

PROCEEDINGS OF SPIE

Laser Beam Shaping XXI

Angela Dudley
Alexander V. Laskin
Editors

1–5 August 2021
San Diego, California, United States

Sponsored by and Published by
SPIE

Volume 11818

Proceedings of SPIE 0277-786X, V. 11818

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 Beam Shaping XXI*, edited by Angela Dudley, Alexander V. Laskin, Proc. of SPIE 11818, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510644748

ISBN: 9781510644755 (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

VORTEX BEAMS AND OAM

- 11818 02 **Structured light towards multiple degrees of freedom and higher dimensions (Invited Paper)** [11818-1]
- 11818 03 **Arbitrary-order vortex lattice and linear vortex array formed by the superposition of two edge dislocation fields** [11818-2]
- 11818 05 **Analysis of spatio-temporal properties of ultrashort optical vortices** [11818-4]
- 11818 06 **Modal decomposition of a partially coherent Ince-Gaussian beams** [11818-5]
- 11818 07 **Free-space local nonseparability dynamics of parabolic vector modes** [11818-23]
- 11818 08 **Accelerating vector beams along parabolic trajectories** [11818-24]

POLARIZATION AND QUANTUM OPTICS

- 11818 09 **Knotted topologies in the polarization state of bichromatic light (Invited Paper)** [11818-6]
- 11818 0B **Digitally controlled ray-wave geometric beams as higher-dimensional information carriers** [11818-8]

HIGH-POWER BEAM SHAPING

- 11818 0C **Amplification of a propagation invariant vector flat-top beam** [11818-10]
- 11818 0D **Determination of amplification characteristics in end-pumped solid-state amplifiers** [11818-11]

MATERIALS PROCESSING

- 11818 0E **Optical materials for blue-laser processing** [11818-12]
- 11818 0F **Through-focus spot shaping with asymmetric pupil optimization for laser stealth dicing** [11818-13]

ADAPTIVE OPTICS AND APPLICATIONS

11818 OG **Phase optimization for tiled spatial light modulators** [11818-14]

SPATIAL AND TEMPORAL SHAPING

11818 OI **Simulating the branched flow of light** [11818-17]

11818 OK **Optical soliton generation in a photorefractive Fe-doped lithium niobate crystal by a pyroelectric effect** [11818-19]

11818 OL **To unify travelling- and standing-wave ray-wave structured light by coherent wave packets** [11818-20]

11818 OM **Spatial intensity correlations of the speckle pattern of a Mathieu beam** [11818-21]

POSTER SESSION

11818 ON **B-spline approximation of a wavefront measured by Shack-Hartmann sensor** [11818-15]

11818 OO **Comparison of stacked actuator and bimorph mirrors for scattered laser-beam focusing** [11818-22]