

PROCEEDINGS OF SPIE

Nanoengineering: Fabrication, Properties, Optics, Thin Films, and Devices XXI

Balaji Panchapakesan
André-Jean Attias
Wounghang Park
Editors

20–21 August 2024
San Diego, California, United States

Sponsored and Published by
SPIE

Volume 13116

Proceedings of SPIE 0277-786X, V. 13116

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

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 *Nanoengineering: Fabrication, Properties, Optics, Thin Films, and Devices XXI*, edited by Balaji Panchapakesan, André-Jean Attias, Wounghang Park, Proc. of SPIE 13116, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510678927

ISBN: 9781510678934 (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.

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.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

v *Conference Committee*

DEVICES AND PROPERTIES OF NANOSTRUCTURES FOR PHOTONICS I

- 13116 02 **Growth and characterization of perovskite BaTiO₃ thin film for optics and photonics applications** [13116-4]

DEVICES AND PROPERTIES OF NANOSTRUCTURES FOR PHOTONICS II

- 13116 03 **Designing an athermal resonant metasurface** [13116-6]

NANOSTRUCTURED THIN FILMS

- 13116 04 **Maximal visualization-enhancement of latent fingerprints on polymer banknotes using columnar thin films** [13116-12]
- 13116 05 **Antireflective thin films and nanostructures for cycloolefin-based polymers** [13116-35]
- 13116 06 **Optical properties of RAR nano-textured diamond for commercial LWIR applications** [13116-11]

INNOVATIVE PATTERNING, MATERIALS ENGINEERING, NANOFABRICATION, AND NANOLITHOGRAPHY

- 13116 07 **Schottky-junction photodiodes with quantum-tunneling barriers (Invited Paper)** [13116-13]
- 13116 08 **Fabrication and optical characterization of doubly chiral sculptured thin film** [13116-16]
- 13116 09 **Enabling ultra-broadband high-efficiency gratings for single-cycle infrared lasers** [13116-17]

POSTER SESSION

- 13116 0A **Opto-electrical characterizations of DC-sputtered ITO thin films** [13116-19]
- 13116 0B **Anomalous birefringence in periodic ripples induced on Si thin layer by ultraviolet laser scanning** [13116-25]

- 13116 0C **The implementation of tunable structural colors based on liquid crystal networks by using two-photon polymerization [13116-28]**
- 13116 0D **Design and development of integrated sensors under the silicon on insulator (SOI) platform for applications in the near/mid-infrared (NIR/MIR) band [13116-29]**
- 13116 0E **Tunable nanostructuring of glass substrates using cost-effective nanopatterning techniques [13116-30]**
- 13116 0F **Theoretical modeling of reflectance and scattering properties of nanostructured glass surfaces for solar cells applications [13116-31]**
- 13116 0G **Fabrication of carbon nanotube field effect transistor (CNTFET) using aerosol jet system for flexible electronic devices [13116-32]**