The 24th International Conference on Optical Communications and Networks (ICOCN 2026)

July 20-23, 2026

Xining Sapphire Hotel, Xining, China

Table of Contents

Welcome to the 24th International Conference on Optical Communications and Networks

It is a great pleasure to invite you to participate in the 24th International Conference on Optical Communications and Networks (ICOCN2026) and share the latest news in communications and photonics science, technology and innovations from leading universities, research laboratories and companies throughout the world. ICOCN has been held annually tracing back to 2002. It is now one of the largest international conferences on optical communications, photonics and relevant technologies.

ICOCN2026 features plenary, keynote, invited, and contributed talks by leading international researchers from academia and industry. This year's conference will address the following topics: Optical fibers and fiber-based devices; Optical transmission systems, subsystems and technologies; Networks architectures, management and applications; Optoelectronic integration and devices; Optical signal processing and microwave photonics; Optical measurements and imaging; Ultrafast photonics and nonlinear optics; Free space communications; Optoelectronics based on organic and nanostructured materials; Machine learning for photonics and communications; Intelligent optoelectronics and emerging photonic architectures; Optical biosensors, imaging and theranostics; Advanced optoelectronic functional materials and flexible photonic devices.

ICOCN2026's comprehensive, high-quality program offers the perfect platform to discover emerging research trends and connect with the leaders driving these innovations. We have over 500 presentations scheduled, including 3 plenary speeches and 300 keynote & invited talks given by many of the world's most prominent researchers from academia and industry. We thank all the contributors and authors for making ICOCN2026 a truly unique, outstanding global event.

There will be one plenary session and 60 regular technical sessions. The plenary session is scheduled on the morning of Tuesday, 21th July. 3 distinguished speakers will give presentations: Prof. P.K. Alex Wai from Hong Kong Baptist University will present on Highly coherent swept lasers and their applications. Prof. Gilberto Brambilla from University of Southampton will talk on Distributed acoustic sensing for earthquake monitoring. Prof. Lei Wei from Nanyang Technological University, Singapore, will report on Advanced functional fibers for a human-centric digital society.

Young Scientist Awards will be given to 2 young researchers with the age no more than 40 by the conference date who make outstanding contributions and present on our conference. In addition, 10 Best Student Paper Awards and 10 Best Poster Awards will be selected by the Technical Committee or expert panel during the conference. All these awards will be presented during the conference banquet on the evening of Wednesday, 22 July. In addition to the technical program, there will be impressive exhibitions from the relevant industries, publishers and professional organizations.

We have also prepared a rich social program to facilitate meeting and networking with colleagues from so many universities and cities. On the evening of Wednesday, 22 July, the Banquet and Awards Ceremony will be held for all conference registrants. Lucky-draw will be carried out for those who help us select the Best Poster Award by submitting the award ticket.

It is an enormous task to organize a conference and it is impossible to succeed without the dedicated efforts of many supporters and volunteers. We are indebted to the entire Technical Program Committee and the Subcommittee Chairs who have worked persistently throughout the whole year to invite speakers, solicit and review papers, organize the technical sessions which results in the excellent technical program. We thank the staff and volunteers from Qinghai Univ., Qinghai Institute of Technology, and Guangdong Univ. of Technology. We also thank the IEEE Photonics Society, IEEE Guangzhou Section, IEEE Photonics Society Guangdong Chapter for sponsoring the event.

Sincerely,

Ping Shum
Southern Univ. Sci. Tech.
General Chair

Xinyong Dong
Guangdong Univ. Technol.
General Chair

Committees

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Xinyong Dong, Guangdong Univ. of Tech., China

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Subcommittees

Track 1: Optical fibers and fiber-based devices

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Anbang Wang, Taiyuan Univ. of Tech., China
Yiping Wang, Shenzhen Univ., China
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Minghong Yang, Wuhan Univ. Tech., China
Xia Yu, Beijing Univ. of Aero. and Astro., China
Han Zhang, Shenzhen Univ., China
Jianzhong Zhang, Harbin Engineering Univ., China
Mingjiang Zhang, Taiyuan Univ. of Tech., China
Guiyao Zhou, South China Normal Univ., China
Tao Zhu, Chongqing Univ., China

Track 2: Optical transmission systems, subsystems and technologies

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Shanguo Huang, Beijing Univ. of Posts and Tel., China
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Borui Li, Huawei Technologies Co., Ltd., China
Zhengxuan Li, Shanghai Univ., China
Bo Liu, Nanjing Univ. of Info. Sci. and Tech., China
Yong Liu, Univ. of Electronic Sci. and Tech. of China, China
Xiurong Ma, Tianjing Univ. of Tech., China
Keiichi Matsumoto, NEC Corporation, Japan
Itsuro Morita, KDDI Research, Japan
Periklis Petropoulos, Univ. of Southampton, UK
Ben Puttnam, NICT, Japan
Georg Rademacher, NICT, Japan
Ming Tang, Huazhong Univ. of Sci. and Tech., China
Jian Wu, Beijing Univ. of Posts and Tel., China
Kun Xu, Beijing Univ. of Posts and Tel., China
Fatih Yaman, NEC Laboratories, USA
Lianshan Yan, Southwest Jiaotong Univ., China
Qi Yang, Huazhong Univ. of Sci. and Tech., China
Xingwen Yi, Sun Yat-sen Univ., China
Fan Zhang, Peking Univ., China

Track 3: Networks architectures, management and applications

Jie Zhang, Beijing Univ. of Posts and Tel., China, **Chair**
Jiajia Chen, KTH, Royal Inst. of Tech., Sweden, **Chair**
Shailendra Gaikwad, Univ. of Louisiana at Lafayette, USA
Huaxi Gu, Xidian Univ., China
Bingli Guo, Beijing Univ. of Posts and Tel., China
Hongxiang Guo, Beijing Univ. of Posts and Tel., China
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Hoon Kim, KAIST, Korea
Juhao Li, Peking Univ., China
Rui Lin, KTH Royal Inst. of Tech., Sweden
Wei Lu, Univ. of Sci. and Tech. of China, China
Carmen Mas Machuca, Technical Univ. of Munich, Germany
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Kim Khoa Nguyen, École de technologie supérieure, Canada
Wenda Ni, Azure Networking, Microsoft, Canada
Jelena Pesic, Nokia Bell Labs, France
Houman Rastegarfar, Univ. of Arizona, USA
Jesse Simsarian, Nokia Bell Labs, USA
Elaine Wong, Univ. of Melbourne, Australia
Wei Xu, Tsinghua Univ., China
Min Zhu, Southeast Univ., China

Track 4: Optoelectronic integration and devices
Xun Li, McMaster Univ., Canada, **Chair**
Yikai Su, Shanghai Jiao Tong Univ., China, **Chair**
Xinlun Cai, Sun Yat-sen Univ., China
Haoshuo Chen, Nokia, USA
Guangwei Cong, AIST, Japan
Bo Dong, Shenzhen Tech. Univ., China
Po Dong, Nokia Bell Lab, USA
Ran Hao, Zhejiang Univ., China
Ho Pui Aaron HO, Chinese Univ. of Hong Kong, HK SAR
Yuqing Jiao, Eindhoven Univ. of Tech., Netherlands
Mingyu Li, Zhejiang Univ., China
Di Liang, Hewlett Packard Labs, USA
Shinji Matsuo, NTT Device Tech. Laboratories, Japan
Ting Mei, Northwestern Polytechnical Univ., China
Xiaodong Pi, Zhejiang Univ., China
Minhao Pu, Technical Univ. of Denmark, Denmark
Wei Shi, Laval Univ., Canada
Yaocheng Shi, Zhejiang Univ., China
Junqiang Sun, Huazhong Univ. of Sci. and Tech., China
Xiankai Sun, Chinese Univ. of Hong Kong, HK SAR
Hiroyuki Tsuda, Keio Univ., Japan
Jianwei Wang, Peking Univ., China
Jin Wang, Nanjing Univ. of Posts and Tel., China
Qijie Wang, Nanyang Technological Univ., Singapore
Kevin Williams, Eindhoven Univ. of Tech., Netherlands
Yang Xu, Zhejiang Univ., China
Lin Yang, Inst. of Semiconductor, CAS, China
Xin Yin, Ghent Univ., Belgium
Yu Yu, Huazhong Univ. of Sci. and Tech., China
Zhiping Zhou, Peking Univ., China

Track 5: Optical signal processing & microwave photonics
Hongwei Chen, Tsinghua Univ., China, **Chair**
Xiaoke Yi, Univ. of Sydney, Australia, **Chair**
Amol Choudhary, Univ. of Sydney, Australia
Peucheret Christophe, Univ. of Rennes, France
Xinhuan Feng, Jinan Univ., China
Zhanghua Han, Shandong Normal Univ., China
Shuling Hu, Beihang Univ., China
Chaoran Huang, Princeton Univ., USA
Ming Li, Inst. of Semiconductors, CAS., China
Xuejin Li, Shenzhen Univ., China
Christina Lim, Univ. of Melbourne, Australia
Zhixin Liu, Univ. College London, UK
Arnan Mitchell, RMIT Univ., Australia
Tigang Ning, Beijing Jiaotong Univ., China
Chester Shu, The Chinese Univ. of Hong Kong, HK SAR
Dawn Tan, Singapore Univ. of Design Tech., Singapore
Chao Wang, Univ. of Kent, England
Lin Yang, Chinese Academy of Sci., China
Xiaoping Zheng, Tsinghua Univ., China
Weiwen Zou, Shanghai Jiao Tong Univ., China

Track 6: Optical sensors and measurement
Jun Qian, Zhejiang Univ., China, **Chair**
Junle Qu, Shenzhen Univ., China, **Chair**
Haiwen Cai, Shanghai Inst. of Optics and Fine Mechanics, CAS, China
Hao He, Shanghai Jiao Tong Univ., China
Wing-Cheung Law, HK Polytechnic Univ., HK SAR
Heeyoung Lee, Tokyo Inst. of Tech., Japan
Peng Li, Zhejiang Univ., China
Bin Liu, National Univ. of Singapore, Singapore
Linbo Liu, NTU Singapore, Singapore
Liwei Liu, Shenzhen Univ., China
Tongyu Liu, Laser Inst. of Shandong Academy of Sci., China
Fake Lu, State Univ. of New York, USA
Yiqing Lu, Macquarie Univ., Australia
Huilian Ma, Zhejiang Univ., China
Keiichi Nakagawa, Univ. of Tokyo, Japan
Tymish Y. Ohulchanskyy, Shenzhen Univ., China
Mateusz Smietana, Warsaw Univ. of Tech., Poland
Anna Wang, Zhejiang Univ., China
Dongning Wang, Shenzhen Tech. Univ., China
Zhuyuan Wang, Southeast Univ., China
Lei Wei, Nanyang Technical Univ., Singapore
Peng Xi, Peking Univ., China
Xiaobo Xing, South China Normal Univ., China
Qing Yang, Zhejiang Univ., China
Yuanhong Yang, Beihang Univ., China
Baoli Yao, Xi'an Inst. of Optics and Precision Mechanics, CAS, China
Zhen Yuan, Univ. of Macau, China

Track 7: Ultrafast photonics and nonlinear optics
Minglie Hu, Tianjin Univ., China, **Chair**
Jianfeng Li, Univ. of Electronic Sci. and Tech. of China, China, **Chair**
Jianrong Qiu, Zhejiang Univ., China, **Chair**
Shengping Chen, National Univ. of Defense Tech., China
Xianfeng Chen, Shanghai Jiao Tong Univ., China
Anderson S.L. Gomes, UFPE, Brazil
Jae-Hoon Han, Korea Inst.of Sci. and Tech., Korea
Wei Ji, National Univ. of Singapore, Singapore

Alexandra Kalashnikova, Ioffe Inst., Russia
Weiwei Liu, Nankai Univ., China
Xiaofeng Liu, Zhejiang Univ., China
Zhichao Luo, South China Normal Univ., China
Zhongqi Pan, Univ. of Louisiana Lafayette, USA
Mark Pelusi, Univ. of Sydney, Australia
Sze Y. Set, Univ. of Tokyo, Japan
Zhi Wang, Nankai Univ., China
Fengqiu Wang, Nanjing Univ., China
Xiaoyong Wang, Nanjing Univ., China
Kan Wu, Shanghai Jiao Tong Univ., China
Min Xiao, Nanjing Univ., China
Yun-Feng Xiao, Peking Univ., China
Zhijun Yan, Huazhong Univ. of Sci. and Tech., China
Zuxing Zhang, Nanjing Univ. of Posts and Tel., China
Luming Zhao, Jiangsu Normal Univ., China
Quanzhong Zhao, Shanghai Inst. of Optics and Fine Mechanics, CAS, China
Haiming Zhu, Zhejiang Univ., China

Track 8: Wireless and free-space communications
Nan Chi, Fudan Univ., China, **Chair**
Tianshu Wang, Changchun Univ. Sci. Tech., China, **Chair**
Kenji Araki, Toyota Tech. Inst., Japan
Minghua Cao, Lanzhou Univ. of Tech., China
Bo Cong, China Satellite Maritime Tracking and Control Dept., China
Ming Chen, Beijing Research Inst. of Telemetry, China
Guangxi E, Southwest China Inst. of Electronic Tech., China
Xianqing Jin, Univ. of Sci. and Tech. of China, China
Diqing Li, China Academy of Space Tech., China
Jing Li, Commercial Aircraft Corp. of China, China
Jianfei Liu, Hebei Univ. of Tech., China
Lilin Liu, Sun Yat-Sen Univ., China
Vuong Mai, Univ. of Bradfor, UK
Chao Wang, China Academy of Space Tech., China
Yan Xia, Hunan Univ., China
Wenge Yang, Equipment Academy, China
Yifei Yang, Jiangsu Univ. of Sci. and Tech., China
Jie Zhong, Zhejiang Univ., China

Track 9: Quantum photonics and applications
Feihu Xu, Univ. of Sci. and Tech. of China, China, **Chair**
Wei Zhang, Tsinghua Univ., China, **Chair**
Shengwang Du, Hong Kong Univ. of Sci. and Tech., HK SAR
Guoping Guo, Univ. of Sci. and Tech. of China, China
Xianmin Jin, Shanghai Jiao Tong Univ., China
Myungshik Kim, Imperial College London, UK
W. Steve Kolthammer, Imperial College London, UK
Jiaming Li, Shanghai Jiao Tong Univ., China
Tiefu Li, Tsinghua Univ., China
Yanqing Lu, Nanjing Univ., China
Zhongxiao Man, Qufu Normal Univ., China
Feng Mei, Shanxi Univ., China
Xifeng Ren, Univ. of Sci. and Tech. of China, China
Lin Tian, Univ. of California Merced, USA
Guoyong Xiang, Univeristy of Sci. and Tech. of China, China
Man-Hong Yung, Southern Univ. of Sci. and Tech., China
Lijian Zhang, Najing Univ., China
Qiang Zhang, Univeristy of Sci. and Tech. of China, China

Special session 1: Optoelectronics based on organic and nanostructured materials
Wei Huang, Northwestern Polytechnical Univ., China, **Chair**
Zugang Liu, China Jiliang Univ., China, **Chair**
Michele Muccini, National Research Council, Italy, **Chair**
Chihaya Adachi, Kyushu Univ., Japan
Pavel Brunkov, Ioffe Inst., Russia
Andrew Monkman Durham Univ., UK
Junqiao Ding, Yunnan Univ., China
Shaocong Hou, Wuhan Univ., China
Wenping Hu, Tianjing Univ., China
Yizheng Jin, Zhenjiang Univ., China
Wengyong Lai, Nanjing Univ. of Posts and Tel., China
Yongyin Kang, Fudan Univ., China
Hoi Sing Kwok, Hong Kong Univ. of Sci. and Tech., HK SAR
Fushan Li, Fuzhou Univ., China
Zhen Li, Wuhan Univ./Tianjin Univ., China
Zeke Liu, Soochow Univ., China
Rabchinskii Maxim, Ioffe Inst., Russia
Hong Meng, Peking Univ., China
Junyou Pan, Zhejiang Brilliant-Optoelectronics Tech. Co., Ltd., China
Nigel Pickett, Nanoco Technologies, UK
Shiyang Shao, Hainan Univ., China
Caterina Soldano, Aalto Univ., Finland
Xiaowei Sun, Southern Univ. of Sci. and Tech., China
Stefano Toffanin, CNR-ISMN, Italy
Lei Wang, Huazhong Univ. of Sci. and Tech., China
Sixin Wu, Henan Univ., China
Guohua Xie, Xiamen Univ., China
Rongjun Xie, Xiamen Univ., China
Hao Xin, Nanjing Univ. of Posts & Tel., China
Hui Xu, Heilongjiang Univ., China
Baomin Xu, Southern Univ. of Sci. and Tech., China
Xuyong Yang, Shanghai Univ., China
Jingbi You, Inst. of Semiconductors, CAS, China
Haibo Zeng, Nanjing Univ. of Sci. and Tech., China

Special session 2: AI for photonics and communications
Yongli Zhao, Beijing Univ. of Posts and Tel., China, **Chair**
Yanni Ou, Nokia Bell Labs, Germany, **Chair**
Shuangyi Yan, Univ. of Bristol, UK

Zilong Ye, California State Univ., Los Angeles, USA
Sabidur Rahman, UC Davis, USA
Yu Wu, Google, USA
Jianqiang Li, Alibaba Group, USA
Nan Hua, Tsinghua Univ., China
Xiaosong Yu, Beijing Univ. of Posts and Tel., China
Xiaoning Zhang, Univ. of Electronic Sci. and Tech. of China
Danish Rafique, ADVA, Germany

Special session 3: Intelligent optoelectronics and emerging photonic architectures
Kaihui Liu, Peking Univ., China, **Chair**
Hongtao Lin, Zhejiang Univ., China, **Chair**
Hua Zhang, City Univ. of Hong Kong, HK SAR
Juejun Hu, Massachusetts Inst. of Tech., USA
Anlian Pan, Hunan Univ., China
Han Zhang, Shenzhen Univ., China
Deep Jariwala, Univ. of Pennsylvania, USA
Xiaomu Wang, Nanjing Univ., China
Fang Wang, Shanghai Inst. of Technical Physics, CAS, China
Zhipei Sun, Aalto Univ., Finland
Baicheng Yao, Univ. of Electronic Sci. and Tech. of China
Yaqing Bie, Sun Yat-Sen Univ., China
Zhengqian Luo, Xiamen Univ., China
Qiaoliang Bao, Monash Univ., Australia
Jianbin Xu, Chinese Univ. of Hong Kong, HK SAR
Xuming Zou, Hunan Univ., China

Special session 4: Optical biosensors, imaging and theranostics
Bai-Ou Guan, Jinan Univ., China, Chair
Francesco Chiavaioli, CNR-IFAC, Italy, Chair
Anna Grazia Mignani, CNR-IFAC, Italy
Long Jin, South China Normal Univ., China
Chao Tian, Univ. of Sci. and Tech. of China, China
Jingjing Guo, Beihang Univ., China
Li Ma, Jinan Univ., China
Jun Ma, Jinan Univ., China
Zewei Luo, Sichuan Univ.
Xuegang Li, Northeast Univ., China

Special session 5: Advanced optoelectronic functional materials and flexible photonic devices
Lei Chen, Jinan Univ., China, **Chair**
Yunhan Luo, Jinan Univ., China, **Chair**
Zewei Luo, Sichuan Univ., China
Lin Yu, Yanbian Univ., China
Ke Tian, Harbin Engineering Univ., China
Yunshan Zhang, Beijing Univ. of Tech., China
Lingxin Kong, Yantai Univ., China
Shiqi Hu, South China Agricultural Univ., China

General Information

Conference Venue: Xining Sapphire Hotel
会议地点：西宁蓝宝石大酒店

Address: No. 21, Shengli Road, Xicheng District, Xining, Qinghai Province, China
地址：青海省西宁市城西区胜利路 21 号

Accessbility

Xining Sapphire Hotel is located in the heart of Xicheng District, about a 15-minute drive from Xining Railway Station and 30 minutes from Caojiabao International Airport. Blending modern minimalism with Qinghai ethnic elements, this five-star hotel offers easy access to People's Park, Limeng Pedestrian Street, Qinghai Provincial Museum, and Liaozhai Palace within walking distance.

Registration

Location: Lobby of Sapphire Hotel, Xining

Hours:

14: 00-20: 00	Monday, 20 July
08: 00-18: 00	Tuesday, 21 July
08: 00-18: 00	Wednesday, 22 July
08: 00-16: 00	Thursday, 23 July

Speaker Preparation

All oral presenters should check in at the corresponding session room at least ten minutes prior to their scheduled talk to upload and check their presentation. **No shows of the oral presentation will be reported to Conference management and these papers will not be published.**

Poster Preparation

Authors should prepare their poster before the poster session starts. The poster must not exceed the boundaries of the poster board and **A0 (0.9m Width * 1.2m Height)** size is recommended. Authors are required to be standing by their poster for the duration of their allocated session to answer questions and further discuss their work with attendees. **No shows will be reports to Conference management and these papers will not be published.**

*Poster Board Size – 1m (Width) * 2m (Height)*
Location: 4F, Sapphire Hotel, Xining

Poster Session 1	15:30-16:00, 21 July
Poster Session 2	10:00-10:30, 22 July
Poster Session 3	15:30-16:00, 22 July
Poster Session 4	10:00-10:30, 23 July

Exhibition

The ICOCN2026 Exhibition is open to all attendees.
Location: *Public area, Sapphire Hotel, Xining*

Hours:

09: 00-18: 00	Monday, 21 July
09: 00-18: 00	Tuesday, 22 July
09: 00-18: 00	Wednesday, 23 July

Conference Materials

ICOCN2026 Technical Digest will be provided in a USB drive and not available in print form. The ICOCN2026 Technical Digest material is composed of the 3-page summaries of invited and accepted contributed papers. The Technical Digest material is included with a technical conference registration and can be found in your registration bag. The Digest will be available on IEEE Xplore Digital Library (http://www.ieee.org/web/publications/xplore/) after the conference. IEEE Xplore Digital Library is archived and indexed by INSPECR and EI Compendex, where it will be available to the international technical community.

Lunches & Dinners

Five buffet lunches and dinners (July 20-23) in *Sapphire* Hotel are included in the registration fee for all registered delegates. And lunch & dinner tickets are provided within the badge.

Location: *Buffet Restaurant (1F) & Yiyuan Hall (逸园厅, 1F), Sapphire Hotel*

18:00-20:30	Monday, 20 July
11:45-13:30	Tuesday, 21 July
18:30-20:30	Tuesday, 21 July
12:00-13:30	Wednesday, 22 July
12:00-13:30	Thursday, 23 July

Tea & Coffee Breaks

15:30-16:00	Tuesday, 21 July
10:00-10:30	Wednesday, 22 July
15:30-16:00	Wednesday, 22 July
10:00-10:30	Thursday, 23 July

Social Events

Welcome reception

All participants are cordially invited to the Welcome Reception. It will be a great opportunity to develop a broad, deep and diverse network of personal connections with participants from all over the world. Complimentary food and beverages will be offered by Organizing Committee of ICOCN2026. It is free to all the registered participants.

Location: *Buffet Restaurant (1F), Sapphire Hotel*
Time: 18:00-20:30, Monday, 20 July

Conference Banquet and Awards Ceremony

All participants are cordially invited to the banquet. We will announce the winners of Young Scientist Awards, Best Student Paper Award and Best Poster Award. The winners will receive their certificates and awards at the ceremony. Participate in our Lucky Draw during the banquet, you may be one of the lucky winners! At the same time, you will enjoy delicacies foods. It will be an unforgettable Banquet that you will always remember with a smile.

The Banquet is included in the registration fee for all register delegates. The ticket is provided within the badge.

Location: *Lufugong Hall (3F), Sapphire Hotel*
Time: 18:30-21:00, Wednesday, 22 July

Conference Highlights

Plenary Presentations

Time: 09:30-11:45, Tuesday, 21July
Venue: *Baoshi Hall (4F), Sapphire Hotel*

Highly coherent swept lasers and their applications

09:30-10:15, Tuesday, 21 July

Prof. P.K. Alex Wai

Hong Kong Baptist Univ., HK SAR, China

Biography: Professor Ping-kong Alexander Wai is the President and Vice-Chancellor of Hong Kong Baptist University. Professor Wai received the Bachelor of Science (Hons) degree from the University of Hong Kong, and his Master and PhD degree from the University of Maryland, College Park. His research interests include theory of solitons, nonlinear optics, fiber lasers, simulations of integrated optical devices, fiber optic communications, and network theory. Prof. Wai is an active contributor to the technical field, having over 500 international publications. He participated in the organization, served as invited speakers, and keynote speakers in many international conferences. With the approval of the State Ministry of Science and Technology, he is also listed as one of the experts in the National Science and Technology Programme Expert Database. He has been elected as Fellow of the Optical Society of America (OSA), Fellow of the Institute of Electrical and Electronic Engineers (IEEE) and Fellow of Hong Kong Academy of Engineering Sciences (HKAES).

Distributed acoustic sensing for earthquake monitoring

10:15-11:00, Tuesday, 21 July

Prof. Gilberto Brambilla

Univ. of Southampton, UK

Biography: Professor Gilberto Brambilla is the Associate Dean (International) of the Faculty of Engineering and Physical Sciences at the University of Southampton. He is professor in Photonics within the Optoelectronics Research Centre, where he heads the group working on Optical Fibre Sensors and Devices. He was the Director of the Centre for Innovative Manufacturing (which secured £6M from the research councils and £4M from industry) and General Manager/Deputy Director of The Future Photonics Hub (which secured £12M from the research councils and £24M from industry). He is the current OPTICA Sensing Division Head and has been general/programme chair of the major conference on Optical Sensors. He has been consultant for a number of industrial partners, including Microsoft. He has published 500+ journal papers/conference proceedings, has 15+ patent applications and 70+ plenary/keynote/invited talks.

Advanced Functional Fibers for a Human-Centric Digital Society

11:00-11:45, Tuesday, 21 July

Prof. Lei Wei

Nanyang Technological Univ., Singapore

Biography: Dr. Lei Wei is a Professor and Provost's Chair Professor at Nanyang Technological University (NTU), Singapore. Dr. Wei's research focuses on fiber-based devices, functional fibers, bio-fiber interfaces, in-fiber energy generation and storage, and smart fabrics. At NTU, he serves as Associate Chair (Research) and Director of the Centre for Optical Fibre Technology. He is also the Chair of the Optica Singapore Section and a Fellow of Optica.

Young Scientist Awards

2 recipients, certificate & HUAWEI ultrabook for each

To be eligible for the award, the researchers must be born after Jul. 23, 1986 and the first author of the paper and register to give the oral presentation at the conference by himself or herself. The selection will be made by the TPC during the conference. Certificates and prizes will be presented to the winners in the award ceremony during the conference banquet.

Best Student Paper Awards

10 recipients, certificate & HUAWEI Pad for each

Any full-time research student, who is the first and presenting author of a full paper submitted with choosing presentation type of "Oral for Best Student Paper Award" will be eligible for this award competition. Ten winners will be selected by the ICOCN'2026 Technical Program Committee and invited to attend the conference banquet and award ceremony. Certificates and prizes will be presented to the winners in the award ceremony during the conference banquet.

Best Poster Paper Awards

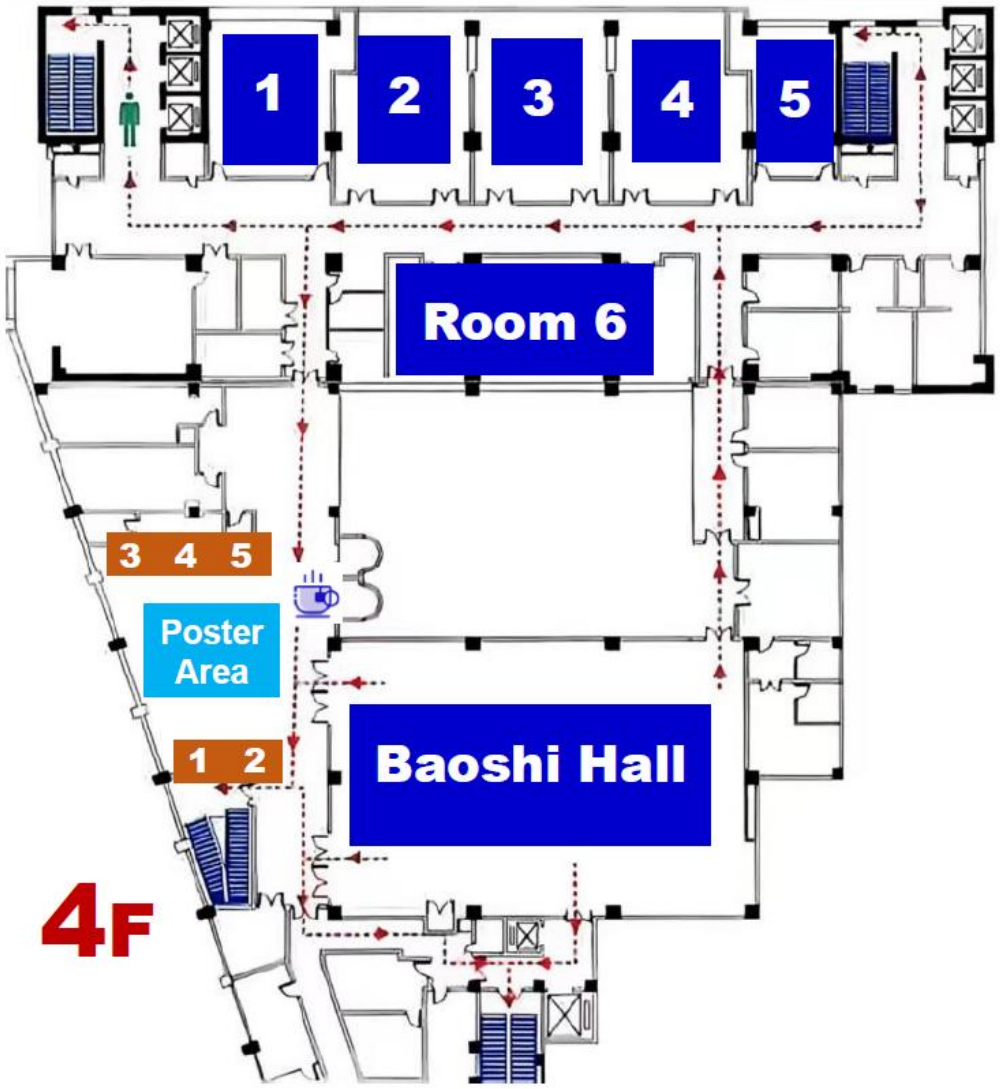
10 recipients, certificate & HUAWEI cellphone for each

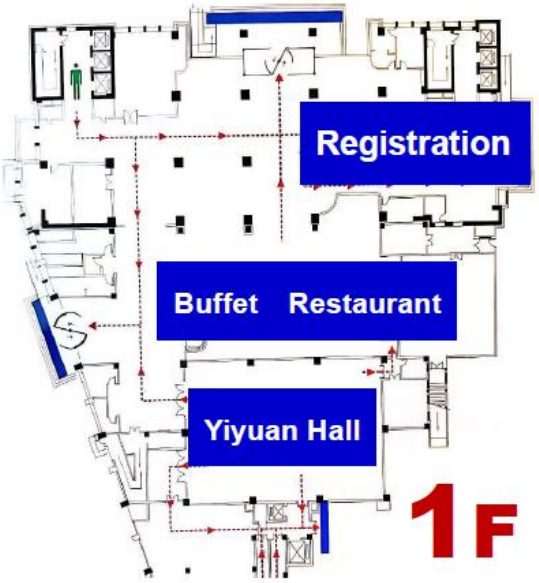
To be eligible for the award, the paper must be submitted with choosing presentation type of "Best Poster Paper Award competition". Pre-conference shortlist will be carried out based on the peer-review results by TPC/invited reviewers. The shortlisted posters will be presented during the assigned time slot and those who win the first fifteen largest number of ”Best Poster Paper Award” vote tickets will be given the Best Poster Award. Certificates and prizes will be presented to the winners in the award ceremony during the conference banquet.

Banquet Lucky-draw

Every registered non-student participant will be given a Best Poster Award Voting Ticket at the registration desk when they collect the conference materials. Those who help us select the awardee candidates by writing down the poster numbers on the voting ticket and put it into the ticket collecting box during the first poster session time will get the chance to be lucky guy. Do help us by submitting your choice for the Best Poster.

Conference & Exhibition Map





1 天步光电 TOPhotonics

2 LUSTER 凌云光

3 傲秀信息 Aoshow Information

4 秦皇岛鹏鸽天

5 TOP Photonics 拓普光研

Conference Schedule

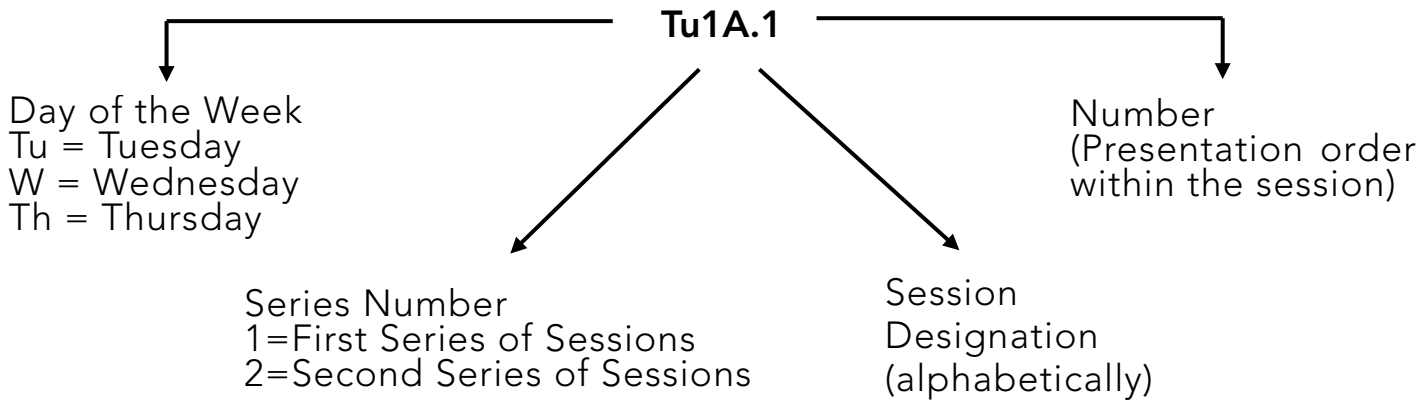
	Monday July 20	Tuesday July 21	Wednesday July 22	Thursday July 23	Venue
Registration	14:00-20:00	08:00-18:00	08:00-18:00	08:00-16:00	Lobby, 1F
Opening Ceremony		09:00-09:30			Baoshi Hall, 4F
Plenary Session		09:30-11:45			Baoshi Hall, 4F
Technical Sessions		13:30-18:00	08:00-18:00	08:00-18:00	Meeting Rooms, 4F
Exhibition		09:00-18:00	09:00-18:00	09:00-18:00	Public Area, 4F
Welcome Reception	18:00-20:30				Buffet Restaurant, 1F
Poster Sessions		15:30-16:00	10:00-10:30 15:30-16:00	10:00-10:30	Public Area, 4F
Young Scientist Award Sessions			10:30-12:00		Room 1
Best Student Paper Award Sessions			08:00-10:00 10:30-12:00		Meeting Rooms, 4F
Banquet & Awards Ceremony			18:30-21:00		Lufugong Hall, 3F

ICOCN 2026—Agenda of Sessions

Mon. Jul. 20	14:00--20:00	**Registration** (*Sapphire Hotel*)					
	18:00-20:30	**Reception** (*Buffet Restaurant, 1st floor, Sapphire Hotel*)					
Tues. Jul. 21	9:00--11:45	**Opening Ceremony & Plenary Talks** (*Baoshi Hall, 4th floor, Sapphire Hotel*)					
	11:45--13:30	Lunch Break					
		Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
	13:30--15:30	**Fibers & fiber devices I**	**Optical transmission I**	**Optoelectronic integration I**	**Organic optoelectronics I**	**Quantum Photonics I**	**Measurement & sensors I**
	15:30--16:00	Tea Break & Poster Session I					
	16:00--18:00	**Fibers & fiber devices II**	**Optical transmission II**	**Optoelectronic integration II**	**Organic optoelectronics II**	**Quantum Photonics II**	**Measurement & sensors II**
	18:30-20:30	Conference Dinner					
Wed. Jul. 22	8:00--10:00	**Fibers & fiber devices III**	**Optical transmission III**	**Optoelectronic integration III**	**Organic optoelectronics III**	**Optical networks I**	**Measurement & sensors III**
	10:00--10:30	Tea Break & Poster Session II					
	10:30--12:00	**Young Scientist Award**	**Optical transmission IV**	**Optoelectronic integration IV**	**Organic optoelectronics IV**	**Optical networks II**	**Measurement & sensors IV**
	12:00--13:30	Lunch Break					
	13:30--15:30	**Ultrafast & nonlinear I**	**Free-space communications I**	**Optical signal processing I**	**Intelligent optoelectronics I**	**AI Photonics I**	**Optical biosensors I**
	15:30--16:00	Tea Break & Poster Session III					
	16:00--18:00	**Ultrafast & nonlinear II**	**Optical transmission V**	**Optical signal processing II**	**Intelligent optoelectronics II**	**Optical networks III**	**Optical biosensors II**
	18:30-21:00	Conference Banquet & AwardsCeremony					
Thur. Jul. 23	8:00--10:00	**Fibers & fiber devices IV**	**Optical transmission VI**	**Optoelectronic integration V**	**Organic optoelectronics V**	**Flexible Photonics I**	**Measurement & sensors V**
	10:00--10:30	Tea Break & Poster Session IV					
	10:30--12:00	**Ultrafast & nonlinear III**	**Optical transmission VII**	**Optoelectronic integration VI**	**Organic optoelectronics VI**	**Flexible Photonics II**	**Measurement & sensors VI**
	12:00--13:30	Lunch Break					
	13:30--15:30	**Fibers & fiber devices V**	**Optical transmission VIII**	**Optoelectronic integration VII**	**Organic optoelectronics VII**	**AI Photonics II**	**Measurement & sensors VII**
	15:30--16:00	Tea Break					
	16:00--18:00	**Fibers & fiber devices VI**	**Free-space communications II**	**Optical signal processing III**		**Optical networks IV**	**Measurement & sensors VIII**

(Plenary talk: 45 mins; Keynote 25 mins; Invited talk: 20 mins; Others: 15 mins)

Explanation of Session Codes



The first letter of the code designates the day of the week (Tu = Tuesday, W = Wednesday, Th = Thursday). The second element indicates the session series in that day (for instance, 1would denote the first parallel session in that day). The third element continues alphabetically through a series of parallel sessions. The lettering then restarts with each new series. The number on the end of the code (separated from the session code with a period) signals the position of the talk within the session (first, second, third, etc.). For example, a presentation coded Tu1A.1 indicates that this paper is being presented on Tuesday (Tu) in the first series of sessions (1), and is the first parallel session (A) in that series and the first paper (1) presented in that session.

Plenaries are noted with **Plenary**

Keynotes are noted with **Keynote**

Invited papers are noted with **Invited**

Post-deadline papers are noted with ☆

Young Scientists Award are noted with ◇

Best poster paper award are noted with ☀

Best student paper award are noted with ★

09:00-09:30 Opening Ceremony, *Baoshi Hall 4F*

09:30-11:45, Plenary Session, *Baoshi Hall 4F*

Presider: ***Perry Ping Shum****, Southern University of Science and Technology, China*

Tu1A.1 • 09:30 Plenary

Highly coherent swept lasers and their applications, P.K. Alex Wai; *Hong Kong Baptist University, HK SAR, China.* Swept lasers are at the cutting edge of laser technology, known for their ability to "sweep" through a range of wavelengths, have wide applications including laboratory testing and industrial inspection of optical devices, interrogation of optical sensors, optical metrology, light detection and ranging (LiDAR), and optical coherence tomography (OCT). This talk will introduce the fundamental principle, key technology, and the applications of two kinds of highly coherent swept lasers including Fourier domain mode locked laser and time stretched swept lasers.

Tu1A.2 • 10:15 Plenary

Distributed acoustic sensing for earthquake monitoring, Gilberto Brambilla; *University of Southampton, UK.* In the last two decades, optical fibre distributed acoustic sensing (DAS) systems have experienced an extraordinary success, resulting in deployment in a variety of sectors, ranging from border security to traffic monitoring, smart cities, and structural health monitoring, just to cite a few. Recently, DAS systems have also been proposed in seismology because they provide an equivalent large number of sensing locations and an ultrafast communication to the tsunami monitoring centre. This talk will summarize the research carried out at the University of Southampton using DAS systems for seismic monitoring, including the efforts that resulted in an extended sensing range, an improved signal to noise ratio, and a rapid data analysis and interpretation. In particular, the use of a classifier based on convolutional neural networks has provided a means to identify tectonic tremors and discriminated them from local and teleseismic earthquakes.

Tu1A.3 • 11:00 Plenary

Advanced Functional Fibers for a Human-Centric Digital Society, Lei Wei; *Nanyang Technological University, Singapore.* The integration of a variety of functional materials within thermal-drawn fibers has emerged as a versatile platform for the fabrication of advanced functional fiber electronics. A single strand of fiber that incorporates materials with disparate electronic, optoelectronic, thermomechanical, rheological, and acoustic properties can see objects, hear sound, sense stimuli, communicate, store and convert energy, modulate temperature, monitor health, and dissect brains. Integrating these functional fibers into fabrics is setting the stage for fabrics to be the new frontier in flexible electronics for a human-centric digital society.

11:45-13:30 Lunch Break

Room 1, Track 1

13:30-15:30
Tu2A. Fibers & Fiber Devices I
*Presider: **Xinyu Fan**, Shanghai Jiao Tong University, China*

Tu2A.1 • 13:30 Keynote

Optical manipulation using waveguide probes, Baojun Li; *Jinan Univ., China*. In this talk, the author will mainly present biocompatible waveguide probes for sub-wavelength probing of localized fluorescence from single-cell in human blood.

Tu2A.2 • 13:55 Keynote

Optical nanofiber for extreme photonics, Limin Tong; *Zhejiang Univ., China*.

Tu2A.3 • 14:20 Keynote

Multi-Functional Integrated Fiber Devices: Fabrication and Applications, Fei Xu; *Nanjing Univ., China*.

Room 2, Track 2

13:30-15:30
Tu2B. Optical Transmission I
*Presider: **Jianping Li**, Guangdong University of Technology, China*

Tu2B.1 • 13:30 Invited

High-Speed Components for AI Infrastructure, Oskars Ozoliņš; *Riga Technical University, Latvia*. This talk presents system-level experiments on scale-up and scale-out links, highlighting high-speed components, integration strategies, and performance trade-offs for enabling low-latency, energy-efficient data movement in next-generation AI infrastructure and large-scale distributed computing systems.

Tu2B.2 • 13:50 Invited

Challenge of PMD Compensation in High Symbol Rate System: A Solution Based on Digital Subcarrier System, Xiaoguang Zhang; *Beijing Univ. of Posts & Tel., China*.

Tu2B.3 • 14:10 Invited

Optimization Design and Live-Network Transmission Validation of C+L-Band Raman Fiber Amplifiers, Guijun Hu; *Jilin Univ., China*. We propose an AI-based inverse design framework for C+L-band Raman fiber amplifiers and develop a first-order prototype. A 150-km live-network transmission test demonstrates improved transmission performance, reducing BER by one to two orders of magnitude.

Room 3, Track 4

13:30-15:30
Tu2C. Optoelectronic Integration I
*Presider: **Lin Ma**, Shanghai Jiao Tong University, China*

Tu2C.1 • 13:30 Keynote

Self-Injection-Locked Laser with Sub-Hz Intrinsic Linewidth Using a N4Si3 Spiral microresonator, Yong-Zhen Huang; *Inst. of Semiconductors, CAS, China*. A self-injection-locked laser module was realized with an intrinsic linewidth of 0.91 Hz and output power of 25 mW, using a spiral microresonator with a free-spectral range below 2.5 GHz and loaded Q factor of 16.8million.

Tu2C.2 • 13:55 Keynote

Towards fiber-chip-fiber multi-dimensional optical communications, Jian Wang; *Huazhong Univ. of Sci. & Tech., China*. We will present recent advances in fiber-chip-fiber multi-dimensional optical signal transmission and processing, leveraging various space-division multiplexing fibers, femtosecond laser directing 3D photonic chips, and diverse silicon photonic integrated circuits.

Tu2C.3 • 14:20 Invited

Photovoltaic device mechanism, design and fabrication, Xiaofeng Li; *Soochow Univ., China*.

Room 4, Special 1

13:30-15:30
Tu2D. Organic Optoelectronics I
*Presider: **Zugang Liu,** China Jiliang University, China*

Tu2D.1 • 13:30 Keynote

Hybrid semiconductor luminescent materials and devices, Xuyong Yang; *Shanghai Univ., China.*

Tu2D.2 • 13:55 Keynote

Holograph 3D display with wide viewing angle, Qiong-Hua Wang; *Beihang Univ., China.*

Tu2D.3 • 14:20 Keynote

Nanolanthanide materials for optical applications, Hui Xu; *Heilongjiang Univ., China.*

Room 5, Track 9

13:30-15:30
Tu2E. Quantum Photonics I
*Presider: **Zhedong Zhang,** City University of Hong Kong, China*

Tu2E.1 • 13:30 Keynote

Foundational Changes of Quantum Mechanics, Electronics and Optoelectronics, Xiaomin Ren; *Beijing Univ. of Posts & Tel., China.* Based on the remedy of the imperfections of de Broglie relationship, both Schrödinger equation, Dirac equation as well as Klein-Gordon equation are comprehensively modified. These changes are vitally foundational to quantum mechanics, electronics and optoelectronics.

Tu2E.2 • 13:55 Keynote

Nonreciprocal quantum photon-pair generation with helielectric nematics, Xifeng Ren; *Univ. of Sci. & Tech. of China, China.*

Tu2E.3 • 14:20 Keynote

Generation, Detection and Applications of Quantum Light Sources Based on Atomic Ensembles, Jietai Jing; *East China Normal Univ., China.* In this report, I will introduce the recent experimental progress of our research group on the generation and detection of high-quality quantum light sources based on atomic ensembles and their applications in quantum information.

Room 6, Track 6

13:30-15:30
Tu2F. Measurement & Sensors I
*Presider:**Dongmei Huang,** The Hong Kong Polytechnic University, China*

Tu2F.1 • 13:30 Keynote

Sensors and devices based on light-gas interaction in fibres and waveguides, Wei JIN; *The Hong Kong Polytechnic Univ., China.* This talk discusses recent progress on guided-wave photonic sensors and devices based on infrared absorption, photothermal, photoacoustic, and stimulated Raman scattering effects in gases.

Tu2F.2 • 13:55 Invited

Luminescent materials for sensing technologies, Rong-Jun Xie; *Xiamen Univ., China.*

Tu2F.3 • 14:15 Invited

Flexible skin patch biosensor based on U-Shape optical fibre interferometer structure, Qiang Wu; *Northumbria Univ., UK.* In this talk, the SMF–NC–SMF sensor is surface functionalised for detection of interleukin-6 (IL-6) and Staphylococcus aureus.

Room 1, Track 1

Tu2A.4 • 14:45 Invited

Microfluidic all-fiber laser based on organic dye, Ryszard Buczynski; *Univ. of Warsaw, Poland*. The development of the modular, alignment-free all-fiber optofluidic dye laser based on an anti-resonant hollow core fiber is discussed. As a proof-of-concept, a fiber laser filled with Rhodamine 6G, which serves as an organic active medium, is demonstrated.

Tu2A.5 • 15:05 Invited

Materials for advanced photonics and applications: from harsh environment sensors to biomedical devices, Davide Janner; *Politecnico di Torino, Italy*. We'll present our recent research on fiber-optic sensors and photonic materials, highlighting their potential applications, including IR devices, fiber-optic sensors for harsh environments, and bioresorbable biomedical devices.

Room 2, Track 2

Tu2B.4 • 14:30 Invited

Recent progress in Real-time transmission over FMFs utilizing multiple non-degenerate LP modes, Juhao Li; *Peking Univ., China*. We review recent progress in real-time FMF transmission techniques only utilzing multiple non-degenerate LP modes, including the system archtitecture, the fibers, the mode multiplexer/demultiplexer devices, the optical amplifiers, and high-capacity long-haul transmission experiments.

Tu2B.5 • 14:50 Invited

Modelling and Mitigation of Multipath Interference in High-Speed PAM-4 IM/DD Systems, Ning Deng; *Great Bay Univ., China*.

Tu2B.6 • 15:10 Invited

Application of APD for Coherent PON Transmissions, Kangping Zhong; *The Hong Kong Polytechnic Univ., China*.

Room 3, Track 4

Tu2C.4 • 14:40 Invited

Design optimization of directly modulated laser for enhancing immunity to external reflection, Xun Li; *McMaster Univ., Canada*. Isolator-less becomes vital to make cost-effective 10Gbps DMLs in O-band. This work shows that it is possible to make DMLs immune to return loss as high as -14 dB through just by laser design parameter optimization, as opposed to -20 dB for conventional DMLs.

Tu2C.5 • 15:00 Invited

Ultra-high-speed UTC photodetector for THz applications, Baile Chen; *ShanghaiTech Univ., China*. This work presents the achievement of a waveguide-integrated, evanescently coupled UTC-PD with a 3-dB bandwidth as high as 270 GHz, developed by the team at ShanghaiTech University.

Tu2C.6 • 15:15 Invited

Advanced photonic memory for hybrid photonic-electronic in-memory computing, Zefeng Xu; *Hong Kong Univ. of Sci. & Tech., Guangzhou, China*. Advanced photonic memory enables energy-efficient, high-speed data access for hybrid photonic-electronic in-memory computing. It overcomes bandwidth and energy limitations.

15:30-16:00 Poster Session 1 & Tea Break

Room 4, Special 1

Tu2D.4 • 14:45 Invited

Multiphysical simulation and operation of all perovsite solar cells, Changlei Wang; *Soochow Univ., China*.

Tu2D.5 • 15:00 Invited

Flexible Organic Electrochromic Devices Having Multicolored, Low-Voltage-Driven and High Contrast, and Organic Photovoltaic Properties Based on Oligomers and Viologen Derivatives, Ping Liu; *South China Univ. of Tech., China*. A series of organic conjugated oligomers and viologen derivatives are synthesized, their photovoltaic (OPV), electrochromic (OEC) properties and corresponding flexible electrochromic devices (FOECD) were investigated.

Tu2D.6 • 15:15 Invited

Interface Optimization and Crystallization Regulation towards High-Efficiency Wide-Bandgap Cu(In,Ga)Se_2 Solar Cells, Wei Liu; *Nankai Univ., China*. This work developed a tailored Zn(O,S)/CdS bilayer interface engineering strategy.

Room 5, Track 9

Tu2E.4 • 14:45 Invited

Quantum entanglement distribution networks: methods and applications, Wei Zhang; *Tsinghua Univ., China*. Quantum photonic chips provide important ways to realize large scale and reconfigurable quantum entanglement distribution networks (QEDN). This talk will introduce our recent progresses on methods and applications of chip-based QEDNs.

Tu2E.5 • 15:05 Invited

XingHan 2.0: A metropolitan-scale quantum repeater with Bell nonlocality, Zong-Quan Zhou; *Univ. of Sci. & Tech.of China, China*.

Room 6, Track 6

Tu2F.4 • 14:35 Invited

Broadband Source-Driven Resonant Fiber-Optic Gyroscope, Huilian Ma; *Zhejiang Univ., China*. The broadband source-driven resonant fiber-optic gyroscope eliminates path asymmetry and coherent noise errors, achieving navigation-grade performance with a 100-meter fiber ring resonator. This talk presents its principle, architecture, noise countermeasures, and low-power solutions.

Tu2F.5 • 14:55 Invited

Research on Spatial Nonreciprocal Interferometric Fiber Optic Gyroscope, Yuefeng Qi; *Yanshan Univ., China*. A spatial non-reciprocal modulation technique was proposed and applied to interferometric fiber optic gyroscopes, achieving closed-loop feedback and low-frequency modulation under ultra-short coil configurations. This approach provides new perspectives for the development of integrated gyroscopes.

Tu2F.6 • 15:15 Invited

Distributed Optical Fiber Intelligent Sensing and Processing Technology and Its Applications, Huijuan Wu; *Univ. of Electronic Sci. & Tech. of China, China*. This report presents intelligent signal processing techniques for distributed optical fiber sensing, focusing on detection, separation, and source tracking methods.

15:30-16:00 Poster Session 1 & Tea Break

Poster Session 1 (Best Poster Award Session) 15:30-16:00

P1.1 0369
Physics-Conditioned Hybrid Neural Operator for optical fluid Dynamics, Tiandao Xu, Yi Hu, Jingjun Xu and Siyu Li; *Nankai Univ., China*. A physics-conditioned hybrid neural operator enables fast surrogate prediction of optical fluid evolution in photorefractive media.

P1.2 0495
Adaptive Deep Learning for Decoding Non-Orthogonal multiplexed Signals over a 1 km Multimode Fiber, Xiao Yang, Zihao Ma, Tuqiang Pan, Yi Xu and Yuwen Qin; *Guangdong Univ. of Tech., China*. We propose NOSD-Net, an adaptive four-expert ensemble neural network.

P1.3 1273
Ultrabroadband Electro-Optic Mode Switch Formed by Thin-Film Lithium Niobate on Insulator, Zengyang Wu, Jun Xue, Yanping Li, Xinyong Dong, Ou Xu and Quandong Huang; *Guangdong Univ. of Tech., China*. We propose an ultrabroadband electro-optic mode switch on thin-film lithium niobate.

P1.4 1472
Theoretical Investigation of Microstructure Effects on Optical Field Distribution in Hollow-Core Fibers, Zhenyu Wang, Siyu Wang, Zhigang Xiong, Gangsheng Li, Yingying Zhang, Mengmeng Chen and Fei Xu; *Nanjing Xiaozhuang Univ., China*. This paper uses COMSOL to investigate elliptical deformation, wall fusion, collapse, and thickness non-uniformity effects on polarization, intensity, phase, and mode distribution in hollow-core anti-resonant fibers.

P1.5 1532
Coherent Combination of Bessel Beam Based on a Fiber Phased Array, Yang Chen, Pan Wang, Zhi Wang and Yange Liu; *Nankai Univ., China*. In this work, coherent beam combining is employed to realize Bessel-beam synthesis based on a fiber phased array.

P1.6 1877
A Novel Fiber Fabry-Perot Interferometer for Refractive Index Sensing, Lan Rao, Zefeng Li, Xiu Du and Jinhui Yuan; *Beijing Univ. of Posts & Tel., China*. A novel fiber Fabry-Perot interferometer is proposed for refractive index sensing.

P1.7 2333
Imaging-based low cost optical fiber level sensor, Dian Miao, Kehua Yan, Yijun Pu, Zewen Han, Liheng Yang, Yu Wu and Yuan Gong; *Univ. of Electronic Sci. & Tech. of China, China*. An optical fiber level sensing system via Fresnel reflection imaging from fiber array offers simple structure, intrinsic safety, 1 mm resolution, <200 ms response, low cost, and robustness for fuel monitoring in complex operating conditions.

P1.8 2068
Experimental Demonstration of U-Band Self-Homodyne Coherent Transmission over a 22.5-km 7-Core Fiber, Jianwei Zhou, Feng Tian, Xiangjun Xin, Chuanji Yan, Jing Zhang, Qi Zhang, Qinghua Tian, Fu Wang and Sitong Zhou; *Beijing Univ. of Posts & Tel., China*. We experimentally demonstrate U-band self-homodyne coherent transmission over a 22.5-km 7-core fiber, achieving 20-GBaud 16-QAM signals below the 4×10^{-2} threshold for 25%-overhead SD-FEC, with a transmission capacity of 480 Gbit/s.

P1.9 2465
Fast Optical Mode Field Decomposition via Lightweight Pruned CNNs, Haoyu Wang, Qingqiang Xiong, Zhiyong Liu, Binlei Yang and Teng Wang; *Shanghai Polytechnic Univ., China*. The proposed pruned RepViT model combined with coordinate attention and INT8 quantization achieves a R of 99.6% while reducing mobile-side inference time by 51.8%.

P1.10 4789
Cost-Efficient Task Scheduling in Computing Power Networks with Non-Uniform Security Capabilities, Yingbo Fan, Yajie Li, Jia Chen, Fenghao Zhang, Ziao An, Yongli Zhao and Jie Zhang; *Beijing Univ. of Posts & Tel., China*. This paper investigates cost-efficient task scheduling in computing power network with non-uniform node and link security capabilities.

P1.11 5925
Filter-free Widely Tunable Thulium-doped Mode-Locked Fiber Laser Based on Nonlinear Polarization Rotation, Jing Zhang, Feng Tian, Jianwei Zhou, Qi Zhang, Fu Wang, Sitong Zhou, Huiming Chen, Yiman Teng and Mingyue Xu; *Beijing Univ. of Posts & Tel., China*. A filter-free wavelength-tunable thulium-doped mode-locked all-fiber laser based on NPR is demonstrated

P1.12 2367
Numerical Modeling of Distributed Acoustic Sensing (DAS) for Traffic-Induced Road Vibrations, Yujie Zhao, Jiansheng Jiang, Zhenwei Liu, Chenhui Huang, Anjie Sun and Huijuan Wu; *Univ. of Electronic Sci. & Tech. of China, China*. This paper develops an integrated vehicle-road-subgrade-fiber FE model in COMSOL, validates it using measured DAS signals, and systematically analyzes the effects of vehicle load, speed, roughness, subgrade material, fiber laying method and different pavement defects.

Poster Session 1 (Best Poster Award Session) 15:30-16:00

P1.13 2927
Dual-Parameter Sensing Based on Harmonic Vernier Effect in Dual-Cavity Fabry–Pérot Interferometers, Liling Zhong, Liangwen Xu, Junbin Xu, Ou Xu, Xinyong Dong and Quandong Huang; *Guangdong Univ. of Tech., China*. We propose an on-chip dual-cavity Fabry-Pérot interferometer sensor to enhance the sensitivity based on the harmonic Vernier effect.

P1.14 3936
Dual Point Tmperature Sensing Using Cascaded Phase-shifted Fiber Bragg Gratings and A Convolutional Neural Network, Weihao Lin, Qijing Lin, Kun Yao, Wenguo Luo, Mingkun Zhang, Jing Zhao and Li-Yang Shao; *Xiamen Inst. of Tech., China*. This paper proposes a dual-point temperature sensor based on cascaded π-phase-shifted fiber Bragg gratings.

P1.15 6378
A Physics-Informed Deep Denoising Method for DAS Vehicle Trajectories, Yuanyuan Song, Peiyu Zhang, Zhenwei Liu, Chenhui Huang, Anjie Sun and Huijuan Wu; *Univ. of Electronic Sci. & Tech. of China, China*. A physics-informed deep denoising method is proposed for low-signal-to-noise-ratio and fragmented distributed acoustic sensing vehicle trajectories.

P1.16 1701
Data-Driven External Force Estimation for FBG-Integrated Flexible Instruments, Wenjing Xie, Tenlong Zhou, Yuke Dong, Tianyu Yang, Yuming Dong, Xinyong Dong and Huanhuan Liu; *Guangdong Univ. of Tech., China*. A data-driven method is proposed for two-dimensional force estimation in a fiber Bragg grating (FBG)-integrated flexible instrument.Experiments show root mean square errors of 5.48 mN and 5.34 mN in the Fy and Fz directions, respectively..

P1.17 6946
High-Stability Fiber Microlaser Biochemical Sensor Based on Quantum Dots, Yiling Liu, Zekai Li, Xi Yang, Hengxiang He, Xiaochuan Zhang and Yuan Gong; *Southwest Inst. of Technical Physics., China*. We develop high-stability quantum dot fiber microlasers, which enable ultrasensitive avidin detection down to 100 aM.

P1.18 5569
High precision Optical Fiber Fabry-Pérot Temperature Sensor Based on Virtual Vernier Effect, Yuke Dong, Zhiyuan Chen, Wenjing Xie, Junlin Dong, Huanhuan Liu, Xinyong Dong, Tianyu Yang and Yuming Dong; *Guangdong Univ. of Tech., China*. This paper proposes an optical fiber FP interferometric temperature sensor based on the virtual Vernier effect.

P1.19 7004
Secure DMT Transmission Based on 3D Hybrid-Shaped 16QAM and Double Chaotic Encryption, Zhanfei Cao, Dongfei Wang, Haiyang Ding, Jiaying Wu and Xiangqing Wang; *Beijing Inst. of Graphic Comm., China*. A secure DMT transmission scheme combining hybrid-shaped modulation and chaotic encryption is proposed.

P1.20 6919
A Turbulence-Resilient MIMO-FSO Transmission Scheme Based on Aperture Layout Optimization, Yuze Li, Qinghua Tian, Zixiu Zhong, Yihan Zhang, Lei Zhu, Feng Tian, Sitong Zhou, Yongjun Wang, Ran Gao and Xiangjun Xin; *Beijing Univ. of Posts & Tel., China*. This paper proposes an aperture-layout-optimized MIMO-FSO transmission scheme, achieving SNR gains of 1.17 dB, 1.27 dB, and 1.19 dB under weak, moderate, and strong turbulence, respectively.

P1.21 7151
Theoretical Research and Performance Optimization of Er-Yb Co-doped ECS Optical Waveguide Amplifier, Yi'Ao Qiao, Lei Ding and Yigang Li; *Nankai Univ., China*. This study models Er-Yb co-doped waveguide amplifiers, optimizes key parameters and designs low-threshold ECS nanowire laser, offering reliable theoretical design basis.

P1.22 8016
Inverse taper for light coupling to silicon photonics-based optical amplifier, Ziming Dong, Guoqing Sun, Yuqing Zhao, Yaxin Wang, Lei Ding, Liqin Tang and Yigang Li; *Nankai Univ., China*. An inverse taper for light coupling to silicon photonics-based optical amplifiers has been designed.

P1.23 8391
Humidity fiber sensing using high-SNR forward Brillouin scattering enabled by backward SBS gain, Minghua Zhang, Yichun Li, Haoran Xie, Chenyu Lou, Yuqi Chen, Chi Jia, Mengshi Zhu, Heming Wei, Fufei Pang and Liang Zhang; *Shanghai Univ., China*. We propose and demonstrate an optomechanical relative humidity sensor based on a polyimide-coated single-mode fiber.

P1.24 7034
A Constellation–Spectrogram Fusion Network for Optical QAM Modulation Format Recognition under OSNR Variation, Mohai Yue, Qi Zhang, Fu Wang, Xinchang Liu, Gang Xin, Feng Tian, Zipeng Wang and Tongkang Dong; *Beijing Univ. of Posts & Tel., China*. A Constellation–Spectrogram Fusion Network (CSF-Net) is proposed for coherent optical Quadrature Amplitude Modulation (QAM) recognition under Optical Signal-to-Noise Ratio (OSNR) variation.

Poster Session 1 (Best Poster Award Session) 15:30-16:00

P1.25 ☀ 8975
Large-Aperture PCSELs with Simplified Lattice Structure for Single Mode Operation, Yatao Yao, Chuanning Niu, Feng Gao and Jia Zhao; *Shandong Univ., China*. We present a large-aperture PCSELs featuring a single isosceles triangle air-hole..

P1.26 ☀ 9039
Gain characteristic study of Thulium-Doped Waveguide Amplifiers base on Al2O3 thin film, Guoqing Sun, Yuqing Zhao, Ziming Dong, Yaxin Wang, Lei Ding, Liqin Tang and Yigang Li; *Nankai Univ., China*. We established a theoretical model for thulium-doped optical waveguide amplifier based on Al2O3 substrate.

P1.27 ☀ 9055
High-Efficiency Four-Wave Mixing in Compact Mode-Loop Silicon Spiral Waveguides, Shaoxing Wang, Jiangbing Du, Yi Zhang and Zuyuan He; *Shanghai Jiao Tong Univ., China*. A mode-loop multimode spiral silicon waveguide is proposed for efficient four-wave mixing.

P1.28 ☀ 9092
Energy-Efficient Shared Backup Path Protection Scheme in Satellite Optical Networks, Xuhao Yan, Xin Li, Tianhao Liu, Chenyu Zhao, Aocheng Kang, Weihong Xiong, Yubo Zhao and Shanguo Huang; *Beijing Univ. of Posts & Tel., China*. This paper proposes an energy-efficient shared backup path protection (EE-SBPP) scheme for satellite optical networks.

P1.29 ☀ 9537
A cascaded three core microfiber sensor based on the Vernier effect, Ling Chen, Yiwei Huo, Defeng Zhang, Zhangshuo Jiao and Haodong Zhou; *Liaocheng Univ., China*. A cascaded three core microfiber sensor with Vernier effect is proposed for refractive index and temperature sensing.

P1.30 ☀ 7293
The AI Native 6G Radio Access Network: Emerging applications, Key Technologies, and Opportunities, Nan Feng, Libin Zhang, Xiaoming Zhu, Sibo Qi and Lei Yan; *The 54th Research Inst. of CETC, China*. This work provides a detailed perspective on the RIC in AI-driven ORAN, the E2 interfaces, rApp, xApp and the dAPP.

P1.31 ☀ 8740
Miniature Three-Dimensional Force Sensor Based on FBGs for Minimally Invasive Surgery, Keyu Wei, Shiyuan Dong, Yuming Dong, Huanhuan Liu, Ningchao Du and Tianyu Yang; *Southern Univ. of Sci. and Tech., China*. This paper proposes a miniature three-dimensional force sensor based on fiber Bragg grating (FBG).

P1.32 ☀ 9990
Time-Domain Demodulated Fiber Temperature Sensor Using a Sagnac Loop Composed of Erbium-Doped Fiber, Weihao Lin, Zihan Huang, Keyu Cai, Ziling Zhong, Qiaozhen Yang, Yuyang Zhong and Li-Yang Shao; *Xiamen Inst. of Tech., China*. This paper proposes placing a Sagnac interferometer into a time-stretch system for fast temperature monitoring.

P1.33 ☀ 6322
The 6G Open Radio Access Network Fronthaul with Digital Subcarrier Multiplexing, Nan Feng, Libin Zhang, Xiaoming Zhu, Sibo Qi and Lei Yan; *The 54th Research Inst. of CETC, China*. This work summarizes the principles and schemes in particular on the DSCM transceivers for cost-efficient, scalable and flexible PON.

P1.34 0365
Broadband Multi-Channel Frequency-Hopping Signal Generation Based on Injection Locking, Jiale Qiao, Xukai Ji, Feifei Yin, Yitang Dai and Kun Xu; *Beijing Univ. of Posts & Tel., China*. We propose a broadband multi-channel frequency–hopping signal generation scheme based on injection locking.

P1.35 0385
Improved Multi-source Event Separation Strategy for Distributed Optical Fiber Sensor, Yi Shi, Jie Chen, Jie Luo, Wanhao Yang, Zihao Cui, Chuliang Wei and Wei Wei; *Shantou Univ., China*. Distributed acoustic sensing struggles with overlapping vibrations. This paper proposes MS-TDCN using multi-scale parallel networks.

P1.36 0528
A SPR-Based Hollow-Core Negative Curvature Fiber for Refractive Index Sensing, Xu Xia, Yuwei Qu, Jingao Zhang, Zefeng Li, Xiu Du, Lan Rao, Kuiru Wang and Jinhui Yuan; *Beijing Univ. of Posts & Tel., China*. In this paper, a hollow-core negative curvature fiber refractive index sensor based on surface plasmon resonance effect is proposed.

Poster Session 1 (15:30-16:00)

P1.37 0551

A Learnable Wavelet Packet Transform for OTDR Trace Denoising, Jialun He, Bingjie Zhang, Mingchun Chen, Jiaping Xu, Jiawei Wan and Tao Yang; *Beijing Univ. of Posts & Tel., China*. This paper proposes a learnable wavelet packet transform (LWPT) using block-wise normalization for single-shot OTDR denoising.

P1.38 0781

A PDMS-Encapsulated Optical Fiber Cuboid Tilt Sensor, Xin Mao, Maotong Su, Jun Zhao, Tianxiang Zhang, Dong Zhang and Lijun Li; *Shandong Univ. of Sci. & Tech., China*. A flexible optical fiber tilt sensor with a PDMS-encapsulated core-mismatch structure is proposed.

P1.39 0796

Design and Fabrication of Waveguide-coupled Avalanche Photodiodes Laterally Grown on SOI, Xianjin Mao and Yunjiang Jin; *Sun Yat-sen Univ., China*. Monolithic waveguide-coupled III-V APDs laterally grown on SOI by LART, designed using Silvaco TCAD, achieve a record 217 GHz gain-bandwidth product while directly avoiding wafer bonding for high-sensitivity optical receivers.

P1.40 0861

The frequency conversion of the linear frequency modulated microwave waveforms based on the gain-switched semiconductor laser, Xinyue Yang, Jin Li, Jilin Zheng, Xiaoqin Yang, Hua Zhou, Tao Pu, Jiayi Zhao, Qiang Gao, Qi Zhan, Haisong Jiao and Guoyan Wang; *Army Eng. Univ. of PLA, China*. In simulation, when one LFM signal with the sweeping frequency from 0 to 5 GHz is applied, the high frequency LFM with the frequency within 5-55 GHz is easily allocated.

P1.41 0946

A Power Allocation Scheme Considering Fairness in Non-Orthogonal Multiple Access, Shengjing Zhang, Gang Li and Huibin Zhang; *Beijing Univ. of Posts & Tel., China*. This paper addresses the resource allocation problem in multiple access systems by proposing a power allocation scheme that considers fairness.

P1.42 1044

Photonic phase programmability for microwave differential phase shift keying signals generation with feedback technology, Wensheng Zhai; *North China Univ. of Water Resources & Electric Power, China*. We propose a photonic scheme to generate a tunable frequency phase-coded microwave differential phase shift keying signals.

P1.43 1005

Measurement of Transient Magnetic-Field Spikes During Current Loading of a Solenoid Using a Magneto-Optic Crystal Probe, Jianguang Li, Zili Xu, Li Xia, Jundong Tian, Wei Li and Chuanxian Luo; *China Electric Power Research Inst., China*. A magneto-optic crystal probe measured transient magnetic-field spikes during solenoid current loading. A 0.77 ms spike was captured at 1 A, while no obvious pulse appeared during field removal

P1.44 0907

AI-Enhanced Management and Control (MC) Architecture for Multi-Layer and Multi-Domain Optical Networks, Yu Wang, Zhi Min Yang, Yu Xuan Gao, Yan Shi and Du Tang; *CAICT, China*. This paper proposes an AI-enhanced management and control (MC) architecture for optical networks using multi-agent collaboration, A2A, MCP, and digital twins to enable autonomous MC across multi-domain optical networks.

P1.45 1604

Learning to See Complex Scenes from Multimode Fiber Employing Dual-Domain Attention based SGA-UNet, Dianwen Peng, Binbin Song, Mengqing Luo, Jixuan Wu and Wei Huang; *Tianjin Univ. of Tech., China*. SGA-UNet is a dual-domain architecture for multimode fiber speckle reconstruction.

P1.46 1323

Field trial of transmission in the special environment of power operation over HC-ARF, Hongyan Zhou; *Yangtze Optical Fiber and Cable Joint Stock Co., Ltd., China*. To verify the performance of HC-ARF cables under the special environment of power operation, HC-ARF OPGW cables and HC-ARF ADSS cables were were carried out actual grid laying and tested for the first time.

P1.47 1488

Experimental Verification of Optical Stealth Communication Based on Super-continuum Spectrum, Jiaqi Zhao, Haisong Jiao, Han Zhou, Tao Pu, Jilin Zheng and Hua Zhou; *Army Eng. Univ.of PLA, China*. An optical stealth method based on super-continuum spectrum hiding in amplified spontaneous noise (ASE) is proposed and experimentally demonstrated.

P1.48 1589

A 319–337 GHz Uni-Traveling Carrier Photodiode Array Terahertz Transmitter with a 4 × 1 Power-Combining Network and a Vivaldi Antenna, Ruizi Li, Jianguo Yu, Yun Wang, Yibo Huang, Xiaorui Liu and Yaqi Cheng; *Beijing Univ. of Posts & Tel., China*. A 319–337-GHz UTC-PD array terahertz transmitter with a 4 × 1 Wilkinson–T-junction combiner and Vivaldi antenna is demonstrated.

Room 1, Track 1

16:00-18:00
Tu3A. Fibers & Fiber Devices II
*Presider: **Yunqi Liu**, Shanghai University, China*

Tu3A.1 • 16:00 Invited

Optically transparent and electrically conductive thin films: new sensing and biosensing opportunities, Mateusz Smietana; *Warsaw Univ. of Tech., Poland*. This talk discusses thin film materials enabling multifunctionality across optical and electrochemical domains, with practical examples and recent advances.

Tu3A.2 • 16:20 Invited

Multi-mechanism distributed fiber-optic sensing: Integrating Rayleigh, Brillouin, and Raman backscattering, Xinyu Fan; *Shanghai Jiao Tong Univ., China*. A hybrid system integrating φ-OTDR, BOTDA, and ROTDR enables simultaneous dynamic and static sensing via Brillouin frequency-spaced pulses.

Tu3A.3 • 16:40 Invited

Visualizing the dynamics of 3D solitons in multimode fiber lasers, Xiaosheng Xiao; *Beijing Univ. of Posts & Tel., China*. Recent progress of spatiotemporal mode-locked (STML) multimode fiber lasers will be reviewed, and our latest research on the real-time visualization of the spatiotemporal dynamics of 3D solitons in the STML lasers will be presented.

Room 2, Track 2

16:00-18:00
Tu3B. Optical Transmission II
*Presider: **Ning Deng**, Great Bay University, China*

Tu3B.1 • 16:00 Invited

An Application Example of Longitudinal Power Monitoring--Distributed Polarization Dependent Loss Measurement, Lixia Xi; *Beijing Univ. of Posts & Tel., China*. PDL is a major impairment in dual-polarization coherent optical systems. we introduced a distributed PDL measurement scheme based on LPM, which enables PDL measurement in the receiver-side DSP and without pilot tones overhead.

Tu3B.2 • 16:20 Invited

Incoherent Diffractive All-Optical Classification Exploiting Multi-Wavelength Response, Wenhua Gu; *Nanjing Univ. of Sci. & Tech., China*. This paper proposes an all-optical diffractive classification network for incoherent illumination. The system encodes input intensity images into optical fields, performs optical-domain feature transformation through free-space diffraction and phase modulation.

Tu3B.3 • 16:40 Invited

Improved nonlinear optical amplification in fiber and on chip, Jiangbing Du; *Shanghai Jiao Tong Univ., China*. In this paper, nonlinear optical amplification based on high order Raman in fiber and OPA on chip is studied and demonstrated. Improved performance with high gain, low noise and wide band is presented.

Room 3, Track 4

16:00-18:00
Tu3C. Optoelectronic Integration II
*Presider: **Zhenzhou Cheng**, Tianjin University, China*

Tu3C.1 • 16:00 Invited

Broadband integrated electro-optic frequency combs on thin-film lithium niobate platform, Lei Shi; *Huazhong Univ. of Sci. & Tech., China*.

Tu3C.2 • 16:20 Invited

High-capacity DWDM transmitter on thin-film lithium niobate, Kaixuan Chen; *Zhejiang Univ., China*.

Tu3C.3 • 16:40 Invited

Hybrid thin-film lithium niobate acousto-optic modulators for advanced signal processing, Lei Wan; *Ningxia Univ., China*.

Room 4, Special 1

16:00-18:00
Tu3D. Organic Optoelectronics II
*Presider: **Wenjun Hou**, Guangdong Juhua Advanced Display Research Institute, China*

Tu3D.1 • 16:00 Invited

Research on High Resolution Display Applications of Quantum Dot Light Emitting Devices, Kaiyu Yang; *Fuzhou Univ., China.*

Tu3D.2 • 16:20 Invited

Electric-Field Topology and Confined Exciton Dynamics in Ultrahigh-Resolution QLEDs, Lihua Lin; *Fuzhou Univ., China.* Ultrahigh-resolution quantum-dot light-emitting diodes (URQLEDs) face severe efficiency degradation when scaled to submicron dimensions. This report presents a systematic strategy to overcome these limits through synergistic nanofabrication and excitonic.

Tu3D.3 • 16:40 Invited

Inkjet Printing QLEDs: Key Technical Issues for Industrialization and Commercialization, Wenjun Hou; *Guangdong Juhua Advanced Display Research Inst., China.* Printed QLEDs have achieved breakthrough performance, but for industrialization they still face insufficient blue lifetime and stability issues caused by positive aging.

Room 5, Track 9

16:00-18:00
Tu3E. Quantum Photonics II
*Presider: **Xifeng Ren**, University of Science and Technology of China, China*

Tu3E.1 • 16:00 Invited

Quantum-Enhanced Spectroscopy of Molecular Excited-State Dynamics with Correlated Photons, Zhedong Zhang; *City Univ. of Hong Kong, China.*

Tu3E.2 • 16:20 Invited

Efficient Quantum Memory with Fiber Microcavities, Xiao Liu; *Univ. of Sci. & Tech. of China, China.*

Tu3E.3 • 16:40 Invited

Experimental Multiparty Quantum Information Processing via Photonic Quantum Networks, Zheng-Da Li; *Shenzhen International Quantum Academy, China.*

Room 6, Track 6

16:00-18:00
Tu3F. Measurement & Sensors II
*Presider: **Wenjun Zhou**, China Jiliang University, China*

Tu3F.1 • 16:00 Invited

Transition metal ions for sensing and lighting, Mikhail Brik; *Univ. of Tartu, Estonia.* The use of transition metal ions for temperature/pressure sending and lighting will be discussed in this presentation, with the main emphasis on the theoretical description of their properties in various inorganic crystalline materials.

Tu3F.2 • 16:20 Invited

Fiber optic ocean bottom seismic system, Wentao Zhang; *Inst. of Semiconductors, CAS, China.* Fiber optic ocean bottom seismic system based on DAS cable and fiber optic interferometer is presented. The system is 22 km long and installed in the yellow sea of China.

Tu3F.3 • 16:40 Invited

Micro-Expression Detection via Active Light Imaging with ToF Camera, Yang Yue; *Xi'an Jiaotong Univ., China.*

Room 1, Track 1

Tu3A.4 • 17:00 Invited

All-Fiber Broadband Orbital Angular Momentum Light Source, Jianxiang Wen; *Shanghai Univ., China*. A High-order OAM broadband spectrum was developed in an all-fiber system. Its mode purity exceeding 90%. And a microscopic model was proposed to interpret the OAM conversion mechanism.

Tu3A.5 • 17:20 Invited

Optical trapping and metrology in hollow-core fibers, Shangran Xie; *Beijing Inst. of Tech., China*.

Tu3A.6 • 17:40 Invited

High-Performance Optical Fiber Distributed Acoustic Sensor (DAS), Jun HE; *Shenzhen Univ., China*. We propose a high-performance DAS system integrating weak-reflection FBG arrays, swept-pulse Φ-OTDR, frequency-phase coding, and deep-learning Kalman filtering, achieving 120 km distance, 1.2 cm resolution, >1 MHz bandwidth, and 10 pε/√Hz sensitivity.

Room 2, Track 2

Tu3B.4 • 17:00 Invited

Signal and power transmission over hollow-core fiber, Jianping Li; *Guangdong Univ. of Tech., China*.

Tu3B.5 • 17:20 Invited

Reinforcement Learning based Resource Scheduling Scheme for Optical Networks, Qinghua Tian; *Beijing Univ. of Posts & Tel., China*. In a dynamic and ever-changing network environment, using reinforcement learning for resource scheduling can achieve higher resource utilization and lower blocking rates.

Tu3B.6 • 17:40 Invited

TBD, Bin Chen; *Hefei Univ. of Tech., China*.

Room 3, Track 4

Tu3C.4 • 17:00 Invited

Photopolymerization-induced phase-separated liquid crystal-polymer optoelectronic devices, Yanjun Liu; *Southern Univ. of Sci. & Tech., China*. We propose a simple method to generate high-efficiency vortex beams using the phase-separated liquid crystal (LC)-polymer blazed fork gratings, which are prepared by single-step photopolymerization-induced phase separation (PIPS).

Tu3C.5 • 17:20 Invited

Glass waveguide substrate for high-speed optical interconnects application, Lin Ma; *Shanghai Jiao Tong Univ., China*. We demonstrate optoelectronic co-packaged module using glass waveguides substrate for high-speed optical interconnects application. The fabricated device exhibits an overall insertion loss of 1.7 dB at 850 nm and realized single-lane 112 Gbps transmission.

Tu3C.6 • 17:40 Invited

Gas Sensing based on Silicon Photonics, Zhenzhou Cheng; *Tianjin Univ., China*. I present our research progress in spectroscopic gas sensing based on silicon photonic technologies. Key waveguide devices, algorithms, sensing instruments, and applications are presented.

18:30-20:30 Conference Dinner

Room 4, Special 1

Tu3D.4 • 17:00 Invited

Photon recycling in color conversion Micro-LED displays, Guijun Li; *Shenzhen Univ., China*. We will introduce the photon recycling effect in color conversion Micro-LED displays, showing how it impacts the light conversion efficiency theoretically and experimentally.

Tu3D.5 • 17:20 Invited

Quantum dots for Micro-LED displays, Tongtong Xuan; *Xiamen Univ., China*.

Tu3D.6 • 17:40 Invited

Impacts of Sidewall on the Luminous Characteristics of Micro-LEDs, Weijie Guo; *Xiamen Univ., China*. The improvement in IQE can be realized by employing damage-free etching, sidewall post-treatment, and passivation to suppress the sidewall nonradiative recombination. LEE can also be significantly enhanced by optimizing the morphology and geometry of the mesa sidewall.

Room 5, Track 9

Tu3E.4 • 17:00 Invited

Fractal superconducting nanowire single-photon detectors efficiently detect single photons in all states of polarization, Xiaolong Hu; *Zhejiang Univ., China*.

Tu3E.5 • 17:20 Invited

Multi-user quantum information protocol based on the four-wave mixing process, Shengshuai Liu; *East China Normal Univ., China*.

Tu3E.6 • 17:40 Invited

Quantum Sensing Technology with Diamond NV Centers for Current Detection Applications, Li Xia; *Huazhong Univ. of Sci. and Tech., China*.

Room 6, Track 6

Tu3F.4 • 17:00 Invited

Multiplexed Refractive Index Sensing Using Cascaded TFBGs with Derivative Spectrum Analysis, Xuehao Hu; *Univ. of Mons, Belgium*. This work demonstrates multiplexed refractive index sensing using cascaded TFBGs and derivative spectrum analysis. It enables accurate, low crosstalk measurements with improved sensitivity, overcoming spectral overlap and supporting scalable, distributed sensing in fiber systems.

Tu3F.5 • 17:20 Invited

Long Range Shape Sensing by Flat Ribbon Cable based on Integrated Weak FBG Arrays, Chunliu Zhao; *China Jiliang Univ., China*. This invited talk presents flat ribbon cable deformation monitoring using integrated weak FBG arrays, achieving stable millimeter-level accuracy in long-range reconstruction.

Tu3F.6 • 17:40 Invited

Optical measurement and imaging based on coherent broadband sources, Dongmei Huang; *The Hong Kong Polytechnic Univ., China*.

18:30-20:30 Conference Dinner

Room 1, Track 1

08:00-10:00
W1A. Fibers & Fiber Devices III
*Presider: **Yanhua Luo,** Shanghai University, China*

W1A.1 • 08:00 Invited

High Sensitivity Optical Sensors Based on Few Mode Fiber Long-Period Gratings, Yunqi Liu; *Shanghai Univ., China*. We demonstrate the fabrication of long-period fiber gratings (LPFGs) in multicore and few mode fibers by using focused carbon dioxide laser. The sensing characteristics of the LPFGs were investigated experimentally, which shows promising applications as high sensitivity optical sensors.

W1A.2 • 08:20 Invited

Specialty Optical Fibers with Nonlinear Suppression and Their Applications in Lasers and Sensing, Meisong Liao; *Shanghai Inst. of Optics & Fine Mechanics, CAS, China.*

W1A.3 • 08:40 Invited

Materiostructural Integration Engineering of Specialty Optical Fibers by 3D Printing Technology, Yanhua Luo; *Shanghai Univ., China*. Advancement of information society drives specialty optical fibers as key enablers for optical communication and Internet of Things, while 3D printing fiber technology emerges for freeform customization of their materials and structures.

Room 2, Track 2

08:00-10:00
W1B. Optical Transmission III
*Presider: **Junwen Zhang,** Fudan University, China*

W1B.1 • 08:00 Invited

Intelligent Photonics Integrated Systems for Optical Interconnection, Computing and Access, Junwen Zhang; *Fudan Univ., China*. This talk reviews intelligent photonic integrated systems for optical interconnection, computing and access, highlighting key advances, architectures and future directions.

W1B.2 • 08:20 Invited

Beyond-400Gb/s Optical Interconnects with IM/DD Schemes, Lu Zhang; *Zhejiang Univ., China*. Single-channel beyond-400Gb/s high-speed optical interconnect technology serves as a critical enabler for next-generation data centers. Advanced silicon photonics integration paves the way for single-channel 400Gb/s operation while maintaining high energy efficiency.

W1B.3 • 08:40 ★ 3286

Digital Cousins System Based on BiLSTM Combined with Attention Mechnism for Constructing All-optical Logic Gates, Ruoting Liu, Xin Li, Feiyang Ruan, Shubo Qi, Tenglin Gao and Shanguo Huang; *Beijing Univ. of Posts & Tel., China*. All-optical logic gates avoid optoelectronic conversion. To model SOA-MZI gates without physical modeling, we propose a data-driven digital cousin method.

Room 3, Track 4

08:00-10:00
W1C. Optoelectronic Integration III
*Presider: **Ang Li,** Nanjing University of Aeronautics and Astronautics, China*

W1C.1 • 08:00 Invited

Broadband Adiabatic Optical Power Coupling and Splitting for MDM Systems, Xibin Wang; *Jilin Univ., China.*

W1C.2 • 08:20 Invited

Integrated Ultraviolet Optoelectronics for High-Speed Solar-Blind Optical Communication and Miniaturized Spectral Imaging, Haiding Sun; *Univ. of Sci. & Tech. of China, China*. We will focus on our efforts for the development of highly efficient UV LED/microLED and detectors, and their monolithic integration on single platform to promote on-chip and free-space optical communication.

W1C.3 • 08:40 Invited

High-frequency high-speed nanoscale air-channel devices for photonic-electronic converged THz, Mo Li; *Univ. of Electronic Sci. & Tech. of China, China.*

Room 4, Special 1

08:00-10:00
W1D. Organic Optoelectronics III
*Presider: **Junyou Pan,** Zhejiang Brilliant Optoelectronic Technology Co., Ltd., China*

W1D.1 • 08:00 Invited

Recent Progress on high performance blue OLED materials, Junyou Pan; *Zhejiang Brilliant Optoelectronic Tech. Co., Ltd., China.*

W1D.2 • 08:20 Invited

Organic room-temperature phosphorescence sensitization in MR-TADF OLEDs, Junqiao Ding; *Yunnan Univ., China.*

W1D.3 • 08:40 Invited

Polarized and Directional Light-Emitting from OLEDs based on Microstructured Electrodes, Yan-Gang Bi; *Jilin Univ., China.*

Room 5, Track 3

08:00-10:00
W1E. Optical Networks I
*Presider: **Yang Qiu,** Southwest Minzu University, China*

W1E.1 • 08:00 Invited

Optical switching for AI network, Huaxi Gu; *Xidian Univ., China.*

W1E.2 • 08:20 Invited

Acoustic-Optical Hybrid Routing for Underwater Wireless Sensor Networks, Yang Qiu; *Southwest Minzu Univ., China.*

W1E.3 • 08:40 ★ 0920

A Local Power Adjustment Scheme for In-Service Secret-Key Rate Degradation in Hybrid Quantum-Classical Optical Networks, Busen Qin, Xiaosong Yu, Jingjing Liu, Kai Sun, Yongli Zhao and Jie Zhang; *Beijing Univ. of Posts & Tel., China.* This paper proposes a local power adjustment scheme for in-service secret-key rate degradation of secure services in hybrid quantum-classical optical networks.

Room 6, Track 6

08:00-10:00
W1F. Measurement & Sensors III
*Presider: **Qun Han,** Tianjin University, China*

W1F.1 • 08:00 Invited

Study on tensile force measurement of sheep spinal cord, Bangquan Liao; *Tiangong Univ., China.* During spinal surgery, it is necessary to retract the spinal cord to create space for the procedure. We conducted preliminary the mechanical forces on the sheep spinal cord.

W1F.2 • 08:20 Invited

Control and use light in complex meidum, Weili Zhang; *Univ. of Electronic Sci. & Tech. of China, China.*

W1F.3 • 08:40 Invited

Novel Sensing characteristics of multicore optical fiber sensors, Mei Sang; *Tianjin Univ., China.* Based on 2 and 3 core optical fibers, some novel optical fiber sensors are fabricated in our lab. By theoretical and experimental research, their sensing characteristics show obvious differences with the conventional fiber sensors.

Room 1, Track 1

W1A.4 • 09:00 ★ 1192
Twist-Induced Leakage Reduction in a Tube-Type Helical Hollow-Core Anti-Resonant Fiber, Mingjie Cui and Changyuan Yu; *The Hong Kong Polytechnic Univ., China*. We show numerically that the mode leakage through the touching node between the capillary and the outer jacket can be reduced significantly in a specially designed helical tube-type hollow-core fiber.

W1A.5 • 09:15 ★ 2113
Effect of Residual Thermal Stress on Loss Characteristics of a Four-Tube Hollow-Core Anti-Resonant Fiber, Jingwen Zhou, Hu Zhang, Jingmin He, Jiaqi Wang, Xiaoguang Zhang and Lixia Xi; *Beijing Univ. of Posts & Tel., China*. A nested gap-tube base-supported four-tube AR-HCFs is proposed.

W1A.6 • 09:30 ★ 8221
A 7-element fiber phased array to generate tunable Stokes skyrmions, Zunshi Zhao, Yang Chen, Zekun Shi, Yange Liu, Zhi Wang and Pan Wang; *Nankai Univ., China*. In this work, we propose a 7-element fiber phased array to generate tunable Stokes skyrmions, in which their propagation through turbulence and a robust dual-channel optical communication scheme based on the topological textures is presented.

W1A.7 • 09:45 ★ 4743
Overcoming Phase-Mismatch Limitations in the S-Band: All-Optical Wavelength Conversion Based on a CNT-HNLF Hybrid Architecture, Baishun Xie and Yufeng Song; *Shenzhen Univ., China*. A hybrid cascaded SWCNT-HNFL architecture overcomes phase mismatch in S-band all-optical wavelength conversion.

Room 2, Track 2

W1B.4 • 08:55 ★ 7815
Exploiting Non-orthogonality in MMF Semantic Communications with Structured Light, Xuchen Hua, Jixing Ren, Yuxuan Xiong, Zheng Gao, Jingze Liu, Hao Wu and Ming Tang; *Huazhong Univ. of Sci. & Tech., China*. We propose a structured-light-based multi-dimensional semantic communication system using MMF inter-modal dispersion.

W1B.5 • 09:10 ★ 1105
Spectrum Fragmentation-Aware Distributed Model Training Tasks Deployment in AIDCs, Dongrou Wang, Xin Li, Chenyu Zhao, Tianhao Liu, Wensheng Zhai and Shanguo Huang; *Beijing Univ. of Posts & Tel., China*. We propose a spectrum fragmentation aware deployment algorithm for DMT services in AIDCs.

W1B.6 • 09:25 ★ 4982
Reliability-Constrained Effective Covert Throughput Analysis for UWOC Systems, Shuang Li, Ping Wang, Caixiang Wei and Yong Gao; *Xidian Univ., China*. This paper investigates reliability-constrained effective covert throughput for UWOC systems with Bob and Willie.

W1B.7 • 09:40 ★ 6150
Channel-Fingerprint-Seeded PCDM Distribution Preserving Chaotic Constellation Scrambling for Secure 3D CAP-IMDD Coded Modulation, Jiaying Wu, Dongfei Wang, Haiyang Ding, Zhanfei Cao and Xiangqing Wang; *Beijing Inst. of Graphic Comm., China*. We propose PCDM distribution-preserving chaotic constellation scrambling for 3D CAP-IMDD, seeded by BiLSTM subband-coupled residual fingerprints.

Room 3, Track 4

W1C.4 • 09:00 Invited

On-chip integrated nonlinear devices and their applications, Fuyong Yue; *Univ. of Sci. & Tech. of China, China*.

W1C.5 • 09:20 Invited

Laser nanofabrication for Infrared spectroscopy regulation, Xue-Qing Liu; *Jilin Univ., China*.

W1C.6 • 09:40 Invited

Photonic Hyperdimensional Computing, Ang Li; *Nanjing Univ. of Aero. & Astronaut., China*.

10:00-10:30 Poster Session 2 & Tea Break

Room 4, Special 1

W1D.4 • 09:00 Invited

Rational Charge-Transfer Modulation for Narrowband Organic Emitters, Jianxin Tang; *Macau Univ. of Sci. & Tech., China.* Herein, a rational charge-transfer engineering strategy is proposed to design and synthesize MR-TADF molecules, which feature the progressively extended linear conjugation for regulating the spin-flip process.

W1D.5 • 09:20 Invited

In Situ Fabrication of Stable Perovskite Quantum Dot Elastomer Composites for Flexible Luminescence, Yongyin Kang; *Yiwu Research Inst. of Fudan Univ., China.* A solvent-free in-situ strategy yields robust perovskite QD/elastomer composites with high efficiency and stability for flexible LEDs.

W1D.6 • 09:40 Invited

Advanced Manufacturing of Luminescent Perovskite Cesium Lead Halide Quantum Dots, Jizhong Song; *Zhengzhou Univ., China.* This report presents a comprehensive overview of the advancements achieved by our group in the synthesis and preparation of inorganic CsPbX3 QDs in recent years, including the development of strategies such as "room-temperature three ligands", "strong bonding ligands", and "solid-state in-situ manufacturing".

Room 5, Track 3

W1E.4 • 08:55 ★ 3473

Towards High-Fidelity Emulation of Dynamic Network Channel Characteristics, Xv Zhu, Baokang Zhao, Dapeng Wang, Xiaodong Han, Huanren Zhou and Feng Tian; *Nation Univ. of Defense Tech., China.* This paper presents a four-port FPGA network delay simulator with PIFO scheduling and hardware CRC32 hashing for high-precision per-packet time control.

W1E.5 • 09:10 ★ 3735

Load-Aware Ring All-Reduce Routing and Resource Allocation for Distributed AI Training in Artificial Intelligence Data Centers (AIDC), Chenyu Zhao, Xin Li, Tianhao Liu, Dongrou Wang, Xuhao Yan, Mingming Sun, Wensheng Zhai and Shanguo Huang; *Beijing Univ. of Posts & Tel., China.* This study proposes a load-aware Ring All-Reduce algorithm for distributed AI training in AIDCs.

W1E.6 • 09:25 ★ 3796

Key Aware Dual-Granularity Channel Adjustment for Hybrid Quantum-Classical Optical Networks, Jiayao Xu, Xiaosong Yu, Wenjie Huang, Jingjing Liu, Liquan Chen, Yongli Zhao and Jie Zhang; *Beijing Univ. of Posts & Tel., China.* A key aware dual-granularity channel adjustment algorithm is proposed for hybrid quantum- classical optical networks.

W1E.7 • 09:40 ★ 9169

Inter-Layer Link Planning in LEO-MEO Double-Layer Satellite Networks: A Capacity-Stability Tradeoff Algorithm, Tianhao Liu, Xin Li, Chenyu Zhao, Xuhao Yan, Mingming Sun, Dongrou Wang and Shanguo Huang; *Beijing Univ. of Posts & Tel., China.* This paper proposes a capacity-stability tradeoff link planning (CSTLP) algorithm for LEO-MEO double-layer satellite networks (DLSNs).

Room 6, Track 6

W1F.4 • 09:00 Invited

Algorithm assisted comprehensive optimization of SPR sensors towards single molecule detection, Yunhan Luo; *Jinan Univ., China.*

W1F.5 • 09:20 Invited

Massively-parallel, 1064 nm interferometric diffusing wave spectroscopy, Wenjun Zhou; *China Jiliang Univ., China.* We present a massively-parallel, 1064 nm interferometric diffusing wave spectroscopy (iDWS) for non-invasive cerebral blood flow monitoring of the human brain at large source-detector separation up to 6 cm.

W1F.6 • 09:40 Invited

Temperature compensation of fiber optic current sensors, Qun Han; *Tianjin Univ., China.*

10:00-10:30 Poster Session 2 & Tea Break

Poster Session 2 (10:00-10:30)

P2.1 1700
Study on Physical Shadowing and Tip Effects in Through-Silicon Via Technology, Zhicheng Xie, Yu Lei, Liang Song, Yanling Lu, Shushu Shi, Wanlin Wu and Zungui Ke; *Southwest Inst. of Technical Physics., China*. Optimizing via opening morphology mitigates shadowing and tip effects during magnetron sputtering.

P2.2 1916
Design and Investigation of Hybrid Electrode with Spiral Inductors for Photodetectors, Run Wang, Xiaofeng Duan, Yuansen Shen, Mengya Zhang, Yongqing Huang and Kai Liu; *Beijing Univ. of Posts & Tel., China*. This paper proposes a spiral-inductor-based hybrid electrode for photodetectors.

P2.3 1675
Design of ultrathin cascaded SOI microring resonators for optical glucose sensing, Chuxian Tan, Zhengxiang Xie, Si Chen, Jiaqi Wang, Yu Du, Youfu Geng, Xuejin Li and Zhenzhou Cheng; *Shenzhen Univ., China*. We proposed ultrathin silicon-on-insulator cascaded microring resonators based on slot waveguides for glucose sensing.

P2.4 1656
Symbol-Level Nonlinear Equalization for Coherent Optical Communications Based on a Power-Conditioned Residual Memory Network, Shuaihang Wang, Yongjun Wang, Xinyu Yuan, Hongyuan Li, Xin Zhang, Dingxiang Shen, Haifeng Yang, Feng Tian and Qi Zhang; *Beijing Univ. of Posts & Tel., China*. PC-MRN integrates Kerr-inspired odd-order features, residual learning, and FiLM-based launch-power conditioning to jointly compensate multi-power nonlinear distortions.

P2.5 2030
Tapered Fiber Mach-Zehnder Interferometer Salinity Sensor Based on Time-Stretching Effect, Yuhui Liu, Weihao Lin, Renan Xu, Chenxi Wu, Mingkun Zhang, Boqiang Lin and Yihua He; *Quanzhou Normal Univ., China*. This article presents a real-time salinity monitoring sensor based on a tapered fiber Mach-Zehnder interferometer.

P2.6 2208
Multi-Channel Secure Key Distribution Based on Wideband Chaos Synchronization in Commonly Driven Fabry-Perot Lasers, Guanqi Chen, Ning Jiang, Anran Li, Jinyun Cao, Yong Geng and Kun Qiu; *Univ. of Electronic Sci. & Tech. of China, China*. We demonstrate a multi-channel wideband secure key distribution scheme using commonly driven Fabry-Perot lasers.

P2.7 2342
Comparison of RD and BP Algorithms for Photonics-based SAR Imaging, Chenan Wang, Fangzheng Zhang, Jiayuan Kong, Yuhui He, Zhenyu Xu and Shilong Pan; *Nanjing Univ. of Aero. and Astronaut., China*. The performance of photonics-based synthetic aperture radar (SAR) imaging with range-Doppler (RD) algorithm and back-projection (BP) algorithm is investigated.

P2.8 2299
Physics-Aware Bi-Mamba Equalizer for Fiber Nonlinearity Compensation in Coherent Optical Communication Systems, Hongyuan Li, Yongjun Wang, Shuaihang Wang, Xin Zhang, Dingxiang Shen, Qi Zhang and Xiangjun Xin; *Beijing Univ. of Posts & Tel., China*. We propose a physics-aware Bi-Mamba nonlinear equalizer for coherent optical communication systems.

P2.9 2270
Design and Fabrication of Slotted Surface-Grating DFB Lasers at 1550 nm, Zhenzhen Yin, Yuan Ke, Can Li, Shunyang Liu, Li Xia, Jing Zhang and Guanghui Zheng; *Huazhong Univ. of Sci. and Tech., China*. This paper presents 1550 nm InP-based surface-grating DFB lasers.

P2.10 2383
Consumer Indoor Optical Wireless Communication System with Automatic Tracking and Wide Field-of-View Based on Gimbal Steering, Yue Xu, Zhantao Yu and Yanfu Yang; *Harbin Inst. of Tech., Shenzhen, China*. A low-cost fiber-wireless-fiber system uses a gimbal and a pre-collimation beam splitter for a 180-by-40-degree field of view.

P2.11 2452
Sparse Vector Coding for Clipping-Free DCO-OFDM Visible Light Communication, Ke Wang and Liqian Wang; *Beijing Univ. of Posts & Tel., China*. We propose SVC-DCO, a waveform that embeds information into the support set of a K-sparse vector rather than constellation amplitudes.

P2.12 2626
Synchronization Parameter Estimation in Asynchronous Optical Sampling Using Repetition-Rate Prior Information, Junjie Jiang, Feng Tian, Meng Qiu, Chuanji Yan, Jianwei Zhou, Jing Zhang, Qi Zhang and Haipeng Yao; *Beijing Univ. of Posts & Tel., China*. This paper proposes a synchronization parameter estimation method that leverages repetition-rate prior information.

Poster Session 2 (10:00-10:30)

P2.13 2923
High-precision Laser Doppler length measuring system based on adaptive technology and spectrum shift, Tongqing Liao; *Anhui Univ., China*. An adaptive technology and spectrum shift is used to improve the frequency resolution of the Doppler signal. Relative errors at each speed are studied.

P2.14 3096
Low-Bias and High-Power Modified Uni-Traveling-Carrier Photodetector Based on A Self-Induced Field-Assisted Depletion, Liwen Wang, Yongqing Huang, Shuhu Tan, Kai Liu, Xiaofeng Duan, Qi Wang and Xiaomin Ren; *Beijing Univ. of Posts & Tel., China*. A novel MUTC-PD based on self-induced field-assisted depletion is proposed.

P2.15 3103
Integrated Chaos Encryption and Frequency-Hopping Communication based on Delta-Sigma Modulator, Yuqing Wu, Xiaoyang Liu, Chuanming Huang, Lei Deng, Deming Liu and Mengfan Cheng; *Huazhong Univ. of Sci. and Tech., China*. We demonstrate a secure 5Gb/s 16QAM RoF system integrating chaos encryption and frequency-hopping with a 5ns-period and 10GHz-range.

P2.16 2647
Impairment Characterization of a Common-Source Dual-Comb Microwave Photonic Frequency Converter, Ganheng Zhang, Tao Pu, Hua Zhou, Jilin Zheng, Jin Li, Xiaolong Zhao, Xianshuai Meng and Shuntao Xiao; *Army Eng. Univ. of PLA, China*. A compact impairment model and a correspond-ing measurement characterization method for a common-source dual-comb microwave photonic frequency converter are presented.

P2.17 3293
Enhancing the Frequency Characteristics of 980 nm VCSELs Using Graded Barrier Layers, Qingran Hou and Xiansheng Tang; *Qilu Univ. of Tech., China*. A 980 nm VCSEL with graded active-region end barriers is designed. Its -3 dB bandwidth rises by 58% at 2 mA injection current.

P2.18 3336
High-Sensitivity Refractive Index Sensor Based on a 3D-Printed Concave Micro-Reflector on a Single-Mode Fiber Tip, Liangwen Xu, Huang Quandong, Zhong Liling, Xu Ou and Dong Xinyong; *Guangdong Univ. of Tech., China*. We propose a refractive index sensor based on a Fabry-Perot interferometer via a micro-reflector on a single-mode fiber tip.

P2.19 3349
Study on Pumping Scheme Optimization for Hollow-Core Fiber-Based Remote Optical Pump Amplification, Xiaocui Deng, Linlin He, Liqian Wang and Tao Yang; *Beijing Univ. of Posts & Tel., China*. For HCF-based remote pumping systems, single-, dual-, and triple-wavelength schemes were compared. Results show that the dual-wavelength scheme achieves the optimal trade-off between gain flatness and OSNR.

P2.20 3119
The generation of the high-carrier-frequency linearly frequency-modulated waveforms based on the single optial frequency comb, Jiayi Zhao, Jin Li, Jilin Zheng, Xiaoqin Yang, Hua Zhou, Haisong Jiao, Tao Pu, Qiang Gao, Qi Zhan, Xinyue Yang and Guoyan Wang; *Army Eng. Univ. of PLA, China*. Simulation results verify that the proposed scheme successfully achieves frequency conversion of 0–6 GHz LFM signals across the 54–60 GHz frequency range.

P2.21 3627
Joint Dual-Pilot-Tone and MIMO-BPS scheme for EEPN Mitigation in Few-Mode Fiber Systems, Xiao Zhu, Jialin You and Xia Zhang; *Liaocheng Univ., China*. This paper proposes a dual-pilot-tone scheme to mitigate EEPN in few-mode systems: pilots in one mode estimate Tx/LO phase noise.

P2.22 3422
High-efficiency edge coupler for hybrid integration of distributed feedback lasers, Zhiwen Zhang, Xiansheng Tang, Shilong Li, Evgenii Lutsenko, Wei Zhang, Shumeng Wang and Zhaowei Wang; *Qilu Univ. of Tech., China*. We propose a high-efficiency edge coupler on the silicon nitride (Si3N4) platform, designed for the hybrid integration of distributed feedback (DFB) lasers with silicon photonic chips.

P2.23 3731
Performance Comparison between V-Shaped and U-Shaped Bent Side-Polished Plastic Optical Fiber Sensors for Refractive Index Measurement, Jinyu Wang; *Laser Inst., Shandong Academy of Sci., China*. A comparative study on the performance of side-polished V-bent and U-bent plastic optical fiber (POF) refractive index sensors was conducted.

P2.24 3877
Fast-Converging and Robust Automatic Mode-Locked Fiber Laser Based on the Grey Wolf Optimization Algorithm, Xingru Chen and Yufeng Song; *Shenzhen Univ., China*. The grey wolf optimizer enables fast, robust autonomous mode-locking in a Yb-doped fiber laser, achieving a 100% success rate in 50 trials and averaging only 4.44 generations to lock stable dissipative solitons.

Poster Session 2 (10:00-10:30)

P2.25 4580

Computing-Aware Orchestration for Wide-Area LLM Training over Optical Networks, Ming Wang and Jie Zhang; *Beijing Univ. of Posts & Tel., China*. We propose Computing-Aware Orchestration, a framework jointly optimizing compute and optical resources for wide-area LLM training via the Time-Constrained Computing-Optical Synergy algorithm.

P2.26 4449

Null-Steering in Photonic Wideband Beamforming Based on Multi-subband Amplitude and Phase Manipulation, Xinpeng Wang, Shilong Chen, Guchang Chen, Xue Lan, Feifei Yin, Kun Xu and Yitang Dai; *Beijing Univ. of Posts & Tel., China*. We propose a broadband microwave photonic transmitting system with null-steering capability via multi-subband amplitude-phase manipulation.

P2.27 4293

Ridge-Guided Doppler-Energy Focused Attention for Low-RCS Small Aerial Target Classification, Shiqin Xie, Qi Liu, Meng Song and Chuanxin Zeng; *Beijing Univ. of Posts & Tel., China*. This paper proposes RG-DEFA, a Doppler-ridge-guided attention module that emphasizes weak micro-motion sidebands in radar spectrograms and improves lightweight CNN classification on DIAT-μSAT.

P2.28 4336

Frequency-Aware Feature Fusion Aided Adaptive Compensation for Orbital Angular Momentum Optical Wireless Communication, Peng Dong, Huan Chang, Fei Wang, Qi Xu, Yitao Feng, Dong Guo and Ran Gao; *Beijing Inst. of Tech., China*. A frequency-aware FY-Net, which replaces PixelShuffle with adaptive frequency filters to reduce aliasing, is proposed for OAM beam adaptive compensation under atmospheric turbulence.

P2.29 4845

A Fast MVDR Algorithm in Optical Phased Arrays based on Grade-Dimension-Rank Tri-Reduction, Hong Bao, Guang Yang, Shilong Chen, Xue Lan, Kun Xu and Yitang Dai; *Beijing Univ. of Posts & Tel., China*. This paper proposes a synergistic "Grade-Dimension-Rank tri-reduction" fast MVDR algorithm.

P2.30 4654

Photoconductive Sampling for Capturing 60 Gbps 16QAM Terahertz Communication Signal, Hongqi Zhang, Guanyu Chen, Zhiwei Wang, Yifan Hong, Jianxiao Luo, Jing Chen and Xianbin Yu; *China Mobile (Hangzhou) Info. Tech. Co., Ltd., China*. A high-speed THz photoconductive sampling system operating in the 132 GHz band is experimentally demonstrated.

P2.31 5078

TFBG-SPR Aptasensor for Ultrasensitive and Specific Detection of Plasticizer DEHP, Meiqi Zhou, Xiaofang Li, Zhihong Li and Jianfu Xia; *Wenzhou Univ., China*. A TFBG-SPR aptasensor for ultra-sensitive and highly specific DEHP detection is proposed, exhibiting a sensitivity of 0.276 dB/$\log_{10}$(pM) over a wide detection range of 1–10^6 pM with an LOD as low as 0.12 pM.

P2.32 5146

Frequency-Hopping Signal Generation and De-Hopping Based on a Single Optical Frequency Comb, Qiang Gao, Zilong Zhou, Jilin Zheng, Tao Pu, Hua Zhou, Jin Li, Xiaolong Zhao, Shuya Liu, Xianshuai Meng and Xinyu Zhang; *Army Eng. Univ. of PLA, China*. In this paper proposes a frequency-hopping signal generation and de-hopping scheme based on a single OFC.

P2.33 5172

Simulation and Design of Evanescent Coupling between Si3N4 Waveguides and III-V UTC-PDs, Dezhang Guan, Baijin Li and Yunjiang Jin; *Sun Yat-sen Univ., China*. To overcome the power-bandwidth trade-off in conventional PDs, we propose an evanescently-coupled Si_3N_4 waveguide/III-V UTC-PD structure..

P2.34 5267

A Tunable Dual-Wavelength Photonic Reservoir Computing Processor, Ning Shu, Yihang Lai, Qi Chen, Tian Zhang, Jian Dai and Kun Xu; *Beijing Univ. of Posts & Tel., China*. The proposed tunable dual-wavelength photonic reservoir computing scheme, optimized by covariance matrix adaptation evolution strategy, achieves memory capacities ranging from 12 to 20.

P2.35 5304

High-Stability Laser Driving and Temperature Control System for Sensing Applications, Mengyuan Yi, Weihua Gong, Lili Han, Lutsenko Evgenii and Zhaowei Wang; *Qilu Univ. of Tech., China*. A highly stable laser drive and temperature control system is proposed to suppress electrical noise and thermal drift. Achieving 7.03 μA current stability and ±50 mK temperature precision, it enables robust, high-performance gas sensors.

P2.36 5764

Offshore Wind Turbine Gearbox Fault Identification Using Multi-Domain Feature Fusion and Hybrid Ensemble Learning, Chuliang Wei, Wei Wei, Chunying Xu and Lian Zhan; *Shantou Univ., China*. This study fuses time-frequency features with a hybrid SVM-XGBoost ensemble model. Validated on the NREL dataset, it achieves superior accuracy and robustness under varying operational conditions..

Poster Session 2 (10:00-10:30)

P2.37 6037

Temperature Compensation for Magneto-Optic Fiber Current Sensors Based on Zero-Field Baseline Drift, Yupeng Wang, Qun Han, Qingrui Yang, Changxin Fan, Yanyan Lu and Zhenzhou Cheng; *Tianjin Univ., China*. This paper proposes a temperature compensation strategy for FOCS by using zero-field bias angle as a thermal indicator.

P2.38 6106

Performance Analysis of NOMA-Based Ultraviolet Communication Systems with Imperfect SIC, Han Zhou, Zhiyong Xu, Yanling Gao, Li Lv, Jianhua Li, Jingyuan Wang, Leitao Wang, Hao Zhou and Cheng Li; *Army Eng. Univ. of PLA, China*. This paper investigates ultraviolet non-orthogonal multiple access (UV-NOMA) systems.

P2.39 5733

XRF Spectrum Simulation Generator Based on Fundamental Parameters Method, Jiajie Li, Mohai Yue, Qi Zhang, Xiangjun Xin, Ran Gao, Lan Rao, Feng Tian, Yun Teng, Yongjun Wang, Qinghua Tian and Fu Wang; *Beijing Univ. of Posts & Tel., China*. This paper presents a software tool for EDXRF spectral simulation and quantitative analysis based on the fundamental parameters method.

P2.40 5765

Design of an Online Detection Device for Cut Tobacco Filling Value, Zehui Wang, Huacai Chen, Jiejie Shi, Wei Ying, Gaoyan Xu, Xu Kong and Jianwei Wang; *China Jiliang Univ., China*. An online detection device for cigarette cut tobacco filling value was designed and tested on cigarette production line, with 47s per test, 0.46% mean relative error, RSD<3%, meeting cigarette primary processing quality control requirements..

P2.41 6128

A Reconfigurable Kerr-Nonlinear Mach–Zehnder Activation Cell for Wavelength-Division Multiplexing Optical Neural Networks, Dingmin Cheng, Ling Zhang, Hang Zhang and Duan Huang; *Central South Univ., China*. This work presents a reconfigurable Kerr-MZI nonlinear activation unit for four-channel WDM optical neural networks.

P2.42 6132

Node Betweenness Centrality-Based Controller Selection Algorithm for Large-Scale Optical Transport Networks, Wenhong Liu, Zhihong Xiao, Min Liu, Qi Wei, Guangxiang Jin and Yongli Zhao; *State Grid Econ. and Technol. Research Inst. Co., Ltd., China*. The proposed MNB selects controllers by maximizing node betweenness centrality.

P2.43 6383

Lightweight Multi-Scale Residual CNN with CBAM for Φ-OTDR Vibration Event Classification Using MFCC Features, Yi Shi, Huiying Yang, Wenkai You, Xin Liu and Chuliang Wei; *Shantou Univ., China*. LightResCNN-MS-CBAM, a lightweight multi-scale CNN with CBAM, achieves 85.2% accuracy and 0.27M parameters for Φ-OTDR event recognition using MFCC, outperforming MobileNetV2, ResCNN, and ViT-Tiny.

P2.44 6447

Ultra-Broadband ENZ Modulator Based on Graphene–Black Phosphorus Hybrid Structure, Ruihao Yu, Yu Xia, Xuwei Yan, Xiaojie Liu and Feng Zhou; *Comm. Univ. of Zhejiang, China*. We report a graphene–black phosphorus hybrid ENZ modulator operating from 400 nm to 18.63 μm. The proposed device achieves enhanced modulation depth, improved figure of merit, and high-speed electrical tunability.

P2.45 6449

Chirped Grating Coupler Array for Vertical Multimode Fiber-to-Chip Coupling, Zhihao Chen and Zunyue Zhang; *Tianjin Univ., China*. We propose and simulate a chirped grating coupler array employing subwavelength engineering for efficient vertical multimode fiber-to-chip coupling.

P2.46 6467

Noise Reduction Solution for OTDR with Joint Adaptive Baseline Calibration and Wavelet Transform, Mingchun Chen, Bingjie Zhang, Jiaping Xu, Jialun He, Jiawei Wan and Tao Yang; *Beijing Univ. of Posts & Tel., China*. A joint scheme combining adaptive baseline calibration and wavelet transform is proposed to reduce optical time-domain reflectometry (OTDR) noise.

P2.47 6522

Simulation and Experiment of Bessel Beam Generation Based on Axicon, Kai Gu, Zhiwen Zhang, Mengyuan Yi, Weihua Gong, Hui Jiang, Wei Zhang and Zhaowei Wang; *Qilu Univ. of Tech., China*. We design an axicon - based system verified by ZEMAX and experiment. Measured and simulated no-diffracting distances approach the theoretical 2.80 mm, supporting relevant studies.

P2.48 6505

Zinc Oxide-Polyaniline Coating Michelson Interferometric Optical Fiber Ammonia Sensor, Jun Zhao, Dong Zhang, Baoqian Li, Xin Mao, Tianxiang Zhang and Lijun Li; *Shandong Univ. of Sci. & Tech., China*. This paper presents a ZnO–PANI-coated tapered thin-core fiber Michelson interferometric NH_3 sensor with a fiber reflective mirror, showing linear response (0–100 ppm), −32.7 pm/ppm sensitivity, fast response (36 s/42 s), and good stability.

Room 1, YSA

10:30-12:00
W2A. Young Scientist Award
*Presider: **Yange Liu,** Nankai University, China*

W2A.1 • 10:30 Invited

All fiber vortex interferometry measurement technology based on mode selection couplers, Yange Liu; *Nankai Univ., China.*

W2A.2 • 10:45 ◇ 7944

Inter-vector-mode Brillouin-enhanced multiple-wave mixing in microstructured optical fiber, Xinglin Zeng, Jiuming Zhao, Ruochen Yin, Wenbin He, Jiapeng Huang, Zhiyuan Huang, Jinxin Zhan, Xin Jiang, Meng Pang and Long Zhang; *Shanghai Inst. of Optics & Fine Mechanics, CAS, China.* We report Brillouin scattering of cylindrical vector modes in nano-bore photonic crystal fiber, show nonreciprocal inter-vector-modal Brillouin-enhanced multiple-wave mixing, and narrow-linewidth vector mode Brillouin lasers.

W2A.3 • 11:00 ◇ 1893

Distributed Certified Entropy in Free-Space Optical Quantum Networks, Lang Li; *The Univ. of Hong Kong, China.* We demonstrate the first quantum certification network over free-space optical links, thereby providing verifiable and unpredictable entropy resource for remote nodes.

Room 2, Track 2

10:30-12:00
W2B. Optical Transmission IV
*Presider: **Chen Chen,** Chongqing University, China*

W2B.1 • 10:30 Invited

Modeling and compensation for mode-dependent effects in MDM systems based on the density matrix formalism, Zhenshan Yang; *Liaocheng Univ., China.*

W2B.2 • 10:48 Invited

Joint Timing-and-Phase Modeling and Compensation of EEPN in High-Speed Coherent Optical Systems, Xinwei Du; *Beijing Normal-Hong Kong Baptist Univ., China.* This talk revisits equalization-enhanced phase noise (EEPN) in coherent optical systems. A unified analytical framework and practical receiver-side compensation scheme are presented.

W2B.3 • 11:06 Invited

Multi-dimensional deep integration between sensing and communication using optical fiber, George Y Chen; *Shenzhen Univ., China.* Optical fiber communication infrastructure is deeply rooted in modern society, forming an expansive global neural network. We aim to utilize these communication fibers and transform them into multimodal sensing nerves, providing new insights into our changing world.

Room 3, Track 4

10:30-12:00
W2C. Optoelectronic Integration IV
*Presider: **Nianqiang Li,** Soochow University, China*

W2C.1 • 10:30 Invited

Photonic neural networks based on laser graded neurons, Nianqiang Li; *Soochow Univ., China.*

W2C.2 • 10:50 Invited

Heterogeneously Integrated Photonic devices for Sensing, Communication, and Power Delivery, Bin Zhang; *Sun Yat-sen Univ., China.*

W2C.3 • 11:10 ★ 8270

Ultralow-Cost Photonic Device Metrology Empowered by Programmable Photonics, Xiaozhuo Zhao, Ang Li, Jiaming Zhang, Yonghao Ma and Shilong Pan; *Nanjing Univ. of Aero. & Astronaut., China.* We demonstrate an ultralow cost photonic device characterization platform employing a CMOS compatible programmable photonic circuit and broadband source.

Room 4, Special1

10:30-12:00
W2D. Organic Optoelectronics IV
*Presider: **Xing Fan,** Chongqing University, China*

W2D.1 • 10:30 Invited

Design and Fabrication of Key Materials towards the Commercialization of Perovskite Solar Cells, Baomin Xu; *Southern Univ. of Sci. and Tech., China*. It is essential to design and develop key materials suitable for PSC commercialization as PSCs transitioning from laboratory to mass production now, and I will present several recent works of our team in this regard.

W2D.2 • 10:48 Invited

Atomic-level semiconductor displays, Haibo Zeng; *Nanjing Univ. of Sci. and Tech., China*.

W2D.3 • 11:06 Invited

Charge transport characterization and trap features of next-generation semiconductors, Qianqian Lin; *Wuhan Univ., China*. This talk mainly introduces the application of techniques including transient microwave photoconductivity (TRMC) based on the pump–probe principle and deep-level transient spectroscopy (DLTS) to the study of carrier dynamics in novel semiconductors.

Room 5, Track 3

10:30-12:00
W2E. Optical Networks II
*Presider: **Rentao Gu,** Beijing University of Posts and Technology, China*

W2E.1 • 10:30 Invited

High-Fidelity Emulation Technology for Cloud-Native-Based Space-Air-Ground Integrated Networks, Baokang Zhao; *National Univ. of Defense Tech., China*. In this talk, we will introduce a cloud-native emulation solution for SAGIN, achieving high-fidelity and reliable simulation of complex integrated network scenarios.

W2E.2 • 10:50 Invited

Millisecond-Level QoT System for Reliable Multi-Band Transmission Between AI Data Centers, Rentao Gu; *Beijing Univ. of Posts & Tel., China*. We propose an accelerated QoT system using closed-form ISRS-GN models and Just-In-Time (JIT) kernels. Achieving 0.34~ms latency and 1326-fold speedup over GNPy, it enables millisecond-level reliable provisioning for multi-band AI interconnects.

W2E.3 • 11:10 Invited

Neural network based physical-layer secure key distribution in fiber links, Xuelin Yang; *Shanghai Jiao Tong Univ., China*. To improve the application of PLSKD, we investigate the use of machine learning to enhance the PLSKD performances, where the neural networks have the capability of mapping the fiber channel effectively.

Room 6, Track 6

10:30-12:00
W2F. Measurement & Sensors IV
*Presider: **Yunhan Luo,** Jinan University, China*

W2F.1 • 10:30 Invited

Fiber optic refractive index sensing and characterization, Li-Peng Sun; *Jinan Univ., China*.

W2F.2 • 10:50 Invited

Silicon Photonic Chips for Miniaturized Optical Coherence Tomography, Xingchen Ji; *Shanghai Jiao Tong Univ., China*.

W2F.3 • 11:10 ★ 2289

Accurate Demodulation in MEMS Fabry-Perot Pressure sensor via Autoencoder-Based Spectral Learning and Temporal Convolutional Networks, Haoyang Xu, Mei Sang, Tianxiang Sun, Xuesong Xiang, Haojun Lin, Hongyu Liu and Shuang Wang; *Tianjin Univ., China*. A joint framework combining an autoencoder with temporal convolutional network, which effectively addresses the challenge of high-precision demodulation of the complex multi-cavity spectra.

Room 1, YSA

W2A.4 • 11:15 ◇ 2262

Stokes-Space Quantization-Enabled Hybrid Digital-Analog Radio-over-Fiber Modulation and Demodulation Architecture for Physical-Layer Secure Transmission, Xiaobo Zeng, Liangcai Chen, Pan Liu and Ruonan Deng; *Xiangtan Univ., China*. We propose and demonstrate a physical-layer secure digital-analog radio-over-fiber architecture using encryption-key-based Stokes-space quantization and 3D-codebook.

W2A.5 • 11:30 ◇ 8547

Spatiotemporal Mapping Real-Time Detection Technique for Spatiotemporal Mode-Locked Fiber Lasers, Jiangyong He, Yu Ning, Zhi Wang, Mingming Luo and Jianfei Liu; *Hebei Univ. of Tech., China*. We propose a real-time spatio-temporal mapping technique based on the combination of SDM and TDM, and realize spatio-tempora-spectral analysis of complex spatiotemporal dynamics of spatiotemporal mode-locked lasers.

W2A.6 • 11:45 Invited

Ultra-low frequency distributed acoustic sensing technology, Pengbai Xu; *Guangdong Univ. of Tech., China*.

Room 2, Track 2

W2B.4 • 11:24 Invited

Optical Integrated Communication, Sensing, and Power Transfer for 6G, Chen Chen; *Chongqing Univ., China*.

W2B.5 • 11:42 Invited

Tunable Single-Sideband Electro-Optic Modulator via Optical Hilbert Transformers on Thin-Film Lithium Niobate, Changjian Guo; *South China Normal Univ., China*. We explore the development of tunable, single-drive, single-sideband modulators via optical Hilbert transformers on thin-film Lithium Niobate platform.

Room 3, Track 4

W2C.4 • 11:25 ★ 9860

Broadband Achromatic Terahertz Metalens Based on Random Spatial Multiplexing, Menghan Zhu, Chunmei Ouyang, Guangtong Pan, Yao Lin and Daocheng Feng; *Tianjin Univ., China*. To address phase dispersion challenges in the terahertz regime, we design and simulate an achromatic metalens employing random spatial multiplexing technology, capable of operating across the 0.6-1.0 THz frequency range.

W2C.5 • 11:40 ★ 9711

Ultra-Broadband Mode Multiplexer Based on Heterogeneously Integrated Polymer-Thin film lithium niobate Strip-Loaded Waveguides, Juncheng Zhou, Quandong Huang, Ou Xu and Xinyong Dong; *Guangdong Univ. of Tech., China*. An ultra-broadband mode multiplexer based on heterogeneously integrated polymer–thin-film lithium niobate strip-loaded waveguides is demonstrated, enabling low-loss and low-crosstalk E11/E21/E31 mode multiplexing across 1200–2200 nm.

12:00-13:30 Lunch Break

Room 4, Special 1

W2D.4 • 11:24 Invited

High-Resolution Optoelectronic Devices Based on Femtosecond Laser Precision Manufacturing, Yue-Feng Liu; *Jilin Univ., China.*

W2D.5 • 11:42 Invited

All-woven integrated circuit based on fiber optoelectronics, Xing Fan; *Chongqing Univ., China.*

Room 5, Track 3

W2E.4 • 11:30 2051

Optimal vCDN Placement in Fixed Broadband Networks: A Multi-Objective ILP Formulation with Partial Caching, Yohana Jayanti Aruan; *Telkom Univ., Indonesia.* Multi-objective ILP for optimal vCDN placement in fixed broadband networks minimizes backhaul traffic and latency. Partial caching ratio α increases cache diversity by 1/α. Live testbed confirms 81.2% RTT reduction with Tier 2 vCDN.

W2E.5 • 11:45 0783

Oracle DNSZoo: A Scalable DNS Caching Service with ZooKeeper-Driven Membership Management, Mehul Vani; *Westcliff Univ., USA.* We introduce Oracle DNSZoo, a distributed DNS caching service leveraging a hierarchical, replicated cache architecture combined with dynamic server membership management via ZooKeeper.

Room 6, Track 6

W2F.4 • 11:25 ★ 1386

A novel phase-intensity fusion spectral domain OCT system to realize nanoscale displacement sensing and surface topography inspection, Shuqin Chen, Laiyang Dang, Fu Liu, Feng Li and Dongmei Huang; *Fuzhou Univ., China.* We propose a novel phase-intensity fusion 1.3 μm SD-OCT system to realize 2.2 μm resolution for surface topography by demodulating the intensity and nanometer resolution for displacement sensing by demodulating the phase.

W2F.5 • 11:40 ★ 9767

Massively-parallel interferometric Diffusing Wave Spectroscopy for deep CBF monitoring of the human brain, Xinyu Li, Zhicheng Wu, Yating Bi and Wenjun Zhou; *China Jiliang Univ., China.* We present a 2-D CMOS camera-based massively-parallel interferometric diffusing wave spectroscopy (iDWS).

12:00-13:30 Lunch Break

Room 1, Track 7

13:30-15:30
W3A. Ultrafast & Nonlinear I
*Presider: **Chengbo Mou**, Shanghai University, China*

W3A.1 • 13:30 Keynote

Nonlinear Polarization Optics and Its Applications, Chongqing Wu; *Beijing Jiaotong Univ., China*. Nonlinearity with multiple polarization effects is the ceiling that limits power and improves SNR, appearing in DP-QPSK, QAM, DVS, FOCT systems. Proposes the quaternion for analysis, and experiment results are provided for 4 different scenarios.

W3A.2 • 13:55 Keynote

Advances in Passive Harmonic Mode-Locking in Erbium-Doped Fiber Lasers: Artificial and Material Saturable Absorbers, Sulaiman Wadi Harun; *Universiti Malaya, Malaysia*. This keynote presents artificial and material saturable absorbers enabling third- and seventh-order harmonic generation in erbium-doped fiber lasers, offering tunable, high-performance ultrafast sources.

W3A.3 • 14:20 Invited

Self-injection locking, Kerr frequency comb and Raman Laser in AlN micro-resonator, Changxi Yang; *Tsinghua Univ., China*. We demonstrate self-injection locking, Kerr optical frequency comb and Raman lasers in AlN microresoantors for the first time.

Room 2, Track 8

13:30-15:30
W3B. Free-space Communications I
*Presider: **Xiaodan Pang**, Zhejiang University, China*

W3B.1 • 13:30 Invited

Practical Implementation of Underwater Wireless Optical Communications, Jing Xu; *Zhejiang Univ., China*.

W3B.2 • 13:50 Invited

Development of Optical Communication Technology in Deep Space TT&C Systems, Haifeng Yang; *Southwest China Inst. of Electronic Tech., China*.

W3B.3 • 14:10 Invited

Multipoint free-space optical communication networking based on all-optical switch, Shiming Gao; *Zhejiang Univ., China*.

Room 3, Track 5

13:30-15:30
W3C. Optical Signal Processing I
*Presider: **Wenting Wang**, Beijing Institute of Technology, China*

W3C.1 • 13:30 Invited

Real-time Spectrogram Analysis and Processing for high-speed signals, Jose Azana; *INRS-EMT, Canada*.

W3C.2 • 13:50 Invited

Channel Impairments in Rolling-Shutter Underwater Optical Camera Communications, Ke Wang; *RMIT Univ. Australia*. Here, we review state-of-the-art RS U-OCC designs and outline research gaps and directions.

W3C.3 • 14:10 Invited

Broadband Phased Array Receiver Based on Microwave Photonic Channelization, Yitang Dai; *Beijing Univ. of Posts & Tel., China*. Utilizing channelization and virtual time delay technology, a user-oriented phased array receiver with low SWaP cost is achieved, supporting simultaneous multi-beam processing for wideband signals.

Room 4, Special 3

13:30-15:30
W3D. Intelligent Optoelectronics I
*Presider: **Fang Wang,** Shanghai Institute of Technical Physics, CAS, China*

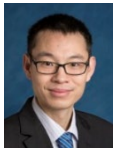
W3D.1 • 13:30 Keynote

Intelligent Infrared Photodetectors and Emerging Architectures, Weida Hu; *Shanghai Institute of Technical Physics, CAS, China*.

W3D.2 • 13:55 Keynote

Plasmonic manipulation of dark excitons and valley polarization in monolayer semiconductors, Dangyuan Lei; *City Univ. of Hong Kong, China*. I will show how to employ plasmon-exciton weak coupling to activate room-temperature emission of spin-forbidden dark excitons and chiral plasmon-valley exciton strong coupling.

W3D.3 • 14:20 Invited

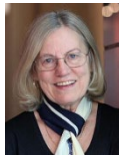


High performance VCSELs enabled by internal-cavity engineering, Jiang Wu; *Univ. of Electronic Sci. & Tech. of China, China*. This talk presents an internal-cavity engineering approach to narrow the VCSEL linewidth without introducing additional optical loss. By optimizing the optical field distribution in a VCSEL structure, we achieve a narrow linewidth of around 1 MHz and an output power over 1.0 mW.

Room 5, Special 2

13:30-15:30
W3E. AI Photonics I
*Presider: **Wen Zhou,** Fudan University, China*

W3E.1 • 13:30 Keynote



Mitigating Component Nonlinearity Across a Wide Palette of Neural Networks, Leslie A. Rusch; *Université Laval, Canada*. We compensate for nonlinearities from diverse device impairments, including laser phase noise, quantization, and modulator nonlinearity. Our solutions, spanning direct and coherent detection, use various neural network structures across multiple complexity levels.

W3E.2 • 13:55 Invited

Multimode fiber optical neural network: principle and applications, Wei Lin; *Nankai Univ., China*. In this talk, we introduce a novel ONN architecture based on Multimode fiber, i.e., MMF-ONN. We will present the theoretical model of the MMF-ONN based on eigenmode-space mapping and its design method based on the Runge-Kutta algorithm.

W3E.3 • 14:15 Invited

Efficient Optical Transformer via Opto-Electronic Knowledge Distillation on MZI Meshes, Jian Zhao; *Tianjin Univ., China*. We propose an opto-electronic knowledge distillation framework enabling MZI-mesh photonic Transformers for NLP.

Room 6, Special 4

13:30-15:30
W3F. Optical Biosensors I
*Presider: **Yang Ran,** Jinan University, China*

W3F.1 • 13:30 Invited

Tissue optical clearing imaging for whole organs, Dan Zhu; *Huazhong Univ. of Sci. and Tech., China*. Tissue optical clearing technique promises to visualize 3D whole organs with high resolution, and achieves significant breakthroughs in biomedical fields. Here I will demonstrate optical clearing imaging principle, methods and applications for whole organs.

W3F.2 • 13:50 Invited

Optical Field Regulation and Information Extraction via Multiparticle Coupling at the Nanoscale, Xiaolan Zhong; *Beihang Univ., China*. Light-matter interactions at nanoscale interfaces are regulated and decoded through multiparticle coupling, enabling emission control, spectral encoding, and sub-femtonewton force sensing for biosensing, imaging, and theranostic applications.

W3F.3 • 14:10 Invited

Tunable On-Chip Spectroscopy Based on Opto-Mechatronic Integration, Qin Chen; *Jinan Univ., China*.

Room 1, Track 7

W3A.4 • 14:40 Invited

Carbon nanotube saturable absorber for ultrafast lasers, Chengbo Mou; *Shanghai Univ., China.*

W3A.5 • 15:00 ★ 5372

Deep Reinforcement Learning Enabled Programmable Capture of Stationary and Rotating Vector Solitons in Fiber Lasers, Fanghao Li, Zekai Zhu and Yufeng Song; *Shenzhen Univ., China.* A deep reinforcement learning framework with dual-channel polarization feedback autonomously discovers and controls polarization-locked and rotating vector soliton states in fiber lasers.

W3A.6 • 15:15 ★ 4350

Noise Suppression in a Passively Harmonic Mode-Locked Er-Doped Fiber Laser via Phase-Lead Compensated Pump Feedback, Jiaxin Xu, Chengbo Mou, Qianqian Huang, Kailin Jiang, Kai Wang, Lilong Dai, Haochen Tian, Youjian Song and Linghui Yang; *Shanghai Univ., China.* A passive phase-lead compensation network suppresses servo bump and improves noise performance in an SWCNT-based HML fiber laser.

Room 2, Track 8

W3B.4 • 14:30 Invited

OTFS-Based Optical Wireless ISAC: Communication and Sensing Performance Analysis, Minghua Cao; *Lanzhou Univ. of Tech., China.*

W3B.5 • 14:50 Invited

Wavefront detection using photonic lanterns for free-space optical communications, Dongpeng Kang; *Harbin Inst. of Tech., China.* We show how photonic lanterns, with just a few modes, can be used for wavefront detection in free-space optical communications, allowing simultaneous communication and beaconless tracking.

W3B.6 • 15:10 Invited

Progress and Challenges of Free-Space Optical Communications Through the Atmospheric Channel, Xiaodan Pang; *Zhejiang Univ., China.* This talk will summarize the key technological achievements and next-phase challenges in free-space optical (FSO) communications, in particular through the dynamic atmospheric channels.

Room 3, Track 5

W3C.4 • 14:30 Invited

Broadband Chaotic Signal Generation and Application Based on Microwave Photonics, Muguang Wang; *Beijing Jiaotong Univ., China.* This report reviews the broadband chaotic signal generation and its application in integrated radar communication system and random number generation.

W3C.5 • 14:50 Invited

On-chip microwave photonic signal processing for broadband wireless communications, Xiuyou Han; *Dalian Univ. of Tech., China.*

W3C.6 • 15:10 Invited

High speed optical communication with optical frequency microcomb, Wenting Wang; *Beijing Inst. of Tech., China.*

15:30-16:00 Poster Session 3 & Tea Break

Room 4, Special 3

W3D.4 • 14:40 Invited

TBD, Wei Wei; *Chongqing Univ., China*.

W3D.5 • 15:00 Invited

Performance and Mechanism Research of Two-dimensional Polarized Photodetectors, Wei Xin; *Northeast Normal Univ., China*. We introduced our work from the view of constitutive equations for the first time. Perspectives on the opportunities and challenges are also discussed.

W3D.6 • 15:20 Invited

Hybrid multi-color Infrared detector and imaging FPA, Xuechao Yu; *SINANO, CAS, China*.

Room 5, Special 2

W3E.4 • 14:35 Invited

Inverse-designed silicon nitride photonic integrated circuits, Tong Lin; *Southeast Univ., China*.

W3E.5 • 14:55 Invited

Research on ultra-wideband, ultra-long-range photonic terahertz intelligent communication technology Wen Zhou; *Fudan Univ., China*. Facing the important strategic demand for 6G terahertz low-altitude high-speed interconnection, the author has conducted research in three aspects.

W3E.6 • 15:15 Invited

Research on satellite damage localization analysis based on fiber sensor combined with artificial neural network, Yunshan Zhang; *Beijing Univ. of Tech., China*.

Room 6, Special 4

W3F.4 • 14:30 Invited

Bridging the Gap: High-Sensitivity Fiber-Optic Biosensors in Theranostics Yunyun Huang; *Jinan Univ., China*.

W3F.5 • 14:50 Invited

Natural Microfibre Biosensors, Xianguang Yang; *Jinan Univ., China*. We introduce biocompatible and flexible microfibers from lotus silk as microenvironmental monitors that exhibit waveguiding of intrinsic fluorescence as well as of coupled light.

W3F.6 • 15:10 Invited

Optical manipulation with photonics nanojet, Yuxuan Ren; *Fudan Univ., China*. We demonstrate recent progress in photonic nanojet mediated optical manipulation of spherical and Janus particle. In particular, the Janus particle is maneuvered by topologically protected nanojet.

15:30-16:00 Poster Session 3 & Tea Break

Poster Session 3 (15:30-16:00)

P3.1 6540
Broadband and Angle-Dependent Plasmonic Photodetector Based on Graphene-Black Phosphorus Heterostructure, Yu Xia, Ruihao Yu, Xiaojie Liu, Xuwei Yan and Feng Zhou; *Comm. Univ. of Zhejiang, China.* A plasmon-assisted graphene–black phosphorus hybrid photodetector is proposed for broadband detection from visible to mid-infrared wavelengths.

P3.2 6810
Spectral-Spatial Joint Optimization of In-line Filtering for Cascaded ASE Noise Management in 1000-km Unrepeatered Transmission, Linlin He, Jintong Wang, Xiaocui Deng, Liqian Wang and Tao Yang; *Beijing Univ. of Posts & Tel., China.* We propose a spectral-spatial joint optimization scheme of in-line filtering for cascaded ASE noise management in 1000-km unrepeatered transmission systems.

P3.3 7009
A Programmable Filter Technique Based on Optical Amplitude and Phase Manipulation of Laser Array, Zihang Wang, Xue Lan, Shilong Chen, Haoyan Xu, Feifei Yin, Kun Xu and Yitang Dai; *State Key Lab of Info. Photonics & Optical Comm., China.* This paper presents a programmable filter system based on the laser array.

P3.4 6815
SSFM-Assisted Residual Temporal Convolutional Network for WDM Optical Fiber Channel Modeling, Xin Zhang, Yongjun Wang, Hongyuan Li, Dingxiang Shen, Shuaihang Wang, Qi Zhang and Xiangjun Xin; *Beijing Univ. of Posts & Tel., China.* SSFM-TCN models WDM fiber channels by combining linear SSFM and residual TCN learning, reaching 1.35×10^{-3} BER and −31.2 dB NMSE at 1040 km with 5.6× speedup.

P3.5 7015
Optical Fiber Vector Wind Speed Sensor Based On Cylindrical Cantilever Beam And Sensitized Ellipsoid Composite Structure, Shaohua Chen, Wenxue Meng and Jianhua Wang; *China Univ.of Petroleum, Beijing, China.* The FBG vector wind speed sensor is developed for the harsh marine environment.

P3.6 7068
A Terahertz CRLH Leaky-Wave Antenna for UTC-PD Integration, Mengya Zhang, Xiaofeng Duan, Run Wang, Yongqing Huang, Kai Liu and Xiaole Gong; *Beijing Univ. of Posts & Tel., China.* A CRLH leaky-wave antenna for UTC-PD integrated terahertz beam scanning is proposed.

P3.7 6840
T-band Electro-optic Modulator Based on Thin-Film Lithium Niobate–Silicon Nitride Heterogeneous Integration, Chuang Shao, Jianping Li, Jianbo Zhang and Yuwen Qin; *Guangdong Univ. of Tech., China.* We propose a TFLN-SiN heterogeneously integrated modulator achieving 0.91 V·cm, optical loss below 0.1 dB/cm and electro-optic bandwidth over 100 GHz.

P3.8 7023
Study on the Local Enrichment Effect in the Open-Tube Diffusion Process of InP, Yu Lei, Zhicheng Xie, Liang Song, Haotian Jiang, Wanlin Wu, Guoling Luo and Zungui Ke; *Southwest Inst. of Technical Physics, China.* To suppress edge enrichment in InP open-tube diffusion, a regional masking strategy with multilayer masks and selective etching controls source distribution, reducing junction depth from 2.66 to 1.78 μm and improving uniformity by 10%.

P3.9 7085
Directional Interference Suppression in Photonic Channelized Broadband Phased Array, Shilong Chen, Xinpeng Wang, Guchang Chen, Xue Lan, Feifei Yin, Kun Xu and Yitang Dai; *Beijing Univ. of Posts & Tel., China.* A microwave photonic channelized wideband phased array receiver with interference suppression capabilities is proposed and demonstrated..

P3.10 7112
Tunable and switchable all-fiber mode-locked laser based on a two-stage Lyot filter, Yupeng Tian, Dongfang Jia, Danyang Wang, Enfan Zhou, Yi Liu, Hanwen Sun, Chunfeng Ge, Zhaoying Wang and Tianxin Yang; *Tianjin Univ., China.* This paper demonstrates a tunable all-fiber mode-locked laser employing a two-stage Lyot filter.

P3.11 7119
Optimized Ionization Coefficient Ratio for InGaAs/InAlAs Avalance Photodiodes with Dual-Multiplication-Layer, Mengyang Gao, Tianlin Ma, Xiaofeng Duan, Kai Liu and Yongqing Huang; *Beijing Univ. of Posts & Tel., China.* A dual-multiplication-layer InGaAs/InAlAs APD is proposed to engineer electric-field distribution and reduce the ionization coefficient ratio k.

P3.12 7148
The influence of high and low frequency plasma power on the quality of silicon nitride films, Zhicheng Xie, Yu Lei, Yanling Xiong, Liting Deng, Wanlin Wu, Liang Song and Zungui Ke; *Southwest Inst.of Technical Physics, China.* Using dual-frequency PECVD, SiNx films for InP detectors were optimized. Decoupled RF/LF power control yielded a minimum BOE corrosion rate of 0.38 nm/s, balancing ion flux and energy to enhance film quality.

Poster Session 3 (15:30-16:00)

P3.13 7161
Simulation Study on Dataset Classification Based on Quantum Neural Networks, Jing Wang, Huan Chen and Junsen Lai; *China Academy of Info. & Comm. Tech., China*. Taking the Wine dataset as the research object, this paper conducts a classification simulation study based on QNNs..

P3.14 7198
The near-infrared region refractive index sensor based on a tunable high-sensitivity metasurface with a graphene layer, Xiaowei Yang; *Liaocheng Univ., China*. In this article, a multifunctional refractive index sensor based on silicon-graphene composite metasurface is investigated..

P3.15 7154
Linear Optical Sampling with Soft Integration and Single-Step Interpolation Synchronization, Kewei Zhang, Yongjun Wang, Zeyu Li, Xiang'En Zhang and Lei Ding; *Beijing Univ. of Posts & Tel., China*. This paper proposes cubic spline resampling with soft integration for sampling extraction and single-step interpolation for clock synchronization in a linear optical sampling system.

P3.16 7152
Research on Foreign Object Intrusion Detection and Response in Subway Tunnels Based on Fiber Optic Sensors, Haitao Luo, Yizhao Wang, Xing Min and Wenfeng Bai; *Guangzhou Metro Design & Research Inst., China*. Using a self-developed high-sensitivity fiber optic micro-vibration sensor, this paper detects subway tunnel intrusions, analyzes vibration responses to determine propagation path and velocity for source localization.

P3.17 7573
Continuous Amplitude-Phase Modulation with Smooth Symbol Transition for Underwater Visible Light Communication, Zilu Yi, Suning Guan, Zhiwu Chen, Zengyi Xu, Zhe Feng, Xinyi Liu, Linghang Dai and Nan Chi; *Fudan Univ., China*. Two continuous APMs (APM-R, APM-NR) smooth 8QAM symbol transitions, compressing spectrum and reducing nonlinear distortion.

P3.18 7324
Antimonide-Based Short-Wavelength Near-Infrared Uni-Traveling-Carrier Photodetectors with a Cliff Layer, Zizhuo Wang, Yong Li, Dezhang Guan, Xiaomin Huang and Yunjiang Jin; *Sun Yat-sen Univ., China*. We demonstrate an antimonide-superlattice short-wavelength uni-traveling-carrier photodetector grown on a GaSb substrate.

P3.19 7540
Highly sensitive refractive index sensor based on surface plasmon resonance effect in a hollow-core negative curvature fiber, Ziyao Zhang, Yuwei Qu, Jingao Zhang, Zefeng Li, Xiu Du, Lan Rao, Kuiru Wang and Jinhui Yuan; *Beijing Univ. of Posts & Tel., China*. This paper proposes a hollow-core negative curvature fiber refractive index (RI) sensor based on surface plasmon resonance effect.

P3.20 7184
Multi-Factor K-means-Based Controller Placement Algorithm in Large-Scale Networks, Wenhong Liu, Guangxiang Jin, Yufei Shi, Mengxi Zhang, Jiangsheng Li, Zhihong Xiao and Yongli Zhao; State Grid Econ. & Technol.Research Inst. Co.,Ltd, *China*. The proposed MF-Kmeans jointly optimizes control distance and DCN bandwidth balance for controller placement.

P3.21 7578
Improved FOE Algorithm Based on Training Sequence Phase Difference and CZT for 900-km Unrepeatered Transmission, Jintong Wang, Linlin He, Kunfeng Liu, Liqian Wang and Tao Yang; *Beijing Univ. of Posts & Tel., China*. We improve a two-stage FOE algorithm for 900-km unrepeatered transmission systems. The residual frequency offset remains below 60 kHz.

P3.22 7702
Performance Analysis of LMS Adaptive Equalizer for Optical Communication in Three Typical Scenarios, Tianqiao Zhou; *Chengdu Technol. Univ., China*. We evaluate the performance-complexity tradeoff of LMS equalizer for optical communication in three typical application scenarios.

P3.23 7719
A Joint Optimization Scheme for Inter-core Crosstalk and Energy Consumption in SDM-EONs, Zheng Duan, Jingyu Du, Fulin Cai, Hongyu Zhu, Baiyang Ren and Xin Ren; *China Huaneng Clean Energy Research Inst. Co., Ltd., China*. In SDM-EONs, we propose a joint optimization scheme for inter-core crosstalk and energy consumption..

P3.24 7657
Joint Optimization of Coupled Parameters for 200G Linear-Drive Pluggable Optics in Data Center Interconnects, Wentao Sun, Chengxi Wang, Yuan Wei, Xingyu Li, Shuhong He, Huayuan Qin, Nan Chi, Jianyang Shi and Junwen Zhang; *Fudan Univ., China*. We demonstrate BO-, PSO-, and GA-based joint tuning of coupled electro-optical parameters in a high-speed LPO link, reducing BER under various insertion losses and consistently outperforming the conventional equalized baseline.

Poster Session 3 (15:30-16:00)

P3.25 7814
Research on HC-ARF OPGW Cabling and Its Application, Hongyan Zhou; *Yangtze Optical Fiber & Cable Joint Stock Co., Ltd., China*. In order to deeply study the transmission characteristics of HCF in the application scenarios of ultra-long distance and low latency in power, the HC-ARF OPGW cable was trial-produced, and its key performance were tested.

P3.26 7850
A 25-GHz-Class 850-nm VCSEL with Multi-Oxide Aperture Engineering for High-Temperature High-Speed Operation, Bo Dong, Qi Zhang, Huihao Huang and Ziheng Yu; *Shenzhen Tech. Univ., China*. Multi-oxide aperture engineering is proposed for 850-nm VCSELs, achieving a simulated 27-GHz 3-dB bandwidth at 85 °C through enhanced carrier–photon coupling, optical confinement, and reduced parasitic capacitance.

P3.27 2881
Highly Sensitive Gas Pressure Sensor Based on Fabry-Perot Interferometers and the Vernier Effect, Yong Zhou, Zhijun Huang, Simei Sun, Shuang Cao, Mingyue Huang and Chao Jiang; *Hubei Normal Univ., China*. A highly sensitive gas pressure sensor has been proposed, based on the Vernier effect and Fabry-Perot interferometers of "SMF-capillary-capillary-PDMS film" structure.

P3.28 7812
A Dual-Path Fiber-Optic Fluorescence Collection Probe for NV-Center Magnetometry, Ziyang Zhu, Han Wang, Xiaofei Li, Haoliang Hu, Shunyang Liu and Junchang Huang; *China Electric Power Research Inst., China*. We demonstrate a dual-path fiber-optic NV-diamond ODMR probe that combines fluorescence from both sides.

P3.29 7865
Edge-Intelligence-Driven Predictive Protection Mechanism for Industrial PONs, Kexin Song, Fu Wang, Qi Zhang, Feng Tian, Yongjun Wang, Qinghua Tian, Sitong Zhou and Xiangjun Xin; *Beijing Univ. of Posts & Tel., China*. This paper proposes an edge-intelligence-driven predictive protection mechanism for industrial PONs.

P3.30 7952
Grayscale Image Encryption via 2D EMSCS and Dynamic DNA Coding, Yi Wang and Xinyu Peng; *China Jiliang Univ., China*. A grayscale image encryption scheme using 2D exponential chaotic system and dynamic DNA coding. The system features wide chaotic range and high sensitivity. Simulation results yield entropy 7.9992, near the ideal value.

P3.31 7989
Far-Field Acoustic Source Localization Using DAS with Non-Uniform Array, Haijun He; *Southwest Jiaotong Univ., China*. A five-element non-uniform linear array optimized by genetic algorithm suppresses grating-lobe interference in DAS-based far-field acoustic localization. Combined with MUSIC, it improves DOA accuracy in single-source, dual-source, and multi-frequency scenarios.

P3.32 8000
Research on Key Technologies for Improving the Efficiency of Satellite-Ground Communication Links, Zhao Liu, Feng Zhang, Yicheng Lin, Meilei Jiang and Yazhou Zhu; *China Satellite Maritime Tracking & Control Dept., China*. To address key issues including insufficient link transmission efficiency in satellite-terrestrial communication scenarios, this paper proposes a multi-dimensional collaborative optimization scheme .

P3.33 8424
Generation of large-bandwidth and high-precision frequency-hopping signal under electro-optic joint control, Yuchen Huang, Xukai Ji, Siqi Zhang, Feifei Yin, Yitang Dai and Kun Xu; *Beijing Univ. of Posts & Tel., China*. This paper proposes a frequency-hopping signal generation method with electro-optic joint control.

P3.34 8643
Load-Balanced and Congestion-Aware Routing for LEO Laser Satellite Networks Based on Deep Reinforcement Learning, Haoxin Li, Junling Yuan, Xuhong Li and Qikun Zhang; *Zhengzhou Univ. of Light Industry, China*. To address load imbalance in LEO laser satellite networks, this paper proposes a DRL-based routing algorithm combining PPO and KSP.

P3.35 8709
Generation of Dual-Frequency Pulse Signals Based on Self-Mode-Locking Optoelectronic Oscillator, Boxiong Cui, Cheng Gu, Xinyu Jin, Yilun Ma, Wen Xie, Zhengyang Xie, Pengwei Gong, Xin Zhao and Zheng Zheng; *Beihang Univ., China*. In this paper, a self-mode-locking optoelectronic oscillator capable of generating dual-frequency pulse signals is proposed and experimentally demonstrated.

P3.36 8921
High-Accuracy Salinity Sensing Using a Fiber Laser Sensor Based on a Convolutional Neural Network, Yihua He, Weihao Lin, Renan Xu, Mingkun Zhang, Boqiang Lin, Wenguo Luo and Zihan Huang; *Xiamen Inst. of Tech., China*. This paper presents a fiber laser salinity sensing system based on decoupling using a convolutional neural network (CNN) algorithm.

Poster Session 3 (15:30-16:00)

P3.37 9127

Vector Curvature Sensor Based on a Core-Expanded Four-Core Fiber Interferometric Sensor, Yusheng Liu, Mei Sang, Chenglin Yang, Haojun Lin and Tiegen Liu; *Tianjin Univ., China*. A high-sensitivity vector curvature sensor using a core-expanded four-core fiber is demonstrated. It achieves max -9.677nm/m-1 sensitivity with distinct four-fold rotational symmetry for precise orientation recognition.

P3.38 9222

Preparation of a Tunable Liquid Phantom for fNIRS Device Testing, Qiuyu Shan, Min Li, Yueshun Ye, Xiangrui Zhao, Chunzi Fang, Maofeng Shao and Jie Huang; *China Jiliang Univ., China*. A PBS-Intralipid-India ink liquid phantom was developed for fNIRS attenuation testing, achieving tunable 37.3–64.0 dB attenuation at 650 nm, excellent Hill fitting (R^2=0.999), and stable responses over 300 min.

P3.39 9542

4×4 RLS-CMA Equalization for IQ Imbalance Compensation in Coherent Optical Receivers, Xin Xia and Xiaolong Pan; *Beijing Inst. of Tech., China*. A 4×4 real-valued RLS-CMA equalizer compensates receiver-side IQ imbalance in DP coherent optical systems, achieving 2×2-like BER and improved EVM robustness under IQ skew, phase, and amplitude errors.

P3.40 9299

Power-supplied Optical Fiber Dispersion Measurement Method Based on Lock-In Amplifier and Tunable Laser, Zhanyuan Liu, Ruiyi Li, Xiaochen Niu, Zhenyu Guo, Xueyou Zhang and Huan Ma; *China Electric Power Research Inst., China*. We designed a dispersion measurement system based on a lock-in amplifier and a tunable laser, and compared it with the CD400 dispersion tester.

P3.41 9981

Investigation of Physical Characteristics of MUTC-PD Based on Drift-Diffusion Mechanism, Xiyue Zhang, Xiaofeng Duan and Mengyu Zhang; *Beijing Univ. of Posts & Tel., China*. A rigorous analytical model was presented for MUTC-PD based on drift-diffusion model with the maximum error between calculation and numerical simulations not exceeding 6%.

P3.42 9500

Skip-List-Indexed Energy-Priority Enumerative Sphere Shaping for Finite-Blocklength Optical Fiber Communication Systems, Hongjin Long, Qi Zhang, Ran Gao, Yi Zhao, Fu Wang, Feng Tian, Yongjun Wang, Qinghua Tian, Sitong Zhou and Leijing Yang; *Beijing Univ. of Posts & Tel., China*. A skip-list-indexed energy-priority enumerative sphere shaping (EP-ESS) scheme is proposed.

P3.43 9681

A Method for User Self-Compensation of Atmospheric Refraction-Induced Errors in Satellite-to-Ground Laser One-Way Positioning and Timing, Yunming Zhang, Lin Lu, Tao Pu, Jilin Zheng, Peng Xiang, Weiheng Dai and Hua Zhou; *Army Eng. Univ. of PLA, China*. This paper proposes a user self-compensation method, aiming to achieve ps-level timing accuracy and mm-level positioning accuracy.

P3.44 9938

A Dual-Band Photodetector Based on van der Waals Barrier Engineering, Jiyue Zhang, Yi Dong, Xinyu Ma, Xiangbao Xu, Haoran Sun, Xiaoyong Jiang, Qing Li and Jinshui Miao; *Hangzhou Inst. for Advanced Study, UCAS, China*. We propose a dual-band photodetector based on a vertical InAsSb/WS_2/MoS_2 heterostructure, demonstrating high responsivities of 45 mA/W in the visible (300-900 nm) and 1.35 A/W in the mid-infrared (3-4 μm) regime.

P3.45 1407

A Self-Built Electro-Optical-Thermal-RC Co-Optimization Model for 25-GHz-Class 850-nm VCSELs, Bo Dong, Yexun Cai, Qi Zhang and Huihao Huang; *Shenzhen Tech. Univ., China*. A self-built electro-optical-thermal-RC co-optimization model for 25-GHz-Class 850-nm VCSELs is presented.

P3.46 7043

A multidimensional chaotic encryption scheme based on lightweight DNA encryption and constellation rotation in OFDM-PON system, Zuolin Li, Qi Zhang, Bailiang Jiang, Ran Gao, Fu Wang, Feng Tian, Yongjun Wang, Qinghua Tian, Sitong Zhou and Leijing Yang; *Beijing Univ. of Posts & Tel., China*. A multidimensional chaotic encryption scheme is proposed.

P3.47 3101

Parallel Dual-FPI Microcavity Hydrogen Sensor Based on the Vernier Effect, Siyao Chen, Xueqing Zheng, Wenwen Qian, Zhewen Ding, Junlan Zhong, Bin Fang, Chunlian Zhan and Chunliu Zhao; *China Jiliang Univ., China*. A fiber optic dual device hydrogen sensor with temperature compensation shows 7.718 nanometer at one percent hydrogen, response under 48s, 4.4 times amplification, and dual-parameter measurement using spectral sensitivity matrix.

P3.48 3098

Coupling-Structure Optimization for Enhanced Output Efficiency in 1.3 μm InAs/GaAs Quantum Dot Microdisk Lasers with a SiN Bus Waveguide on Silicon, Hao Zhai, Hao Liu, Zhengman Sun, Chenbo Wang, Yingjian Wu, Shuai Cao, Jun Wang, Qi Wang and Xiaomin Ren; *Beijing Univ. of Posts & Tel., China*. We demonstrate optimized InAs/GaAs quantum dot microdisk lasers monolithically integrated with a SiN bus waveguide on silicon.

Room 1, Track 7

16:00-18:00
W4A. Ultrafast & Nonlinear II
*Presider: **Junqing Zhao,** Shenzhen Technology University, China*

W4A.1 • 16:00 Invited

Ultrafast and nonlinear perovskite metasurfaces, Sergey Makarov; *ITMO Univ., Russia*. In this talk, we will discuss recent achievements on multiphoton-induced photoluminescence, harmonics generation, and ultrafast modulation with halide perovskites nanostructures and metasurfaces exhibiting optical resonances in visible and near-infrared ranges.

W4A.2 • 16:20 Invited

High-Performance Pulsed Fiber Laser Sources, Shumin Zhang; *Hebei Normal Univ., China*.

W4A.3 • 16:40 Invited

Advances in all-fiber ultrafast lasers, Bo Guo; *Harbin Engineering Univ., China*. This report will briefly report the latest progress of our research group in the phenomena and applications of ultrafast optics.

Room 2, Track 2

16:00-18:00
W4B. Optical Transmission V
*Presider: **Tao Yang,** Beijing University of Posts and Telecommunications, China*

W4B.1 • 16:00 Invited

Dual Microresonator-Based Parallel Wideband Chaotic Comb Generation and High-speed Random Bit Generation, Ning Jiang; *Univ. of Electronic Sci. & Tech. of China, China*. Massive-channel chaotic signal generation and high-speed random bit generation based on the beating between two microresonator chaotic combs will be introduced in this talk.

W4B.2 • 16:20 Invited

ION-2030 for the applications of DC, broadband and access network, Liang Zhang; *Huawei Technologies Co., Ltd., China*.

W4B.3 • 16:40 Invited

The Trend and Key Technologies of High Speed Coherent Module, Qiang Zhang; *Huawei Technologies Co., Ltd., China*. Coherent technology is used to cover DCI, metro, long haul and even campus and inside DC. The trend and key challenges are summarized.

Room 3, Track 5

16:00-18:00
W4C. Optical Signal Processing II
*Presider: **Jianghai Wo,** Jinan University, China*

W4C.1 • 16:00 Invited

Microwave Photonics Radar with Frequency Controlled Array Antenna, Shangyuan Li; *Tsinghua Univ., China*.

W4C.2 • 16:20 Invited

Optoelectronic Integrated Information Sensing and Chips, Sha Zhu; *Nankai Univ., China*.

W4C.3 • 16:40 Invited

Multifunctional Microwave Photonic Radar: Performance Enhancement, Functional Expansion and Integrated Implementation, Jianghai Wo; *Jinan Univ., China*.

Room 4, Special 3

16:00-18:00
W4D. Intelligent Optoelectronics II
*Presider: **Weida Hu**, Shanghai Institute of Technical Physics, CAS, China*

W4D.1 • 16:00 Invited

Research on Weak-Signal Infrared Detection and Its Applications in Intelligent Remote Sensing, Fang Wang; *Shanghai Inst. of Technical Physics, CAS, China*. This work develops advanced weak-signal IR detection & intelligent remote sensing, solving core bottlenecks and advancing space & Earth observation applications.

W4D.2 • 16:20 Invited

3D Printed Designer Color Routers with Low Refractive Index, Hao Wang; *Beihang Univ., China*.

W4D.3 • 16:40 Invited

Towards Ultrafast Spatiotemporal Light Control Using Graphene-based Nanostructures, Guangqing Du; *Xi'an Jiaotong Univ., China*. This study investigates the use of engineered graphene nanostructures to achieve precise, ultrafast manipulation of spatiotemporal optical fields for advanced photonic applications.

Room 5, Track 3

16:00-18:00
W4E. Optical networks III
*Presider: **Lihua Ruan**, Pengcheng Laboratory, China*

W4E.1 • 16:00 Invited

AI Agent Goes to the Edge: Collaborative Inference of Large Models on Heterogeneous Edge Device Clusters, Hongfang Yu; *Univ. of Electronic Sci. & Tech. of China, China*. This report focuses on collaborative inference of large models on consumer-grade heterogeneous device clusters, centering on the two core goals of efficiency and reliability in edge scenarios.

W4E.2 • 16:20 Invited

High-reliability networking technology in integrated space-ground optical networks, Lu Zhang; *North China Inst. of Aerospace Eng., China*.

W4E.3 • 16:40 Invited

Toward Harsh-Conditions Resilient and Intelligent Optical Networking, Xin Li; *Beijing Univ. of Posts & Tel., China*.

Room 6, Special 4

16:00-18:00
W4F. Optical Biosensors II
*Presider: **Jun Ma**, JinanUniversity, China*

W4F.1 • 16:00 Invited

Fiber optic theranostics: towards clinical translation, Yang Ran; *Jinan Univ., China*.

W4F.2 • 16:20 Invited

Micro-fiber biochemical sensing, Jinhui Yuan; *Beijing Univ. of Posts & Tel., China*. This report focuses on utilizing microfiber sensors with diverse structures to achieve detection of proteins, bacteria, ions, and biomechanical properties, whilst exploring the practical clinical application value of microfiber sensors.

W4F.3 • 16:40 Invited

Two-Photon Micro-Printed Ag_2Te Quantum Dots-Polymer Hybrid Photonics: A 2D Thermo-Optic Modulation Platform on Fiber End, Bo Dong; *Shenzhen Tech. Univ., China*. We present an Ag_2Te QDs-polymer photonic platform via two-photon micro-printing for high-sensitivity, high-speed 2D thermo-optic modulation.

Room 1, Track 7

W4A.4 • 17:00 Invited

Noise-like pulse fiber lasers: Enhanced optical rogue wave generation through higher-order saturable absorption, Xingliang Li; *Hebei Normal Univ., China*.

W4A.5 • 17:20 Invited

10-MW-Level, Compact and Efficient Deep-Ultraviolet Generation in a Resonance-Free Hollow-Core Fiber, Daiqi Xiong; *Beihang Univ., China*.

W4A.6 • 17:40 Invited

High power ultrafast laser sources and their efficient mid-infrared optical parametric conversions, Junqing Zhao; *Shenzhen Tech. Univ., China*. Our group's recent progress on high power near infrared laser sources as well as their further mid-infrared parametric conversions will be presented, realizing some breakthroughs in both efficiency and power level while maintaining exceptional robustness.

Room 2, Track 2

W4B.4 • 17:00 Invited

Secure PAM4 IM-DD Transmission via Dynamic Key Management and Josephus-Latin Square Encryption, Jiahao Huo; *Univ. of Sci. & Tech. Beijing, China*.

W4B.5 • 17:20 Invited

Low-complexity equalization techniques for high-speed IM/DD transmission links, Junwei Zhang; *Sun Yat-sen Univ., China*.

W4B.6 • 17:40 Invited

Research on 200Gbps PON System Architecture and Impairment Equalization Algorithm, Tao Yang; *Beijing Univ. of Posts & Tel., China*.

Room 3, Track 5

W4C.4 • 17:00 Invited

TBD, Yuanfei Zhang; *Southeast Univ., China*.

W4C.5 • 17:20 Invited

High-Speed All-Optical Matching System for Photonic Firewall, Ying Tang; *Xi'an Univ. of Architecture & Tech., China*.

W4C.6 • 17:40 Invited

Research on multidimensional regulation mechanisms in an optoelectronic oscillator, Zhen Zeng; *Univ. of Electronic Sci. & Tech. of China, China*. We will introduce the regulation mechanism and methods of optoelectronic oscillators (OEOs) in the frequency, time, and phase domains, providing effective ways for generating different types of broadband microwave signals using OEOs.

18:30-21:00 Conference Banquet & Awards Ceremony

Room 4, Special 3

W4D.4 • 17:00 Invited

Low-Dimensional Semiconductors for Polarization-Sensitive Photodetection, Ziqi Zhou; *Inst. of Semiconductors, CAS, China.*

W4D.5 • 17:20 Invited

Controllable Synthesis of MoS_2 Heterophase Structures for Optoelectronic Device Applications, Yongji Wang; *City Univ. of Hong Kong, China.*

W4D.6 • 17:40 5621

Two-Stage Pattern-Based Fast Reconfiguration for Optical-Switched AI Datacenter Networks, Shifeng Ding, Yongcheng Li and Fengxian Tang; *Suzhou Univ. of Sci. & Tech., China.* We propose a two-stage pattern-based fast reconfiguration (TS-PFR) approach for optical-switched AI datacenter networks, achieving fast response and improved reconfiguration quality.

W4D.7 • 17:55 7969

Selective Spectral Blindness in GaAs Nanowires for High-Contrast Infrared Detection, Hangyu Xu and Weida Hu; *Shanghai Inst. of Technical Physics, CAS, China.* This work demonstrates GaAs nanowire array enables accurate NIR-II detection and high-contrast signal reconstruction via structure-induced spectral selectivity and optoelectronic co-modulation.

Room 5, Track 3

W4E.4 • 17:00 Invited

Network-Level Raman Reconfiguration for Mitigating Power Transients Induced by Laser Faults in C+L Optical Networks, Yajie Li; *Beijing Univ. of Posts & Tel., China.*

W4E.5 • 17:20 Invited

Networking Technologies of Quantum Key Distribution based Optical Networks, Xiaosong Yu; *Beijing Univ. of Posts & Tel., China.*

W4E.6 • 17:40 Invited

Multicast-Capable Optical Circuit Switching: When Optical Multicasting Benefits Collective Communications? Lihua Ruan; *Pengcheng Laboratory, China.* This invited talk explores when and how to leverage optical multicast in OCS for collective communications (CC) in DCN, revealing the potential of multicast-capable OCS to enhance CC via co-designing multicast-based topology and CC scheduling.

Room 6, Special 4

W4F.4 • 17:00 Invited

Interfacial enhanced optical fiber biochemical sensing technologies and applications, Hongtao Li; *Anhui Univ., China.* This report mainly focuses on the biological and chemical markers detection by using lab-in-fiber and lab-on-fiber LSPR technology-based sensors. By utilizing interfacial technology, single-molecule detection and photothermal therapy can be realized.

W4F.5 • 17:20 Invited

Research on Optical Fiber Lossy Mode Resonance Biosensors, Xiaoshuang Dai; *Tianjin Univ., China.*

W4F.6 • 17:40 Invited

Transparent broadband microfiber ultrasound transducer for photoacoustic imaging, Jun Ma; *Jinan Univ., China.*

18:30-21:00 Conference Banquet & Awards Ceremony

Room 1, Track 1

08:00-10:00
Th1A. Fibers & Fiber Devices IV
Presider: ***Wenjun Ni,*** *South-Central Minzu University, China*

Th1A.1 • 08:00 Invited

Fusion and converting technology in the application of hollow-core anti-resonant, Weiqing Gao; *Hefei Univ. of Tech., China.*

Th1A.2 • 08:20 Invited

AI-enabled data analysis of fiber-opitc sensing for marine information applications, Zhengyong Liu; *Sun Yat-sen Univ., China.* In this talk, I will present some recent work on AI enabled data analysis of fiber-opitc sensing for marine information applications, including deep learning-based spectral demodulation for FBG sensors and noise processing for DAS data.

Th1A.3 • 08:40 Invited

High sensitivity Fabry–Perot fiber ultrasonic sensor, Huanhuan Liu; *Shenzhen Inst. of Advanced Tech., CAS, China.*

Room 2, Track 2

08:00-10:00
Th1B. Optical Transmission VI
Presider: ***Kaimin Wang,*** *University of Shanghai for Science and Technology, China*

Th1B.1 • 08:00 Invited

Testing and Calibration System for High-Precision Fiber-Optic Time Signal Purification Equipment, Xinxing Guo; *National Time Service Center, CAS, China.*

Th1B.2 • 08:20 Invited

High-Speed and High-Capacity Optical Interconnect Key Technologies, Feng Tian; *Beijing Univ. of Posts & Tel., China.* We develop the key technology in High-Speed and High-Capacity Optical Interconnect technology, including the signal encoding, multi-core few mode fiber, hollow fiber and so on.

Th1B.3 • 08:40 Invited

Optoelectronic Integration for Interconnects in Intelligent Computing, Zhang Luo; *National Univ. of Defense Tech., China.*

Room 3, Track 4

08:00-10:00
Th1C. Optoelectronic Integration V
Presider: ***Xun Guan,*** *Tsinghua University Shenzhen International Graduate School, China*

Th1C.1 • 08:00 Invited

Supermode photonics for high-capacity communicaitons on a chip, Lu Sun; *Shanghai Jiao Tong Univ., China.* Engineered supermodes in coupled waveguide arrays enable equally spaced modal indices, suppress intermodal crosstalk, and support scalable, high-capacity on-chip mode-division multiplexed communications.

Th1C.2 • 08:20 Invited

High-speed photonic computing chips for opto-electronics neuron networks, Huifu Xiao; *Lanzhou Univ., China.* In this talk, we will talk about some of our recent works on photonic computing chips based on multi-dimensional multiplexing technologies.

Th1C.3 • 08:40 Invited

High speed modulated dual wavelength lasers for THz communications, Song Liang; *Inst. of semiconductors, CAS, China.*

Room 4, Special 1

08:00-10:00
Th1D. Organic Optoelectronics V
*Presider: **Longwei Yin,** Shandong University, China*

Th1D.1 • 08:00 Invited

High-performance perovskite LEDs and their application in visible light communication, Jibin Zhang; *The Univ. of Electro-Comm., Japan.*

Th1D.2 • 08:20 Invited

Interface Structure and Defect Regulation in Perovskite Solar Cells, Longwei Yin; *Shandong Univ., China.*

Th1D.3 • 08:40 Invited

Progress on High Power Efficiency PeLEDs, Zugang Liu; *China Jiliang Univ., China.*

Room 5, Special 5

08:00-10:00
Th1E. Flexible Photonics I
*Presider: **Lei Chen,** Jinan University, China*

Th1E.1 • 08:00 Invited

Detection and regulation of local temperature field on Ω-shaped optical fiber surfaces using photosensitive nanolayer, Zewei Luo; *Sichuan Univ., China.*

Th1E.2 • 08:20 Invited

Reconfigurable Terahertz Spectral and Wavefront Engineering via Topological Singularity, Chunmei Ouyang; *Tianjin Univ., China.*

Th1E.3 • 08:40 Invited

Femtosecond Laser Micromachining of Fiber-Optic Functional Devices, Ke Tian; *Harbin Engineering Univ., China.*

Room 6, Track 6

08:00-10:00
Th1F. Measurement & Sensors V
*Presider: **Shun Wang,** Guangdong University of Technology, China*

Th1F.1 • 08:00 Invited

Distributed Fiber Acoustic Sensing (DFAS) Technology and Engineering Applications, Baoquan Jin; *Taiyuan Univ. of Tech., China.* Distributed fiber acoustic sensing (DFAS) has high sensitivity, long-distance coverage and strong anti-interference. Optimized algorithms and upgraded hardware improve its performance, enabling reliable safety monitoring across multiple engineering fields.

Th1F.2 • 08:20 Invited

Quasi-Distributed Water Quality Monitoring Technology Using OFDR to Demodulate Fiber-Optic Microcavity Arrays, Yuqiang Yang; *Guangdong Ocean Univ., China.* A quasi-distributed fiber-optic sensitized sensing technique based on Fabry Perot (FP)microcavities is proposed by integrating frequency-modulated continuous-wave (FMCW) interferometry with the Vernier effect.

Th1F.3 • 08:40 Invited

DOFS and PoF Hybrid System, Tianye Huang; *China Univ. of Geosci., Wuhan, China.* This study demonstrates hybrid DOFS-PoF systems over SSMF. By integrating photoelectric conversion and wireless modules, the systems achieve simultaneous power delivery and distributed optical fiber sensing.

Room 1, Track 1

Th1A.4 • 09:00 Invited

High-Fidelity Image Transmission and Reconstruction based on OAM Modes and Deep Learning, Hu Zhang; *Beijing Univ. of Posts & Tel., China*. Multimode fiber enables high-fidelity image transmission via OAM mode superpositions and ResNet decoding. Transfer learning achieves 99% accuracy. An attention-enhanced DoubleU-Net with OAM filtering improves edge fidelity to 95%.

Th1A.5 • 09:20 Invited

Inverse design and demonstration of 'Batman' super-Gaussian optical fiber, Fei Yu; *Shanghai Inst. of Optics & Fine Mechanics, CAS, China*. We report the inverse design of an optical fiber to achieve a super-Gaussian modal profile. A fiber with the 'Batman' refractive index profile is demonstrated to guide a hexagonally-symmetric-super-Gaussian-like single mode.

Th1A.6 • 09:40 Invited

Hollow core fiber-based photothermal spectroscopy for trace gas sensing, Wenjun Ni; *South-Central Minzu Univ., China*.

Room 2, Track 2

Th1B.4 • 09:00 Invited

Optical Coherence Engineering Encryption for Secure and Robust Information Transmission, Jiayi Yu; *Shandong Normal Univ., China*. We have proposed a novel protocol named the optical coherence engineering encryption protocol. The protocol can reconstruct the original information after the free-space transmission, and demonstrating strong resilience to transmission channel disturbances.

Th1B.5 • 09:20 Invited

Quantization-Aware Equalization for High-Speed IM/DD Optical Interconnects, Zhaopeng Xu; *Pengcheng Laboratory, China*.

Th1B.6 • 09:40 Invited

A Kolmogorov-Arnold Transformer for Automatic Modulation Classification, Kaimin Wang; *Univ. of Shanghai for Sci. & Tech., China*. We propose a Kolmogorov-Arnold Transformer that integrates a causal interpretable mechanism with attention. The scheme improves robustness, accuracy, and interpretability for automatic modulation classification.

Room 3, Track 4

Th1C.4 • 09:00 Invited

Monolithic integration of III-V photodetectors on silicon, Yunjiang Jin; *Sun Yat-Sen Univ., China*. We demonstrated a laterally integrated III–V/Si photodetector on CMOS-compatible SOI platform by lateral epitaxy technology, which establishs a scalable route toward high-speed, high-responsivity monolithic photodetectors for advanced silicon photonics.

Th1C.5 • 09:20 Invited

Monolithically Integrated GaN Optoelctronic Sensors, Xun Guan; *Tsinghua Univ. Shenzhen International Graduate School, China*.

Th1C.6 • 09:40 Invited

Grating-Less MPLC Reconfigurable Optical Switch: Wavelength Routing and Multicast Capabilities, Juan Wu; *Pengcheng Laboratory, China*. We propose a compact reconfigurable optical switch enabling wavelength routing and flexible multicast capabilities for AI cluster interconnects.

10:00-10:30 Poster Session 4 & Tea Break

Room 4, Special 1

Th1D.4 • 09:00 Invited

Aqueous Synthesis of Perovskite Microcrystals toward High-Efficiency Solar Cells, Yong Zhang; *The Hong Kong Univ. of Sci. & Tech., Guangzhou, China.*

Th1D.5 • 09:20 Invited

Perovskite solar cells, a new PV technique that is revolutionalizing photovoltaic community, Wen-Hua Zhang; *Yunnan Univ., China.*

Th1D.6 • 09:40 1864

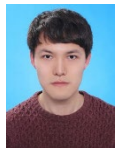
Sequential Deposition Strategy for Efficient All-Evaporated Perovskite Light-Emitting Diodes, Feihu Zhang, Runda Guo and Lei Wang; *Huazhong Univ. of Sci. and Tech., China.* Controlled nanocrystal growth via sequential deposition enhances the performance of all-evaporated PeLEDs: the EQEs of sky-blue, green, and red devices reaches 20.12%, 22.16%, and 16%, respectively, and have been integrated into a TFT-driven active-matrix displays.

Room 5, Special 5

Th1E.4 • 09:00 Invited

Intelligent Design of Optical Fiber and Intelligent Recognition of Spectrum, Hailiang Chen; *Yanshan Univ., China.*

Th1E.5 • 09:20 Invited



Tandem scanning white light interferometry for thickness measurement with nanoscale experimental resolution, Yunlong Zhu; *Harbin Engineering Univ., China.*

Th1E.6 • 09:40 Invited

Hyperbolic Metamaterial-Based High-Sensitivity Fiber SPR Sensor and Applications, Shiqi Hu; *South China Agricultural Univ., China.* A hyperbolic metamaterial-based fiber SPR sensor enhances sensitivity via dispersion regulation, enabling highly sensitive detection of magnetic fields, temperature, pH, and biomolecules, offering broad application prospects in industry, healthcare, and environmental monitoring.

Room 6, Track 6

Th1F.4 • 09:00 Invited

Multi-frequency phase-sensitive optical time-domain reflectometer technology and its applications, Yu Wang; *Taiyuan Univ. of Tech., China.* This work proposes a multi-frequency fading suppression scheme based on a fiber frequency-shifted delay loop and a compressed sensing method to mitigate crosstalk noise.

Th1F.5 • 09:20 Invited

Chaos distributed optical fiber sensing, Jian Li; *Taiyuan Univ. of Tech., China.*

Th1F.6 • 09:40 Invited

Research on Distributed Fiber-Optic Sensing Technology for Ocean Temperature, Depth, and Turbulence, Shun Wang; *Guangdong Univ. of Tech., China.*

10:00-10:30 Poster Session 4 & Tea Break

Poster Session 4 (10:00-10:30)

P4.1 4750
SnS2-Enhanced Surface Plasmon Resonance Sensing Technology, Yongqing Zheng, Fan Yang, Jiaqi Zhu and Leiming Wu; *Guangdong Univ. of Tech., China*. An Au/SnS_2 SPR sensor is proposed. Optimized 12-layer SnS_2 achieves 284 deg/RIU by enhancing interfacial electromagnetic fields.

P4.2 5544
Uncertainty analysis of the focal point size of an X-ray tube measured by the slit method, Xiangrui Zhao, Yueshun Ye, Dan Huang, Qiuyu Shan and Jie Huang; *Zhejiang Inst. of Medical Device Testing., China*. This paper analyzes uncertainty in X-ray tube focal spot measurement by the slit method specified in YY/T 0063-2007/IEC 60336:2005.

P4.3 6172
Performance Analysis of Silicon Photonic Waveguide Polarizer Integrated with 2D Material Films, Rong Wang, Ling Zhang, Hang Zhang and Duan Huang; *Central South Univ., China*. GO and MoS_2 are selected as representative 2D materials to investigate the influence of waveguide geometry on the FOM of silicon photonic waveguide polarizers, highlighting the dominant role of waveguide height.

P4.4 4749
Joint Critical Threshold Calibration Method and Simulation Validation for Multidimensional Network Impairments in Telesurgical Robots, Chuwen Wei, Jian Jin, Zhe Tian, Jiabao Qi, Min Li and Jie Huang; *China Jiliang Univ., China*. This paper proposes a joint critical-threshold calibration method for multidimensional network impairments in telesurgical robots.

P4.5 8423
Design of an Integrated Resonant Optical Gyroscope Based on a Bidirectional Waveguide Ring Resonator, Xiaoyi Chen and Duan Huang; *Central South Univ., China*. An integrated resonant optical gyroscope using a bidirectional silicon-nitride ring resonator is analyzed via an equivalent circuit model with Sagnac-induced perturbations.

P4.6 3304
Deep Learning Based Adversarial Defense Method for LEO-OFDM Systems, Yuxiang Liu, Yilin Li, Xi Fang, Xiaoyi Duan and Bo Wang; *Beijing Electronic Sci. & Tech. Inst., China*. We propose a robust CNN equalizer using adversarial training.Simulations demonstrate it effectively neutralizes universal adversarial perturbations,successfully restoring the BER to a level close to the attack-free baseline.

P4.7 7897
Temperature sensing Characteristics of reflective U-shaped optical microfiber sensor, Yunlong Xia, Jian Chen, Shenghui Shi and Binbin Luo; *Chongqing Univ. of Tech., China*. This paper proposes a reflective U-shaped microfiber sensor and experimentally investigates its temperature response.

P4.8 3893
Fiber-Radio Frequency hybrid communication system based on SM4-CTR hardware encryption design, Jiahao Chen, Yuefeng Shen, Dahai Han and Huibin Zhang; *Beijing Univ. of Posts & Tel., China*. This paper implements Fiber-RF wired/wireless hybrid communication, and optimizes SM4-CTR design on FPGA for high-speed, low-latency, lightweight and secure parallel transmission.

P4.9 2838
Dual-Port Spectral Engineering of a Nested Sagnac Loop Microring Resonator, Sian Ren, Hang Zhang, Duan Huang and Ling Zhang; *Central South Univ., China*. We propose and theoretically demonstrate a compact nested Sagnac loop micro-ring resonator.

P4.10 4422
LSTM Based Symbol Detection method for OTFS modulated LEO Satellite Communication Systems, Yilin Li, Yuxiang Liu, Xi Fang, Bo Wang and Xiaohan Wang; *Beijing Electronic Sci. & Tech. Inst., China*. Based on large-scale fading in satellite communication, we propose an LSTM-based channel equalization scheme.

P4.11 3771
Delay-Aware Time-Frequency Joint Channel Estimation for FSO-PDM-CO-OFDM Systems, Shun Lv and Lingxiao Liu; *Beijing Electronic Sci. & Tech. Inst., China*. A delay-aware time-frequency joint channel estimation method is proposed for FSO-PDM-CO-OFDM systems, combining orthogonal training, intra-symbol average filtering, and time-domain support reconstruction to improve estimation accuracy.

P4.12 4621
Study on The Influence of Core Diameter on Bending Sensitivity of Optical Fiber Output Beam Profile, Jiabao Qi, Jie Huang, Qiuyu Shan, Chuwen Wei, Jinghao Pan and Min Li; *China Jiliang Univ., China*. To study the influence of fiber core diameter on bending sensitivity of output beam profiles, bending test data of five multimode fibers were compared.

Poster Session 4 (10:00-10:30)

P4.13 5622
Discrete Cosine Transform Algorithm for Nonlinear Phase Noise Compensation in Optical GFDM System, Xutong Zhou, Bo Wang, Xi Fang, Yuan Gao, Xianhan Wang and Jianxin Wang; *Beijing Electronic Sci. & Tech. Inst., China*. This paper proposes DCT-BEM for phase noise compensation in GFDM systems.

P4.14 5135
Effect of Pulse Energy on Pulse Width of Nd:YAG Pulsed Lasers, Yueshun Ye, Jinghao Pan, Wen Li, Jiabao Qi, Qiuyu Shan, Jie Huang and Min Li; *Zhejiang Inst. of Medical Device Testing, China*. This study investigates how pulse energy affects Nd:YAG laser pulse widths from ms to ps.

P4.15 9662
Tunable metasurface gas sensor based on phase-change material Ge2Sb2Te5, Jinghao Qi and Xingzhe Shi; *Yuncheng Univ., China*. Gas detection plays an important role in achieving carbon neutrality goals. In this paper, a tunable metasurface gas sensor based on Ge2Sb2Te5 material is designed, which can effectively detect greenhouse gases such as CO2.

P4.16 5896
Optical Frequency Comb with Multiplicable Spacing Based on Acousto-Optic Frequency-Shifting Loop and Cross-Phase modulation, Jingfang Huang, Zhaoying Wang, Wentao Dai, Jie Zhang, Shuonan Duan, Chunfeng Ge, Dongfang Jia and Tianxin Yang; *Tianjin Univ., China*. Comb spacing multiplication is investigated via the fractional Talbot effect in an acousto-optic frequency-shifting-loop and cross-phase modulation in highly-nonlinear fiber.

P4.17 6844
Robust CNN-Based Channel Equalization for LEO-OFDM Systems, Yuxiang Liu, Yilin Li, Xi Fang, Xiaoyi Duan and Xiaohan Wang; *Beijing Electronic Sci. & Tech. Inst., China*. Traditional LEO-OFDM systems struggle with dynamic frequency offsets and nonlinear distortions.We propose a robust CNN-based channel equalizer.

P4.18 0983
A Predictive Reservation-Based Routing and Wavelength Assignment Method for Satellite Networks, Furong Chai, Hongjie Zhang, Qi Zhang, Jiayuan Li, Hao Peng and Zhiqi Huang; *Inst. of Remote Sensing Satellite, CAST, China*. We propose a predictive resource reservation-based routing wavelength allocation method for satellite networks.

P4.19 2582
Adaptive M-QAM Constellation Probabilistic Shaping Method for FSO OFDM System, Jianxi Yang, Lingxiao Liu, Yating Huang and Xi Fang; *Dept. of Electronic & Comm. Eng., China*. This paper proposes an adaptive shaping method to mitigate phase noise impairments, optimizing transmit power and reducing bit error rate for MQAM-OFDM FSO systems.

P4.20 0131
Attention-Enhanced DRPO Reinforcement Learning for SFC Routing and Deployment in Satellite-Terrestrial Integrated Networks, Xuan Wu, Zikang Li, Qi Zhang, Ran Gao, Fu Wang and Feng Tian; *Beijing Univ. of Posts & Tel., China*. To address service function chain routing challenges in satellite-terrestrial integrated networks, an attention-enhanced Direct Reward Policy Optimization(DRPO) method is proposed.

P4.21 1613
Bandwidth Enhancement of UTC-PD with Integrated Inductive Peaking Heatsink, Yaozheng Li and Yunjiang Jin; *Sun Yat-sen Univ., China*. HFSS-ADS co-simulation optimizes UTC-PD layout. An inductive peaking heatsink is fabricated, achieving about 1.2 times bandwidth enhancement.

P4.22 3404
Efficient Congestion-Aware Routing and Wavelength Assignment for LEO Satellite Networks, Lu Wang, Qi Zhang, Ran Gao, Zikang Li, Fu Wang and Feng Tian; *Beijing Univ. of Posts & Tel., China*. A congestion-aware routing and wavelength assignment optimization algorithm based on pheromone reinforcement and forward wavelength pruning is proposed.

P4.23 3740
KDF-Driven Chaotic Phase Masking for Physical-Layer Security for FSO-OFDM Systems, Xiuying Li, Shun Lv, Jiayan E, Lifeng Wang, Xi Fang and Lingxiao Liu; *Beijing Electronic Sci. & Tech. Inst., China*. A lightweight physical-layer encryption scheme is proposed for FSO-PDM-CO-OFDM systems.

P4.24 2429
Dataset Sample-Size Expansion via Orthogonal-Basis Augmentation for Automatic Modulation Classification, Yi Jiang, Yunsong Yue, Yihao Chen, Tao Zhou, Dongfang Wu, Jian Wan and Kaimin Wang; *Shanghai Radio Monitoring Station, China*. We propose an orthogonal-basis augmentation strategy to expand the sample size, enhance distributional diversity, as well as improve the classification accuracy and robustness.

Poster Session 4 (10:00-10:30)

P4.25 5133
Bandwidth-Enhanced Polarization-Insensitive Silicon Photoreceiver Utilizing Dual-Input Ge/Si Vertical Photodetectors with On-Chip Inductor Peaking, Xu Liu, Huimin Yan, Jialin Cheng, Shangtong Zou and Jianjun He; *Zhejiang Univ., China*. A polarization-insensitive silicon photoreceiver with 0.89dB PDL is proposed.

P4.26 7947
Residual-Learning-Assisted Digital Backpropagation for Nonlinear Compensation in CO-OFDM Systems, Bo Wang, Xianhan Wang, Xi Fang, Xianwei Gao, Xutong Zhou and Jianxin Wang; *Beijing Electronic Sci. & Tech. Inst., China*. A physics-guided CO-OFDM receiver combining digital backpropagation and residual MLP compensation is proposed.

P4.27 3839
A Multimodal Feature Fusion Scheme for Automatic Modulation Classification, Yi Jiang, Yu Yan, Kaige Yang, Yuxiao Liangchen, Dongfang Wu, Jian Wan and Kaimin Wang; *Shanghai Radio Monitoring Station, China*. We propose a multimodal fusion framework integrating one-dimensional sequences and two-dimensional images.

P4.28 3683
Nonlinear MIMO Equalization for 1000-km 200G DP-16QAM Nyquist DWDM Transmission with Adjacent-Channel Crosstalk, Fangxu Yang, Qinghua Tian, Fu Wang, Feng Tian, Qi Zhang, Leijing Yang, Sitong Zhou, Yongjun Wang and Xiangjun Xin; *Beijing Univ. of Posts & Tel., China*. We propose nonlinear MIMO equalization for adjacent-channel crosstalk mitigation in 200G DP-16QAM Nyquist DWDM transmission.

P4.29 4688
Rader Self-Interference Cancellation Based on Tunable Optical Delay Line Chip, Wenkai Niu, Zhenzhou Tang and Shilong Pan; *Nanjing Univ. of Aero. & Astronaut., China*. We have designed a self-interference cancellation system based on an optical delay line chip with a total delay of 6350 ps.

P4.30 7726
Multi-Ring Geometric Shaping Method For OFDM-FSO System, Lingxiao Liu, Jianxi Yang, Guojuan Xia and Xi Fang; *Beijing Electronic Sci. & Tech. Inst., China*. To address the degradation of optical signal quality, a probabilistic shaping scheme is proposed. Simulation results show that the proposed scheme achieves better bit-error performance and transmission reliability.

P4.31 2376
ZUC-256 Based Physical Layer Security Design for OTFS Modulated LEO Satellite Communication Systems, Yilin Li, Yuxiang Liu, Xi Fang, Xiaohan Wang and Bo Wang; *Beijing Electronic Sci. & Tech. Inst., China*. In order to ensure OTFS-LEO satellite systems security, we apply ZUC-256 for OTFS LEO satellite systems.

P4.32 4420
Polarization-independent high quality factor dual-parameter sensor for simultaneous detection of magnetic field and temperature, Chengbo Du, Donghe Sheng and Huiping Tian; *Beijing Univ. of Posts & Tel., China*. We propose an optical metasurface sensor for simultaneous detection of magnetic field and temperature, with double high quality factor resonances and polarization-insensitive properties to the incident light.

P4.33 9617
MSE-Driven Bipartite-Matching-Based Quantization for Optical Physical-Layer Secure Key Generation, Yangsong Li, Jiawei Rao, Xiongtao Chen and Liuming Zhang; *Fujian Normal Univ., China*. A MSE-driven bipartite-matching quantizer is applied to physical-layer secure key generation in fiber channels.

P4.34 7297
Residual Chain Deployment Space Score-Based ACO Method for Online SFC Deployment in LEO Satellite Networks, Jingwen Zhang, Qi Zhang, Zikang Li, Fu Wang, Feng Tian and Jiahao Chen; *Beijing Univ. of Posts & Tel., China*. An RCDS-based ACO algorithm is proposed for online SFC deployment in LEO satellite networks.

P4.35 6808
Comparison of Two Scattering-Enhanced Fibers for Distributed Temperature Sensing, Yunlu Fan, Tianyu Yang, Yuming Dong and Huanhuan Liu; *Shenzhen Inst. of Advanced Tech., CAS, China*. This paper experimentally investigated results which show improved temperature sensitivity of compositional changed scattering enhanced fiber and continuous grating fiber.

P4.36 5242
A Constellation-Division-Based Constant Modulus Algorithm for Probability Shaping QAM Coherent Optical Communication System, Bailiang Jiang, Qi Zhang, Ran Gao, Feng Tian, Zuolin Li, Fu Wang, Qihan Zhao, Xinyu Yuan, Yongjun Wang, Sitong Zhou, Leijing Yang and Qinghua Tian; *Beijing Univ. of Posts & Tel., China*. A constellation-division-based constant modulus algorithm (CD-CMA) is proposed for coherent optical communication systems with high-order probabilistic shaping QAM.

Poster Session 4 (10:00-10:30)

P4.37 7340
Design of a Self-Start-Stop Pump Control System Based on Fiber-Optic Water Flow Sensing and Sensorless FOC, Linzhi Zhao, Ruiqi Zhang, Yanqing Qiu and Ruiyue Zhang; *China Jiliang Univ., China*. This paper presents a novel pump control system using fiber-optic flow sensing and sensorless FOC with PMSM drive.

P4.38 8404
LPTV Structure-Constrained Kalman Filter for OFDM Channel Estimation over Multipath Fading Channels, Dongxu Jiang, Zhao Deng and Huibin Zhang; *Beijing Univ. of Posts & Tel., China*. This paper proposes an linear periodically time-varying (LPTV) structure-constrained Kalman filter with decision feedback for OFDM channel estimation.

P4.39 8444
Volterra Neural Network with a Composite Loss Function for Fiber Nonlinearity Suppression in WDM-PDM CO-OFDM Systems, Xiaohan Wang, Xutong Zhou, Xi Fang, Xianwei Gao, Bo Wang and Jianxin Wang; *Beijing Electronic Sci. & Tech. Inst., China*. This paper proposes a Volterra neural network equalizer with a composite loss function for WDM-PDM CO-OFDM systems.

P4.40 3291
Design of a Split-Architecture Scanning LiDAR Based on Optical Wireless Communication, Ruiqi Zhang, Linzhi Zhao, Yanqing Qiu, Jiawen Hu and Jian Kong; *China Jiliang Univ., China*. This paper designs a split-architecture 2D scanning LiDAR employing LED optical wireless communication and magnetic inductive coupling for contactless data/power transfer.

P4.41 6306
Higher-order-ReLU-KAN equalizer for nonlinear mitigation in Coherent Optical Transmission, Yitao Feng, Dong Guo, Qi Xu, Fei Wang, Peng Dong, Huan Chang, Ran Gao and Xiangjun Xin; *Beijing Inst. of Tech., China*. We propose a Higher-order-ReLU-KAN equalizer for nonlinear mitigation in 60-GBaud WDM coherent optical transmission.

P4.42 9709
Q-Switched Erbium Fiber Laser Using a Surface Lattice Resonance-Enhanced Metasurface Saturable Absorber, Fengbin Lin, Lili Gui, Yiyuan Xu, Hailun Xie and Kun Xu; *Beijing Univ. of Posts & Tel., China*. We demonstrate an SLR-based metasurface saturable absorber at about 1550 nm. High-Q resonances in periodic gold nanorods enhance nonlinear absorption.

P4.43 3021
In-situ monitoring of spectral dynamics in nanoparticle suspension with multiresonance combs, Yan Zhou, Wen Zhang, Wenjun Zhou, Changyu Shen, Yang Zhang and Rui-Pin Chen; *Zhejiang Sci-Tech Univ., China*. A sensing platform enables real-time tracking of bulk refractive index and scattering effects in suspension via spectral resonances.

P4.44 0752
Enhancing the Net Spectral Efficiency of Correlative Conjugated Detection Scheme by Using Optical Frequency Combs and Master-slave Carrier Phase Recovery Architecture, Xishuo Wang, Xiaolong Pan, Zhipei Li, Lei Zhu, Huan Chang, Qi Xu, Ran Gao and Xiangjun Xin; *Beijing Inst. of Tech., China*. We propose a master-slave correlative conjugated intradyne detection.

P4.45 1692
Dual-Band Microwave Photonic Phased Array with Subband-Programmable Null Steering, Ying Xu, Zheng Wang, Xukai Ji, Feifei Yin, Yitang Dai and Kun Xu; *Beijing Univ. of Posts & Tel., China*. We propose a dual-band microwave photonic phased array with subband-programmable null steering.

P4.46 8688
Numerical investigation of Brillouin distributed strain and temperature sensing in air-ring microstructure optical fiber, Wenxuan Zhang, Xingliang Shen, Yunlu Fan, Tianyu Yang, Yixin Zhang, Yuming Dong and Huanhuan Liu; *Nanjing Univ., China*. This work theoretically investigates Brillouin-scattering-based distributed strain and temperature sensing in air-ring microstructure fiber.

P4.47 4466
Effect of Grating Array Misalignment in Composite-Bonded Multi-Core Fibers on Shape Sensing, Shuo Li, Yejun Shao, Haoran Gao, Zhewen Ding, Dongyou Yu, Chunlian Zhan and Chunliu Zhao; *China Jiliang Univ., China*. To address the axial misalignment of grating array in multi-core fiber, this paper investigates its effect on shape sensing.

P4.48 1159
A 56 Gb/s NRZ O-Band Ring Modulator with 1.6THz FSR for DWDM Application, Jiayin Yan, Huimin Yan and Jianjun He; *Zhejiang Univ., China*. We design and experimentally demonstrate a O-band Si mircroing modutalor. The device achieves 1.6THz FSR, 10pm/V modulation efficiency, and operates at 56Gb/s NRZ.

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Room 1, Track 7

10:30-12:00
Th2A. Ultrafast & Nonlinear III
*Presider: **Mengmeng Han,** Hebei Normal University, China*

Th2A.1 • 10:30 Invited

Time-delayed optical reservoir computing and its application in distributed optical fiber sensing, Nian Fang; *Shanghai Univ., China.* This talk mainly presents the research progress achieved by Shanghai University in the field of time-delayed optical reservoir computing, including studies on the system itself and its applications in distributed fiber optic sensing.

Th2A.2 • 10:48 Invited

Spatiotemporally synchronized pure high-even-order dispersion solitons in multimode fiber lasers, Wenqi Ma; *Jilin Univ., China.* We demonstrate the generation of spatiotemporally synchronized PHEOD solitons in four transverse modes, with fourth-, sixth-, or eighth-order dispersion. Compared to single-mode counterparts, these solitons unveil new nonlinear dynamics and energy scaling potential.

Th2A.3 • 11:06 Invited

Free-running dual-comb spectroscopy by nonlinear optical gain modulation, Jiaqi Zhou; *Shanghai Inst. of Optics & Fine Mechanics, China.* We report a mutually coherent dual-comb spectroscopy system by nonlinear optical gain modulation, which operates without active feedback stabilization or post-processing. The simplicity and effectiveness make it a practical solution for field-deployable applications.

Room 2, Track 2

10:30-12:00
Th2B. Optical Transmission VII
*Presider: **Jingchi Li,** Shanghai Jiao Tong University, China*

Th2B.1 • 10:30 Invited

Integrated Forward Sensing and Terabit Commuincations with MHz DFB Lasers, Yixiao Zhu; *Shanghai Jiao Tong Univ., China.* This talk explores low-cost MHz DFB lasers for both forward sensing and terabit communications via shared residual carrier.

Th2B.2 • 10:50 Invited

High-Performance and Low-Complexity FEC for High-Speed Optical Transmission, Yi Lei; *Hefei Univ. of Tech., China.*

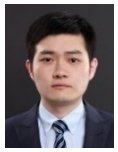
Th2B.3 • 11:10 Invited

Enhanced Carrier Phase Recovery using dual pilot tones in Faster-than-Nyquist Optical Transmission systems, Jialin You; *Liaocheng Univ., China.*

Room 3, Track 4

10:30-12:00
Th2C. Optoelectronic Integration VI
*Presider: **Zunyue Zhang,** Tianjin University, China*

Th2C.1 • 10:30 Invited



Silicon-phase change material integrated high-speed transceiver and in-memory computing chips, Liangjun Lu; *Shanghai Jiao Tong Univ., China.*

Th2C.2 • 10:50 Invited

Effect of Weakly Correlated Crystallizations: Quantitative Characterization in GaAs/Si Heteroepitaxial material, Yidong Zhang; *Beijing Univ. of Posts & Tel., China.* A quantitative characterization scheme for correlation strength featuring threading dislocation annihilation and strain release has been proposed.

Th2C.3 • 11:10 Invited

Mid-infrared silicon photonic devices for spectroscopic sensing, Zunyue Zhang; *Tianjin Univ., China.*

Room 4, Special 1

10:30-12:00
Th2D. Organic Optoelectronics VI
Presider: ***Hao Xin,*** *Nanjing University of Posts & Telecommunications, China*

Th2D.1 • 10:30 Invited

Solution Route for Efficient Sulfide Kesterite Solar Cells, Hao Xin; *Nanjing Univ. of Posts & Tel., China*. This talk reports fabrication of CZTS solar cells from dimethyl sulfoxide based molecular solution and mitigates issues that limit it performnace.

Th2D.2 • 10:50 Invited

Surface Sulfurization of Cu(In,Ga)(Se,S)2 Solar Cells via Plasma-Enhanced Chemical Vapor Deposition (PECVD), Weimin Li; *Shenzhen Inst. of Advanced Tech., CAS, China*. We present a plasma-enhanced chemical vapor deposition (PECVD) enabled surface sulfurization strategy for CIGSe absorber.

Th2D.3 • 11:10 Invited

Self-assembled molecules for efficient perovskite photovoltaics, Chuanjiang Qin; *Changchun Inst. of Applied Chemistry, CAS, China*.

Room 5, Special 5

10:30-12:00
Th2E. Flexible Photonics II
Presider: ***Zewei Luo,*** *Sichuan University, China*

Th2E.1 • 10:30 Invited

Harnessing 20-Wave Mixing to Achieve Nonlinear Exceptional Points for Ultrasensitive Weak-Light Detection, Lei Chen; *Jinan Univ., China*.

Th2E.2 • 10:45 Invited

Development of Novel Fiber End-Face-Based Sensors and Actuators, Lingxin Kong; *Yantai Univ., China*.

Th2E.3 • 11:00 Invited

Interlayer Engineering on the Performance of Peorvskite Solar Cells, Yang Li; *Shihezi Univ., China*. By introducing appropriate interlayer materials, the mismatched band offset at the perovskite/transport layer interface can be finely tuned, which facilitates efficient extraction and rapid transport of photogenerated electrons and holes while blocking unwanted reverse charge transfer.

Room 6, Track 6

10:30-12:00
Th2F. Measurement & Sensors VI
Presider: ***Qing Bai,*** *Taiyuan University of Technology, China*

Th2F.1 • 10:30 Invited

Physiological micro-movements detection used by all-fiber interferometer, Kang Yang; *Handan Univ., China*. An OAM-based all-fiber interferometric system is proposed for high-sensitivity detection of micro-scale physiological signals, achieving accurate and non-invasive measurement of pulse and respiration with low error.

Th2F.2 • 10:50 Invited

Long-range and High-spatial-resolution BOTDR using random coding and image deconvolution, Qing Bai; *Taiyuan Univ. of Tech., China*. This research proposed an image-deconvoluted random coding BOTDR to extend the sensing range to 100.4km with the spatial resolution of 2m and a root-mean-square error (RMSE) below 2 MHz, simultaneously.

Th2F.3 • 11:10 Invited

Compact and high-sensitivity SiN optical waveguide chips for biochemical sensing, Jieyun Wu; *Univ. of Electronic Sci. & Tech. of China, China*. We demonstrated a series of MOF-enhanced silicon nitride wavguides, long-period grating and interferometer, with sub-mm footprint and high-sensitivity for VOC and biomarkers detection.

Room 1, Track 7

Th2A.4 • 11:24 Invited

State Transitions from Periodic Waves to Soliton Rain in Modulation-Depth-Controlled Fiber Lasers, Hongbo Jiang; *Harbin Eng. Univ., Qingdao, China.*

Th2A.5 • 11:42 Invited

Polarization-multiplexed dual-comb single-cavity soliton fiber lasers, Mengmeng Han; *Hebei Normal Univ., China.*

Room 2, Track 2

Th2B.4 • 11:30 Invited

Monolithically integrated silicon photonic local oscillator-free homodyne receiver, Jingchi Li; *Shanghai Jiao Tong Univ., China.* We proposed and demonstrated an integrated silicon photonic local oscillator (LO)-free homodyne detection receiver enabled by a silicon nitride micro-ring filter, achieving single-polarization 600-Gb/s transmission over an 80-km fiber.

Th2B.5 • 11:50 6959

Global Load-Balancing Dynamic Wavelength and Bandwidth Allocation (GLB-DWBA), Tserenlkham Batdorj; *Mongolian Univ.of Sci. & Tech., Mongolia.* This paper proposes an enhanced Dynamic Wavelength and Bandwidth Allocation algorithm for NG-EPON using a global load-balancing mechanism in a multi-rate architecture.

Room 3, Track 4

Th2C.4 • 11:30 ☆ 1984

Photocurrent-Enhanced UTC Photodiodes With 236 GHz Bandwidth and Flat D-Band RF Output, Jianwei Chen; *Southeast Univ., China.* Photocurrent-assisted response enhancement turns high-current operation from a limitation into an advantage, enabling UTC-PDs with 236-GHz 3-dB bandwidth, broadband D-band RF output, and nearly 0 dBm power.

Th2C.5 • 11:45 6516

High-Power SOA-Integrated DFB Laser, Jie Liang, Anyao Zhu, Ying Yu and Siyuan Yu; *Sun Yat-sen Univ., China.* We demonstrate an SOA-integrated DFB laser which exhibits an optical power over 150mW at 20℃, and analyze the impact of the SOA on spectrum and noise.

12:00-13:30 Lunch Break

Room 4, Special 1

Th2D.4 • 11:30 Invited

Research on Perovskite/Organic Tandem Solar Cells, Zhan'ao Tan; *Beijing Univ. of Chemical Tech., China*.

Th2D.5 • 11:50 0832

Reconfigurable Photodetectors Based on Two-Dimensional Materials and Applications, Chao Dou; *Tianjin Univ., China*. This study developed a two-dimensional material optoelectronic device with reconfigurable non-volatile memory, integrating sensing, storage, and computing functions into a single unit, thereby demonstrating its potential in the field of artificial vision.

Room 5, Special 5

Th2E.4 • 11:15 Invited

Research on the Construction and Application of Non-Hermitian Symmetry Based on Microcavity Resonant Systems, Lin Yu; *Yanbian Univ., China*.

Th2E.5 • 11:30

Flexible electrodes for wearable optoelectronic sensing, Gui-Shi Liu; *Jinan Univ., China*.

Th2E.6 • 11:45 7942

Calculating optical properties of transition metals in crystalline hosts, Andrejs Cesnokovs and Mikhail Brik; *Chongqing Univ. of Posts & Tel., China*. A robust method of calculating luminescent properties will automate discovery and will enable rapid development of optical materials. In this work we present two computational studies on embedding luminescent ions (Ti3+, Mn5+) into crystalline hosts.

Room 6, Track 6

Th2F.4 • 11:30 Invited

Mach-Zehnder sensor based on microfiber printed using two-photon polymerization technique, Hang Qu; *Shantou Univ., China*. We report a compact fiber Mach-Zehnder (M-Z) sensor based on a microfiber printed using two-photon polymerization technique in a C-shaped fiber.

Th2F.5 • 11:50 7174

Microwave Photonic Spectrum Measurement System Based on Integrated Chirped Waveguide Bragg Gratings, Meng Zhang, Jiewen Ding, Dan Zhu and Shilong Pan; *Nanjing Univ. of Aero. & Astronaut., China*. A microwave photonic spectrum measurement system using integrated chirped waveguide Bragg gratings is proposed and experimentally investigated.

12:00-13:30 Lunch Break

Room 1, Track 1

13:30-15:30
Th3A. Fibers & Fiber Devices V
*Presider: **Jiangming Xu,** National University of Defense Technology, China*

Th3A.1 • 13:30 Invited

Forward Brillouin scattering in optical fibres: manipulation and applications, Liang Zhang; *Shanghai Univ., China.*

Th3A.2 • 13:50 Invited

Vortex fiber meta-lasers: from high-order reconfigurability to spatiotemporal co-manipulation, Lili Gui; *Beijing Univ. of Posts & Tel., China.*

Th3A.3 • 14:10 Invited

Multi-dimensional optomechanics in microstructured optical fiber, Xinglin Zeng; *Shanghai Inst. of Optics & Fine Mechanics, CAS, China.* Some recent findings on multimode optomechanics in PCF will be shared.

Room 2, Track 2

13:30-15:30
Th3B. Optical Transmission VIII
*Presider: **Yukui Yu,** Xidian University, China*

Th3B.1 • 13:30 Invited

Mitigation of Mode-Hopping-Induced Power Fluctuations in VCSEL-based Optical Link, Yukui Yu; *Xidian Univ., China.*

Th3B.2 • 13:50 0433

Multi-Receiver RSS-Based Indoor Visible Light Positioning Using Explore-Exploit RIS Orientation, Israt Jahan, Jing Fu, Sithamparanathan Kandeepan and Ke Wang; *RMIT Univ., Australia.* This paper proposes an explore–exploit reconfigurable intelligent surface orientation algorithm for received-signal-strength-based two-dimensional indoor non-line-of-sight visible light positioning.

Th3B.3 • 14:05 0822

Pruned Volterra Nonlinear Equalization using Sparse Bayesian Learning and Kalman Filtering, Hualei Shi, Feng Tian, Chuanji Yan, Yutian Li, Qi Zhang, Ran Gao, Qinghua Tian, Fu Wang and Zhipei Li; *Beijing Univ. of Posts & Tel., China.* A sparsified Volterra algorithm based on sparse Bayesian learning and Kalman filtering is proposed and experimentally demonstrated in a 20G-baud PAM4 IM/DD system.

Room 3, Track 4

13:30-15:30
Th3C. Optoelectronic Integration VII
*Presider: **Huijuan Niu,** Liaocheng University, China*

Th3C.1 • 13:30 Invited

Phase locking of lasers enable the targeted microwave photonic filtering based on Brillouin nonlinearity, Sigang Yang; *Tsinghua Univ., China.*

Th3C.2 • 13:50 Invited

Multi-beam steering based on integrated optical phased array, Jingye Chen; *Zhejiang Univ., China.*

Th3C.3 • 14:10 Invited

Enabling Technologies for 6G: Tunable Terahertz Devices and Radiative Cooling, Huijuan Niu; *Liaocheng Univ., China.*

Room 4, Special 1

13:30-15:30
Th3D. Organic Optoelectronics VII
*Presider: **Xuying Liu,** Zhengzhou University, China*

Th3D.1 • 13:30 Invited

Perovskite Semiconductor Heterogeneous Integration with CMOS/TFT Chips for X-Ray Flat-Panel Detectors, Yanliang Liu; *Shenzhen Inst. of Advanced Tech., CAS, China*. Our group proposed a novel solid-phase monolithic integration strategy.

Th3D.2 • 13:50 Invited

Electrically tunable optical metasurfaces using MEMS mirrors, Fei Ding; *Eastern Inst. of Tech., Ningbo, China*.

Th3D.3 • 14:10 Invited

Printable functional materials for high-performance organic electronics, Xuying Liu; *Zhengzhou Univ., China*.

Room 5, Special 2

13:30-15:30
Th3E. AI Photonics II
*Presider: **Junlan Zhong,** China Jiliang University, China*

Th3E.1 • 13:30 Invited

Machine Learning-Empowered Helical Intermediate-Period Fiber Grating for Operando Battery State of Charge Monitoring, Junlan Zhong; *China; Jiliang Univ., China*. This work proposes an intelligent sensing framework that deeply integrates a novel helical intermediate-period fiber grating (HIPFG) with advanced ML algorithms.

Th3E.2 • 13:50 0399

Accurate Recognition of Multiple Events Using an Integrated Deep Neural Network for Distributed Optical Fiber Vibration Sensing, Zhenshi Sun, Chenghao Chen, Shengqi Jiang, Haojie Jia, Jun Niu and Yu Zhang; *Nanyang Inst. of Tech., China*.

Th3E.3 • 14:05 3060

Split-Window Bidirectional Mamba for Low-Complexity Nonlinear Equalization in Coherent Optical Systems, Yinxin Yu, Jian Zhao, Hang Liu, Rupeng Li and Tianhua Xu; *Tianjin Univ., China*.

Room 6, Track 6

13:30-15:30
Th3F. Measurement & Sensors VII
*Presider: **Chengliang Zhu,** Northeastern University, China*

Th3F.1 • 13:30 Invited

Advanced Optical Fiber Interferometers for Highly Precise Displacement Measurements, Zhilin Xu; *Huazhong Univ. of Sci. and Tech., China*.

Th3F.2 • 13:50 Invited

Microcavity-Enhanced Optoelectronic Fiber Photoacoustic Spectroscopy for ppb-Level Trace Gas Sensing, Yafei Li; *Jinan Univ., China*. This paper developed a miniaturized, ultrasensitive photoacoustic spectroscopy gas sensor by integrating a thermally drawn multi-material optoelectronic fiber, a T-type resonant photoacoustic cell, and a MEMS microphone at the fiber tip.

Th3F.3 • 14:10 Invited

Goos–Hänchen shifts enhanced by surface resonances for optical sensing, Yi Xu; *Guilin Univ. of Electronic Tech., China*. By exploiting plasmonic, excitonic, and phononic surface resonances, enhanced Goos–Hänchen shifts can be achieved, enabling highly sensitive detection of refractive index and temperature variations.

Room 1, Track 1

Th3A.4 • 14:30 Invited

Power scaling of low-quantum-defect Raman fiber laser, Jiangming Xu; *National Univ. of Defense Tech., China*. Quantum defect has usually been a troublesome issue in high power lasers. The recent progress of high power low quantun defect Raman fiber laser will be reviewed in this talk.

Th3A.5 • 14:50 Invited

Wavelength-Switchable 2 μm Single-Longitudinal-Mode Thulium-Doped Fiber Laser Based on Dual-Active Cavity and DLTCTR filter, Pengfei Wang; *Southeast Univ., China*. A thulium-doped fiber laser (TDFL) with a dual-active cavity and a directly linked threecoupler triple-ring filter is designed and demonstrated. Its operational principle is analyzed, and a corresponding experimental setup is built.

Th3A.6 • 15:10 6985

Linear-cavity passively mode-locked Raman fiber laser, Hanwen Sun, Dongfang Jia, Yi Liu, Enfan Zhou, Danyang Wang, Yupeng Tian, Chunfeng Ge, Zhaoying Wang and Tianxin Yang; *Tianjin Univ., China*. This paper proposes a linear-cavity passively mode-locked Raman fiber laser based on nonlinear polarization rotation (NPR).

Room 2, Track 2

Th3B.4 • 14:20 2736

Analysis of Super-Gaussian Cascaded WSS Filter Transfer Functions for 400 and 800 Gbit/s Coherent Metro Networks, Nomarhinta Solihah, Rendy Munadi, Erna Sri Sugesti, Favian Dewanta and Yusfi Ardiansyah; *Telkom Univ., Indonesia*.

Th3B.5 • 14:35 8817

OTFS-Aided Hybrid Digital-Analog Radio-over-Fiber Architecture for Power Fading Mitigation in IMDD Interconnections, Xiaobo Zeng, Pan Liu, Liangcai Chen and Ruonan Deng; *Xiangtan Univ., China*.

Th3B.6 • 14:50 6131

Performance Analysis of AFDM-IM LiDAR-ISAC Waveforms under Composite FSO Channels, Xiaoyu Chang, Minghua Cao, Liyuan Han, Xuan Chen, Xuqiang Zhang and Huiqin Wan; *Lanzhou Univ. of Tech., China*.

Th3B.7 • 15:05 7700

Peak Extraction Algorithm Based on Wavelet Fourier Transform in Linear Optical Sampling System, Chuanji Yan, Feng Tian, Meng Qiu, Junjie Jiang, Jianwei Zhou, Qi Zhang, Yongjun Wang and Fu Wang; *Beijing Univ. of Posts & Tel., China*.

Th3B.8 • 15:20 6514

Learning Aided Dynamic Pricing Task Scheduling Algorithm for Optical LEO Networks, Lilong Zhou, Chunyi Guo, Yanyan Xie, Kecai Chen, Lei Shi, Yajuan Qin, Yinghao Tong, Yixiang Zhang, Bin Liu, Changshuai Wang, Yao Li and Ruijie Zhu; *Zhenzhou Univ., China*.

Room 3, Track 4

Th3C.4 • 14:30 ☆ 5379

THz emission in cylindrical Field Effect Transistor with nonideal boundary condition, Liping Zhang, Bian Zhou, Meiling Zhang and Junyan Su; *Lanzhou Univ. of Tech., China*. This study investigates the instability of terahertz (THz) plasma waves in cylindrical FETs under nonideal boundary conditions. The study results indicate that under non-ideal boundary conditions, the plasma waves become unstable.

Th3C.5 • 14:45 2191

A Novel Three-Layer Polar-Cartesian Feature Fused GRU Equalizer for 400-Gb/s DP-16QAM Coherent Optical Transmission System, Jie Shi, Yu Sun, Lanling Chen, Junde Lu, Jianyu Shi, Jiaxin Zheng, Yang Yang, Shuo Jiang, Chi Zhang and Jun Qin; *Beijing Info. Sci. & Tech. Univ., China*.

Th3C.6 • 15:00 7508

Mamba-Based Nonlinear Equalization for Long-Haul Coherent Optical Transmission, Yang Yang, Jie Shi, Jun Qin, Junde Lu, Yu Sun, Jiaxin Zheng, Jianyu Shi, Shuo Jiang, Chi Zhang and Zhihao Chen; *Beijing Info. Sci. & Tech. Univ., China*.

Th3C.7 • 15:15 2819

Principal Component Reconstruction of Odd-bit QAM Signals for Performance Improvement of Principal Component-based Phase Estimation Algorithm in Coherent Optical Communications, Xishuo Wang, Xiaolong Pan, Zhipei Li, Lei Zhu, Huan Chang, Qi Xu, Ran Gao and Xiangjun Xin; *Beijing Inst. of Tech., China*.

Room 4, Special 1

Th3D.4 • 14:30 Invited

Nanoporous ZIF-8 with different crystal morphologies: preparation, properties, and applications, Jin Wang; *Nanjing Univ. of Posts & Tel., China*.

Th3D.5 • 14:50 Invited

Transistor construction strategy enables integrated logic and neuromorphic computing, Erjuan Guo; *Huazhong Univ. of Sci. & Tech., China*.

Th3D.6 • 15:10 Invited

Flexible Organic Transistors for Applications in Sensing and Optoelectronic Synapses, Zhigang Yin; *Chongqing Univ., China*.

Room 5, Special 2

Th3E.4 • 14:20 5253

Fluid-Approximation Scheduling for Energy-Efficient Multi-AUV UWOC Relays, Nadira Pervin, Jing Fu and Ke Wang; *RMIT Univ., Australia*.

Th3E.5 • 14:35 5459

A Reconfigurable Integrated Optical BiLSTM Architecture Based on Cascaded Mach-Zehnder Interferometer Arrays, Rupeng Li, Jian Zhao, Yinxin Yu, Hang Liu and Tianhua Xu; *Tianjin Univ., China*.

Th3E.6 • 14:50 8413

Nonlinear equalizer based on meta-learning-assisted bidirectional gated recurrent unit network for long-haul coherent optical communication systems, Di Zhang, Junyao Shi and Yanling Xue; *East China Normal Univ., China*.

Th3E.7 • 15:05 8503

Sequence-Statistical Fusion for Focal-Plane Turbulence Strength Estimation in Free-Space Optical Links, Yufeng Jiang, Qinghua Tian, Lei Zhu and Kehang Ma; *Beijing Univ. of Posts & Tel., China*.

Room 6, Track 6

Th3F.4 • 14:30 Invited

Machine Learning-Based Calibration and Compensation for Measurement Errors of Grating Linear Encoders in Complex Motion, Yan Shi; *China Jiliang Univ., China*.

Th3F.5 • 14:50 Invited

MoS_2-Engineered Visible–Near-Infrared SPR Fiber Sensors for High-Sensitivity Optical Sensing, Zhiyong Yin; *Tiangong Univ., China*. This talk presents MoS_2-engineered SPR fiber sensors that shift plasmonic resonances from visible to near-infrared bands, enabling enhanced refractive-index sensitivity, wavelength-division multiplexing, and multi-parameter biosensing for optical sensor applications.

Th3F.6 • 15:10 Invited

Fiber-Optic Manipulation of Photonic Spin and Orbital Angular Momentum: Conversion and Applications, Chengliang Zhu; *Northeastern Univ., China*. Helical fiber gratings and other advanced fiber devices enable efficient spin angular momentum (SAM)/orbital angular momentum (OAM) conversion, versatile manipulation, and practical applications.

Room 1, Track 1

16:00-18:00
Th4A. Fibers & Fiber Devices VI
*Presider: **Jiajing Tu,** Jinan University, China*

Th4A.1 • 16:00 Invited

Hollow-Core Fibres: A Route to Overcoming Thermal Limitations in Fibre Optics, Meng Ding; *Shanghai Inst. of Optics & Fine Mechanics, CAS, China.* By minimising light–glass interaction, hollow-core fibres reduce thermal sensitivity. Multiple suppression strategies to further reduce HCFs thermal sensitivity are reviewed.

Th4A.2 • 16:20 Invited

CO_2 Laser-Written Long-Period Gratings for Ultra-Broadband Mode Conversion, Sensing, and pH Detection in Aqueous Batteries, Xinyi Zhao; *Henan Norma Univ., China.* Long-period fiber gratings fabricated in few mode fiber or single mode fiber using CO_2 laser can respectively achieve ultra-broadband mode conversion, high-sensitivity sensing and real-time monitoring of pH evolution of electrolytes in V-based AZIBs.

Th4A.3 • 16:40 Invited

Investigation on the effects of twist on specialty optical fibers, Jiajing Tu; *Jinan Univ., China.*

Room 2, Track 8

16:00-18:00
Th4B. Free-space Communications II
*Presider: **Nan Cui,** Beijing University of Posts and Telecommunications, China*

Th4B.1 • 16:00 Invited

Characteristics analysis, Ground-Based Simulation and Compensation Experiment in Inter-satellite Doppler Shift for Diverse Scenarios, Nan Cui; *Beijing Univ. of Posts & Tel., China.*

Th4B.2 • 16:20 3457

Experimental Demonstration of Adaptive Power Division Ratio in FSO-NOMA over Turbulence Channels, Wenchao Xia, Xu Zhu, Shuaijie Yuan, Jianyu Weng and Bing Lei; *National Univ. of Defense Tech., China.*

Th4B.3 • 16:35 4142

BER and Non-Monotonic Secrecy Capacity of OFDM-FSO Systems under Weather and Eavesdropping Scenarios, Yuyang Li, Yongli Zhao, Ruikang Ni, Xuheng Zhang and Liyazhou Hu; *Beijing Univ. of Posts & Tel., China.*

Th4B.4 • 16:50 2778

A capacity optimization scheme for hybrid radio-frequency and optical wireless communication system, Jing He, Xinming Huang and Jing He; *National Univ. of Defense Tech., China.*

Room 3, Track 5

16:00-18:00
Th4C. Optical Signal Processing III
*Presider: **Quandong Huang,** Guangdong University of Technology, China*

Th4C.1 • 16:00 Invited

AI-assisted photonic chip and applications, Quangdong Huang; *Guangdong Univ. of Tech., China.*

Th4C.2 • 16:20 7412

Modified Uni-Traveling-Carrier Photodiode With an Electric-Field Regulation Layer, Mengyu Zhang, Yuansen Shen, Kai Liu, Xiaofeng Duan, Yongqing Huang, Qi Wang and Xiaomin Ren; *Beijing Univ. of Posts & Tel., China.*

Th4C.3 • 16:35 2269

Aperiodic Frequency-Agile Signal Generation Based on Optoelectronic Hybrid Oscillato, Tong Yang, Tengfei Hao, Yiwen Lu, Feifei Yin, Kun Xu, Ming Li and Yitang Dai; *Beijing Univ. of Posts & Tel., China.*

Th4C.4 • 16:50 4572

Broadband Microwave Frequency Comb Generation Based on Mach–Zehnder Modulator, Jinjian Feng, Yang Jiang, Jing Xu, Xiaohong Lan, Jiancheng Yu, Tingyi Jiang and Yu Wu; *Guizhou Univ., China.*

Room 5, Track 3

16:00-18:00
Th4E. Optical networks IV
*Presider: **Zhouyi Hu,** Beijing Jiaotong University, China*

Th4E.1 • 16:00 Invited

Key technologies of integrated sensing and communication for converged fiber-wireless optical networks, Zhouyi Hu; *Beijing Jiaotong Univ., China*. In this invited paper, we review the recent progress in optical integrated sensing and communication to address these challenges.

Th4E.2 • 16:20 8687

A Key Depletion-Risk-Aware Routing Scheme in Quantum Satellite Networks, Kecai Chen, Chunyi Guo, Yanyan Xie, Lei Shi, Yajuan Qin, Lilong Zhou, Yixiang Zhang, Bin Liu, Yinghao Tong, Changshuai Wang, Yao Li and Ruijie Zhu; *Zhenzhou Univ., China*.

Th4E.3 • 16:35 7992

Field Trial of Digital-Twin Assisted Transmission Performance Optimization in a 400G C+L System, Yu Tang, Yan Shi, Shikui Shen, Chuanbiao Zhang, He Zhang, Zelin Wang, Danshi Wang, Guangquan Wang and Xiongyan Tang; *China Unicom Research Inst., China*.

Th4E.4 • 16:50 2898

A Partition-based Fast Routing Algorithm for Large-scale Optical Satellite Networks, Junling Yuan; *Zhengzhou Univ. of Light Industry., China*. This paper proposes a partition-based three-stage routing algorithm for large-scale optical satellite networks.

Room 6, Track 6

16:00-18:00
Th4F. Measurement & Sensors VIII
*Presider: **Yunhe Zhao,** Shanghai Maritime University, China*

Th4F.1 • 16:00 Invited

Optical Guidance Technology for AUV Underwater Docking, Zhe Sun; *Northwestern Polytechnical Univ., China*. This report focuses on the implementation principles, methods, development status and trends of various types of AUV underwater recovery optical guidance technology, and introduces in detail the optical guidance technology based on image sensor and position detector.

Th4F.2 • 16:20 Invited

Programmable Laser Interferometry for High-Speed and Multiplexed Fiber-Optic Fabry–Pérot Sensing, Qiang Liu; *Nanjing Normal Univ., China*.

Th4F.3 • 16:40 Invited

Fiber-based surface nanoscale whispering gallery modes microcavity and sensing applications, Qi Yu; *Anhui Univ., China*.

Room 1, Track 1

Th4A.4 • 17:00 6354
Comparison of the transmission capability of current 800G OTN equipment in different fiber types and transmission models, Chuangye Wang, Shikui Shen, Miao Liu, Yakun Hu, He Zhang, Zelin Wang, Chuanzhu Liu, Wenning Yang, Jun Wu, Jun Luo, Yaohui Zhang, Xuegang Lao, Chuanxi Zhang, Guangquan Wang, Xiongyan Tang and Qingpeng Geng; *China Unicom Research Inst., China*.

Th4A.5 • 17:15 4871
High-precision optical fiber time signal purification equipment testing and calibration system, Jiahao Wen; *Xi'an Shiyou Univ., China*.

Th4A.6 • 17:30 5526
Adaptive Control of High-Power Laser Beam in Multimode Fibers by Weak Beam-Induced Intermodal Nonlinearity, Jiaxuan Wang, Miaomiao Yuan, Yang Liu, Hu Zhang, Lixia Xi, Xiaoguang Zhang and Xiaosheng Xiao; *Beijing Univ. of Posts & Tel., China*.

Room 2, Track 8

Th4B.5 • 17:05 2856
Physics-Aware Spatio-Temporal Mamba for Terminal Orbital Decay and Lifetime Prediction of LEO Satellites, Yajuan Qin, Chunyi Guo, Yanyan Xie, Kecai Chen, Lilong Zhou, Lei Shi, Bin Liu, Changshuai Wang, Yinghao Tong, Yixiang Zhang, Lei Zhang and Ruijie Zhu; *Zhengzhou Univ., China*.

Th4B.6 • 17:20 4668
Intelligent Adaptive Turbulence Compensation for Orbital Angular Momentum Free Space Optical Communication, Wenyu Liu and Wenjun Ni; *South-Central Minzu Univ., China*.

Room 3, Track 5

Th4C.5 • 17:05 5243
Sparse frequency-modulated signal generation based on parallel photonic mixing using optical frequency combs, Qingqing Yao, Dan Zhu, Rongtian Jiang, Jiewen Ding and Shilong Pan; *Nanjing Univ. of Aero. & Astronaut., China*.

Th4C.6 • 17:20 3276
Multi-type jamming signal generation based on coherent dual optical frequency combs, Yue Hu, Tutao Wang, Dan Zhu and Shilong Pan; *Nanjing Univ. of Aero. & Astronaut., China*.

Th4C.7 • 17:35 4486
Photonic Radio Frequency Memory System using cascaded Raman Optical Amplifier and Erbium-Doped Fiber Optical Amplifer, Weikai Yang, Dan Zhu, Yi Jiang, Jiewen Ding, Zhouyang Pan and Shilong Pan; *Nanjing Univ. of Aero. & Astronaut., China*.

Room 5, Track 3

Th4E.5 • 17:05 2894

Computing-Network Resource Allocation in Opto-Electronic Hybrid Networks for AI Training, Weijie Hong, Shiyu Li, Zixin He, Mengru Cai, Xiaochun Zhang, Yian Li, Chengxun Chen, Mingchun Li, Linhao Zhuo and Shan Yin; *Shenzhen Smart City Tech. Develop. Group Co., Ltd., China*. A digital twin-based dual-loop reinforcement learning resource allocation method is proposed for AI clusters.

Th4E.6 • 17:20 4503

Mobility-Aware Dynamic Bandwidth Allocation for Deterministic AGV Services in Backhaul Networks, Weiwei Han, Wu Jia, Yue Sun, Yan Shao, Zelin Wang, Guangquan Wang, Xiongyan Tang and Min Zhang; *China United Network Comm. Group Corp. Ltd., China*. This paper proposes a federated learning-based mobility-aware DBA for industrial AGVs.

Room 6, Track 6

Th4F.4 • 17:00 Invited

TBD, Yunhe Zhao; *Shanghai Maritime Univ., China*.

Th4F.5 • 17:20 4633

High-Speed Broadband Wavelength-Swept Laser Based on a DFB Laser Array for High-Performance FBG Interrogation, Yaqiang Fan, Jingxuan Zhang, Shuaixiao Zhou, Zhenxing Sun, Haolin Xia, Jihong Xu, Yuan Lv, Wei Yuan, Pan Dai, Feng Wang and Xiangfei Chen; *Nanjing Univ., China*.

Th4F.6 • 17:35 1138

Experimental Study on Generation of Frequency-Modulated Continuous Waves Utilizing a Fabry-Perot Laser subject to Optical Injection, Shina Wei, Qingchun Zhao, Yongchao Yang and Bin Wu; *Northeastern Univ. at Qinhuangdao, China*.

Author Index

Author Index

Author Index

Author Index

Author Index

Author Index

M

N

Author Index

Author Index

Author Index

Author Index

Author Index

Author Index

Author Index

Author Index