

PROCEEDINGS OF SPIE

# ***Modeling Aspects in Optical Metrology VIII***

**Bernd Bodermann  
Karsten Frenner**  
*Editors*

**21–25 June 2021  
Online Only, Germany**

*Sponsored by*  
SPIE

*Cooperating Organisations*  
European Optical Society  
German Scientific Laser Society (Wissenschaftliche Gesellschaft Lasertechnik e.V.)

*Published by*  
SPIE

**Volume 11783**

Proceedings of SPIE 0277-786X, V. 11783

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

Modeling Aspects in Optical Metrology VIII, edited by Bernd Bodermann  
Karsten Frenner, Proc. of SPIE Vol. 11783, 1178301 · © 2021 SPIE  
CCC code: 0277-786X/21/\$21 · doi: 10.1117/12.2603205

Proc. of SPIE Vol. 11783 1178301-1

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](http://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 *Modeling Aspects in Optical Metrology VIII*, edited by Bernd Bodermann, Karsten Frenner, Proc. of SPIE 11783, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510644007

ISBN: 9781510644014 (electronic)

Published by

**SPIE**

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

Telephone +1 360 676 3290 (Pacific Time)

[SPIE.org](http://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](http://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](http://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

---

## SCATTERED LIGHT AND GRATINGS

---

- 11783 04 **Semi-analytic modeling of diffraction grating BRDF using scalar Fourier optics** [11783-2]
- 11783 05 **Simulation of the BSDF measurements for scattering materials with GP-200 goniophotometer for light guiding plates** [11783-3]
- 11783 06 **Modeling of optical absorption and scattering of laser radiation in silicone polymers used in fiber optics** [11783-4]
- 11783 07 **Identifying the type of line edge roughness using grazing-incidence x-ray fluorescence** [11783-5]

---

## MODELLING OF OPTICAL SYSTEMS

---

- 11783 08 **Modelling of the photometric balance for two-wavelength spatially multiplexed digital holography (Invited Paper)** [11783-6]
- 11783 09 **Heat dynamics in optical ring resonators** [11783-8]
- 11783 0A **Modelling of transmission for a stack of two Fizeau wedges with matched parameters** [11783-9]

---

## IMAGING SYSTEMS AND MICROSCOPY

---

- 11783 0G **Vectorial 3D modeling of coherence scanning interferometry** [11783-15]

---

## METROLOGY AND ELLIPSOmetry

---

- 11783 0K **Machine learning aided profile measurement in high-aspect-ratio nanostructures** [11783-19]
- 11783 0N **Speed enhancement of interferometric snapshot ellipsometry using a direct filtering phase method** [11783-22]

POSTER SESSION

---

11783 00 **Structural changes in niobium oxide during electron beam evaporation** [11783-23]