

PROCEEDINGS OF SPIE

Ultrafast Nonlinear Imaging and Spectroscopy VIII

Zhiwen Liu
Demetri Psaltis
Kebin Shi
Editors

24 August – 4 September 2020
Online Only, United States

Sponsored and Published by
SPIE

Volume 11497

Proceedings of SPIE 0277-786X, V. 11497

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 *Ultrafast Nonlinear Imaging and Spectroscopy VIII*, edited by Zhiwen Liu, Demetri Psaltis, Kebin Shi, Proceedings of SPIE Vol. 11497 (SPIE, Bellingham, WA, 2020) Seven-digit Article CID Number.

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510638006

ISBN: 9781510638013 (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

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. 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/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

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

ULTRAFAST NANOSCALE IMAGING AND SPECTROSCOPY II

- 11497 0C **Low-frequency stimulated Raman spectroscopy measurements at electrochemical interfaces**
[11497-11]

ULTRAFAST SOURCES AND APPLICATIONS

- 11497 0F **Multi-dimensional spectroscopy with cascade four-wave mixing in the extreme ultraviolet**
[11497-14]

ULTRAFAST ELECTRON DIFFRACTION AND IMAGING

- 11497 0J **Ultrafast structural dynamics of materials captured by relativistic electron bunches**
(Invited Paper) [11497-18]

BIOLOGICAL APPLICATIONS

- 11497 0T **Comparative studies of the fluorescence spectroscopy and dynamics of mCerulean3 and mTurquoise2.1 as donors in FRET pairing with mCitrine (Invited Paper)** [11497-27]

ADVANCED IMAGING TECHNOLOGIES I

- 11497 0V **Ultrafast super-resolution imaging via auto-correlation two-step deconvolution (Invited Paper)**
[11497-29]
- 11497 0W **Nonlinear photo-response in upconversion nanoparticles for in-depth super-resolution imaging**
(Invited Paper) [11497-30]

POSTER SESSION

- 11497 13 **Ultrafast polarization-modulation transient spectroscopy to study electronic excited state dynamics in biological molecules** [11497-37]
- 11497 14 **Anisotropic decay of polarized fluorescence of FAD in water-methanol solutions** [11497-38]

- 11497 16 **Lubricating oil degradation analysis due to temperature through Raman spectroscopy**
[11497-40]
- 11497 17 **All-fiber pulsed laser source based on Raman dissipative soliton generation for biological tissue analysis** [11497-41]