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## Biomedical Imaging and Sensing

Toyohiko Yatagai  
Osamu Matoba  
Yoshihisa Aizu  
Yasuhiro Awatsuji  
Yuan Luo

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**Toyohiko Yatagai, PhD**

Utsunomiya University

Japan

E-mail: [yatagai@cc.utsunomiya-u.ac.jp](mailto:yatagai@cc.utsunomiya-u.ac.jp)

**Osamu Matoba, PhD**

Kobe University

Japan

E-mail: [matoba@kobe-u.ac.jp](mailto:matoba@kobe-u.ac.jp)

**Yoshihisa Aizu, PhD**

Muroran Institute of Technology

Japan

E-mail: [aizu@mmm.muroran-it.ac.jp](mailto:aizu@mmm.muroran-it.ac.jp)

**Yasuhiro Awatsuji, PhD**

Kyoto Institute of Technology

Japan

E-mail: [awatsuji@kit.ac.jp](mailto:awatsuji@kit.ac.jp)

**Yuan Luo, PhD**

National Taiwan University

Taiwan

E-mail: [yuanluo@ntu.edu.tw](mailto:yuanluo@ntu.edu.tw)

This special section on Biomedical Imaging and Sensing provides a collection of papers related to the topics of the Biomedical Imaging and Sensing conference of 2018 (BISC'18), which was held from 24 to 27 April, in Yokohama, Japan. This conference provides 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 different markers and their switching behavior. Marker-free microscopy technologies, like CARS, SHG or THG-microscopy, and digital holographic microscopy (DHM), are spreading into multiple biological and clinical imaging applications. Optical coherence tomography (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 can greatly advance physical, engineering, and biological knowledge, as well as optics and photonics technology.

This conference includes basic research at the cellular level, through clinical applications of various optical technologies. Topics covered include 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, digital holography, quantitative phase imaging, diffuse spectroscopy and tomography, photoacoustic imaging, multimodal imaging and sensing, optical biopsy, multispectral imaging and sensing, spectroscopic imaging and sensing, scattering imaging, fluorescence imaging, molecular imaging, terahertz sensing, imaging and sensing techniques for biomedicine, optical fibers and sensors for biomedicine, and multimodality optical diagnostic systems. Recent computational imaging technologies such as light field imaging, digital holography, and compressive sensing are expected to open up new imaging techniques to improve image quality from limited information, to obtain multimodal physical parameters, and to apply weak light conditions using photon-counting devices. We believe that this special section on biomedical imaging and sensing is helpful to advancing biomedical imaging and sensing techniques.

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