Optical Fibers and Sensors for Medical Diagnostics and Treatment Applications XXI (BO305)

Conference Chair: Israel Gannot, Johns Hopkins Univ. (USA), Tel Aviv Univ. (Israel)
Program Committee: Olga Bibikova, art photonics GmbH (Germany); James P. Clarkin, Polymicro Technologies, A Subsidiary of Molex Incorporated (USA); Ilko Ilev, U.S. Food and Drug Administration (USA); Jin U. Kang, Johns Hopkins Univ. (USA); Karl-Friedrich Klein, Technische Hochschule Mittelhessen (Germany); Pierre Lucas, The Univ. of Arizona (USA); Yuji Matsuura, Tohoku Univ. (Japan); Katy Roodenko, MAX IR Labs (USA); Angela B. Seddon, The Univ. of Nottingham (United Kingdom)

Optical components, devices and systems, both passive and active, operating in the X-ray ultra-violet (UV), visible (VIS), near-infrared (NIR) and mid-IR (MIR) spectral regions, for use in: medical, biological and environmental sensing, early disease diagnosis, disease progression or regression monitoring and medical treatment and surgery. Components, devices and systems including: waveguides sensors, lab-on-chip, light delivery devices, passive fibers, bright sources such as fiber lasers and supercontinuum generation, bundles and detectors. These are essential elements needed to perform biological and clinical laboratories and in-vivo medical procedures for the 21st century. This conference will cover various topics in these fields.

The conference will cover the following topics:
- theory and simulations of fibers and sensors.
- fiber and sensors design and fabrication.
- minimal invasive, non-invasive and invasive applications.
- fibers for Theranostics.
- imaging bundles.
- BioSensors for the medicine and biology.
- fiber sensors for physical, chemical, and biological applications.
- fibers covering an increasing number of laser output wavelengths – such as quantum cascade lasers, ultrafast lasers, X-ray lasers, and fiber lasers.
- short and energetic pulse delivery.
- smart surgical tools.
- photonic bandgap fibers.
- surgical and diagnostic procedures based on optical fibers and waveguides.
- fiber based methods and systems.
- safety, bio-compatibility and mechanical properties of fiber materials.
- sensors for smart medical home.
- sensors for remote rural areas.
- fiber systems for robotic applications.
- trans-endoscopic optical methods such as optical coherent tomography (OCT), confocal, Bragg sensing.
- feedback methods and systems for diagnostic and treatment optimization.
- fiber based welding and tissue soldering.
- hybrid sensors.

The aim of the conference is to bring together researchers, scientists, engineers, clinicians, industrialists, entrepreneurs and students belonging to different disciplines who have a common interest in the development and use of optical sensing and fiber-based techniques and methodologies. We aim to create a synergistic environment for discussion and growth of the field.

The conference puts a strong emphasize on translation research as well commercialization. A special industry session will be incorporated.

The conference subject is particularly suitable to obtain the right balance among the various disciplines. To this aim, the papers should report on both technical and biomedical advances. Contributions focusing on the development of fibers, endoscopic delivery, and diagnostic systems sensing methods for applications in all biomedical areas are solicited.

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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.

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A completed electronic submission should include the following:
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• 250-word abstract for technical review
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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
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<td>Abstracts Submission Deadline</td>
<td>15 July 2020</td>
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<td>Acceptance Notification Sent to Contact Author</td>
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<td>Manuscripts Due (Conferences OE506, and OE801-OE803 Only)</td>
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Submission agreement
Presenting authors, including keynote, invited, oral, and poster presenters, agree to the following conditions by submitting an abstract:
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• Attend the meeting
• Present at the scheduled time
• Publish their manuscript in the SPIE Digital Library
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• Obtain funding for registration fees, travel, and accommodations, independent of SPIE, through their sponsoring organizations
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Contact information
For questions about submitting an abstract, or the meeting, contact the Conference Program Coordinator.

SAVE THE DATE
Abstracts Due: 15 July 2020
Author Notification: 21 September 2020
The contact author will be notified of acceptance by email.

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