PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 10738

, "Front Matter: Volume 10738," Proc. SPIE 10738, Organic and Hybrid
Sensors and Bioelectronics XI, 1073801 (16 October 2018); doi:
10.1117/12.2515246

SPIE.

Event: SPIE Organic Photonics + Electronics, 2018, San Diego, California,
United States

PROCEEDINGS OF SPIE

Organic and Hybrid Sensors and Bioelectronics XI

Ioannis Kymissis
Ruth Shinar
Luisa Torsi
Emil J. W. List-Kratochvil
Editors

19–22 August 2018
San Diego, California, United States

Sponsored and Published by
SPIE

Volume 10738

Proceedings of SPIE 0277-786X, V. 10738

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

Organic and Hybrid Sensors and Bioelectronics XI, edited by Ioannis Kymissis, Ruth Shinar, Luisa Torsi,
Emil J. W. List-Kratochvil, Proc. of SPIE Vol. 10738, 1073801 · © 2018 SPIE
CCC code: 0277-786X/18/\$18 · doi: 10.1117/12.2515246

Proc. of SPIE Vol. 10738 1073801-1

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 SPIDigitalLibrary.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:

Author(s), "Title of Paper," in *Organic and Hybrid Sensors and Bioelectronics XI*, edited by Ioannis Kymissis, Ruth Shinar, Luisa Torsi, Emil J. List-Kratochvil, Proceedings of SPIE Vol. 10738 (SPIE, Bellingham, WA, 2018) Seven-digit Article CID Number.

ISSN: 0277-786X
ISSN: 1996-756X (electronic)

ISBN: 9781510620476
ISBN: 9781510620483 (electronic)

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 © 2018, 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 0277-786X/18/\$18.00.

Printed in the United States of America.

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

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.org

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

Contents

v	<i>Authors</i>
vii	<i>Conference Committee</i>

ORGANIC AND HYBRID SENSOR AND BIOELECTRONICS II

10738 08	Optimizing performance of reflectance-based organic Photoplethysmogram (PPG) sensor [10738-7]
----------	---

ORGANIC AND HYBRID SENSOR AND BIOELECTRONICS IV

10738 0H	Incorporation of photo-controllable molecules in tunable DNA dye laser system (Invited Paper) [10738-16]
----------	--

ORGANIC AND HYBRID SENSOR AND BIOELECTRONICS VI

10738 0R	Novel fabrication of flexible perovskite photosensor using capillary motion [10738-27]
----------	---

PRINTED SENSORS AND INTEGRATED DEVICES

10738 11	Next generation paper: an augmented book platform (Invited Paper) [10738-37]
10738 14	Combined AFM and ToF-SIMS analyses for the study of filaments in organic resistive switching memories (Invited Paper) [10738-40]

ORGANIC AND HYBRID SENSOR AND BIOELECTRONICS IX

10738 1A	Poling-induced birefringence in OEO materials under nanoscale confinement (Invited Paper) [10738-47]
10738 1D	Development of molecular probes for cellular imaging combining second harmonic generation and two-photon fluorescence (Invited Paper) [10738-51]

POSTER SESSION

- 10738 1G **Multifunctional organic flexible nanocomposite sensors for biomedical applications** [10738-53]
- 10738 1H **Polymer composites for potential multi-function devices** [10738-54]
- 10738 1J **Effect of different visible light on rhizobacterial growth** [10738-56]

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.

Affiq, Md., 08
Aggarwal, Manmohan D., 1G
Batra, Ashok K., 1G
Bilgaiyan, A., 08
Bober, Miroslav Z., 11
Bohara, Bir B., 1G
Bonfiglio, Annalisa, 14
Brown, Alan, 11
Busby, Yan, 14
Castillo, Darwin, 1J
Casula, Giulia, 14
Clays, K., 1D
Cosseddu, Piero, 14
Currie, James R., 1G
Dalton, Larry R., 1A
Elder, Delwin L., 1A
Elsamnah, F., 08
Franquet, Alexis, 14
Frohlich, David M., 11
Grover, Kunal, 1G
Hattori, R., 08
Houssiau, Laurent, 14
Isborn, Christine M., 1A
Jimenez, Yuliana, 1J
Johnson, Lewis E., 1A
Kassu, Aschalew, 1G
Kawabe, Yutaka, 0H
Khorramshahi, Fatemeh, 0R
Kocherzhenko, Aleksey A., 1A
Lal, Ravindra B., 1G
Le Borgne, Brice H., 11
Lee, Harold Odell, 1H
Nordman, Sirpa, 11
Pireaux, Jean-Jacques, 14
Revill, George, 11
Ritvonen, Tapio, 11
Robinson, Bruce H., 1A
Scarles, Caroline E., 11
Seisto, Anu, 11
Shim, C., 08
Spampinato, Valentina, 14
Sporea, Radu A., 11
Sugawara, R., 08
Sun, Sam-Shajing, 1H
Takshi, Arash, 0R
Tillack, Andreas F., 1A
Vivanco, Oscar, 1J
Yrjänä, Samuli, 11

Conference Committee

Symposium Chairs

Zakya Kafafi, Lehigh University (United States)
Ifor D. W. Samuel, University of St. Andrews (United Kingdom)

Conference Chairs

Ioannis Kymissis, Columbia University (United States)
Ruth Shinar, Iowa State University (United States)
Luisa Torsi, Università degli Studi di Bari Aldo Moro (Italy)
Emil J. W. List-Kratochvil, Humboldt-Universität zu Berlin (Germany)

Conference Program Committee

Magnus Berggren, Linköping University (Sweden)
Annalisa Bonfiglio, Università degli Studi di Cagliari (Italy)
Alon Gorodetsky, University of California, Irvine (United States)
Norihisa Kobayashi, Chiba University (Japan)
George G. Malliaras, University of Cambridge (United Kingdom)
Paul Meredith, Swansea University (United Kingdom)
Fahima Ouchen, Air Force Research Laboratory (United States)
Róisín M. Owens, University of Cambridge (United Kingdom)
Ileana Rau, Universitatea Politehnica of Bucharest (Romania)
Manijeh Razeghi, Northwestern University (United States)
Rosaria Rinaldi, Università del Salento (Italy)
Ifor D. W. Samuel, University of St. Andrews (United Kingdom)
Franky So, North Carolina State University (United States)

Session Chairs

- 1 Organic and Hybrid Sensor and Bioelectronics I
Ruth Shinar, Iowa State University of Science and Technology (United States)
- 2 Organic and Hybrid Sensor and Bioelectronics II
Joseph Shinar, Iowa State University of Science and Technology (United States)
- 3 Organic and Hybrid Sensor and Bioelectronics III
Guglielmo Lanzani, Politecnico di Milano (Italy)
- 4 Organic and Hybrid Sensor and Bioelectronics IV
Ileana Rau, Universitatea Politehnica of Bucharest (Romania)

- 5 Organic and Hybrid Sensor and Bioelectronics V
John C. de Mello, Imperial College London (United Kingdom)
- 6 Organic and Hybrid Sensor and Bioelectronics VI
Nurit Ashkenasy, Ben Gurion University (Israel)
- 7 Organic and Hybrid Sensor and Bioelectronics VII
Paul L. Burn, The University of Queensland (Australia)
- 8 Organic and Hybrid Sensor and Bioelectronics VIII
Ioannis Kymissis, Columbia University (United States)
- 9 Printed Sensors and Integrated Devices
Giovanni Ligorio, Humboldt-Universität zu Berlin (Germany)
- 10 Hybrid Memories and Neuromorphic Devices
Giovanni Ligorio, Humboldt-Universität zu Berlin (Germany)
- 11 Organic Bioelectronic Devices:
Joint Session with Conferences 10738 and 10739
Oana D. Jurchescu, Wake Forest University (United States)
- 12 Organic and Hybrid Sensor and Bioelectronics IX
François Kajzar, Universitatea Politehnica of Bucharest (Romania)