PROCEEDINGS OF SPIE

Optical Modeling and Performance Predictions XII

Mark A. Kahan Editor

22 August 2022 San Diego, California, United States

Sponsored and Published by SPIE

Volume 12215 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 *Optical Modeling and Performance Predictions XII*, edited by Mark A. Kahan, Proc. of SPIE 12215, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510654143

ISBN: 9781510654150 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2022 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

12215 02

12215 03

12215 04

12215 05

12215 06

[12215-2]
Axially symmetric retarder with radial retardance modulation [12215-3]
Simulated formation of UV-cured polymer lenses on aqueous substrates [12215-4]
Generating physics-based synthetic data for infrared/electro-optical system analysis and design [12215-27]
Digital camera simulations of thin filaments in non-premixed laminar methane-air coflow flames [12215-5]
STOP

Impact of higher order surface irregularity on system-level wavefront variation across the field

TESTING, PIECE-PART CHARACTERIZATIONS, AND DIGITAL CAMERA SYSTEM SIMULATIONS

	0.0.
12215 07	Subspace identification of low-dimensional Structural-Thermal-Optical-Performance (STOP) models of reflective optics [12215-6]
12215 08	Transient simulation of high-power dynamical-thermoelastic-optical systems [12215-7]
12215 09	Tailoring the stiffness of large mirrors to reduce specific optical aberrations [12215-10]
	RRDE POLARIZATION AND DIFFRACTION THEORY

12215 OB	Evaluation of microfacet BRDF solar cell model modification using experimental data [12215-12]
12215 OC	Determining solar cell BRDF model parameters by fitting to high-resolution out-of-plane measurement data [12215-13]

12215 0D	Simulation of the polarimetric response of a microscopic semitransparent specimen with inner structure [12215-14]
12215 OE	Experiments supporting the momentum exchange theory description for photon diffraction [12215-15]
	SENSORS AND COMMUNICATION
12215 OH	Polymer ring-resonator on a slotted membrane for ultrasound imaging [12215-29]
12215 OJ	Multimodal-capable, multiphoton miniaturized microscope for mice brain imaging [12215-28]
	POSTER SESSION
12215 OK	Spectral characterization of the RST prism assembly bandpass filters [12215-24]
12215 OL	Convolution as a model of the LED irradiance pattern [12215-25]