CALL FOR PAPERS
Structured Light 2018

Submit abstracts by 14 December 2017

PART OF
OPTICS & PHOTONICS
International Congress 2018

24–27 April 2018
Pacifico Yokohama
Yokohama, Japan
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SPIE Structured Light 2018 features the latest advances in optical trapping and manipulation, pulse and beam shaping, and the applications of structured optical fields. These novel optical techniques combine with microscopy, spectroscopy, and tomography on next-generation biomedical imaging.

Featuring two major international conferences, The 5th Optical Manipulation and Structured Materials Conference (OMC’18) and The 4th Biomedical Imaging and Sensing Conference (BISC’18).

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SPIE Structured Light 2018 is a cross-disciplinary symposium on the technologies of structured light and bio-imaging. The meeting combines important topical areas including structured optical fields, optical trapping, beam shaping, and other novel techniques. Many of these next-generation technologies are applied in the world of biology and biomedicine, so there is a special focus on biomedical imaging and sensing applications.

Structured Light is organized in two parallel conferences: Optical Manipulation Conference (OMC) and Biomedical Imaging and Sensing Conference (BISC). These two conferences reflect the full spectrum of structured light technologies and biomedical imaging applications. Join ten other technical conferences in the Optics and Photonics International Congress in Yokohama, Japan, in April 2018.

Authors can submit their work to either OMC or BISC conferences depending on their area of research. Please review the conference calls for papers to see the full range of technology topics and find the conference that best fits your work. The chairs will organize parallel conference programs, including joint sessions that will highlight specific examples of novel structured light techniques for biomedical imaging applications.

Submit your work to SPIE Structured Light to join the industry leaders who are advancing these exciting topics. Please join us next April in Yokohama!

Optical Manipulation and Structured Materials Conference (OMC18)
Conference Chairs: Takashige Omatsu, Chiba Univ. (Japan)
Conference Co-Chairs: Hajime Ishihara, Osaka Prefecture Univ. (Japan); Keiji Sasaki, Hokkaido Univ. (Japan)

Program Committee: Ryuji Morita, Hokkaido Univ. (Japan); Yasuyuki Tsuboi, Osaka City Univ. (Japan); Masaaki Ashida, Osaka Univ. (Japan); Satoshi Ashihara, The Univ. of Tokyo (Japan); Yung-Fu Chen, National Chiao Tung Univ. (Taiwan); Kei Murakoshi, Hokkaido Univ. (Japan); Seigo Ohno, Tohoku Univ. (Japan); Ichiro Shoji, Chuo Univ. (Japan); Síle Nic Chormaic, Okinawa Institute of Science and Technology Graduate Univ. (Japan); Yasuhiro Sugawara, Osaka Univ. (Japan)

Conventional optical tweezers based on optical radiation forces (scattering, absorption and gradient forces) produced by a tightly focused laser beam have been primarily applied to particles with a dimension range from hundreds of nanometers to tens of micrometers. However, they do not always enable us to efficiently trap and manipulate particles at the nanoscale. New technology that significantly reinforces optical radiation at the nanoscale has been strongly desired.

In particular, the interplay between structured light fields (e.g., optical vortices, vector beams, non-diffracted beams etc.) and structured materials (e.g., metamaterials, plasmonic and photonic crystals etc.) on a sub-wavelength scale will yield new effects (e.g., spin-orbital momentum coupling, unconventional opto-mechanical effects etc.) for advanced optical manipulation. Such structured light-matter interactions will further act as advanced technologies of optical manipulation and enable the fabrication of novel material structures, including chiral structures and laser-induced periodic surface structures.

The OMC ’18 event is organized and sponsored by the Optical Society of Japan in cooperation with several academic societies and associations. OMC ’18 will include the latest research and new technologies for optical radiation forces in the field of optical trappings and manipulations, as well as related topics. In particular, the conference welcomes research on structured light fields, plasmon-resonant fields, metamaterials, plasmonic and photonic crystals and other topics related to optical manipulation and structured materials. This conference will also provide opportunities for scientific and professional networking, and scientific inspiration to the attendees. All abstracts will be peer-reviewed by the program committee.

Topics of interest include the following fields:

- structured optical fields, including beam shaping, polarization control, pulse shaping, frequency extension, and ultrafast laser technologies
- optical trapping and manipulation, including optical tweezer, holographic optical manipulation, plasmon trapping, multi-photon trapping, and atom trapping and cooling
- advanced devices and instruments, including spatial light modulator, adaptive optics, and near-field optical devices
- structured materials, including metamaterials, and plasmonic and photonic crystals
- applications including structured material processing, single molecule trapping, bio-photonics, metamaterials, quantum communications, and selective control of chemical reaction
- novel approaches, including novel interaction between optical fields and materials on nano-scale, novel regimes of spin-orbit interaction, and quantum control of molecular dynamics.

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Biomedical Imaging and Sensing Conference (BISC18)

Conference Chairs: Toyohiko Yatagai, Utsunomiya Univ. (Japan)

Conference Co-Chairs: Yoshihisa Aizu, Muroran Institute of Technology (Japan); Osamu Matoba, Kobe Univ. (Japan); Yasuhiro Awatsuji, Kyoto Institute of Technology (Japan); Yuan Luo, National Taiwan Univ. (Taiwan)

Program Committee: Barry Cense, Utsunomiya Univ. (Japan); Wonshik Choi, Korea Univ. (Korea, Republic of); Shi-Wei Chu, National Taiwan Univ. (Taiwan); Katsumasa Fujita, Osaka Univ. (Japan); Masaki Hisaka, Osaka Electro-Communication Univ. (Japan); Wataru Inami, Shizuoka Univ. (Japan); Ichiro Ishimaru, Kagawa Univ. (Japan); Toshiaki Iwai, Tokyo Univ. of Agriculture and Technology (Japan); Xingde Li, Johns Hopkins Univ. (United States); Takashi Kakue, Chiba Univ. (Japan); Myung K. Kim, Univ. of South Florida (United States); Robert Magnusson, The Univ. of Texas at Arlington (United States); Yuji Matsusuru, Tohoku Univ. (Japan); Izumi Nishidate, Tokyo Univ. of Agriculture and Technology (Japan); Goro Nishimura, Hokkaido Univ. (Japan); Yusuke Ogura, Osaka Univ. (Japan); Eiji Okada, Keio Univ. (Japan); Yukitoshi Otani, Utsunomiya Univ. (Japan); Yong-Keun Park, KAIST (Korea, Republic of); Manabu Sato, Yamagata Univ. (Japan); Shunichi Sato, National Defense Medical College (Japan); Tatsuki Tahara, Kansai Univ. (Japan); Yusuke Tamada, National Institute for Basic Biology (Japan); Eriko Watanabe, The Univ. of Electro-Communications (Japan); Peng Xia, AIST (Japan); Ichiro Ishimaru, The Univ. of Tokushima (Japan)

This conference will provide an international forum for reporting recent progress in imaging and sensing in biology and medicine, as well as related areas. In biomedical optics and photonics, optical tools are employed for the understanding and treatment of diseases, from the cellular level to macroscopic applications. At the cellular level, highly precise laser applications allow the manipulation, operation or stimulation of cells, even in living organisms or animals. Optical microscopy has been revolutionized by a thorough understanding of the different markers and their switching behavior. Marker-free microscopy technologies, like CARS, SHG or THG-microscopy, Digital Holographic Microscopy, are spreading into multiple biological and clinical imaging applications. OCT is continuously broadening its clinical applicability by becoming even higher resolution, higher speed and more compact. In the broader field of optics and photonics, biomedical imaging and sensing are the most quickly progressing and expanding areas. Techniques developed in these areas could greatly advance physical, engineering and biological knowledge as well as optics and photonics technology.

This conference will include basic research at cellular level through clinical applications of various optical technologies.

Both invited papers and regular contributions will be presented. All abstracts will be reviewed by the program committee for originality and merit. Topics of the conference are listed below, but other topics related to biomedical imaging are also welcome.

**TOPICS:**
- medical and biological imaging instrumentation and techniques
- advanced microscopy
- advanced endoscopy
- super resolution in biomedical imaging and sensing
- computational imaging in biomedical imaging and sensing
- adaptive optics in biomedical imaging and sensing
- structured illumination in biomedical imaging and sensing
- interferometry and holography in biology and medicine
- optical coherence tomography
- diffuse optical tomography
- digital holography
- quantitative phase imaging
- photoacoustic imaging
- multimodal imaging and sensing
- optical biopsy
- spectroscopic imaging and sensing
- multispectral imaging and sensing
- scattering imaging
- fluorescence imaging
- molecular imaging
- terahertz sensing
- optical fibers and sensors for biomedicine
- multimodality optical diagnostic systems

**ABSTRACT SUBMISSION GUIDELINES**

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

**AN AUTHOR OR COAUTHOR WILL:**
- Register at the author registration rate.
- Attend the meeting.
- Make the presentation as scheduled in the program.
- Obtain funding for their 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.

**SUBMIT A 100-WORD ABSTRACT AND 2-PAGE (MINIMUM) EXTENDED ABSTRACT**
- Please submit a 100-word abstract suitable for early release. If accepted, the 100-word abstract will be published prior to the meeting in the online or printed programs promoting the conference.
- Please also submit a 2-page (minimum) extended abstract for technical review purposes that is also suitable for publication. Extended abstracts must be at least 2-pages, but may be longer if desired. SPIE is authorized to circulate your abstract to conference committee members for review and selection purposes and to publish accepted extended abstracts on the SPIE Digital Library.
- 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 will not be accepted for presentation in this conference.

**REVIEW, NOTIFICATION, AND PROGRAM PLACEMENT INFORMATION**
- To ensure a high-quality conference, all submissions will be reviewed by the Conference Chair/Editor for technical merit and suitability of content.
- Conference Chair/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 the Chairs’ discretion.

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