PROCEEDINGS OF SPIE

Novel In-Plane Semiconductor Lasers XVII

Alexey A. Belyanin Peter M. Smowton Editors

29 January – 1 February 2018 San Francisco, California, United States

Sponsored and Published by SPIE

Volume 10553

Proceedings of SPIE 0277-786X, V. 10553

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 Novel In-Plane Semiconductor Lasers XVII, edited by Alexey A. Belyanin, Peter M. Smowton, Proceedings of SPIE Vol. 10553 (SPIE, Bellingham, WA, 2018) Seven-digit Article CID Number.

ISSN: 0277-786X ISSN: 1996-756X (electronic)

ISBN: 9781510615915 ISBN: 9781510615922 (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 © 2018, 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/18/\$18.00.

Printed in the United States of America Vm7 i ffUb 5 ggc WUHY gž & Wži bXYf "]WY bgY Zfca 'GD-9.

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



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 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 Authors
- ix Conference Committee

PLENARY SESSION

10553 02 Ill-nitride nanowire LEDs and diode lasers: monolithic light sources on (001) Si emitting in the 600-1300nm range (Plenary Paper) [10553-202]

DEVELOPING LASER MATERIALS

10553 07 Laser diodes using InAlGaAs multiple quantum wells intermixed to varying extent [10553-56]

NITRIDES/VISIBLE EMITTING LASERS

- 10553 08 Defect evolution during catastrophic optical damage in 450nm emitting InGaN/GaN diode lasers (Invited Paper) [10553-5]
- 10553 0A **10th order laterally coupled GaN-based DFB laser diodes with v-shaped surface gratings** (Invited Paper) [10553-7]

ANTIMONIDE-BASED MID-IR LASERS

- 10553 0C New GasB based single mode diode lasers in the NIR and MIR spectral regime for sensor applications [10553-9]
- 10553 OE Magneto-optical properties of potassium terbium fluoride [10553-11]

QUANTUM DOT LASERS

- 10553 0G Incorporating structural analysis in a quantum dot Monte-Carlo model [10553-13]
- 10553 0J Temperature dependence of spectral linewidth of InAs/InP quantum dot distributed feedback lasers [10553-16]

TEMPORAL EFFECTS AND MODE LOCKED LASERS

10553 0K Pico- and nanosecond investigations of the lateral nearfield of broad area lasers under pulsed high-current excitation [10553-17]

- 10553 OL Spontaneous generation of frequency combs in QD lasers [10553-18]
- 10553 0M Influence of different approaches for dynamical performance optimization of monolithic passive colliding-pulse mode-locked laser diodes emitting around 850 nm [10553-19]
- 10553 ON **Passive, active, and hybrid mode-locking in a self-optimized ultrafast diode laser** [10553-20]
- 10553 00 High pulse energy stabilized passively mode-locked external cavity inverse bow-tie 980nm laser diode for space applications [10553-21]

MID-IR QCLS AND ICLS

- 10553 OP Continuous wave power scaling in high power broad area quantum cascade lasers [10553-22]
- 10553 0Q **3.35µm distributed feedback interband cascade lasers with top grating** [10553-23]

PHOTONIC BANDGAP AND CAVITY EFFECTS

10553 10 Reflectors and tuning elements for widely-tunable GaAs-based sampled grating DBR lasers [10553-33]

COMBS AND MODE LOCKING

10553 19 **Passive mode-locking of 3.25µm GaSb-based type-I quantum-well cascade diode lasers** [10553-42]

HIGH POWER/BRIGHTNESS

- 10553 1C Diffraction limited 1064nm monolithic DBR-master oscillator power amplifier with more than 7W output power [10553-45]
- 10553 1D Comparison of distributed Bragg reflector ridge waveguide diode lasers and monolithic master oscillator power amplifiers [10553-46]
- 10553 1F **5.5nm wavelength tunable high power MOPA diode laser system at 971nm** [10553-48]
- 10553 1G Comparison for 1030nm DBR tapered diode lasers with 10W central lobe output power and different grating layouts for wavelength stabilization and lateral spatial mode filtering [10553-49]

POSTER	SESSION
--------	---------

- 10553 1L Angled facet waveguide quantum cascade laser for external cavity system [10553-54]
- 10553 1M Stability of the mode-locking regime in tapered quantum-dot lasers [10553-55]