# PROCEEDINGS OF SPIE

# Molecular and Nanophotonic Machines VI

Zouheir Sekkat Takashige Omatsu Editors

22–24 August 2023 San Diego, California, United States

Sponsored and Published by SPIE

Volume 12663

Proceedings of SPIE 0277-786X, V. 12663

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

Molecular and Nanophotonic Machines VI, edited by Zouheir Sekkat, Takashige Omatsu, Proc. of SPIE Vol. 12663, 1266301 © 2023 SPIE · 0277-786X · doi: 10.1117/12.3013005

Proc. of SPIE Vol. 12663 1266301-1

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 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 *Molecular and Nanophotonic Machines VI*, edited by Zouheir Sekkat, Takashige Omatsu, Proc. of SPIE 12663, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X ISSN: 1996-756X (electronic)

ISBN: 9781510665408 ISBN: 9781510665415 (electronic)

Published by **SPIE** P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time) SPIE.org Copyright © 2023 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

v Conference Committee

#### PLASMONICS AND PLASMONIC MACHINES AND LIGHT MATTER INTERACTION

- 12663 02 Optically evolved assembling and swarming of gold nanoparticles at solution interface leading to a plasmonic machine (Invited Paper) [12663-2]
- 12663 03 On the quantum theory of light interacting with nano-materials (Invited Paper) [12663-3]

### AI AND NANOPHOTONIC MACHINES: JOINT SESSION WITH CONFERENCES 12655 AND 12663

12663 04 **TPL-fabricated responsive hydrogel-based micro photonic structures for visible vapor sensing** [12663-20]

#### POSTER SESSION

12663 05 Investigation of amylose and tailored amylose matrices for scavenging iodide [12663-24]

#### **DIGITAL POSTER SESSION**

12663 07 Chemiluminescent detection of nucleic acids induced by peroxidase-like targeted DNAnanomachines (PxDm) mixed with plasmonic nanoparticles [12663-26]

## **Conference Committee**

#### Symposium Chairs

Zakya H. Kafafi, Lehigh University (United States) Ifor D. W. Samuel, University of St. Andrews (United Kingdom)

### Conference Chairs

Zouheir Sekkat, University Mohamed V (Morocco) and MAScIR (Morocco)Takashige Omatsu, Chiba University (Japan)

#### Conference Program Committee

Anna S. Bezryadina, California State Univ., Northridge (United States) Cornelia Denz, Westfälische Wilhelms-Universität Münster (Germany) Katsumasa Fujita, Osaka University (Japan) Tigran Galstian, University Laval (Canada) **Yasushi Inouye**, Osaka University (Japan) Hidekazu Ishitobi, Osaka University (Japan) Satoshi Kawata, Osaka University (Japan) Mark G. Kuzyk, Washington State University (United States) Stefan A. Maier, Imperial College London (United Kingdom) Masud Mansuripur, Wyant College of Optical Sciences (United States) Halina Rubinsztein-Dunlop, The University of Queensland (Australia) Atsushi Shishido, Tokyo Institute of Technology (Japan) Hong-Bo Sun, Tsinghua University (China) Din Ping Tsai, City University of Hong Kong (Hong Kong, China) Giovanni Volpe, Göteborgs Universitet (Sweden) Diederik S. Wiersma, LENS - Laboratorio Europeo per la Spettroscopia Non-lineare (Italy) Ta-Jen Yen, National Tsing Hua University (Taiwan)