PROCEEDINGS OF SPIE

Advances in Display Technologies XIV

Jiun-Haw Lee Qiong-Hua Wang Liang-Chy Chien Editors

29–30 January 2024 San Francisco, California, United States

Sponsored and Published by SPIE

Volume 12908

Proceedings of SPIE 0277-786X, V. 12908

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 Advances in Display Technologies XIV, edited by Jiun-Haw Lee, Qiong-Hua Wang, Proc. of SPIE 12908, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510670761

ISBN: 9781510670778 (electronic)

Published by

SPIE

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

SPIE.org

Copyright © 2024 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.



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

v Conference Committee

	WAVEGUIDE FOR NTE DISPLAY
12908 02	Full-color, wide FoV single waveguide AR displays leveraging polarization multiplexing reflective polarization holograms (Invited Paper) [12908-1]
12908 03	Chromatic near-eye display with double-layer holographic waveguide configuration (Invited Paper) [12908-3]
	3D DISPLAYS
12908 04	High-resolution light field display based on a mini-LED field sequential color micro-LCD (Invited Paper) [12908-6]
12908 05	Use of the boundary mirrors enhanced angular resolution of high-density point light source display [12908-7]
	OPTICAL COMPONENTS
12908 06	Breaking the optical efficiency limit of pancake optics in virtual reality [12908-12]
12908 07	New small-node CMOS microdisplay backplane for high-speed programmable light modulation designed for OLED, microLED, and LCOS front-plane technologies [12908-10]
	HOLOGRAPHIC DISPLAYS
12908 08	Deep learning-based approach for efficient generation and transmission of high-definition computer-generated holography (Invited Paper) [12908-15]
12908 09	Fast calculation method of hologram based on diffraction optimization (Invited Paper) [12908-16]
	OPTICAL DESIGN FOR NTE DISPLAY
12908 0A	Metalens-array-based integral-imaging near-eye display (Invited Paper) [12908-17]

12908 OB	Enhancing augmented reality experience through advanced nanophotonic metasurfaces with expanded eyebox [12908-18]
12908 OC	Unlocking the transformative power of freeform optics: an analytical approach to design for imaging applications [12908-19]
	POSTER SESSION
12908 0D	High resolution 3D display using time-based multiplexing and adjustable light deflecting device [12908-30]
12908 OE	Reflective and bistable e-paper for smart and AI-controlled escape route signage [12908-32]
12908 OF	OLED lifetime simulation for VR displays [12908-33]
	DIGITAL POSTER SESSION
12908 0G	A high-efficiency LCoS based SLM design (Invited Paper) [12908-9]