PROGRESS IN BIOMEDICAL OPTICS AND IMAGING
Vol. 25 No. 48

Quantum Effects and Measurement Techniques in Biology and Biophotonics

Clarice Aiello
Sergey V. Polyakov
Paige Derr
Editors

27–30 January 2024
San Francisco, California, United States

Sponsored and Published by
SPIE

Volume 12863

Proceedings of SPIE, 1605-7422, V. 12863

Quantum Effects and Measurement Techniques in Biology and Biophotonics, edited by
Clarice Aiello, Sergey V. Polyakov, Paige Derr, Proc. of SPIE Vol. 12863, 1286301
 · 1605-7422 · doi: 10.1117/12.3030109

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 *Quantum Effects and Measurement Techniques in Biology and Biophotonics*, edited by Clarice Aiello, Sergey V. Polyakov, Paige Derr, Proc. of SPIE 12863, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 1605-7422
ISSN: 2410-9045 (electronic)

ISBN: 9781510669857
ISBN: 9781510669864 (electronic)

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

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
SPIEDigitalLibrary.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

Conference Committee

Symposium Chairs

Sergio Fantini, Tufts University (United States)
Paola Taroni, Politecnico di Milano (Italy)

Program Track Chairs

Paras Prasad, University at Buffalo (United States)
Ewa M. Goldys, The University of New South Wales (Australia)

Conference Chairs

Clarice Aiello, University of California, Los Angeles (United States)
Sergey V. Polyakov, National Institute of Standards and Technology (United States)
Paige Derr, National Institutes of Health (United States)

Conference Program Committee

Kyungwha Chung, Sungkyunkwan University (Korea, Republic of)
Theodore Goodson III, University of Michigan (United States)
Ralph Jimenez, JILA (United States)
Youngchan Kim, University of Surrey (United Kingdom)
Peter C. Maurer, The University of Chicago (United States)
Thomas Middelmann, Physikalisch-Technische Bundesanstalt (Germany)
Geetha Senthil, National Institutes of Health (United States)
G. Sitta Sittampalam, National Center for Advancing Translational Sciences (United States)
Steven S. Vogel, National Institutes of Health (United States)