

PROCEEDINGS OF SPIE

Optical Instrument Science, Technology, and Applications II

**Nils Haverkamp
Breann N. Sitarski
Richard N. Youngworth**
Editors

**13–17 September 2021
Online Only, Spain**

Sponsored by
SPIE

Cooperating Organisation
SEDOPTICA

Supporting Organisation
INEUSTAR/INDUCIENCIA (Spain)

Published by
SPIE

Volume 11876

Proceedings of SPIE 0277-786X, V. 11876

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

Optical Instrument Science, Technology, and Applications II, edited by Nils Haverkamp,
Breann N. Sitarski, Richard N. Youngworth, Proc. of SPIE Vol. 11876, 1187601
© 2021 SPIE · CCC code: 0277-786X/21/\$21 · doi: 10.1117/12.2615049

Proc. of SPIE Vol. 11876 1187601-1

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 *Optical Instrument Science, Technology, and Applications II*, edited by Nils Haverkamp, Breann N. Sitarski, Richard N. Youngworth, Proc. of SPIE 11876, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510645967

ISBN: 9781510645974 (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

MICROSCOPES AND MEDICAL DEVICES

- 11876 06 **Design of the first lattice light-sheet microscope with incoherent holography (IHLS) detection**
[11876-2]
- 11876 07 **Biosafety cabinet microscope for cell isolation and histology applications** [11876-3]
- 11876 08 **Thermal strain between ultrashort laser pulse and tumor using finite element analysis** [11876-4]

OPTICS CONCEPTS FOR 2D AND 3D IMAGING

- 11876 0A **Optical system with a curved detector for wide-field high-resolution cortical imaging at meso-scale** [11876-6]
- 11876 0B **Compensation of the position errors of optical elements by adapting their additively manufactured mounting structure** [11876-7]

STRUCTURED LIGHT

- 11876 0D **Optical design applied to an effective inactivation of airborne pathogens** [11876-9]
- 11876 0E **Calibration of the complete Jones matrix of SLMs** [11876-10]

INSTRUMENT TECHNOLOGY

- 11876 0H **Current status of PAPHYRUS: the pyramid based adaptive optics system at LAM/OHP** [11876-14]
- 11876 0I **Restoration of light parameters and forming criteria for the quality estimation of visual perception in mixed reality systems using neural networks** [11876-15]
- 11876 0J **A UV spectrograph for the LAPSUS project** [11876-16]
- 11876 0K **Virtual prototyping of BSDF measurements for materials with complex scattering properties**
[11876-17]
- 11876 0L **Inline process refractometer based on image defocusing** [11876-22]

POSTER SESSION

- 11876 OM **Building a mixed reality system free from visual discomfort** [11876-18]
- 11876 OO **Using neuro-accelerators on FPGAs in collaborative robotics tasks** [11876-20]
- 11876 OP **Development of methods for parallel processing of series of images obtained by a machine vision system in various electromagnetic ranges** [11876-21]