot of very talented people in the laser industry. There was indeed a lot of skepticism at the LIA, but when I enlisted Dave to play drums nobody dared to complain. Thus was born the "Beer's Law Band". At ICALEO 2004 the Beer's Law Band first appeared live with Dave on drums, Lenny Migliore on keys and Tom Corbolini on Bass (Figure 2). We played at a hotel in San Francisco and had to wait for the 49er's to finish their team meeting before we could set up, which tickled Dave to no end. Dave later bought a drum set for his home so he could play around

and we did a few small parties together over the years including one over the Holidays at the beautiful Sturbridge Village near their home.

I traveled with Dave a few times to the AKL Conference in Aachen, Germany where he always gave an invited talk. This conference has a famous dinner on Wednesday night in the Coronation Chamber of Charlemagne (or Charles the Great or Karl der Grosse depending on your choice of language) and when I was with Dave I was always at one of the head tables, but when on my own I had to bring opera glasses to see the stage. Hah! Yes, he was a great guy to hang around. People I met just assumed I knew about lasers if he introduced me to them. He definitely had a presence.

Dave and Ginny would visit our Farm in NH at least once or more per year and we would likewise visit Sturbridge. Dave really enjoyed picking and eating the fresh produce and his eyes lighted up when we gave him homemade peach and berry preserves. Dave never met a jar of homemade peaches he didn't love – he would usually open the jar immediately upon receipt. But his real passion was Hostas. There are over 500 varieties at his Sturbridge home which he and Ginny have collected and cultivated over the years. He was active and well known in the American and New England Hosta societies.

During about the 2016-2020 time frame I collaborated with Dave on market forecasts, meaning he put together 80% of the talk and I just presented it somewhere, usually in the US or Europe. Since I was doing a lot of traveling at the time it worked out better for Dave to stay home anyway, but the real reason wasn't related to his health at all. The magazine had been bought out by a cheap skate company and there was no travel budget. Everybody kept asking me, "How is Dave?", "Where is Dave" and I told them that he is fine, just not traveling. I even made up a "Where's Dave/Waldo?" slide that I used in some of my presentations for chuckles (Figure 3). Of course Covid hit in February 2020 and since



Figure 3: "Where's Dave?"

then there have been no presentations or collaborations, but again, not because Dave has not been active, but because things have changed in the industry. However, I talked lasers with Dave a couple weeks before he took ill and I can assure everyone that he was still thinking about lasers and the industrial market all along.

David Belforte changed my life. When I entered the fledgling world of laser materials processing in the early '70s, there was no "community" of participants. Instead, there was just a small handful of distant competitors. At AVCO Everett Research Laboratory I worked for Dave, and he took me to my first laser conference (a precursor to ICALEO), where I watched him "work the crowd". He knew the players, and they respected him. And, it was especially rewarding to see for the first time just how advanced our AERL laser technology really was. It was a proud moment, Dave was at the heart of it, and he inspired me to dive in deep. For the rest of his remarkable life he continued to grow and nurture the industrial laser community through conferencing, organizations, consultation, writings, and friendships. He was truly the leader of our community, and we all miss him.

Stan Ream

His dedication to his craft is exemplified by his writing of his own [OBITUARY](#), found on his computer by his Son. This amazing document lists Dave's accomplishments and his life's journey as he saw them. The first paragraph holds I think one of the keys to Dave's success – he met his wife Virginia, Ginny very early in life and took the whole journey with her (Figure 4). Everyone in the laser industry remembers Dave and Ginny as a coordinated team, consummate professionals and also really great people. I am sure Dave is watching closely as Ginny tends the Hostas.

Sail on, Dave.

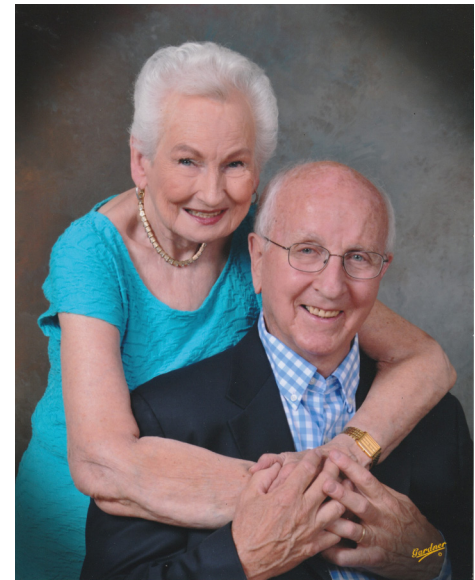


Figure 4: Dave and Ginny

#### Bo Gu

The last time I saw David was on July 8, 2022 after COVID lockdown . We met for lunch at one of his favorite local restaurants—The Public House (as the local call it) in Sturbridge, MA. (Figure 1). We had a very stimulating and mentally challenging review of the start of industrial laser activities in the Sturbridge area (circa 1970 and beyond). And of course, the conversation naturally led to the past and current status of global industrial laser technology and market. David has been the voice and authoritative figure on industrial laser market for decades. People looked up to him for the market numbers and trends. He was always very keen on supporting, helping, and guiding young people professionally.

I remember when I started the very first "Chinese Laser Market Summit" in 2014, I called David to invite him to be the keynote speaker and he accepted it without any hesitation. David's presence made this inaugural executive forum very successful (Figure 2). Later on, David asked me to be one of the editorial board members for *Industrial Laser Solutions*, I had the honor to write a few articles for him and I was so impressed with his editorial insights and skills.

The laser industry lost a giant and I will miss David dearly.



Figure 1: David and I had lunch together at one of his favorite local restaurants—The Public House ( as the local call it) in Sturbridge, MA on July 8, 2022.



Figure 2: David Belforte gave a keynote presentation on "Global industrial laser market and applications" at " The First Chinese laser market summit" in Shanghai, China on March 2014..

# NEWSLETTER

Volume 4 • Issue 1

## Final Year to Utilize Extension Year

In 2020, the Board of Laser Safety (BLS) introduced a new extension year policy with the objective of offering additional time to Certified Laser Safety Officers (CLSOs) and Certified Medical Laser Safety Officers (CMLSOs) for the accrual of BLS Certification Maintenance (CM) points amid the prevailing circumstances of the COVID-19 pandemic. With the majority of travel restrictions now lifted, BLS will be reverting to our 2019 renewal policy and retiring the extension year policy.

The final cohort eligible to utilize the extension year option will be CLSOs and CMLSOs whose certification cycles end on December 31, 2023. Beginning January 1, 2024, the extension year will no longer be available, and the grace period policy will be reintroduced.

Beginning in 2024, individuals who fail to submit their CM worksheets by December 31 of the third year of certification will be permitted to submit late documentation during the grace period with no late fees. Submissions of CM worksheets beyond the January 31 grace period will be accepted until May 31 of the year following the third year of certification, subject to a \$55 late fee. No CM worksheets will be accepted after May 31. Per our policy, BLS CM points may only be earned during the individual's active certification cycle and cannot be earned during or after the grace period.

## 2024 Fee Adjustments:

The grace period begins January 1 and ends January 31 following the third year of certification.

Beginning in 2024, an adjustment will be made to the BLS renewal and exam fees in order to offset the effects of inflation on operating costs, as these fees have not been increased since 2016. We hope that early notification of this adjustment will assist you as you plan for your fiscal year budgets. The 2024 fee schedule is as follows:

- **Renewal Fee\*:** \$165 (Due the third year of

certification with CM worksheet)

- **CMLSO Exam Fee:** \$225
- **CLSO Exam Fee:** \$325
- **Application Fee:** \$55
- **Late Fee\*:** \$55
- **Rescheduling Fee:** \$55

\* Note that those whose certification cycles expire December 31, 2023 who renew during the grace period will pay the 2023 renewal fee. Those who expire December 31, 2024 will be subject to the new renewal fee. If you have questions, please do not hesitate to contact our office.

## Renewals Due December 31, 2023:

BLS is now accepting renewal applications for those who are currently in the third year of their certification cycle, which expires on December 31, 2023. There are three months remaining to earn BLS CM points, so we highly encourage CLSOs and CMLSOs who plan to renew this year to either submit their worksheets early to determine if there is a need to earn additional points before the deadline or to apply for the final available extension year. Below are some tips to make renewal as stress-free as possible:

### Tips for renewal:

**Set Calendar Reminders.** BLS sends email reminders to renew as a courtesy, but if a reminder goes to spam or bounces because it went to an old email address, you are still responsible for keeping track of your own expiration date and submitting your paperwork on time. Set appropriate reminders to ensure you don't miss the deadline!

**Plan Your Points.** Don't get caught off guard. Let us pre-approve your points early to ensure that they can be counted toward your renewal. You can reach out to us during your 3-year cycle to confirm that the CM points you plan to claim will be accepted. We are happy to help you identify areas where you can earn points so that you are not scrambling a week before the deadline to earn your 10 CM points.

**Documentation.** BLS requires the submission of evidence of the points that are being claimed. Below are some of the most common CM points that are claimed and the type of documentation that you may wish to submit for each:

- **Job** - (1 CM per year, maximum 3 CM)

If you are acting as an LSO at your job, you can claim points for each year. You'll need to submit a letter or email to us from a supervisor or HR confirming your role and the dates you have been in that role.

- **Membership** - (1 CM per year, maximum 3 CM)

If you are a member of one of the [pre-approved organizations](#) on our list, you can earn 1 point per year, up to the maximum. You'll need to submit either your membership card, membership certificate, email confirmation of membership, or receipts showing paid membership dues.

- **Subcommittee Membership on Z136** - (1 CM per year, maximum 3 CM)

You can earn 1 CM point per year of active participation on the Z136 Committee or any of its subcommittees. Please provide a letter from the subcommittee chair or from the secretariat confirming your membership dates.

- **ILSC or DOE LSO Workshop** - (1CM per full day of attendance, maximum 4 CM)

Conferences where all sessions are focused on lasers or non-ionizing radiation can be claimed for 1 CM point per full day of attendance. Note that conferences that are not fully laser-related are worth fewer points based on a different scale that can be found in the [CM Point Manual](#). A certificate of attendance is the best type of documentation to keep for these events. In the absence of a certificate, a copy of your conference registration may also suffice.

- **Journal Article Reviews** - (0.25 CM points per 1 hour of reading for a maximum 2 CM)

You can read peer-reviewed journal articles about laser applications or laser safety and claim points

using the [Journal Article Verification Worksheet](#). You must have a supervisor sign off on the number of hours you read. You do not need to include copies of the journal articles, you only need to submit the signed and completed worksheet. Members of LIA have complimentary access to the [Journal of Laser Applications](#), which also includes some open-access articles that are free to read.

**Renewal Process Overview.** Is this your first time renewing? Check out this helpful video: <https://www.youtube.com/watch?v=iBm4Xgqgm24>

## Write for BLS!

Looking for a way to earn BLS CM points for free? BLS has restarted it's newsletter and is inviting CLSOs and CMLSOs to share laser safety knowledge with the laser community! 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](mailto:bls@lasersafety.org). Check out our first submission on the next page!

## About BLS



The mission of the Board of Laser Safety (BLS) is to provide a means for the recognition of laser safety professionals through certification and to promote competency in the field of laser safety. BLS certification will enhance the credibility of a designated Laser Safety Officer, and demonstrate that individuals serving in the field have agreed to adhere to high standards of safety and professional practice. For the employer, having a CLSO or CMLSO on staff demonstrates due-diligence and helps to ensure legitimacy and adequacy of the laser safety program, validating the company's dedication to a safe working environment for all employees.

Telephone: +1.407.985.3810 • Email: [bls@lasersafety.org](mailto:bls@lasersafety.org) • Website: [www.lasersafety.org](http://www.lasersafety.org)

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

**LIA**TODAY

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](mailto: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).

[VIEW SUBMISSION FORM](#)