PROCEEDINGS OF SPIE

2021 International Conference on Optical Instruments and Technology

Micro/Nano Photonics: Materials and Devices

Baojun Li Xingjun Wang Lingling Huang Ya Sha Yi Editors

8–10 April 2022 Online Only, China

Sponsored by CIS – China Instrument and Control Society (China)

Cosponsored and Published by SPIE

Volume 12283

Proceedings of SPIE 0277-786X, V. 12283

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 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 2021 International Conference on Optical Instruments and Technology: Micro/Nano Photonics: Materials and Devices, edited by Baojun Li, Xingjun Wang, Lingling Huang, Ya Sha Yi, Proc. of SPIE 12283, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

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

ISBN: 9781510655713 ISBN: 9781510655720 (electronic)

Published by **SPIE** P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time) SPIE.org Copyright © 2022 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 Symposium Committee
- vii Conference Committee
- ix Introduction
- xi Organizers

MICRO/NANO PHOTONICS: MATERIALS AND DEVICES I

12283 02 Metasurface-based decoupling of optical properties and the related multifunctional metadevices (Invited Paper) [12283-13]

MICRO/NANO PHOTONICS: MATERIALS AND DEVICES II

12283 03 Complex amplitude modulation in visible by ultra-thin dielectric metasurface [12283-43]

MICRO/NANO PHOTONICS: MATERIALS AND DEVICES III

12283 04 High extinction ratio, low loss and broadband on-chip TE-pass polarizer for optical gyroscope [12283-48]

MIRCO/NANO PHOTONICS: MATERIALS AND DEVICES IV

12283 05 Fiber optic SPR sensor based on the heterostructure of MoS₂/WS₂ with high figure of merit [12283-22]

POSTER SESSION

- 12283 06Strong coupling between surface plasmon polaritons and magnetic polaritons in an Au
grating/dielectric/Au hybrid structure [12283-1]12283 07The temperature control polarization converter to switch transmission and reflection modes
simply [12283-6]
- 12283 08 Nanowire dimers enhance light-matter interactions in monolayer MoSe₂ [12283-7]

- 12283 09 Modulation of dielectric film on two-axis Lloyd's mirrors for patterning high-uniformity nanoscale grating [12283-21]
- 12283 0A Multiple Fano resonances based on all-dielectric metasurface for optical refractive index sensor [12283-26]
- 12283 0B A grating-assisted microring resonator for wideband filtering [12283-33]
- 12283 0C Factors of inhibition of the development of cracks and brittle fracture in nanolayer structures [12283-34]
- 12283 0D Influence of the parameters of the nanolayer structure on the tribological properties of materials in a wide temperature range [12283-38]
- 12283 0E **Broadband hot-electron photodetection in near-infrared based on plasmonic disordered** nanowires [12283-46]