

PROGRESS IN BIOMEDICAL OPTICS AND IMAGING

Vol. 21 No. 38

# *Adaptive Optics and Wavefront Control for Biological Systems VI*

Thomas G. Bifano  
Sylvain Gigan  
Na Ji  
Editors

2-6 February 2020  
San Francisco, California, United States

Sponsored and Published by  
SPIE

Volume 11248

Proceedings of SPIE, 1605-7422, V. 11248

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](http://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 *Adaptive Optics and Wavefront Control for Biological Systems VI*, edited by Thomas G. Bifano, Sylvain Gigan, Na Ji, Proceedings of SPIE Vol. 11248 (SPIE, Bellingham, WA, 2020) Seven-digit Article CID Number.

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510632592

ISBN: 9781510632608 (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](http://SPIE.org)

Copyright © 2020, 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 \$21.00 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](http://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 1605-7422/20/\$21.00.

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](http://SPIDigitalLibrary.org)

---

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

---

## AO MICROSCOPY I

---

11248 05	Lattice light-sheet and Fresnel incoherent correlation holography [11248-4]
11248 06	Sensorless and sensor based adaptive optics for light sheet microscopy [11248-5]

---

## AO MICROSCOPY II

---

11248 08	Vectorial adaptive optics: correction of polarization and phase [11248-7]
11248 09	Closed-loop multiconjugate adaptive optics for microscopy [11248-9]

---

## COMPUTATIONAL AO

---

11248 0D	Full three-dimensional aberration-free super-resolution imaging through thick multicellular samples [11248-13]
11248 0E	Robust sensorless wavefront sensing via neural network in a single-shot [11248-14]

---

## AO IN VISION SCIENCE

---

11248 0L	Adaptive optics two-photon microscopy for in vivo imaging of mouse retina [11248-20]
----------	--

---

## ENDOSCOPY AND MULTIMODE FIBER IMAGING II

---

11248 0U	Numerical comparison of robustness of shaped beam delivery through multimode and multicore fibre against fibre bending [11248-29]
----------	---

POSTER SESSION

---

11248 0W Sensorless adaptive optics with a laser free spinning disk confocal microscope [11248-31]

11248 11 Differential sensing technique for correlation-based adaptive optics [11248-36]

11248 16 Creating correct aberrations: why blur isn't always bad in the eye [11248-44]