

PROCEEDINGS OF SPIE

High-Power Diode Laser Technology XIX

Mark S. Zediker
Editor

6–11 March 2021
Online Only, United States

Sponsored and Published by
SPIE

Volume 11668

Proceedings of SPIE 0277-786X, V. 11668

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

High-Power Diode Laser Technology XIX, edited by Mark S. Zediker, Proc. of SPIE
Vol. 11668, 1166801 · © 2021 SPIE · CCC code: 0277-786X/21/\$21
doi: 10.1117/12.2596631

Proc. of SPIE Vol. 11668 1166801-1

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 *High-Power Diode Laser Technology XIX*, edited by Mark S. Zediker, Proc. of SPIE 11668, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

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

ISBN: 9781510641716
ISBN: 9781510641723 (electronic)

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

Copyright © 2021 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

HIGH BRIGHTNESS LASER DIODES

- 11668 04 **High power, high beam quality miniaturized diode laser module for direct material processing around 980 nm** [11668-1]
- 11668 05 **350 W high-brightness multi-emitter semiconductor laser module emitting at 976 nm** [11668-2]
- 11668 07 **Epitaxial design progress for high power, efficiency, and brightness in 970 nm broad area lasers** [11668-4]

LASER DIODE DEVICE RELIABILITY

- 11668 09 **Broad range pulse widths reliability model for 905 nm high power lasers** [11668-6]
- 11668 0A **High-efficiency and reliable pump lasers for fiber lasers** [11668-7]
- 11668 0B **Reliability and degradation mechanisms in high-power broad-area lasers with strained InGaAs-AlGaAs QW and InAs-GaAs QD active regions** [11668-8]
- 11668 0C **Modeling of the impact of current crowding on catastrophic optical damage in 9xx-nm high power laser diodes** [11668-9]

WAVELENGTH STABILIZED LASER DIODES

- 11668 0E **High efficiency 600 W, 100 μ m wavelength stabilized fiber coupled laser diode module for fiber laser pumping** [11668-11]
- 11668 0F **Wavelength stabilized fiber coupled modules at 79x nm, 88x nm, and 97x nm with up to 600W output power based on single emitters** [11668-12]

VISIBLE WAVELENGTH LASER DIODES AND SYSTEMS

- 11668 0J **Compact high-brightness and highly manufacturable blue laser modules** [11668-16]
- 11668 0K **Individually addressable visible laser arrays for display and printing applications** [11668-17]
- 11668 0M **Blue laser-assisted kW-class CW NIR fiber laser system for high-quality copper welding** [11668-19]

EYESAFE WAVELENGTH DEVICES FOR LIDAR AND SENSING

- 11668 0O **High-power high-brightness lasers and amplifiers at 15xx nm** [11668-21]
- 11668 0P **Long-range all-solid-state flash LiDAR sensor for autonomous driving** [11668-22]
- 11668 0R **High-efficiency vertically-emitting chipsets for 3D and proximity sensing** [11668-24]

POSTER SESSION

- 11668 0W **Advances in G-stack diode laser using macro-channel water cooling and high thermal conductivity material packaging** [11668-29]