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Submit abstracts by 15 July 2020

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The industrial laser, laser source, and laser application conference

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- Laser Sources
- Nonlinear Optics and Beam Guiding
- Micro/Nano Applications
- Macro Applications

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- Translational Research
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SPIE LASE has developed into the main forum and meeting place for not only laser science and laser scientists, but also for novel laser applications and laser process engineers. The main communities participating in LASE are technology innovators reporting their latest developments and research discoveries.

Participation from academia is stable, and we have seen increasing participation from benefiting industries like microelectronics, computers, machine tools, and classical industries including automotive and manufacturing. LASE increasingly addresses business closer to the end user, closing the gap from bottom up competency-oriented novelties and new science to market-driven visions of new societal benefits from the point of view of the end user.

Consequently, we seek scientific contributions, new research results, and presentations that include perspectives for applications or even direct applicability to existing and new industries. The more the authors accept and fulfill this request, the more successful LASE will become because the impact of new science on innovation and new markets will be visible and become directly feasible.

We reach out to scientists to showcase their latest additions in the ever-growing toolbox of laser capabilities and to the representatives of the industrial R&D sector to help communicate to fundamental scientists the demands of emerging industrial and social applications.

We look forward to innovating LASE by disseminating relevant research contributions for more effective impact on our everyday life in the societies around the world.

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Michalis N. Zervas, Optoelectronics Research Ctr. (United Kingdom)

SPIE remains committed to advancing light-based research and meeting the needs of our constituents by providing you with an opportunity for sharing your work and connecting you with the global science and engineering community. SPIE Photonics West 2021 is scheduled to take place as planned, and we look forward to your participation.

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The primary purpose of this conference is to highlight the development of new laser sources, advanced technologies, components, and laser system designs that can benefit the development, commercialization, and fielding of new laser platforms based on solid state media and associated frequency-conversion techniques. As the field matures, this conference provides a forum for the discussion of challenges and advances in materials research, applied science, and design innovations that are fundamental to the operation and applications of solid state lasers.

Developments in the IR, visible, and UV will be presented, with emphasis on new materials, components, fabrication techniques, and design alternatives that can enhance laser performance, reduce foot-print and/or increase device efficiency, lifetime, and reliability while reducing life-cycle costs. Descriptions of advances necessary to better meet the needs of the many industrial, biomedical, life sciences, communications, lidar, sensing, space and military systems, and applications in which solid state lasers play a significant role are especially solicited.

Key topics include diode-pumped lasers, novel gain materials and gain geometries, ceramic materials, alternative power scaling and resonator design approaches, hybrid fiber/solid state lasers, seed lasers for solid state/fiber amplifiers, and recent developments in tuning, Q-switching, ultrafast pulse generation, and frequency-conversion technologies. Papers describing new modeling tools, measurement techniques, and system miniaturization efforts are also welcome.

Several sessions in the area of lasers utilizing thin disk gain media are planned. Contributions on solid state disk lasers, disk laser gain materials including ceramics, and applications of disk lasers are especially solicited.

Papers are again solicited for a series of critical technologies sessions on ‘Challenges and Issues in Field, Flight and Space Qualifying Laser Components & Systems’ addressing the needs of ruggedized airborne and space-qualifiable platforms for communications, lidar, and sensing applications.

Technical areas include (but are not limited to):
- high-power solid state lasers and laser systems
- visible and UV solid state lasers
- eye-safe, mid- and far-IR solid state lasers
- disk lasers
- slab and rectangular waveguide lasers
- single crystal (coatable & cladded) fiber lasers
- seed lasers for solid state and fiber amplifiers
- Q-switching and mode locking media and techniques
- new gain materials and composites
- novel resonator and pumping designs
- donut mode and vortex beam lasers
- resonantly pumped lasers
- single-frequency and narrow line lasers
- lasers using ceramic gain media
- laser modeling, testing, and characterization methods
- high-power beam delivery and characterization
- techniques for improving laser system reliability and efficiency
- compact laser devices and miniaturization efforts
- hybrid fiber/bulk laser systems
- intra-cavity and extra-cavity frequency-converted lasers
- specially designed solid state lasers for specific applications including:
  - photoacoustic imaging
  - medical, life sciences, and biophotonics
  - industrial, microelectronic, imaging, and display
  - lidar, atmospheric, aerospace, and military systems.
Fiber Lasers XVIII: Technology and Systems (LA102)

Conference Chair: Michalis N. Zervas, Optoelectronics Research Ctr. (United Kingdom)
Conference Co-Chair: Cesar Jauregui-Misas, Friedrich-Schiller-Univ. Jena (Germany)

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ADDITIONAL CONFERENCE INFORMATION

This conference does not accept post-deadline abstracts.

Support for Authors from Low-Income Economies

Based on availability of sponsorship funds, reduced registration fees or partial travel support may be available for presenting authors from low-income countries whose submissions are accepted. If you wish to apply, please contact SPIE (JenL@SPIE.org) after notification of paper acceptance. Include your SPIE paper number, name, and amount/type of support requested. Requests will be accepted through October 2020 for Photonics West 2021.

As research, development, and deployment of fiber lasers continues to expand, the Fiber Lasers Conference at Photonics West has become the preeminent gathering in the field. Drawing leading researchers from universities, laboratories, and industry, it provides a comprehensive update in all areas of fiber lasers and amplifiers. Submissions are solicited in all areas related to fibers and fiber lasers broadly categorized into the following four sub-categories:

- Fiber Lasers and Amplifiers
- Fiber Laser Devices and Sub-systems
- Specially Designed Fiber Lasers for Specific Applications
- Fiber Laser Materials, Design, Fabrication, and Characterization

SPECIAL ABSTRACT REQUIREMENTS: PEER REVIEW

Submissions to this conference must include the following three separate abstracts:

- 100-word text abstract (for online program)
- 250-word text abstract (for abstract digest)
- 2-page extended abstract (supplemental file; for committee review only)

The extended abstract is limited to two pages, including tables and figures. Include author names and affiliations; text; any figures, tables, or images; and sufficient data to permit peer review (main body text font size at least: 11 pt. Times/Times Roman).

- For US letter-size, set margins to .875 in. (2.22 cm) left and right, 1.0 in. (2.54 cm) top and 1.25 in. (3.17 cm) bottom.
- For A4 size, set margins to 1.925 cm left and right, 2.54 cm top, and 4.94 cm bottom.

- Only the extended abstract (PDF file) will be considered by the review committee when scoring submissions to determine acceptance.
- Extended abstracts will be used only for the purpose of peer review, and will not be published.
- Contributions without an extended abstract will not be considered for the conference.

Submissions must be completed by 15 July 2020.

BEST STUDENT PRESENTATION AWARDS

A cash prize donated by our cosponsors will be awarded to the best and runner-up student oral presentations. To be eligible for consideration, the student must:

- be a graduate or undergraduate full-time student
- have conducted the majority of the work to be presented
- submit your abstract online by the deadline
- 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 an oral presentation
- submit your manuscript online by the deadline
- make the oral presentation.

Presentations will be judged based on scientific merit, impact, as well as clarity of the student presenter’s talk.

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High Power Lasers for Fusion Research VI (LA103)

Conference Chairs: Abdul A. S. Awwal, Lawrence Livermore National Lab. (USA); Constantin L. Haefner, Fraunhofer-Institut für Lasertechnik ILT (Germany)

Program Committee: Philippe Balcou, Ctr. Lasers Intenses et Applications (France); Nathalie Blanchot, CEA-Cesta (France); Mark Bowers, Lawrence Livermore National Lab. (USA); Jean-Christophe Francis Chanteloup, École Polytechnique (France); Gilles Chériaux, National Energetics (USA); John L. Collier, STFC Rutherford Appleton Lab. (United Kingdom); Jean-Michel G. Di Nicola, Lawrence Livermore National Lab. (USA); John E. Heebner, Lawrence Livermore National Lab. (USA); Nicholas W. Hoppes, AWE plc (United Kingdom); Efim A. Khazanov, Institute of Applied Physics of the RAS (Russian Federation); Ryosuke Kodama, Osaka Univ. (Japan); Brian E. Kruschwitz, Lab. for Laser Energetics (USA); Richard R. Leach Jr., Lawrence Livermore National Lab. (USA); Catherine Le Blanc, Lab. pour l’Utilisation des Lasers Intenses (France); Ruxin Li, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences (China); Knut Michel, TRUMPF Scientific Lasers GmbH + Co., KG (Germany); Takayoshi Norimatsu, Osaka Univ. (Japan); Christophe Simon-Boisson, Thales LAS France SAS (France); Kazuo A. Tanaka, Osaka Univ. (Japan); Sébastien Vermersch, Commissariat à l’Énergie Atomique (France); Changhe Zhou, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences (China)

Laser-driven Inertial Fusion Energy (IFE) is one of the most promising approaches to bringing the power of the sun to earth. Energetic laser facilities are operating or being built around the world to use pulsed lasers for generating unprecedented conditions in the laboratory and explore the physics of inertial confinement fusion. The National Ignition Facility (NIF) is routinely delivering ~1.8 MegaJoules from 192 beams onto fusion targets; other similar NIF-like laser systems are being built or planned in France (Laser Megajoule), China (Shenguang IV), and Russia (UFL-2M). Smaller laser facilities such as OMEGA in the United States, GEKKO and LFEX in Japan, VULCAN and ORION in the United Kingdom, LIL in France, and many others have been conducting experiments supporting the development of the physics basis and key diagnostic capabilities for IFE.

This conference is dedicated to discussing the laser material and laser technology challenges, developments, and solutions underpinning the goal of demonstrating inertial confinement fusion in the laboratory.

We are soliciting original, unpublished contributions that report recent advances related to the topics listed below. In addition, review papers that summarize the evolution of any particular aspect of these topics are welcome. All abstracts will be reviewed for originality and merit. Topics of interest include, but are not limited to, the following:

**ENGINEERING CHALLENGES**
- laser architectures and large optical systems, evolution of design
- laser system and subsystem performance
- commissioning approach, results and challenges
- material, manufacturing, and subsystems level challenges
- diagnostic systems
- control systems
- performance modeling and simulation
- secondary source generation for high energy density physics applications
- high energy, high power, and ultrahigh intensity pulse generation
- temporal and spatial pulse shaping and cleaning
- advanced short pulse amplification materials and techniques.

**FUTURE**
- fusion experiments and results
- big data management and analysis
- next generation lasers: diode pumped, crystal/ceramic, high duty factor
- high repetition rate laser systems
- next-generation optical systems
- challenges in materials
- high power density challenges
- challenges in final-optics and target tracking, power plant design
- machine learning in the experiment design.

**OPERATION AND MAINTENANCE**
- challenges of a national user facility
- commissioning and maintenance issues
- safety and workforce.
Components and Packaging for Laser Systems VII (LA104)

Conference Chairs: Alexei L. Giebov, OptiGrate Corp. (USA); Paul O. Leisher, Freedom Photonics, LLC (USA)

Program Committee: Jens Biesebach, DILAS Diodenlaser GmbH (Germany); Gunnar Böttger, Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration IZM (Germany); Jenna Campbell, Freedom Photonics, LLC (USA); Joseph L. Dallas, Avo Photonics, Inc. (USA); Martin Forrer, FISBA AG (Switzerland); Manoj Kanskar, nLIGHT, Inc. (USA); Alexander V. Laskin, AdOptica Optical Systems GmbH (Germany); Xingsheng Liu, Focussight Technologies, Inc. (China); Christian V. Poulsen, NKT Photonics A/S (Denmark); Nicholas W. Sawruk, Fibertek, Inc. (USA); Mark A. Stephen, NASA Goddard Space Flight Ctr. (USA); Takunori Taira, Institute for Molecular Science (Japan); François Trépanier, TeraXion Inc. (Canada); Torsten Vahrenkamp, ficientEC Service GmbH (Germany); Alexander Yusim, IPG Photonics Corp. (USA); Chung-En Zah, Focussight Technologies, Inc. (China); Arnaud Zoubir, ALPhANOV (France)

Optical components are crucial for laser performance and form a foundation for advances in laser science and technology. All around the globe, vast and constantly growing research efforts are dedicated to developing new and more advanced laser components and systems. Along this line, packaging solutions for optical components enable their most efficient and consistent integration in laser systems. Laser component packaging is decisive for stable and reliable laser operations while not only improving laser characteristics but also enabling broader laser usability and applications.

This conference is dedicated to recent achievements and progress made in the field of optical components for lasers and laser systems as well as laser packaging solutions. A wide range of topics covers a variety of laser components and packaging technologies for semiconductor lasers, solid state lasers, fiber lasers, gas lasers, CW and pulsed lasers, ultra-short pulsed lasers, and others.

COMPONENTS FOR LASERS

- components for high-power and high-energy laser systems
- 2 micron and mid-IR optical components and packaging
- components integration for ultra-short pulsed laser (USPL) systems
- optics for ultrafast lasers
- beam-transforming components for laser diode arrays
- diffractive optical elements (DOE) and holographic optical elements (HOE)
- lenses and lens arrays
- grating components for lasers: volume Bragg gratings, fiber Bragg gratings, blazed gratings, holographic phase gratings, and others
- components for laser line narrowing, mode locking, and mode selection
- components for coherent and spectral beam combining of CW and pulsed lasers
- components for laser beam engineering
- high-power and high-energy beam delivery components
- high laser-induced damage threshold (LIDT) materials and components
- frequency generation components: components integrating nonlinear optics and novel optical designs (e.g., gas-filled fibers, resonant cavities, etc.) for SHG, THG, OPG, Raman shift, etc.
- space qualification of laser components
- AR coating of components for high-power laser applications
- UV laser-induced / photochemical contamination of laser optical components
- polarization optics for lasers
- recent advances in isolators, couplers, splitters, etc.
- emerging laser components
- advanced cooling components and solutions
- novel optical component design methodologies
- modeling of optical components in laser systems
- advanced manufacturing techniques for laser optical components
- novel materials for optical components (high index glasses, polymers, diamond, etc.).

LASER PACKAGING SOLUTIONS

- packaging, assembly, and mounting solutions of optical components in lasers
- packaging technologies for high-power lasers
- theoretical and practical packaging solutions for fiber coupling
- laser array packaging solutions
- thermal management of high-power lasers
- thermal and structural management for very narrow linewidth frequency-locked laser systems
- materials for laser packaging
- materials for component attachment (epoxies, solders, etc.)
- novel active and passive alignment techniques
- reliability of laser systems
- modeling and design of laser packaging.

Save the date

ABSTRACTS DUE: 15 JULY 2020

AUTHOR NOTIFICATION: 21 SEPTEMBER 2020

The contact author will be notified of acceptance by email.

MANUSCRIPTS DUE: 5 JANUARY 2021

PLEASE NOTE: Submission implies the intent of at least one author to register, attend the conference, present the paper as scheduled, and submit a full-length manuscript for publication in the conference proceedings.

Submit your abstract today: spie.org/lase21call
The High-Power Diode Laser Technology conference provides a forum to introduce the latest advancements in brightness and power scaling of semiconductor laser devices and packages. Innovations in laser architectures based on multi-emitter bars, single emitters, and multi-chip arrays are invited. Technologies of special interest include developments in beam combining (coherent, spatial, spectral, and polarization), wavelength stabilization, high-brightness fiber coupling, high-power semiconductor device design, device-level and package-level reliability, failure mode analysis, high-efficiency operation, high-temperature operation, plus recent progress in power scaling of short wavelength devices.

Papers are solicited on a wide range of topics related to high-power diode laser technology:

**HIGH-POWER VISIBLE LASER DIODES FOR:**
- industrial materials processing, 3D printing, welding, cutting, brazing
- automotive light sources and other lighting applications
- automotive lidar headlights
- medical therapeutic and bioinstrumentation applications
- novel pumping applications
- reliability testing, modeling, expected lifetime assessments, and failure analysis.

**HIGH-POWER INFRARED LASER DIODES FOR:**
- industrial materials processing; 3D printing, welding, cutting, cladding, brazing
- autonomous vehicle LIDAR and other applications for navigation, collision avoidance, and general 3D sensing illumination
- pump sources for fiber lasers, solid-state lasers, and alkali lasers
- surgical, aesthetic, and other medical applications
- large-scale pump arrays for fusion energy systems and high-energy physics research.

**ADVANCES IN HIGH-POWER LASER DIODE DEVICES AND HIGH-BRIGHTNESS INTEGRATION**
- low-SWaP (Size, Weight, and Power consumption) diode lasers for defense applications
- novel material systems for high-density packaging and thermal management
- high-brightness beam combination architectures and fiber coupling schemes, including coherent beam combining
- spectral control with on-chip gratings or external cavities
- beam shaping and homogenization technologies
- near- and far-field beam profile control
- device modeling and multi-physics simulation
- high-efficiency epitaxy and low-loss optical coupling
- reliability testing, modeling, expected lifetime assessments, and failure analysis.

**ABSTRACT REQUIREMENTS**
Contributions are accepted based on a peer-reviewing process. Contributions to this conference must include the following two separate abstracts:
- 100-word text abstract (for online program)
- 250-word text abstract (for abstract digest).
Nonlinear Frequency Generation and Conversion: Materials and Devices XX (LA201)

Conference Chairs: Peter G. Schunemann, BAE Systems (USA); Kenneth L. Schepler, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA)

Program Committee: Carlota Canalias, Tailored Photons AB (Sweden); Shekhar Guha, Air Force Research Lab. (USA); Christelle Kieleck, Fraunhofer-Institut für Optronik, Systemtechnik und Bildausrundung IOSB (Germany); Kentaro Miyata, RIKEN (Japan); Rita D. Peterson, Air Force Research Lab. (USA); Valentin Petrov, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); Christopher R. Phillips, ETH Zurich (Switzerland); Chaitanya Kumar Suddapalli, ICFO - Institut de Ciencies Fotòniques (Spain); Konstantin L. Vodopyanov, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Vladislav V. Yakovlev, Texas A&M Univ. (USA); Haohai Yu, Shandong Univ. (China)

The purpose of this conference is to provide a forum for discussing advances in nonlinear optics. Areas of emphasis include new devices and techniques for improved nonlinear frequency conversion, new effects and demonstrations based on nonlinear optics, as well as novel nonlinear optical materials.

Topics include:

DEVICES AND TECHNIQUES
- nonlinear processes in bulk crystals, fibers, waveguides, and thin films
- parametric frequency up and down conversion
- sources based on parametric processes
- sum and difference frequency generation, 2nd, 3rd, 4th, and 5th harmonic generation
- high harmonic generation
- optical parametric chirped pulse amplifiers
- frequency combs and spectroscopy
- supercontinuum generation
- stimulated Raman and Brillouin scattering
- four-wave mixing and other 3rd and higher-order nonlinear processes
- THz generation based on nonlinear conversion, THz spectroscopy, and imaging
- epsilon-near-zero materials
- nonlinear plasmonics

NONLINEAR MATERIALS
- bulk inorganic and organic nonlinear materials
- engineered nonlinear materials including quasi-phase-matched oxides and semiconductors
- nanostructures, photonic bandgap structures
- nonlinear fibers, waveguides, and thin films
- new measurements and measurement techniques of nonlinear optical properties.

Save the date

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PLEASE NOTE: Submission implies the intent of at least one author to register, attend the conference, present the paper as scheduled, and submit a full-length manuscript for publication in the conference proceedings.

Submit your abstract today: spie.org/lase21call
Real-time Measurements, Rogue Phenomena, and Single-Shot Applications VI (LA202)

Conference Chairs: Daniel R. Solli, Univ. of California, Los Angeles (USA); Georg Herink, Univ. Bayreuth (Germany); Serge Bielawski, Lab. de Physique des Lasers, Atomes et Molécules (France)

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Rapid dynamics in diverse physical systems may often be seeded from noise or arise from highly inhomogeneous disordered environments. Optical solitons and rogue waves in nonlinear media, laser mode locking, soliton molecule interactions, electron bunches in accelerators, and optical-triggered phases in materials are events that carry important information about the system from which they emerge. They may also seed practical applications in lasers and optical communication and sensing. Attempts to understand the underlying dynamics of complex systems are often frustrated by the scarcity of events and by the inability to perform experiments under controlled conditions. In many cases, a large number of single-shot measurements must be done continuously over long time in order to capture the rare event. Such a feat is not possible with traditional pump and probe techniques as they operate in equivalent time as opposed to real time. Moreover, it may be extremely time consuming to model such dynamics with digital simulations, and accuracies are limited by knowledge of the initial conditions. Ultrafast and real-time instruments make it possible to collect large data sets, even for rare events, in a relatively short time period. The knowledge gained from observing rare events in ultrafast systems provides valuable insight into extreme value phenomena that occur over much slower timescales, including those that have a closer connection with human experience. The real-time measurement of fast single-shot events with large record lengths is one of the most challenging problems in the fields of instrumentation and measurement. Notwithstanding the sensitivity and speed requirements needed for single-shot real-time measurements, such instruments also create a big data problem associated with continuous recording at high data rates.

The aim of this conference is to create a forum for presentation of the latest developments in real-time optical instrumentation and complex optical dynamics and to facilitate the exchange of ideas in this new and promising field of science and technology.

Topics of interest include but are not limited to:
• high-throughput ultrafast spectroscopy and imaging
• rapid terahertz waveform sampling
• electron bunch characterization in accelerators
• laser dynamics and ultrashort pulse characterization
• optical rogue waves
• real-time detection of optical-triggered phase transitions
• high-speed Raman spectroscopy
• time-stretch instruments
• single-shot electro-optical sampling
• real-time metrology
• complex systems
• dissipative solitons
• soliton interactions and molecules
• dual-comb spectroscopy and imaging
• instabilities in linear and nonlinear systems
• time-bandwidth engineering
• real-time optical data analytics
• real-time data compression
• mathematical and analytical techniques.

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AUTHOR NOTIFICATION: 21 SEPTEMBER 2020
MANUSCRIPTS DUE: 5 JANUARY 2021

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Laser Resonators, Microresonators, and Beam Control XXIII (LA203)

Conference Chairs: Vladimir S. Ilchenko, GM Cruise LLC (USA); Andrea M. Armani, The Univ. of Southern California (USA); Julia V. Sheldakova, Active Optics Night N Ltd. (Russian Federation)

Conference Co-Chairs: Alexis V. Kudryashov, Institute of Geosphere Dynamics (Russian Federation); Alan H. Paxton, Air Force Research Lab. (USA)

Program Committee: Lutz Aschke, Philips Photonics GmbH (Germany); Paul E. Barclay, Univ. of Calgary (Canada); Victor Brasch, CSEM SA (Switzerland); Hui Cao, Yale Univ. (USA); Yannie K. Chemko, Univ. of Maryland, College Park (USA); Jean-Claude M. Diels, The Univ. of New Mexico (USA); Hans Joachim Eichler, Technische Univ. Berlin (Germany); Andrew Forbes, Univ. of the Witwatersrand, Johannesburg (South Africa); Pierre Galanneau, INO (Canada); Thomas Graf, Univ. Stuttgart (Germany); Qing Gu, The Univ. of Texas at Dallas (USA); Stefan Hambücker, INGENERIC GmbH (Germany); Tobias J. Kippenberg, Ecole Polytechnique Fédérale de Lausanne (Switzerland); James R. Leger, Univ. of Minnesota, Twin Cities (USA); Andrey B. Matsko, Jet Propulsion Lab. (USA); Gualtiero Nunzi Conti, Istituto di Fisica Applicata “Nello Carrara” (Italy); Michael J. Scaggs, Haas Laser Technologies, Inc. (USA); Harald G. L. Schwefel, Univ. of Otago (New Zealand); Haiyin Sun, ChemImage Corp. (USA); Yun-Feng Xiao, Peking Univ. (China); Lei Xu, Fudan Univ. (China); Jonathan M. Ward, Okinawa Institute of Science and Technology Graduate Univ. (Japan)

Innovation in laser resonator design is key to solving various scientific and technological problems, from improving the fundamental performance of laser systems to enabling new laser-based applications. Advancement in laser design can take many forms including controlling the shape of the laser beam, improving the cavity performance, and creating new functionality. These features are frequently independent, as advances in laser system design rapidly lead to new application areas. Classical approaches to cavity design and beam shaping have been recently amended with vast new opportunities stemming from achievements of material science, micro- and nano-fabrication, metrology, and instrumentation. New technical and industrial needs stimulate new methods of beam shaping and control for optimized energy delivery in fabrication, communication, sensing, and other laser uses. Advances in the field of optical microresonators have produced an expanding toolkit for a growing number of photonics applications, including optical frequency combs, microphotonics frequency metrology, signal processing, quantum communication and computing, high-rate data communication, biochemical, inertial, range sensors (LiDAR), and other emerging areas.

This conference provides a forum to bridge the communities of innovators in laser resonators, beam control and shaping, and microcavity technology and microcavity-based applications. Conference papers are solicited on a wide range of topics related to the conference title, including but not limited to the following:

**LASER RESONATORS**
- active and adaptive laser resonators
- stable and unstable laser resonators for high-quality laser beams
- resonators for gas, solid state, and fiber lasers
- high-stability laser resonators

**MICRORESONATORS AND APPLICATIONS**
- novel microresonator topologies, fabrication and coupling methods, material platforms and packaging methods
- dispersion management, nonlinear effects and functionalization
- microcavities in optical frequency combs
- novel polarization and angular momentum state conversion devices and technologies
Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM) XXVI (LA301)

Conference Chairs: Carlos Molpeceres, Univ. Politécnica de Madrid (Spain); Jie Qiao, Rochester Institute of Technology (USA); Aiko Narazaki, National Institute of Advanced Industrial Science and Technology (Japan)

Program Committee: Craig B. Arnold, Princeton Univ. (USA); Matthias Domke, FH Vorarlberg (Austria); Jan J. Dubowski, Univ. de Sherbrooke (Canada); Costas P. Grigorioupolos, Univ. of California, Berkeley (USA); Bo Gu, Bos Photonics (USA); Henry Helvajian, The Aerospace Corp. (USA); Guido Hennig, Daetwyler Graphics AG (Switzerland); Heinz P. Huber, Hochschule für Angewandte Wissenschaften Hamburg (Germany); Yusuke Itō, The Univ. of Tokyo (Japan); Timothy Lee, Optoelectronics Research Ctr. (United Kingdom); Tetsuya Makimura, Univ. of Tsukuba (Japan); Michel Meunier, Polytechnique Montréal (Canada); Godai Miyaji, Tokyo Univ. of Agriculture and Technology (Japan); Yoshihi Nakata, Osaka Univ. (Japan); Beat Neuenschwander, Berner Fachhochschule Technik und Informatik (Switzerland); Hiroyuki Niino, National Institute of Advanced Industrial Science and Technology (Japan); Alberto Piqué, U.S. Naval Research Lab. (USA); Gediminas Raciučaitis, Ctr. for Physical Sciences and Technology (Lithuania); André V. Rode, The Australian National Univ. (Australia); Stephan Roth, BLZ Bayerisches Laserzentrum GmbH (Germany); Klaus Sokolowski-Tinten, Univ. Duisburg-Essen (Germany); Razvan Stoian, Lab. Hubert Curien (France); Koji Sugio, RIKEN Ctr. for Advanced Photonics (Japan); Mitsuhiro Terakawa, Keio Univ. (Japan); Xianfan Xu, Purdue Univ. (USA); Steven M. Yalisove, Univ. of Michigan (USA)

This conference aims to provide a forum for discussion of fundamentals, methods, and techniques in laser materials processing and their 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 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:

DYNAMICS OF LASER-MATTER INTERACTION
• fundamentals of laser-material interaction
• 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.

LASER PROCESSES
• AI for laser processing
• laser modification of materials (annealing, doping, intermixing, photosensitivity)
• laser 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 patterning
• laser direct writing
• 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 photovoltaic industry
• digital photonic production
• laser manufacture of Microsystems (including microfluidic chips) 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)
LAMOM 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). Student contributions will be judged based on scientific content and quality of presentation. 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;
• submit your abstract online by the deadline;
• be the primary author;
• 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.

CALL FOR PAPERS

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The contact author will be notified of acceptance by email.

MANUSCRIPTS DUE: 5 JANUARY 2021

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Laser-based Micro- and Nanoprocessing XV (LA302)
Conference Chair: Udo Klotzbach, Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS (Germany)
Conference Co-Chairs: Akira Watanabe, Tohoku Univ. (Japan); Rainer Kling, ALPhANOV (France)

Program Committee: Antonio Ancona, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Ya Cheng, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences (China); Jiyeon Choi, Univ. of Science and Technology (Korea, Republic of); Francois Courvoisier, Institut Franche-Comte Electronique Mecanique Thermique et Optique (France); Miguel Holgado Bolaños, Univ. Politécnica de Madrid (Spain); Minghui Hong, National Univ. of Singapore (Singapore); André-Fabián Lasagni, TU Dresden (Germany); Yongfeng Lu, Univ. of Nebraska-Lincoln (USA); Wilhem Pfleging, Karlsruhe Institute of Technology (Germany); Razvan Stoian, Lab. Hubert Curien (France); Koji Sugioaka, RIKEN Ctr. for Advanced Photonics (Japan); Hong-Bo Sun, Tsinghua Univ. (China); Kunihiko Washio, Paradigm Laser Research Ltd. (Japan); Michael J. Withford, Macquarie Univ. (Australia); Halbin Zhang, ESI, Inc. (USA)

The aim of this conference is to bring together scientists and engineers working on laser-based processes on micro- and nanometer scales for advanced applications. Cutting-edge technological visions and applications are increasingly based on micro- and nanosystem technologies. The realization of such devices or functional prototypes is often a new challenge for patterning, structuring, surface modification, and processing. Scientists and engineers are increasingly confronted with tasks that cannot be accomplished with conventional tools.

Demands in high-tech industries are growing for specialized prototypes and high-throughput devices with micro- and nanoscaled structures, including fluidic, biologic, chemical, electronic, mechanical, or photonic features. Metamaterials and metasurface technologies increasingly coexist with micromaterials and microstructuring technologies, leading not only to new applications and research fields but also to new challenges for appropriate assembly and processing technologies.

Laser-assisted applications emerge as an increasingly important technology which can be established in new technical approaches, in order to overcome apparent process limitations on nearly each material and for different scaling lengths. The conference is an ideal platform for scientists and engineers working on laser-based processes on micro- and nanometer scales for advanced applications. These include laser transformations and modification for integrated device functionalities (annealing, curing, alloying, doping, metallization, cleaning, polymerization, sintering, cladding, bending, forming change of chemical/physical properties, and transferring).

- Laser direct writing and micro- and nanostructuring relevant for device fabrication and processing.
- Laser processes for alternative energy sources (e.g., fuel cells) and advanced energy storage systems (e.g., batteries), power-electronics devices, photovoltaics processing, H2-technology.
- Laser processing and packaging of thin and flexible advanced electronic and photonic components (e.g., wearables).
- Structuring, packaging, and assembling of components in microreaction technology, microelectronic and photonic devices, MOEMS, MEMS/bio-MEMS, NEMS, micro- and nanofluidic devices, which, e.g., apply advanced beam source and beam delivery technologies, including high throughput laser processing with high-speed scanners and advanced parallel processing techniques for improving the yield in the laser processes.

Papers are solicited on the following application-oriented topics and other laser processing related issues:
- Fundamental physical and chemical issues in laser-based micro- and nanofabrication, processing, 3D laser processing, and assembly.
- Laser material processing for metals, polymers, ceramics, semiconductors, or dissimilar materials
  - laser ablation (cutting, scribing, dicing, drilling, cleaning, marking, engraving, milling, caving, trimming, and deflashing) by high-power ultra-short-pulsed laser (kW-, mJ-class)
  - laser micro-joining (welding, soldering, bonding, splicing, and sealing).
- Innovative approaches for optimizing the use of lasers based on AI (machine learning, predictive modelling).
- Innovative “green photonics” for micro- and nanoprocessing and assembly.

JOIN SESSION
LA302 Laser-based Micro- and Nanoprocessing XV with BIOS BO307 Microfluidics, BioMEMS and Medical Microsystems XIX

This session will present recent progress in laser-assisted development and fabrication of microfluidic elements and medical Microsystems for applications that include microreactors, Labs-on-chip, and Organs-on-Chip. A broad range of advanced laser subtractive and additive processes are of interest, including materials research and applications such as surface modification, microstructuring, hole drilling, 2-photon polymerization, sensor integration, and 3D-bioprinting.
CALL FOR PAPERS

Synthesis and Photonics of Nanoscale Materials XVIII (LA303)

This conference is dedicated to the use of photonic methods in nanoscience, including the exploration of laser-assisted capabilities to synthesize, characterize, modify, and manipulate nanostructures, and applications of photonic nanoscale materials. Lasers are not only powerful tools for the nonequilibrium synthesis of unique nanostructures by pulsed laser vaporization, deposition, and surface processing, but they also provide sensitive spectroscopic probes of the novel electronic and vibrational properties of nanoscale materials and energy transfer within their architectures. The fundamental understanding of nanostructure synthesis and properties provides the means to remotely characterize nanomaterials using optical spectroscopy, including in-situ remote manipulation and control over their size, shape, orientation, and alignment. On the other hand, photonic excitation of nanostructures, including quantum dots, plasmonics, 2D materials, and metamaterials, can lead to a variety of new phenomena opening access to a plethora of attractive applications. This symposium crosscuts nanoscience research in materials science, chemistry, biology, physics, and engineering to explore photonic techniques for synthesis, characterization, and manipulation of nanostructures, as well as the exploitation of properties of nanophotonic structures for a variety of applications, including optoelectronics, photovoltaics, telecommunications, and biomedicine.

Papers are solicited on the following topics:

- pulsed laser ablation in liquids to synthesize photonic nanoscale materials for biomedical, optoelectronics, photovoltaics, catalytic, and other applications
- photons of nanoscale materials for quantum information
- laser characterization of nanostructures and atomically-thin 2D materials, including electronic excitations and vibrational dynamics by photoluminescence, Raman scattering, transient ultrafast absorption, and nonlinear spectroscopic techniques
- theory and modeling of light-nanomaterial interactions: optoelectronic and thermal phenomena
- photon-based synthesis/diagnostics of nanostructure growth: from 0D and 1D nanomaterials such as nanocrystals, nanoparticles, quantum dots, nanohorns, nanowires, nanotubes, to 2D nanosheets such as graphene, metal chalcogenides, to heterostructures of nanomaterials, including multi-element (semiconductor) materials, polymers, and composites
- multiphoton / femtosecond laser energy localization for nanoscale laser processing
- laser-synthesis of nanosurface structures, including sub-λ ablation, machining, LIPSS, and their applications
- laser-based surface modification and size manipulation of individual nanostructures (i.e., shaping, cutting, melting/recrystallization, doping, welding)
- photon-controlled physical and chemical properties of nanostructures and their devices by impurity doping, impurity-free processing, and bandgap engineering
- photonic properties of plasmonic nanoscale materials and their applications in photovoltaics, telecommunications, biosensing, bioimaging, and therapies
- photonic properties of semiconductor nanoscale materials and their applications
- photonic properties of nanostructured artificial materials (metamaterials), and 2D metasurfaces and their applications.

JOINT SESSION WITH LA301 AND LA303

TOPIC: Laser Modification of Nanomaterials

The intent of this session is to present recent research in laser interactions with nanomaterials for the development of new laser-based processing techniques. This includes laser interactions with nanomaterials resulting in physical transformations such as melting, alloying, shaping, welding, sintering, and solidification, laser-induced chemical modifications to nanomaterials, mechanisms of laser-induced defect generation or healing, laser processing techniques to move, self-assemble, or separate nanomaterials.

Save the date

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Tel: +1 360 676 3290  •  help@spie.org  •  #PhotonicsWest
Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XXI (LA304)

Conference Chairs: Peter R. Herman, Univ. of Toronto (Canada); Michel Meunier, Polytechnique Montréal (Canada); Roberto Osellame, CNR-Istituto di Fotonica e Nanotecnologia (Italy)

Program Committee: Craig B. Arnold, Princeton Univ. (USA); Yves Bellouard, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Adela Ben-Yakar, The Univ. of Texas at Austin (USA); Alexander Heisterkamp, Leibniz Univ. Hannover (Germany); Denise M. Krol, Univ. of California, Davis (USA); Eric Mazur, Harvard John A. Paulson School of Engineering and Applied Sciences (USA); Eric P. Mottay, Amplitude Systèmes (France); Beat Neuenschwander, Berner Fachhochschule Technik und Informatik (Switzerland); Stefan Nolte, Friedrich-Schiller-Univ. Jena (Germany); Aleks Ovsianikov, Technische Univ. Wien (Austria); Christopher B. Schaffer, Cornell Univ. (USA); Jan Siegel, Instituto de Optica “Daza de Valdés” (Spain); Koji Sugioaka, RIKEN Ctr. for Advanced Photonics (Japan); Mitsuhiro Terakawa, Keio Univ. (Japan); Alfred Vogel, Univ. of Lübeck (Germany); Sascha Weiler, TRUMPF Inc. (USA); Dvir Yelin, Technion-Israel Institute of Technology (Israel)

Recent advances in ultrafast laser technology have resulted in widespread availability of robust, practical laser sources. 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 twentieth year, this conference is the premier venue for discussing interactions and modification of biological tissues, direct writing of integrated photonic devices, novel medical applications of ultrafast lasers, ultrashort pulse delivery and beam manipulation.
Additive manufacturing and 3D printing are revolutionizing the way objects can be fabricated. Leading this revolution are laser-based digital fabrication techniques and processes, which offer the greatest versatility and range in terms of feature size (nano to macro), material type (from metals and ceramics to organics), phase (bulk to porous, homogenous to graded compositions), and processing options (from ablative to sintering and physical to chemical modification).

This conference will provide a common forum for various laser-based disciplines that promise to yield advances in manufacturing that will accelerate the mass-customization of products. Examples of these disciplines include laser freeform fabrication which involves additive and subtractive techniques to permit the development of solid objects that cannot be manufactured using traditional approaches. Also considered are laser-based materials processing techniques that rely on light-matter interaction phenomena to achieve transformative effects. Another example includes the interaction of lasers with functional or advanced materials to yield structures with a desired functional property and very high specificity. Many of these materials also have protean (mutable, changeable) properties that could be induced via light-matter interaction “upon command.” Common to all these processes is their operation under computer control without requiring part-specific tooling or special fixturing. All of these and other laser-based processing disciplines are enablers for fabrication. Leading techniques and processes, which offer the greatest versatility and range in terms of feature size (nano to macro), material type (from metals and ceramics to organics), phase (bulk to porous, homogenous to graded compositions), and processing options (from ablative to sintering and physical to chemical modification).

The primary goal of this conference is to provide a forum for professionals in materials science, laser processing physics/chemistry, mechanical engineering, design tools, software modeling, characterization, and metrology to share and discuss the latest advances in the field of laser-based manufacturing. This gathering will offer a unique opportunity to join the discussion for the development and implementation of next-generation laser-based 3D manufacturing processes.

Joint Sessions with LAMOM (LA301), Synthesis and Photonics of Nanoscale Materials (LA303) and Advanced Fabrication Technologies for Micro/Nano Optics and Photonics (OE201) are being considered to bridge with other technologies relevant to laser 3D manufacturing such as fundamentals of laser processing, nanoscale processing, and fabrication of micro/nano optics. Future joint sessions with material developers will also be planned.

Two new topics are added again this year in light of the ever-growing concerns over cyber security and the development in 3D printing metrology: computed tomography (CT) and metrology for 3D printing and additive manufacturing, and cyber security issues in 3D printing and additive manufacturing.

Papers are solicited on the following topics:

• applications of laser-based 3D manufacturing
• laser-based solid freeform fabrication
• selective laser sintering (SLS)
• direct metal laser sintering (DMLS)
• selective laser melting (SLM)
• laser cladding and direct energy deposition (DED)
• stereolithography (SLA)
• multi-photon polymerization for micro-nano 3D fabrication
• laser direct-write and laser-induced forward transfer (LIFT)
• flexible electronics and wearable sensor laser printing
• multi-materials additive manufacturing (grades, composition or phase change)
• biomedical structures and devices generated by laser digital fabrication
• micro-optics, 3D microrobotics and micromechanical sensors laser fabrication
• process modeling and simulation of laser 3D process (additive & subtractive)
• in-situ sensors, process monitoring and control for all 3D mfg technologies (e.g., SLS/DMLS/SLM/SLA)
• computed tomography (CT) and metrology for 3D printing and additive manufacturing
• cyber security issues in 3D printing and additive manufacturing.

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This conference will provide a forum for all professionals involved in technologies related to free-space laser communications, and broadband optical communications. The conference will cover subjects related to the latest research and technology advances, and provide an overview useful to lasercom specialists, technology managers, and communication engineers. Papers are encouraged on ongoing laser communication programs, free-space laser communication system requirements, technology and subsystem advancements, and in-depth analysis of present status and future trends. Original papers are solicited on, but are not limited to, the following topics:

FREE-SPACE LASER COMMUNICATION TECHNOLOGIES AND ATMOSPHERIC PROPAGATION

- present and future laser communication systems; space-based systems, airborne links terrestrial/indoor/commercial links
- next-generation lasercom technologies
- modulation and error correction encoding
- pointing, acquisition, and tracking
- atmospheric propagation, transmission effects, and compensation techniques
- transmitters for space, receivers, subsystems, optical and optoelectronic components
- flight qualification, lifetime and reliability
- ground receivers, particularly low-cost large apertures (telescope, dome, gimbal)
- beyond-line-of-sight communications
- quantum communication and cryptography
- optics for electronic module interconnects
- global communications systems that make use of wireless-terrestrial, air, and space optical connections
- free-space-laser-based gravitational wave sensing systems.
High-Power Laser Materials Processing: Applications, Diagnostics, and Systems X (LA403)

Conference Chairs: Stefan Kaierle, Laser Zentrum Hannover e.V. (Germany); Stefan W. Heinemann, TRUMPF Photonics, Inc. (USA)

Program Committee: Bo Gu, Bos Photonics (USA); Klaus R. Kleine, Coherent, Inc. (USA); Wolfgang Knapp, Univ. de Nantes (France); Markus Kogel-Hollacher, Precitec GmbH & Co. KG (Germany); Henrikki Pantsar, TRUMPF Inc. (USA); Stephan Roth, BLZ Bayerisches Laserzentrum GmbH (Germany); Masahiro Tsukamoto, Osaka Univ. (Japan); Stefaan Vandendriessche, Edmund Optics Inc. (USA); Verena Wippo, Laser Zentrum Hannover e.V. (Germany)

High-power lasers are used in many industries. There are several key laser technologies employed for materials processing and each laser type, wavelength, and architecture has its advantages and key applications where it excels. Delivering the beam to the work piece, and monitoring both the beam characteristics, as well as the process, are important enablers for any given application.

This conference will explore high-power lasers, how their radiation is shaped and delivered to the work piece, how the process is monitored, and, in general, their use in the world of industrial materials processing. Preference will be given to “real world” industry-related submissions.

Papers are solicited on a wide range of topics related to the conference title, including but not limited to the following:

APPLICATIONS:
- high-power ultra-short pulses laser processing
- high-power short wavelength, i.e., UV
- large-scale (XXL), and high throughput additive manufacturing
- laser applications for light-weight materials (e.g., cutting, structuring, joining)
- laser processes for E-mobility, e.g., battery manufacturing
- laser welding, remote welding, and hybrid welding
- cutting, including remote cutting
- brazing / soldering
- joining of non-ferrous and dissimilar materials
- laser welding of ceramics
- surface treatment, e.g., laser shock peening, cleaning, and structuring
- rapid prototyping and manufacturing
- modeling of laser processes
- laser-based reduction of drag on aircraft surfaces
- use of lasers in nuclear waste management.

DIAGNOSTICS:
- process monitoring
- vision systems and tracking
- high-speed imaging
- laser-beam characterization and measurement of laser-beam parameters
- destructive and non-destructive quality testing methods
- particulate diagnostics.

SYSTEMS:
- processing heads and accessories for cutting, welding, material deposition (LMD), and surface treatment
- scanning heads
- beam shaping and guiding devices, including fibers, connectors, and accessories
- fibers and components for high peak power usage
- thermal lensing and optics design approaches.

JOINT SESSIONS
LA203 Laser Resonators, Microresonators, and Beam Control (Beam shaping components) and LA401 Laser 3D-Manufacturing may be held to accommodate presentations that cover the aspects of the respective conferences.

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GENERAL INFORMATION

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San Francisco, CA 94103-3118 USA

San Francisco is often called “Everybody’s Favorite City,” a title earned by its scenic beauty, cultural attractions, diverse communities, and world-class cuisine. Visitors rate the atmosphere and ambience as their top reason for visiting San Francisco. Measuring 49 square miles, this walkable city is dotted with landmarks like the Golden Gate Bridge, cable cars, and Alcatraz.

REGISTRATION
SPIE Photonics West registration will be available October 2020

All participants, including invited speakers, contributed speakers, session chairs, co-chairs, and committee members, must pay a registration fee. Authors, coauthors, program committee members, and session chairs are accorded a reduced symposium registration fee.

Fee information for conferences, courses, a registration form, and technical and general information will be available on the SPIE website in October 2020.

HOTEL INFORMATION
Opening of the hotel reservation process for SPIE Photonics West 2021 is scheduled for June 2020. SPIE will arrange special discounted hotel rates for SPIE conference attendees.

The website will be kept current with any updates.

STUDENT AUTHOR TRAVEL GRANTS
The Society offers a small number of supplemental travel grants to eligible and selected SPIE student members who are authors, and plan to present and publish an accepted paper at an SPIE meeting. For more information visit: spie.org/membership/student-services/student-author-travel-grants

CLEARANCE INFORMATION
If government and/or company clearance is required to present and publish your presentation, start the process now to ensure that you receive clearance if your paper is accepted.

IMPORTANT NEWS FOR ALL VISITORS FROM OUTSIDE THE UNITED STATES
Find important requirements for visiting the United States on the SPIE Photonics West website. There are new steps that ALL visitors to the United States need to follow.

Online at: spie.org/visa

Submit your next paper to an SPIE Journal

SPIE journals are part of the SPIE Digital Library, the world's largest collection of optics and photonics research.

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SPIE is the international society for optics and photonics, an educational not-for-profit organization founded in 1955 to advance light-based science, engineering, and technology. The Society serves more than 255,000 constituents from 183 countries, offering conferences and their published proceedings, continuing education, books, journals, and the SPIE Digital Library. In 2019, SPIE provided more than $5.6 million in community support including scholarships and awards, outreach and advocacy programs, travel grants, public policy, and educational resources.
SUBMISSION GUIDELINES

Present your research at SPIE Photonics West

Follow these instructions to develop a successful abstract and accompanying manuscript for the conference and for publication in the Proceedings of SPIE in the SPIE Digital Library.

How to submit an abstract

1. Browse the conference program and select the conference(s) that most closely matches the topics of the research you wish to present. Important: each abstract may be submitted to one conference only.
2. Click “Submit an Abstract” from within the conference you’ve chosen, and you’ll be prompted to sign in to your spie.org account to complete the submission wizard.
3. If your submission is related to an application track, indicate the appropriate track when prompted during the submission process.

What you will need to submit

A completed electronic submission should include the following:

• Title
• Author(s) information
• 250-word abstract for technical review
• 100-word summary for the program
• Keywords used in search for your paper (optional)
• Your decision on publishing your presentation recording to the SPIE Digital Library (slide capture and audio)
• 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 competing for awards)

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.

Important dates

| Abstracts Submission Deadline | 15 July 2020 |
| Acceptance Notification Sent to Contact Author | 21 September 2020 |
| Manuscripts Due (Conferences OE506, and OE801-OE803 Only) | 9 December 2020 |
| Manuscripts Due (All Conferences EXCEPT OE506, and OE801-OE803) | 5 January 2021 |

Submission agreement

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
• Attend the meeting
• Present at the scheduled time
• Publish their manuscript in the SPIE Digital Library
• 6-page manuscript minimum for LASE and OPTO; 4-page minimum for BIOS; 20-page maximum
• Obtain funding for registration fees, travel, and accommodations, independent of SPIE, through their sponsoring organizations
• 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.

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 Chairs’ discretion.

Publication of Proceedings in the SPIE Digital Library

• Conference Chairs/Editors may require manuscript revision before approving publication and reserve the right to reject for publication any paper that does not meet acceptable standards for a scientific publication.
• Conference Chair/Editor decisions on whether to allow publication of a manuscript are final.
• Authors must be authorized to transfer copyright of the manuscript to SPIE, or provide a suitable publication license.
• Only papers presented at the conference and received according to publication guidelines and timelines will be published in the conference Proceedings of SPIE in the SPIE Digital Library.
• Oral presentations are recorded, and presentation slides are synced with the presenter’s audio. Only those presentations with author permission will be published in the SPIE Digital Library.
• SPIE partners with relevant scientific databases to enable researchers to find the papers in the Proceedings of SPIE easily. The databases that abstract and index these papers include Astrophysical Data System (ADS), Ei Compendex, CrossRef, Google Scholar, Inspec, Scopus, and Web of Science Conference Proceedings Citation Index.
• More publication information available on the SPIE Digital Library.

Contact information

For questions about submitting an abstract, or the meeting, contact the Conference Program Coordinator.
Add an application track to help get your presentation noticed

When submitting an abstract, add an application track during the submission process to increase the visibility of your presentation in the program. Application tracks offer a second presentation listing so participants can easily locate presentations in the program on their area of interest.

APPLICATION TRACK

Instructions

1. Select a conference online, click “Submit an Abstract,” and follow the instructions.
2. Indicate the appropriate track when prompted during the submission process.

Accepted presentations will be listed in both the conference and application track listing in the program.

TRANSLATIONAL RESEARCH
SPIE Translational Research 2021 will highlight the latest R&D with high potential to impact healthcare.

- Photonic Therapeutics and Diagnostics
- Neurophotonics, Neurosurgery, and Optogenetics
- Clinical Technologies and Systems
- Tissue Optics, Laser-Tissue Interaction, and Tissue Engineering
- Biomedical Spectroscopy, Microscopy, and Imaging
- Nano/Biophotonics

TRACK CHAIRS:

Aaron Aguirre
Massachusetts General Hospital (USA)

Gabriela Apiou
Harvard Medical School, Wellman Ctr. for Photomedicine, Massachusetts General Hospital (USA)

BRAIN
SPIE Brain 2021 will highlight technologies that increase our understanding of the brain.

- Clinical and Translational Neurophotonics, Optogenetics, and Optical Manipulation
- Clinical Technologies, Laser Tissue Interaction, and Tissue Engineering
- Spectroscopy, Microscopy, Imaging, Nanobiophotonics, and LASE
- Neurotechnology plenary speakers and details

TRACK CHAIRS:

David A. Boas
Boston Univ. (USA)

Elizabeth Hillman
Columbia Univ. (USA)

COVID-19 RESEARCH
The COVID-19 application track highlights papers from Photonics West that illustrate the creativity and breadth of the optics and photonics community’s response to the COVID-19 pandemic.

- Photonic Therapeutics and Diagnostics
- Clinical Technologies and Systems
- Tissue Optics, Laser-Tissue Interaction, and Tissue Engineering
- Biomedical Spectroscopy, Microscopy, and Imaging
- Nano/Biophotonics
- 3D Printing and Rapid Prototyping

TRACK CHAIRS:

Tianhong Dai
Wellman Ctr. for Photomedicine, Massachusetts General Hospital, Harvard Univ. (USA)

Brian J. F. Wong
Beckman Laser Institute and Medical Clinic (USA)

3D PRINTING
SPIE 3D Printing 2021 highlights technologies enabling additive manufacturing.

- Additive Manufacturing
- Selective Laser Melting, Laser Sintering, Laser Photopolymerization
- Novel Materials, Protean Materials, and Laser Interactions
- Software that Increases Efficiencies and Speed
- In-situ Sensors or Probes to Verify and Quantify Additive Manufacturing Processes in Real Time
- Conformal Photonics/Electronics

TRACK CHAIR:

Henry Helvajian
The Aerospace Corp. (USA)
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SPIE. PHOTONICS WEST 23–28 January 2021 San Francisco, California, USA

- Present to experts
- Publish your results internationally
- Gain experience in scientific communication
- Connect with researchers from other disciplines
- See where your work fits into global optics and photonics research

20,000 ATTENDEES 5,000 PAPERS 65 COURSES/WORKSHOPS 100 CONFERENCES

BIOS
BIOS is the world’s largest international biomedical optics conference, encompassing clinical, translational, and fundamental research and development in the field of biomedical optics and photonics. It provides a premier technical forum for reporting and learning about the latest research and development, as well as for launching new applications and technologies.

LASE
SPIE LASE has developed into the main forum and meeting place not only for laser science and laser scientists, but also for novel laser applications and laser process engineers. Topics include laser manufacturing, laser materials processing, micro-nano packaging, fiber, diode, solid state lasers, laser resonators, ultrafast, semiconductor lasers and LEDs, and 3D fabrication technologies.

OPTO
SPIE OPTO addresses the most current developments and research in a broad range of optoelectronic technologies and their integration into a variety of industrial and commercial applications. Topics to be covered include optoelectronic materials and devices, photonic integration, nanotechnologies, MEMS/MOEMS, advanced quantum and optoelectronic applications, semiconductor lasers, light-emitting devices, packaging, displays, holography, optical networks, and communications.

Application tracks offer more visibility
When submitting an abstract, add an application track to get your presentation listed in one of these special sections of the program. Each track lists presentations together online and in the conference program so that participants can easily locate presentations in their area of interest.

• Translational Research
• Brain
• 3D Printing
• COVID-19 Research

Explore the Call for Papers to see where your research fits
Submit your abstract by 15 July 2020
Build on your expertise with training from leading experts. Topics align with technical program topics. Additional course topics include basic optics, imaging, laser safety, optical systems and lens design, metrology and standards, optomechanics, and professional development.

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Find the latest solutions powered by photonics that are driving today’s technology markets. Featured applications include state-of-the-art medical technologies; the Internet of Things; lasers and smart manufacturing and “Industry 4.0”; AR, VR, MR; scientific research; communications; and displays.

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The world’s largest biomedical optics and biophotonics exhibition.
200 Companies

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