



Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM) XXVIII (LA301)

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This conference aims to provide a forum for discussion of fundamentals, methods, and techniques in laser materials processing and their relation to the applications and manufacturing of micro- and nanoscale electronic, photonic, optical, mechanical, fluidic, energy, and hybrid devices. Topics cover process development and applications in technology and for photonics, consumer electronics and medical devices.

Papers are solicited on, but not limited to, the following topics within the broad area of microelectronics, photonic devices, and optoelectronics manufacturing. Papers will be solicited on the utility of lasers enabled advanced manufacturing.

DYNAMICS OF LASER-MATTER INTERACTION

- fundamentals of laser-material interaction in manufacturing
- generation and dynamics of laser ablation plumes, including gas-dynamic effects, charge generation, and charge transfer
- modeling of laser-material and laser-plume interactions for quantitative prediction of process parameters
- novel approaches for laser micro and nano-processing including temporal and spatial beam shaping, pulse bursts, etc.
- novel analytical methods
- Diagnostics to advance the understanding of laser matter interaction mechanisms.

LASER PROCESSES IN MANUFACTURING

- AI for laser processing industry
- laser modification of materials (structuring, annealing, doping, intermixing, photosensitivity)
- laser polishing, figuring, cleaning, texturing, bending, and repair
- laser nanoscale materials processing and manufacturing, including near-field nano-optical lithography
- pulsed-laser deposition, laser-assisted thin-film epitaxy, atomic-layer epitaxy, resonant infrared pulsed-laser deposition, thin film and wafer processing
- laser based surface patterning
- laser direct writing (photonics, sensors, and structures)
- laser additive manufacturing and rapid prototyping on micro- and nanoscale
- laser-induced modification of glasses or transparent materials for applications in optoelectronics and photonics
- laser transfer of materials (LIFT, BA-LIFT, etc.).

PRODUCTION TECHNOLOGIES

- laser processing in microelectronic and optoelectronic manufacturing
- parallel laser manufacturing
- direct writing technologies for microelectronic and optoelectronic applications
- laser processes for photonics and photovoltaic industry
- digital photonic production
- laser manufacture of microsystems, waveguide lasers and photonic and optoelectronic devices (LED, OLED)
- novel systems and sub-systems for microelectronic and optoelectronic materials processing and device fabrication.

JOINT SESSIONS ARE PLANNED WITH:

- Laser-based Micro- and Nanoprocessing (LA302)
- Synthesis and Photonics of Nanoscale Materials (LA303)
- Frontiers in Ultrafast Optics (LA304)
- Laser 3D Manufacturing (LA401)

BEST STUDENT PRESENTATION AWARD

Supported by the conference cosponsors, we will offer awards for the best oral and poster presentations given by students (honored with a cash prize of \$500 for each). Presentations will be judged by the committee based on scientific merit, impact, as well as clarity of the student presenter's talk. While the manuscript will not be judged, it is expected. To be eligible for the awards, 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 Paper Award"
- be accepted to present at conference LA301
- submit your manuscript online by the deadline
- make the oral/poster presentation.

Note that prior prize holders will not be eligible.

Conference Co-Sponsors:



Present your research at SPIE Photonics West

Below are abstract submission instructions, the accompanying submission agreement, conference presentation guidelines, and guidelines for publishing in the Proceedings of SPIE on the SPIE Digital Library. Submissions subject to chair approval.

Important dates

Abstracts due	20 July 2022
Registration	October 2022
Authors notified and program posts online	10 October 2022
Submission system opens for manuscripts and poster PDFs*	28 November 2022
Post-deadline abstracts due: Submit via conference listings	12 December 2022
Poster PDFs due for spie.org preview and publication	4 January 2023
Manuscripts due	11 January 2023
Advance upload deadline for oral presentation slides**	26 January 2023

*Contact author or speaker must register prior to uploading

**After this date slides must be uploaded onsite at Speaker Check-in

What you will need to submit

- Title
- Author(s) information
- 250-word abstract for technical review
- 100-word summary for the program
- Keywords used in search for your paper (optional)
- Check the individual conference call for papers for additional requirements (for example, some conferences require 2- to 3-page extended summary for technical review, or have 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/la301call
- You may submit more than one abstract but submit each abstract only once.
- Click the "Submit An Abstract" button on the conference 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

- **Brain:** Papers that describe the development of innovative technologies that will increase our understanding of brain function
- **Translational Research:** Papers that showcase the latest photonics technologies, tools, and techniques with high potential to impact healthcare
- **3D Printing:** Papers that showcase innovative ways to apply this multidimensional/multidisciplinary technology
- **AI/ML:** Papers that showcase the use of artificial intelligence, machine learning, and deep learning to create and implement intelligent systems
- **Net Zero:** Papers that feature solutions to achieving net zero energy consumption, waste, and carbon emissions within optics and photonics

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 author registration fee.
- 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: submit a poster PDF and optional preview video, by the advertised due dates, for publication in the Proceedings of SPIE in the SPIE Digital Library; poster PDFs may also be published and viewable in the spie.org program during and immediately after the event
- Submit a 2-page-minimum 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
- Ensure that all clearances, including government and company clearance, have been obtained to present and publish. If you are a DoD contractor in the USA, allow at least 60 days for clearance
- 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

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