VOLUME: 30 **NO:** 2 | MAR/APR 2022

TRENDING IN THE NEWS: TOP 4 ARTICLES

PG9

SUPPORTING WOMEN IN THE INDUSTRY: AN INTERVIEW WITH LASER-TEC

PG 10

OSHA TRADE RELEASE: WHISTLEBLOWER PROGRAM MEETING

PG 17







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

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



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



David Slinev -

US Army, Public Health Center, retired

Ron Schaeffer retired

Ilya Mingareev -Assistant Professor, MCE Mech. Eng. Program Chair Florida Institute of Technology

Catch up on all of the 2021 issues!

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



Managing Editor: Jana Langhans - jlanghans@lia.org



SUPPORTING WOMEN IN THE INDUSTRY: AN INTERVIEW WITH LASER-TEC

LIA Interview with Natalia Chekhovskaya

With March being Women's History Month, we would like to use this issue to recognize LASER-TEC for the work they are doing to support women and young girls joining our industry. This interview with Natalia Chekhovskaya sheds more light on their programs specific to women, what shortcomings the industry still has, and what you can do to help.



US DEPARTMENT OF LABOR TO HOLD VIRTUAL MEETING ON OSHA WHISTLEBLOWER PROGRAM

The U.S. Department of Labor's Occupational Safety and Health Administration will hold a virtual meeting May 18, 2022, to solicit public comments and suggestions on issues facing OSHA's Whistleblower Protection Program.

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.

FOLLOW US!

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











FEATURES

Upcoming LIA Training	4
President & Executive Director's Message	5
Conference Event Updates	6
Event Updates	7
Trending in the News	9
Supporting Women in the Industry	10
Student Spotlight	15
OSHA Trade Release	17

ADVERTISERS

Kentek	8
LASYS	13
FABTECH Canada	14
FABTECH Mexico	16

If you are interested in advertising space in this newsletter,call+1.407.380.1553/1.800.34.LASER or email advertising@lia.org.

CALENDAR OF EVENTS

LIA Laser Safety Trainings

LASER SAFETY OFFICER TRAINING	
Orlando, FL	Feb. 16 - 18, 2022
Orlando, FL	May 11 - 13, 2022
Orlando, FL	Aug. 17 - 19, 2022
Orlando, FL	Nov. 2 - 4, 2022
LASER SAFETY OFFICER WITH HAZARI	O ANALYSIS
Orlando, FL	Feb. 21 - 25, 2022
Orlando, FL	May 16 - 20, 2022
Orlando, FL	Aug. 22 - 26, 2022
Orlando, FL	Nov. 7 - 11, 2022
MEDICAL LASER SAFETY OFFICER TRA	AINING
Orlando, FL	Feb. 19 - 20, 2022
Virtual, Instructor Led	April 30, 2022
Orlando, FL	May 14 - 15, 2022
Orlando, FL	Aug. 20 - 21, 2022
New York, NY	Sep. 24 - 25, 2022
Orlando, FL	Nov. 5 - 6, 2022
INDUSTRIAL LASER SAFETY OFFICER 1	RAINING
Novi, MI	Feb. 9 - 10, 2022
Novi, MI	May 11 - 12, 2022
Novi, MI	Aug. 10 - 11, 2022

Course Highlight

LASER SAFETY OFFICER TRAINING ORLANDO, FL - MAY 11-13, 2022

Developing and implementing a successful laser safety program is a top priority for you and your organization. Whether you are new to laser safety, or more experienced, your goal is to uphold the highest standard of laser safety. At LIA, our goal is to help you achieve that by offering the most comprehensive laser safety training program for LSOs.

Designed to keep you on the leading-edge of safety training requirements and program administration, this course teaches a nonmathematical approach to facilitating the duties of Laser Safety Officer. Developed and taught by LIA experts - the industry leader in laser safety education - the LSO course was designed for all levels of experience involved in industrial, military, educational, or research applications of lasers. It is tailored to fit the needs of safety professionals, engineers, laser operators, technicians, and other professionals assigned the duties of Laser Safety Officer who are not required to perform hazard analysis calculations. This course meets all LSO training requirements outlined by the ANSI Z136.1 Safe Use of Lasers standard, OSHA, and ACGIH,



PRESIDENT'S MESSAGE



Henrikki Pantsar LIA President 2022

The world is different today than it was just three short months ago, when I wrote the letter to the latest LIA Today. We find ourselves in the midst of humanitarian, supply chain, logistics, materials and geopolitical crises that started or become worse with the unjust attack on Ukraine. The world order that has been developing since the second world is changing. We do not yet know whether we as the humankind emerge from this episode more united or separated, or just different. The long-term impact of the war and future balance of economic and political powers are yet to be defined. We can only hope that peace will soon return, and rebuilding may start.

Amid these challenging times there is still a lot of room for optimism. LIA Board of Trustees and Officers meetings took place in March and I am happy to report that the organization is doing well. We are financially stable and looking forward to host the Industrial Laser Conference during IMTS and also returning to Orlando in October for the ICALEO conference. The excitement of looking forward to

meeting people live again is energizing. The whole team is excited to move forward with the planning and also starting to work on putting together the conference program after receiving a large number of interesting abstracts.

The US economy continues strong, with some jitters related to the world issues and inflation. However, a slowdown does not seem likely in the near future, and for all of us laser enthusiasts there are a lot of opportunities to grow in sectors such as vehicle electrification. This is a great time to innovate and implement new technologies. We are seeing growth across the laser industry and that also makes all of us at LIA feel confident about the future and the live events.

I wish everyone a great spring and early summer. Be well and stay safe!



Nat Quick Executive Director

EXECUTIVE DIRECTOR'S MESSAGE

April was a busy month for LIA as we had a few new and exciting events. Our Laser Safety Webinar, Laser Additive Manufacturing workshop, and new virtual Medical Laser Safety Officer training all had great success. We are looking forward to planning more of each event in the future. If you have any feedback or are interested in joining a future event, please reach out to our Conference Department at conferences@lia.org.

March was Women's History Month and so to recognize a company that does a lot to support women in the laser industry, we have an interview with Laser-Tec as the feature of this issue. Read this article to find out more about their programs for supporting young girls and women in STEM, where they still see a need, and how you can help support. We appreciate everything they do and the time they took

to participate in this interview.

Also in this issue, we have another CREOL Student Spotlight! Find out more about Daniel Enix, an undergrad student that is interning with John Hopkins this summer.

Stay safe and keep others safe.

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

Nov. 9 - 10, 2022

Novi, MI

A Look Ahead at Upcoming Laser Industry Conferences!

A Look Ahead at LIA's Upcoming Events!

AORN - Mar 19-23, 2022 (New Orleans, LA, USA)*

AMUG - April 3-7, 2022 (Chicago, IL, USA)

MD&M West - April 12-14, 2022 (Angheim, CA, USA)

COLA - April 24-29, 2022 (Matsue, Japan)

Laser World of Photonics - April 26-29, 2022 (Munich, Germany)

Fabtech Mexico - May 3-5, 2022 (Mexico)*

AKL - May 4-6, 2022 (Aachen, Germany)

RAPID + TCT - May 17-19, 2022 (Detroit, MI, USA)*

ALAW - June 7-9, 2022 (Plymouth, MI, USA)*

Fabtech Canada - June 14-16, 2022 (Toronto, OT, Canada)*

LASYS - Jun 21-23, 2022 (Stuttgart, Germany)*

IMTS - Sept 12-17, 2022 (Chicago, IL, USA)*

ICALEO, Oct. 17-20, 2022 (Orlando, FL, USA)

Fabtech - November 8-10, 2022 (Atlanta, GA, USA)*





International Congress on Applications of Lasers & Electro-Optics

Sponsor and exhibitor opportunities are available! ICALEO's sponsorship packages provide the best platform to leave a lasting impression on conference attendees. Each level of sponsorship offers you a unique selection of conference events or materials to sponsor. Claim your choice of sponsorship before it's sold!

Exhibition space is also available for you to showcase your company. We are excited to announce the return of the four-hour exhibitor reception Tuesday, October 18 after the show.

Email sqlover@lia.org if you are interested.

Registration will open soon! Join us in Orlando, FL on October 17-20, 2022 to get the latest in laser industry research and connect with old and new friends from all around the world.

This year's conference is themed around laser technology in space with related presentations, plenary speaker astronaut Dr. Don Thomas, and the exciting opportunity to join us on an excursion to the Kennedy Space Center, sponsored by TRUMPF!

To stay updated on this event, please visit icaleo.org.

LASYS International trade fair for laser material processing

"The Place to beam" - The next LASYS will be held at the Stuttgart Trade Fair Centre from 21 to 23 June 2022. It is the only international trade fair which consistently focuses on system solutions for laser material processing. Since the start of the trade fair in 2008, it has become successfully established as a user platform for laser system solutions and applications. LASYS covers all industries and materials, and is primarily aimed at decision-makers from international industry.

21. - 23.06.2022, Stuttgart, Germany Visit LIA at booth 4E40!

To stay updated on this event, please visit messe-stuttgart.de/lasys/en

Medical Laser Safety Officer Training - NYC

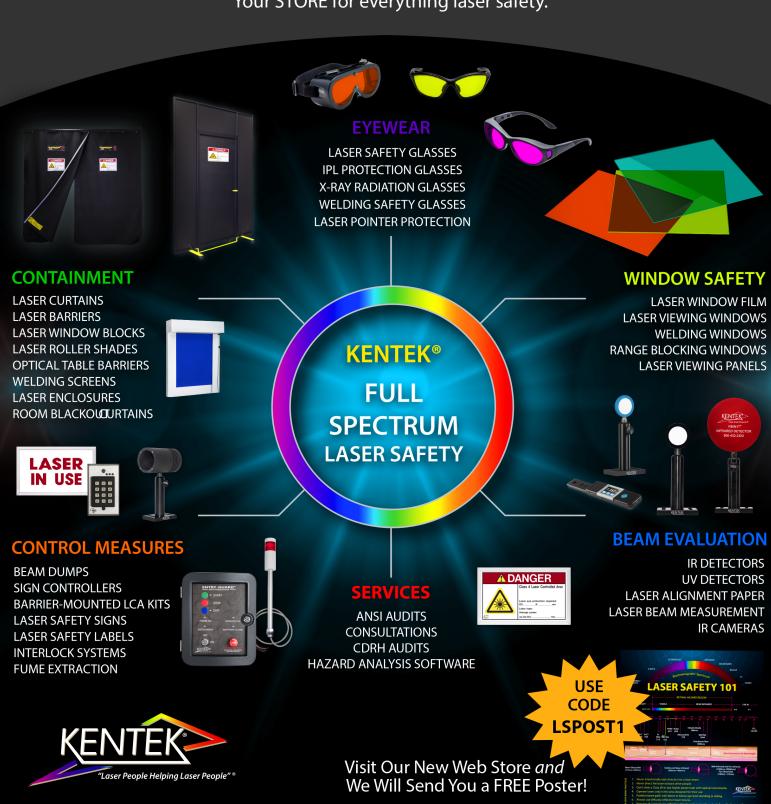
A new MLSO course has been added to our calendar! This course will be taking place September 24-25, 2022 at Mount Sinai Hospital in New York, New York.

To register for this course or find out more, please visit lia.org

www.lia.org

Shop Kentek. Shop Smart. Shop LaserSmart®.

Your STORE for everything laser safety.



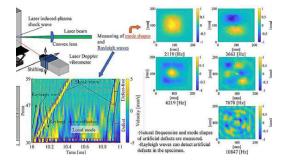
TRENDING IN THE NEWS: LIA'S TOP 4 ARTICLE PICKS



TRANSPARENT ULTRASOUND CHIP PROVIDES VIEW TO MULTIMODAL IMAGING

Atransparent, biocompatible ultrasound transducer chip developed by researchers from Penn State is opening opportunities in cell and tissue stimulation and multimodal imaging.

Read more



A LASER-QUICK, NON-DESTRUCTIVE METHOD TO DETECT CRACKS IN CONCRETE STRUCTURES

Researchers from Shibaura Institute of Technology and the National Institutes for Quantum Science and Technology, Japan, tested the effectiveness of LIP shock waves as a non-contact, non-destructive impulse excitation at detecting cracks in concrete structures.

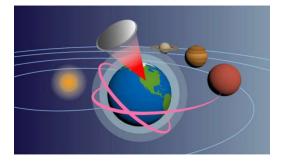
Read more



TESLA'S CRAZY LASER WINDSHIELD WIPERS HAVE BEEN PUBLISHED BY THE US PATENT OFFICE

Tesla's idea for a crazy windshield wiper that would clear debris from a driver's line of sight using a laser beam has been officially published by the United States Patent Office.

Read more



TINY PROBES COULD SAIL TO OUTER PLANETS WITH THE HELP OF LOW-POWER LASERS

Researchers calculate that low-power lasers on Earth could launch and maneuver small probes equipped with silicon or boron nitride sails, propelling them to much faster speeds than rocket engines.

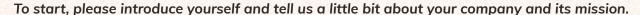
Read more



Supporting Women in the Industry: An Interview with LASER-TEC

Natalia Chekhovskaya Associate Director, Co-Principal Investigator National Center for Laser-Photonics and Fiber Optics Education, LASER-TEC

With March being Women's History Month, we would like to use this issue to recognize the National Center for Laser-Photonics and Fiber Optics Education, LASER-TEC, for the work they are doing to support women and young girls joining our industry. This interview with Natalia Chekhovskaya sheds more light on their programs specific to women, what shortcomings the industry still has, and what you can do to help.



I am with a wonderful organization called LASER-TEC - Center for Laser and Fiber Optics Education. LASER-TEC is funded by the National Science Foundation and focuses on the growth and strengthening of the technical workforce in lasers, optics, photonics, and fiber optics. I have been with LASER-TEC since its inception and currently serve as a Co- Principal Investigator and Associate Director.

In honor of women's history month, we are focusing on the role of women in the laser industry. What programs and support is it that you offer to women specifically in photonics technologies?

We have always paid special attention to programs that encourage and empower women and girls to pursue their passion for photonics and optics technologies. Our programs engage communities on multiple levels, ranging from national awareness, advocacy, and network programs to local hands-on learning programs.

How did these efforts start? Was there a need or an inspiration behind them?

From the early start of LASER-TEC, we rolled out a "Tech Like a Girl" program benchmarked at Indian River State College, FL, and later adopted by other colleges nationwide. This four-week program introduces middle school girls to opportunities in optics and photonics. Throughout this highly interactive and hands-on program, students learn about required science and technology, design laser and optical systems, gain soldering skills, and learn the basics of circuitry. Established female professionals in optics, lasers and photonics share their insights and encouragement to consider these technologies as a career path.



Middle school students attending Tech Like a Girl day one.

Iwo years ago, amid the pandemic, we witnessed a substantial drop in overall college enrollment that didn't spare our college photonics programs. Along this blanket decrease of students in photonics programs, some colleges in our optics and photonics college network shared that they had zero female enrollment in their cohorts. The pandemic exacerbated the impact on the already concerning trend; it diverted many women from the college path due to childcare, dependent care, household, and other responsibilities traditionally managed by women.

This alarming situation catalyzed and spurt us into establishing the "Women in Photonics Technologies Network" - a workgroup consisting of photonics and optics college students, graduates, faculty members, and members of the industry and professional organizations. This growing community is an open and welcoming launch platform for success through coaching, networking, collaboration, and programs that foster personal and professional growth. We focus on multiple initiatives: from effective outreach, to meaningful programs supporting college students, to professional development and career support.

This workgroup helps us gain a deeper insight into impediments and obstacles faced by women in college and the workforce and build

meaningful solutions based on these findings. The lack of mentors and role models presents a challenge; however, we need to focus on removing basic difficulties such as access to stable housing, shelters, affordable childcare and dependent care programs, tuition assistance programs, and other critical issues that our students deal with. There are plenty of innovative programs sponsored and administered by the federal government, the states, counties, and often individual colleges that our students are not aware of. This group will create a

"We focus on multiple initiatives: from effective outreach, to meaningful programs supporting college students, to professional development and career support."

one-stop informational hub for locating these resources. I hope that streamlined access to this information will help and open college doors to students regardless of their gender.

Our WiPT volunteers are working on developing a series of short video interviews, "Light Talks" highlighting photonics students and graduates employed in the photonics industry. A very active group of faculty and industry members volunteer their time to mentor and coach girls and women during all stages of their academic and professional growth. We are developing a series of boot camps to help students and graduates with career tools, job search, and job placement. Among other areas, we are looking for sponsorship programs to help students and graduates attend conferences, seminars, and other professional events. These events have an immense impact on our students. They open and stretch their horizons and show the limitless possibilities in optics and photonics.



Students learning about building circuits and soldering during the Tech Like a Girl program.

LIATODAY VOL. 30 NO. 2 MARCH/APRIL 2022



Tech Like a Girl attendies showcase their projects to their siblings, parents, and freinds.

I am very excited to see how quickly this initiative is growing: we established the workgroup only a few months ago, but I have already witnessed the positive results of our work. We welcome the LIA community to join and help us thread the needle in solving this multidimensional challenge of cultivating equality in the photonics academia and industry. Our webpage hosts additional information about the Women in Photonics Initiative https://laser-tec.org/ women-in-photonics-technologies/, feel free to contact me at nchekhov@irsc.edu; I would love to hear from you. It takes a village to raise a healthy and sustainable laser, optics, and photonics workforce.

In the industry of lasers, optics, and fiber optics, where are you seeing the biggest challenges for women continue?

Removing deep-seated misconceptions about laser technology is probably one of the most critical challenges that we need to address. We learned that generally, girls and women choose lasers and the photonics industry by discovering answers to "why" should they enter the field and then understanding of "what" or "how" naturally follow and anchor their decision process. Many women see laser technology as a path to contribute to solving environmental issues, improving public health, and generally making this world a better place.

> "We welcome the LIA community to join and help us thread the needle in solving this multidimensional challenge of cultivating equality in the photonics academia and industry."

Unfortunately, historically it's not how laser technology was introduced to the general public. Let's do a quick test: what is the first application of a laser that comes to your mind? Was it a military and defense application? This great misconception deterred many women from entering the field. The wrong assumption that this field is exclusive to men paralyzed many girls from even entertaining the idea of being a part of the laser community. The challenge we all face across academia and the industry is to craft and amplify the message about the wide-ranging opportunities in laser technologies that strongly resonate with girls and women and help them envision their pathways in the field.

There are plenty of other important impediments that require our attention and action: how do we retain women in laser technology, how do we enable the work-life balance to allow women to focus on their families and dependents, how do we empower women in their careers and infuse programs for professional development and career growth, how do we build up their confidence, what programs do we need to minimize the time women leave the workforce due to caregiving responsibilities and many more.

In your opinion, what could be done across the industry to help support women better?

I believe the photonics community is on the right path to removing the most significant pain points and building a diverse workforce. It's very encouraging to see more and more women entering critical and leadership roles in the laser technology industry and education. This is a positive sign that the transformational change in achieving gender equality will happen in an accelerated and, most importantly -a balanced way. The laser industry comprises many forward-leaning organizations that want to make a systematic change and actively engage women in their workforce. We need to continue doing what we engineers and scientists know how to do best - recognize the issue, analyze the root cause, and systematically prevent and solve the underlying problems rather than just addressing the symptoms.



LASER-TEC is a National Science Foundation Advanced Technological Education Center of Excellence in Lasers and Fiber Optics.

The Center for Laser and Fiber Optics Education, LASER-TEC, founded by the National Science Foundation in 2013, is an association of community and state colleges, universities, high schools and technical centers, trade associations, and laser and fiber optic (LFO) companies.

Mission:

To update, maintain, and provide open access for a broad range of services and materials to secondary, post-secondary, and industry educational and training programs with the intention of continuing expansion in the robust laser, optics, photonics, and fiber optics technical workforce.

> Email: info@laser-tec.org Phone: 772-462-7179

Facebook: @LaserAndFiberOpticsEducation





International trade fair for laser material processing



Messe Stuttgart, **Germany**

The solutions of tomorrow – experience them today: Live presentations and best practices of the laser technologies of the future.

> Get information now: www.lasys-fair.com/2022 **#LASYS**



RECONNECT WITH THE INDUSTRY AND GET BACK TO BUSINESS.

CANADA'S LARGEST METAL FORMING, FABRICATING, **WELDING AND FINISHING EVENT**

At **FABTECH Canada**, the metal fabricating industry will come back together to recharge and see what's new and what's next.

Don't miss your opportunity to see the latest technology innovations, make new connections, hear from industry thought leaders, and discover solutions to strengthen your business.



















Name: Daniel Enix Hometown/State: Orlando, FL Year in School: : Junior Undergraduate Area of Study/Major: Undergrad: Photonics Science and

STUDENT SPOTLIGHT

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

(? I was first introduced to photonics/electro-optics as a potential undergraduate electrical engineering student when Mike McKee gave a presentation on the future of this career field and the opportunities CREOL provides. 99

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

() What inspired me to choose this line of study is the unique nature of light. The science of light has always peaked my interest from lasers to imaging and everything in between. 90

Describe your favorite course you have taken so far.

(? My favorite course so far has been Optoelectronics which covers a vast range of topics. Taught by Dr. Patrick LiKamWa who does a great job explaining the fundamental concepts while also providing examples of real-world applications in the past, present, and future. 99

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

(P Yes, currently I am an undergraduate researcher for Knight Vision Lab where I support efforts relating to UAV mounted remote sensing. Utilizing magnetometers and sensors mounted onto MUAS drones to record and analyze data from objects of interest. SQ

Are you able to give us any information about your internship with John Hopkins this summer?

᠙ Yes, I will be completing an Optical Research Internship this summer at Johns Hopkins University Applied Physics Laboratory. Where I will be supporting efforts on measuring vital signs (heart rate, respiration rate, etc.) via remote sensing and signal processing involving human subjects research. 99

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

[Part of the continuity of the with the goal of contributing to R&D in the industry environment. 90



MEXICO

MEXICO'S LARGEST METAL FORMING, FABRICATING, WELDING AND FINISHING EVENT



MAY 3-5, 2022 CINTERMEX / MONTERREY, MEXICO

Be part of the leading event for metalworking industry in Mexico. See cutting-edge exhibits, learn from expert-led education, network with peers again and more. FABTECH is the place where connections are made and deals get done.

Register TODAY and access the event at no cost **fabtechmexico.com**













US Department of Labor to hold virtual meeting to solicit public input on OSHA whistleblower program improvements

WASHINGTON, DC – The U.S. Department of Labor's Occupational Safety and Health Administration will hold a virtual meeting May 18, 2022, to solicit public comments and suggestions on issues facing OSHA's Whistleblower Protection Program.

This is the ninth in a series of meetings on how the agency can improve the whistleblower program, particularly concerning healthcare workers.

Open to the public, the meeting will be held from 1 p.m. to 4 p.m. ET via telephone and virtually via Zoom. The agency will provide Spanish language translation during the meeting. Those interested in joining or participating in the meeting must register in English or Spanish by May 11, 2022. There is no fee to register.

OSHA is seeking comments on:

- 1. How can OSHA deliver better whistleblower customer service?
- 2. What kind of assistance can OSHA provide to help explain the agency's whistleblower laws to employees and employers?
- 3. What can OSHA do to ensure that healthcare workers are protected from retaliation for raising concerns related to COVID-19?

Submit comments at the Federal eRulemaking Portal and identify using Docket No. OSHA-2018-0005. The deadline for submitting comments is May 11, 2022. Read the Federal Register notice for details.

Learn more about OSHA's Whistleblower Protection Program.

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: April 11, 2022
Source: https://www.osha.gov/news/newsreleases/
trade/04112022

GUEST ARTICLE GUIDELINES

Want to share your ideas with the laser community through LIA TODAY? Check out our submission guidelines and contact 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 managing editor ilanghans@lia.org and someone 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).

Email: JLANGHANS@LIA.ORG
- Managing Editor, LIA Today