PROCEEDINGS OF SPIE

Optics in Health Care and Biomedical Optics XI

Qingming Luo Xingde Li Ying Gu Dan Zhu

10–12 October 2021 Nantong, China

Sponsored by
SPIE
COS—Chinese Optical Society

Cooperating Organizations

Tsinghua University (China) • Peking University (China) • University of Science and Technology of China (China) • Zhejiang University (China) • Tianjin University (China) Beijing Institute of Technology (China) • Beijing University of Posts and Telecommunications (China) • Nankai University (China) • Changchun University of Science and Technology (China) • Capital Normal University (China) • Huazhong University of Science and Technology (China) • Beijing Jiaotong University (China) • China Jiliang University (China) • Shanghai Institute of Optics and Fine Mechanics, CAS (China) • Changchun Institute of Optics, Fine Mechanics and Physics, CAS (China) • Institute of Semiconductors, CAS (China) • Institute of Optics and Electronics, CAS (China) • Institute of Physics, CAS (China) • Shanghai Institute of Technical Physics, CAS (China) • China Instrument and Control Society (China) The Optical Society of Japan (Japan) • Optical Society of Korea (Korea, Republic of) • Australia and New Zealand Optical Society (Australia) • Optics and Photonics Society of Singapore (Singapore) • European Optical Society

Supporting Organizations

China Association for Science and Technology (CAST) (China) • Department of Information of National Nature Science Foundation, China (NSFC) (China)

Published by SPIE

Volume 11900

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 Optics in Health Care and Biomedical Optics XI, edited by Qingming Luo, Xingde Li, Ying Gu, Dan Zhu, Proc. of SPIE 11900, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510646490

ISBN: 9781510646506 (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.

 $\hbox{Publication of record for individual papers is online in the $\tt SPIE\ Digital\ Library.}$



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

	NOVEL MICROSCOPY I
11900 04	Dual DoFP polarimeters based collinear reflection Mueller matrix microscope for fast process monitoring [11900-3]
11900 06	Deep-learning-enhanced lightfield microscopy for capturing instantaneous biological dynamics at high spatiotemporal resolution [11900-5]
11900 07	Depth-recognizable time-domain fluorescence molecular tomography in reflectance geometry [11900-10]
	NOVEL MICROSCOPY II
11900 OD	Depth-dependent microscopic flow imaging with line scan laser speckle acquisition and analysis [11900-49]
	ADVANCED OPTICAL TECHNOLOGIES I
11900 OE	An all-glass microfluidic flow cytometer (Invited Paper) [11900-11]
11900 OG	Quantitatively characterize tissue optical clearing with different agents by Mueller matrix parameters [11900-13]
	ADVANCED OPTICAL TECHNOLOGIES II
11900 OJ	A microfluidic cytometer with integrated on-chip optical systems for white blood cell analysis [11900-16]
11900 OL	Research on evaluation optical parameters of bone thermal injury during microwave ablation [11900-18]
11900 OM	Monitoring dosimetric parameters for vascular-targeted photodynamic therapy [11900-19]
	BIOMEDICAL SPECTROSCOPY
11900 OP	A serum analysis method combining membrane protein purification with surface-enhanced Raman spectroscopy for noninvasive prostate cancer detection [11900-24]

11900 OQ	Quantitative and long-term cell imaging with computational hyperspectral interferometry [11900-25]
11900 OU	Preliminary study of surface-enhanced Raman spectroscopy (SERS) of serum samples of liver cancer patients [11900-29]
11900 OV	Machine-learning-mediated single-cell classification by hyperspectral stimulated Raman scattering imaging [11900-30]
	TRANSLATIONAL OPTICAL TECHNIQUES FOR CLINICAL MEDICINE I
11900 OX	Simulation analysis of mechanical performance of laser catheter in ELCA operation [11900-32]
11900 OZ	Comparison of different light sources for hemoporfin mediated photodynamic activity [11900-34]
11900 10	Multiscale deep-learning network based reconstruction of PET images from sinogram domain [11900-35]
	TRANSLATIONAL OPTICAL TECHNIQUES FOR CLINICAL MEDICINE II
11900 12	Neural network-based quantitative reconstruction of PET without attenuation correction (Invited Paper) [11900-37]
11900 13	A non-invasive diabetes diagnosis method based on novel scleral imaging instrument and AI [11900-38]
	NANOBIOPHOTONICS
11900 18	Screening and sequencing monoclonal antibody at single-cell level [11900-43]
_	PHOTOACOUSTIC IMAGING
11900 1B	Handheld photoacoustic imaging with an articulated arm for light delivery [11900-48]
	POSTER SESSION
11900 1E	Endoscope optical coherence tomography angiography using proximal scanning catheter [11900-22]
11900 1F	Feature extraction of pulse diagnosis signal based on Hilbert yellow transform [11900-51]

11900 11	Surface-enhanced Raman spectroscopy of plasma for the noninvasive differentiation of renal-calculi [11900-54]
11900 1J	Label-free detection of prostate cancer and benign prostatic hyperplasia based on SERS spectroscopy of Plasma [11900-55]
11900 1K	Label-free detection of plasma using surface- enhanced Raman spectroscopy for bladder cancer screening [11900-56]
11900 1M	Distinction of true and fake blood based on near infrared spectroscopy and wavelet neural networks [11900-58]
11900 1N	Uniformity evaluation of renal tubular distribution in the ischemia-reperfusion process based on fractal theory $[11900\text{-}59]$
11900 10	Study on calibration of mask protective effect detector based on precise photometer [11900-60]
11900 1P	Development of handheld optical coherent elastic imaging system [11900-61]
11900 1Q	Corneal nerve fiber segmentation and centerline extraction [11900-62]
11900 1R	In vitro study of YLG-1 mediated photodynamic effect on human cancer cells [11900-63]
11900 1U	Label-free imaging of spinal cords injured tissues with multiphoton microscopy [11900-66]
11900 1V	Detection of liver cancer and prostate cancer by serum surface-enhanced Raman spectroscopy [11900-67]
11900 1W	Tumor vascular feature based on speckle variance optical coherence tomography [11900-68]
11900 1X	Difference analyses for prostate cancer and benign prostate hyperplasia subjects by SERS-based test of urine [11900-69]
11900 1Z	Single mast cell degranulation detection based on FRET probe [11900-71]
11900 20	Field guide for building a broadband CARS system for biomedical applications [11900-72]
11900 21	Configurations on polarized imaging optimization [11900-73]
11900 23	Automated raman cytology for the classification of triple negative breast cancer cell lines [11900-75]
11900 24	Propagation of acousto-optic signal in multi-layer biological tissue by using COMSOL multiphysics [11900-76]
11900 25	Interferometric diffusing speckle contrast imaging (iDSCI) system for monitoring regional cerebral blood flow [11900-77]

11900 28	A convolutional neural network for screening and staging of diabetic retinopathy based on wide-field optical coherence tomography angiography [11900-80]
11900 2B	High-throughput 3D imaging of multiple macro-scale organs at cellular resolution by compressed-sensing light-sheet microscopy [11900-83]
11900 2E	Isotropic divide-stages-to process convolutional neural network enhanced double-ring modulated SPIM microscopy (IDDR-SPIM): achieving 5D super-resolution imaging in live cell [11900-86]
11900 2F	Predicting the effect of changing an optical element in a given Raman micro-spectrometer [11900-87]
11900 2G	Sequentially responsive peptide assembling liposomes integrating photosensitizer and immune drug for enhanced photodynamic/immunotherapy in skin melanoma [11900-88]
11900 2J	Single-cell sorting of marine plankton based on micro-optical tweezers [11900-91]
11900 2K	A feature extraction and classification algorithm for motor imagery EEG signals based on decision tree and CSP-SVM [11900-92]
11900 2S	Real-time evaluation of microwave ablation based on the combination of near-infrared spectroscopy technology and shear wave elastography technology [11900-100]
11900 2U	Quantification of blood flow and oxygen saturation based on multiwavelength diffuse correlation spectroscopy [11900-102]
11900 2V	FI nanoparticles enhanced multimodal near-infrared photoacoustic microscopy and optical coherence tomography imaging of rat choroid [11900-103]
11900 2W	Time serial development of optical performance of the myopic model mouse eyes [11900-104]
11900 2Y	Frequency effects of near-infrared light radiation on the forehead as quantified by EEG measurements [11900-106]
11900 2Z	Using multiphoton microscopy to image the skin of mouse psoriasis model [11900-107]
11900 31	Comparison of vascular imaging capability between photoacoustic imaging and ultrasound microangiography [11900-109]
11900 32	Detection of electrolyte elements in human blood based on laser-induced breakdown spectroscopy [11900-110]
11900 34	Feasibility study of using reduced scattering coefficient as a monitoring and evaluation factor for tumor microwave ablation therapy [11900-112]
11900 35	Label-free multiphoton imaging to rapidly classify the early and late-stage tumor necrosis in invasive breast cancer [11900-113]
11900 36	A spectral-domain model-based method for simultaneous oxygen saturation quantification and contrast agent identification [11900-114]

11900 37	Visualization of collagen morphological changes in transition from tumor to normal tissue in breast cancer by multiphoton microscopy [11900-115]
11900 3A	Photoacoustic blood pressure recognition based on deep learning [11900-118]
11900 3B	Progress in optical coherence tomography in obtaining port wine stains anatomy [11900-119]
11900 3D	SMF tapered fiber/AuNPs/ZnO based sensor for detection of acetylcholine [11900-50]
11900 3E	Simplified gluten detection approach in the presence of a black hole quencher (BHQ) [11900-121]
11900 3G	The role of microenvironment in the mechanisms of fluorescence decay in free and protein-bound NADH [11900-123]
11900 3H	Anisotropic fluorescence decay kinetics in FAD in water-methanol solutions under excitation at 355 and 450 nm $\left[11900\text{-}124\right]$
11900 31	Application of the spectrofluorimetric research method to study the complexes «Pt NPs - platelets» $[11900\text{-}125]$
11900 3J	Raman spectroscopy experimental spectrum analysis for identification in Mycobacterium tuberculosis strains with different drug resistance [11900-126]