## Optical Imaging, Therapeutics, and Advanced Technology in Head and Neck Surgery and Otolaryngology 2018

Brian J. F. Wong Justus F. Ilgner Max J. Witjes Editors

27–28 January 2018 San Francisco, California, United States

Sponsored by SPIE

Cosponsored by Head and Neck Optical Diagnostics and Intervention Society

Published by SPIE

**Volume 10469** 

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 Optical Imaging, Therapeutics, and Advanced Technology in Head and Neck Surgery and Otolaryngology 2018, edited by Brian J. F. Wong, Justus F. Ilgner, Max J. Witjes, Proceedings of SPIE Vol. 10469 (SPIE, Bellingham, WA, 2018) Seven-digit Article CID Number.

ISSN: 1605-7422

ISSN: 1996-756X (electronic)

ISBN: 9781510614239

ISBN: 9781510614246 (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 1605-7422/18/\$18.00.

Printed in the United States of America Vm7 i ffUb 5 gpc WJUh/ gz +bWzi bXYf "JW/ bg/ Zfca 'GD-9.

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

## Contents

V	Authors
vii	Conference Committee
ix	Introduction
	HEARING AND DISEASES OF THE EAR
10469 OU	Electrical and optical co-stimulation in the deaf white cat [10469-30]
	NBI AND OPTICAL BIOPSY I
10469 0X	Optical biopsy of head and neck cancer using hyperspectral imaging and convolutional neural networks [10469-33]
	NBI AND OPTICAL BIOPSY II
10469 12	Diffuse Reflectance Spectroscopy (DRS) of radiation-induced re-oxygenation in sensitive and resistant head and neck tumor xenografts [10469-38]
	NOVEL THERAPEUTICS, PDT, AND ROBOTICS
10469 1E	Antibacterial studies of ZnO nanoparticle coatings on nanocrystalline YSZ irradiated with femtosecond laser light [10469-52]