PROCEEDINGS OF SPIE

Photonics, Devices, and Systems IX

Karel Fliegel Václav Prajzler Editors

9-11 June 2025 Prague, Czech Republic

Organized by CSSF—Czech and Slovak Society for Photonics (Czech Republic)

Published by SPIE

Volume 13698

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 *Photonics, Devices, and Systems IX*, edited by Karel Fliegel, Václav Prajzler, Proc. of SPIE 13698, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510693456

ISBN: 9781510693463 (electronic)

Published by

SPIE

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

Telephone +1 360 676 3290 (Pacific Time)

SPIE.ora

Copyright © 2025 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

vii Conference Committee ix Introduction

PHOTONICS, DEVICES, AND SYSTEMS IX

13698 02	Optimization of rib, single mode SiOxNy optical waveguide structure for athermal AWG using PMMA cover layer [13698-1]
13698 03	Synergy between doping with rare earth elements and optoplasmonics for whispering gallery mode resonators [13698-2]
13698 04	Single-pixel imaging of temporally dynamic scenes enhanced with deep learning [13698-3]
13698 05	Temperature dependence of the absorption coefficient of V:YAG saturable absorber [13698-4]
13698 06	Design of etch-through nanohole array waveguide couplers on an SOI platform [13698-6]
13698 07	Photonic crystal phosphors for efficient color conversion in micro-LED applications [13698-7]
13698 08	Optical detection of magnetic field inhomogeneities [13698-8]
13698 09	Numerical analysis of excitation light absorption enhancement in two-dimensional photonic crystal phosphor films [13698-10]
13698 OA	Normal incidence germanium photodetector with an underlying silicon lateral PIN structure for short-wavelength infrared detection [13698-11]
13698 OB	Mode stability, yield, and wavelength fluctuation improvement of high-power DFB lasers for data center networks [13698-12]
13698 OC	Optical amplifiers and lasers using erbium-doped optical fibers [13698-13]
13698 0D	Beam width tunability using refractive optics in static light sheet microscopy [13698-14]
13698 OE	Multiple connections of fiber-optic polarization sensors with localization possibilities [13698-16]
13698 OF	Thin layer of chalcogenide spinel deposited by PLD method [13698-17]
13698 OG	Free-space powering using 3W high-power laser source at 980nm [13698-19]

13698 OH	Metaheuristic optimization of hybrid silicon nitride grating couplers [13698-20]
13698 01	O-band-operated fiber-chip surface gratings for silicon nitride photonic integrated circuits [13698-21]
13698 OJ	Sensitivity comparison of acoustic vibration detection methods in underground optical networks [13698-22]
13698 OK	Study on the saturation phenomenon of optical gain in green laser structures under varying excitation conditions [13698-23]
13698 OL	Broadly tunable diode-pumped 2.1 μ m laser based on μ -PD grown Tm,Ho:GSAG [13698-24]
13698 OM	Characterization of symmetrical supersonic compressible fluid flow using quadriwave lateral shearing interferometry [13698-25]
13698 ON	Design and simulation of a reconfigurable photonic logic circuit on SOI platform [13698-26]
13698 00	Image-free object classification from compressive single-pixel measurements [13698-27]
13698 OP	Influence of anti-resonant hollow-core fibers geometry on their acoustic vibrations sensitivity [13698-28]
13698 OQ	Fabrication of optical microstructures using direct laser writing and deep reactive ion etching technologies [13698-29]
13698 OR	Monolithic interferometric modules for multi-axis coordinate positioning with sub- nanometre precision [13698-30]
13698 OS	Comprehensive analysis of the temperature dependence of Fe:ZnSe, Fe:ZnMnSe, and Fe:CdMnTe absorption over the 4 to 400K range [13698-31]
13698 OT	Towards multimode optical polymer waveguides with integrated Bragg gratings fabricated by nanoimprinting for load sensor applications [13698-32]
13698 OU	Characterization of an MIR-LED as an excitation source for photoacoustic sensing of N_2O [13698-33]
13698 OV	Silicon nanophotonic waveguides using rare earth ion diffusion technology [13698-34]
13698 OW	Optical performance of silicon-metallic nanocomposites synthesized via doughnut shape laser processing [13698-35]
13698 OX	Watt-level CW 2.1µm laser based on Tm, Ho:GGAG crystal under in-band diode pumping at 1.7µm [13698-36]

13698 OY	Hydrostatic pressure and temperature cross-sensitivity in Rayleigh scattering-based distributed fiber measurements [13698-37]
13698 OZ	The long-term impact of different fluids on polymer-coated fibers in Rayleigh-based OFDR [13698-38]
13698 10	Role of light trapping in the reciprocity between absorptance and photoluminescence in hybrid halide perovskite layers [13698-39]
13698 11	Generation of optical apertures with ns-laser micromachining of metal layers [13698-40]
13698 12	LED-pumped picosecond and nanosecond laser amplifiers [13698-41]
13698 13	Techniques for VNIR hyperspectral macro imaging in laboratory settings [13698-43]