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Contents

Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

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Introduction

On behalf of the organizing committee and program committee, it was our great pleasure to welcome you to the third Biomedical Imaging and Sensing Conference in the SPIE Technologies and Applications of Structured Light (TASL) symposia and within the framework of the OPTICS & PHOTONICS International Congress (OPIC 2017).

The mission of this conference was to present and discuss recent progress in biomedical optics and photonics, which is one of the most promising and attractive areas.

In this field of optics and photonics, advanced optical tools and ideas are employed for the understanding of biological and medical phenomena and the diagnosis and treatment of diseases, from the cellular to macroscopic levels. On the cellular level, for example, highly precise laser application allows for the manipulation, operation or stimulation of cells; even in living organisms or animals. Optical microscopy has been revolutionized by a thorough understanding of different makers in cells and their switching behavior. Maker-free microscopy, like CARS, SHG, THG or Raman microscopy, is spreading into biological, medical, and clinical applications. OCT is continuously broadening its clinical applicability through even higher resolution, higher speeds, more compactness, and through the use of Doppler and polarization sensitivity for functional imaging. Digital holography is also applied to biomedical imaging to observe functional responses in cells and internal organs.

The techniques developed in biomedical optics and photonics could bring us great steps in advances of physical, engineering, and biological knowledge; as well as for optics and photonics. This conference was planned to cover several aspects, from the fundamental studies at cellular level biology to clinical applications using various optical technologies.

Finally, we welcome you once again to Biomedical Imaging and Sensing Conference and we hope you enjoyed the fruitful discussions within the conference.

Toyohiko Yatagai
Yoshihisa Aizu
Osamu Matoba
Yasuhiro Awatsuji