

PROCEEDINGS OF SPIE

Advanced Optical Imaging Technologies VIII

Xiao-Cong Yuan
P. Scott Carney
Kebin Shi
Editors

12–14 October 2025
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) • China Jiliang University (China) • Shanghai Institute of Optics and Fine Mechanics, CAS (China) • Changchun Institute of Optics, Fine Mechanics and Physics, CAS (China) Institute of Semiconductors, CAS (China) • Institute of Optics and Electronics, CAS (China) • Institute of Physics, CAS (China) • Shanghai Institute of Technical Physics, CAS (China) • China Instrument and Control Society (China) • Optical Society of Japan (Japan) • Optical Society of Korea (Republic of Korea) • Australian and New Zealand Optical Society • Optics and Photonics Society of Singapore (Singapore) • European Optical Society

Supporting Organizations

China Association for Science and Technology (CAST) (China)
Department of Information of National Nature Science Foundation, China (NSFC) (China)

Volume 13717

Proceedings of SPIE 0277-786X, V. 13717

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.

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 VIII*, edited by Xiao-Cong Yuan, P. Scott Carney, Kebin Shi, Proc. of SPIE 13717, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510693869

ISBN: 9781510693876 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2025 Society of Photo-Optical Instrumentation Engineers (SPIE).

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 fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center 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.

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

Paper Numbering: A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE 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 *Symposium Committees*
- ix *Conference Committee*

HIGH RESOLUTION IMAGING

- 13717 06 **High-resolution dark-field Fourier ptychographic diffraction tomography via non-matched illumination condition** [13717-5]

NOVEL IMAGING TECHNIQUES I

- 13717 08 **Label-free stimulated Raman scattering imaging of intracellular microplastics in mammalian cells** [13717-8]
- 13717 09 **Motion-resolved event-based holography** [13717-9]
- 13717 0A **Modelling of an imaging aspheric lens using the ray-mapping method** [13717-24]

NOVEL IMAGING TECHNIQUES II

- 13717 0C **Neuromorphic dynamic speckle pattern synthesis for imaging through scattering media** [13717-12]

COMPUTATIONAL IMAGING II

- 13717 0J **Neural network model for hologram generation with open data training** [13717-19]
- 13717 0L **Confocal photoacoustic remote sensing microscopy for label-free optical sectioning** [13717-22]

NOVEL IMAGING TECHNIQUES III

- 13717 0N **Time-varying ultrafast holographic light field generated by spatial frequency multiplexed meta-holography** [13717-25]

COMPUTATIONAL IMAGING III

13717 0Q **Structural characterization of plants using non-contact polarized photoacoustic microscopy** [13717-28]

POSTER SESSION

- 13717 0S **Single-shot sub- $\lambda/10$ label-free super-resolution microscopy based on mixed spatial-frequency-shift demodulation** [13717-3]
- 13717 0V **Breaking the resolution limit of single-pixel imaging based on joint reconstruction and deconvolution** [13717-31]
- 13717 0W **Dust3R-3DGS: differentiable 3D reconstruction with transformer-based matching and Gaussian splatting** [13717-32]
- 13717 0X **An L0 regularized decomposition-based method for image tone mapping** [13717-33]
- 13717 0Z **The microenvironmental and protein binding dependence of the photophysical properties of pyridoxal-5-phosphate revealed by time-resolved polarized spectroscopy** [13717-35]
- 13717 10 **Single magnetic nanoparticle detection via interferometric scattering microscopy** [13717-36]
- 13717 11 **Complex amplitude single-pixel imaging based on DCT spectrum restoration** [13717-37]
- 13717 12 **Generation and modulation of spatiotemporal multimodal light fields** [13717-38]
- 13717 13 **Optical imaging of brain oxygenation during various biological disorders** [13717-39]
- 13717 14 **Depth prediction method based on monocular images and sparse point cloud fusion** [13717-40]
- 13717 16 **Polarization metasurface enables tunable 1D directional edge enhancement** [13717-43]

DIGITAL POSTER SESSION

- 13717 18 **High-speed confocal imaging with programmable multi-beam scanning** [13717-7]
- 13717 19 **Fourier ptychography microscopy with multi-plane adaptive illumination** [13717-41]