PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 11814

, "Front Matter: Volume 11814," Proc. SPIE 11814, Current Developments in Lens Design and Optical Engineering XXII, 1181401 (3 September 2021); doi: 10.1117/12.2606650

Event: SPIE Optical Engineering + Applications, 2021, San Diego, California, United States

PROCEEDINGS OF SPIE

Current Developments in Lens Design and Optical Engineering XXII

R. Barry Johnson
Virendra N. Mahajan
Simon Thibault
Editors

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

Sponsored and Published by
SPIE

Volume 11814

Proceedings of SPIE 0277-786X, V. 11814

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

Current Developments in Lens Design and Optical Engineering XXII, edited by R. Barry Johnson,
Virendra N. Mahajan, Simon Thibault, Proc. of SPIE Vol. 11814, 1181401 · © 2021 SPIE
CCC code: 0277-786X/21/\$21 · doi: 10.1117/12.2606650

Proc. of SPIE Vol. 11814 1181401-1

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](https://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 *Current Developments in Lens Design and Optical Engineering XXII*, edited by R. Barry Johnson, Virendra N. Mahajan, Simon Thibault, Proc. of SPIE 11814, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

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

ISBN: 9781510644663
ISBN: 9781510644670 (electronic)

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

THEORY AND METHODS

- 11814 02 **Locating the local minima in lens design with machine learning** [11814-2]
- 11814 03 **Methodology to design mobile-based camera lenses using freeform surfaces** [11814-3]
- 11814 04 **Design of ultrashort throw lenses with catadioptric relays for curved screens** [11814-4]
- 11814 05 **The impact of aberrations in a 3D retinal model eye** [11814-5]
- 11814 06 **Angular spectrum-based modeling of the propagation of ultrashort focused pulses in nonlinear media** [11814-6]

METASURFACES AND DIFFRACTIVE LENSES

- 11814 07 **Thermally reconfigurable varifocal silicon metalens** [11814-8]
- 11814 09 **Metalens wide-angle receiver for free space optical communications** [11814-11]

DEVELOPMENT IN OPTICAL COMPONENTS, TECHNIQUES, AND TESTING

- 11814 0B **Depth-of-field comparison between the plenoptic camera 1.0 and 2.0** [11814-16]
- 11814 0C **360 degree white light holography display on surface of transparency conical cup** [11814-17]

ILLUMINATION AND THIN FILMS

- 11814 0D **Wide gamut lighting and color contrast in anomalous trichromacy** [11814-22]
- 11814 0E **Iterative and inverse design of a segmented reflector for uniform illumination on the road** [11814-24]
- 11814 0F **Effects of multilayer thin film coatings on different thermochromic materials for thermal storage applications** [11814-19]

POSTER SESSION

- 11814 0I **Talbot effect from structures with periodic Bessel and sinusoidal profiles [11814-33]**
- 11814 0J **Large volumetric optical-resolution photoacoustic microscopy with image fusion based on CNN feature extraction [11814-25]**
- 11814 0K **An optimal lens arrangement in high numerical aperture objectives [11814-26]**
- 11814 0O **Artificial light: traditional and new sources, their potential impact on health and coping strategies: preliminary spectral analysis [11814-35]**
- 11814 0P **Analysis of the space radiation effects on liquid crystal variable retarders [11814-36]**