PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 8367

, "Front Matter: Volume 8367," Proc. SPIE 8367, Smart Biomedical and Physiological Sensor Technology IX, 836701 (14 June 2012); doi: 10.1117/12.979021

SPIE.

Event: SPIE Defense, Security, and Sensing, 2012, Baltimore, Maryland, United States

PROGRESS IN BIOMEDICAL OPTICS AND IMAGING

Vol. 13, No. 39

Smart Biomedical and Physiological Sensor Technology IX

**Brian M. Cullum
Eric S. McLamore**
Editors

**26 April 2012
Baltimore, Maryland, United States**

Sponsored and Published by
SPIE

Volume 8367

Proceedings of SPIE, 1605-7422, v. 8367

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

Smart Biomedical and Physiological Sensor Technology IX, edited by Brian M. Cullum, Eric S. McLamore,
Proc. of SPIE Vol. 8367, 836701 · © 2012 SPIE · CCC code: 1605-7422/12/\$18 · doi: 10.1117/12.979021

Proc. of SPIE Vol. 8367 836701-1

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 *Smart Biomedical and Physiological Sensor Technology IX*, edited by Brian M. Cullum, Eric S. McLamore, Proceedings of SPIE Vol. 8367 (SPIE, Bellingham, WA, 2012) Article CID Number.

ISSN 1605-7422

ISBN 9780819490452

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 © 2012, 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 1605-7422/12/\$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

SESSION 1 PHYSIOLOGICAL SENSOR TECHNOLOGIES

- 8367 03 **Characterization of the pigment xanthomonadin in the bacterial genus *Xanthomonas* using micro- and resonance Raman spectroscopy** [8367-02]
M. L. Paret, Univ. of Florida (United States) and Univ. of Hawaii at Manoa (United States);
S. K. Sharma, A. K. Misra, T. Acosta, A. S. deSilva, T. Vowell, A. M. Alvarez, Univ. of Hawaii at Manoa (United States)
- 8367 05 ***In vitro* quantitation of human femoral artery atherosclerosis using near-infrared Raman spectroscopy** [8367-04]
A. C. Dykes, Hawai'i Institute of Geophysics and Planetology (United States); P. Anastasiadis, J. S. Allen III, Univ. of Hawai'i at Manoa (United States); S. K. Sharma, Hawai'i Institute of Geophysics and Planetology (United States)

SESSION 2 GUIDANCE AND IMAGING TECHNOLOGIES

- 8367 06 **Nondestructive imaging of stem cell in 3D scaffold** [8367-05]
C.-W. Chen, A. B. Yeatts, J. P. Fisher, Y. Chen, Univ. of Maryland, College Park (United States)
- 8367 07 **Mimicking brain tissues by doping scatterers into gelatin tissue phantoms and determination of chemical species responsible for NMPPAS** [8367-06]
S. Dahal, B. M. Cullum, Univ. of Maryland, Baltimore County (United States)
- 8367 09 **Quantitative evaluation of mucosal vascular contrast in narrow band imaging using Monte Carlo modeling** [8367-08]
D. Le, U.S Food and Drug Administration (United States) and The Catholic Univ. of America (United States); Q. Wang, U.S. Food and Drug Administration (United States); J. Ramella-Roman, The Catholic Univ. of America (United States); J. Pfefer, U.S. Food and Drug Administration (United States)
- 8367 0A **Computer-aided diagnosis of small lesions and non-masses in breast MRI** [8367-09]
C. Plant, D. Ngo, The Florida State Univ. (United States); F. Retter, Univ. of Saarbrücken (Germany); O. Zavala, The Florida State Univ. (United States); T. Schlossbauer, Univ. of Munich (Germany); M. Lobbes, Maastricht Univ. (Netherlands); M. Lockwood, A. Meyer-Bäse, The Florida State Univ. (United States)

SESSION 3 MICROFLUIDIC ASSAYS AND SYSTEMS

- 8367 0B **Fabrication of microfluidic vascular phantoms by laser micromachining** [8367-10]
S. A. Mathews, L. Luu, J. C. Ramella-Roman, The Catholic Univ. of America (United States)

- 8367 0C **Development of microLIPS (Luciferase Immunoprecipitation Systems): a novel microfluidic assay for rapid serum antibody detection** [8367-11]
M. Chandrangu, P. D. Burbelo, M. J. Iadarola, P. D. Smith, N. Y. Morgan, National Institutes of Health (United States)
- 8367 0D **Lab-on-a-chip platforms from sample preparation via continuous-flow PCR to an ultrafast detection of B-agents** [8367-12]
R. Klemm, H. Becker, N. Hlawatsch, C. Gärtner, microfluidic ChipShop GmbH (Germany)
- 8367 0E **Automated and miniaturized detection of biological threats with a centrifugal microfluidic system** [8367-13]
D. Mark, T. van Oordt, O. Strohmeier, Institut für Mikrotechnik und Informationstechnik (Germany); G. Roth, Albert-Ludwigs-Univ. Freiburg (Germany); J. Drexler, M. Eberhard, QIAGEN Lake Constance GmbH (Germany); M. Niedrig, P. Patel, Robert Koch Institut (Germany); A. Zgaga-Griesz, W. Bessler, Univ. Medical Ctr. Freiburg (Germany); M. Weidmann, F. Hufert, Univ. Medical Ctr. Göttingen (Germany); R. Zengerle, F. von Stetten, Institut für Mikrotechnik und Informationstechnik (Germany) and Albert-Ludwigs-Univ. Freiburg (Germany)
- 8367 0F **Rapid identification of *Yersinia pestis* and *Brucella melitensis* by chip-based continuous flow PCR** [8367-14]
M. Dietzsch, Friedrich-Loeffler-Institut (Germany); N. Hlawatsch, microfluidic ChipShop GmbH (Germany); F. Melzer, H. Tomaso, Friedrich-Loeffler-Institut (Germany); C. Gärtner, microfluidic ChipShop GmbH (Germany); H. Neubauer, Friedrich-Loeffler-Institut (Germany)
- 8367 0G **Automated DNA-preparation system for bacteria out of air sampler liquids** [8367-15]
R. Gransee, T. Röser, K. S. Drese, D. Düchs, Institut für Mikrotechnik Mainz GmbH (Germany); C. Disqué, Molzym GmbH Co. KG (Germany); G. Zoll, S. Köhne, Wehrwissenschaftliches Institut für Schutztechnologien (Germany); M. Ritzi-Lehnert, Institut für Mikrotechnik Mainz GmbH (Germany)

POSTER SESSION

- 8367 0H **Development and testing of a fluorescence biosensor for glucose sensing** [8367-16]
M. Aloraefy, The Catholic Univ. of America (United States) and U.S. Food and Drug Administration (United States); J. Pfefer, U.S. Food and Drug Administration (United States); J. Ramella-Roman, The Catholic Univ. of America (United States); K. Sapsford, U.S. Food and Drug Administration (United States)

Author Index

Conference Committee

Symposium Chair

Kevin P. Meiners, Office of the Secretary of Defense (United States)

Symposium Cochair

Kenneth R. Israel, Lockheed Martin Corporation (United States)

Conference Chairs

Brian M. Cullum, University of Maryland, Baltimore County
(United States)

Eric S. McLamore, University of Florida (United States)

Program Committee

Troy A. Alexander, U.S. Army Research Laboratory (United States)

Karl S. Booksh, University of Delaware (United States)

Marie-Christine F. Daniel, University of Maryland, Baltimore County
(United States)

Majed El Dweik, Lincoln University (United States)

Claudia Gärtner, microfluidic ChipShop GmbH (Germany)

Christopher Geddes, University of Maryland, Baltimore (United States)

Ilko K. Ilev, U.S. Food and Drug Administration (United States)

Lori Kamemoto, University of Hawai'i Medical School (United States)

Chang-Soo Kim, Missouri University of Science and Technology
(United States)

Nicole Y. Morgan, NIBIB/National Institutes of Health (United States)

Joshua Pfefer, U.S. Food and Drug Administration (United States)

Marcin Ptaszek, University of Maryland, Baltimore County
(United States)

Shiv K. Sharma, University of Hawai'i (United States)

Liang Zhu, University of Maryland, Baltimore County (United States)

Session Chairs

- 1 Physiological Sensor Technologies
 Brian M. Cullum, University of Maryland, Baltimore County
 (United States)
 Eric S. McLamore, University of Florida (United States)

- 2 Guidance and Imaging Technologies
Joshua Pfefer, U.S. Food and Drug Administration (United States)
Brian M. Cullum, University of Maryland, Baltimore County
(United States)
- 3 Microfluidic Assays and Systems
Claudia Gärtner, microfluidic ChipShop GmbH (Germany)
Nicole Y. Morgan, National Institutes of Health (United States)