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Front Matter: Volume 11218

, "Front Matter: Volume 11218," Proc. SPIE 11218, Ophthalmic Technologies
XXX, 1121801 (9 March 2020); doi: 10.1117/12.2569596

SPIE.

Event: SPIE BiOS, 2020, San Francisco, California, United States

PROGRESS IN BIOMEDICAL OPTICS AND IMAGING

Vol. 21 No. 8

Ophthalmic Technologies XXX

Fabrice Manns
Arthur Ho
Per G. Söderberg
Editors

1–2 February 2020
San Francisco, California, United States

Sponsored and Published by
SPIE

Volume 11218

Proceedings of SPIE, 1605-7422, V. 11218

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

Ophthalmic Technologies XXX, edited by Fabrice Manns, Arthur Ho, Per G. Söderberg, Proc. of SPIE
Vol. 11218, 1121801 · © 2020 SPIE · CCC code: 1605-7422/20/\$21 · doi: 10.1117/12.2569596

Proc. of SPIE Vol. 11218 1121801-1

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Please use the following format to cite material from these proceedings:

Author(s), "Title of Paper," in *Ophthalmic Technologies XXX*, edited by Fabrice Manns, Arthur Ho, Per G. Söderberg, Proceedings of SPIE Vol. 11218 (SPIE, Bellingham, WA, 2020) Seven-digit Article CID Number.

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510631991

ISBN: 9781510632004 (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

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Introduction

The papers contained in this volume were presented at the thirtieth conference on Ophthalmic Technologies, held from 1–2 February 2020, at the Moscone Center in San Francisco, California (United States) as a part of the SPIE Photonics West BiOS Symposium.

A total of 55 oral presentations and 33 posters were presented by scientists, clinicians and engineers from academia and industry representing 20 countries spanning four continents. The conference covered a broad range of topics, including novel phase imaging approaches for retinal nerve fiber layer imaging, real-time temperature controlled retinal laser therapies, and optical elastography for corneal and lens mechanical property measurements.

The conference hosted its fourteenth presentation on the topic of the unmet needs and impact of technology in the clinical area. Prof. Cynthia A. Toth, from the Department of Ophthalmology at Duke University (United States), presented achievements and current technological needs in the field of retinal disease management in children and image-guided retinal surgery.

The twentieth Pascal Rol Award was presented to Dr. Ayoub Lassoued and his colleagues from Indiana University (United States) for their outstanding paper on "Measuring dysfunction of cone photoreceptors in retinitis pigmentosa with phase-sensitive AO-OCT" [11218-40]. Established in memory of Dr. Pascal O. Rol, former chair and co-founder of the Ophthalmic Technologies conference, the award is in recognition of the best manuscript and presentation. Special congratulations to Dr. Lassoued! The 2020 finalists of the award, selected by the entire program committee from among the 84 abstract submissions, included Mehdi Azimipour [11218-38], Kristen Hagan [11218-32], and Somayyeh Soltanian-Zadeh [11218-25].

We are very grateful to Johnson and Johnson Vision for sponsoring the 2020 Pascal Rol award and keynote lecture through the Pascal Rol Foundation.

The 30th edition of the Ophthalmic Technologies conference was bittersweet for us, as it also marks our last conference as Chairs. It has been a privilege and a great pleasure to work with the Program Committee and the SPIE staff over the past 20 plus years to bring together scientists, engineers and clinicians from around the world at all levels of their careers to meet and exchange ideas. It has been particularly satisfying to witness the emergence of a new generation of innovators, and we feel that it is the right time for a transition.

We thank the Program Committee members, session chairs, speakers, and participants, as well as the SPIE staff, for their support and dedication in making this conference a success during these many years.

We extend an invitation for the Ophthalmic Technologies XXXI conference, under the leadership of Daniel X. Hammer, from the Food and Drug Administration (United States). The conference which will be held Saturday, 23 January 2021 and Sunday, 24 February 2021 in San Francisco, California (United States).

Fabrice Manns
Per G. Söderberg
Arthur Ho

Twentieth Pascal Rol Award for Excellence in Ophthalmic Technologies
Sponsored by Johnson and Johnson Vision through the Pascal Rol
Foundation

Presented on Sunday February 2, 2020 to

Dr. Ayoub Lassoued

for his excellent paper on

***" Measuring dysfunction of cone photoreceptors in
retinitis pigmentosa with phase-sensitive AO-OCT"***

Dr. Daniel X. Hammer (right) presents the 2020 Pascal Rol Award to Ayoub Lassoued (left).

Past awardees

2019	Furu Zhang	<i>Classifying cone photoreceptors in the living human eye using their unique phase response to light</i>
2018	Kazuhiro Kurokawa	<i>Method to investigate temporal dynamics of ganglion and other retinal cells in the living human eye</i>
2017	Furu Zhang	<i>Tracking dynamics of photoreceptor disc shedding with adaptive optics-optical coherence tomography</i>
2016	Zhuolin Liu	<i>Imaging human retinal pigment epithelium cells using adaptive optics optical coherence tomography</i>
2015	Francesco de la Rocca	<i>Ultra-compact switchable SLO/OCT handheld probe design</i>
2014	Marco Ruggeri	<i>Biometry of the ciliary muscle during dynamic accommodation assessed with OCT</i>
2013	Yossi Mandel	<i>In-vivo performance of photovoltaic subretinal prosthesis</i>
2012	Clemens Alt	<i>In vivo quantification of microglia dynamics with an SLO in a mouse model of focal laser injury</i>
2011	James Loudin	<i>Photovoltaic retinal prosthesis</i>
2010	Daniel Hammer	<i>Multimodal adaptive optics for depth enhanced high-resolution ophthalmic imaging</i>
2009	Kazuhiro Kurokawa	<i>1μm wavelength adaptive optics scanning laser ophthalmoscope</i>
2008	Boris Povazay	<i>Minimum distance mapping using volumetric OCT: A novel indicator for early glaucoma diagnosis</i>
2007	Yoshiaki Yasuno	<i>Clinical examinations of anterior eye segments by three-dimensional swept-source optical coherence tomography</i>
2006	Enrique Fernandez	<i>Adaptive optics using a liquid crystal spatial light modulator for ultrahigh-resolution optical coherence tomography</i>
2005	Karsten König	<i>Cornea surgery with nanojoule femtosecond laser pulses</i>
2004	Daniel Palanker	<i>Attracting retinal cells to electrodes for high-resolution stimulation</i>
2003	Igor Ermakov	<i>Non-invasive optical techniques for the measurement of macular pigments</i>
2002	Georg Schuele	<i>Non-invasive temperature measurements during laser irradiation of the retina with optoacoustic techniques</i>
2001	Matthew Smith	<i>Minimizing the influence of fundus pigmentation on retinal vessel oximetry measurements</i>

The 2020 Pascal Rol Lecture on Ophthalmic Technologies

Saturday February 1, 2020

Professor Cynthia A. Toth, Duke University (United States)

Achievements and needs for technologies to advance retinal disease management in children and image-guided retinal surgery

The Pascal Rol Lecture on Ophthalmic Technologies is presented by a leading researcher in ophthalmology with a strong interest and pioneering research contributions to the field of ophthalmic technologies. This invited lecture is intended to trigger further development of ophthalmic technologies by stimulating discussions between basic scientists, engineers, and clinicians.

The 2020 lecture was supported by
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through the Pascal Rol Foundation
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