PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 9331

, "Front Matter: Volume 9331," Proc. SPIE 9331, Single Molecule Spectroscopy and Superresolution Imaging VIII, 933101 (20 April 2015); doi: 10.1117/12.2192601

SPIE.

Event: SPIE BiOS, 2015, San Francisco, California, United States

PROGRESS IN BIOMEDICAL OPTICS AND IMAGING

Vol. 16 No. 29

Single Molecule Spectroscopy and Superresolution Imaging VIII

**Jörg Enderlein
Ingo Gregor
Zygmunt Karol Gryczynski
Rainer Erdmann
Felix Koberling**
Editors

**7–8 February 2015
San Francisco, California, United States**

Sponsored by
SPIE

Cosponsored by
PicoQuant (United States)

Published by
SPIE

Volume 9331

Proceedings of SPIE, 1605-7422, V. 9331

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

Single Molecule Spectroscopy and Superresolution Imaging VIII, edited by Jörg Enderlein, Ingo Gregor, Zygmunt Karol Gryczynski, Rainer Erdmann, Felix Koberling, Proc. of SPIE Vol. 9331, 933101
© 2015 SPIE · CCC code: 1605-7422/15/\$18 · doi: 10.1117/12.2192601

Proc. of SPIE Vol. 9331 933101-1

The papers included 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. The papers published in these proceedings 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 this book:

Author(s), "Title of Paper," in *Single Molecule Spectroscopy and Superresolution Imaging VIII*, edited by Jörg Enderlein, Ingo Gregor, Zygmunt Karol Gryczynski, Rainer Erdmann, Felix Koberling, Proceedings of SPIE Vol. 9331 (SPIE, Bellingham, WA, 2015) Article CID Number.

ISSN: 1605-7422

ISBN: 9781628414219

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 © 2015, 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 1605-7422/15/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.

SPIDigitalLibrary.org

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print. Papers are published as they are submitted and meet publication criteria. A unique citation identifier (CID) number is assigned to each article at the time of the first 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, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

- The first four 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. The complete citation is used on the first page, and an abbreviated version on subsequent pages.

Contents

v	<i>Author Index</i>
vii	<i>Conference Committee</i>

SESSION 1	FLUORESCENCE CORRELATION SPECTROSCOPY
9331 04	H4 tail interactions revealed by fluorescent fluctuation spectroscopy [9331-3]
SESSION 2	SINGLE MOLECULE TRACKING
9331 06	Motion of chromosomal loci and the mean-squared displacement of a fractional Brownian motion in the presence of static and dynamic errors [9331-5]
9331 07	Single particle tracking through highly scattering media with multiplexed two-photon excitation (PicoQuant Young Investigator Award) [9331-6]
9331 09	Single-molecule exploration of photoprotective mechanisms in light-harvesting complexes [9331-8]
SESSION 3	NANOSCOPY AND SUPERRESOLUTION MICROSCOPY I
9331 0C	Multi-color quantum dot stochastic optical reconstruction microscopy (qSTORM) [9331-11]
9331 0D	3D-localization microscopy and tracking of F₀F₁-ATP synthases in living bacteria (Ocean Optics Young Investigator Award) [9331-12]
SESSION 4	NEW DEVELOPMENTS IN METHODS AND SYSTEMS
9331 0G	Photothermal imaging of individual carbon nanofibers with optical microresonators [9331-15]
SESSION 5	NANOSCOPY AND SUPERRESOLUTION MICROSCOPY II
9331 0M	Effect of labeling density and time post labeling on quality of antibody-based super resolution microscopy images [9331-21]

SESSION 6 NANOSCOPY AND SUPERRESOLUTION MICROSCOPY III

- 9331 0O **Realization of super-resolution imaging by microlens-assisted laser scanning microscopy**
[9331-22]
- 9331 0Q **A new method to achieve tens of nm axial super-localization based on conical diffraction
PSF shaping** [9331-25]

SESSION 7 NANOSCOPY AND SUPERRESOLUTION MICROSCOPY IV

- 9331 0U **Stimulated emission depletion microscopy to study amyloid fibril formation** [9331-29]

SESSION 8 NANOSCOPY AND SUPERRESOLUTION MICROSCOPY V

- 9331 0X **The importance of the photon arrival times in STED microscopy** [9331-32]

POSTER SESSION

- 9331 13 **Autofluorescence based visualization of proteins from unstained native-PAGE** [9331-39]
- 9331 16 **Mapping DNA-Lac repressor interaction with ultra-fast optical tweezers** [9331-43]
- 9331 17 **An automated tool for 3D tracking of single molecules in living cells** [9331-44]

Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four 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.

Backlund, Mikael P., 06	Pinotsi, Dorothea, 0U
Bittel, Amy M., 0M	Rao, Bola Sadashiva Satish, 13
Börsch, Michael, 0D	Renz, Anja, 0D
Capitanio, Marco, 16, 17	Renz, Marc, 0D
Caron, Julien, 0Q	S., Manjunath, 13
Castello, Marco, 0X	Saldivar, Isaac, 0M
Chang, Chih-Wei, 0O	Satyamoorthy, Kapaettu, 13
Chu, Shi-Wei, 0O	Schlau-Cohen, Gabriela S., 09
Coto Hernández, Iván, 0X	Shorte, Spencer L., 0Q
Croce, Roberta, 09	Sirat, Gabriel Y., 0Q
Curry, Nathan, 0U	Tehrani, Kayvan F., 0C
Deckers-Hebestreit, Gabriele, 0D	Tempestini, Alessia, 16
Diaspro, Alberto, 0X	Tinevez, Jean-Yves, 0Q
Dolman, Nicholas, 0M	Tsao, Yang, 0O
Dubois, Maxime, 0Q	van Grondelle, Rienk, 09
Dunn, Andrew K., 07	Vanzi, Francesco, 16
Eggeling, Christian, 0X	Vicidomini, Giuseppe, 0X
Fallet, Clément, 0Q	Xu, Jianquan, 0C
Gardini, L., 17	Xu, Pengqi, 09
Gibbs, Summer L., 0M	Yang, Hsiang-Yu, 09
Goldsmith, Randall H., 0G	Yeh, Hsin-Chih, 07
Gwizdala, Michal, 09	Yuan, Chongli, 04
Heylman, Kevin D., 0G	
Horak, Erik H., 0G	
Kaminski Schierle, Gabriele, 0U	
Kaminski, Clemens F., 0U	
Klüttsch, Diana, 0D	
Knapper, Kassandra A., 0G	
Kner, Peter A., 0C	
Krüger, Tjaart, 09	
Lanzanò, Luca L., 0X	
Li, Kuan-Yu, 0O	
Lin, Kung-Hsuan, 0O	
Lin, Li-Jung, 0M	
Liu, Cong, 07	
Liu, Yen-Liang, 07	
Liu, Yun-Ju, 0O	
Lou, Zong-Xing, 0O	
Mahato, Krishna Kishore, 13	
Mahou, Pierre, 0U	
Moerner, W. E., 06, 09	
Monico, Carina, 16	
Nan, Xiaolin, 0M	
Nickerson, Andrew K., 0M	
Nurse, Nathan, 04	
Oddos, Stephane, 0Q	
Pavone, Francesco S., 16, 17	
Perillo, Evan, 07	
Persson, Roger, 0Q	

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 School of Medicine
(United States)

Program Track Chairs

Ammasi Periasamy, University of Virginia (United States)

Daniel L. Farkas, University of Southern Carolina (United States)

Conference Chairs

Jörg Enderlein, Georg-August-Universität Göttingen (Germany)

Ingo Gregor, Georg-August-Universität Göttingen (Germany)

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

Rainer Erdmann, PicoQuant GmbH Berlin (Germany)

Felix Koberling, PicoQuant GmbH (Germany)

Conference Program Committee

Sohail Ahmed, A*STAR Institute of Medical Biology (Singapore)

Michael Börsch, Friedrich-Schiller-Universität Jena (Germany)

Christian Eggeling, University of Oxford (United Kingdom)

Paul M. W. French, Imperial College London (United Kingdom)

Ewa M. Goldys, Macquarie University (Australia)

Johan Hofkens, Katholieke Universiteit Leuven (Belgium)

Zhen-Li Huang, Huazhong University of Science and Technology
(China)

Thomas R. Huser, Universität Bielefeld (Germany)

Maria Teresa Neves-Petersen, International Iberian Nanotechnology
Laboratory (Portugal)

Markus Sauer, Universität Bielefeld (Germany)

Shimon Weiss, University of California, Los Angeles (United States)

Andong Xia, Institute of Chemistry (China)

Session Chairs

- 1 Fluorescence Correlation Spectroscopy
Rainer Erdmann, PicoQuant GmbH Berlin (Germany)
- 2 Single Molecule Tracking
Ingo Gregor, Georg-August-Universität Göttingen (Germany)
- 3 Nanoscopy and Superresolution Microscopy I
Felix Koberling, PicoQuant GmbH (Germany)
- 4 New Developments in Methods and Systems
Jörg Enderlein, Georg-August-Universität Göttingen (Germany)
- 5 Nanoscopy and Superresolution Microscopy II
Ingo Gregor, Georg-August-Universität Göttingen (Germany)
- 6 Nanoscopy and Superresolution Microscopy III
Rainer Erdmann, PicoQuant GmbH Berlin (Germany)
- 7 Nanoscopy and Superresolution Microscopy IV
Zygmunt Karol Gryczynski, University of North Texas Health Science Center at Fort Worth (United States) and Texas Christian University at Fort Worth (United States)
- 8 Nanoscopy and Superresolution Microscopy V
Felix Koberling, PicoQuant GmbH (Germany)