PROGRESS IN BIOMEDICAL OPTICS AND IMAGING Vol. 25 No. 23

Biophotonics in Exercise Science, Sports Medicine, Health Monitoring Technologies, and Wearables V

Babak Shadgan Amir H. Gandjbakhche Editors

27 January 2024 San Francisco, California, United States

Sponsored and Published by SPIE

Volume 12838

Proceedings of SPIE, 1605-7422, V. 12838

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 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: Author(s), "Title of Paper," in Biophotonics in Exercise Science, Sports Medicine, Health Monitoring Technologies, and Wearables V, edited by Babak Shadgan, Amir H. Gandjbakhche, Proc. of SPIE 12838, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

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

ISBN: 9781510669352 ISBN: 9781510669369 (electronic)

Published by **SPIE** P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time) SPIE.org Copyright © 2024 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.



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

CLINICAL APPLICATIONS OF OPTICAL METHODS

- 12838 02 Neogly™ QCL-based NI-CGM medical device [12838-1]
- 12838 03 Assessing residual cancer burden in breast cancer patients undergoing neoadjuvant chemotherapy using the OptiScan probe and machine learning [12838-5]

EXPERIMENTAL BIOPHOTONICS

- 12838 04 Design and development of a new wearable optic patch towards increased functionality and reduced motion artifacts [12838-7]
- 12838 05 Wearable, high-resolution sensors for noninvasive monitoring of physiologic variables [12838-9]

THE EVOLUTION OF NEAR INFRARED SPECTROSCOPY OF THE CENTRAL NERVOUS SYSTEM

12838 06 Repeated acute hypotension induced by thigh cuff release and cerebral oxygenation changes [12838-13]

OPTICS IN GAIT, EXERCISE, AND SPORTS MEDICINE

- 12838 07Muscle hemodynamics measured with dual-slope frequency-domain near-infrared
spectroscopy [12838-18]12838 08Automatically correcting and compensating measurement data of wearable inertial sensors
for gait analysis [12838-20]
- 12838 09 Insight into brain-muscle oxygenation relationship before and after anaerobic threshold using near-infrared spectroscopy: a feasibility study [12838-17]

OPTICS IN HEALTH MONITORING

12838 0A	Towards continuous blood pressure monitoring using speckle plethysmography (Best Paper Award) [12838-22]
12838 OB	Ambulatory fibre Bragg grating interrogator with applications in blood pressure monitoring (Best Paper Award) [12838-23]
	POSTER SESSION
12838 OC	Nitrogen-vacancy centers for prosthesis control [12838-28]