Optics and Biophotonics in Low-Resource Settings V

David Levitz
Aydogan Ozcan
Editors

2–3 February 2019
San Francisco, California, United States

Sponsored and Published by
SPIE

Volume 10869

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

Authors vi
Conference Committee vii

EMERGING TECHNOLOGIES

10869 04 One-shot Stokes polarimetry for low-cost skin cancer detection [10869-3]

10869 06 Optical breast spectroscopy as a pre-screening tool to identify women who benefit most from mammography [10869-5]

TOMOGRAPHIC METHODS

10869 0B A tabletop Diffuse Optical Tomographic (DOT) experimental demonstration system [10869-11]

MACHINE LEARNING I

10869 0D Image quality assessment and improvement in a smartphone device with an auxiliary lens [10869-13]

SMARTPHONE-BASED IMAGING AND SENSING TECHNOLOGIES I

10869 0M Dotlens smartphone microscopy and nano-colorimetry [10869-22]

10869 0O Development and testing of a smartphone adapter for image quality assurance and whole slide imaging [10869-24]

POINT OF CARE TECHNOLOGIES

10869 0S Compact modules for off-axis holography in microfluidics: features and design solutions [10869-28]

10869 0U Effect of light-assisted drying (LAD) on protein functionality [10869-30]
<table>
<thead>
<tr>
<th>10869 0V</th>
<th>A nanophotonic-based assay for point-of-care medical diagnostics of malaria in low and middle income countries [10869-46]</th>
</tr>
</thead>
</table>

**OXIMETRY AND SPECTRAL METHODS**

<table>
<thead>
<tr>
<th>10869 11</th>
<th>Assessing changes in oxygen saturation using a low cost multi-spectral imaging system [10869-36]</th>
</tr>
</thead>
<tbody>
<tr>
<td>10869 12</td>
<td>Low-cost smartphone based imaging device to detect subsurface tissue oxygenation of wounds [10869-37]</td>
</tr>
<tr>
<td>10869 13</td>
<td>A low cost mobile controlled CW-NIRS absolute oximeter to prevent child mortality in low-income countries [10869-38]</td>
</tr>
<tr>
<td>10869 17</td>
<td>Preliminary study of canine oral cancer by Raman spectroscopy [10869-42]</td>
</tr>
<tr>
<td>10869 18</td>
<td>Reliability of vital parameter sensors in harsh environments [10869-43]</td>
</tr>
</tbody>
</table>

**POSTER SESSION**

| 10869 1A | Smartphone-based quantitative reader for detection of food-borne bacteria by lateral flow assay [10869-45] |
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, 0C, 0D, etc.

Almog, Yaniv, 0D
Alonso, Miguel, 12
Ansermino, J. Mark, 13
Arunasalam, Aliyah, 00
Askari, Shahbaz, 13
Bae, Euiwon, 1A
Bar-Am, Kfir, 00, 01
Beaudry, Shaylene, 13
Beckers, Ingeborg E., 18
Bendale, Kiran, 17
Bernat, Amir S., 0D, 00, 11
Bhujbal, Mithila, 17
Bianco, V., 0S
Bolton, Frank J., 0D, 00, 11
Cacace, T., 0S
Chaoudhari, Pradeep, 17
Cohen, Miri, 0D
De Silva Indrasekara, Agampodi Swarnapoli, 0V
Deering, Amanda, 1A
Dumont, Guy A., 13
Dunsmuir, Dustin, 13
Elliott, Gloria D., 0U
Elminger, Whitney, 00
Ferraro, P., 0S
Freedman, Elizabeth, 0V
Gera, Poonam, 17
Godavarty, Anuradha, 12
Heo, Yoojung, 1A
Hole, Arti, 17
Jacques, Steven L., 11
Jüennmann, Sebastian, 18
Jung, Youngkee, 1A
Kalle, Kacie, 12
Kalra, Sunil, 04
Kanhirodan, Rajan, 0B
Kauer, Josef, 18
Klimt, Moritz, 18
Kretfling, Dagmar, 18
Kumar, Piyush, 17
Kumbakumba, Elias, 13
Lee, Tim K., 04
Lee, Walter T., 0V
Leiva, Kevin, 12
Levitz, David, 0D, 00, 11
Lilge, Lothar, 06
Lublin, Wjatscheslaw, 18
Louie, Daniel C., 04
Lui, Harvey, 04
Mahadevan, Jagadeesh, 12
Mandracchia, B., 0S
Mohan, Vishwanathan, 12
Murali Krishna, C., 17
Napoleone, Gabrielle, 13
Ngo, Hoan T., 0V
Nguyen, Hoang, 0M
Olbrich, Sebastian, 18
Pagano, Roberto, 13
Pagliarulo, V., 0S
Paturzo, M., 0S
Petersen, Christian, 13
Saikia, Manob Jyoti, 0B
Sebag, Cathy, 00
Shih, Wei-Chuan, 0M
Strabbia, Pietro, 0V
Taylor, Steve M., 0V
Tchvialeva, Lioudmila, 04
Trammell, Susan R., 0U
Tsah, David, 0D
V., Ramnarayan, 12
Vo-Dinh, Tuan, 0V
Vohra, Priya, 0V
Walter, E. Jane, 06
Weiser, Reuven, 0D
Wiens, Matthew O., 13
Young, Madison A., 0U
Conference Committee

Symposium Chairs

James G. Fujimoto, Massachusetts Institute of Technology (United States)
R. Rox Anderson, Wellman Center for Photomedicine, Massachusetts General Hospital (United States) and Harvard Medical School (United States)

Symposium Co-chairs

Jennifer K. Barton, The University of Arizona (United States)
Wolfgang Drexler, Medical University of Vienna (Austria)

Program Track Chairs

Tuan Vo-Dinh, Fitzpatrick Institute for Photonics, Duke University (United States)
Anita Mahadevan-Jansen, Vanderbilt University (United States)

Conference Chairs

David Levitz, MobileODT (Israel)
Aydogan Ozcan, University of California, Los Angeles (United States)

Conference Program Committee

David Erickson, Cornell University (United States)
Gerard L. Coté, Texas A&M University (United States)
Wolfgang Drexler, Medical University of Vienna (Austria)
Matthew D. Keller, Intellectual Ventures Laboratory (United States)
Avi Rasooly, National Institutes of Health (United States)
Anita Mahadevan-Jansen, Vanderbilt University (United States)
Chetan A. Patil, Temple University (United States)
Eric A. Swanson, OCT News (United States)
Sebastian Wachsmann-Hogiu, McGill University (Canada)
Ian M. White, University of Maryland, College Park (United States)

Session Chairs

1. Emerging Technologies
   David Levitz, MobileODT Ltd. (Israel)

2. Tomographic Methods
   Hatice Ceylan Koydemir, University of California, Los Angeles (United States)
3  Machine Learning I  
Yair Rivenson, University of California, Los Angeles (United States)  

4  Machine Learning II  
David Levitz, MobileODT (Israel)  

5  Smartphone-Based Imaging and Sensing Technologies I  
Zoltán S. Göröcs, University of California, Los Angeles (United States)  

6  Point of Care Technologies  
Matthew D. Keller, Intellectual Ventures Laboratory (United States)  

7  Smartphone-Based Imaging and Sensing Technologies II  
Yair Rivenson, University of California, Los Angeles (United States)  

8  Oximetry and Spectral Methods  
Anita Mahadevan-Jansen, Vanderbilt University (United States)