

PROGRESS IN BIOMEDICAL OPTICS AND IMAGING

Vol. 24 No. 18

Optics and Biophotonics in Low-Resource Settings IX

David Levitz
Aydogan Ozcan
Editors

28–29 January 2023
San Francisco, California, United States

Sponsored and Published by
SPIE

Volume 12369

Proceedings of SPIE, 1605-7422, V. 12369

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

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 *Optics and Biophotonics in Low-Resource Settings IX*, edited by David Levitz, Aydogan Ozcan, Proc. of SPIE 12369, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510658431

ISBN: 9781510658448 (electronic)

Published by

SPIE

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

Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2023 Society of Photo-Optical Instrumentation Engineers (SPIE).

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 fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center 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.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

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

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.org

Paper Numbering: A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE 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 *Conference Committee*

EMERGING TECHNOLOGIES I

- 12369 02 **Reverse tuning of whispering gallery mode microresonators** [12369-38]
- 12369 03 **Light-assisted drying (LAD) for anhydrous preservation of biologics: processing of samples inside glass lyophilization vials** [12369-7]

EMERGING TECHNOLOGIES II

- 12369 04 **A compact fluorescence sensor for low-cost non-invasive monitoring of gut permeability in undernutrition** [12369-27]
- 12369 05 **Low-cost multimodal micro-endoscopic system for oral cancer screening in low resource setting** [12369-28]
- 12369 06 **Two-dimensional microlens array for low-cost high-resolution bio-imaging** [12369-30]
- 12369 07 **pH-sensitive optical micro-resonator based on PAA/PVA gel swelling** [12369-39]

ADVANCES IN AUTOMATED VISUAL EVALUATION IN CERVICAL APPLICATIONS

- 12369 08 **Multi-modal mobile colposcope for real-time cervical precancer detection: a pilot study in Mozambique** [12369-2]
- 12369 09 **Automated Visual Evaluation (AVE) of cervical precancerous lesions with integrated patient meta-information: an initial study** [12369-5]

NEW SPECTRAL METHODS IN SENSING AND IMAGING

- 12369 0A **Smartphone oxygenation measuring device to differentiate low-risk stable and chronic diabetic foot ulcers from high-risk complicated ulcers: a pilot study in India** [12369-12]
- 12369 0B **Evaluating color correction algorithms for automated interpretation of urinalysis dipsticks with low-cost image sensors** [12369-13]

MOBILE SENSING AND POINT-OF-CARE TECHNOLOGIES

12369 0C **Portable smartphone-controlled microscopy for the automated diagnosis of helminth infections from Kato-Katz fecal stains** [12369-17]

ADVANCES IN OCT SYSTEMS

12369 0D **Raspberry pi-based low-cost portable optical coherence tomography to deliver health care services** [12369-25]

DIGITAL POSTERS

12369 0E **An ultra-low-cost focus-tunable smartphone-based microscope** [12369-6]