CALL FOR PAPERS

SPIE. **PHOTONICS WEST** LASE

25 - 30 January 2025
The Moscone Center
San Francisco, CA, USA

Submit abstracts by
17 July 2024

Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XXV (LA304)

Conference Chairs: **Peter R. Herman,** Univ. of Toronto (Canada); **Roberto Osellame,** CNR-Istituto di Fotonica e Nanotecnologie (Italy); **Adela Ben-Yakar,** The Univ. of Texas at Austin (United States)

Program Committee: **Craig B. Arnold,** Princeton Univ. (United States); **Yves Bellouard,** Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Daniel Flamm,** TRUMPF Laser- und Systemtechnik GmbH (Germany); **Alexander Heisterkamp,** Leibniz Univ. Hannover (Germany); **Eric Mazur,** Harvard Univ. (United States); **Eric P. Mottay,** h-nu (France); **Beat Neuenschwander,** Berner Fachhochschule Technik und Informatik (Switzerland); **Stefan Nolte,** Friedrich-Schiller-Univ. Jena (Germany); **Aleks Ovsianikov,** Technische Univ. Wien (Austria); **Jan Siegel,** Instituto de Óptica "Daza de Valdés" (Spain); **Koji Sugioka,** RIKEN Ctr. for Advanced Photonics (Japan); **Mitsuhiro Terakawa,** Keio Univ. (Japan); **Alfred Vogel,** Univ. zu Lübeck (Germany); **Dvir Yelin,** Technion-Israel Institute of Technology (Israel)

The rapid advances in ultrafast laser technology have resulted in widespread availability of robust, practical laser sources for driving novel interaction physics inside of materials. As a result, useful applications for these sources have emerged in many different fields, from micromachining and THz imaging to nonlinear microscopy and semiconductor testing to laser surgery and communications. Now in its twenty-fourth year, this conference is the premier venue for discussing the development of new ultrafast laser sources, the manipulation and characterization of ultrashort pulses as well as their potential for opening new biomedical, scientific, and industrial applications. We anticipate a larger conference than ever that will bring together a multi-disciplinary group consisting of university researchers from diverse fields, as well as scientists and engineers from industry. A program that includes invited and tutorial presentations will provide the context for contributed talks and posters, and for stimulating discussions.

We encourage submission of papers on all aspects of ultrashort pulsed lasers and the novel ultrafast science that drives unique optical interactions for probing and processing all types of materials. We specifically encourage submissions that focus on sustainability through the application of ultrafast lasers in battery development, solar technology, and eco-friendly manufacturing processes. In addition, all graduate and undergraduate students are encouraged to enter their submissions in the Student Competition for best presentation (see below).

General topics include, but are not limited to, the following areas:
- emerging ultrafast laser technologies and novel systems
- ultrafast laser source engineering for industrial and biomedical use
- manipulating ultrashort pulse propagation and nonlinear effects in materials
- novel interactions of ultrashort pulses with materials
- surface micro/nano-machining with ultrafast lasers
- ultrafast laser processes inside of transparent materials
- advances in direct writing of integrated photonic, opto-mechanical, and lab-on-chip devices
- interactions and modification of biological tissues
- surgical applications of ultrashort pulsed lasers for soft and hard tissues
- novel medical applications of ultrafast lasers
- generation and detection of THz radiation
- generation and application of EUV and x-ray ultrashort pulses
- novel characterization and measurement techniques for ultrashort pulses
- ultrashort pulse delivery of burst-trains and shaped beams for manipulating interaction physics
- ultrafast laser processing for a sustainable development.

STUDENT COMPETITION

Thanks to generous corporate sponsorship, we are happy to announce that a student competition will be held again this year. Due to the great success in previous years, the competition will be a general best student award, taking posters and talks into account. The winner will be announced and awarded a $1000 cash prize to the best student paper with the runner-up students receiving a cash prize as well.

NOMINATIONS

To nominate yourself, you must:
- be a graduate or undergraduate full-time student
- have conducted the majority of the work to be presented
- be the submitting author and select "Yes" when asked if you are a full-time student
- select yourself as the speaker
- under TOPIC selection, choose "Consider for Best Student Presentation Award"
- make the oral or poster presentation
- attend the competition onsite and present a 4-minute summary (see below).

COMPETITION JUDGING AND REQUIREMENTS

Contributions submitted by graduate and undergraduate students are eligible, whether poster or talk. For the evaluation, the conference chairs and select members of the program committee will judge the students within a devoted oral session of the conference. Here, the students will present a brief summary of their oral or poster paper with a time limit of 4 minutes. Presentations will be judged based on content, scientific impact, organization, quality of presentation, answers to questions from the judging panel and audience members, and presenter's overall mastery of the subject. Candidates for the award need to be the presenting author, a full-time student, and must have conducted the majority of the research presented in the paper.

www.spie.org/la304call

#PhotonicsWest

SPIE.

Present your research at SPIE Photonics West

Follow the instructions below to develop a successful abstract for submission to a conference and review policies for publication in the Proceedings of SPIE in the SPIE Digital Library. Submissions subject to chair approval.

Important dates

Abstracts due	17 July 2024
Registration opens	October 2024
Authors notified and program posts online	7 October 2024
Submission system opens for manuscripts and poster PDFs*	25 November 2024
Poster PDFs due for spie.org preview and publication	2 January 2025
Manuscripts due	8 January 2025
Advance upload deadline for oral presentation slides**	23 January 2025

*Contact author or speaker must register prior to uploading
**After this date slides must be uploaded onsite at Speaker Check-in

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Clemson Univ. (United States)

What you will need to submit

- Presentation title
- Author(s) information
- Speaker biography (1000-character max including spaces)
- Abstract for technical review (200-300 words; text only)
- Summary of abstract for display in the program (50-150 words; text only)
- Keywords used in search for your paper (optional)
- Check the individual conference call for papers for additional requirements (i.e., special abstract requirements or instructions for award competitions)

Note: Only original material should be submitted. Commercial papers, papers with no new research/development content, and papers with proprietary restrictions will not be accepted for presentation.

How to submit your abstract

- Visit the conference page: www.spie.org/la304call
- Choose one conference that most closely matches the topics of your abstract. You may submit more than one abstract, but submit each abstract only once
- Click the title of the conference to view the full description and submit by clicking the "Submit an Abstract" button on that page
- Sign in to your SPIE account, or create an account if you do not already have one
- Follow the steps in the submission wizard until the submission process is completed
- If your submission is related to an application track below, indicate the appropriate track when prompted during the submission process

Application track

Listed below are the application tracks available for this meeting. Application tracks aggregate presentations and focus on emerging technical and societal needs that require a multidisciplinary approach.

- **AI/ML:** Papers that highlight the use of artificial intelligence, machine learning, and deep learning to create and implement intelligent systems across multiple sectors, technologies, and applications
- **Sustainability:** Papers that highlight the use of optics and photonics for renewable energy, natural resource management, sustainable manufacturing, and greenhouse gas mitigation in support of the UN Sustainable Development Goals
- **Brain function:** Papers that highlight the development of innovative optics and photonics technologies that increase our understanding of brain physiology and function
- **Translational research:** Papers that highlight the transition from bench to bedside using the latest photonics technologies, tools, and techniques for healthcare
- **3D printing:** Papers that highlight the innovative use of optics and photonics in multidisciplinary applications for multidimensional manufacturing
- **Photonic chips:** Papers that highlight advances in materials, design, fabrication, integration, testing and packaging of photonic components at the chip level

Submission agreement

All presenting authors, including keynote, invited, oral, and poster presenters, agree to the following conditions by submitting an abstract:

- Register and pay the conference registration fee
- Agree to receive email messaging for the conference series
- Oral presenters: recording and publication of your onsite presentation (slides synched with voice) for publication in the Proceedings of SPIE in the SPIE Digital Library
- Poster presenters: one person may not present more than two posters in a poster session; poster presenters may submit an optional poster PDF available for preview in the online program (web and app) and for publication in the Proceedings of SPIE in the SPIE Digital Library
- Submit a manuscript by the advertised due date for publication in the Proceedings of SPIE in the SPIE Digital Library
- Obtain funding for registration fees, travel, and accommodations
- Attend the meeting
- Present at the scheduled time

Review and program placement

- To ensure a high-quality conference, all submissions will be assessed by the conference chair/editor for technical merit and suitability of content
- Conference chairs/editors reserve the right to reject for presentation any paper that does not meet content or presentation expectations
- Final placement in an oral or poster session is subject to chair discretion

Publication of Proceedings in the SPIE Digital Library

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- Only manuscripts, presentations, and posters presented at the conference and received according to publication guidelines and due dates will be published in the Proceedings of SPIE in the SPIE Digital Library
- Manuscripts, presentations, and posters will be officially published after the event in the SPIE Digital Library
- Conference chairs/editors or SPIE staff may require revision before approving publication and reserve the right to reject for publication any manuscript or presentation that does not meet acceptable standards for a scientific publication
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Contact information

QUESTIONS?

Contact the coordinator listed in your spie.org account.

For questions about your presentation, submitting an abstract or the meeting, contact your conference program coordinator.

For questions about publication or the SPIE Digital Library, contact your proceedings coordinator.

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