Translational Biophotonics

Tomasz Tkaczyk
Michal Pawlowski
Mark Pierce

Translational Biophotonics

Tomasz Tkaczyk
Rice University
Department of Bioengineering
Houston, Texas, United States
E-mail: ttkaczyk@rice.edu

Michal Pawlowski
Rice University
Department of Bioengineering
Houston, Texas, United States
E-mail: mep6@rice.edu

Mark Pierce
Rutgers, The State University of New Jersey
Department of Biomedical Engineering
Piscataway, New Jersey, United States
E-mail: mark.pierce@rutgers.edu

The SPIE Translational Biophotonics conference was launched in 2014 as a biennial event aimed at bringing together researchers from academia, industry, and clinical practice. The meeting was held for a second time in May 2016 at the BioScience Research Collaborative, located at the intersection of Rice University and the Texas Medical Center. The translational theme of this conference was emphasized by the selection of session topics and opportunities for networking between technology developers, clinical end-users, regulatory experts, and commercial entities.

This collection of papers from the 2016 SPIE Translational Biophotonics conference comprises seven original articles, which were published in the Journal of Biomedical Optics Vol. 21 Issue 9 through Vol. 22 Issue 3:


These manuscripts span topics ranging from fundamental studies of telomere structure using superresolution microscopy (M. L. Phipps et al.) to an in vivo clinical study investigating optical coherence tomography for assessment of the mechanical properties of skin (P. Huang et al.). P. L. Stegehuis et al. also report an in vivo study on the use of diffuse reflectance spectroscopy to guide fine needle aspiration of pancreatic tissue. Several papers focus on instruments under development in the laboratory setting targeting future clinical applications. These papers include a hand-held smart instrument for root canal imaging (C. Okoro et al.) and a wearable probe for continuous diffuse optical imaging of breast cancer patients during chemotherapy (Teng et al.). Biomedical optics researchers and clinical users at Memorial Sloan Kettering Cancer Center highlight their close collaboration through ex vivo studies on the use of fluorescence confocal microscopy for rapid assessment of tumor margins in skin cancer (M. Jain et al.) and breast surgery (S. Abeytunge et al.).

The guest editors would like to thank the participants at Translational Biophotonics 2016, particularly those who submitted their work to this special series in the Journal of Biomedical Optics. We would also like to thank Gwen Weerts, managing editor for SPIE journals, and the JBO staff for their support in bringing this series together. We look forward to welcoming all those involved in moving biophotonic technologies along the pathway from fundamental research to clinical and commercial success to SPIE Translational Biophotonics in 2018.

Tomasz Tkaczyk, PhD, is an associate professor in the Departments of Bioengineering and Electrical and Computer Engineering, and is
also a faculty member of the Rice Quantum Institute at Rice University, located in Houston, Texas. His research focuses on development of integrated optical diagnostic systems and snapshot hyperspectral imaging techniques for biomedical and remote sensing applications.

Michal Pawlowski, PhD, is a research scientist in the Department of Bioengineering at Rice University located in Houston, Texas. His research focuses on development of optical technologies for biomedical applications.

Mark Pierce, PhD, is an assistant professor in the Department of Biomedical Engineering at Rutgers, The State University of New Jersey. His research interests include development and clinical translation of multiscale, multimodal optical imaging systems and contrast agents.