PROCEEDINGS OF SPIE

Metamaterials XIV

Vladimír Kuzmiak Tomasz Stefaniuk Kęstutis Staliūnas Editors

26–27 April 2023 Prague, Czech Republic

Sponsored by SPIE

Cooperating Organisations ELI Beamlines (Czech Republic) HiLASE Centre (Czech Republic) Laserlab Europe AWE (United Kingdom) STFC (United Kingdom)

Published by SPIE

Volume 12568

Proceedings of SPIE 0277-786X, V. 12568

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 *Metamaterials XIV*, edited by Vladimír Kuzmiak, Tomasz Stefaniuk, Kęstutis Staliūnas, Proc. of SPIE 12568, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

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

ISBN: 9781510662568 ISBN: 9781510662575 (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

HYPERBOLIC AND TOPOLOGICAL METAMATERIALS

12568 04 Influence of extrinsic properties on magnetism and magnetotransport in Mn doped Bi₂Te₃ topological insulator with self-organized MnBi₂Te₄ layers (Invited Paper) [12568-3]

NON-HERMITIAN PHOTONICS

- 12568 07 Light control by scattering cancellation in ordered and disordered non-Hermitian media, direct, and inverse design (Invited Paper) [12568-6]
- 12568 08 Effect of the symmetry breaking on the scattering properties of the Fano-Anderson model [12568-7]

TEMPORAL PHOTONIC CRYSTALS, ACTIVE AND NONLINEAR METAMATERIALS

- 12568 0D Stabilization of microlasers by non-Hermitian potentials (Invited Paper) [12568-12]
- 12568 OE Non-Hermitian spatiotemporal potentials for turbulence control in parabolic and fractional dispersion [12568-13]

CHIRAL METAMATERIALS

12568 0HLight beaming and outcoupling enhancement from quantum wells with AI metasurfaces[12568-17]

12568 01 Absorptance control based on integrated devices with phase change materials [12568-18]

DIELECTRIC METASURFACES

12568 0N A new physical framework to investigate scattering suppression from coated spheres [12568-23]

PLASMONIC FUNDAMENTALS I

12568 OQ	Engineering the spectral response of disordered plasmonic nanoparticle suspensions [12568-26]
12568 OR	Plasmon-enhanced high operating temperature infrared photodetectors [12568-27]
	PLASMONIC FUNDAMENTALS II
12568 OS	Optimizing the coupling of light to plasmons through engineered dipolar scatterers (Invited Paper) [12568-29]
	POSTER SESSION
12568 OV	Design and analysis of multiband metamaterial in microwave regime [12568-33]
12568 OX	Angle-dependent chiro-optical characterization of self-assembled nanohole arrays in silver over a wide spectrum range [12568-35]
12568 OY	Semi-analytical technique for the design of passive daytime radiative cooling coating (Best Student Paper Award) [12568-36]
12568 OZ	Quality factor enhancement via lattice coupled toroidal mode in a terahertz metamaterial [12568-37]
12568 11	Dielectric metalens with reduced meta-atom aspect ratio and high focusing efficiency [12568-39]
12568 12	A bowtie antenna plasmonic metamaterial emitter for high-performance radiative cooling [12568-40]
12568 16	Hierarchical plasmon-optical cavities based on porous silicon photonic crystals for light-matter coupling with quantum emitters [12568-44]
12568 17	Design of all-dielectric high NA mid infra-red metalens using inverse design and topology optimization [12568-45]
12568 18	Ultrasensitive biosensor using a Fano resonant asymmetric all-dielectric metasurface [12568-46]
12568 19	Ultra-sensitive gas sensor using Fano resonance in hybrid nano-bar/nano-elliptic dielectric metasurface [12568-47]
12568 1A	Perfect invisibility with nested inside-out cloaks [12568-54]