

PROCEEDINGS OF SPIE

***Thirteenth International
Conference on Information
Optics and Photonics
(CIOP 2022)***

Yue Yang
Editor

7-10 August 2022
Xi'an, China

Organized by
Chinese Laser Press (China)

Technical Cosponsor and Publisher
SPIE

Volume 12478
Part One of Two Parts

Proceedings of SPIE 0277-786X, V. 12478

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

Thirteenth International Conference on Information Optics and Photonics (CIOP 2022),
edited by Yue Yang, Proc. of SPIE Vol. 12478, 1247801 · © 2022 SPIE
0277-786X · doi: 10.1117/12.2666013

Proc. of SPIE Vol. 12478 1247801-1

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 *Thirteenth International Conference on Information Optics and Photonics (CIOP 2022)*, edited by Yue Yang, Proc. of SPIE 12478, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

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

ISBN: 9781510660632
ISBN: 9781510660649 (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.

**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

xiii *Conference Committee*

Part One

THIRTEENTH INTERNATIONAL CONFERENCE ON INFORMATION OPTICS AND PHOTONICS

- 12478 02 **Simplified scheme for passive decoy-state reference-frame-independent quantum key distribution** [12478-1]
- 12478 03 **High-power prototype optical enhancement cavity design for steady-state microbunching** [12478-3]
- 12478 04 **Multi-band terahertz absorption structure based on nonpolarized metamaterial** [12478-4]
- 12478 06 **Research on spatial error calibration method of CNC machine tool based on laser tracker** [12478-6]
- 12478 07 **Low threshold optomechanically induced bistability based on suspended metasurface** [12478-7]
- 12478 08 **High-precision surface form measurement of meter-scale optical flat** [12478-8]
- 12478 09 **Phase delay calibration of optimization method in phase modulated ellipsometry** [12478-9]
- 12478 0A **Research on rough surface heterodyne detection signal and scattered beat signal** [12478-12]
- 12478 0B **The complex refractive index of the target material is derived from the reflectivity spectrum of the target material** [12478-18]
- 12478 0C **Performance analysis of super multi-view based near-eye light field displays based on Gaussian beam** [12478-22]
- 12478 0D **Vision based weld seam localization method for axle housing automatic welding** [12478-25]
- 12478 0E **Estimation of smoke echo signal using single-photon lidar** [12478-26]
- 12478 0F **Quantum key distribution performance analysis under different condition of boundary layer** [12478-27]
- 12478 0G **A low complexity large-scale MIMO detection algorithm for MDL-impaired fiber mode division multiplexing transmission** [12478-28]
- 12478 0H **Microwave photonic channelization technology for ultra-wideband measurement control and communication** [12478-29]

- 12478 OI **Research on enhancement of image effect of silicon-based near infrared detector based on up-conversion material by cascade material fusion method** [12478-30]
- 12478 OJ **Femtosecond laser-induced graphene** [12478-33]
- 12478 OK **Shack-Hartmann wavefront reconstruction speed up with embedded GPU** [12478-35]
- 12478 OL **Experimental verification of multi-core optical transmission based on code division multiplexing DAPSK-OFDM modulation** [12478-36]
- 12478 OM **Eye-friendly color filter with angle-invariant and near-infrared shielding** [12478-40]
- 12478 ON **Research on automatic measurement of photoelectric performance for scientific-grade CCD detector** [12478-41]
- 12478 OO **Trusted authentication mechanism based on dual authentication architecture in industrial IOT-based optical access network** [12478-42]
- 12478 OP **Determination of glucose solution concentration by laser confocal Raman spectroscopy** [12478-43]
- 12478 OQ **Tunable condensed phase with a h-shaped envelop in a mode-locked fiber laser based on nonlinear multimodal interference technique** [12478-46]
- 12478 OR **12.7 W, 2 kHz discrete path Nd:YAG Innoslab amplifier** [12478-47]
- 12478 OS **The special use of ghost image in null testing the large aperture aspherical mirrors** [12478-48]
- 12478 OT **High power laser diode emitted at 2 μ m** [12478-49]
- 12478 OU **Experimental research on overshoot pump modulated quasi-CW thulium-doped fiber laser around 1940 nm** [12478-51]
- 12478 OV **R & D of high-power optical cavity at Tsinghua** [12478-53]
- 12478 OW **Multichannel fiber-based simultaneous neural stimulation and signal readout in vivo** [12478-54]
- 12478 OX **Effects of different interpolation methods on imaging quality of (SS-OCT) system** [12478-55]
- 12478 OY **Design of off-axis and co-axial achromatic bifocal metalens** [12478-56]
- 12478 OZ **Research on photonic RF memory technology with large storage capability** [12478-57]
- 12478 10 **Passively Q-switched erbium-doped fiber laser based on carbon nanotube saturable absorber** [12478-58]

- 12478 1I **Equivalent circuit model analysis and parameter extraction of DFB semiconductor laser based on rate equations** [12478-62]
- 12478 12 **Propagation of finite array airy beam in Fabry-Perot resonator with misaligned slab system** [12478-63]
- 12478 14 **Reliability investigation of Mueller matrix imaging polarimeter in identifying cervical intraepithelial neoplasia** [12478-65]
- 12478 15 **Absolute phase retrieval based on the sinusoidal codewords** [12478-67]
- 12478 16 **Design of wide field of view and broad spectrum objective system for terahertz imaging** [12478-70]
- 12478 17 **Superhydrophobic photothermal MXene composite film for light-driven films** [12478-72]
- 12478 18 **Reflection matrix image reconstruction method based on low coherence interferometer** [12478-73]
- 12478 19 **Multi-band microwave vector signal generation and transmission for mobile fronthaul networks** [12478-74]
- 12478 1A **Effects of aspheric lens parameters on the coupling efficiency of fiber with Gaussian pulsed laser** [12478-75]
- 12478 1B **Ultra-compact right-angle curved waveguide optical modulator based on vanadium dioxide** [12478-76]
- 12478 1C **A segmentation algorithm for train wheel tread defect area based on attention mechanism** [12478-78]
- 12478 1D **Hourglass stereo matching network** [12478-83]
- 12478 1E **Survivable RMSA combined with QoT estimation and fault prediction in multi-band elastic optical networks** [12478-87]
- 12478 1F **Photonic sensor based on mode-split-resonances of weak ring-waveguide coupled microresonator** [12478-88]
- 12478 1G **Advanced optical modulation formats identification and signal-to-noise-ratio estimation based on VGG16** [12478-89]
- 12478 1H **An attention-based residual neural network for deformable image registration** [12478-91]
- 12478 1I **DEEP convolutional neural network of microscopy images for pearl defects detection** [12478-94]
- 12478 1J **Simulation for the effects of optical aberrations on the depletion patterns of STED microscopy using Zernike polynomials** [12478-95]

- 12478 1K **Study on the optically tunable negative refractive terahertz metamaterials** [12478-96]
- 12478 1L **Measurement of the differences between derivatives of typical signal pulses and standard UWB signal waveforms** [12478-98]
- 12478 1M **The comparison between the local and nonlocal entangled wavelength to time mapping** [12478-99]
- 12478 1N **Synthetic training datasets generating for fringe projection profilometry based on deep learning** [12478-101]
- 12478 1O **High aspect ratio dry etching of AlGaAs by segmented processing and in-situ sidewall passivation** [12478-102]
- 12478 1P **Ultrafast optical limiting based on non-degenerate two-photon absorption in Ga₂O₃ single crystal** [12478-104]
- 12478 1Q **MSA: an end-to-end scene text spotter with mask-supervised-attention** [12478-106]
- 12478 1R **Integration of metrology in the manufacturing processes with smart control systems** [12478-107]
- 12478 1S **High precision time-frequency transfer based on all-digital coherent demodulation** [12478-110]
- 12478 1T **Pump optimization experiments of all-fiber few-mode erbium-doped fiber amplifiers for low differential mode gain** [12478-111]
- 12478 1U **Study on scattering spectral imaging of GEO targets in ground-based measurement** [12478-115]
- 12478 1V **A fast and accurate recognition method for low-cost intensity-demodulated fiber-optic Distributed Vibration Sensor (DVS)** [12478-116]
- 12478 1W **A cost-effective real-time distributed computing platform with apache spark structured streaming for DAS** [12478-119]
- 12478 1X **Photo-induced damage mechanism of photovoltaic array HgCdTe detector** [12478-120]
- 12478 1Y **Optical parametric loop mirror with adjustable reflectivity by using tunable optical attenuators** [12478-122]
- 12478 1Z **Laser damage resistance analysis of liquid crystal devices based on ITO or GaN transparent electrode** [12478-127]
- 12478 20 **Numerical study on optical solitons dynamics in mode-locked figure-9 fiber laser** [12478-128]
- 12478 21 **The design of a beam shaping lens with flat surfaces and ultra-thin thickness to convert a Gaussian beam to a top-hat beam** [12478-131]
- 12478 22 **Image error correction in x-ray phase contrast imaging by convolutional neural networks** [12478-132]

- 12478 23 **Interaction between anticancer drug bendamustine and calf thymus DNA with spectroscopy at the single-molecule level** [12478-134]
- 12478 24 **Optical fiber dispersion measurements based on spectral shaping and frequency-to-time mapping** [12478-135]
- 12478 25 **Gain equalization of few-mode fiber amplifier based on particle swarm optimization** [12478-137]
- 12478 26 **Simulation of erbium ytterbium co-doped fiber laser based on 'SeeFiberLaser' fiber laser simulation software** [12478-138]
- 12478 27 **Calibration method of relative pose between monopulse rangefinder and visible light array camera** [12478-140]

Part Two

- 12478 28 **Breast cancer classification from histopathological images using transformers** [12478-141]
- 12478 29 **High linearity optical delay line based on cascaded multimode waveguide Bragg gratings** [12478-142]
- 12478 2A **Comparison of single-shot memory-effect-based scattering imaging through incoherent and coherent illumination** [12478-145]
- 12478 2B **Beam spreading and scintillation of perfect vortex beam propagating in atmospheric turbulence** [12478-146]
- 12478 2C **Hybrid integrated self-injection locked narrow linewidth laser based on feedback tunable silicon nitride micro-ring resonator** [12478-147]
- 12478 2D **Spot-scanning laser scattering system for defects detection of wafer surface** [12478-149]
- 12478 2E **Fiber optic sensors for seismic wave detection** [12478-150]
- 12478 2F **Detection of reagent residue on unpolished wafer surface using spot scanning surface inspection system** [12478-151]
- 12478 2G **2.23 μm hollow-core fiber gas laser source** [12478-152]
- 12478 2H **Zirconium pentatelluride saturable absorber for solid-state ultrafast lasers** [12478-154]
- 12478 2I **Design and calibration of an optical system for interstellar dust particle size measurement** [12478-155]
- 12478 2J **3.5 kW narrow-linewidth FBG-based MOPA fiber lasers with high signal to noise ratio** [12478-156]
- 12478 2K **Enhancement on extraction efficiency of quantum cascade detectors utilizing localized built-in electric field** [12478-157]

- 12478 2L **1200 W monolithic all-fiber laser with fs-written fiber Bragg gratings and side-pumping coupler** [12478-158]
- 12478 2N **Modeling and simulation of laser active imaging system based on APD detector** [12478-160]
- 12478 2O **PEENet for phase unwrapping in fringe projection profilometry** [12478-163]
- 12478 2P **Comparative study on transverse mode instability of few-mode fiber laser amplifier under different bending diameters** [12478-166]
- 12478 2Q **Atmospheric influence on computational ghost imaging semi-active laser detection system** [12478-167]
- 12478 2R **Fiber ring cavity laser based on cascading two peanut-shape structures for liquid level measurement** [12478-169]
- 12478 2S **Laser composite fabrication of super-wetting membrane with micro square hole-nanowire structure for oil-water separation** [12478-173]
- 12478 2T **High precision surface form measurement of meter-scale optical flat** [12478-174]
- 12478 2U **Study on scattering characteristics of zirconia ablated particles** [12478-175]
- 12478 2V **Improved Curtis-Godson approximation method for infrared optical radiation properties prediction of high-temperature combustion system** [12478-176]
- 12478 2W **Study on space/frequency domain response mechanism of optical synthetic aperture imaging system** [12478-180]
- 12478 2X **Study on He atmospheric pressure plasma jet based on spectral diagnostics** [12478-181]
- 12478 2Y **Epipolar image generation on vehicle-based sequence images based on fundamental matrix** [12478-182]
- 12478 2Z **Experimental study on realizing blind micro-grooves on the surface of an aluminum sheet using two nanosecond lasers** [12478-183]
- 12478 30 **Heterogeneously coupled waveguides for pure single photon generation** [12478-184]
- 12478 31 **Error analysis of rapid Stokes polarimetric imaging with circularly polarized illumination** [12478-188]
- 12478 32 **Sorting transverse and longitudinal plasmonic fields by a structure of metal-nanoparticle-on-film** [12478-191]
- 12478 33 **Characterization temperature study of NO ($A_2\Sigma^+$) ultraviolet radiation under non-equilibrium condition** [12478-196]
- 12478 34 **Investigation on earth background radiation intensity in infrared band of meteorological data in typical area** [12478-197]

- 12478 35 **Optical fiber ultrasonic nondestructive testing based on frequency modulated continuous wave** [12478-199]
- 12478 36 **Image segmentation for night-vision surveillance camera based on deep learning** [12478-201]
- 12478 37 **New method to characterize Sb segregation in InAs/GaSb superlattice** [12478-202]
- 12478 38 **Effects of cirrus clouds on atmospheric background radiation and transmittance** [12478-204]
- 12478 39 **Small-scale refractive index sensing based on coreless microfiber operating near the turning around point** [12478-205]
- 12478 3A **A double closed-loop frequency stabilization method for longitudinal Zeeman laser** [12478-206]
- 12478 3B **Compact optical mode and polarization filtering devices based on subwavelength gratings on a lithium niobate on insulator platform** [12478-207]
- 12478 3C **1.3- μm InAs/GaAs quantum dot superluminescent diodes based on curved waveguide** [12478-209]
- 12478 3D **Design and research of high speed underwater RoFSO link** [12478-210]
- 12478 3E **A new method to handle rack vibration in FSO for data center** [12478-211]
- 12478 3F **Design and research of a fiber Bragg grating accelerometer with L-shaped beam structure** [12478-212]
- 12478 3G **Improving the processing quality of transparent glass with a tripartite-interaction procedure** [12478-214]
- 12478 3H **Design and research of reconfigurable wireless optical communication link based on tunable laser** [12478-215]
- 12478 3I **Microwave photonics self-interference cancellation and frequency down-conversion for distributed full duplex communication systems** [12478-216]
- 12478 3J **Sensitivity-enhanced refractive index sensor based on exposed-core single-hole microstructured fiber** [12478-217]
- 12478 3K **The SNR characteristics of quantum microwave photonics in radio-over-fiber systems** [12478-220]
- 12478 3L **High noise-resistant slope and curvature signal extraction algorithm in frequency domain for the Shack-Hartmann wavefront sensor** [12478-226]
- 12478 3M **Research on sub-optimal detection algorithm based on mode division multiplexing system** [12478-227]
- 12478 3N **2.6 kW \times 2 high power bidirectional output fiber laser oscillator** [12478-229]

- 12478 3O **Metalens polarization beam splitter based on fiber end face** [12478-230]
- 12478 3P **Using FLIM to reveal acute responses to high salinity in *Chlorella* sp.** [12478-232]
- 12478 3Q **Single-shot ptychography based on spatial light modulator multi-angle modulation** [12478-236]
- 12478 3R **Design and characteristics of square-assisted ring-core fiber for mode space degenerate modulating** [12478-237]
- 12478 3S **A coupled multi-core fiber with selective erbium ion doping for gain equalization** [12478-238]
- 12478 3T **Novel optical fiber assisting computing power network construction** [12478-239]
- 12478 3U **Theoretical study on the thermal effects in plane-parallel resonators of alexandrite crystal lasers** [12478-240]
- 12478 3V **High-precision registration algorithm of variable scale heterogeneous point clouds based on intrinsic shape signatures features** [12478-241]
- 12478 3W **FLIM as an identification tool for stress responses in mussel *Mytilus galloprovincialis* under cadmium exposure** [12478-242]
- 12478 3X **Study on the influence of longitudinal pump distribution on thermal lens effect of side-pumped rod lasers** [12478-243]
- 12478 3Y **High precision and fast measurement techniques of structural defects for large laser optics** [12478-244]
- 12478 3Z **Realization of the dynamic tunable for the vector vortex beams based on cascaded metasurfaces and liquid crystal phase retarder** [12478-246]
- 12478 40 **Experimental verification of EGN model in 11-THz C+L broadband 400G real-time transmission with digital sub-carrier multiplexing** [12478-249]
- 12478 41 **The study of broadband circular polarizer based on double-helix chiral fiber long period grating** [12478-250]
- 12478 42 **Spectral efficient Rayleigh interference pattern demodulation technique based on two-dimensional image cross-correlation algorithms for COTDR sensors** [12478-254]
- 12478 43 **Review of overlay error and controlling methods in alignment system for advanced lithography** [12478-255]
- 12478 44 **Longitudinal cascaded few mode erbium-doped fibers using PSO method with ultra-low differential modal gain** [12478-256]
- 12478 45 **Non-invasive identification of apple sugar content based on convolutional neural networks** [12478-257]
- 12478 46 **Polymer-functionalized Si₃N₄ waveguide Mach-Zehnder interferometer for hazardous pyridine vapor sensing** [12478-258]

- 12478 47 **Screening and testing methods of short-wave infrared area array detectors for synchronous monitoring atmospheric corrector** [12478-259]
- 12478 48 **Hybrid Si₃N₄/electro-optic polymer waveguide Mach-Zehnder interferometer for high-speed electro-optic switching** [12478-260]
- 12478 49 **Large mode area saddle-shaped core Yb-doped fiber enabled monolithic high-power, high-efficiency, near-diffraction-limited MOPA laser** [12478-261]
- 12478 4A **Highly birefringent cladding fiber Bragg grating for simultaneous torsion and strain sensing at high temperature** [12478-262]
- 12478 4B **Detection of vortex beams based on mutual interference** [12478-263]
- 12478 4C **Time-interleaved sampling analog-to-digital conversion utilizing photonic radio frequency memory** [12478-264]
- 12478 4D **Influence of beam divergence on Michelson interferometer** [12478-265]
- 12478 4E **Infrared image enhancement technology based on human visual characteristics and adaptive side window bilateral filter** [12478-266]
- 12478 4F **Target synchronous measurement based on refractive index change imaging** [12478-267]
- 12478 4G **A self-synchronization scheme of optical-optical pulses based on the nonlinear wavelength conversion in fibers in FEL facilities** [12478-268]
- 12478 4H **Fourth harmonic generation characteristics of post-compressed ultrashort pulses** [12478-269]
- 12478 4I **Design of multi-wavelength demultiplexing coupler based on DBS algorithm** [12478-270]
- 12478 4J **Defocusing detection of high-speed imaging for samples with arbitrary pattern structures** [12478-274]
- 12478 4K **Ultra-high-temperature sensor based on sapphire fiber Bragg grating** [12478-275]
- 12478 4L **Non-dispersive optical gas sensing based on free-running fiber laser frequency comb with a narrowband filter** [12478-276]
- 12478 4M **Passively mode-locked Nd: u0.15Y0.85VO₄ laser based on a two-dimensional tin disulfide saturable absorber** [12478-277]
- 12478 4N **Study of 100 meters laser ranging with a non-optical interferometry** [12478-278]

Conference Committee

Conference Chair

Min Gu, University of Shanghai for Science and Technology (China)
Jianlin Zhao, Northwestern Polytechnical University (China)

Technical Program Committee Chairs

Zhiyi Wei, Institute of Physics, CAS (China)
Juergen Popp, Friedrich Schiller University Jena (Germany)
Chengwei Qiu, National University of Singapore (Singapore)

Steering Committee

Zhiping (James) Zhou, Peking University (China)
Liangcai Cao, Tsinghua University (China)
Feng Chen, Shandong University (China)
Xianfeng Chen, Shanghai Jiao Tong University (China)
Sen Han, University of Shanghai for Science and Technology (China)
Yanqing Lu, Nanjing University (China)
Zhichuan Niu, Institute of Semiconductors, CAS (China)
Shilong Pan, Nanjing University of Aeronautics and Astronautics (China)
Li Pei, Beijing Jiaotong University (China)
Jianrong Qiu, Zhejiang University (China)
Junle Qu, Shenzhen University (China)
Ming Tang, Huazhong University of Science and Technology (China)
Limin Tong, Zhejiang University (China)
Xiangzhao Wang, Shanghai Institute of Optics and Fine Mechanics, CAS (China)
Baoli Yao, Xi'an Institute of Optics and Precision Mechanics, CAS (China)
Jianlin Zhao, Northwestern Polytechnical University (China)

Subcommittee 1. Light-Matter Interactions

Feng Chen, Xi'an Jiaotong University (China)
Xiaowei Li, Beijing Institute of Technology (China)
Yongfeng Lu, University of Nebraska-Lincoln (United States)
Dong Wu, University of Science and Technology of China (China)
Lingling Huang, Beijing Institute of Technology (China)
Koji Sugioka, Riken (Japan)
Xinwei Wang, Iowa State University (United States)

Wei Xiong, Huazhong University of Science and Technology (China)
Yonglai Zhang, Jilin University (China)

Subcommittee 2. Plasmonics and Metamaterials

Hui Liu, Nanjing University (China)
C. T. Chan, Hong Kong University of Science and Technology, Hong Kong (China)
Zhi Hong Hang, Soochow University (China)
Yuri Kivshar (Australia)n National University (Australia)
Din Ping Tsai, City University of Hong Kong, Hong Kong (China)
Hong Chen, Tongji University (China)
Xiaoyong Hu, Peking University (China)
Jensen Li, The Hong Kong University of Science and Technology, Hong Kong (China)
Zhiyuan Li, South China University of Technology (China)
Dragomir Neshev, The Australian National University (Australia)
Min Qiu, Westlake University (China)
Shuang Zhang, The University of Hong Kong, Hong Kong (China)
Lei Zhou, Fudan University (China)

Subcommittee 3. Ultrafast and Nonlinear Phenomena

Zhiyi Wei, Institute of Physics, CAS (China)
Guoqing Chang, Institute of Physics, CAS (China)
Yuxin Leng, Shanghai Institute of Optics and Fine Mechanics, CAS (China)
Jiro Itatani, The University of Tokyo (Japan)
Jiangfeng Zhu, Xidian University (China)
Yuxi Fu, Xi'an Institute of Optics and Precision Mechanics of CAS (China)
Shu-Wei Huang, University of Colorado Boulder (United States)
Yu-Chieh Lin, RIKEN (Japan)
Weiwei Liu, Nankai University (China)
Jian Wu, East China Normal University (China)
Guoqiang Xie, Shanghai Jiao Tong University (China)
Xiaoshi Zhang, Aerospace Information Research Institute, CAS (China)

Subcommittee 4. Solid State, Fiber, and Other Laser Sources

Zhichuan Niu, Institute of Semiconductors, CAS (China)
Huiyun Liu, University College London (United Kingdom)
Xisheng Ye, Shanghai Institute of Optics and Fine Mechanics, CAS (China)
Baile Chen, Shanghai Tech University (China)
Zhibiao Hao, Tsinghua University (China)
Chongyang Liu, Nanyang Technological University, (Singapore)

Yunfeng Qi, Shanghai Institute of Optics and Fine Mechanics, CAS (China)
Mengmeng Tao, Northwest Institute of Nuclear Technology (China)
Cunzhu Tong, Changchun Institute of Optics, Fine Mechanics and Physics, CAS (China)
Ting Wang, Institute of Physics, CAS (China)

Subcommittee 5. Silicon Photonics

Yikai Su, Shanghai Jiao Tong University (China)
Haoshuo Chen, Nokia Bell Labs (United States)
Daoxin Dai, Zhejiang University (China)
Xi Xiao, National Optoelectronics Innovation Center (China)
Wenfu Zhang, Xi'an Institute of Optics and Precision Mechanics (China)
Qixiang Cheng, University of Cambridge (United Kingdom)
Guangwei Cong, National Institute of Advanced Industrial Science and Technology (Japan)
Juejun (JJ) Hu, Massachusetts Institute of Technology (United States)
Yonghui Tian, Lanzhou University (China)
Xingjun Wang, Peking University (China)
Chunlai Xue, Institute of Semiconductors, CAS (China)

Subcommittee 6. Microwave Photonics

Shilong Pan, Nanjing University of Aeronautics and Astronautics (China)
Antonella Bogoni, Sant'Anna School of Advanced Studies (Italy)
Jianguo Liu, Institute of Semiconductors, CAS (China)
Xiaoping Zheng, Tsinghua University (China)
Fabien Bretenaker, University of Paris-Sud (France)
Lawrence Chen, McGill University, Canada
Wangzhe Li, Aerospace Information Research Institute (China)
Xuan Li, Airforce Engineering University (China)
Deepa Venkitesh, Indian Institute of Technology Madras (India)
Weifeng Zhang, Beijing Institute of Technology (China)
Weiwu Zou, Shanghai Jiaotong University (China)

Subcommittee 7. Micro and Nanophotonics

Yidong Huang, Tsinghua University (China)
Qihua Xiong, Tsinghua University (China)
Lan Yang, Washington University in St. Louis (United States)
Feng Li, Xi'an Jiaotong University (China)
Xiangping Li, Jinan University (China)
Xinfeng Liu, The National Center for Nanoscience and Technology (China)

Renmin Ma, Peking University (China)
Shumin Xiao, Harbin Institute of Technology (China)

Subcommittee 8. Optical Materials

Jianrong Qiu, Zhejiang University (China)
Sergei Firstov, Academy of Russian Sciences (Russia)
Matthieu Lancry, Universite-Paris-Saclay (France)
Hirokazu Masai, National Institute of Advanced Industrial Science and Technology (AIST) (Japan)
Yong Gyu Choi, Korea Aerospace University (Republic of Korea)
Renren Deng, Zhejiang University (China)
Guoping Dong, South China University of Technology (China)
Jiang Li, Shanghai Institute of Ceramics, CAS (China)
Chonggeng Ma, Chongqing University of Posts and Telecommunications (China)
Zhiguo Xia, South China University of Technology (China)
Jiayue Xu, Shanghai Institute of Technology (China)

Subcommittee 9. Optical Measurement and Metrology

Xiangzhao Wang, Shanghai Institute of Optics and Fine Mechanics, CAS (China)
Takamasa Suzuki, Niigata University (Japan)
Rihong Zhu, Nanjing University of sciences and technology (China)
Yang Bu, Shanghai Institute of Optics and Fine Mechanics, CAS (China)
Sen Han, University of Shanghai for Science and Technology (China)
Sikun Li, Shanghai Institute of Optics and Fine Mechanics, CAS (China)
Yanqiu Li, Beijing Institute of Technology (China)
Jingquan Lin, Changchun University of Science and Technology (China)
Shiyuan Liu, Huazhong University of Science and Technology (China)
Yuejing Qi, Institute of Microelectronics of the Chinese Academy of Sciences (China)
Qican Zhang, Sichuan University (China)

Subcommittee 10. Infrared and Terahertz Technologies

Yan Zhang, Capital Normal University (China)
Qijie Wang, Nanyang Technological University, (Singapore)
Chao Zhang, University of Wollongong (Australia)
Wenhui Fan, Xi'an Institute of Optics and Precision Mechanics, CAS (China)
Lei Hou, Xi'an University of Technology (China)
Hua Li, Shanghai Institute of Microsystem and Information Technology, CAS (China)

Harald Schneider, Helmholtz-Zentrum Dresden Rossendorf (Germany)
Masahiko Tani, University of Fukui (Japan)
Jinghua Teng, IMRE, A*STAR (Singapore)
Qiyue Wen, University of Electronic Science and Technology of China
(China)
Xinlong Xu, Northwest University (China)
Liguo Zhu, Academy of Engineering Physics (China)

Subcommittee 11. Optical Imaging, Display, and Storage

Liangcai Cao, Tsinghua University (China)
Ting-Chung Poon, Virginia Tech (United States)
Guohai Situ, Shanghai Institute of Optics and Fine Mechanics, CAS
(China)
Xiaodi Tan, Fujian Normal University (China)
Baoli Yao, Xi'an Institute of Optics and Precision Mechanics, CAS
(China)
Qionghua Wang, Beihang University (China)
Tomasz Kozacki, Warsaw Univ of Technology (Poland)
Xiangping Li, Jinan University (China)
Yang Li, Tsinghua University (China)
Jinyang Liang, INRS, Canada
Juan Liu, Beijing Institute of Technology (China)
Jung-Ping Liu, Feng Chia University, Taiwan (China)
Dan Oron, Weizmann Institute of Science (Israel)
Xinzhu Sang, Beijing University of Posts and Telecommunications
(China)
Xiaopeng Shao, Xidian University (China)
Jun Tanida, Osaka University (Japan)
Chao Zuo, Nanjing University of Science and Technology (China)

Subcommittee 12. Optical Communications and Networks

Ming Tang, Huazhong University of Science and Technology (China)
Yi Cai, Soochow University (China)
Satoshi Shinada, National Institute of Information and
Communications Technology (NICT) (Japan)
Hussam Batshon, NEC Laboratories America, Inc. (United States)
Lei Deng, Huazhong University of Science and Technology (China)
Fan Li, Sun Yat-sen University (China)
Liangchuan Li, Huawei Technologies (China)
Rui Lin, Chalmers University of Technology (Sweden)
Zhixin Liu, University College London (United Kingdom)
Tianshu Wang, Changchun University of Science and Technology
(China)
Liangming Xiong, Yangtze Optical Fibre and Cable Company Ltd.
(China)

Fan Zhang, Peking University (China)
Junwen Zhang, Fudan University (China)
Jian Zhao, South China University of Technology (China)
Yongli Zhao, Beijing University of Posts and Telecommunications
(China)
Qunbi Zhuge, Shanghai Jiaotong University (China)

Subcommittee 13. Optical Fiber and Waveguide Technologies

Li Pei, Beijing Jiaotong University (China)
Jiangbing Du, Shanghai Jiaotong University (China)
Fufei Pang, Shanghai University (China)
Qizhen Sun, Huazhong University of Science and Technology (China)
Jianping Li, Guangdong University of Technology (China)
Changrui Liao, Shenzhen University (China)
Qingwen Liu, Shanghai Jiao Tong University (China)
Long Jin, Jinan University (China)
Zinan Wang, University of Electronic Science and Technology of China
(China)
Baojian Wu, University of Electronic Science and Technology of China
(China)
Mingjiang Zhang, Taiyuan University of Technology (China)

Subcommittee 14. Biophotonics and Optofluidics

Junle Qu, Shenzhen University (China)
Puxiang Lai, Hong Kong Polytechnic University (China)
David Li, University of Strathclyde (United Kingdom)
Zhen Yuan, University of Macau (China)
Xueli Chen, Xidian University (China)
Anderson Gomes, Universidade Federal of Pernambuco (Brazil)
Changhui Li, Peking University (China)
Liwei Liu, Shenzhen University (China)
Liming Nie, Guangdong Academy of Medical Sciences (China)
Cuiping Yao, Xi'an Jiaotong University (China)
Renjie Zhou, Chinese University of Hong Kong, Hong Kong (China)

Subcommittee 15. Optical Sensors and Systems

Tao Zhu, Chongqing University (China)
Yanhua Luo, University of New South Wales (Australia)
Fei Xu, Nanjing University (China)
George Y. Chen, Shenzhen University (China)
Qingwen Liu, Shanghai Jiao Tong University (China)
Huilian Ma, Zhejiang University (China)
Wei Ren, The Chinese University of Hong Kong, Hong Kong (China)
Kwang-Yong Song, Chung-Ang University (South Korea)

Subcommittee 16. Atomic Physics, Quantum Photonics, and Quantum Information

Wei Zhang, Tsinghua University (China)

Jin Liu, Sun Yat-Sen University (China)

Xiaolong Su, Shanxi University (China)

Zhiliang Yuan, Beijing Academy of Quantum Information Sciences (China)

Yin Cai, Xi'an Jiaotong University (China)

Bing Qi, Cisco Systems (United States)

Ryosuke Shimizu, The University of Electro-Communications (Japan)

Jianwei Wang, Peking University (China)

Guoyong Xiang, University of Science and Technology of China (China)

Zhiyuan Zhou, University of Science and Technology of China (China)

