LIA TODAY

VOLUME: 30 NO: 6 | NOV/DEC 2022

LIA
THE LASER INSTITUTE

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.

ISSN 2690-5981

9

OSHA TO HOLD ONLINE MEETING OF THE NATIONAL ADVISORY COMMITTEE

The U.S. Department of Labor's Occupational Safety and Health Administration will hold an online meeting of the National Advisory Committee on Occupational Safety and Health which will be open to the public.

12

REMEMBERING DR. SILKE PFLUEGER

Friends of the late Dr. Silke Pflueger, Nina Lanza and Neil Ball, share a few memories from their experiences with her. Dr. Silke Pflueger played a big role for the Laser Institute and the industry as a whole.

FEATURES

Catch up on all past issues!

https://www.lia.org/subscriptions/lia-today

17

BLS: APPLY FOR AN EXTENSION YEAR

The Board of Laser Safety provides information on what to do to apply for an Extension Year if you have not earned enough Certification Maintenance Points at the end of your renewal cycle.

BLS NEWSLETTER

ADVERTISERS

FOLLOW US!

Visit www.lia.org/subscriptions to sign up for our social media outlets.

Managing Editor: Jana Langhans - jlanghans@lia.org

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
Denver, CO	Aug. 18 - 19, 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

Interested in virtual laser safety training? We will be adding more dates to the calendar for our virtual, instructor-led Medical Laser Safety Officer training soon! Check back at lia.org or email courses@lia.org for more information on when these will become available!

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

Nat Quick
Executive Director

EXECUTIVE DIRECTOR'S MESSAGE

Hello Everyone,

As we move into the new year, I think back on some of the achievements that we have accomplished during the pandemic. LIA weathered the storm and even managed to have an ICALEO conference in person for the first time since 2019. It was wonderful to see so many of you in person again. I am proud of our industry and its resilience during this challenging time. As we move forward, I cannot help but be excited by the opportunities this year will bring to LIA and its membership.

LIA will kick the first part of the year off with our International Laser Safety Conference (ILSC) from February 26th - March 2nd in Portland, Oregon. This will be the first time we have had this conference since 2019. Jamie King and his conference chairs have worked diligently with the LIA staff and are committed to providing the safety community this opportunity to learn and network.

LIA will also have an in-person Laser Additive Manufacturing (LAM) workshop in Dayton, Ohio, this July 10th - 12th. This event will also feature an Education meets Industry symposium at the Dayton Regional STEM School. Mike Lander, as general chair, is putting together a unique program on Laser Additive Manufacturing.

Of course, you can expect an Amazing ICALEO next year, October 16th - 19th 2023, at the Palmer House in Chicago, Illinois. Klaus Loffler, our general chair, is working on possible field trips and some cutting-edge presentations.

On top of these events, LIA will participate in other partner conferences. LIA will also continue to offer our existing education and some other courses throughout the year.

Stay safe and keep others safe!

Course Highlight

MEDICAL LASER SAFETY OFFICER TRAINING
ORLANDO, FL - FEBRUARY 25-26, 2023

Are you an RN, OR supervisor, surgical tech or training coordinator who has been assigned the critical responsibility of LSO in a medical facility? Designed to meet the special needs of medical professionals, LIA's Medical Laser Safety Course will provide the training you need to build and maintain a successful laser safety program.

As an LSO at a medical facility, you have a unique set of responsibilities. Not only is laser safety a top priority to protect your staff, but it is critical to protecting your patients. Our MLSO training program addresses the specific laser safety protocols as they relate to medical and healthcare environments.

This course meets all LSO training requirements as outlined by the ANSI Z136.3 Safe Use of Lasers in Health Care standard, OSHA, and The Joint Commission.

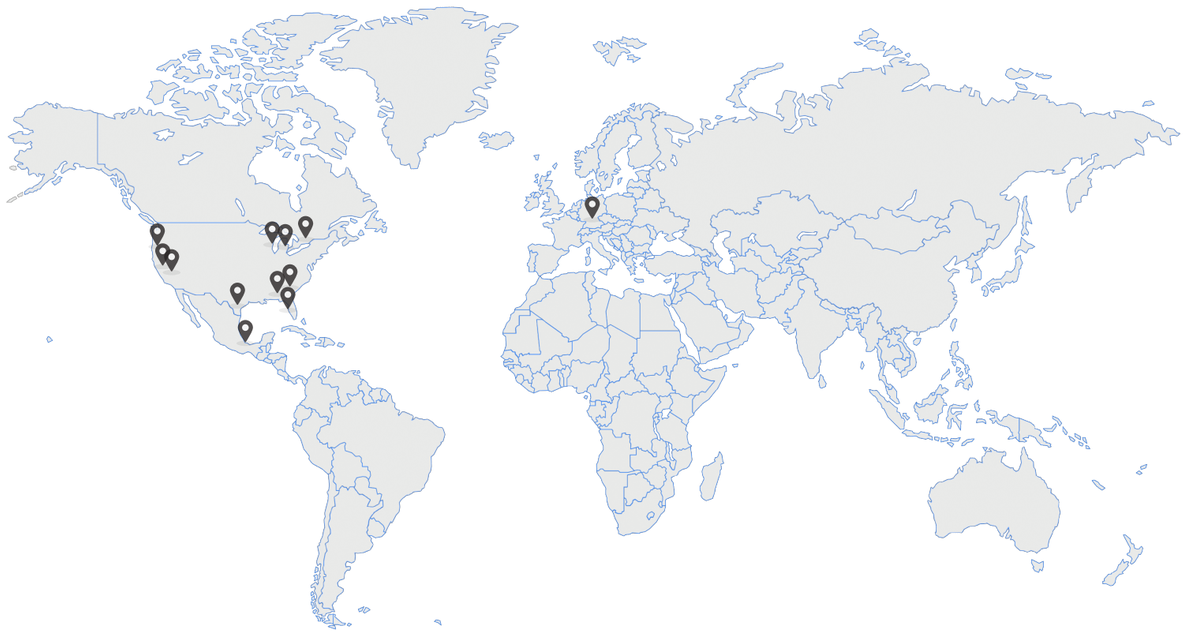
A Look Ahead at Upcoming Laser Industry Conferences!

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. Laser World of Photonics - June 27-30, 2023 (Munich, Germany)
6. RAPID + TCT - May 2-4, 2023 (Chicago, IL, USA)
7. FABTECH Mexico - May 16-18, 2023 (Mexico City, Mexico)
8. **LAM - June 10-12, 2023 (Dayton, OH, USA)**
9. FABTECH Canada - June 11-13, 2023 (Toronto, OT, Canada)
10. ALAW - June 13-15, 2023 (Plymouth, MI, USA)
11. FABTECH - Sept 11-14, 2023 (Chicago, IL, USA)
12. **ICALEO, Oct. 16-19, 2023 (Orlando, FL, USA)**

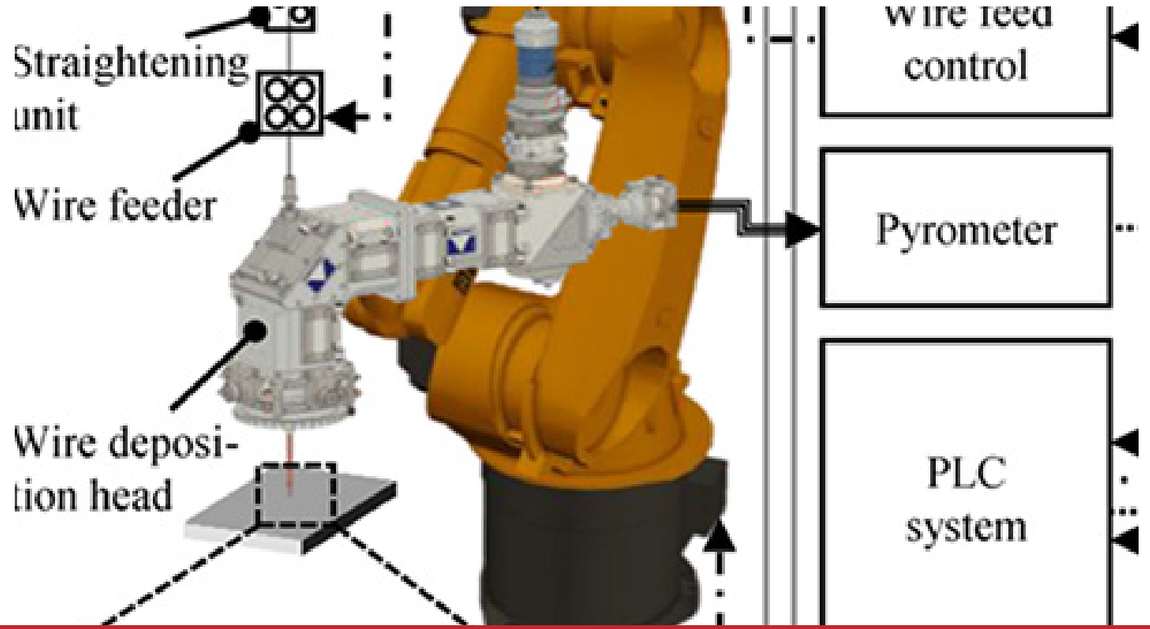
Cooperating Conferences

FABTECH

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



JLA | EDITOR'S PICK



TOWARD DEFECT-FREE COMPONENTS IN LASER METAL DEPOSITION WITH COAXIAL WIRE FEEDING THROUGH CLOSED-LOOP CONTROL OF THE MELT POOL TEMPERATURE

By: Christian Bernauer, Avelino Zapata, and Michael F. Zaeh

Abstract: Laser metal deposition (LMD) is an additive manufacturing process in which a metal powder or wire is added to a laser-induced molten pool. This localized deposition of material is used for the manufacturing, modification, and repair of a wide range of metal components. The use of wire as feedstock offers various advantages over the use of powder in terms of the contamination of the process environment, the material utilization rate, the ease of handling, and the material price. However, to achieve a stable process as well as defined geometrical and microstructural properties over many layers, precise knowledge on the effects of the input variables of the process on the resulting deposition characteristics is required. In this work, the melt pool temperature was used as an input parameter in LMD with coaxial wire feeding of stainless steel, which was made possible through the use of a dedicated closed-loop control system based on pyrometry. Initially, a temperature range was determined for different process conditions in which a stable deposition was obtained. Within this range, the cause-effect relationships between the melt pool temperature and the resulting geometry as well as the material properties were investigated for individual weld beads. It was found that the melt pool temperature is positively correlated with the width of the weld bead as well as the dilution. In addition, a dependence of the microhardness distribution over the cross section of a weld bead on the melt pool temperature was demonstrated, with an increased temperature negatively affecting the hardness.

Journal of Laser Applications 34, 042044 (2022);
https://doi.org/10.2351/7.0000773

OSHA to hold online meeting of the National Advisory Committee on Occupational Safety and Health on Jan. 10, 2023

WASHINGTON, DC – The U.S. Department of Labor's Occupational Safety and Health Administration will hold an online meeting of the National Advisory Committee on Occupational Safety and Health on Jan. 10, 2023, from 2 to 4 p.m. EST.

Open to the public, the meeting will include updates about the committee's membership and recent OSHA developments, a report from the Heat Work Group, and follow-up discussion on the agency's Whistleblower Protection Program.

To join the meeting online, visit the NACOSH webpage for login information.

Submit comments and requests to speak to the Federal eRulemaking Portal, Docket Number OSHA-2022-0002, by Jan. 3, 2023. Be sure to include the docket number on all submissions. Read the Federal Register notice for submission details.

NACOSH advises, consults, and makes recommendations to the Secretary of Labor and the Secretary of Health and Human Services on matters relating to the administration of the Occupational Safety and Health Act of 1970. NACOSH is a continuing advisory committee of indefinite duration.

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to help ensure these conditions for America's working men and women by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov.

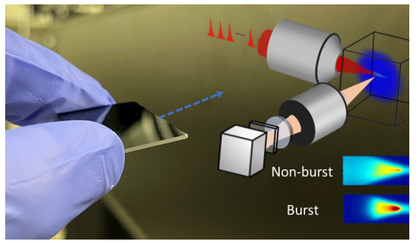
The mission of the Department of Labor is to foster, promote, and develop the welfare of the wage earners, job seekers, and retirees of the United States; improve working conditions; advance opportunities for profitable employment; and assure work-related benefits and rights.

Original Release: December 1, 2022

Source: https://www.osha.gov/news/newsreleases/trade/12012022

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

1

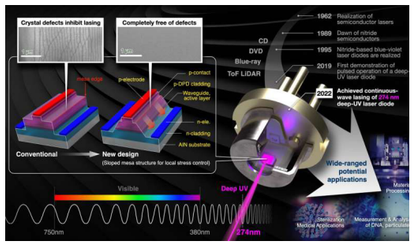


LIGHT BURST OPENS PATH TO ON-BOARD 3D PROCESSING IN SEMICONDUCTOR CHIPS

Researchers from LP3 Laboratory demonstrated splitting the energy of infrared ultrafast pulses to form ultrafast bursts of less intense pulses, thereby demonstrating better localization of excitation.

Read more

2

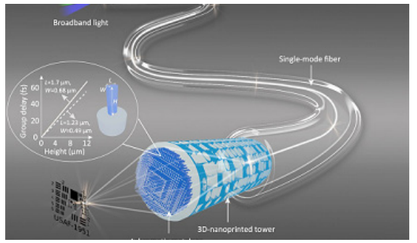


SCIENTISTS DEMONSTRATE WORLD'S FIRST CONTINUOUS-WAVE LASING OF DEEP-ULTRAVIOLET LASER DIODE AT ROOM TEMPERATURE

A research group in Japan has successfully conducted the world's first room-temperature continuous-wave lasing of a deep-ultraviolet laser diode (wavelengths down to UV-C region).

Read more

3

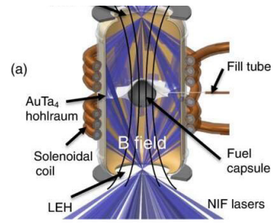


3D-PRINTED ACHROMATIC METALENS BRINGS FIBER IMAGING INTO FOCUS

Researchers designed and nanoprinted a 3D achromatic, diffractive metalens on the end face of a single-mode fiber.

Read more

4



COVERING A CYLINDER WITH A MAGNETIC COIL TRIPLES ITS ENERGY OUTPUT IN NUCLEAR FUSION TEST

A team of researchers at Lawrence Livermore National Laboratory has found that covering a cylinder containing a small amount of hydrogen fuel with a magnetic coil and firing lasers at it triples its energy output.

Read more

Remembering Dr. Silke Pflueger

A collection of memories from colleagues and friends Nina Lanza and Neil Ball

Dr. Silke Pflueger, a name well known to those of us here at The Laser Institute, as well as in the laser industry as a whole and beyond, recently passed away. She was deeply involved in LIA, as a volunteer, conference chair, board member, and fellow. We appreciate all of her hard work and support of our organization.

She earned her M.S. in electrical engineering in 1989 and Ph.D. in mechanical engineering in 1994. She was known as a genius in the industry, but that's not all. Always one to speak her mind on issues of importance, in 2019 Silke entered the political scene with a run for California State Assembly. While she did not win election, her campaign successfully raised the discourse around social justice issues and in particular universal healthcare and education.

I met Silke in 2016 when she invited me to be a speaker at ICALEO. I was immediately struck by her intelligence; her mind was simply much faster at interpreting and incorporating information than most, even those in her already very smart peer group. But even though Silke was definitely the smartest person in the room, she did not wield her power unkindly, but rather for good. She was generous and cared fiercely about making the world better, in large ways and small.

At that ICALEO, she took care to make me feel welcomed into the community even though she was quite busy making sure the meeting was running smoothly. I still remember her genuine laugh when she asked me if I had children, and I told her that I had a cat. "Me too!" she said, and I knew at that moment that we would definitely be friends.

Dr. Silke Pflueger and Nina Lanza together at ICALEO in 2016.

After the meeting, we stayed in touch, eventually using Twitter as our main communication mode. I followed her journey and was always impressed with her insistence on speaking honestly and unambiguously about her illness, her experiences with our healthcare system, and human rights for all. As always, she was generous with her time, her effort, and her caring. She never gave up on the world and her belief that she could effect positive, meaningful change.

The last direct message she sent to me was a picture of us from that ICALEO in 2016, a reminder that relationships are the most important parts of our lives. Making connections with others really does change the world for the better.

Silke was a bright, unforgettable flame, and I feel fortunate to have shared in her light and warmth.

- Nina Lanza

Dr. Silke Pflueger (my hero, friend, and master debater!)

It was an honour and privilege to have been fortunate enough to have met Silke at ICALEO in 1998, held at The Catamaran Hotel, San Diego.

I had just listened to her present and was immediately drawn into her intense yet passionate drive for laser processing divinity!

I was convinced that she might be the brightest and smartest person I had ever heard speak in my life, and immediately sought out an introduction through the West Coast TRUMPF Rep. Col. Daniel F. Greby.

Silke was dressed all in black aside from her ivory/pearl colored eye glass frames that were the silhouette of a woman. I was confused and overwhelmed mumbled something unintelligible and offered my business card, which she reluctantly took.

Fast forward to 2002 the fiber laser is just hitting the market and SPI needs space to start an application and sales lab and I'm fortunate enough to have space and the chance to have Silke in our building.

I dream of Silke nurturing us all into laser applications gods & goddesses but find out that Silke is what else? laser focused on dominating the market, and IPG!

She had little time for the office and her valuable time was spent on customers and applications for every industry.

I learned from her that nothing rivals' commitment, passion, and discipline.

Silke taught me life lessons both professionally and personally that are priceless. I love you and thank you Silke!

I marveled at the way Silke and her husband Klaus embraced life and work and treated everyday as a gift.

Despite Silke being able to steamroll through anyone mentally, physically, or intellectually, she had a giving heart, generous soul, and was a most gracious host (along w/ Klaus) as they opened their cabin (haha) every year after Photonics West to host our gaggle of Laser Professionals for skiing/snowboarding, debauchery, and even live music! eh hem

The loss of Silke to the global community is hard for us to comprehend but the gift she gave to all of us was this:

"Be the best human you can be!"

Silke and I (middle) both became fellows together in 2016, the first time Co-Fellows were inducted.

Neil S. Ball

P.S. I have countless other stories I would love to share but had a tough time getting through this without being in tears.

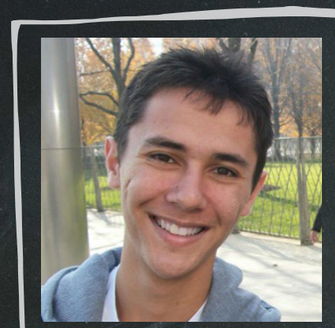
Education and Training in Optics and Photonics (ETOP) 2023

CREOL, The College of Optics and Photonics is hosting an international conference that brings together about 200 scientists and engineers from all around the world, renowned for their leading expertise in optics and photonics and education. It is a unique opportunity for our community to share information about the best practices of teaching optics at all levels.

CREOL is hosting the ETOP Conference **May 15-18, 2023** at the **Hilton Cocoa Beach Oceanfront**.

Find our more information at etop.creol.ucf.edu

UCF | CREOL, The College of Optics and Photonics



STUDENT SPOTLIGHT

Name: George McDonald
Hometown/State: Inverness, FL
Year in School: Junior
Area of Study/Major:
Undergrad: Photonic Science and Engineering

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

"The first time I was introduced to photonics was when I was taking the Introduction to Engineering Profession course. One of the guest speakers was a professional in the field of photonics. Initially, I was planning on majoring in Mechanical Engineering. The presentation didn't entirely convince me to switch majors at the time, but it definitely made a lasting impression on me!"

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

"Early in my college career I was taking a filmmaking course. We captured images on actual 16mm film using old home video cameras. I was inspired by how the cameras and projectors worked and became interested in optics. As I started getting further along my college career and I started taking physics classes, I found photonic science and engineering was the major for me."

Describe your favorite course you have taken so far.

"Optoelectronics has been my favorite so far. The professor, Dr. Likamwa, was enthusiastic about the material and this made learning about laser diodes, photodetectors, optical communications, etc., more enjoyable."

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

"I'm an intern at Ocean Insight where I support the development of next generation spectrometers. So far it has been a great learning experience!"

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

"I recognize optics/photonics is a field that is evolving, and its applications can be seen in many industries. I feel that my education will also need to evolve as I begin my career. I would like to continue my education with graduate school."

BLS
THE BOARD OF LASER SAFETY

NEWSLETTER

Volume 3 • Issue 3

Certification Maintenance Tip!

You can earn BLS Certification Maintenance points by reading laser-related peer-reviewed academic journal articles. Points for journal article reading are claimed in Category 9, Other Activities. Record your reading using the Journal Article Verification Worksheet and have it signed by your supervisor. Attach it to your Certification Maintenance Worksheet as evidence of completion.

You can earn 0.25 CM points per hour of reading for a maximum of 2.0 CM in Category 9. Visit our website for details.

Board of Laser Safety
12001 Research Pkwy, Suite 210
Orlando, FL 32826

Toll Free: 1.800.345.2737
Telephone: +1.407.985.3810
Email: bls@lasersafety.org
Website: www.lasersafety.org

ANSI Z136.1 for Safe Use of Lasers

The revised ANSI Z136.1 for Safe Use of Lasers is set to be released soon.

This standard is the parent document and cornerstone of the Z136 series of laser safety standards, the Z136.1 is the foundation of laser safety programs for industrial, military, medical, and educational applications nationwide.

Look for it soon on the lia.org store!

LIA Classroom Courses for BLS CM Points

The following upcoming classroom courses are available to get BLS CM points:

Industrial Laser Safety Officer Training, Feb. 15-16, 2023-Novi, MI
Laser Safety Officer Training, Feb 22-24, 2023-Orlando, FL
Medical Laser Safety Officer Training, April 22-23, 2023-New Orleans, LA
Laser Safety Officer with Hazard Analysis Training, Feb 27-Mar 3, 2023-Orlando, FL

Find more information here: https://www.lia.org/training

International Laser Safety Conference (ILSC) 2023 Dates and Location

The International Laser Safety Conference will now take place in Portland, Oregon from February 27 - March 2, 2023.

Full attendance of this conference is approved for 4 BLS CM points, as well as 32 CECs. It may also be elligible for contact hours.

Find out more about the conference at ilsc.ngo.

Options for Certification Exams

Certification exams are available through paper and pencil exams, computer-based testing centers, and remote proctoring!

For more certification exam information, visit www.lasersafety.org, or contact us at bls@lasersafety.org.

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. Check out our first submission on the next page!

Not enough CM Points? Apply for an Extension Year

After an individual has passed the certification examination, he/she will be required to maintain that certification through approved professional development activities over the 3-year certification period. As the industry changes and technology grows, so too must the knowledge of the CLSO and CMLSO. The BLS only recognizes BLS Certification Maintenance (CM) points and may award these points for eligible laser-related activities.

Last year, the Board of Laser Safety introduced the option of the Extension Year. If you are a CLSO or CMLSO and you were unable to finish earning the 10 Certification Maintenance points that are required in the 3-year maintenance cycle, this is an option for you. The extension year option gives you an additional year after your December 31 deadline to earn those CM points that you were missing. There are, of course, some limitations to this.

First, an extension year must be applied for. The request and payment of the extension year fee must be submitted no later than December 31st of the original 3-year cycle, i.e., the original certification expiration date. The renewal fee must also be paid by that deadline.

If a CLSO or CMLSO chooses to use the extension year, they can only renew by Certification Maintenance points. They also cannot earn more points in the same categories if they have reached the maximum, just because it is a new year. Only new points in categories not fulfilled will be accepted.

Lastly, the extension year can only be requested once every other certification cycle and there is no "grace period" allotted to the fourth year, since the extension year serves as its own type of grace period. They also may not extend two cycles in a row, meaning if you applied last year, you are unable to apply again this year. If the situation is not resolved by December 31st of the extension year, the CLSO/CMLSO will go to Inactive Status.

Here is an example of what an extension year might look like: "Mr. Laser is a CLSO and his certification cycle ends December 31 of this year. He realizes he does not have the required 10 CM points and due to a number of factors cannot earn the points by the end of his cycle. He chooses to apply for an Extension Year and submits his application prior to December 31. Since he did not use an extension year during his previous cycle, he is eligible for one in his current cycle, so he is approved. When he receives notification from BLS that he is approved for an Extension Year, he may begin earning CM points to reach the 10 CM points required for renewal. Mr. Laser already earned the maximum number of points for his job (3 CM) and for attending conferences (4 CM), so he must earn 3 CM points in the remaining categories. He chooses to apply for a one-year membership at a BLS-approved organization for 1 CM point and then chooses to read laser-related journal articles for 2 CM points. At the end of the Extension Year, Mr. Laser has the 10 CM points needed for renewal and submits his CM worksheet and documentation to BLS by the December 31 deadline. He will not be eligible to apply for another Extension year during the following certification cycle, as the Extension Year may only be used every other cycle. His next cycle will be a three-year cycle."

You can visit the Board of Laser Safety website at lasersafety.org for more information on certification maintenance and the new extension year or watch the following informative video that was made by the BLS staff for your convenience.

You can also download the Certification Maintenance Manual here.

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.