

# PROCEEDINGS OF SPIE

## **Advanced Optical Imaging Technologies**

**Xiao-Cong Yuan**  
**Kebin Shi**  
**Michael G. Somekh**  
*Editors*

**12–13 October 2018**  
**Beijing, China**

*Sponsored by*  
SPIE  
COS—Chinese Optical Society

*Cooperating Organizations*  
Tsinghua University (China) • Peking University (China) • University of Science and Technology of China (China) • Zhejiang University (China) • Tianjin University (China) • Beijing Institute of Technology (China) • Beijing University of Posts and Telecommunications (China) • Nankai University (China) • Changchun University of Science and Technology (China) • University of Shanghai for Science and Technology (China) • Capital Normal University (China) • Huazhong University of Science and Technology (China) • Beijing Jiaotong University (China) • Shanghai Institute of Optics and Fine Mechanics (China) • Changchun Institute of Optics and Fine Mechanics (China) • Institute of Semiconductors (China) • Institute of Optics and Electronics (China) • Institute of Physics (China) • Shanghai Institute of Technical Physics (China) • China Instrument and Control Society (China) • Optoelectronics Technology Committee, COS (China) • Optical Society of Japan (Japan) • Optical Society of Korea (Korea, Republic of) • The Australian Optical Society (Australia) • Optics and Photonics Society of Singapore (Singapore) • European Optical Society

*Supporting Organizations*  
CAST—China Association for Science and Technology (China)  
NSFC—National Nature Science Foundation (China)

*Published by*  
SPIE

**Volume 10816**

Proceedings of SPIE 0277-786X, V. 10816

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 *Advanced Optical Imaging Technologies*, edited by Xiao-Cong Yuan, Kebin Shi, Michael G. Somekh, Proceedings of SPIE Vol. 10816 (SPIE, Bellingham, WA, 2018) Seven-digit Article CID Number.

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510622302

ISBN: 9781510622319 (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 © 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](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 0277-786X/18/\$18.00.

Printed in the United States of America

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

vii	<i>Authors</i>
ix	<i>Symposium Committees</i>
xiii	<i>Conference Committee</i>

---

## HIGH-RESOLUTION FLUORESCENCE AND LABEL-FREE IMAGING TECHNOLOGIES I

---

10816 06	<b>Multifocal structured illumination fluorescence microscopy with large field-of-view and high spatio-temporal resolution (Invited Paper) [10816-5]</b>
----------	--

---

## IMAGING APPLICATIONS IN BIOMEDICAL AND MATERIAL SCIENCES I

---

10816 08	<b>Two-photon excitation structured illumination super-resolution microscopy (Invited Paper) [10816-7]</b>
10816 0A	<b>High-resolution wide-field synchrotron radiation micro-CT for large human lung specimen imaging [10816-9]</b>

---

## COMPUTATIONAL IMAGING

---

10816 0G	<b>Transport of intensity phase imaging for pure phase objects in computational ghost imaging [10816-16]</b>
10816 0H	<b>Image reconstruction of few-mode fiber based on deep learning [10816-35]</b>

---

## HIGH-RESOLUTION FLUORESCENCE AND LABEL-FREE IMAGING TECHNOLOGIES II

---

10816 0J	<b>Optical coherence tomography (OCT) examination of living kidney – animal study [10816-19]</b>
----------	--

## POSTER SESSION

---

- 10816 10 **Coherent diffraction microscopy for nano-imaging of cells** [10816-37]
- 10816 11 **Gas-phase fluorescence performance of two Xanthene dyes (Rhodamine B and Rhodamine 6G) at atmosphere** [10816-38]
- 10816 12 **An on-line color defect detection method for printed matter based on snapshot multispectral camera** [10816-39]
- 10816 13 **A remapping algorithm based on weighted coefficients for SAPIV** [10816-40]
- 10816 14 **Dual-polarization hyperspectral stimulated Raman scattering microscopy** [10816-41]
- 10816 15 **Study on spectral reconstruction algorithm based on kernel entropy component analysis** [10816-42]
- 10816 16 **Terahertz reflectometry imaging of traumatic brain injury** [10816-43]
- 10816 18 **Bag-of-words based loop-closure detection in visual SLAM** [10816-45]
- 10816 1A **Adaptive polarization compressive ghost imaging based on principal component analysis** [10816-47]
- 10816 1B **Moving space target detection algorithm based on trajectory similarity** [10816-48]
- 10816 1C **Light field acquisition using microlens based on 3ds Max and image reconstruction technology** [10816-49]
- 10816 1D **The interaction between gold nanorods and different subtypes of breast cancer cells** [10816-50]
- 10816 1G **Correction algorithms of pupil aberration for Fourier ptychographic microscopy** [10816-53]
- 10816 1I **Measurement of microfluidic channel by using multiple-scans overlap mode of optical coherence tomography** [10816-55]
- 10816 1J **Determination of the viscoelasticity of ovarian cancer cells using atomic force microscopy** [10816-56]
- 10816 1K **A flame recognition algorithm based on LVQ neural network** [10816-57]
- 10816 1N **Reflective metasurface with a funnel shaped waveguide array for electromagnetic field enhancement** [10816-60]
- 10816 1O **Human fixations detection model in video-compressed-domain based on MVE and OBDL** [10816-61]

- 10816 1Q **A hybrid system for intraocular pressure measurements through combining a capacitive flexible force sensor and swept-source optical coherence tomography [10816-63]**
- 10816 1R **OCT of living human kidney: case study [10816-64]**
- 10816 1T **Anterior and posterior eye imaging associated with intraocular pressure by combined swept source optical coherence tomography and flexible pressure sensor [10816-66]**
- 10816 1V **Optical design of high-aperture lens objectives for NUV and DUV spectral ranges [10816-68]**