

PROGRESS IN BIOMEDICAL OPTICS AND IMAGING

Vol. 25 No. 1

Photonics in Dermatology and Plastic Surgery 2024

Haishan Zeng
Milind Rajadhyaksha
Editors

27–28 January 2024
San Francisco, California, United States

Sponsored and Published by
SPIE

Volume 12816

Proceedings of SPIE, 1605-7422, V. 12816

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 *Photonics in Dermatology and Plastic Surgery 2024*, edited by Haishan Zeng, Milind Rajadhyaksha, Proc. of SPIE 12816, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510668911

ISBN: 9781510668928 (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.

**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*

SESSION 1 OPTICAL COHERENCE TOMOGRAPHY I

12816 03 **Optical coherence tomography-measured blood vessel characteristics within and between port-wine birthmarks** [12816-28]

SESSION 2 WOUND HEALING AND SKIN AGING

12816 04 **Accurate burn wound categorization using an optimized spatial frequency domain imaging device and machine learning** [12816-6]

SESSION 3 REFLECTANCE IMAGING, FLUORESCENCE IMAGING, PHOTOTHERMAL AND PHOTOACOUSTIC IMAGING

12816 06 **Photothermal tomographic imaging of optically absorbing inclusions in human skin in vivo** [12816-10]

SESSION 4 SKIN CHARACTERIZATION

12816 07 **Multiphoton tomography of human skin during oxygen inhalation** [12816-16]

12816 08 **Simultaneous imaging of shallow and deep tissues based on multi-line scanning** [12816-17]

SESSION 5 PHOTOTHERAPEUTICS

12816 09 **Femtosecond laser-processed biodegradable porous membranes for cultivation and transplantation of three-dimensional skin substitutes** [12816-19]

12816 0A **Follow-up visualization of in-vivo colored tattoo particles after picosecond laser treatment via multiphoton tomography** [12816-20]

SESSION 6 MACHINE LEARNING AND ALGORITHM DEVELOPMENT

12816 0B **3D reconstruction and artificial intelligence algorithms for the detection and tumor depth measurement of basal cell carcinoma in RCM-OCT images: a pilot study** [12816-26]

12816 0C **Common pitfalls in using AI in high-risk domains** [12816-25]

SESSION 7 OPTICAL COHERENCE TOMOGRAPHY II

12816 0D **Analysis of attenuation coefficient and polarization-based contrasts in skin using polarization-sensitive optical coherence tomography** [12816-4]

POSTER SESSION

12816 0E **Validation of novel methodology for noninvasive assessment of optical properties in human skin phantoms** [12816-40]

12816 0F **Noninvasive imaging of blood flow in neoplastic skin lesions using laser speckle contrast** [12816-41]

12816 0G **Measurement of optical properties of human skin in the ultraviolet wavelength range: age-related changes** [12816-45]

12816 0H **Novel algorithm to automatically detect DEJ** [12816-46]

12816 0I **Novel denoising technique for optical coherence tomography images** [12816-47]