PROCEEDINGS OF SPIE

Nonlinear Optics and Applications XIV

Mario Bertolotti Anatoly V. Zayats Alexei M. Zheltikov Editors

7–8 April 2025 Prague, Czech Republic

Sponsored by SPIE

Cosponsored by ELI Beamlines, ELI-ERIC (Czech Republic) Inprentus, Inc. (United States) CeramOptec® (Latvia)

Cooperating Organisations
HiLASE (Czech Republic)
AWE (United Kingdom)
Czech and Slovak Optical Society (Czech Republic)

Published by SPIE

Volume 13524

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 *Nonlinear Optics and Applications XIV*, edited by Mario Bertolotti, Anatoly V. Zayats, Alexei M. Zheltikov, Proc. of SPIE 13524, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510688445

ISBN: 9781510688452 (electronic)

Published by

SPIE

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

31 IL.OIG

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

v Conference Committee

	NEW MATERIALS
13524 02	Towards achieving Kerr combs in tantalum pentoxide microresonators [13524-3]
	FUNDAMENTAL EFFECTS
13524 03	Partial coherence analysis in the phase space [13524-8]
	APPLICATIONS
13524 04	Terahertz second harmonic generation driven by the unidirectional spin Hall magnetoresistance [13524-9]
13524 05	Advanced accelerator-driven THz radiators: achieving high power and continuous tunability [13524-10]
13524 06	Laser filament shattering of distilled water and seawater droplets [13524-11]
	LASER DYNAMICS AND NONLINEAR EFFECTS
13524 07	Highly efficient second and third harmonic generation of a 7J, 10 Hz Yb:YAG laser [13524-15]
13524 08	Polarization dynamics of multipulsing mode-locked fiber laser [13524-17]
	POSTER SESSION
13524 09	Modeling of a cross-cascade picosecond synchronously pumped Raman laser [13524-19]
13524 0A	1.7 W optical parametric oscillator tunable between 1.48-1.61µm and 3.14-3.77µm for generation of 10 picosecond pulses at 70 MHz [13524-20]
13524 OB	Detection of Faraday rotation in silica colloidal photonic crystals through image-based detection [13524-21]

13524 OC	Estimation of uncertainty on carrier frequency precision in optics and optoelectronic systems [13524-22]
13524 0D	Investigation into feasibility of lens with miniaturization of materials and power supply [13524-23]
13524 OF	Interfacial sensing of liquid-air interfaces using thermal lens spectroscopic measurements [13524-25]
13524 0G	Extending pulse repetition rate up to 12 GHz in soliton fiber lasers via double harmonic mode-locking [13524-27]
13524 OH	Stabilizing high-order harmonic mode-locking in Er/Yb-doped fiber lasers with sub-MHz fundamental frequency through optoacoustic resonance [13524-28]