Call for Papers

Laser Beam Shaping XXI (OP307)

Conference Chairs: **Angela Dudley,** Univ. of the Witwatersrand, Johannesburg (South Africa); **Alexander V. Laskin,** AdlOptica Optical Systems GmbH (Germany)

Program Committee: **Fred M. Dickey,** FMD Consulting LLC (USA); **Andrew Forbes,** Univ. of the Witwatersrand, Johannesburg (South Africa); **Patrick Gretzki,** Fraunhofer-Institut für Lasertechnik ILT (Germany); **Raul I. Hernandez-Aranda,** Tecnológico de Monterrey (Mexico); **Alexis V. Kudryashov,** Active Optics Night N Ltd. (Russian Federation); **Todd E. Lizotte,** BOLD Laser Automation (USA); **Daryl Preece,** Beckman Laser Institute and Medical Clinic (USA); **Gediminas Račiukaitis,** Ctr. for Physical Sciences and Technology (Lithuania); **Mateusz Michal Szatkowski,** Wroclaw Univ. of Science and Technology (Poland)

Many scientific experiments and industrial and medical applications require the shaping of the spatial and temporal profiles of laser beams. The previous Laser Beam Shaping conferences have been excellent venues to integrate the various facets of beam shaping theory, design, and application. Interest in laser beam shaping techniques and applications continues to grow.

The purpose of this conference is to continue to provide a forum for the interaction of engineers and scientists interested in the various aspects of laser beam shaping. Papers on all forms of laser beam shaping theory, design, and application are solicited. Papers presenting data on proven systems and real application examples are especially encouraged. In addition, the conference will consider papers involving the shaping of the radiation patterns of non-laser sources.

General laser beam shaping topics include, but are not limited to:

THEORY AND DESIGN

Geometric and physical optics, geometrical beam shapes, vector diffraction theory, vortex and vector beams, optical orbital angular momentum, non-diffracting fields, structured light, mathematical & computational techniques, optimization-based design, intra-cavity beam shaping, diffractive and refractive beam shaping, multi-spot beam shaping, broadband beam shaping, pulse compression and pulse chirping, spatial and temporal beam profile shaping of short pulses, acousto-optics, spatial and temporal beam shaping, stokes polarimetry, beam shaping methods of image enhancement, interference lithography and high power beam shaping.

FABRICATION AND TESTING

Refractive, diffractive, reflective and hybrid elements, digital holography, spatial light modulators (SLMs), digital micro-mirror devices (DMDs), micro-electro-mechanical systems (MEMS), and micro-opto-electro-mechanical systems (MOEMS), grayscale lithography, thin film optics, and chemical etching technologies.

Application topics for laser beam shaping include but are not limited to:

INDUSTRIAL AND COMMERCIAL APPLICATIONS

Material processing, high-power beam shaping involving fiber coupled multimode lasers, laser displays, illumination applications, surface modification, microscopy, interferometry, holography, optical data storage, fiber injection systems, single and multimode fibers, photonic crystal fibers, and lidar.

MICRO-OPTICS AND MICRO MANIPULATION APPLICATIONS

Beam shaping achieved via MOEMS/MEMS, and beam-shaping applications in optical tweezing and trapping.

MILITARY APPLICATIONS

Laser ranging, laser targeting, laser weapons and laser counter measurements (dazzling).

MEDICAL AND BIOMEDICAL APPLICATIONS

Dermatology, surgery, ophthalmology, fiber optic delivery methods, photodynamic therapy, dentistry, UV sterilization, and industrial and biomedical sterilization.

QUANTUM OPTICS APPLICATIONS

Beam shaping applied in quantum optics such as quantum key distribution (QKD), quantum walks, ghost imaging, hyper-entanglement and higher-dimensional entanglement systems.

OPTICAL COMMUNICATION APPLICATIONS

Beam shaping applied in laser communications and sensors/ detection techniques and applications, spatial division multiplexing and de-multiplexing, high-bandwidth communication, free-space and fiber based communication systems.

ADAPTIVE OPTICS APPLICATIONS

Adaptive optics, spatial light modulators (SLM), digital micro-mirror devices (DMD), acousto-optical modulators, computer generated holograms, liquid lens technology, and propagation through turbulence.

Submit abstracts by 3 February 2021

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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

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- Click "Submit an Abstract" from within the online conference. You'll be prompted to sign in to your spie.org account to complete the submission wizard.

What you will need to submit

- Title
- Author information
- 250-word abstract for technical review
- 100-word summary for the program
- Keywords used in search for your paper (optional)
- Some conferences may indicate additional requirements in the Call for Papers

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.

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.

Contact information

For questions about submitting an abstract, or the meeting, contact the Contact the Program Coordinator. For questions about your manuscript, contact **AuthorHelp@spie.org.**

Abstracts Due: **3 FEBRUARY 2021**
Manuscript Due Date: **7 JULY 2021**

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