## PROCEEDINGS OF SPIE

10th International Symposium on Advanced Optical Manufacturing and Testing Technologies

## Micro- and Nano-Optics, Catenary Optics, and Subwavelength Electromagnetics

Mingbo Pu Xiong Li Xiaoliang Ma Minghui Hong Emmanuel Stratakis Xiangang Luo Editors

14–17 June 2021 Chengdu, China

Organized by IOE – Institute of Optics and Electronics, Chinese Academy of Sciences (China)

Sponsored by COS – The Chinese Optical Society (China) • IOE – Institute of Optics and Electronics, Chinese Academy of Sciences (China)

Technical Cosponsor SPIE

Supported by Ministry of Science and Technology of China (China) • Chinese Academy of Sciences (China) • National Natural Science Foundation of China (China)

Published by SPIE

Volume 12072

Proceedings of SPIE 0277-786X, V. 12072

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

AOMATT 2021: Micro- and Nano-Optics, Catenary Optics, and Subwavelength Electromagnetics, edited by Mingbo Pu, Xiong Li, Xiaoliang Ma, Minghui Hong, Emmanuel Stratakis, Xiangang Luo, Proc. of SPIE Vol. 12072, 1207201 © 2021 SPIE · 0277-786X · doi: 10.1117/12.2623689

Proc. of SPIE Vol. 12072 1207201-1

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 10th International Symposium on Advanced Optical Manufacturing and Testing Technologies: Micro- and Nano-Optics, Catenary Optics, and Subwavelength Electromagnetics, edited by Mingbo Pu, Xiong Li, Xiaoliang Ma, Minghui Hong, Emmanuel Stratakis, Xiangang Luo, Proc. of SPIE 12072, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

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

ISBN: 9781510650190 ISBN: 9781510650206 (electronic)

Published by **SPIE** P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time) SPIE.org Copyright © 2021 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

## MICRO- AND NANO-OPTICS, CATENARY OPTICS, AND SUBWAVELENGTH ELECTROMAGNETICS

12072 02	Two dimensional meta-hologram based on evanescent wave illumination [12072-20]
12072 03	High-efficiency mid-infrared transmissive Huygens dielectric metasurface [12072-24]
12072 04	Assessment of microvascular in critically ill patients based on speckle variance OCT: animal study [12072-22]
12072 05	Generation of optical vortices using the metasurface combining dynamic and geometric phases [12072-10]
12072 06	Plasmonic metasurfaces for far-and near-field orbital angular momentum manipulation [12072-9]
12072 07	Optical sorting of sub-10 nm chiral entities using non-chiral metasurface [12072-15]
12072 08	Infrared multispectral imaging system based on metasurfaces for two infrared atmospheric windows [12072-6]
12072 09	Simultaneous thermal infrared camouflage and laser scattering with thermal management based on an ultra-thin metasurface [12072-13]
12072 0A	Monolithic all-dielectric metasurface for simultaneous linear dichroism and wavefront manipulation [12072-3]
12072 OB	Prototype of meta-surface anti-reflection coating for a 40GHz HDPE lens [12072-23]
12072 OC	Broadband achromatic multilevel diffractive lens at visible frequency [12072-14]
12072 0D	Broadband high-efficiency reflective metasurfaces for sub-diffraction focusing in the visible [12072-11]
12072 OE	Frequency reconfigurable ultra-thin metasurface for beam scanning [12072-25]
12072 OF	High-efficiency mid-infrared catenary metasurface for chiral spectrometer [12072-5]
12072 0G	Tracking the sun's direction with a wide-angle metasurface for navigation [12072-19]
12072 OH	Unidirectional excitation of UV surface plasmons by asymmetric nano-slit cavity assisted with a nano-grating [12072-2]

- 12072 01 Design of broadband and monolayer terahertz metasurface absorber with genetic algorithm optimization [12072-12]
- 12072 0J Polarization-dependent, wide spectrum and wide-angle anti-reflection grating [12072-16]
- 12072 0K Nonvolatile silicon photonic 1×2 switch by integrating the phase change chalcogenide into microring network [12072-1]
- 12072 OL Suppressing the edge roll off in continuous polishing of large planar optics by using extension blocks [12072-28]
- 12072 0M Design and simulation of far infrared pixel type subwavelength double polarization grating [12072-58]
- 12072 0N Discussion on the development status of optical anti-reflective coating technology [12072-4]
- 12072 00 Measurement of dielectric refractive index based on the spin-orbit Hall effect of light [12072-62]
- 12072 OP Chromatic confocal sensor with dual dispersion for extending the measuring range [12072-34]
- 12072 0Q Research of sub-aperture stitching algorithm for error correction in aspheric surface testing [12072-50]
- 12072 OR **3D** surface topography measurement of diffractive optical element based on white light interferometry stitching method [12072-38]
- 12072 0S Researching on the factors influencing the critical undeformed chip thickness of single crystal germanium [12072-56]