

International Conference on Biophotonics V

David D. Sampson
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Jürgen Popp
Halina Rubinsztein-Dunlop
Brian C. Wilson
Editors

30 April–1 May 2017
Perth, Australia

Organized by
Optical+Biomedical Engineering Laboratory, The University of Western Australia (Australia)

Sponsored by
The University of Western Australia (Australia)
ARC Centre for Nanoscale Biophotonics (Australia)
ARC Centre for Advanced Molecular Imaging (Australia)
Engineers Enterprise (Australia)
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Published by
SPIE

Volume 10340

Proceedings of SPIE, 1605-7422, V. 10340

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

International Conference on Biophotonics V, edited by David D. Sampson, Dennis L. Matthews, Jürgen Popp,
Halina Rubinsztein-Dunlop, Brian C. Wilson, Proc. of SPIE Vol. 10340, 1034001 · © 2017 SPIE
CCC code: 1605-7422/17/\$18 · doi: 10.1117/12.2280085

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

Author(s), "Title of Paper," in *International Conference on Biophotonics V*, edited by David D. Sampson, Dennis L. Matthews, Jürgen Popp, Halina Rubinsztein-Dunlop, Brian C. Wilson, Proceedings of SPIE Vol. 10340 (SPIE, Bellingham, WA, 2017) Seven-digit Article CID Number.

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510611252

ISBN: 9781510611269 (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

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Printed in the United States of America.

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

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- 2 In-vivo Non-invasive Retinal Vessel and Blood Flow Imaging:
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- 3 Tumour Margin Identification: Critiquing Technologies
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- 4 Hot Posters
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- 5 Challenges in Translation: Models to Promote Translation
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- 7 Neurophotronics
Anita Mahadevan-Jansen, Vanderbilt University (United States)
- 8 Radical New Ideas in Biophotonics
Kishan Dholakia, University of St Andrews (United Kingdom)

Introduction

Welcome to the 5th International Conference on Biophotonics (ICOB V) in Perth, Western Australia, 30 April–1 May 2017. ICOB V continues the success of the previous meetings held in Sacramento, Ottawa, Jena, and Florence. The conference has a strong theme of engagement with medical end users. The ICOB V is held over two days as a stand-alone meeting and, on the third day, combines with the opening plenary session of [Science on the Swan](#), a broad-based biomedical research conference held annually in Perth.

ICOB V continues the tradition of bringing together opinion leaders in the field to consider where the field is going and what opportunities there are to work together. Key in this endeavor are end users of biophotonics. This year, co-location and running back-to-back with Science on the Swan presents an exceptional opportunity to engage with medical researchers and translators.

ICOB V is run as a largely single-stream meeting with sessions led by leaders in different aspects of biophotonics research and translation. Ample time is set aside for discussion and, in a new initiative, session leaders will convene the production of white papers after the conference summarizing the state of the field in their area. These papers will be published in the *Journal of Biomedical Optics*. The technical content in this meeting is largely delivered via a poster session with an associated Hot Poster session in which selected presenters deliver short previews of their work. The poster session involves strong participation of early-career and postgraduate researchers, including in its organization, the awarding of poster prizes. There is an associated exhibition to avail researchers with the chance to observe the latest commercial technical developments, and several sessions consider opportunities for entrepreneurship in biophotonics and pathways for translation.

The conference, held in Perth's port and historic cultural centre of Fremantle, provides an ideal venue for offsite events and interactions all within a short walk of the conference's venue, the historic Esplanade Hotel.

We hope the delegates find ICOB V an event to remember, and that these proceedings help capture some part of that.

David D. Sampson
Dennis L. Matthews
Jürgen Popp
Halina Rubinsztein-Dunlop
Brian C. Wilson

ICOB 2017 Posters

The following papers are published on the SPIE Digital Library only.

- 10340 02 **Multi-modal spectroscopic imaging with synchrotron light to study mechanisms of brain disease** [10340-1]
K. L. Summers, N. Fimognari, A. Hollings, M. Kiernan, V. Lam, R. J. Tidy, R. Takechi, G. N. George, I. J. Pickering, J. C. Mamo, H. H. Harris, M. J. Hackett, Curtin Univ. (Australia)
- 10340 0B **Dispersion mapping as a simple post-processing step of standard Fourier domain Optical Coherence Tomography (OCT) data** [10340-10]
S. Kolenderska, B. Bräuer, F. Vanholsbeeck, The Univ. of Auckland (New Zealand)
- 10340 10 **Optical coherence elastography for cellular-scale stiffness imaging of mouse aorta** [10340-37]
P. Wijesinghe, N. J. Johansen, A. Curatolo, D. D. Sampson, R. Ganss, B. F. Kennedy, The Univ. of Western Australia (Australia)
- 10340 16 **Evaluation of changes in birefringence for samples subjected to various stress sources measured with polarization-sensitive OCT** [10340-43]
K. Karnowski, Q. Li, Optical+Biomedical Engineering Lab., The Univ. of Western Australia (Australia); M. Villiger, Harvard Medical School (United States) and Massachusetts General Hospital, Wellman Ctr. for Photomedicine (United States); D. D. Sampson, Optical+Biomedical Engineering Lab., The Univ. of Western Australia (Australia) and The Univ. of Western Australia (Australia)
- 10340 17 **Axial length variation impacts on retinal vessel density and foveal avascular zone area measurement using optical coherence tomography angiography** [10340-44]
D. M. Sampson, The Univ. of Western Australia (Australia) and Lions Eye Institute (Australia); P. Gong, The Univ. of Western Australia (Australia); D. An, Zhejiang Univ. (China); M. Menghini, Sir Charles Gairdner Hospital (Australia); A. Hansen, The Univ. of Western Australia (Australia); D. A. Mackey, The Univ. of Western Australia (Australia) and Lions Eye Institute (Australia); D. D. Sampson, The Univ. of Western Australia (Australia); F. K. Chen, The Univ. of Western Australia (Australia), Lions Eye Institute (Australia), and Royal Perth Hospital (Australia)
- 10340 18 **Ex-vivo imaging of blood and lymphatic vessels in conjunctiva using optical coherence tomography** [10340-45]
P. Gong, K. Karnowski, Optical+Biomedical Engineering Lab., The Univ. of Western Australia (Australia); P. Yu, D. An, D.-Y. Yu, The Univ. of Western Australia (Australia) and Lions Eye Institute (Australia); D. M. Sampson, Optical+Biomedical Engineering Lab., The Univ. of Western Australia (Australia) and The Univ. of Western Australia (Australia)

- 10340 19 **Local birefringence of the anterior segment of the human eye in a single capture with a full range polarisation-sensitive optical coherence tomography** [10340-46]
Q. Li, K. Karnowski, Optical+Biomedical Engineering Lab., The Univ. of Western Australia (Australia); M. Villiger, Harvard Medical School (United States) and Massachusetts General Hospital, Wellman Ctr. for Photomedicine (United States); D. D. Sampson, Optical+Biomedical Engineering Lab., The Univ. of Western Australia (Australia) and The Univ. of Western Australia (Australia)
- 10340 1A **Ultrafast laser scanning cellular microscopy by spatiotemporally encoded virtual sources** [10340-47]
W. Yan, J. Wu, K. K. Y. Wong, K. K. Tsia, The Univ. of Hong Kong (Hong Kong, China)
- 10340 1B **Preliminary results on in-vivo imaging of upper airway inhalation injuries using anatomical optical coherence tomography** [10340-48]
A. Phan, K. Karnowski, Q. Lee, P. Fejes, Optical+Biomedical Engineering Lab., The Univ. of Western Australia (Australia); B. Quirk, R. McLaughlin, Ctr. for Nanoscale Biophotonics, The Univ. of Adelaide (Australia); F. M. Wood, Burns Service of Western Australia, Royal Perth Hospital (Australia) and Burns Injury Research Unit, School of Surgery, The Univ. of Western Australia (Australia); D. D. Sampson, Optical+Biomedical Engineering Lab., The Univ. of Western Australia (Australia) and The Univ. of Western Australia (Australia)
- 10340 1E **Optical coherence tomography multichannel probe design for speckle reduction** [10340-51]
D. Cui, E. Bo, Y. Luo, X. Liu, X. Wang, S. Chen, X. Yu, S. Chen, P. Shum, L. Liu, Nanyang Technological Univ. (Singapore)
- 10340 1G **Evaluating changes in brain vasculature of murine embryos in utero due to maternal alcohol consumption using optical coherence tomography** [10340-53]
R. Raghunathan, C. Wu, M. Singh, C. Liu, Univ. of Houston (United States); R. C. Miranda, Texas A&M Health Science Ctr. (United States); K. V. Larin, Univ. of Houston (United States)