

PROCEEDINGS OF SPIE

Laser Resonators, Microresonators, and Beam Control XXVIII

Vladimir S. Ilchenko
Andrea M. Armani
Julia V. Sheldakova
Alexis V. Kudryashov
Andrey B. Matsko
Editors

20–21 January 2026
San Francisco, California, United States

Sponsored and Published by
SPIE

Volume 13879

Proceedings of SPIE 0277-786X, V. 13879

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 SPIDigitalLibrary.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 *Laser Resonators, Microresonators, and Beam Control XXVIII*, edited by Vladimir S. Ilchenko, Andrea M. Armani, Julia V. Sheldakova, Alexis V. Kudryashov, Andrey B. Matsko, Proc. of SPIE 13879, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510696723

ISBN: 9781510696730 (electronic)

Published by

SPIE

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

Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2026 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.

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.org

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*

NOVEL MICROCAVITY DEVICES AND MEDIA

- 13879 02 **Tunable microresonators formed at the intersection of straight optical fibers (Invited Paper)**
[13879-3]
- 13879 03 **High-Q-factor tunable microresonators induced by twisting optical fibers** [13879-5]

MICROCOMBS I: NOVEL MEDIA

- 13879 04 **Ultradense frequency combs in fiber Kerr resonators via Raman gain** [13879-6]

MICROCOMBS II: NOVEL TECHNIQUES AND APPLICATIONS

- 13879 05 **Impact of optical comb line phase in high-speed terahertz-wave wireless link based on whole-comb-modulated microcomb** [13879-10]
- 13879 06 **Harnessing resonant noise emission to measure cavity-pump detuning for microcomb stabilization** [13879-11]

MICROCOMBS III: ANALYTICAL METHODS

- 13879 08 **Bistability of platicon solutions in normal dispersion photonic crystal resonators** [13879-16]
- 13879 09 **Soliton microcombs with novel dispersion** [13879-17]
- 13879 0A **Soliton-pursuing dynamics and pump-depletion locking in parametrically driven soliton crystals** [13879-18]

TOPOLOGICAL PHOTONIC RESONATORS I

- 13879 0B **Flat band resonances in synthetic Floquet topological photonic lattices (Invited Paper)**
[13879-22]

TOPOLOGICAL PHOTONIC RESONATORS II

- 13879 0C **Optical frequency combs in topologically engineered ring resonator arrays (Invited Paper)** [13879-25]
- 13879 0D **On-chip frequency space lattices in modulated thin-film lithium niobate microresonators (Invited Paper)** [13879-26]

BEAM SHAPING AND BEAM CONTROL

- 13879 0E **Mode dynamics in the amplification of a CW single-frequency laser seed in a multimode fiber taper** [13879-28]
- 13879 0F **Decoupling mirror size from the optical invariant in inertially limited scanners** [13879-29]

RESONANCE METASURFACES

- 13879 0G **Integrated nanophotonic metasurfaces via bound states in the continuum for next-generation biomedical sensors (Invited Paper)** [13879-32]
- 13879 0H **Dielectric metasurfaces enabling lasing in the visible via a slot-type bound state in the continuum and fluorescent dye molecules** [13879-33]

POSTER SESSION

- 13879 0I **Nonlinear optics in saddle-shape microresonators** [13879-34]

DIGITAL POSTER SESSION

- 13879 0J **Numerical simulation of bimorph and stacked-actuator deformable mirrors for wavefront aberrations correction** [13879-36]
- 13879 0K **Problems of wide-aperture bimorph deformable mirrors: print through effect** [13879-37]