PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 10509

, "Front Matter: Volume 10509," Proc. SPIE 10509, Plasmonics in Biology and Medicine XV, 1050901 (8 June 2018); doi: 10.1117/12.2323118

SPIE.

Event: SPIE BiOS, 2018, San Francisco, California, United States

PROGRESS IN BIOMEDICAL OPTICS AND IMAGING

Vol. 19 No. 43

Plasmonics in Biology and Medicine XV

**Tuan Vo-Dinh
Joseph R. Lakowicz**
Editors

**29 January 2017
San Francisco, California, United States**

Sponsored and Published by
SPIE

Volume 10509

Proceedings of SPIE 1605-7422, V. 10509

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Plasmonics in Biology and Medicine XV, edited by Tuan Vo-Dinh, Joseph R. Lakowicz,
Proc. of SPIE Vol. 10509, 1050901 · © 2018 SPIE · CCC code:
1605-7422/18/\$18 · doi: 10.1117/12.2323118

Proc. of SPIE Vol. 10509 1050901-1

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 *Plasmonics in Biology and Medicine XV*, edited by Tuan Vo-Dinh, Joseph R. Lakowicz, Proceedings of SPIE Vol. 10509 (SPIE, Bellingham, WA, 2018) Seven-digit Article CID Number.

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510615038

ISBN: 9781510615045 (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 © 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. 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 1605-7422/18/\$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

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

SESSION 1	BIOANALYTICAL RAMAN AND SERS
10509 02	Surface enhanced Raman spectroscopy for malaria diagnosis and intradermal measurements (Invited Paper) [10509-1]
10509 03	Shifted excitation Raman difference spectroscopy: from diode lasers to in situ applications (Invited Paper) [10509-2]
SESSION 2	PLASMONIC BASED IMAGING
10509 05	Mass measurements of focal adhesions in single cells using high resolution surface plasmon resonance microscopy [10509-4]
10509 06	Quantitative image analysis of angle scanning label-free surface plasmon resonance microscopy [10509-5]
10509 07	Exploring plasmonic coupling as a stimuli responsive contrast mechanism in multiphoton microscopy [10509-6]
10509 08	High-speed nano-polarimetry for real-time plasmonic bio-imaging [10509-7]
SESSION 3	ADVANCED TECHNIQUES IN PLASMONICS
10509 0A	Revealing local origin of surface-enhanced circular dichroism [10509-9]
10509 0C	Size-dependent thresholds for melting and nanobubble generation using pulsed-laser irradiated gold nanoparticles [10509-11]
SESSION 4	PLASMONICS, SENSING AND BIOANALYTICAL APPLICATIONS
10509 0E	Optofluidic nanoplasmonic biosensor for label-free live cell analysis in real time [10509-13]
10509 0F	Towards the plasmonic nanopore for single molecule analysis [10509-14]
10509 0G	SPR based hybrid plasmonic waveguide sensor for detection of causes of anemia in Homosapiens [10509-15]

- 10509 0I **Towards a point-of-care nanoplasmonic biosensor for rapid and multiplexed detection of pathogenic infections** [10509-17]
- 10509 0L **Plasmonic extra-ordinary transmission: testing the maintenance of optical frequency and phase via a frequency comb** [10509-20]

POSTER SESSION

- 10509 0R **Surface plasmon resonance on gold microstructures** [10509-26]

Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Aili, Daniel, 07	Yesilköy, Filiz, 0E, 0I
Altug, Hatice, 0E, 0I	Yoo, Jung Ho, 0F
Bedi, Amna, 0G	Yoo, SeokJae, 0A
Belushkin, Alexander, 0E, 0I	Yuen, Clement, 02
Chen, Keren, 02	Zhao, Xintao, 08
Choi, Seong Soo, 0F	
Chun, Byung Jae, 0L	
Elliott, John T., 05	
Ericson, Marica B., 07	
Fales, Andrew M., 0C	
Fromhold, T. M., 0R	
Halter, Michael, 05	
Howe, Carmel L., 0R	
Ilev, Ilko K., 0C	
James, Jeemol, 07	
Ju, Jian, 02	
Kim, Donghyun, 06	
Kim, Seungchul, 0L	
Kim, Yong-Sang, 0F	
Kim, Young-Jin, 0L	
Kirejev, Vladimir, 07	
Kumar, Santosh, 0G	
Lee, Changhun, 06	
Lee, Seojoo, 0A	
Lee, Somin Eunice, 08	
Li, Xiaokang, 0E, 0I	
Liu, Quan, 02	
Liu, Yunbo, 08	
Maiwald, Martin, 03	
Oh, Sae-Joong, 0F	
Park, Myoung Jin, 0F	
Park, Nam Kyou, 0F	
Park, Q-Han, 0A	
Peterson, Alexander W., 05	
Pfefer, Joshua, 0C	
Plant, Anne L., 05	
Preiser, Peter, 02	
Russell, Noah A., 0R	
Singh, Lokendra, 0G	
Soler, Maria, 0E, 0I	
Son, Taehwang, 06	
Sumpf, Bernd, 03	
Thomsen, Hanna, 07	
Tona, Alessandro, 05	
Vargas-Berenguel, Antonio, 07	
Vogt, William C., 0C	
Wang, Yipei, 08	
Wear, Keith A., 0C	
Xiong, Aoli, 02	

Conference Committee

Symposium Chairs

James G. Fujimoto, Massachusetts Institute of Technology
(United States)

R. Rox Anderson, Wellman Center for Photomedicine, Massachusetts
General Hospital (United States) and Harvard Medical School
(United States)

Program Track Chairs

Paras Prasad, SUNY/Buffalo (United States)

Dan V. Nicolau, McGill University (Canada)

Conference Chairs

Tuan Vo-Dinh, Fitzpatrick Institute For Photonics, Duke University
(United States)

Joseph R. Lakowicz, University of Maryland School of Medicine
(United States)

Conference Co-chairs

Ho-Pui A. Ho, The Chinese University of Hong Kong
(Hong Kong, China)

Krishanu Ray, University of Maryland School of Medicine
(United States)

Conference Program Committee

A. Claude Boccara, Ecole Supérieure de Physique et de Chimie
Industrielles (France)

Michael T. Canva, Laboratoire Charles Fabry (France)

Volker Deckert, Institut für Photonische Technologien e.V. (Germany)

Bruce S. Dunn, University of California, Los Angeles (United States)

Christopher D. Geddes, University of Maryland, Baltimore
(United States)

Zygmunt Karol Gryczynski, University of North Texas Health Science
Center at Fort Worth (United States)

Naomi J. Halas, Rice University (United States)

Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i.
(Czech Republic)

Laura Maria Lechuga, Catalan Institute of Nanoscience and
Nanotechnology (ICN2) (Spain)
Boris Mizaikoff, Universität Ulm (Germany)
Shuming Nie, Emory University (United States)
Wei-Chuan Shih, University of Houston (United States)
Weihong Tan, University of Florida (United States)
Andrew Taton, University of Minnesota, Twin Cities (United States)
Richard P. Van Duyne, Northwestern University (United States)
Jeffrey I. Zink, University of California, Los Angeles (United States)

Session Chairs

- 1 Bioanalytical Raman and SERS
Ho-Pui Ho, The Chinese University of Hong Kong (Hong Kong, China)
- 2 Plasmonic Based Imaging
Tuan Vo-Dinh, Fitzpatrick Institute For Photonics, Duke University
(United States)
- 3 Advanced Techniques in Plasmonics
Ho-Pui Ho, The Chinese University of Hong Kong (Hong Kong, China)
- 4 Plasmonics, Sensing and Bioanalytical Applications
Martin Maiwald, Ferdinand-Braun-Institut (Germany)