Front Matter: Volume 10058


Event: SPIE BiOS, 2017, San Francisco, California, United States
Optical Fibers and Sensors for Medical Diagnostics and Treatment Applications XVII

Israel Gannot
Editor

28–29 January 2017
San Francisco, California, United States

Sponsored and Published by
SPIE

Volume 10058
The papers 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. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIEDigitalLibrary.org.

The papers 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 these proceedings:


ISSN: 1605-7422
ISSN: 2410-9045 (electronic)
ISBN: 9781510605572

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 © 2017, 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 1605-7422/17/$18.00.

Printed in the United States of America.

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

**Paper Numbering**: Proceedings of SPIE follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article at the time of 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 and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five 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, 0C, ..., 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.
## Contents

<table>
<thead>
<tr>
<th>SESSION 1</th>
<th>OPTICAL FIBERS AND SENSORS I</th>
</tr>
</thead>
<tbody>
<tr>
<td>10058 03</td>
<td>Fiber optic tracheal detection device [10058-2]</td>
</tr>
<tr>
<td>10058 04</td>
<td>Ion-selective optical sensor for continuous on-line monitoring of dialysate sodium during dialysis [10058-4]</td>
</tr>
<tr>
<td>10058 06</td>
<td>Ultraviolet spectroscopic breath analysis using hollow-optical fiber as gas cell [10058-6]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION 2</th>
<th>KEYNOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10058 08</td>
<td>Fiber lasers for medical diagnostics and treatments: state of the art, challenges and future perspectives (Keynote Paper) [10058-7]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION 3</th>
<th>OPTICAL FIBERS AND SENSORS II</th>
</tr>
</thead>
<tbody>
<tr>
<td>10058 09</td>
<td>Silica nanoparticle coated long-period grating for in situ monitoring of drug delivery thin films [10058-8]</td>
</tr>
<tr>
<td>10058 0A</td>
<td>On the customization of the irradiation patterns of probes for laser tumor ablation with integrated temperature sensing capabilities [10058-9]</td>
</tr>
<tr>
<td>10058 0B</td>
<td>Proton therapy dosimetry by using silica glass optical fiber microprobes [10058-10]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION 4</th>
<th>OPTICAL FIBERS AND SENSORS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>10058 0C</td>
<td>Scintillating fiber optic dosimeters for breast and prostate brachytherapy [10058-11]</td>
</tr>
<tr>
<td>10058 0F</td>
<td>Interferometric and localized surface plasmon based fiber optic sensor [10058-14]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION 5</th>
<th>OPTICAL FIBERS AND SENSORS IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>10058 0G</td>
<td>Highly sensitive and selective biosensor based on graphene oxide coated long period grating [10058-15]</td>
</tr>
<tr>
<td>10058 0H</td>
<td>Fibre optic time-resolved spectroscopy using CMOS-SPAD arrays [10058-16]</td>
</tr>
<tr>
<td>Session</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td><strong>Femtosecond laser fabrication of fiber based optofluidic platform for flow cytometry applications</strong> [10058-17]</td>
</tr>
<tr>
<td></td>
<td><strong>Analysis of anhydrous glucose and human serum assisted by Raman spectroscopy</strong> [10058-18]</td>
</tr>
<tr>
<td></td>
<td><strong>Analysis of propagation properties of terahertz hollow-optical fiber by using time-domain spectroscopy and application for THz wave remote spectroscopy</strong> [10058-20]</td>
</tr>
<tr>
<td></td>
<td><strong>Microbend fiber optic sensor for perioperative pediatric vital signs monitoring</strong> [10058-21]</td>
</tr>
<tr>
<td></td>
<td><strong>Performance improvement of an all-optical Fabry Perot ultrasound detector</strong> [10058-22]</td>
</tr>
<tr>
<td></td>
<td><strong>An inherently temperature insensitive fiber Bragg grating force sensor for in-vivo applications</strong> [10058-23]</td>
</tr>
<tr>
<td>7</td>
<td><strong>Chalcogenide glass sensors for bio-molecule detection (Invited Paper)</strong> [10058-25]</td>
</tr>
<tr>
<td></td>
<td><strong>Performance characteristics of continuous multicore fiber optic sensor arrays</strong> [10058-30]</td>
</tr>
<tr>
<td></td>
<td><strong>Fabrication of bundle-structured tube-leaky optical fibers for infrared thermal imaging</strong> [10058-32]</td>
</tr>
<tr>
<td>8</td>
<td><strong>Silver/polymer coated hollow glass waveguides for mid-IR transmission</strong> [10058-34]</td>
</tr>
<tr>
<td></td>
<td><strong>Improvement of transmission properties of visible pilot beam for polymer-coated silver hollow fibers with acrylic silicone resin as buffer layer for sturdy structure</strong> [10058-35]</td>
</tr>
<tr>
<td></td>
<td><strong>Short- and long-term damage and annealing of improved UV-fibers using broadband UV light-source</strong> [10058-36]</td>
</tr>
<tr>
<td></td>
<td><strong>Development of a cylindrical diffusing optical fiber probe for pancreatic cancer therapy</strong> [10058-19]</td>
</tr>
<tr>
<td>POSTER SESSION</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>10058 13 Dual modal endoscopic cancer detection based on optical pH sensing and Raman spectroscopy [10058-37]</td>
<td></td>
</tr>
<tr>
<td>10058 15 Investigation into surface interaction between the contact lens, the upper eyelid and cornea using optical coherence tomography [10058-39]</td>
<td></td>
</tr>
<tr>
<td>10058 16 Cell counting system by using single fiber interferometer [10058-40]</td>
<td></td>
</tr>
</tbody>
</table>
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.

Alcántara, Gabriela, 0J
Arkwright, John W., 0N
Ashkenazi, Shai, 0M
Azzena, Maria, 0A
Bano, Andon, 0F
Basurto, Miguel, 0J
Belz, Mathias, 11
Boussard-Pledel, Catherine, 0Q
Braglia, Andrea, 0A
Bureau, Bruno, 0Q
Byun, Kyung Min, 13
Cantoni, Christopher, 0Q
Carré, M. J., 15
Castro, I. F., 0C
Cerecedo-Núñez, H. H., 0J
Chen, X., 0G
Chen, Zhihao, 0L
Choi, Eun Seo, 16
Coleman, Garrett J., 0Q
Costa, M., 0C
Darafsheh, Arash, 0B
Ehrlich, K., 0H
Elbukten, Caglar, 0I
Feder, Kenneth S., 0V
Finlay, Jarod C., 0B
Flores, Aaron, 0J
Freitas, H., 0C
Fróis, Arjan J. H., 04
Gassino, Riccardo, 0A
Goff, J. E., 15
Gonçalves, A., 0C
González, Naara, 0J
Ha, Myungjin, 12
Harrington, James A., 0Z
Hee, Hwan Ing, 0L
Henderson, R. K., 0H
Hjelmé, Dag Roar, 0F
Ingold, Kirk A., 03
Ito, K., 0K
Iwai, Katsumasa, 10
Iwata, T., 06
James, S. W., 0G
Jang, Seulki, 12
Jiang, Shibin, 0Q
Jung, Byungjo, 12
Jung, Changhyun, 12
Kanka, Jiri, 09
Kassaei, Alireza, 0B
Katagiri, T., 06, 0K, 0X
Kendall, Wesley, 0Z
Kim, Byunghyun, 13
Kim, Joo Ha, 16
Kim, Sooheun, 13
Klein, Karl-Friedrich, 11
Ko, Wing, 0V
Kobayashi, T., 0X
Kooman, Jeroen P., 04
Kremp, Tristan, 0V
Krstačić, N., 0H
Kufcsák, A., 0H
Lee, Sangyeob, 12
Lee, Seung Seok, 16
Lee, Soo Yeol, 13
Lewis, R., 15
Liu, C., 0G
Lucas, Pierre, 0Q
Luo, Tao, 0Q
Malti, R., 15
Mandamparambil, Rajesh, 04
Matcher, S. J., 15
Matsuura, Yuji, 06, 0K, 0X, 10
May, Manuel, 0J
Melo, J., 0C
Miyaæ, Mitsunobu, 10
Morecroft, R., 15
Moutinho, L. M., 0C
Muñiz, Omar, 0J
Muri, Harald Ian D., I., 0F
Mylon, P., 15
Nawn, Corinne D., 03
Ng, Soon Huat, 0L
Ortac, Bulend, 0L
Ouh, Chihwan, 12
Padilla-Sosa, P., 0J
Papageorgiou, Anthony, 0N
Park, Gaye, 12
Park, Jihoon, 12
Partridge, Luke, 0N
Partridge, M., 0G
Peralta, L., 0C
Pereira, A., 0C
Perrone, Guido, 0A
Pinto, S., 0C
Rachinhas, P. J., 0C
Raithel, Philipp, 11
Santos, J. A. M., 0C
Serhatlioglu, Murat, 0L
Shaikh, M. S., 0G
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 School of Medicine (United States)

Program Track Chairs

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

Conference Chair

Israel Gannot, Johns Hopkins University (United States) and Tel Aviv University (Israel)

Conference Program Committee

Jin U. Kang, Johns Hopkins University (United States)
James P. Clarkin, Polymicro Technologies, A Subsidiary of Molex Incorporated (United States)
Ilko Ilev, U.S. Food and Drug Administration (United States)
Abraham Katzir, Tel Aviv University (Israel)
Karl-Friedrich Klein, Technische Hochschule Mittelhessen (Germany)
Pierre Lucas, The University of Arizona (United States)
Yuji Matsuura, Tohoku University (Japan)
Angela B. Seddon, The University of Nottingham (United Kingdom)

Session Chairs

1 Optical Fibers and Sensors I
   Pierre Lucas, The University of Arizona (United States)

2 Keynote
   Israel Gannot, Johns Hopkins University (United States) and Tel Aviv University (Israel)
3 Optical Fibers and Sensors II
Jin U. Kang, Johns Hopkins University (United States)
Israel Gannot, Johns Hopkins University (United States) and Tel Aviv University (Israel)

4 Optical Fibers and Sensors III
Angela B. Seddon, The University of Nottingham (United Kingdom)

5 Optical Fibers and Sensors IV
James P. Clarkin, Polymicro Technologies, A Subsidiary of Molex Incorporated (United States)

6 Optical Fibers and Sensors V
Yuji Matsuura, Tohoku University (Japan)

7 Optical Fibers and Sensors VI
Karl-Friedrich Klein, Technische Hochschule Mittelhessen (Germany)

8 Optical Fibers and Sensors VII
Jin U. Kang, Johns Hopkins University (United States)

9 Optical Fibers and Sensors VIII
Ilko K. Ilev, U.S. Food and Drug Administration (United States)