

Translational Biophotonics

Tomasz S. Tkaczyk
Editor

19–20 May 2014
Houston, Texas, United States

Sponsored by
SPIE

Cosponsored by
Edmund Optics
Rice University (United States)

Published by
SPIE

Volume 9155

Proceedings of SPIE, 1605-7422, V. 9155

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Translational Biophotonics, edited by Tomasz S. Tkaczyk, Proc. of SPIE Vol. 9155,
915501 · © 2014 SPIE · CCC code: 1605-7422/14/\$18 · doi: 10.1117/12.2069861

The papers included in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. The papers published in these proceedings reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from this book:

Author(s), "Title of Paper," in *Translational Biophotonics*, edited by Tomasz S. Tkaczyk, Proceedings of SPIE Vol. 9155 (SPIE, Bellingham, WA, 2014) Article CID Number.

ISSN: 1605-7422

ISBN: 9780819496263

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445

SPIE.org

Copyright © 2014, Society of Photo-Optical Instrumentation Engineers.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 1605-7422/14/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.



SPIDigitalLibrary.org

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print and on CD-ROM. Papers are published as they are submitted and meet publication criteria. A unique, consistent, permanent citation identifier (CID) number is assigned to each article at the time of the first publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

- The first four digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc.

The CID Number appears on each page of the manuscript. The complete citation is used on the first page, and an abbreviated version on subsequent pages. Numbers in the index correspond to the last two digits of the six-digit CID Number.

Contents

v Conference Committee

BEYOND CLASSICAL IN-VIVO DETECTION: OTHER TRANSLATION PERSPECTIVES II

- 9155 0E **Using micro and nanofluidics with surface enhanced Raman spectroscopy for in vitro blood based biomarker detection (Invited Paper)** [9155-13]
G. L. Coté, J. Kameoka, H. Marks, Texas A&M Univ. (United States)

POSTER SESSION

- 9155 0L **Wide spectral-range imaging spectroscopy of photonic crystal microbeads for multiplex biomolecular assay applications** [9155-16]
J. Li, Hong Kong Baptist Univ. (Hong Kong, China)
- 9155 0N **Depth sensitive oblique polarized reflectance spectroscopy of oral epithelial tissue** [9155-18]
M. K. Jimenez, The Univ. of Texas at Austin (United States); S. Lam, C. Poh, The BC Cancer Agency Research Ctr. (Canada); K. Sokolov, The Univ. of Texas at Austin (United States) and The Univ. of Texas M.D. Anderson Cancer Ctr. (United States)
- 9155 0O **Intradermal administration of fluorescent contrast agents for delivery to axillary lymph nodes** [9155-19]
J. C. Rasmussen, The Univ. of Texas Health Science Ctr. at Houston (United States); F. Meric-Berstam, S. Krishnamurthy, The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); I.-C. Tan, B. Zhu, The Univ. of Texas Health Science Ctr. at Houston (United States); J. L. Wagner, G. V. Babiera, E. A. Mittendorf, The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); E. M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (United States)
- 9155 0R **Wide-field endoscopic fluorescence imaging for gastrointestinal tumor detection with glucose analogue** [9155-22]
Y. He, Tsinghua Univ. (China); Y. Qu, General Hospital of Chinese Armed Police Forces (China); J. Bai, Tsinghua Univ. (China); H. Liu, General Hospital of Chinese Armed Police Forces (China)
- 9155 0Z **Rapid multiplexed molecular phenotyping of ex vivo and in vivo tissues with targeted SERS NPs** [9155-30]
Y. Wang, A. Khan, M. Som, S. Y. Leigh, D. Wang, Y. Chen, Stony Brook Univ. (United States); P. McVeigh, B. C. Wilson, Univ. of Toronto (Canada) and Princess Margaret Cancer Ctr. (Canada); J. T. C. Liu, Stony Brook Univ. (United States)
- 9155 13 **Modulated alignment dual-axis (MAD) confocal microscopy for deep optical sectioning in tissues** [9155-34]
S. Y. Leigh, Y. Chen, J. T. C. Liu, Stony Brook Univ. (United States)

- 9155 15 **Development and optimization of a line-scanned dual-axis confocal (LS-DAC) microscope for high-speed pathology** [9155-36]
D. Wang, Y. Chen, D. Meza, Y. Wang, J. T. C. Liu, Stony Brook Univ. (United States)
- 9155 19 **Assessing lymphatic response to treatments in head and neck cancer using near-infrared fluorescence imaging** [9155-40]
I.-C. Tan, R. J. Karni, J. C. Rasmussen, E. M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (United States)
- 9155 1C **A simple optofluidic platform for label-free cell-surface marker screening** [9155-43]
M. Mir, O. Scheideler, L. L. Sohn, Univ. of California, Berkeley (United States)
- 9155 1D **Improvements in frequency-domain based NIRF optical tomography modality for preclinical studies** [9155-44]
C. D. Darne, E. M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (United States)
- 9155 1F **Performance evaluation of integrating detectors for near-infrared fluorescence molecular imaging** [9155-47]
B. Zhu, J. C. Rasmussen, E. M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (United States)
- 9155 1H **Performance evaluation of fluorescence tomography in a Siemens Inveon multimodality scanner** [9155-49]
Y. Lu, C. Darne, I.-C. Tan, B. Zhu, J. Rasmussen, E. M. Sevick-Muraca, The Univ. of Texas Health Science Ctr. at Houston (United States)
- 9155 1L **Bone optical spectroscopy for the measurement of hemoglobin content** [9155-54]
J. L. Hollmann, P. Arambel, Northeastern Univ. (United States); J. Piet, Univ. de Technologie de Compigne (France); S. Shefelbine, S. Markovic, M. Niedre, C. A. DiMarzio, Northeastern Univ. (United States)
- 9155 1M **Automated frame selection process for analyzing high resolution microendoscope images** [9155-55]
A. Ishijima, S. Mondrik, R. A. Schwarz, Rice Univ. (United States); N. Vigneswaran, The Univ. of Texas School of Dentistry (United States); A. M. Gillenwater, The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); R. Richards-Kortum, Rice Univ. (United States)
- 9155 1N **Automated retinal layer segmentation and characterization** [9155-56]
J. Luisi, D. Briley, A. Boretsky, M. Motamedi, The Univ. of Texas Medical Branch (United States)

Author Index

Conference Committee

Conference Chair

Tomasz S. Tkaczyk, Rice University (United States)

Conference Program Committee

Brian E. Applegate, Texas A&M University (United States)

Kathrin Berkner, Ricoh Innovations, Inc. (United States)

Jason M. Eichenholz, Open Photonics, Inc. (United States)

Rongguang Liang, College of Optical Sciences, The University of Arizona (United States)

Michal E. Pawlowski, Rice University (United States)

Mark C. Pierce, Rutgers, The State University of New Jersey (United States)

Milind Rajadhyaksha, Memorial Sloan-Kettering Cancer Center (United States)

Rebecca R. Richards-Kortum, Rice University (United States)

Session Chairs

- 1 Biophotonic Tools in the Hands of Clinicians
Gracie Vargas, The University of Texas Medical Branch (United States)
- 2 Microscopy in Clinical Applications
Jonathan T. C. Liu, Stony Brook University (United States)
- 3 Diagnostic Imaging and Detection
Brian E. Applegate, Texas A&M University (United States)
- 4 Beyond Classical In-Vivo Detection: Other Translation Perspectives I
Mark C. Pierce, Rutgers, The State University of New Jersey (United States)
- 5 Beyond Classical In-Vivo Detection: Other Translation Perspectives II
Mark C. Pierce, Rutgers, The State University of New Jersey (United States)
- 6 Making it Real: Commercialization and Industry Perspectives
Michal E. Pawlowski, Rice University (United States)

