PROCEEDINGS OF SPIE

Semiconductor Lasers and Laser Dynamics X

Marc Sciamanna Krassimir Panajotov Sven Höfling Editors

3–7 April 2022 Strasbourg, France

9–20 May 2022 ONLINE

Sponsored by SPIE

Cosponsored by
City of Strasbourg (France)
IdEx University of Strasbourg (France)
CNRS (France)
iCube (France)
Université de Strasbourg (France)

Cooperating Organisations
Photonics 21 (Germany)
EOS—European Optical Society (Germany)
Photonics Public Private Partnership (Belgium)
Photonics France (France)

Published by SPIE

Volume 12141

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 *Semiconductor Lasers and Laser Dynamics X*, edited by Marc Sciamanna, Krassimir Panajotov, Sven Höfling, Proc. of SPIE 12141, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510651586

ISBN: 9781510651593 (electronic)

Published by

SPIE

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

31 IL.UIG

Copyright © 2022 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

LASER PHYSICS 12141 02 Non-Hermitian coupled semiconductor laser array [12141-2] 12141 03 Optical square waves in a multiquantum-well laser with nonlinear optoelectronic feedback [12141-3] **HIGH-PERFORMANCE LASERS** 12141 04 Multisection waveguide method for facet temperature reduction and improved reliability of high-power laser diodes [12141-11] 12141 05 Experimental study of a tunable hybrid III-V-on-silicon laser for spectral characterization of fiber Bragg grating sensors [12141-14] 12141 06 A Littrow-type diode laser with independent control of cavity length and grating rotation [12141-15] A 100 W class narrow linewidth stack pump source for metastable rare gas laser [12141-12] 12141 07 LASER-BASED FREQUENCY COMBS I 12141 08 Influence of the cavity design on the differential gain and linewidth enhancement factor of a **QD** comb laser [12141-19] **QUANTUM CASCADE LASERS** 12141 09 Fast swept continuous wave quantum cascade laser operating in external cavity with polygon mirror [12141-22] 12141 0A Non-linear dynamics modeling of quantum cascade lasers with tilted optical feedback [12141-23]

NEW LASER STRUCTURES

	NEW EXCENTIONED
12141 OB	PbS quantum dot lasers: towards high quality tuneable emission across the short-wave infrared [12141-26]
12141 0C	Influence of time-distribution in lasers subject to feedback from long FBGs [12141-27]
12141 0D	Low frequency noise blue external cavity diode laser [12141-28]
12141 OE	Electro-optic synchronization of two tunable semiconductor slotted lasers for wider tuning range application [12141-29]
	LASER-BASED FREQUENCY COMBS II
12141 OF	Optical injection and mode-coupling effects in two-color lasers [12141-32]
12141 0G	Polarization dynamics in VCSELs subject to optical frequency comb injection [12141-34]
	SPATIO-TEMPORAL LASER DYNAMICS
12141 OH	Modes in microchip lasers [12141-38]
12141 01	Non-linear structured light in a self-imaging laser cavity based on III-V semiconductor nanotechnology [12141-39]
	POSTER SESSION
12141 OJ	Stabilizing Brillouin lasing in high-Q optical fiber cavity pumped from self-injection locked DFB laser [12141-41]
12141 OK	Strong-feedback regime of self-injection locking and external cavity laser [12141-42]