PROCEEDINGS OF SPIE

Integrated Optics: Design, Devices, Systems, and Applications V

Pavel Cheben
Jiří Čtyroký
Iñigo Molina-Fernández
Editors

1–3 April 2019
Prague, Czech Republic

Sponsored by
SPIE

Cooperating Organisations
ELI Beamlines (Czech Republic)
Laserlab Europe
European Optical Society
HiLASE (Czech Republic)

Published by
SPIE

Volume 11031

Proceedings of SPIE 0277-786X, V. 11031

Integrated Optics: Design, Devices, Systems, and Applications V, edited by Pavel Cheben, Jiří Čtyroký, Iñigo Molina-Fernández, Proc. of SPIE Vol. 11031, 1103101 · © 2019 SPIE · CCC code: 0277-786X/19/$18 · doi: 10.1117/12.2535596

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 *Integrated Optics: Design, Devices, Systems, and Applications V*, edited by Pavel Cheben, Jiří Čtyroký, Iñigo Molina-Fernández, Proceedings of SPIE Vol. 11031 (SPIE, Bellingham, WA, 2019) Seven-digit Article CID Number.

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

ISBN: 9781510627284
ISBN: 9781510627291 (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

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
SPIEDigitalLibrary.org

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

INTEGRATED OPTICS VI

INTEGRATED OPTICS VII

POSTER SESSION

Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Conference Committee

Symposium Chairs

Bedřich Rus, ELI Beamlines, Institute of Physics of the CAS, v.v.i. (Czech Republic)
Chris Edwards, STFC Rutherford Appleton Laboratory (United Kingdom)
Saša Bajt, Deutsches Elektronen-Synchrotron (Germany)
Ivo Rendina, Istituto per la Microelettronica e Microsistemi (Italy)
Mike Dunne, SLAC National Accelerator Laboratory (United States)

Honorary Symposium Chair

Erich Spitz, French Academy of Sciences, National Academy of Technologies (France) Advisor to Thales (France)

Conference Chairs

Pavel Cheben, National Research Council Canada (Canada)
Jiří Čtyroký, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic)
Iñigo Molina-Fernández, Universidad de Málaga (Spain)

Conference Programme Committee

Roel G. Baets, Universiteit Gent (Belgium)
Trevor Mark Benson, The University of Nottingham (United Kingdom)
Hung-Chun Chang, National Taiwan University (Taiwan)
Christopher R. Doerr, Acacia Communications Inc. (United States)
Romuald Houdré, Ecole Polytechnique Fédérale de Lausanne (Switzerland)
Raman Kashyap, Ecole Polytechnique de Montréal (Canada)
Christophe Kazmierski, III-V Laboratoire (France)
Philippe Lalanne, Institut d'Optique Graduate School (France)
Xaveer J. M. Leijtens, Technische Universiteit Eindhoven (Netherlands)
Goran Z. Mashanovich, University of Southampton (United Kingdom)
Andrea I. Melloni, Politecnico di Milano (Italy)
Jarmila Müllerová, University of Žilina (Slovakia)
Martin Schell, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany)
Laurent Vivien, Institut d'Électronique Fondamentale (France)
Lech Wosinski, KTH Royal Institute of Technology (Sweden)

Session Chairs

1 Integrated Optics I
Jiří Čtyroký, Institute of Photonics and Electronics of the CAS, v.v.i. (Czech Republic)

2 Integrated Optics II
Roel G. Baets, Photonics Research Group (Belgium)

3 Integrated Optics III
Pierre Berini, University of Ottawa (Canada)

4 Integrated Optics IV
Dan-Xia Xu, National Research Council Canada (Canada)

5 Integrated Optics V
Raman Kashyap, Ecole Polytechnique de Montréal (Canada)

6 Integrated Optics VI
Isabelle Staude, Friedrich-Schiller-Universität Jena (Germany)

7 Integrated Optics VII
Iñigo Molina-Fernández, Universidad de Málaga (Spain)