

PROCEEDINGS OF SPIE

AOPC 2021: Display Technology

Yongtian Wang

Editor

20–22 June 2021

Beijing, China

Organized by

University of Electronic Science and Technology of China (China)

Science and Technology on Low-light-level Night Vision Laboratory (China)

Science and Technology on Electro-Optical Information Security Control (China)

Nano-Optoelectronics Laboratory, Department of Electronic Engineering, Tsinghua University (China)

Sponsored by

Chinese Society for Optical Engineering (China)

Published by

SPIE

Volume 12063

Proceedings of SPIE 0277-786X, V. 12063

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

AOPC 2021: Display Technology, edited by Yongtian Wang, Proc. of SPIE
Vol. 12063, 1206301 · © 2021 SPIE · 0277-786X · doi: 10.1117/12.2622769

Proc. of SPIE Vol. 12063 1206301-1

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 *AOPC 2021: Display Technology*, edited by Yongtian Wang, Proc. of SPIE 12063, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

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

ISBN: 9781510650015
ISBN: 9781510650022 (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

DISPLAY TECHNOLOGY AND OPTICAL STORAGE

- 12063 02 **An aberration correction method and circuit implementation for AR helmet mounted display optical system** [12063-1]
- 12063 03 **Grating-based lightguide with variable duty cycle designed and fabricated for AR head-mounted displays** [12063-3]
- 12063 04 **Analysis and suppression of stray light in micro mirror array waveguide** [12063-5]
- 12063 05 **LED high-beam module design for automotive headlight** [12063-6]
- 12063 06 **Gas pressure sensor based on Fabry-Perot interferometer composed of quartz capillary** [12063-7]
- 12063 07 **Dielectric metasurface holographic structure with high transmission efficiency** [12063-9]
- 12063 08 **Design of ultra-short throw ratio lens using annularly stitched aspheric surface** [12063-10]
- 12063 09 **Research on key technologies of optical transmission augmented reality display system for electric navigation in extreme weather** [12063-11]
- 12063 0A **Design of diffractive waveguide near eye display system with exit pupil expansion** [12063-14]
- 12063 0B **Pulsed laser and its applications in supersonic flows display technology** [12063-15]
- 12063 0C **Improving the color perception of anomalous trichromats through computerized simulation** [12063-16]
- 12063 0D **Measurement and application of spectrum curve for virtual digital studio simulation scene** [12063-18]
- 12063 0E **The luminance and chromaticity measurement of head-mounted displays** [12063-19]
- 12063 0F **Stray light analysis of geometric waveguide** [12063-21]
- 12063 0G **Color computational holographic display based on laser direct writing lithography technology** [12063-23]
- 12063 0H **Uncertainty analysis and specification design of spectroscopic imaging colorimeter for Micro-LED display** [12063-25]

- 12063 OI **Research on the influence of different environment brightness on human eyes resolution**
[12063-26]
- 12063 OJ **Research on the method and technology of determining the best image plane of head-up display** [12063-27]
- 12063 OK **Research on two-dimensional extended array waveguide display technology** [12063-28]
- 12063 OL **Research on binocular alignment measurement technology of helmet mounted display**
[12063-30]
- 12063 OM **Design of a virtual image distance measurement system for augmented reality/virtual reality display** [12063-33]