## Advanced Chemical Microscopy for Life Science and Translational Medicine 2024

Ji-Xin Cheng Wei Min Garth J. Simpson Editors

27–29 January 2024 San Francisco, California, United States

Sponsored and Published by SPIF

**Volume 12855** 

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 SPIEDigitalLibrary.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 Chemical Microscopy for Life Science and Translational Medicine 2024, edited by Ji-Xin Cheng, Wei Min, Garth J. Simpson, Proc. of SPIE 12855, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510669697

ISBN: 9781510669703 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2024 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.



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**

٧	Conference Committee
	FUNDAMENTALS OF LIGHT/MATTER INTERACTIONS
12855 02	Electronic pre-resonance stimulated Raman scattering spectromicroscopy driven by a supercontinuum laser source [12855-5]
	SUPER-RESOLUTION IMAGING
12855 03	Super-resolution Raman probe imaging (Invited Paper) [12855-6]
	STIMULATED RAMAN SCATTERING II
12855 04	Dynamic azo-enhanced Raman imaging of cellular organelle physiology [12855-15]
	HYPERSPECTRAL AND MULTIMODAL CHEMICAL IMAGING
12855 05	Pre-processing for precise super-resolution multimodal image analysis [12855-23]
	NEW MODALITIES IN CHEMICAL MICROSCOPY I
12855 06	Quantified interface chemistry and biophysics via water imaging (Invited Paper) [12855-31]
12855 07	Impulsive stimulated Raman scattering imaging using an ultra-fast acoustic-optics delay line [12855-33]
	NONLINEAR OPTICAL IMAGING
12855 08	Innovative approach to soft tissue classification using fiber-optic Raman probe as a smart sensing tool [12855-48]

	NEW MODALITIES IN CHEMICAL MICROSCOPY III
12855 09	Simplified and improved heterodyne coherent anti-Stokes Raman scattering for background correction [12855-52]
12855 0A	Super-multiplexed ultra-quantitative Raman imaging for 3D characterisation of biological sample [12855-54]
	POSTER SESSION
12855 OB	Imaging the uptake of specific amino acids by deuterium labeling and stimulated Raman scattering [12855-59]
12855 OC	Molecular identification of second harmonic generation (SHG) sources in mouse brain by multimodal imaging with ultra-broadband multiplex coherent anti Stokes Raman scattering (CARS) [12855-60]