

Laser Applications in Microelectronic and Optoelectronic Manufacturing XV (LA110)

Part of the SPIE International Symposium on SPIE LASE: Lasers and Applications in Science and Engineering
23-28 January 2010 • Moscone Center • San Francisco, CA United States

Conference Chairs: **Hiroyuki Niino**, National Institute of Advanced Industrial Science and Technology (Japan); **Michel Meunier**, Ecole Polytechnique de Montréal (Canada); **Bo Gu**, IPG Photonics Corp. (United States); **Guido Hennig**, MDC Max Daetwyler AG (Switzerland)

Program Committee: **Craig B. Arnold**, Princeton Univ. (United States); **Philippe Bado**, Translume, Inc. (United States); **Tommaso Baldacchini**, Newport Corp. (United States); **Stephan Barcikowski**, Laser Zentrum Hannover e.V. (Germany); **Stephen Y. Chou**, Princeton Univ. (United States); **J. Thomas Dickinson**, Washington State Univ. (United States); **Jan J. Dubowski**, Univ. de Sherbrooke (Canada); **Henry Helvajian**, The Aerospace Corp. (United States); **Andrew S. Holmes**, Imperial College London (United Kingdom); **Godai Miyaji**, Kyoto Univ. (Japan); **Henry Peng**, GE China Technology Ctr. (China); **Rafael Piestun**, Univ. of Colorado at Boulder (United States); **Alberto Piqué**, Naval Research Lab. (United States); **Zbigniew Sagan**, ATT Advanced Track & Trace (France); **Tomokazu Sano**, Osaka Univ. (Japan); **Koji Sugioka**, The Institute of Physical and Chemical Research (Japan); **Alexander Szameit**, Friedrich-Schiller-Univ. Jena (Germany); **Sascha Weiler**, TRUMPF Laser GmbH & Co. KG (Germany)

Honorary Chair: **Jan J. Dubowski**, Univ. de Sherbrooke (Canada)

Laser processing of materials, once largely curiosity driven, is now an established technology for micromachining, thin-film synthesis, device fabrication and even nanoscale synthesis and processing of materials. The main driving force behind these developments is the seemingly limitless adaptability of lasers in providing unique material processing solutions, routes for manufacturing otherwise unattainable devices, and cost-effective solutions to complex manufacturing processes. Laser processing is becoming an established enabling technology for the manufacture of microelectronic, optoelectronic and MEMS devices, with industrial applications emerging at an increasing rate; meanwhile, applications to nanotechnology are also rapidly evolving.

The aim of this conference is 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, and hybrid devices. As in previous years, we expect to offer awards for the best student poster and student oral presentations.

Papers are solicited on, but not limited to, the following topics within the broad area of microelectronics and optoelectronics manufacturing:

- fundamental aspects of laser-surface interaction, including desorption and ablation
- laser modification of materials (annealing, doping, intermixing, photosensitivity)
- laser cleaning, texturing, bending and repair
- laser microengineering and nanoengineering of materials
- pulsed-laser deposition, laser-assisted thin-film epitaxy, atomic-layer epitaxy
- laser pattern transfer, laser-induced forward transfer, and other rapid prototyping and direct-write technologies
- laser processing from cw to fs time scales
- laser processing across wavelength scales from VUV to IR
- laser manufacture of MEMS and microsystems, including microfluidic chips
- laser microprocessing of electronic and optoelectronic materials for advanced devices and integrated systems
- Laser Processing in Microelectronic and Optoelectronic Manufacturing
- diagnostics for laser produced plasmas, including real-time monitoring techniques
- generation and dynamics of laser ablation plumes, including gas-dynamic effects, charge generation and charge transfer
- modeling of laser-materials and laser-plume interactions for quantitative prediction of process parameters
- novel laser systems and optics for materials processing and device fabrication
- resonant infrared pulsed-laser deposition
- laser-induced modification of glasses for applications in optoelectronic and fluidic micro-devices.

JOINT SESSION WITH LA113

We are proud to co-sponsor a joint session on ultrafast laser micromachining with Biomedical and other Applications of Ultrafast Lasers X (LA113). This session will address important emerging technologies at the femtosecond time scale, for a broad audience of researchers in the fields of ultra-fast lasers and laser processing, together with experts at the forefront of alternative micro- and nanofabrication technologies. The topics will cover, but will not be limited to, ultra-fast laser sources, fundamentals of ultra-fast laser-matter interaction, and novel machining techniques.

SPECIAL SESSION:

The LAMOM 15th Year Anniversary Session

In 1995, a conference 'Laser-Induced Thin Film Processing' was co-organized and chaired by **Jan J. Dubowski** at Photonics West in San Jose (February 8-10, 1995). This meeting was the beginning of a series known at Photonics West as LAMOM (Laser Applications in Microelectronic and Optoelectronic Manufacturing). 15 years later, we plan to have a special session in frame of LAMOM-XV, with many researchers who, in those days, were shaping the laser related materials research and manufacturing with lasers. Early LAMOMs were dominated largely by pulsed laser deposition papers, but we've moved since towards surface processing, femtosecond lasers, fiber lasers, nanotechnologies.

Preliminary list of invited speakers to this special session:

1. R. Haglund 'Pulsed laser deposition: 15 years later'
2. J. Mazumder 'Laser manufacturing of durable goods: a 15-year perspective'
3. D. Chrisey 'Pulsed Laser deposition in device research and manufacturing'
4. I. Boyd 'Excimer ultraviolet sources for thin film deposition: a 15 year perspective'
5. H. Helvajian 'Low-fluence laser interaction with materials: research and applications shaped by tools advancement'

Abstract Due Date: 13 July 2009
Manuscript Due Date: 21 December 2009

Submission of Abstracts for SPIE LASE: Lasers and Applications in Science and Engineering

Abstract Due Date: 13 July 2009
Manuscript Due Date: 21 December 2009

ATTEND THE CONFERENCE

Present a paper to an international audience
Receive feedback from your peers
Hear the latest research
Network with your colleagues.

PUBLISH YOUR WORK

Publish your work—fast. Your work will appear in the SPIE Digital Library 2 to 4 weeks after the meeting
Contribute to and gain visibility in the most extensive resource available for optics and photonics content—250,000+ journal articles and proceedings manuscripts
Proceedings of SPIE are referenced in leading scientific databases and indices
SPIE Digital Library has the highest number of citations for patent applications in optics and photonics.

1. By submitting an abstract, I agree to the following conditions:

- An author or coauthor (including keynote, invited, and solicited speakers) will register at the reduced author registration rate, attend the meeting, and make the presentation as scheduled. (Current SPIE Members receive an additional discount on the registration fee.)
- Authors and coauthors attending the meeting must obtain funding for their registration fees, travel, and accommodations, independent of SPIE, through their sponsoring organizations before submitting abstracts.
- All clearances, including government and company clearance, have been obtained to present and publish. If you are a DoD contractor, allow at least 60 days for clearance.
- SPIE is authorized to circulate your abstract to conference committee members for review and selection purposes.
- Accepted abstracts may be published with the printed Final Programs or on a CD-ROM for distribution at the meeting. Please submit only 250-word abstracts that are suitable for publication.
- Please also submit a 100-word abstract suitable for early release. If accepted, this abstract text will be published prior to the meeting in online or printed programs promoting the conference.
- A full-length manuscript (8-12 pages) for any accepted oral or poster presentation (including keynote, invited, and solicited presentations) will be submitted for publication in the SPIE Digital Library, printed conference Proceedings, and CD-ROM.

2. Prepare to submit:

- Have all contact information (full names, affiliations, addresses, phone numbers, and emails) for your coauthors ready.
- Only original material should be submitted.
- Abstracts should contain enough detail to clearly convey the approach and the results of the research.
- Commercial papers, papers with no new research/development content, and papers where supporting data or a technical description cannot be given for proprietary reasons should not be submitted, and will not be accepted for presentation in this conference.

3. Submit your abstract online <http://spie.org/lase>:

Or browse to locate the conference to which you are submitting at:

<http://spie.org/lase>

Click on "Submit an abstract."

If you have a MySPIE account, sign in using your username and password. First-time users of MySPIE can create a new account by clicking on the [Create an Account](#) link.

Review, Notification, and Program Placement

- To ensure a high-quality conference, all abstracts will be reviewed by the Conference Chair/Editors for technical merit and suitability of content. Conference Chair/Editors reserve the right to reject for presentation or publication any paper that does not meet content or presentation expectations.
- Conference Chair/Editors are expected to assess manuscripts for technical merit, suitability of content, and clarity. The process for assessing manuscripts for publication in SPIE proceedings is managed differently by chairs/editors of different conferences. Conference Chair/Editors may require one or more manuscript revisions before approving publication, and reserve the right to reject for publication any paper that does not meet content or quality expectations or manuscript requirements. SPIE's decision on whether to publish a manuscript is final.
- Applicants will be notified of abstract acceptance and sent manuscript instructions by email no later than 21 September 2009.
- Final placement in an oral or poster session is subject to the Chairs' discretion. Instructions for oral and poster presentations will be sent to the person marked as Contact Author by email.

Proceedings of SPIE and SPIE Digital Library

- Full-manuscripts will be Chair/Editor-approved and published in the *Proceedings of SPIE* and in SPIE Digital Library.
- Manuscript instructions will be emailed to the person marked as contact author for the paper and are also available from the "Information for Authors" link on the conference website.
- Authors must be authorized to transfer copyright of the manuscript to SPIE, or provide a suitable publication license. Authors reserve the right to expand and revise the manuscript for future publication.
- Only papers presented at the conference will be published in the conference Proceedings and SPIE Digital Library.
- Published papers are indexed in leading scientific databases including INSPEC, Ei Compendex, Chemical Abstracts, International Aerospace Abstracts, ISI Index to Scientific and Technical Proceedings and NASA Astrophysical Data System, and are searchable in the SPIE Digital Library. Full manuscripts are available to all SPIE Digital Library subscribers.