

PROCEEDINGS OF SPIE

Metamaterials XI

Vladimír Kuzmiak
Peter Markos
Tomasz Szoplik
Editors

26–27 April 2017
Prague, Czech Republic

Sponsored by
SPIE

Cooperating Organisations
Science and Technology Facilities Council (United Kingdom)
ELI Beamlines (Czech Republic)
Laserlab Europe
ALLU—Association of Laser Users (United Kingdom)
European Optical Society
HiLASE (Czech Republic)
AWE—Atomic Weapons Establishment (United Kingdom)

Published by
SPIE

Volume 10227

Proceedings of SPIE 0277-786X, V. 10227

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 XI*, edited by Vladimir Kuzmiak, Peter Markos, Tomasz Szoplik, Proceedings of SPIE Vol. 10227 (SPIE, Bellingham, WA, 2017) Article CID Number.

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510609556

ISBN: 9781510609563 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time)- Fax +1 360 647 1445

SPIE.org

Copyright © 2017, Society of Photo-Optical Instrumentation Engineers.

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 copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online 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. The CCC fee code is 0277-786X/17/\$18.00.

Printed in the United States of America V m7 i ffUb '5 gg: WJUH gē bWZi bXYf JMW bgY Zc a GD-9.

Publication of record for individual papers is online in the SPIE Digital Library.

**SPIE. DIGITAL
LIBRARY**

SPIEDigitalLibrary.org

Paper Numbering: *Proceedings of SPIE* follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article 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 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 *Authors*
- vii *Conference Committee*

METASURFACES

- 10227 03 Tunable spin-directional coupling for surface localized waves with anisotropic metasurface (Best Student Paper) [10227-2]

METAMATERIALS THEORY

- 10227 09 On-chip near-wavelength diffraction gratings for surface electromagnetic waves [10227-8]
- 10227 0A On-chip phase-shifted Bragg gratings and their application for spatiotemporal transformation of Bloch surface waves [10227-9]
- 10227 0B Enhanced fluorescence emission using bound states in continuum in a photonic crystal membrane [10227-10]

HYPERBOLIC METAMATERIALS

- 10227 0G Quasimode computation in structures including several dispersive materials [10227-15]
- 10227 0H Spectral features of the Borrmann effect in 1D photonic crystals in the Laue geometry [10227-16]

PLASMONICS

- 10227 0O Collective dynamics of atoms embedded into negative index materials [10227-23]
- 10227 0R General rules for incorporating noble metal nanoparticles in organic solar cells [10227-26]

NANOLASERS

- 10227 0V Plasma phase separation in bismuth and antimony chalcogenide crystals [10227-30]

SESSION 7 APPLICATIONS OF METAMATERIALS

- 10227 0Z Deposition of organic molecules on gold nanoantennas for sensing [10227-34]

POSTER SESSION

- 10227 12 Plasmonic scattering nanostructures for efficient light trapping in flat CZTS solar cells
[10227-36]