08:00-18:00 Registration, *Lobby*

09:00-09:30 Opening Ceremony, *Sunshine Hall 2F*

09:30-11:45, Plenary Session, *Sunshine Hall 2F*

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

Tu1A.1 • 09:30 Plenary

Novel Understanding of Micro-Particles: The Rest-Energy Excluded Frequency-Determination Energy and the Potential-Energy-Affected Wavelength, Xiaomin Ren; *Beijing University of Posts and Telecommunications, China.* Both electronics and optoelectronics are essentially based on de Broglie wave-particle duality which has played its role as the micro-particle fundamentals including the relation between particle energy and wave frequency and that between particle momentum and wavelength. However, the frequency-determination energy in the first relation has usually been misunderstood as the rest-energy included total particle energy and the wavelength in the second relation has been mistaken as a quantity only related to the momentum. Here presented are the modified ones featuring the rest-energy excluded frequency-determination energy and the potential-energy-affected wavelength (an effective momentum $p_{eff}=(1+Q_uU/E_k)p$ is introduced) as well as the consequentially modified Schrödinger

$$\left[\frac{\partial^2}{\partial t^2}-i(2Q_u-3)\frac{U}{\hbar}\frac{\partial}{\partial t}-\left(Q_u^2-4Q_u+3\right)\frac{U^2}{\hbar^2}\right]\left(i\hbar\frac{\partial\Psi}{\partial t}+\frac{\hbar^2}{2\mu}\nabla^2\Psi\right)+(2Q_u-1)\frac{U}{2\mu}\left[i\hbar\frac{\partial}{\partial t}+\left(\frac{Q_u^2}{2Q_u-1}-2\right)U\right]\nabla^2\Psi+\left(Q_u^2-2Q_u+1\right)\frac{U^3}{\hbar^2}\Psi=0$$

$$\hbar^4\frac{\partial^4\Psi}{\partial t^4}-2\mu c^2\hbar^2\frac{\partial^2}{\partial t^2}\left\{\left[1+(Q_u-2)\frac{U}{\mu c^2}\right]i\hbar\frac{\partial\Psi}{\partial t}+\frac{\hbar^2}{2\mu}\nabla^2\Psi\right\}+i2(2Q_u-3)\mu c^2U\hbar\frac{\partial}{\partial t}\left\{\left[1+\frac{Q_u^2-6Q_u+6}{2(2Q_u-3)}\cdot\frac{U}{\mu c^2}\right]i\hbar\frac{\partial\Psi}{\partial t}-\frac{\hbar^2}{(2Q_u-3)\mu}\nabla^2\Psi\right\}$$

$$+2(Q_u-1)(Q_u-3)\mu c^2U^2\left\{\left[1-\left(\frac{Q_u-2}{Q_u-3}\right)\frac{U}{\mu c^2}\right]i\hbar\frac{\partial\Psi}{\partial t}+\frac{\hbar^2}{2(Q_u-1)(Q_u-3)\mu}\nabla^2\Psi\right\}=\left(Q_u^2-2Q_u+1\right)\left(2\mu c^2-U\right)U^3\Psi$$

equation and Dirac equation respectzively as follows:
And, in the case of zero potential energy, the latter one becomes

$$i\hbar\frac{\partial\Psi}{\partial t}-\frac{\hbar^2}{2\mu c^2}\frac{\partial^2\Psi}{\partial t^2}=-\frac{\hbar^2}{2\mu}\nabla^2\Psi$$

These modifications might lead to fascinate stories of the quantum-mechanics theory and various relevant technologies, especially in the area of electronics and optoelectronics.

Tu1A.2 • 10:15 Plenary

Remarks on In-fiber Integrated Optic Devices and Components, Libo Yuan; *Guilin University of Electronic Science and Technology, China*. This report focuses on the integration of devices or components using quartz fiber as the substrate material, and discusses how to miniaturize and integrate various optical device or elements into a single fiber. The construction of functional optical devices, or the realization of optical component integration on the fiber through the combination of several single-function optical devices are systematically explored. The primary concepts and key technologies for the integration of optical devices and components in optical fibers are systematically summarized. The main functionalities and applications of such integrated devices and components in optical fiber communication and sensing are comprehensively reviewed. Finally, the potential application prospects of this technique in the field of minimally invasive interventional medicine in the future are elaborated.

Tu1A.3 • 11:00 Plenary

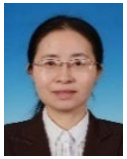
Optical Interconnects for AI Datacenters, Chongjin Xie; *PhotonicX AI Pte. Ltd., Singapore*. Since the advent of ChatGPT, generative AI has attracted lots of attention, not only from academia and industries, but from general public as well. AI computing has become the new growth engine for the IT industry and is changing the landscape of computing. Datacenters are shifting their focus from general computing to AI computing. With massive data and various parallelisms used in AI computing, huge amount of interconnects at various levels are required for AI computing clusters. This talk focuses on optical interconnects for AI computing clusters in cloud datacenters, their requirements, current status and future challenges. Various technologies are discussed.

11:45-13:30 Lunch Break

VIP Room 3, Track 1

13:30-15:30
Tu2A. Novel fibers & Devices I
*Presider: **Changyuan Yu**, The HK Polytechnic University, HK*

Tu2A.1 • 13:30 Invited



Research on Key Technologies of Information Sensing and Processing, Li Pei; *Beijing Jiaotong Univ., China.* Our research group focuses on channel equalization in high-capacity optical communication systems and key technologies for new band optical amplifiers.

Tu2A.2 • 13:50 Invited

Fiber-Optic Monitoring of Battery Thermal Behavior, Xingwei Wang; *Univ. of Massa-chusetts Lowell, USA.* This study employs OFDR-based distributed fiber sensors to monitor surface temperature variations in batteries during charge-discharge cycles.

Tu2A.3 • 14:10 Invited

Seeing through a single multi-mode fiber, Lei Su; *Queen Mary Univ., of London, UK.*

VIP Room 4, Track 6

13:30-15:30
Tu2B. Measurement & Imaging I
*Presider: **Jianzhong Zhang**, Harbin Engineering University, China*

Tu2B.1 • 13:30 Invited

Remote-distance high spatio-temporal resolution phase-sensitive optical frequency domain reflectometer, Yong kang Dong; *Harbin Inst. of Tech, China.* We propose a remote Φ-OFDR achieving 75km sensing with 2cm spatial resolution and 4kHz sampling.

Tu2B.2 • 13:50 Invited

High Spatial Resolution Optical Frequency Domain Reflecto-metry, Guolu Yin; *Chongqing Univ., China.*

Tu2B.3 • 14:10 Invited

Frequency Response Enhance-ment of UWFBG DAS with TDM method, Feng Wang; *Nanjing Univ., China.*

Room 205, Track 4

13:30-15:30
Tu2C. Optoelectronic Integration I
*Presider: **Daoxin Dai**, Zhejiang University, China*

Tu2C.1 • 13:30 Invited

Calibration-free silicon pho-tonic switches, Daoxin Dai; *Zhejiang Univ., China.* In this talk, we give a review for the development of calibration-free silicon photonic switches with near-zero phase errors, enalbing large-scale integration.

Tu2C.2 • 13:50 Invited

Silicon hybrid integrated lasers for FMCW ranging, Linjie Zhou; *Shanghai Jiao Tong Univ.*, China

Tu2C.3 • 14:10 Invited

SOI and TFLN photonic devices, Tao Chu; *Zhejiang Univ., China.* Some novel photonic devices based on SOI or TFLN platforms will be introduced, including poarization dependent switches & DeMUX, Ultrahigh-speed & high-efficiency modulators, and high-speed tunable lasers.

Room 206, Track 9

13:30-15:30
Tu2D. Quantum Photonics I
*Presider: **Xifeng Ren**, Univ. of Science and Technology of China, China*

Tu2D.1 • 13:30 Invited

Complex-Form Wave Equations: from Micro-Particle Physics to Photonics, Xiaomin Ren; *Beijing Univ. of Posts and Tel., China.*

Tu2D.2 • 13:50 Invited

Continuous-variable entagle-ment assisted quantum communication through fiber channels, Xiaolong Su; *Shanxi Univ.; China.*

Tu2D.3 • 14:10 Invited

Multi-parameter quantum-enhance metrology, Lijian Zhang; *Nanjing Univ., China*

Room 210, Special 1

13:30-15:30
Tu2E. Organic optoelectronics I
*Presider: **Zugang Liu** & **Hui Xu***

Tu2E.1 • 13:30 Kevnote

Fast liquid crystals and their applications, Hoi Sing Kwok; *HongKong Univ. of Sci. and Tech., HK.*

Tu2E.2 • 14:00 Invited

Cluster Light-Emitting Materials and Devices, Hui Xu; *Heilongjiang Univ.; China.* We developded ligand and host engineering strategies to externally optimize exciton ratios and allocation to radiative excited states of the clusters.

Tu2E.3 • 14:20 Invited

Development and Applications of PIEgens, Guanjun Xiao; *Jilin Univ., China.* The concept of pressure-induced emission (PIE) was proposed and successively dis-covered in zero-dimensional Cs4PbBr6, one-dimensional C4N2H14SnBr4 and two-dimensional (C4H12N)4AgBiBr8 halide Perovskites.

Room 211, Track 7

13:30-15:30
Tu2F. Ultrafast & Nonlinear I
*Presider: **Meng Pang**, Shanghai Inst. of Optics and Fine Mechanic, China*

Tu2F.1 • 13:30 Invited

Excitonic Nonlinearities in Two-Dimensional Materials, Wei Ji; *National Univ. of Singapore, Singapore.* In this talk, we will present a sysmatical quantum theory to predict giant excitonic optical nonlinearities in two-diemsnional materials.

Tu2F.2 • 13:50 Invited

Phase modulation and demodulation for high power single frequency lasers, Yan Feng; *Hangzhou Inst. for Advanced Study, UCAS, China.* Phase modulation and demodulation approach is explored for the generation of high-power single frequency lasers at visible or ultraviolet regime.

Tu2F.3 • 14:10 Invited

Nonlinear dynamics of nano-second pulses in fiber lasers, Luming Zhao; *Huazhong Univ. of Sci. and Tech., China.* Period doubling route to chaos and cascaded routes to chaos based on nanosecond pulses in fiber lasers are numerically presented.

Room 212, Track 3

13:30-15:30
Tu2G. Optical Networks I
*Presider: **Zuqing Zhu**, Univ. of Science and Technology of China, China*

Tu2G.1 • 13:30 Invited

The New Role of Data in Optical Networks, Dan Kilper; *Trinity College Dublin, Ireland.* Progress on the collection and manage-ment of data for use in AI methods for optical network control and management will be described including the potential for integration of optical sensing and situational data.

Tu2G.2 • 13:50 Invited

Dynamic Optical Satellite Networks, Yongli Zhao; *Beijing Univ. of Posts and Tel.; China.*

Tu2G.3 • 14:10 Invited

Intrinsically Perceived Data Center Optical Network, Weigang Hou; *Chongqing Univ. of Posts and Tel.; China.*

Room 215, Track 2

13:30-15:30
Tu2H. Optical Transmission I
*Presider: **Jianping Li**, Guangdong University of Technology, China*

Tu2 H.1 • 13:30 Invited

Advances in Multi-Dimensional Optical Communications in Diverse Scenarios, Jian Wang; *Huazhong Univ. of Sci. and Tech., China.* In this talk, we show advances in multi-dimensional optical communications in diverse scenarios.

Tu2H.2 • 13:50 Invited

Unified assessment metric for impact of all-order PMD on fiber communication systems, Xiao-guang Zhang; *Beijing Univ. of Posts and Tel.; China.*

Tu2H.3 • 14:10 Invited

Measurement of Modal Impair-ments in Few-Mode Fibers, Guijun Hu; *Jilin Univ., China*

VIP Room 3, Track 1

Tu2A.4 • 14:30 Invited

Tea Femtosecond Laser Directly-Written Ultra-Short DBR Fiber Lasers for Hash Environmental Sensing, Jun He; *Shenzhen Univ., China.*

Tu2A.5 • 14:50 Invited

Photoacoustic detection technology and its application, Ping Lu; *Huazhong Univ. of Sci. and Tech., China.*

Tu2A.6 • 15:10 Invited

Dual microcomb based optical fiber sensing devices and systems, Baicheng Yao; *Uni. of Electronic Sci. and Tech. of China, China.*

VIP Room 4, Track 6

Tu2B.4 • 14:30 Invited

High-performance quasi-distributed acoustic sensing based on microwave photonics, Muguang Wang; *Beijing Jiaotong Univ., China.* Microwave photonics is applied in fiber-optic quasi-distributed acoustic sensing system.

Tu2B.5 • 14:50 Invited

Traffic Monitoring with DAS, Huijuan Wu; *Univ. of Electronic Sci. and Tech. of China, China.*

Tu2B.6 • 15:10 Invited

Specialty Fiber-based High Sensitivity Distributed Acoustic Sensing Technology, Huanhuan Liu; *Shenzhen Inst. of Advanced Tech., CAS, China.*

Room 205, Track 4

Tu2C.4 • 14:30 Invited

Photonic computing for aritifical intelligence, Jianji Dong; *Huazhong Univ. of Sci.&Tech., China.* In this talk, we will report on-chip diffractive neural network, emphasizing the "black-box" physical training model and its applications.

Tu2C.5 • 14:50 Invited

Silicon Optical Phased Array for Beam Steering and Receiving in LiDAR and FSO, Lei Zhang; *Beijing Univ. of Posts and Tel., China.* We will present a novel silicon optical phased array calibration method for beam steering and a multi-mode design for FOV enhancement in receiving.

Tu2C.6 • 15:10 Invited

Mid-infrared integrated optical spectrometer on silicon photonic platforms, Zunyue Zhang; *Tianjin Univ., China.* In this talk, I will share our recent work about integrated spectro-meters on silicon.

Room 206, Track 9

Tu2D.4 • 14:30 Invited

High-dimensional quantum networks, Bi-Heng Liu; *Univ. of Sci. and Tech. of China., China.*

Tu2D.5 • 14:50 Invited

Large-scale integrated quantum photonics, Jianwei Wang; *Peking Univ., China.*

Tu2D.6 • 15:10 Invited

Quantum photonic sources based on 2D materials, Xifeng Ren; *Univ. of sci. and tech. of China, China.*

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

Room 210, Special 1

Tu2E.4 • 14:40 Invited

Defects Engineering for Efficient Kesterite Solar Cells and Modules, Hao Xin; *Nanjing Univ. of Posts and Tel., China.* Our results push one step forward for this low-cost and environmentally benign thin film solar cell to practical application.

Tu2E.5 • 15:00 Invited

Organic hole-transporting materials for perovskite solar cells, Yongzhen Wu; *East China Univ. of Sci. and Tech., China*

Room 211, Track 7

Tu2F.4 • 14:30 Invited

Nonlinear optics in gas-filled hollow-core fiber: few-cycle pulse compression and tunable ultra-violet pulse generation, Meng Pang; *Shanghai Inst. of Optics and Fine Mechanics, CAS, China.* In this talk, I will present some recent results of our lab in this field.

Tu2F.5 • 14:50 Invited

Spatiotemporal nonlinear dynamics of 3D solitons in multimode fiber lasers, Xiaosheng Xiao; *Beijing Univ. of Posts and Tel., China.* Recent progress of spatio-temporal mode-locked (STML) multimode fiber lasers will be reviewed.

Tu2F.6 • 15:10 Invited

Fourier domain mode locked laser and its applications, Dongmei Huang; *The Hong Kong Polytechnic Univ., HK.*

Room 212, Track 3

Tu2G.4 • 14:30 Invited

Enhancing the performance and security of Network Operation System, Baokang Zhao; *National Univ. of Defense Tech., China.* We will introduce the techniques we developed to enhance the performance and security of Network Operation System.

Tu2G.5 • 14:50 Invited

Design, Training, and Structural Optimization of Opto-Electronic Convolutional Neural Networks, Jin Wang, Xiaofeng Shao, Jingyi Su and Antonio Bongue Kamongua; *Nanjing Univ. of Posts and Tel., China.* This work presents the architecture design of OE-CNN based on MZIs.

Tu2G.6 • 15:10 Invited

AI-Powered Resource Allocation in Computing Power Optical Networks, Hui Yang; *Beijing Univ. of Posts and Tel., China.*

Room 215, Track 2

Tu2H.4 • 14:30 Invited

Report on the first real-time MDM transmission trial over field-deployed weakly-coupled Few-mode Fiber, Juhao Li; *Peking Univ., China.* We report the first real-time MDM transmission trial over field-deployed weakly-coupled FMF. 3.6-dB Q2-factor margin are observed for 80-km LP01 /LP02 MDM transmission.

Tu2H.5 • 14:50 Invited

Beam Steering Technologies for Optical Wireless Communication, Hongyan Fu; *Tsinghua Univ., China.* We will review our recent research progress of the integrated sensing and communication system based on optical wireless communication.

Tu2H.6 • 15:10 Invited

Multidimensional- division-multiplexing based optical transmission technology, Jianping Li; *Guangdong Univ. of Tech., China.*

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

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

P1.1 0305
Crop Disease Detection Based on Deep Learning, Xiaoyang Xiao, Ziming Huang, Yi Xiong, Jingxi Peng, Zhenlin Huang and Yuzhu Zhao; Shenzhen Univ., China. This study presents a YOLOv5-based smart agricultural system for real-time disease monitoring and environmental control.

P1.2 0997
Design of a silicon photonic methane sensor with a suspended nanomembrane silicon waveguide, Xingyu Liu, Siyu Liu, Qiyue Lang, Changlong Du, Zunyue Zhang, Tiegen Liu and Zhenzhou Cheng; *Tianjin Univ., China*. We study methane detection limits using suspended nanomembrane silicon (SNS) waveguides.

P1.3 0331
An Improved KL-Divergence-based Carrier Phase Recovery Algorithm for FTN-DMB Systems, Yifei Li, Hao Deng and Jian Zhao; *South China Univ. of Tech., China*. We propose an improved Kullback-Leibler (KL) divergence based CPR algorithm for faster-than-Nyquist digital-multi-band systems.

P1.4 1675
A Causal Perturbation-Aided Temporal Neural Network Scheme for Nonlinear Signal Equalization in Coherent Optical Fiber Communication Systems, Xinyu Yuan[1], Qi Zhang[1], Xiangjun Xin[2], Ran Gao[2], Xiaofang Hu[3], Gang Fan[3], Qihan Zhao[1], Yi Zhao[1], Zhiqi Huang[1], Fu Wang[1], Feng Tian[1], Yongjun Wang[1] and Qinghua Tian[1]; [1]*Beijing Univ. of Posts and Tel., China;* [2]Beijing Inst. of Tech., China; [3]Beijing Inst. of C&E Tech., China. A causal perturbation-aided temporal neural network scheme is proposed to reduce input feature dimensionality and computational complexity.

P1.5 3897
High sensitivity temperature sensor based on hybrid interferometer fabricated by splicing panda fiber and few mode fiber, Chao Jiang; *Hubei Normal Univ., China*. A novel hybrid interferometer temperature sensor was designed based on few mode fiber and panda fiber.

P1.6 2163
A Geographical information Based Strategy to Resolve Last-Hop Satellite Ambiguity in LEO Mega-Constellation Distributed Routing, Jiaqi Li, Quan Chen, Lei Yang, Lizeng Gong and Zhenglong Yin; *National Univ. of Defence Tech., China*. This paper adopts a geographic-based routing identifier and proposes a low-overhead strategy for acquiring the last-hop satellite identifier.

P1.7 2375
Generation of 37 fs Pulses from a Robust All-Polarization-Maintaining Er:Fiber Laser System, Siwei Peng[1], Ruifeng Chen[1], H. Y. Fu[2] and Qian Li[1]; [1]*Shenzhen Uni., China;* [1]*Peking Uni., China;* [2]*Tsinghua Uni., China*. We demonstrate a stable all-polarization-maintaining Er-doped fiber laser system generating 37-fs (7-cycle) pulses at 128 MHz, with a 95-nm spectral bandwidth and 0.19% power fluctuation.

P1.8 0487
Prediction of Point Ahead Angle in Interstellar Laser Communication Based on PSO-BP Algorithm, Lingyun Ke, Shengda Wang, Nan Cui, Hu Zhang and Xiaosheng Xiao; *Beijing Univ. of Posts and Tel., China*. A point ahead angle (PAA) prediction algorithm based on PSO-BP neural network model is proposed for satellite laser communication, with high prediction accuracy and low complexity.

P1.9 3051
Adjacent Channel Leakage Ratio (ACLR)-Based Linearity Characterization and Optimization in Modified Uni-Traveling-Carrier Photodiodes, Shuhu Tan, Yongqing Huang, Jihong Ye, Xuejie Wang, Xiaofeng Duan, Kai Liu and Xiaomin Ren; *Beijing Univ. of Posts and Tel., China*. An assessment method based on the adjacent channel leakage ratio (ACLR) is proposed.

P1.10 4070
A Miniature High-Sensitivity Insulated Acceleration Sensor Based on Fiber Bragg Grating, Xuanwei Xiong, Tianyu Yang, Shenxing Duan, Chen Liu, Sen Ma, Huanhuan Liu and Yuming Dong; *Shenzhen Inst. of Advanced Tech., CAS, China*. This study presents a miniature insulated acceleration sensor based on Fiber Bragg Grating (FBG) technology.

P1.11 2548
Intermodal Dispersion Engineering of Arrayed Waveguide Architecture for On-chip Spectroscopy, Zhijie Wei, Zunyue Zhang, Yaru Wang, Xingyu Liu, Tiegen Liu and Zhenzhou Cheng; *Tianjin Univ., China*. We investigate the possibility of using arrayed waveguide architecture for chip-scale spectroscopy in the short-wavelength mid-infrared (SWMIR) spectral region.

P1.12 2122
Accuracy Enhancement of Fiber Shape Sensing by Localized Torsion Compensation, Xuanyu Zheng[1], Tenglong Zhou[1], Yunlu Fan[1], Rui Zhu[2], Yuming Dong[1], Xiangjin Song[3], Shanshan Chen[3], Tianyu Yang[1], Jianwei Wu[4] and Huanhuan Liu[1]; [1]*CAS Shenzhen Inst., China;* [2]*Shenzhen Vivolight Medical Device & Tech. Co., Ltd., China;* [3]*Hosp.of Zhengzhou Univ., China;* [4]*Chongqing Normal Univ., China*. We propose a localized torsion compensation method for 3D fiber shape reconstruction.

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

P1.13 4922

LDPC decoder based on a minimalist bipartite GCN, Yiqun Pan[1], Qinghua Tian[1], Fangxu Yang[1], Feng Tian[1], Fu Wang[1], Leijing Yang[1], Qi Zhang[1] and Xiangjun Xin[2]; [1]*Beijing Univ. of Posts and Tel., China;* [2]*Beijing Inst. of Tech., China.* This paper proposes a Low-Density Parity-Check (LDPC) decoder based on a minimalist bipartite graph convolutional neural network (GCN).

P1.14 3681

Wideband Chaotic Microcomb Generation Via Dual-Comb Beating and Delay-Interfered Self-Phase-Modulated Feedback, Anran Li[1], Ning Jiang[1,2], Bingjie Xu[1], Yong Geng[1], Qi Li[1], Yinhang Liu[1], Ji Qi[1] and Kun Qiu[1]; [1]*Univ. of Electron. Sci.and Tech. of China, China;* [2]*Tianfu Jiangxi Lab, China.* A broadband chaotic microcomb is demonstrated using dual-comb beat frequency and delayed self-phase-modulation feedback.

P1.15 6564

Preliminary Exploration of Cross-Core Sensing Characteristics in Twin-Core Fibers, Chenglin Yang, Mei Sang, Yusheng Liu, Haojun Lin and Tiegen Liu; *Tianjin Univ., China.* This paper presents a novel refractive index sensor based on cross-core sensing in twin-core fibers (TCFs).

P1.16 3062

Research on Leakage Monitoring of Water Supply Pipelines Based on BOTDA, Jinglin Sui[1], Yanyang Lei[1], Peng Guan[2], Ping Xu[3], Yongkang Dong[1] and Dexin Ba[1]; [1]*Harbin Inst. of Tech., China;* [2]*Real Photonics Co. Ltd., China;* [3]*Harbin Univ. of Sci. and Tech., China.* The Brillouin distributed optical fiber sensing strain and temperature detection system was used to simulate and verify the application of distributed optical fibers in pipeline leakage monitoring, and a monitoring scheme was proposed.

P1.17 4266

BP Neural Network Assisted iFEM for Damage Identification Using Triangular Layout FBG Arrays, Yi Li, Mengshi Zhu, Heming Wei, Liang Zhang and Fufei Pang; *Shanghai Univ., China.* This paper demonstrates the detection of PS nanoplastics with a size of 100 nm. A robust approach is proposed for identifying and repairing the abnormal points in FBG array based deformation monitoring system.

P1.18 4023

Characterizations of Self-Imaging based Multimode Interferometer Embedded in Mach-Zehnder Interferometer, Yanping Li, Xue Tang, Ou Xu, Xinyong Dong and Quandong Huang; *Guangdong Univ. of Tech., China.* We propose a multimode interferometer embedded in the Mach-Zehnder Interferometer.

P1.19 6026

Enhancing Physical Layer Security via Chaos Driven 3D Constellation Design for OFDM-PON, Jiaming He[1], Qinghua Tian[1], Yiqun Pan[1], Xiao Zhang[1], Fu Wang[1], Feng Tian[1], Qi Zhang[1] and Xiangjun Xin[2]; [1]*Beijing Univ. of Posts and Tel., China;* [2]*Beijing Inst. of Tech., China.* This paper develops a 3D-16ary geometric shaping (GS) constellation with chaotic encryption for coherent OFDM-PON systems.

P1.20 5658

The Random Forest Network Algorithm Enhanced FBG-MZI Cascaded Optical Fiber Sensor for High Accuracy Temperature and Glucose Concentration Measurement, Peichen He[1], Shuqi Xu[1], Siyi Xie[1], Dongrui Xiao[1], Liyang Shao[2], Lin Wang[1], Fuchuan Luo[1] and Jun Hong[1]; [1]*Hunan Inst. of Tech., China;* [2]*Southern Univ. of Sci. and Tech., China.* A fiber-optic sensor based on the cascade structure of FBG and MZI is proposed and experimentally verified.

P1.21 6566

Machine Learning-Enhanced Dual-Parameter Fiber Sensor Using Tilted Grating for Simultaneous Turbidity and Temperature Monitoring, Junjie Bai[1], Junhui Sun[2], Renan Xu[1], Yichen Cheng[1], Zihan Huang[1], Li-Yang Shao [2]and Weihao Lin[1]; [1]*Xiamen Insti. of Tech., China;* We designed a sensor based on a tilted fiber grating and Random Forest model that simultaneously monitors turbidity and temperature.

P1.22 6640

Integrated Vibration Sensing in DSCM Systems Under ECLs Based on ANN and Digital Twin, Bang Yang, Shangyi Wang, Jianwei Tang and Yanfu Yang; *Harbin Inst. of Tech., China.* Integrated optical communication and vibration sensing in DSCM systems is demonstrated with an artificial neural network trained by digital twin technology.

P1.23 7385

Self-Supervised Neural Mutual Information Estimator for Probabilistic Shaping Signals in Fiber-Optic Systems, Yifan Cai[1], Qinghua Tian[1], Zuxian Li[1], Fangxu Yang[1], Sitong Zhou[1], Feng Tian[1], Qi Zhang[1] and Xiangjun Xin[2]; [1]*Beijing Univ. of Posts and Tel., China;* [2]*Beijing Inst. of Tech, China.* A self-supervised neural mutual information estimator for probabilistic shaping (PS) signals is proposed.

P1.24 5862

A Fiber Laser Integrated With Tapered Erbium-Doped Fiber Interferometer For Salinity Monitoring, Weihao Lin[1], Renan Xu[1], Yutong Liu[1], Mingkun Zhang[1], Junjie Bai[1], Yihua He[1], Boqiang Lin[1] and Li-Yang Shao[2]; [1]*Xiamen Inst.of Tech., China;* [2]*Southern Univ. of Sci. and Tech., China.* We introduced a Mach-Zehnder interferometer based on tapered erbium-doped fiber for the purposes of filtering and salinity sensing within a laser cavity.

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

P1.25 ☀ **0890**

Dynamic Bayesian Network-Driven Reliability Evaluation Model for Optical Networks, Chenyu Zhao, Xin Li, Yu Liu, Tianhao Liu, Shubo Qi, Dongrou Wang and Shanguo Huang; *Beijing Univ. of Posts and Tel., China*. This study proposes a Dynamic Bayesian Network (DBN)-based model for evaluating the reliability of optical networks.

P1.26 ☀ **5206**

High-Sensitivity Multi-Frequency Acoustic Sensor Based on Hollow-core Microbubble Optical Resonator, Kai Zhang, Hongdan Wan and Qinran Jiang; *Nanjing Univ. of Posts and Tel., China*. A hollow-core microbubble optical resonator achieves multi-frequency acoustic sensing.

P1.27 ☀ **3540**

Resource Allocation for Key-Enhanced Cross-Domain Data Center Optical Networks, Xiaoyu Wang[1], Hao Jiang[1], Jianwei Li[1], Zhonghua Liang,[1] Yijia Zheng[2] and Yuan Cao[2]; [1]*China Academy of Info. and Comm. Tech., China;* [2]*Nanjing Univ. of Posts and Tel., China*. This paper proposes a multi-dimensional resource joint allocation (MRJA) algorithm for realizing the secure interconnection of cross-domain data centers over optical networks.

P1.28 ☀ **5598**

A Deep Reinforcement Learning Approach for RBMSCA in Optical Fiber Communication Networks, Xiao Zhang, Qinghua Tian, Zuxian Li, Fu Wang, Feng Tian, Sitong Zhou, Qi Zhang and Xiangjun Xin; *Beijing Univ. of Posts and Tel., China*. A deep reinforcement learning framework is proposed to solve the problem of joint routing, modulation, band, core, and spectrum allocation in multiband, multicore elastic optical networks.

P1.29 ☀ **9650**

Design and Study of All-Fiber Mode Filter Based on Three-Core Fiber, Teng Wang, Yalong Wen, Suxuan Cao, Haoyu Wang and Jiancun Zuo; *Shanghai Polytechnic Univ., China*. An all-fiber three-core mode filter is proposed, utilizing phase matching and mode coupling to selectively transmit LP31 mode while filtering LP11 and LP21 modes.

P1.30 ☀ **4383**

Security performance research of multi-user scheduling mixed RF/FSO system based on FSO eavesdropping environment, Yang Yiyi, Yan Dexian and Wang Yi; *China Jiliang Univ., China*. This study derives and verifies closed-form SPSC and SOP formulas for a mixed RF/FSO link under RF and FSO eavesdropping.

P1.31 ☀ **8722**

InGaAlAs/InP Integrated Optical Receiver Based on Inverse Design for Fabrication-Friendly and Low Loss, Laiwen Yu[1], Zecheng Zhao[1], Yinyin Hu[1], Zhijun Zhang[1], Jingshu Guo[2] and Yuechun Shi[1]; [1]*Yongjiang Lab, China;* [2]*Zhejiang Univ., China*. We demonstrate a low-loss InGaAlAs/InP receiver with inverse-designed WDM (loss <1 dB/crosstalk <−20 dB) and UTC-PDs (>200 GHz bandwidth).

P1.32 ☀ **3919**

SDN-Enabled Load-Latency Co-Optimization for TWDM-PON with Cloud-Edge Collaboration, Yuting Chen, Qinghua Tian, Xiao Zhang, Zuxian Li, Fu Wang, Yongjun Wang, Qi Zhang and Xiangjun Xin; *China Beijing Univ. of Posts and Tel., China*. A task-type-based cross-domain load-latency cooperative resource scheduling algorithm is proposed for cloud-edge coordinated flexible time and wavelength division multiplexed passive optical network.

P1.33 **1980**

Ground Damage Simulation Experiment System for Laser Interconnected Low Orbit Constellations, Ground Damage Simulation Experiment System for Laser Interconnected Low Orbit Constellations; *Shanghai Univ., China*. This paper proposes a ground-based simulation system that models link damage through dynamic ephemeris evolution and LEO.

P1.34 **0144**

Adaptive Symbol Detection and Branch Pruning MLSE for Quatrobinary Shaping FTN WDM System, Jiayi Hao[1], Zhipei Li[1], Chenchen Wang[1], Dong Guo[1], Huan Chang[1], Xiaolong Pan[1], Fu Wang[2], Ze Dong[1], Ran Gao[1] and Xiangjun Xin[1]; [1]*Beijing Inst. of Tech., China;* [2]*BUPT, China*. In this paper, a pilot-aided adaptive symbol detection scheme with adaptive branch pruning MLSE is proposed.

P1.35 **5748**

Ant colony satellite routing and wavelength allocation algorithm based on A* enhanced, Zikang Li, Qi Zhang, Yuanfeng Li, Xiangjun Xin, Ran Gao, Yi Zhao, Ying Song, Fu Wang, Feng Tian, Yongjun Wang, Qinghua Tian and Sitong Zhou; *BUPT, China*. An ant colony satellite routing and wavelength allocation algorithm based on A* enhanced is proposed.

P1.36 **5798**

Study of Transmitter Power Adaptability for MRR FSO communication, Xiaqian Hu, Jingyuan Wang, Jianhua Li, Zhiyong Xu, Jiyong Zhao, Yang Su, Yiming Wang and Ailin Qi; *Army Engineering Univ Univ., China*. The study of transmitter power adaptability based on average received power optimize the performance of MRR FSO system.

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

P1.37 5242
Intensity-interrogated hot-wire anemometer with cobalt-doped fiber Bragg grating heated and demodulated with a single laser, Qiang Wang, Xinyong Dong, Xinwei Zhao, Pengbai Xu and Jun Yang; *Guangdong Univ., of Tech., China*. An intensity-interrogated optical fiber hot-wire anemometer is proposed.

P1.38 0288
Atmospheric Turbulence Compensation of Digital Micro-mirror Device Based on Weighted Gerchberg-Saxton Algorithm, Hui Li[1], Zhiguo Zhang[1] and Zhehao Yan[2]; [1]*Beijing Univ. of Posts and Tel., China;* [2]*Beihang Univ., China*. In this paper, a phase retrieval technique based on Gerchberg-Saxton weighting algorithm is proposed.

P1.39 0307
Energy-Efficient SFC Deployment in LEO Satellite Networks, Tianhao Liu, Xin Li, Yu Liu, Chenyu Zhao, Xuhao Yan, Yongjun Zhang and Shanguo Huang; *Beijing Univ. of Posts and Tel, China*. This paper proposes an energy-efficient SFC deployment (EE-SFCD) scheme in LEO satellite networks to reduce satellite battery life consumption.

P1.40 0336
Time Jitter Analysis in Photoconductive Sampling for High-speed THz Communication Signals, Hongqi Zhang[1], Wenbin Liu[1], Xin Meng[1], Jianxiao Luo[1], Zhiwei Wang[1], Junxian Chao[1], Shen Cai[1], Bin Yin[1], Ling Chen[1], Jingyu Lin[1], Chuan Ge[1], Yifan Hong[2] and Xianbin Yu[3]; [1]*China Mobile (Hangzhou) Info. Tech. Co., Ltd.,* [2]*China; China Mobile Commu. Group Shandong Co., Ltd., China;* [3]*Zhejiang Univ., China*. This paper theoretically analyzes mode-locked laser (MLL) time jitter noise in photoconductive antenna (PCA)-based THz signal sampling.

P1.41 0368
Highly sensitive refractive index sensor based on femtosecond laser directly-wrote tapered long-period fiber grating, Kexin Yu, Fan Li and Changning Liu; *Hubei Normal Univ., China*. The innovative design of the tapered structure significantly enhances the sensitivity of the sensor.

P1.42 0117
Hot-wire anemometer using cobalt-doped fiber based Michelson interferometer, Xinwei Zhao, Xinyong Dong, Qiang Wang, Pengbai Xu and Jun Yang; *Guangdong Univ., of Tech., China*. A hot-wire anemometer based on a dual-arm optical fiber Michelson interferometer including a short length of laser heated cobalt-doped fiber is proposed.

P1.43 1775
Real-time Clock Recovery in Coherent Optical Communications with Large Frequency Offse, Ruixin Tang, Yuanze Qu, Hao Li and Qianwu Zhang; *Shanghai Univ., China*. We propose a novel O&M clock recovery algorithm.

P1.44 1968
A silicon photonics-based erbium−ytterbium co-doped waveguide amplifier, Ziming Dong, Yuqing Zhao, Guoqing Sun, Yaxin Wang, Lei Ding, Liqin Tang and Yigang Li; *Nankai Univ., China*. A ridge waveguide-based erbium-ytterbium co-doped optical amplifier is successfully prepared and comprehensively characterized through experimental verification.

P1.45 0734
A Method for Improving Signal-to-noise Ratio in Long-distance Laser Ranging, Lei Xu, Jian Kong and Xueqiao Zhang; *Hangzhou Dianzi Univ., China*. This paper presents a method for improving the signal-to-noise ratio in laser ranging.

P1.46 0787
On-chip Silicon Computational Spectrometer With 128-Sampling-Channel Meta-structures, Zeruihong She, Kai Wang, Hongren Tan and Lei Zhan; *Beijing Univ. of Posts and Tel., China*. We report a computational spectrometer based on a silicon-on-insulator (SOI) platform.

P1.47 1706
A GRU Signal Denoising Method for Φ-OTDR Submarine Cable Monitoring System, Jiewei Chen, Zihao Sun, Qizhi Liu, Ying Yu and Yi Shi; *Shantou Univ., China*. A GRU signal denoising method for Φ -OTDR submarine cable monitoring system is proposed.

P1.48 0817
Structure analysis of high-gain semiconductor optical amplifiers based on Crosslight and Lumerical, Antai Chen, Yunjiang Jin, Baijing Li and Ruidong Liu; *Sun Yat-sen Univ., China*. This paper optimizes the design of SOA optical amplifier, analyzes the effects of quantum well, cavity length and current density on the performance.

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

P1.49 8569

High-performance integrated modulator based on graphene-black phosphorus van der Waals heterojunction, Feng Zhou; *Comm. Univ.of Zhejiang, China*. We report a modulator based on graphene-black phosphorus heterostructure which enjoys a large operation waveband from visible (VIS).

P1.50 0872

Mid-infrared QCL-based Detection System for in-situ Monitoring of Nitrous Oxide, Chenlu Liu[1], Weihua Gong[1], Zhaowei Wang[1], Shumeng Wang[1], Yubin Wei[1], Ruizhan Zhai[1], Chongjun Yang[2] and Yangfei Hou[3]; [1]*Qilu Univ. of Tech., China;* [21]*Jining Public Security Bureau, China;* [3]*Jinan Landong Laser Tech. Co. Ltd., China*. This study develops a mid-infrared TDLAS system (4.6 μm QCL, 20 cm cell) for N_2O detection.

P1.51 1568

Attention-Driven Networks for Edge-Preserving Infrared and Visible Image Fusion, Haiyan Shang, Lin Zhang and Jianxi Yang; *Chongqing Jiaotong Univ., China*. A deep attention-driven network is proposed for edge-preserving infrared and visible image fusion.

P1.52 1007

Thermal Simulation and Optimization of High-Power Uni-Traveling-Carrier Photodetectors, Ruidong Liu, Yunjiang Jin and Baijing Li; *Sun Yat-sen Univ., China*. Based on COMSOL Multiphysics, the heat flux at the heat sink side in the N-down structure is 14.5 times greater than the substrate side.

P1.53 1094

Athermal and energy-efficient 4-channel (de-)multiplexer with folded waveguides on SOI, Shiqi Zhang, Tongxin Yang, Lei Zhang and Luyang Liu; *Beijing Univ. of Posts and Tel., China*. We report an athermal 4-channel wavelength (de-)multiplexer with folded waveguides with improved thermal efficiency.

P1.54 1150

The generation of millimeter-wave ultra-wideband fast frequency-hopping signals with multi frequency points based on dual optical combs, Ran Wang, Yang Liu, Hua Zhou, Jin Li, Tao Pu, Jilin Zheng, Xiaolong Zhao, Xinyu Zhang and Yunming Zhang; *Army Eng. Univ. of PLA, China*. One novel method is proposed to generate ultra-wideband, frequency-hopping signals with multi frequency points.

P1.55 1445

A Transfer Learning-Based U-Net Approach for Industrial Anomaly Detection with Limited Samples, Kaiwen Yang, Guijie Zhu, Junyuan Zhao, Decheng Ding, Jiafan Zhuang and Chuliang Wei; *Shantou Univ., China*. Our U-Net transfer learning: pre-train on Crack500, fine-tune on KolektorSDD/RSDDs.

P1.56 4762

Estimating External Force for FBG-Based Flexible Instruments by Using Cosserat Rod Theory, Wenjing Xie[1], Xuanyu Zheng[2], Yuming Dong[2], Tianyu Yang[2], Huanhuan Liu[2] and Xinyong Dong[1]; [1]*Guangdong Univ., of Tech., China, Shenzhen Inst. of CAS, China*. We present a method estimating single-point load along flexible instruments using a Cosserat-rod model combined with Fiber Bragg Grating sensors.

P1.57 8428

Analysis and Evaluation of the Impact of Fiber Effective Area on the Guided Acoustic Wave Brillouin Scattering Effect in Submarine Systems, Yuting Jiang, Zhiyuan Yang, Yihao Zhang, Weisheng Hu and Qunbi Zhuge; *Shanghai Jiao Tong Univ., China*. We analyze and evaluate the impact of fiber effective area on the guided acoustic wave Brillouin scattering (GAWBS) effect in submarine systems.

P1.58 1306

Gain optimization of a thulium-doped amplifier based on Si3N4 photonic platform, Guoqing Sun, Yuqing Zhao, Yaxin Wang, Ziming Dong, Lei Ding, Liqin Tang and Yigang Li; *Nankai Univ., China*. We demonstrate a high-gain 1.8um waveguide amplifier based on Si3N4 platform with Tm, Al2O3 cladding via 1.6um pumping.

P1.59 1403

High-Power Modified Uni-Traveling-Carrier Photodetector for Millimeter-Wave Communication, Zexu Ren, Yongqing Huang, Shuhu Tan, Mingxi Yang, Kai Liu, Xiaofeng Duan and Xiaomin Ren; *Beijing Univ. of Posts and Tel., China*. A novel MUTC-PD is proposed by introducing Gaussian doping in the collection layer.

P1.60 1421

Comparative Study of The Effects of Self Phase Modulation in G.652.D, G.655.D, and G.654.E Optical Fibers of a 600 km Regional Backbone Network, Agbé ssignalé Lato, Barèrèm-Mêlgueba Mao and Atani Dominique Kolah; *LPMCS, Togo*. This study compares SPM effects in G.652.D, G.655.D, and G.654.E fibers over a 600 km link.

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

P1.61 8450

A Novel Approach for Tower Localization Utilizing Distributed Acoustic Sensing and Spectral Analysis, Xin He[1], Yifeng Zhu[2], Xiaohui Tang[1], Meng Xia[1], Shuaiqi Liu[1], Yanyang Lei[1] and Yongkang Dong[1]; [1]*Harbin Inst. of Tech., China;* [2]*China Southern Power Grid, China.* A DAS-based method identifies tensioned towers along OPGW by extracting FFT features and locating low-STD regions.

P1.62 1772

Research on Fiber Optic Sensor and Demodulation Algorithm for Temperature and Pressure Dual Parameter Measurement, Shuai Guo, Xiaoning Song, Rui Zhu, Qiuyang Cao, Yijie Cheng and Ping Lu; *State Grid Zhejiang Electric Power Co., Ltd., China; Huazhong Univ. of Sci. and Tech., China.* This paper proposes an optical-fiber temperature and pressure sensor with a composite Fabry-Pérot cavity.

P1.63 1611

Real-time Observation of the Spatiotemporal Dynamics of Q-switched Mode-locking in a Multimode Fiber Laser, Zixuan Xu, Qiang Hu, Xinyu Han, Lei Zhu, Xinge Liu, Chaoyang Geng, Yunhan Yu, Lixia Xi, Xiaoguang Zhang and Xiaosheng Xiao; *BUPT, China.* The spatiotemporal dynamics of Q-switched mode-locking are observed in real-time within a spatiotemporal mode-locked fiber laser.

P1.64 1936

A Self-adaptive Frequency Offset Estimation Algorithm for Linear All-Optical Sampling, Yang Hong, Junhong Wu, Ruixiang Zhong, Mengyao Liu, Zeyu Li, Xiangen Zhang, Shuaihang Wang, Leijing Yang and Yongjun Wang; *Beijing Univ. of Posts & Tel., China.* This paper proposes a self-adaptive frequency offset estimation algorithm based on dual-channel fourth-power fast Fourier transform (FFT).

VIP Room 3, Track 1

16:00-18:00
Tu3A. Fibers & Fiber Devices II
*Presider: **Baicheng Yao**, Univ. of Electronic Sci. and Tech. of China*

Tu3A.1 • 16:00 Invited

Gaussian approximation for vector mode field in Optical Fibers, Chongqing Wu, Lanlan Liu, Zihe Huang, Fang Xie, Yunfan Lv and Kaihong Wang; *Beijing Jiaotong Univ., China.* We propose the Gaussian function for four vector modes using a combination of two orthogonal polarization modes with Gaussian.

Tu3A.2 • 16:20 Invited

Design and development of nanostructured free-form few-mode fibers, Ryszard Buczynski; *Univ. of Warsaw, Poland.*

Tu3A.3 • 16:40 Invited

Non-Zero Dispersion-Shifted Ring-Core Fibers for OAM Modes, Yang Yue, Wenqian Zhao and Yuxiang Huang; *Xi'an Jiaotong Univ., China.* This paper summarizes NZDSRF design con-figurations and provides comparative analyses of their dispersion characteristics.

VIP Room 4, Track 6

16:00-18:00
Tu3B. Measurement & Imaging II
*Presider: **Yongkang Dong**, Harbin Institute of Technology, China*

Tu3B.1 • 16:00 Invited

Wavelength swept chaotic Light source for sensing and measurement, Jianzhong Zhang; *Harbin Eng. Univ., China.*

Tu3B.2 • 16:20 Invited

Bent optical microfibre sensor and its application for nanonewton force measurement, Qiang Wu; *Northumbria Univ., UK.*

Tu3B.3 • 16:40 Invited

Hollow core fiber based sensors, Xiaobei Zhang; *Shanghai Univ., China.*

Room 205, Track 4

16:00-18:00
Tu3C. Optoelectronic Integration II
*Presider: **Jianjun He**, Zhejiang University, China*

Tu3C.1 • 16:00 Invited

Recent Advances in Widely Tunable V-Coupled-Cavity Lasers, Jianjun He; *Zhejiang Univ., China.* Recent advances in widely tunable V-coupled-cavity lasers are presented.

Tu3C.2 • 16:20 Invited

Optical Feedback Insensitivity Hybrid-cavity Semiconductor Lasers, Yong-Zhen Huang; *Inst. of Semiconductors, CAS, China.* Hybrid-cavity semiconductor lasers with a deformed square micro-cavity as a wavelength selective high reflectivity mirror have been proposed and demon-strated experimentally.

Tu3C.3 • 16:40 Invited

A 1310nm AlGaInAs/InGaAsP-InP DFB laser with a periodically injection-blocked grating for direct modulation bandwidth broadening, Xun Li; *McMaster Univ., Canada.* By introducing a periodically injection-blocked grating, we managed to reduce the cavity loss as the injection current increases.

Room 206, Track 9

16:00-18:00
Tu3D. Young Scientist Award
*Presider: **Li Pei**, Beijing Jiaotong University, China*

Tu3D.1 • 16:00 ◇

A Phase-Locking-Free All-Optical Pattern-Matching System Based on SOA for Phase-Inverted BPSK Signals, Ying Tang, Ziyi Kang and Jinyong Chang; *Xi'an Univ. of Archit. and Tech., China.* This paper presents a phase-locking-free all-optical pattern-matching system using a semiconductor optical amplifier (SOA).

Tu3D.2 • 16:15 ◇

High-Performance All-in-one Fiber-Tip Gas Flow Sensor Using Two-photon Polymerization technique, Fei Xie[1], Lili Liang[1] and Yaoyu Cao[2]; [1]*Handan Univ., China;* [2]*Jinan Univ., China.* We present a 3D printed fiber-tip gas flow sensor based on two-photon poymerization with Fabry-Perot cavity shows stable, linear response, 60 pm/mL/min sensitivity.

Tu3D.3 • 16:30 ◇

Towards High-Speed and Hardware-Efficient IM-DD Noise Whitening for AI Clusters, Qi Wu[1], Zhaopeng Xu[2] and Weisheng Hu[3]; [1]*HK Polytechnic Univ., HK;* [2]*Pengcheng Lab, China;* [3]*Shanghai Jiao Tong Univ., China.* We experimentally investigate the impact of fixed-point resolution on the noise whitening filter in an ultra-high-speed IM-DD receiver, targeting reduced hardware complexity and power consumption for real-time implementation.

Room 210, Special 1

16:00-18:00
Tu3E. Organic Optoelectronics II
*Presider: **Junyou Pan**, Zhejiang Brilliant-Optoelectronics Tech., Co.,*

Tu3E.1 • 16:00 Invited

Highly efficient and stable blue OLEDs based on sensitization, Dongdong Zhang; *Tsinghua Univ., China.*

Tu3E.2 • 16:20 Invited

Polarized and directional light emission in organic light-emitting devices based on bifunctional meta-electrodes, Yangang Bi; *Jilin Univ., China.* We proposed a bifunctional meta-electrode by integrating functional metasurfaces on electrodes in OLEDs to obtain light management, and polarized and directional light emission has been realized in OLEDs.

Tu3E.3 • 16:40 Invited

High performance solution-processed OLEDs sensitized by TADF polymers, Junqiao Ding; *Yunnan Univ., China.*

Room 211, Track 7

16:00-18:00
Tu3F. Ultrafast & Nonlinear II
*Presider: **Qian Li**, Peking University Shenzhen Granduate School, China*

Tu3F.1 • 16:00 Invited

Enhanced fiber laser self-mixing Interferometry, Ming Wang; *Nanjing Normal Univ., China.*

Tu3F.2 • 16:20 Invited

High-power thulium-doped fiber laser (provisional), Peiguang Yan; *Shenzhen Univ., China.*

Tu3F.3 • 16:40 Invited

C/S-inter-band all-optical wave-length conversion for multiband optical comminications, Shiming Gao; *Zhejiang Univ., China.* C/S-inter-band all-optical wave-length conversion is proposed and demonstrated based on DFG in PPLN waveguides. Moreover, S+C+L-band transmission is realized with 200 Gb/s DP-QPSK signals over a distance of 125 km.

Room 212, Track 3

16:00-18:00
Tu3G. Optical Networks II
*Presider: **Hui Yang**, Beijing University of Posts and Tel., China*

Tu3G.1 • 16:00 Invited

Integrating FlexE with Wave-length-Selective Optical Networks: P2P versus P2MP Transceivers, Meihan Wu, X. Chen, R. Li, Y. Zhang and **Zuqing Zhu**; *Univ. of Science and Technology of China.*

Tu3G.2 • 16:20 Invited

Dynamic Nonlinear Bandwidth Defragmentation in Multi-Band Optical Networks, Jiaxin Liu[1], **Rentao Gu**[1], M. Guang[2], K. Long[2] and Yuefeng Ji[1]; [1]*BUPT, China.* We investigate dynamic nonlinear bandwidth fragmentation in multiband optical networks and propose a defragmentation strategy addressing bandwidth mismatch and wavelength discontinuity.

Tu3G.3 • 16:40 Invited

Analysis of Optical Network Digital Twin Models Under Different Temporal Resolutions, Kangqi Zhu, **Nan Hua**, Chengyu Wu, Junfeng Cao and Xiaoping Zheng; *Tshinghua Univ., China.* This work investigates the characteristics of optical network digital twins constructed from data with different temporal resolutions, and analyzes network dynamics.

Room 215, Track 2

16:00-18:00
Tu3H. Optical Transmission II
*Presider: **Qinghua Tian**, Beijing Univ. Posts and Tel., China*

Tu3H.1 • 16:00 Invited

An Overview of Longitudinal Power Monitoring for Autonomous Optical Networks, Lixia Xi; *Beijing Univ. of Posts & Tel., China.* In this talk, we will review the two principal categories of LPM techniques, and highlight its applications.

Tu3H.2 • 16:20 Invited

High-capacity Optical Interconnects Towards Next-generation Computing Networks, Junwen Zhang; *Fudan Univ., China.* We will report the latest progress of high-capacity optical interconnects towards next-generation computing networks, inclu-ding enabling technologies on high-bandwdith device, high-speed transmission, DSP and so on.

Tu3H.3 • 16:40 Invited

One-hop all-optical DC-oriented networks for 2030, Liang Zhang; Huawei Technologies. Optical networks address this by removing the packet layer and enabling direct connections, while optical aggregation technology effectively reduces latency and improves efficiency.

VIP Room 3, Track 1

Tu3A.4 • 17:00 Invited

Tunable three-dimensional waveguiding microstructures fabricated on the tip of standard single-mode optical fibers, Sławomir Ertman; Warsaw Univ. of Tech., Poland.

Tu3A.5 • 17:20 Invited

Broadband Multi-channel OAM Mode Convertors Based on the Long-Period Fiber Gratings, Yunqi Liu; *Shanghai Univ., China*. We demonstrate the fabrication of long-period gratings (LPFGs) in multicore and few mode fibers by using focused carbon dioxide laser.

Tu3A.6 • 17:40 Invited

Single-Channel Single-Fiber 3D Shape Sensing Based on Cladding Fiber Bragg Gratings and Scatters, Ruohui Wang; *Beijing Northwest Univ., China*.

VIP Room 4, Track 6

Tu3B.4 • 17:00 Invited

Optical fiber coherent anti-Stokes Raman scattering micro-spectroscopy, Junfeng Jiang, Jinchao Dou, Tong Wang, Shuang Wang, Kun Liu, Xiaoshuang Dai, Jinying Ma and Tiegen Liu; *Tianjin Univ., China*.

Tu3B.5 • 17:20 Invited

Flying particle sensor in hollow-core optical fibers, Beijing Inst. of Tech., *China*.

Tu3B.6 • 17:40 Invited

Very-low-frequency distributed fiber sensing and its applications, Pengbai Xu; *Guangdong Univ. of Tech., China*.

Room 205, Track 4

Tu3C.4 • 17:00 Invited

Ultra-wideband photonic tera-hertz noise source and its applications, Pu Li; *Guangdong Univ. of Tech., China*. Here, we report a series of terahertz photonic noise sources with photo-mixing multiple Gaussian-shaped noise slices from a super luminescent diode.

Tu3C.5 • 17:20 Invited

Fabrication of high speed directly modulated DFB laser array, Song Liang; Inst. of Semiconductors, CAS, *China*.

Tu3C.6 • 17:40 Invited

High-power and High-efficiency Semiconductor Optical Amplifier, Ruijun Wang; *Sun Yat-sen Univ., China*.

Room 206, YSA

Tu3D.4 • 16:45 ◇

Adiabatic-tapered few-mode-fiber-based system for integrating optical fiber sensing and telecommunication, Quandong Huang[1], Yahao Li[1], Ou Xu[1], Xinyong Dong[1], Sławomir Ertman[2], Tomasz Woliński[2], Perry Shum[3] and Yuwen Qin[1]; [1]Guangdong Univ. of Tech. China. We demonstrated an adiabatic-tapered few-mode-fiber-based system for integrating sensing and telecommunication.

Tu3D.5 • 17:00 ◇

PDA-RoF: Polar Coordinates Assisted Hybrid Digital-Analog Radio-over-Fiber Modulation and Demodulation Architecture, Xiaobo Zeng[1], Jingtao Wang[1], Chaowen Tang[1] and Ruonan Deng[2]; [1]*Xiangtan Univ., China*. We propose and demonstrate a polar-coordinates-assisted digital-analog radio-over-fiber technique based on cascaded analog pulse code modulation and digital modulation with hybrid constellation shaping.

Tu3D.6 • 17:15 ◇

Single-Wavelength 512-Gb/s SSBI-Free Linear Phase-Diverse Direct Detection with Carrier Phase Switching, Yixiao Zhu, Xiansong Fang, Lingjun Zhou, Weisheng Hu and Fan Zhang; *Shanghai Jiaotong Univ., China; Peking Univ., China*. We propose SSBI-free phase-diverse direct detection receiver using three carrier phase-switching branches.

18:30-20:30 Conference Dinner

Room 210, Special 1

Tu3E.4 • 17:00 Invited

Recent Progress in the development of OLED Materials, Junyou Pan; *Zhejiang Brilliant-Optoelec-tronics Tech. Co., Ltd., China*. In this talk, I will give introductions to the status of AMOLED-based panel industry in China and our company.

Tu3E.5 • 17:20 Invited

Non-volatile Memory Light-Emitting Transistors and Open-structured AC-driven OLEDs, Hong Meng; *Peking Univ. ShenZhen Graduate School, China*.

Tu3E.6 • 17:40 Invited

High-Throughput Screening and Inverse Molecular Design of OLED Materials Guided by Machine Learning, Dandan Song; *Beijing Jiaotong Univ., China*.

Room 211, Track 7

Tu3F.4 • 17:00 Invited

Advancements in Noise Control for All-Polarization-Maintaining Mode-Locked Fiber Lasers, Qian Li; *Peking Univ. Shenzhen, China*.

Tu3F.5 • 17:20 ★

Impacts of Second-Harmonic Generation on the Temporal and Statistical Properties of Laser Sources, Siyu Chen, Jun Ye, Lei Du, Wenwen Cheng, Rongtao Su and Pu Zhou; *National Uni. of Defense Tech., China*.

Tu3F.6 • 17:35 ★

GHz Harmonic Mode-Locked Dual-Pumped Laser based on Nonlinear Multimode Interference, Ziyi Fu[1], Tianye Huang[1], Hongbo Zheng[1], Jianxing Pan[1], Jing Zhang[1], Zhichao Wu[1], Xiang Li[1], Zhenxing Chen[1] and Perry Ping Shum[2]; [1]*China Univ. of Geosci., China;* [2]*South Univ. of Sci. and Tech., China*.

Tu3F.7 • 17:50 3999

Study on special shaped pulses in L-band NPR mode-locked erbium-doped fiber laser, Enfan Zhou, Danyang Wang, Lei Huang, Boxin Li, Yi Liu, Dongfang Jia, Chunfeng Ge, Zhaoying Wang and Tianxin Yang; *Tianjin Uni., China*.

Room 212, Track 3

Tu3G.4 • 17:00 Invited

Researches on Digital Twins Optical Network Orchestration, Bingli Guo; *Beijing Uni. of Posts and Tel., China*.

Tu3G.5 • 17:20 Invited

Provisioning and Protection for Multiple Failures in F5G-A and F6G Optical Networks, Ning Deng; *Great Bay Univ., China*.

Tu3G.6 • 17:40 0364

Multiscale fuzzy clustering-Enhanced Hierarchical Mapping for Large Models in IP over Fine-Grain OTN, Zepeng Zhang, Hui Yang, Tiankuo Yu and Qiuyan Yao; *Beijing Univ. of Posts and Tel., China*. In this paper, we propose an efficient IP over Fine-Grain OTN optimized mapping scheme based on Multiscale fuzzy clustering.

Room 215, Track 2

Tu3H.4 • 17:00 Invited

A modified Kolmogorov-Arnold Network for laser field classification under atmospheric turbulence channel, Yongye Qiu[1], Kaige Yang[1], Junsong Chen[1], Jiaqi Peng[1], Fucan Zhang[1], Ting Zhang[2], Haixia Feng[3] and **Kaimin Wang**[1]; [1]Univ. of Shanghai for Sci. and Tech., China.

Tu3H.5 • 17:20 Invited

Research on Polarization Transmission Problem in Optoelectronic Converged Communication System, Yuancheng Cai; *Purple Mountain Lab, China*.

Tu3H.6 • 17:40 Invited

Intelligent Identification and Decoding: Communication Receiver Driven by Deep Learning, Qinghua Tian; *Beijing Univ. of Posts and Tel., China*.

18:30-20:30 Conference Dinner

VIP Room3, Track 1

08:00-10:00
W1A. Novel Fibers & Devices III
*Presider: **Ailing Zhang**, Tianjin University of Technology, China*

W1A.1 • 08:00 Invited

Forward Brillouin fiber laser, Zuxing Zhang; *Nanjing Univ. of Posts and Tel., China.*

W1A.2 • 08:20 Invited

Single-wavelength Cylindrical Vector Beam Yb-Doped Fiber Laser, Shumin Zhang; *Hebei Normal Univ., China.* We experimentally achieve single-wavelength cylindrical vector beam (CVB) emission in a Yb-doped fiber laser at 1035 nm (0.1 nm bandwidth), producing both radially and azimuthally polarized beams.

W1A.3 • 08:40 Invited

Experimental generation of high power cylindrical vector beam in a fiber cavity, Weiqing Gao, *Hefei Univ. of Tech., China.* This work demonstrates the generation of high-power cylindrical vector beams (CVB) in a fiber cavity integrating oscillator and amplifier.

VIP Room 4, Track 6

08:00-10:00
W1B. Measurement & imaging III
*Presider: **Qiang Wu**, Northumbria University, UK*

W1B.1 • 08:00 ★

Ultra-high sensitivity acid pH optical fiber sensor based on core-offset structure coating smart hydrogel, Jinglei Zhang[1], Haiwei Zhang[1], Qi Lu[1], Zhihong Chen[1], Lifang Xue[1], Jia Shi[2], Wei Shi[3] and Jianquan Yao[3]; [1]Tianjin Univ. of Tech., China; [2]Tiangong Univ., China; [3]*Tianjin Univ., China.*

W1B.2 • 08:15 ★

Direct laser writing of fiber-tip microcavity for photoacoustic multi-gas sensing, Enbo Fan and Jun Ma; *Jinan Univ., China.*

W1B.3 • 08:30 ★

Parallel Laser Doppler Vibrometer Based on Dual Electro-Optic Frequency Combs, Qiyue Yu, Xi Liu, Xiuyuan Sun, Shilong Pan and Zhongyang Xu; *Nanjing Univ. of Aeronautics and Astronautics, China.*

W1B.4 • 08:45 ★

A Generalizable Wavelength Demodulation Method for Fiber-Optic Fabry-Pérot Pressure Sensors via Federated Learning, Sufen Ren[1], Shengchao Chen[2], Hao Shi[1] and Guanjun Wang[1]; [1]*Hainan Univ., China.* [2]Univ. of Tech. Sydney, Australia.

Room 205, Track 4

08:00-10:00
W1C. Optoelectronic Integration III
*Presider: **Lei Wan**, Ningxia University, China*

W1C.1 • 08:00 ★

A Novel Modified Uni-traveling Carrier Photodiode with Dual Electric Field Control Layers, Zhien Li, Dan Yang, Lei Han, Minmin Zhu and Xiaoqiang Lu; *Fuzhou Univ., China.*

W1C.2 • 08:15 ★

Enhancing the Light Absorption of the InGaAs / InP Photodetector by Integrating Metal Grating Arrays, Lei Han, Zhien Li, Dan Yang, Minmin Zhu and Xiaoqiang Lu; Fuzhou Univ., *China.*

W1C.3 • 08:30 ★

Narrow Linewidth Hybrid Integrated Laser Based on Distributed Weak-feedback from Silicon Waveguides, Da Wei, Leilei Shi, Jiali Li, Zeheng Zhang, Lei Zhai, Shumin Yang, Yujia Li, Ligang Huang and Tao Zhu; *Chongqing Univ., China.*

W1C.4 • 08:45 ★

Cross-Shaped Metasurface for Wide-Angle Spectral-Scanning LiDAR, Yaqi Han[1], Chenxingyu Huang[1], Qian Li[2] and Hongyan Fu[1]; [1]*Tshinghua Univ., China;* [2]*Peking Univ., China.*

Room 206, Track 9

08:00-10:00
W1D. Quantum Photonics II
*Presider: **Jiefei Chen**, Southern Univ. of Science and Technology, China*

W1D.1 • 08:00 Invited

Efficient and long-lived integrated quantum memories for light, Zong-Quan Zhou; *Univ. of Sci. and Tech. of China, China.* I will present our recent achivements in highly efficient and long-lived integrated quantum memories, using rare-earth-ion-doped crystals.

W1D.2 • 08:20 Invited

Quantum photonic circuit design based on software, Youngik Sohn; Korea Advanced Ins. of Sci. and Tech., Korea. In this context, I will introudce a software approach for designing very accurate quantum photonic circuits.

W1D.3 • 08:40 Invited

Generalized entropic uncertainty relation and its applications, Dong Wang; *Anhui Univ., China.*

Room 210, Special 1

08:00-10:00
W1E. Organic Optoelectronics III
*Presider: **Jingbi You**, Institute of Semiconductors, CAS, China*

W1E.1 • 08:00 Invited

High-Resolution Patterning of Fluorescent Films by Femtosecond Laser-Induced Forward Transfer, Yue-Feng Liu; *Jinlin Univ., China*. We present a femtosecond laser-induced forward transfer (FsLIFT) technology.

W1E.2 • 08:20 Invited

Trace impurity doping in organic semiconductors, Liqiang Li; *Tianjin Univ., China*.

W1E.3 • 08:40 Invited

Flexible Printed Electronics and Devices, Wengyong Lai; *Nanjing Univ. of Posts and Tel., China*. This research designs printable high-performance organic polymer optoelectronic materials and interfaces to overcome fabrication bottlenecks in flexible electronics.

Room 211, Track 5

08:00-10:00
W1F. Optical Signal Processing I
*Presider: **Chester Shu**, The Chinese University of Hong Kong, HK*

W1F.1 • 08:00 Invited

Photonic-enhanced ultrafast joint time-frequency signal analysis and processing, Jose Azana, Hao Sun6; *Inst. National de la Recherche Scientifique (INRS), Canada*.

W1F.2 • 08:20 Invited

Programmable Processing of Optical Frequency Combs Using Spectral Talbot Amplifier, Chester Shu; *The Chinese Univ. of Hong Kong, HK*. We demonstrate programmable control of broadband frequency combs via denoising amplification.

W1F.3 • 08:40 ★

Adaptive Full-Band Wavelet Denoising Optimization for Multimode Fiber Heartbeat Signal, Yuanfang Zhang, Chufeng Huang and Wen Chen; *Jimei Univ., China*.

Room 212, Track 3

08:00-10:00
W1G. Optical Networks III
*Presider: **Xiaosong Yu**, Beijing Univ. of Posts and Tel., China*

W1G.1 • 08:00 Invited

Quantum Key Distribution Networks: Networking Frameworks and Standardization Trends, Xiaosong Yu; *Beijing Univ. of Posts and Tel., China*.

W1G.2 • 08:20 Invited

Sensitivity of Traffic Features for Detecting Concept Drift in Optical Access Networks, Lihua Ruan; Pengcheng Lab, *China*.

W1G.3 • 08:40 ★

Edge-Cloud Collaborative Distributed DNN Training in Metro Optical Network, Xiaodong Liu, Shan Yin, Jiarui Li, Mengru Cai, Yutong Chai and Shanguo Huang; *Beijing Univ. of Posts and Tel., China*.

Room 215, Track 2

08:00-10:00
W1H. Optical Transmission III
*Presider: **Xiaoguang Zhang**, Beijing Univ. of Posts and Tel., China*

W1H.1 • 08:00 ★

Ultra-encrypted Optical Wireless Communication Based on High-dimensional OAM Hybrid Nerual Network, Chaoxu Chen[1], Jiayi Qi[2], Xinjie Zhang[1], Haoyu Zhang[1], Yuan Wei[1], Ziwei Li[1], Chao Shen[1], Junwen Zhang[1], Nan Chi[1], Haiwen Cai[3] and Jianyang Shi[1]; [1]*Fudan Univ., China*.

W1H.2 • 08:15 ★

Photonics-aided Fiber-Wireless Integrated System at W-band with Polarization Transparent based on Simplified Coherent via Alamouti Coding, Qingyu Han, Yinjun Liu, Boyu Dong, An Yan, Dianyuan Ping, Yaxuan Li, Liangtao Chen, Yuqin Yuan, Aolong Sun, Jianyang Shi, Nan Chi and Junwen Zhang; *Fudan Univ., China*.

W1H.3 • 08:30 ★

54-Gb/s Photonics-assisted Routing and Relaying W-band Millimeter-wave Signals over 4.3-kilometer Wireless Distance Transmission, Dianyuan Ping, Yinjun Liu, Haoyu Zhang, Penghao Luo, Boyu Dong, Liangtao Chen, Yuan Wei, Jianyang Shi, Nan Chi and Junwen Zhang; *Fudan Univ., China*.

W1H.4 • 08:45 ★

Amplitude-Aware Computational Sharing: A Joint State-Space Optimization Framework for Baud-Rate MLSE and BCJR Decoders, Chenchen Wang, Zhipei Li, Ran Gao, Ze Dong and Xiangjun Xin; *Beijing Inst.of Tech., China*.

VIP Room 3, Track 1

W1A.4 • 09:00 Invited

Polymer optical fiber random lasers and scintillation fibers, Zhijia Hu; *Anhui Univ., China.*

W1A.5 • 09:20 Invited

Wavelength control of fiber random lasers, Weili Zhang; *Univ. of Electronic Sci. and Tech. of China, China.*

W1A.6 • 09:40 Invited

Feedback-enhanced Q-switched random laser based on fiber ring, Ailing Zhang, Mengdi Zong, Wanqian Zhu; *Tianjin Univ. of Tech., China.* In this paper, a Q-switched random laser based on fiber ring is proposed, which uses fiber ring as a random feedback structure.

VIP Room 4, Track 6

W1B.5 • 09:00 ★

A novel U-shaped fiber refractive index sensor based on surface plasmon resonance effect and tantalum pentoxide, Mengyuan Wu, Shiwei Liu and Hongyan Fu; *Xiamen Univ., China.*

W1B.6 • 09:15 ★

Long-Range and High-Speed Coded BOTDR Based on Fast Fourier Transform Processing, Yang Zhang[1], Jiageng Chen[1], Hanzhao Li[1], Xuhui Yu[2] and Zuyuan He[2]; [1]*Shanghai Jiao Tong Univ., China;* [2]*Ningbo AllianStream Photonics Technology Co., Ltd., China.*

W1B.7 • 09:30 ★

Low crosstalk salinity sensor operates at 1.55 µm and 2 µm wavelength bands, Yahao Li, Zengyang Wu, Jiaqi Ran, Min Yang, Ou Xu, Xinyong Dong and Quandong Huang; *Guangdong Uni. of Tech., China.*

W1B.8 • 09:45 ★

High-Speed Fiber Shape Sensing Based on Data-Driven Approach: A Feasibility Study, Tenglong Zhou[1], Xuanyu Zheng[1], Yunlu Fan[1], Tianyu Yang[1], Rui Zhu[2], Xiangjin Song[3], Shanshan Chen[3], Yihui Cao[2], Yuming Dong[1], Jianwei Wu[4] and Huanhuan Liu[1]; [1]*Shenzhen Ins. of Advanced Tech., CAS.*

Room 205, Track 4

W1C.5 • 09:00 ★

330 to 500 GHz Terahertz Photoconductive mixer with Hybrid Lens-Horn Structure, Pengshi Chen, Pu Li, Lijuan Liu, Yutong Chen, Yuhui Song, Yuehui Sun, Wenjie Liu, Yuncai Wang and Yuwen Qin; *Guangdong Univ. of Tech., China.*

W1C.6 • 09:15 ★

On-chip glucose sensor based on microstructured Mach-Zehnder Interferometer, Jiaqi Ran[1], Yahao Li[1], Kedi Peng[1], Xu Ou[1], Xinyong Dong[1], Slawomir Ertman[2], Tomasz R. Woliński[2], Perry Ping Shum[3] and Quandong Huang[1]; [1]*Guangdong Univ. of Tech., China.*

W1C.7 • 09:30 ★

On-Chip Refractive Index Sensor based on Micro-Ring Resonator with Microstructure Slot, Xue Tang[1], Zongyang Cai[1], Juncheng Zhou[1], Ou Xu[1], Xinyong Dong[1], Slawomir Ertman[2], Tomasz R. Wolinski[2], Perry Ping Shum[3] and Quandong Huang[1]; [1]*Guangdong Univ. of Tech., China.*

W1C.8 • 09:45 ★

Ultra-bandwidth dual-mode (de)multiplexer based on adiabatic asymmetric directional couplers, Juncheng Zhou[1], Quandong Huang[1], Wanyu Wu[1], Kaijian Zhang[1], Ou Xu[1], Sławomir Ertman[2], Tomasz Woliński[2], Perry Shum[3] and Xinyong Dong[1]; [1]*Guangdong Univ. of Tech., China.*

Room 206, Track 9

W1D.4 • 09:00 Invited

Quantum entangled networks and experimental verifications, Ming-Xing Luo; *Southwest Jiaotong Univ., China.*

W1D.5 • 09:20 Invited

Coupled GaN/AlN quantum dot structure as a single photon source, Zonghai Hu; *Beijing Univ. of Sci. and Tel., China.* In this work, MBE-grown coupled GaN/AlN quantum dot structures exhibit photoluminescence between 300~360 nm.

W1D.6 • 09:40 Invited

Manipulate the Flying and Stored Photons with Cold Atoms, Jiefei Chen; *Southern Univ. of Sci. and Tech., China.*

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

Room 210, Special 1

W1E.4 • 09:00 Invited

Efficient perovskite opto-electronic devices, Jingbi You; *Inst. of Semiconductors, CAS, China.* I will talk about our recent work on perovskite solar cells and light-emitting diodes.

W1E.5 • 09:20 Invited

Large-area growth of organic single crystals toward high-performance opoelectronic devices, Jiansheng Jie; *Soochow Univ., China.* We further demonstrated the application of organic single crystal in high-performance optoelectronic devices.

W1E.6 • 09:40 Invited

Recent progress of deep UV LED and applications, Changqing Chen; *Huazhong Univ. of Sci. and Tech., China.* This study reviews recent advances in DUV-LED efficiency enhancement, and emerging uses.

Room 211, Track 5

W1F.5 • 08:55 ★

Unambiguous Microwave Angle-of-Arrival Estimation via Dual-Baseline Polarization-Multiplexed Coherent Photonic Receiver, Wanrong Li, Zhenzhou Tang and Shilong Pan; *Nanjing Univ. of Aeronautics and Astronautics, China.*

W1F.6 • 09:10 ★

Wideband Radar Cross Section measurement and diagnostic imaging using microwave photonic technique, Wenhao Yan, Zhijian Zhang, Lihan Wang, Yicheng Li, Xiangchuan Wang and Shilong Pan; *Nanjing Univ. of Aeronautics and Astronautics, China.*

W1F.7 • 09:25 ★

Microwave photonic I/Q downconverter for fiber remoting enabled by injection-locked carrier regeneration, Xiaoyu Wang, Zhenzhou Tang and Shilong Pan; *Nanjing Univ. of Aeronautics and Astronautics, China.*

W1F.8 • 09:40 ★

A Practical End-to-End Hybrid Geometric–Probabilistic Shaping Framework with Lightweight Channel Modeling, Yuan Wei, Yinjun Liu, Boyu Dong, Guojin Qin, Yaxuan Li, Chaoxu Chen, Haoyu Zhang, Chao Shen, Junwen Zhang, Nan Chi and Jianyang Shi; *Fudan Univ., China.*

Room 212, Track 3

W1G.4 • 08:55 ★

Wavelength Converter Deployment in C+L Optical Networks, Jiaxue Wang, Shan Yin, Guohao Jin, Jinbiao Nie, Mengru Cai, Xiaodong Liu and Shanguo Huang; *Beijing Univ. of Posts and Tel., China.*

W1G.5 • 09:10 ★

Multi-dimensional Feature-Self-Organizing Mapping-based Dynamic Path-Slot Joint Protection for Fine-Grain OTN, Tiankuo Yu[1], Hui Yang[1], Qiuyan Yao[1], Yang Zhao[2], Jie Zhang[1] and Mohamed Cheriet[3]; [1]*Beijing Univ. of Posts and Tel., China*; [2]China Mobile Research Inst., China; [3]Univ. of Quebec, Canada.

W1G.6 • 09:25 ★

Dynamic Time-Slot Scheduling for Heterogeneous Traffic Management in Hybrid Electro-Optical Data Center Networks, Zixiao Wang, Yun Teng, Zhao Li, Qiuyan Yao, Hui Yang and Jie Zhang; *Beijing Univ. of Posts and Tel., China.*

W1G.7 • 09:40 2479

Adaptive Fast Re-routing Scheme for Secure Dynamic End-to-End Service in Quantum Key Distribution Networks, Wenjie Huang, Xiaosong Yu, Yuhang Liu, Jingjing Liu, Yongli Zhao and Jie Zhang; *Beijing Univ. of Posts and Tel., China.*

Room 215, Track 2

W1H.5 • 09:00 ★

A Soft-Aided Concatenated Staircase and Hamming Decoder Based on Bit-Flipping and Bit-Marking, Yutian Li[1], Feng Tian[1], Xiangjun Xin[1,2], Qi Zhang[1], Yongjun Wang[1], Qinghua Tian[1], Fu Wang[1], Sitong Zhou[1], Junyuan Song[2], Jianwei Zhou[1], Jue Wang[1], Jing Zhang[1] and Chuanji Yan[1]; [1]*Beijing Univ. of Posts and Tel., China.*

W1H.6 • 09:15 ★

1024-QAM Signal Transmission via a Nested Anti-Resonant Nodeless Fiber System Using Delta-Sigma Modulation, Yuanxiao Meng[1], Yu Qin[1], Jianyu Long[1], Jianjun Yu[1], Jie Zhu[1,2], Limin Xiao[1] and Kaihui Wang[1]; [1]*Fudan Univ., China;* [2]*Zhongtian Tech. Advanced Materials Co., Ltd., China.*

W1H.7 • 09:30 ★

Fading Suppression of 280-Gb/s C-band IM-DD Optics with Multi-Tap Optical-Digital Equalization, Ziheng Zhang, Yixiao Zhu, Keru Zhou, Yimin Hu and Weisheng Hu; *Shanghai Jiao Tong Univ., China.*

W2H.8 • 09:45 ★

Unsupervised-Domain-Adaptation Based Adaptive Equalizer for Impairment Compensation in Coherent Optical Systems, Xuan Tang, Xing Liu and Jian Zhao; *South China Univ. of Tech., China.*

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

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

P2.1 1992

Inverse-Designed Multimode Fully-etched Subwavelength Silicon Grating Coupler, Kaiwen Tong, Wanli Ma, Muchen Ding and Yuanfei Zhang; *Southeast Univ., China*. We present an inverse-designed apodized multimode grating coupler for C-band operation on a silicon-on-insulator platform.

P2.2 2060

LPF-Aided Nonlinear Compensation in Optical Fiber Communication Systems, Zili Fang, Jiaojiao Lv, Yi Zhao, Peiyun Ge, Wenbo Zhang and Lixia Xi; *Beijing Univ. of Posts and Tel., China*. A tunable Raised Cosine (tRC) LPF scheme is proposed for nonlinear compensation in optical systems.

P2.3 2096

High-Sensitivity Optical Fiber Temperature Sensor Based on Vernier Effect, Lijun Li, Xingxia Wang, Erao Liang, Tianzong Xu, Tianxiang Zhang, Dong Zhang and Jianwei Zhang; *Shandong Univ. of Sci. and Tech., China*. Experimental results demonstrate that the sensor exhibits excellent linearity, stability, and repeatability within the temperature range of 22 °C to 46 °C.

P2.4 2331

Single-Polarization, Low-Loss, and High-Manufacturability Hollow-Core Fiber Based on Truncated Capillary Glass Tubes, Shuaihang Wang[1], Yongjun Wang, [1] Li Li[1], Zhipei Li[2], Qi Zhang[1], Feng Tian[1], Qinghua Tian[1], Fu Wang[1] and Haifeng Yang[1]; [1]*BUPT, China;* [2]*Beijing Institute of Tech., China*. This paper proposes a single-polarization hollow-core fiber achieving exceptional performance at 1550 nm wavelength.

P2.5 5606

Harmonic Mode-locked Yb-doped Fiber Laser based on Graphene Saturable Absorber, Xiaodong Liu and Yun Teng; *Beijing Anke Huisheng Technology Co., Ltd., China*. We achieved stable mode-locked pulses in an all-normal dispersion Yb-doped mode-locked fiber laser using graphene saturable absorbers.

P2.6 2434

High-sensitive fiber-optic MZI Cu2+ sensor, Xuanyu Liu, Zhiyuan Liu, Yanan Zhang, Songqi Zhang, Zuhao Liao and Bo Han; *Northeastern Univ., China*. A fiber-optic MZI sensor functionalized with ι-carrageenan/sucrose detects Cu(II). Detection relies on disruption of the ι -carrageenan-sucrose structure.

P2.7 2351

Large Language Model Enhanced RMSA in Elastic Optical Networks, Hao Yu Wang, Maosheng Duan, Zanshan Zhao and Guanjun Gao; ao Lv, Yi Zhao, Peiyun Ge, Wenbo Zhang and Lixia Xi; *Beijing Univ. of Posts and Tel., China*. We propose the LLM-Enhanced RMSA architecture, which enhances RMSA through dynamic model selection and achieves lower blocking rates in request simulations.

P2.8 8511

Application of hollow core fibre in temperature acoustic wave sensing, Li Deng[1], Bozhong Li[1], Jun Wu[2], Tong Chen[1], Yong Xiang[2], Yang Li[1], Peng Li[2], Jun Chu[2], Lei Zhang[2], Hongyan Zhou[2], Zhiyi Guo[1] and Liping Ke[2]; [1]*State Grid Info. & Tel. Branch, China;* [2]*YOFC, China*. This paper introduces the temperature and acoustic wave sensing technology verification platform based on HCF and solid fiber.

P2.9 5637

Dissolved Oxygen Prediction Model Based on GRU-N-Beats, Chunying Xu, Yuhong Xu, Fuchang Chen, Chuliang Wei and Yifei Dong; *Shantou Univ., China; Guangzhou Marine Geological Survey, China*. This paper proposes a wavelet-based GRU-N-Beats model for dissolved oxygen prediction in the South China Sea.

P2.10 2493

Inverse Design and Optimization of DFB Laser Spectra Using Deep Learning, Yatao Yao, Chuanning Niu, Feng Gao and Jia Zhao; *Shandong Univ., China*. A deep neural network is developed to predict key design parameters from spectral features.

P2.11 2590

Simulation Analysis for Anchor Damage in Oil-Filled Submarine cable, Zhenjin Cen[1], Tailong Lv[1], Xiaowei Huang[1], Yining Zhang[1], Kaiyu Zeng[1], Chi Cai[1] and Xiaohui Tang[2]; [1]*Haikou Subbureau, Guangzhou Bureau, EHV Transmission Company of China Southern Power Grid Co., Ltd., China;* [2]*Harbin Inst. of Tech., China*. 3D finite element simulations reveal optical fiber strain correlates linearly with conductor strain.

P2.12 2558

Modulation format recognition with support vector machines (SVM) based on clustering features in high-speed optical fiber communication systems, Aoran Zheng, Qi Zhang, Zhiqi Huang, Xiangjun Xin, Ran Gao, Siyuan Chen, Jing Xu, Fu Wang, Feng Tian, Yongjun Wang, Qinghua Tian, Sitong Zhou and Leijing Yang; *BUPT, China*. A blind modulation format recognition scheme is proposed for high-speed optical fiber communication systems.

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

P2.13 2725

Ultra-Broadband Mode Conversion at 2 μm Wavelength Band, Wanting Ji, Wanyu Wu, Ou Xu, Quandong Huang and Xinyong Dong; *Guangdong Univ. of Tech., China*. We propose an ultra-broadband mode converter based on a long-period grating for operating at the dispersion turning point of a few-mode waveguide.

P2.14 2850

A Mamba-YOLO-based algorithm for semiconductor laser chip defect detection, Jue Wang[1], Feng Tian[1], Qi Zhang[1], Yongjun Wang[1], Qinghua Tian[1], Fu Wang[1], Zhipei Li[2] and Biao Luo[3]; [1]*BUPT, China; Beijing Inst. of Tech., China; Accelink Tech. Co., Ltd., China*. We proposed an improved YOLOv8 algorithm based on Mamba-YOLO.

P2.15 2742

Broadband and high sensitivity Fiber optic visible light sensor based on sodium copper chlorophyllin and Surface Plasmon Resonance effect, Yanxi Wang, Xiaolan Li, Binbin Song and Yinping Miao; *Tianjin Univ. of Tech, China*. A broadband (405-808 nm)and high sensitivity 0.502 nm/mWFiber optic visible light sensor based on sodium copper chlorophyllin and U-shoped fiber Surface Plasmon Resonance device is desmonstrated.

P2.16 2858

Reference Frequency Correction of Coherent Wind Measurement Lidar Based on Energy Centroid Approach, Xueqiao Zhang, Jian Kong, Bangning Mao and Lei Xu; *Hangzhou Dianzi Univ., China; China Jiliang Univ., China*. The frequency correction of the nonlinear mirror reflection signal of the coherent wind measurement lidar is carried out to reduce the heterodyne ref-erence frequency error.

P2.17 5406

Explaining BiLSTM Prediction for Optical Fiber Modeling Based on Multiple Interpretation Methods, Shubo Qi, Xin Li, Dongrou Wang, Chenyu Zhao, Ruoting Liu and Shanguo Huang; *Beijing Univ. of Posts and Tel., China*. We interpret the BiLSTM model used for fiber channel modeling with ten different interpretation methods.

P2.18 5497

ResNet-Based Equalization in NFDM Systems with B-Modulation, Ruyi Wang, Yongjun Wang, Lu Han, Haifeng Yang, Haoyu Gao and Qi Zhang; *Beijing Univ. of Posts and Tel., China*. We propose a ResNet-based equalizer for NFDM systems operating at 7.2 Gbaud.

P2.19 3150

An EfficientNet-assisted MFR scheme for NFDM system, Haoyu Gao, Yongjun Wang, Lu Han, Haifeng Yang, Ruyi Wang and Qi Zhang; *Beijing Univ.of Posts and Tel., China*. Compared with traditional CNN and ResNet models, the EfficientNet-B0-based NFDM scheme for MFR reduces the space complexity to 15.6% and 35.9%.

P2.20 3044

Baud Rate-Tolerant OSNR Monitoring Method for High-Nonlinearity Optical Systems based on Statistical Moments, Mingrui Lin[1], Fei Wang[1], Qi Xu[1], Wei Yan[1], Yingyan Zhang[2], Yang Lv[3], Huan Chang[1], Ran Gao[1] and Xiangjun Xin[1]; [1]*Beijing Inst. of Tech., China;* [2]*China Academy of Tel. Tech., China;* [3]*Marine D & R Inst. of China, China*. A baud rate-tolerant OSNR monitoring method is proposed.

P2.21 3070

Transformer–Based Physics-Informed Neural Networks in Fiber Channel Modeling, Ning Ma, Xuemeng Hu, Miao Gong, Ziyi Fu, Yafeng Cheng, Changpeng Ming, Lei Dong, Ming Luo, Chao Yang, Hanbing Li, Tianye Huang and Xiang Li; *China Uni. of Geosci., China*. This paper proposes a Transformer-PINN model integrating multi-head attention with physics-informed neural networks (PINN).

P2.22 3156

PCA-Meta-Learning QoT Estimation Method For Few-Shot Optical Networks, Tiantian Li[1], Shangbo Lin[2], Chaozhi Wang[1], Tangze Qin[2] and Zhiqun Gu[2]; [1]*Beijing Orient Insti.of Meas. and Test, China,* [2]*BUPT, China*. We propose a PCA-Meta-learning QoT estimation method to predict the quality of transmission of lightpaths effectively in few-shot scenario.

P2.23 3037

A graded-channel InP HEMT with an asymmetrically placed gate structure achieves a peak transconductance of 1229.8 mS/mm, Tianlin Ma, Xiaofeng Duan, Kai Liu, Yongqing Huang and Xiaomin Ren; *Beijing Univ. of Posts and Tel., China*. We designed a graded-composition channel InP HEMT featuring an asymmetrical gate placement structure.

P2.24 8600

Long Short-Term Memory Based Phase Noise Suppression Method for Coherent Optical OFDM System with 64-QAM Modulation Format, Xi Fang, Yi Yan, Sirui Zuo, Yuxiang Liu and Silu Fan; *Beijing Electron. Sci. and Tech. Inst., China*. A novel GBE-LSTM method for phase noise suppression in 64-QAM coherent optical OFDM systems shows superior robustness over GBE across all linewidths in simulations.

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

P2.25 3169

All-dielectric tetramer metasurface optical sensor based on high Q-factor Fano resonance, Li Liu, Wenjing Fang and Xinye Fan; *Liaocheng Univ., China*. We propose a high-sensitivity all-dielectric tetramer metastructure with 100% modulation depth.

P2.26 3195

Highly Efficient Information Reconciliation Based on Correlation Thresholding Driven by Experimental Data in Classical Key Distribution, Manlin Guo[1], Linjie Xu[2], Xiaogang Wang[2], Yanwen Zhu[1], Zirui Ding[1], Yixin Wang[1] and Jie Zhang[1]; [1]*BUPT, China;* [2]*WMCRI, China*. An ET-based adaptive scheme for classical key post-processing reduces LDPC decoding iterations by 76.8% and high-error FER by 74.2%

P2.27 9750

C-band Fluorescence Temperature Measurement System Based on Erbium-doped Single-mode Fiber, Xian Li[1], Bangning Mao[1], Yanqing Qiu[1], Jiawen Hu[2], Jingxiang Xu[2], Jian Kong[2] and Xueqiao Zhang[2]; [1]*China Jiliang Univ., China;* [2]*Hangzhou Dianzi Univ., China*. This work demonstrates C-band fluorescence temperature measurement system based on erbium-doped sin gle-mode fiber.

P2.28 3209

Design and characterization of grating couplers for an ultrathin silicon waveguide at 2 μm wave band, Penghao Ding[1], Yingqi Xu[1], Guoxian Wu[1], Jiaqi Wang[1], Xu Li[1], Chuxian Tan[11], Yu Du, Youfu Geng[1], Xuejin Li [1]and Zhenzhou Cheng[2]; [1]*Shenzhen Univ., China;* [2]*Tianjin Univ., China*. We present the design and characterization of grating couplers for 70 nm-thick silicon waveguides at 2-μm wave band.

P2.29 5178

Co-Packaged Optics (CPO) Technology for Modern AI Era: A Review, Guoliang Chen, Guiqi Wang, Zhenzhen Wang and Lijun Wang; *Xidian Univ. Hangzhou Inst. of Tech., China*. This paper discusses advanced CPO technologies and outlines future directions for design.

P2.30 3328

An Ultra-high SNR Temperature Sensor Based on PDMS-Embedded FBG Integrated Ring Laser, Yihua He[1], Junhui Sun[2], Junjie Bai[1], Keng Chen[1], Sirong Wu[1], Kaijun Cai[1] and Weihao Lin[2]; [1]*Xiamen Inst. of Tech., China;* [2]*Southern Univ. of Sci. and Tech., China*. We proposed a high SNR temperature sensor based on a fiber laser.

P2.31 3516

Analysis and design of a single-mode vertical cavity surface-emitting laser, Xiankun Pei, Kai Liu, Yong-Qing Huang, Xiaofeng Duan, Xiaomin Ren and Qi Wang; *Beijing Univ. of Posts and Tel., China*. A composite cavity is introduced on the distributed Bragg reflector (DBR) at its top, thereby achieving a single-mode VCSEL.

P2.32 9782

Comparison of Thermal Performance of Energy- supplying Lasers based on Different Heat Sink Materials, Xueyou Zhang[1], Xianzu Liu[1], Chanpeng Xu[1], Yao Xu[1], Huan Ma[1], Yuzhuo Chen[2], Junchang Huang[2], Wei Ruan[1] and Chengcheng He[1]; [1]*State Grid Anhui Ultra High Voltage Co., China;* [2]*China Electric Power Research Inst.., China*. The forward voltage method tests laser temperatures with different heat sinks.

P2.33 3271

Vibration Event Classification in Φ-OTDR Systems Using MFCC Features and ResNet50-CBAM, Qizhi Liu, Jie Chen, Qiren Yan and Yi Shi; *Shantou Univ., China*. this paper proposes combining MFCC features with an attention-enhanced ResNet50-CBAM network.

P2.34 3680

Deep Learning-Augmented Temperature Sensing Integrated Fiber Laser Based on Sagnac Interferometer, Yihua He, Weihao Lin, Deyu Xu, Renan Xu, Mingkun Zhang, Boqiang Lin, Li-Yang Shao and Perry Ping Shum; *Xiamen Inst. of Tech., China; Southern Univ. of Sci. and Tech., China*. An intelligent sensing scheme combining fiber ring laser and backpropagation neural network is proposed.

P2.35 3736

High modal gain Er,Yb:Ta_2O_5-cladding Er:LNOI waveguide amplifiers for on-chip Integration, Yuqing Zhao, Guoqing Sun, Yaxin Wang, Ziming Dong, Lei Ding, Liqin Tang and Yigang Li; *Nankai Univ., China*. We demonstrate a high-gain Er:LNOI waveguide amplifier with Er, Yb:Ta_2O_5-cladding.

P2.36 3600

Design and Research of MUTC-PD Optoelectronic Mixer for Frequency Down-conversion, Wenxuan Zhang, Yongqing Huang, Jihong Ye, Shuhu Tan, Xiaofeng Duan, Kai Liu and Xiaomin Ren; *Beijing Univ. of Posts and Tel., China*. The characteristics of the modified uni-traveling carrier photodetector (MUTC-PD) optoelectronic mixing down-conversion are investigated.

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

P2.37 9968

Deep Learning-Enhanced Optical Mode Field Decomposition Using VGG-16 CNNs, Teng Wang, Haoyu Wang, Yalong Wen, Suxuan Cao and Jiancun Zuo; *Shanghai Polytechnic Univ., China*. A 20k simulated dataset was generated for six linearly polarized modes at three wavelengths.

P2.38 9938

Short-Time Fourier Transform Optimization for High-Efficiency Rayleigh Backscattering Spectrogram Generation in Optical Frequency Domain Reflectometry, Zihang Wu, Qingwen Liu and Zuyuan He; *Shanghai Jiao Tong Univ., China*. We propose an optimized short-time Fourier transform to accelerate time-frequency analysis in optical frequency domain reflectometry.

P2.39 4039

High performance coherent optical spectrum analyzer based on a low-pass filter and phase noise power analysis, Zijian Hao, Tingge Dai, Jianyi Yang, Jia Wang and Yuehai Wang; *Zhejiang Univ., China*. A novel coherent optical spectrum analyzer (COSA) scheme is proposed to overcome the decoupling between resolution and power uncertainty in spectral reconstruction.

P2.40 4061

Pendant Polymer Droplet-Based Fabry-P é rot Interferometer for Temperature Measurement, Zhiyuan Liu, Yanan Zhang, Songqi Zhang, Zuhao Liao and Bo Han; *Northeastern Univ., China*. A cavity length-tunable Fabry-Pérot interferometer was constructed by capping ultraviolet-curable adhesive on the end face of a single-mode fiber.

P2.41 9811

High-Reliability and Long-Distance Fiber-Optic Time Transfer System, Qian Jing[1], Wenge Guo[1], Xinxing Guo[2], Lina Sun[2], Tao Liu[2], Ruifang Dong[2] and Shougang Zhang[2]; [1]*Xi'an Shiyou Univ., China;* [2]*National Time Service Center, CAS, China*. A reliability model for fiber-optic time transfer system is established.

P2.42 2717

Research on Strain sensor based on Panda polarization maintaining fiber, Rui Huang, Yuluan Wang and Simei Sun; *Hubei Normal Univ., China*. Strain sensing experiments have been performed on Mach-Zehnder interferometer (MZI) sensors.

P2.43 4294

A Pilot-assisted feature-enhanced channel estimation method, Jiayuan Li[1], Qi Zhang[1], Xiangjun Xin[2], Ran Gao[2], Fu Wang[1], Yi Zhao[3], Ying Song[3], Feng Tian[1], Yongjun Wang[1], Qinghua Tian[1], Sitong Zhou[1] and Leijing Yang[1]; [1]*BUPT, China;* [2]*Beijing Univ. of Tech., China;* [3]*Beijing Inst. of Ctrl. and Electron. Tech., China*. A pilot-assisted feature enhancement method is proposed.

P2.44 4164

Photoconductive Equivalent-Time Sampling for Monitoring 30 Gbps QPSK Terahertz Communication Signal, Hongqi Zhang[1], Wenbin Liu[1], Yifan Hong[1], Jinjiang Wang[1], Guangkuo Lin[1], Jing Chen[1], Qi Wu[1], Wei Wang[1], Dingyuan Qi[1], Zhihui Li[1], Chuan Ge[1] and Xianbin Yu[2]; [1]*China Mobile, China;* [2]*Zhejiang Univ. China*. We experimentally demonstrate a high-speed terahertz (THz) equivalent-time sampling system operating in the 132 GHz band.

P2.45 9789

Clamping Force Measurement of Medical Forceps Based on Fiber Bragg Grating, Yicai Li, Na Chen, Yana Shang, Shupeng Liu, Yong Liu and Fufei Pang; *Shanghai Univ., China*. In this study, the relationship between clamping force and structural strain of surgical forceps is modeled.

P2.46 4415

Modulation-Transparent Carrier Recovery Scheme with Reinvented Error Function, Yulin Wu, Feng Tian, Qi Zhang, Qinghua Tian, Ran Gao, Fu Wang and Sitong Zhou; *BUPT, China; Beijing Inst.of Tech., China*. A QPSK-assisted carrier phase recovery algorithm is proposed.

P2.47 9881

Accurate Characterization of Fiber Lumped Losses for Digital Twin Modeling in C+L-band Systems, Weijie Hong[1], Lingbo Wu[1], Jianfeng Zheng[1], Jialin We[1]i, Fangzhou Yan[1], Dahai Han[2] and Min Zhang[2]; [1]*Shenzhen Smartcity Comm., China;* [2]*BUPT, China*. We propose an accurate and efficient method for estimating up to five lumped losses in multi-band optical transmission systems.

P2.48 4505

4-Dimensional Coded Modulation Based on Concatenated Multi-level Coding in Short-reach Coherent Optical Interconnection, Wen Yuyao, Ming Jun, Dong Ze, Liu Shaonan and Song Junyuan; *Beijing Inst.of Tech., China*. We propose a 4D-DP-16QAM scheme employing concatenated multi-level coding to mitigate PDL in short-reach coherent transmission system.

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

P2.49 4547
Data Augmentation Strategy for φ-OTDR Based on Deep Learning, Yi Shi, Zihao Sun, Qizhi Liu, Jie Chen and Chuliang Wei; *Shantou Univ., China*. This study evaluates VAE versus GAN for Φ -OTDR data augmentation using Mel-spectrograms.

P2.50 9707
ResNet-Based Nonlinear Equalization for High-Speed PDM-WDM CO-OFDM Systems, Xi Fang, Yunzhang Wang, Lingyu Liu and Silu Fan; *Beijing Electron. Sci. and Tech. Inst., China*. A ResNet-based nonlinear equalization method with sliding window is proposed for PDM-WDM CO-OFDM systems.

P2.51 4655
Pump Power Optimization of Ultra-wideband C+L-band Raman Amplifier Based on Neural Network Gain Prediction Model and PSO Algorithm, Hengjie Sun[1], Xue Wei[1], Hengbo Qi[1], Wenhua Ren[1] and Yu Tang[2]; [1]*Beijing Jiaotong Univ., China;* [2]*China Unicom Research Inst., China*. We propose a neural network-based gain prediction model(R^2 =0.997) and particle swarm optimization for a 12THz C+L-band Raman amplifier.

P2.52 4734
Modulation format identification based on phase noise insensitive high-order cumulants features, Zihan Zhang, Qi Zhang, Xiangjun Xin, Ran Gao, Siyuan Chen, Jing Xu, Zhiqi Huang, Xinyu Yuan, Fu Wang, Feng Tian, Yongjun Wang and Qinghua Tian; *BUPT, China*. A modulation format identification (MFI) method using the phase noise insensitive high-order cumulant (PNI-HOC) algorithm is proposed.

P2.53 4789
39.54 Gbps Underwater Visible Light Communication Utilizing a Distributed Equalizer and Dual-polarization Receiver, Zhiwu Chen, Zhilan Lu, Xiangdong Zhang, Zhuoran Hu, Zhe Feng, Zengyi Xu and Nan Chi; *Fudan Univ., China*. We propose a distributed transceiver scheme based on the LMS method and Volterra filter

P2.54 4942
A hollow-core negative curvature fiber filled with gold wires and ethanol for the temperature sensing, Yiru Li[1], Yuwei Qu[2], Jingao Zhang[1], Zefeng Li[1], Lan Rao[1], Kuiru Wang[1] and Jinhui Yuan[1]; *BUPT, China; Hengshui Univ., China*. This paper proposes a SPR-based hollow-core negative curvature fiber temperature sensor.

P2.55 4895
Design and Implementation of Communication Data Analysis Software for Measuring Equipment, Zhao Liu, Jiangtao Wei, Jianfeng Feng, Meilei Jiang and Xiaodeng Zhou; *China Satellite Maritime Tracking and Control Dept., China*. This article designs and implements a software for receiving and parsing communication data of aerospace measurement equipment.

P2.56 4962
Adaptive method for fabricating electrically pumped 650 nm microring lasers with low differential resistance, Chuanjiang Liu[1], Jun Wang[1], Hao Liu[1], Kai Liu[1], Yanan Chen[1], Shuaicheng Liu[1], Qing Ge[1], Hao Zhai[1], Yiming Bai[2], Yongqing Huang[1] and Xiaomin Ren[1]; [1]*BUPT,* [2]*North China Electric Power Univ., China*. We design an adaptive method to fabricate microring lasers with narrow ring width.

P2.57 5007
Thin-film lithium niobate electro-optic modulator loaded with silicon nitride waveguides, Yaxin Wang, Yuqing Zhao, Guoqing Sun, Ziming Dong, Lei Ding, Liqin Tang and Yigang Li; *Nankai Univ., China*. We demonstrate thin-film lithium niobate electro-optical modulator loaded with silicon nitride waveguides.

P2.58 743
A Correlation-Based Arbitrary Bias Control Method and Application in Multi-Format Modulation for Inter-Satellite Optical Communication System, Hao Li, Yuanzhe Qu, Zixuan Ming and Yingxiong Song; *Shanghai Univ., China*. A correlation-based MZM bias control method achieves high-precision harmonic detection with low complexity.

P2.59 4985
Mid-wave InAs/GaSb Type-II Superlattice Infrared Detector for Gas Sensing, Yuzhe Han[1], Lili Han[1], Zhaowei Wang[1], Shumeng Wang[1], Kai Wang[2] and Yangfei Hou[3]; [1]*Qilu Univ. of Tech., China;* [2]*UIBE, China;* [3]*Jinan Landong Laser Tech. Co. Ltd., China*. Mid-wave infrared detector based on InAs/GaSb Type-II superlattice for gas sensing is demonstrated.

P2.60 9430
High-Sensitivity and Temperature-Compensated Fiber-Optic Humidity Sensor Based on Agarose-Coated Fabry-Perot Microsphere, Peiran He, Zhewen Ding, Junlan Zhong, Huaping Gong, Ben Xu, Chunlian Zhan and Chunliu Zhao; *China Jiliang Univ., China*. A Fabry-Perot fiber sensor using agarose-coated microspheres achieves 3.109 nm/%RH (30-55% RH) and 2.029 nm/%RH (55-80% RH) sensitivity.

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

P2.61 5101

Study on the performance calibration method of FBG accelerometer based on vibration table, Liang Xin, Zijie Sun, Wen Wang, Zhipeng Zhang, Xuan Xie, Youyi Zhang, Xu Li, Tigang Ning and Bingbing Zhang; *Beijing Satellite Manufacturing Co. , Ltd., China*. This study develops a vibration table calibration method for FBG accelerometers.

P2.62 5279

Design of subwavelength grating waveguide devices for optical gas sensing, Xu Li[1], Zhijian Mao[1], Guoxian Wu[1], Jiaqi Wang[1], Penghao Ding[1], Chuxian Tan[1], Yu Du[1], Youfu Geng[1], Xuejin Li[1] and Zhenzhou Cheng[2]; [1]*Shenzhen Univ., China;* [2]*Tianjin Univ., China*. We proposed CO2 refractive index gas sensors that utilize silicon subwavelength grating waveguides as the sensing arm of Mach-Zehnder interferometers.

P2.63 5440

Unbalanced Orthogonal Polarization Interrogated Optical Vector Analysis, Haoqi Du, Zhangjun Yu, Jun Yang and Yuwen Qin; *Guangdong Univ.of Tech., China*. We introduce an unbalanced orthogonal polarization-interrogated OVA scheme that operates without active polarization control.

P2.64 5713

Mode Decomposition and Characterization in Helical Side Core Fibers, Yue Xin, Jin Wen, Zhifeng Wang, Mengshi Zhu, Liang Zhang, Heming Wei and Fufei Pang; *Shanghai Univ., China*. We demonstrate an S^2 imaging method based on principal component analysis (PCA) that can effectively decompose and charac terize supermodes in helical side core fibers.

VIP Room 3, Track 1

10:30-12:00
W2A. Novel Fibers & Devices IV
*Presider: **Weiqing Gao**, Hefei University of Technology, China*

W2A.1 • 10:30 Invited

AI-assisted non-invasive smart health monitoring system based on special optical fiber interferometer, Changyuan YU; *The HK Polytechnic Univ., HK*. We review our recent work on AI-assisted non-invasive smart health monitoring system based on special optical fiber interferometer.

W2A.2 • 10:50 Invited

Femto-second laser direct inscribed fiber devices, Lin Ma; *Shanghai Jiao Tong Univ., China*.

W2A.3 • 11:10 ★

Frequency-evolution dynamics of the fast and wide swept semiconductor laser, Minzhi Xu, Yujia Li, Chaoze Zhang, Juntao He, Zechun Geng, Jindong Wang, Da Wei, Leilei Shi, Ligang Huang and Tao Zhu; *Chongqing Univ., China*.

VIP Room 4, Track 6

10:30-12:00
W2B. Measurement & Imaging IV
*Presider: **Chunliu Zhao**, China Jiliang University, China*

W2B.1 • 10:30 Invited

Strain mapping by using fiber-optic sensing network for load monitoring, Guofeng Yan; *Zhejiang Lab, China*. In this presentation，a novel sensing network was introduced for tri-axial strain mapping. 2D load reconstruction algorithm was developed and demonstrated.

W2B.2 • 10:50 Invited

Optical Fiber Sensing Technology for Ocean Parameters, Riqing Lv; *Northeastern Univ., China*.

W2B.3 • 11:10 Invited

Optical fiber sensing for bridge cable states based on online fabricated FBG arrays, Chunliu Zhao; *China Jiliang Univ., China*.

Room 205, Track 4

10:30-12:00
W2C. Optoelectronic Integration IV
*Presider: **Junjia Wang**, Southeast University, China*

W2C.1 • 10:30 Invited

Research on Photoelectric Devices Enhanced by Thin Film/Grating Microstructures, Heyuan Guan; *Jinan Univ., China*.

W2C.2 • 10:50 Invited

Performance improvement of integrated acousto-optic modulators using dielectric acoustic reflectors, Lei Wan; *Ningxia Univ., China*.

W2C.3 • 11:10 Invited

Heterogeneous Integrated Optical Modulators, Junjia Wang; *Southeast Univ., China*.

Room 206, Track 9

10:30-12:00
W2D. Quantum Photonics III
*Presider: **Meihong Wang**, Shanxi University, China*

W2D.1 •10:30 Invited

Quantum Photon Source in Lithium Niobate Nanowaveguide, He Lu; *Shandong Univ., China*.

W2D.2 • 10:50 Invited

Quantum network nodes based on solid-state quantum memories, Xiao Liu; *Univ. of Sci. and Tech. of China, China*.

W2D.3 • 11:10 Invited

Integrated and high-speed quantum key distribution, Lai Zhou; *Beijing Academy of Quantum Info. Sci., China*. We demonstrate a 2.5 GHz chip-to-chip fully integrated quantum key distribution (QKD) system based on a TFLN platform.

Room 210, Special 1

10:30-12:00
W2E. Organic Optoelectronics IV
*Presider: **Rongjun Xie**, Xiamen University, China*

W2E.1 • 10:30 Invited

Design, fabrication and applications of luminescent materials resistant to high-power-density optical excitation, Rongjun Xie; *Xiamen Univ., China.*

W2E.2 • 10:50 Invited

Controlling light in organic/hybrid materials and devices, Shaocong Hou; *Wuhan Univ., China.* I will present our recent work on designing organic/hybrid materials and devices based on light-matter interaction.

W2E.3 • 11:10 Invited

Selenium-Containing Purely Organic Room Temperature Phosphorescence Emitters, Hui Tong; *Changchun Institute of Applied Chemistry, CAS, China.* Several metal-free small molecules and polymers incorporating selenium-containing aromatic units have been developed, demonstrating efficient RTP in film states.

Room 211, Track 5

10:30-12:00
W2F. Optical Signal Processing II
*Presider: **Wenting Wang**, Beijing Institute of Technology, China*

W2F.1 • 10:30 Invited

Signal Analysis and Applications Based on optical Short-Time Fourier Transform (STFT), Yitang Dai; *Beijing Univ. of Posts and Tel., China.* In this work, we propose a broadband optical STFT system, achieving up to 256 frequency bins and 80 MHz frequency resolution.

W2F.2 • 10:50 Invited

Ultra-high-Q microring resonators and their applications in microwave photonic filters and optoelectronic oscillators, Yuan Yu; *Huazhong Univ. of Sci. and Tech., China.*

W2F.3 • 11:10 Invited

Free-space terabit/s coherent optical links via platicon frequency microcomb, Wenting Wang; *Beijing Inst. of Tech., China.*

Room 212, Track 3

10:30-12:00
W2G. Optical Netwrok IV
*Presider: **Lihua Ruan**, Pengcheng Lab, China*

W2G.1 • 10:30 1974

Crosstalk-Aware Evolutionary Optimization of Task Mapping for Optical Network-on-Chip, Chen Zhao, Qiuyan Yao and Hui Yang; *Beijing Univ. of Posts and Tel., China.*

W2G.2 • 10:45 8144

Resource Decoupling and Optimization for Elastic Optical Networks: A Dynamic Coordination Mechanism, Shengye Gong, Hui Yang, Qiuyan Yao, Wenxin Liu and Jie Zhang; *Beijing Univ. of Posts and Tel., China.*

W2G.3 • 11:00 0398

Cognitive Wavefront Prediction via Zernike Phase Forecasting Neural Network, Xinjie Zhang, Haoyu Zhang, Chaoxu Chen, Yuan Wei, Jiaxin Huang, Ziwei Li, Chao Shen, Junwen Zhang, Nan Chi and Jianyang Shi; *Fudan Univ., China.*

W2G.4 • 11:15 7148

SDN-based Dynamic Cooperative Transmission Strategy for Satellite Networks with Hybrid Links, Miao Hao, Hui Yang, Qiuyan Yao, Zhao Li, Yun Teng and Jie Zhang; *Beijing Univ. of Posts and Tel., China.*

Room 215, Track 2

10:30-12:00
W2H. Optical Transmission IV
*Presider: **Ning Jiang**, Univ. of Electronic Sci. and Tech. of China*

W2H.1 • 10:30 Invited

Microresonator-Based Massive Bandwidth-Enhanced Chaotic Generation and Its Applications, Ning Jiang; *Univ. of Electronic Sci. and Tech., China.*

W2H.2 • 10:50 Invited

Harnessing Nonlinear Dynamics in Laser Systems: Advances in Optical Chaos, Reservoir Computing, and Secure Communication, Nianqiang Li; *Soochow Univ., China.*

W2H.3 • 11:10 Invited

Toward Secure and High-Speed Optical Networks Leveraging Digital Chaos, Zhouyi Hu; *Beijing Jiaotong Univ., China.* In this invited talk, we discuss the security vulnerabilities of some types of optical networks, and review our recent progress in physical-layer security enhancements.

VIP Room 3, Track 1

W2A.4 • 11:25 ★

Generation of mixed states of vortex beams in the few-mode fiber, Letian Gu, Huiyi Guo, Zhi Wang and Yan-Ge Liu; *Nankai Univ., China*. This work proposes an all-fiber scheme for generating vortex beam superposition states.

W2A.5 • 11:40 ★

Optimization of Six-Mode Photonic Lanterns for Mode Conversion in O-Band and toward 2 µm Wavelength Band, Wanyu Wu[1], Chaoyue Wang[1], Quandong Huang[1], Ou Xu[1], Sławomir Ertman[2], Tomasz R. Woliński[2], Perry Ping Shum[3] and Xinyong Dong[1]; [1]*Guangdong Univ. of Tech., China.* [2]*Warsaw Univ. of Tech., Poland;* [3]*Southern Univ. of Sci. and Tech., China*. Six-mode photonic lantern mode converters are designed and optimized for the O-band and toward the 2 µm band.

VIP Room 4, Track 6

W2B.4 • 11:30 1090

Highly sensitive pulse sensor based on fiber optic micro-ring for real-time monitoring of human exercise, Ying Wang, Qiang Ling, Zhangwei Yu and Daru Chen; *Zhejiang Normal Univ., China*. A pulse diagnostic device based on all-fiber optic structure is proposed for real-time monitoring of human exercise.

W2B.5 • 11:45 0447

Multi-Point Temperature Monitoring in Food Using Embedded Fiber Bragg Grating Sensors: A Case Study with Mashed Potatoes, Lucas Cao[1], Rui Wu, Sabrina Abedin[2], Lidan Cao[2] and Xingwei Wang[2]; [1]*Weston High School., USA*; [2]*Univ. of Massachusetts Lowell, USA*. This paper presents a Fiber Bragg Grating (FBG) sensor with a diameter of 125 µm designed to test heat distribution in food within an oven using mashed potatoes as the test subject.

Room 205, Track 4

W2C.4 • 11:30 6390

Innovative Self-Heating Driven Ultra-Wideband Tunable DFB Laser Array, Yaqiang Fan, Zhenxing Sun, Yue Zhang, Yuan Lv, Haolin Xia, Jingxuan Zhang, Zhenzhen Xu, Wenxuan Wang, Rulei Xiao and Xiangfei Chen; *Nanjing Univ., China*. An ultra-wideband DFB laser array with matrix grating, enhances self-heating and increases the single-channel current tuning range to 5.8 nm.

W2C.5 • 11:45 8548

All-Optical Max-Pooling Operation with Integrated FP-SA Spiking Neuron, Yingjun Fang[1], Ning Jiang[1,2], Bingjie Xu[3], Bingkun Liu[1], Zichun Zhao[1], Beikang Ren[1] and Kun Qiu[1]; [1]Univ. of Electron. Sci. and Tech. of China; [2]*TianfuJiangxi Lab, China;* [3]*National Key Lab of Secure Comm., China*. We demonstrate an all-optical max-pooling operation architecture based on a Fabry-Perot laser with a saturable absorber.

Room 206, Track 9

W2D.4 • 11:30

Preparation and manipulation of optical hybrid entangled states, Meihong Wang; *Shanxi Univ., China*. This work demonstrates the generation of high-power cylindrical vector beams (CVB) in a fiber cavity integrating oscillator and amplifier.

W2D.5 • 11:50 5189

An Intensity-Stable Pulse Source Based on Optical Injection for High-Speed Quantum Key Distribution, Wenxu Zhao[1], Tao Wang[1], Xun Zhou[2], Yixin Wang[1] and Jie Zhang[1]; [1]*Beijing Univ. of Posts and Tel, China;* [2]*Wuhan Maritime Comm. Research Inst., China*. Using optical injection, the laser intensity fluctuation was reduced from 0.137 to 0.009, and the optimal injection intensity of 0.6%-8% was obtained.

12:00-13:30 Lunch Break

Room 210, Special 1

W2E.4 • 11:30 Invited

Through-Space Charge Transfer Polymeric Luminescent Materials, Shiyang Shao[1] and Lixiang Wang[2]; [1]*Hainan Univ., China;* [2]*Changchun Inst. of Applied Chemistry CAS, China.* This presentation focuses on through-space charge transfer (TSCT) polymeric luminescent materials, which are a class of luminescent polymers that utilize non-conjugated polymer backbones to achieve spatial π-stacking between electron donors and acceptors.

Room 211, Track 5

W2F.4 • 11:30 3521

Phase noise suppression system based on MZI and electrical oscillator, Yitang Dai[1], Tong Yang[1], Yiwen Lu[1], Xinpeng Wang[1], Zhen Feng[1], Feifei Yin[1] and Ming Li[2]; [1]*Beijing Univ. of Posts and Tel., China;* [2]*Inst.of Semiconductors, CAS, China.* We propose a phase noise suppression system using a MZI and oscillator to extract and suppress noise via feed-forward

W2F.5 • 11:45 7399

Wideband Optical STFT with 256 Frequency Bins, Xue Lan, Haoyan Xu, Shilong Chen, Kun Xu and Yitang Dai; *Beijing Univ. of Posts and Tel., China.* In this work, an optical short-time Fourier Transform based on dual optical frequency combs and channelization techniques is proposed

Room 212, Track 3

W2G.5 • 11:30 2685

The Control of Time-Sensitive Network Traffic in Power Line Communication Channel System, Shi Bowen, Huibin Zhang and Jie Zhang; *Beijing Univ. of Posts and Tel., China.* Our FPGA system combines TSN with power line communication, simplifying wiring and ensuring timely traffic, proven in synchronized device tests.

W2G.6 • 11:45 5582

A Time-Frequency Resource Allocation Algorithm Using TFDM Architecture for Holographic Multimodal Data, Fansong Kong and Xin Wang; *Beijing Info. Sci. and Tech. Univ., China.* We propose a time-frequency resource allocation algorithm using the TFDM architecture for holographic multimodal data.

Room 215, Track 2

W2H.4 • 11:30 4167

Joint Modulation Format Identification and OSNR Monitoring using MT-LIN model, Meng Liang and Yuqi Wu; *Xi'an Univ. of Posts and Tel., China.* We proposed a multi-task model joint monitoring model for modulation format identification and optical signal-to-noise ratio estimation.

W2H.5 • 11:45 8916

Real-time Unrepeatered Transmission of Single-Carrier 1.2Tb/s over 364.33km with Commercial transceiver and Optimized ROPA System, Zongtao He, Shujuan Sun, Meichen Xu and Jianjun Wu; *Accelink Technologies Co. Ltd., China.* We demonstrate a record unrepeatered transmission of single-carrier 1.2 Tb/s over 364.33 km utilizes MPCS DP-64QAM with commercial transceiver.

12:00-13:30 Lunch Break

VIP Room 3, Track 1

13:30-15:30
W3A. Novel Fibers & Devices V
*Presider: **Bo Dong**, Shenzhen Technology University, China*

W3A.1 • 13:30 Invited

Broadband Fiber Optic Seismometer, Wentao Zhang; *Inst. of Semiconductors, CAS, China.*

W3A.2 • 13:50 Invited

2D-material-functionalzied fiber for sensing applications, Shengli Pu; *Univ. of Shanghai for Sci. and Tech., China.*

W3A.3 • 14:10 Invited

Forward stimulated Brillouin scattering in few mode fibers for temperature sensing, Liang Zhang; *Shanghai Univ., China.*

VIP Room 4, Track 6

13:30-15:30
W3B. Measurement & Imaging V
*Presider: **Wenjun Ni**, South-Central Minzu University, China*

W3B.1 • 13:30 Invited

Precision Photon Integration based tunable lasers and their applications in sensors, Xiangfei Chen; *Nanjing Univ., China.* Tunable lasers based on Precision Photon Integratio (@PIC） are investigated and their applications in sensors are studied and discussed.

W3B.2 • 13:50 Invited

Deep learning enabled multi-mode fiber imaging and spectral imaging, Zhenming Yu; *Beijing Univ. of Posts and Tel., China.*

W3B.3 • 14:10 Invited

Ultrathin endoscope based on optical fibers, Lipei Song; *Nankai Univ., China.* In this talk, we present our work on imaging with a few mode fiber and a thin fiber bundle based on computational imaging techniques to realize high-resolution imaging with small tip sizes.

Room 205, Track 4

13:30-15:30
W3B. Optoelectronic &Integration V
*Presider: **Ang Li**, Nanjing Univ. of Aero. and Astro., China*

W3C.1 • 13:30 Invited

Chiplet based optoelectronic computing, Ang Li; *Nanjing Univ. of Aero. and Astro., China.*

W3C.2 • 13:50 Invited

High-Performance Soliton Microcombs, Minhao Pu; *Technical Univ. of Denmark, Denmark.*

W3C.3 • 14:10 Invited

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

Room 206, Special 3

13:30-15:30
W3D. 2D-materials Photonics I
*Presider: **Yuan Liu** & **Fang Wang***

W3D.1 • 13:30 Keynote

Aerospace Intelligent Infrared Detector, Weida Hu; *Shanghai Inst. of Technical Physics, China.*

W3D.2 • 13:50 Invited

Controls in orientation, thickness, and stackings in 2D Semiconductor Epitaxy, Taotao Li; *Nanjing Univ., China.*

W3D.3 • 14:10 Invited

Exciton emission in 2D transition metal dichalcogenides and its manipulation via heterogeneous integration, Xiao Wang; *Hunan Univ., China.*

Room 210, Special 1

13:30-15:30
W3E. Organic Optoelectronics V
*Presider: **Fushan Li**, Fuzhou University, China*

W3E.1 • 13:30 Invited

Ultra-High Resolution Quantum Dot Light-Emitting Display, Fushan Li; *Fuzhou Univ., China.*

W3E.2 • 13:50 Invited

Direct Optical Patterning of Quantum Dot Light-Emitting Diodes, Ting Zhang; *Ningbo Inst. of Materials Tech. & Eng., CAS, China.*

W3E.3 • 14:10 Invited

Environmental Influences on Quantum Dot Emission Properties and Underlying Mechanisms, Haiyan Qin; *Zhejiang Univ., China.* This study explores how water and oxygen atmospheres impact quantum dot emission properties, and reveals key mechanisms.

Room 211, Track 7

13:30-15:30
W3F. Ultrafast & Nonlinear III
*Presider: **Dongmei Huang**, The HK Polytechnic University, China*

W3F.1 • 13:30 Invited

Ultrafast U-band fiber laser generation and the pulse dynamics, Chujun Zhao; *Hunan Univ., China.*

W3F.2 • 13:50 Invited

Multiplexed Soliton Optical Frequency Combs in Kerr Resonators, Tianye Huang; *China Univ.of Geosci., China.*

W3F.3 • 14:10 Invited

High Power Ultrafast Mid-infrared Fiber Lasers and the Applications, Chunyu Guo; *Shenzhen Univ., China.* Multi-types of fluoride fiber mode-locked lasers and MOPA systems at 3 μm have been demonstrated in our group.

Room 212, Special 2

13:30-15:30
W3G. Machine Learning I
*Presider: **Ang Li**, Nanjing Univ. of Aero. and Astro., China*

W3G.1 • 13:30 Invited

Intelligent control of ultrafast lasers, Xueming Liu; *Southeast Univ., China.*

W3G.2 • 13:50 Invited

Demonstration of a portable diffractive photon neural network system, Wenhua Gu; *Nanjing Univ. of Sci. and Tech., China.* This talk demonstrates a portable diffractive DPNN system and its fundamental functions, as a solid step toward practical applications.

W3G.3 • 14:10 Invited

Semantics-Enhanced Optical Communications: Prospect and Case Studies, Danshi Wang; *Beijing Univ. of Posts and Tel., China.*

Room 215, Track 8

13:30-15:30
W3H. Wireless Communication I
*Presider: **Jing Xu**, Zhejiang University, China*

W3H.1 • 13:30 Invited

An Underwater Monitoring System Based on Underwater Wireless Optical Communication with Machine Learning-Enhanced Signal Processing, Xu Wan; *Maynooth Univ., Ireland.*

W3H.2 • 13:50 Invited

A Way to Practical Implementation of Underwater Wireless Optical Communication, Jing Xu; *Zhejiang Univ., China.* This talk will mainly focus on the prototype development and sea trial conducted by the Optical Communications Laboratory of Zhejiang University.

W3H.3 • 14:10 Invited

Photonic reconfigurable technology for space TT&C: progress and challenges, Haifeng Yang; *Southwest China Inst. of Electron. Tech., China.*

VIP Room 3, Track 1

W3A.4 • 14:30 Invited

All fiber acousto-optic frequency shifter and its applications, Feng Gao; *Nankai Univ., China*. The progresses of all fiber acousto-optic frequency shifter are presented with its applications in heterodyne detection and hyper sampling imaging as examples.

W3A.5 • 14:50 Invited

Bismuth/Erbium Co-doped Optical Fibre and Its Sensing Applications, Yanhua Luo; *Shanghai Univ., China*.

W3A.6 • 15:10 Invited

Flexible polymer fiber-optic sensors for robotic hand three-dimensional tactile perception, Bo Dong, Yulong Wang, Zhuojun Wang, Senpeng Zhang and Wobin Huang; *Shenzhen Tech. Univ., China*. We introduce our recent research achievements in flexible fiber-optic three-dimensional robotic hand tactile sensors.

VIP Room 4, Track 6

W3B.4 • 14:30 Invited

High birefringent and low thermal sensitive photonic-bandgap hollow-core fibers, Fei Yu; *Shanghai Inst. of Optics and Fine Mechanics, CAS, China*.

W3B.5 • 14:50 Invited

3D Printed On-fiber Microlens and Its Applications, Dejun Liu; *Shenzhen Univ., China*.

W3B.6 • 15:10 Invited

Speciality fiber photothermal spectrum for trace gas sensing, Wenjun Ni; *South-Central Minzu Univ., China*.

Room 205, Track 4

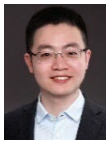
W3C.4 • 14:30 Invited

Ultra-high-speed waveguide-integrated UTC photodetector beyond 200 GHz, Baile Chen; *ShanghaiTech Univ., China*.

W3C.5 • 14:50 Invited

Efficient and versatile on-chip nonlinear applications based on AlGaAsOI photonic integrated circuits, Weiqiang Xie; *Shanghai Jiao Tong Univ., China*.

W3C.5 • 15:10 Invited



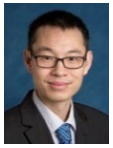
Broadband and Fabrication-Tolerant Mode (De)Multiplexer Based on the Topological Pumping Schemes, Lu Sun; *Shanghai Jiao Tong Univ., China*.

Room 206, Special 3

W3D.4 • 14:30 Invited

Photodetectors for Weak Signals, Fang Wang; *Shanghai Insti. of Technical Physics, CAS, China*. In this report, we present our approach to manipulating opto-electronic co-localized fields to facilitate dark current suppression and enhance photocurrent in infrared detectors.

W3D.5 • 14:50 Invited



High Performance Optoelectronic Devices Based on Compound Semiconductor Heterostructures, Jiang Wu; *Univ. of Electron. Sci. and Tech. of China, China*.

W3D.6 • 15:10 Invited

Comprehensive Radiation Effect Tolerance in Carbon Nanotube Integrated Circuits, Maguang Zu; *Nanjing Univ., China*.

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

Room 210, Special 1

W3E.4 • 14:30 Invited

Surface reconstruction of quantum dots and its active-matrix display application, Xingliang Dai; *Zhejiang Univ., China.*

W3E.5 • 14:50 Invited

Impacts of Sidewall on the Luminous Characteristics of Micro-LEDs, Weijie Guo; *Xiamen Univ., China.* The sidewall treatment can effectively alleviate the residual damage caused by dry etching and suppress the nonradiative recombination.

W3E.6 • 15:10 Invited

Quantum dot luminescence microspheres for Micro-LED displays, Tongtong Xuan; *Xiamen Univ., China.* We propose the construction of green and red QD luminescence microspheres with simultaneously high conversion efficiency of blue light and strong photoluminescence stability.

Room 211, Track 7

W3F.4 • 14:30 Invited

Nonlinear optics in 3D nonlinear photonic structures, Yong Zhang; *Nanjing Univ., China.* We report the fabrication of 3D nonlinear photonic structures through laser writing in lithium niobate crystals and their applications in manipulating the second-harmonic fields.

W3F.5 • 14:50 Invited

Spatiotemporally modulated metasurfaces for advanced fiber lasers, Lili Gui; *Beijing Univ. of Posts and Tel., China.*

W3F.6 • 15:10 Invited

Ultrafast thin disk laser, Xing Liu; *Shenzhen Technology Univ., China.*

Room 212, Special 2

W3G.4 • 14:30 Invited

FArray vortex light and its marine applications, Bo Guo; *Harbin Eng. Univ., China.*

W3G.5 • 14:50 Invited

Lab for Micro/Nanoscale Sensors and Systems, Daquan Yang; *Beijing Univ. of Posts and Tel., China.*

W3G.6 • 15:10 Invited

All-Optical Nonlinear Activation Function Based on Graphene, Yifan Chen, **Jian Zhao**, Haowei Sha and Mingyu Chang; *Tianjing Univ., China.*

Room 215, Track 8

W3H.4 • 14:30 Invited

Multi-hop routing for Underwater Wireless Communication, Yang Qiu; *Southwest Minzu Univ., China.*

W3H.5 • 14:50 Invited

LED Layout Optimization Based on Improved PSO in Visible Light Communication, Jingyu Li, Jie Ma, **Jianfei Liu**, Jia Lu, Xiangye Zeng and Mingming Luo; *Hebei Univ. of Tech., China.*

W3H.6 • 15:10 5929

Advanced Modulation Formats for Long-wave Infrared Free-space Optical Communication, Mengyao Han[1], Muguang Wang[2], Richard Schatz[3], Yan-Ting Sun[3], Lu Zhang[4], Xianbin Yu[4], Oskars Ozolins[5], Ran Pang[1], Xiongyan Tang[1] and Xiaodan Pang; [1]*China Unicom, China;* [2]*Beijing Jiao Tong Univ., China;* [3]*KTH Royal Inst. of Tech., Sweden;* [4]*Zhejiang Univ., China;* [5]*RISE Research Inst. of Sweden, Sweden.*

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

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

P3.1 5849
Design and Development of High-precision Fiber Optic Ocean Turbulence Two-dimensional Vector Sensor, Siyao Yang, Shun Wang, Kunhua Wen and Jun Yang; *Guangdong Univ. of Tech., China*. A fiber optic two - dimensional vector shear flow sensor is developed.

P3.2 5903
Research on Multi-Path Topology Link Routing Algorithm for RF Front-End Based on Machine Learning, Jing Ran, Chen Wang and Mengxue Liu; *Beijing Univ. of Posts and Tel., China*. We propose a unified system for RF front-end component configuration and signal routing using BPSO and MCTS.

P3.3 5919
Performance-Enhanced Reservoir Computing System Based on Microring Resonators ultilizing Multi-Wavelength Parallel Processing, Buqian Zhai, Ning Jiang, Yingjun Fang, Bingkun Liu, Beikang Ren, Juanjuan Ru and Kun Qiu; *Univ. of Electron. Sci. and Tech. of China, China*. We numerically demonstrate a reservoir computing scheme based on silicon microring utilizing multi-wavelength parallel processing.

P3.4 5935
An OSNR monitoring-assisted EMD-based MFI method in optical fiber communication, Yi Zhao[1], Qi Zhang[1], Xiangjun Xin[2], Ran Gao[2], Qihan Zhao[1], Xinyu Yuan[1], Yun Wang[1], Zhiqi Huang[1], Fu Wang[1], Feng Tian[1], Yongjun Wang[1] and Qinghua Tian[1]; [1]*BUPT, China;* [2]*BIT, China*. An EMD-based modulation format identification method assisted by OSNR monitoring in optical fiber communication systems is proposed.

P3.5 6021
Research on the Time-Frequency Hybrid MiMo CMA for Robust MDM Transmission, Weihong Yang, Feng Tian, Yutian Li, Chuanji Yan, Qi Zhang and Fu Wang; *Beijing Univ. of Posts and Tel., China*. We propose a time-frequency Hybrid Mimo CMA.

P3.6 6083
Laplace Neural Operator for Nonlinear Equalization of PDM-16QAM Systems, Shaonan Hong, Yongjun Wang, Haifeng Yang, Lu Han, Hengda Gao and Qi Zhang; *Beijing Univ. of Posts and Tel., China*. The Laplace neural operator (LNO) is introduced to realize the nonlinear equalization of PDM optical fiber system.

P3.7 6090
Athermal Wavelength Locking of V-cavity Laser using Arrayed Waveguide Grating, A Jiajun Hu, Yangqi Wang and Jian-Jun He; *Zhejiang Univ., China*; *Lightip Technologies (Hangzhou), Co., Ltd., China*. Athermal wavelength locking of a V-cavity laser is demonstrated using dynamic drive current compensation with arrayed waveguide grating (AWG)-based feedback.

P3.8 5981
Multi-level Key Supply Capability Aware Routing Algorithm Under Noise Attack in Multi-Domain Quantum Key Distribution Network (QKDN), Congying Zhang, Jingjing Liu, Xiaosong Yu and Yongli Zhao; *Beijing Univ. of Posts and Tel., China*. This paper proposed a multi-level key supply capability aware routing algorithm under noise attack in multi-domain quantum key distribution network.

P3.9 6166
Improved performance of an atmospheric laser communication link with a reservoir computing based equalizer, Jiaqi Luo, Zhihao Zhao and Juanjuan Yan; *Beihang Univ., China*. A reservoir computing (RC)-based equalizer is applied in an OOK IM/DD atmospheric laser communication link.

P3.10 6091
Algorithmic Analysis on Compressive Sensing MIMO Radar Imaging Based on Optical Chaos, Xi Wang, Ning Jiang, Huanhuan Xiog, Chengmo Wang, Chuanjie Tang and Kun Qiu; *Univ. of Electron. Sci. and Tech. of China, China*. This paper proposes a compressive-sensing multiple-input multiple-output (CS-MIMO) radar system.

P3.11 6113
In-Line Interferometer based on Silica Capillary and Tri-core Fiber for Curvature and Temperature Measurement, Fei Pan, Jie Cao, Mengjiao Ding, Mengying Hu, Ya'Nan Zhang and Yunhe Zhao; *Shanghai Maritime Univ., China*. A hybrid in-line interferometer based on silica capillary and tri-core fiber is demonstrated for curvature and temperature measurement.

P3.12 6173
E-Field-Controlled MUTC Photodetector with High-Speed and High-Saturation Performance, Xiaole Gong, Xiyue Zhang, Tonghui Li, Xiaofeng Duan, Kai Liu and Yongqing Huang; *Beijing Univ. of Posts and Tel., China*. An e-field-controlled modified uni-traveling carrier photodetector is proposed.

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

P3.13 6499

High-speed Ge/GaAs MUTC-PD Design with a Comprehensive Method, Xiyue Zhang, Xiaole Gong, Kai Liu, Yongqing Huang and Xiaofeng Duan; *Beijing Univ. of Posts and Tel., China*. A high-speed Ge/GaAs MUTC-PD is proposed with the combination of analytical and numerical method.

P3.14 6541

Experimental Investigations of Differential Modulation and Detection in FSO, Hao Zhou, Zhenning Yi, Likui Lu, Jingyuan Wang, Jianhua Li, Zhiyong Xu and Jiyong Zhao; *Army Engineering Univ., China*. This study demonstrates the feasibility of the method based on differential modulation and detection (DMD) through experiments.

P3.15 6650

Double Q-learning for secure routing in LEO satellite constellations, Junyi Zhang[1], Qi Zhang[1], Xiangjun Xin[2], Ran Gao[2], Fu Wang[1], Yi Zhao[3], Ying Song[3], Feng Tian[1], Yongjun Wang[1], Qinghua Tia[1]n, Sitong Zhou[1] and Leijing Yang[1]; [1]*BUPT, China;* [2]*BIT, China;* [3]*Beijing Inst. of Ctrl. & Electron. Tech., China*. A Double Q-learning-based distributed routing algorithm is proposed.

P3.16 6195

A high-accuracy OSNR monitoring scheme in high-speed coherent optical fiber systems, Yunqiu Xu[1], Qi Zhang[1], Yi Zhao[1], Qihan Zhao[1], Xinyu Yuan[1], Xiangyu Liu[2], Xiangjun Xin[3], Ran Gao[3], Fu Wang[1], Feng Tian[1], Yongjun Wang[1], Qinghua Tian[1], Sitong Zhou[1] and Leijing Yang[1]; [1]*BUPT, China;* [2]*Beijing Inst. of Ctrl. & Electron. Tech., China;* [3]*BIT, China*. An OSNR monitoring scheme based on the Mean-Shift algorithm is proposed.

P3.17 6739

Joint Simulation Design of Electrodes for High-Power and High-Bandwidth Photodetector, Mengyao Tan, Yongqing Huang, Likang Gong, Shuhu Tan, Xiaofeng Duan and Xiaomin Ren; *Beijing Univ. of Posts and Tel., China*. The electrodes of the photodetector are designed using the co-simulation method.

P3.18 6770

Design of 1.55 μm High-Power, Narrow-Linewidth and Low-RIN Distributed Feedback Laser, Xiaomin Huang, Yong Li, Zefeng Chen, Ruidong Liu and Yunjiang Jin; *Sun Yat-sen Univ., China*. The designed DFB laser shows an output power of 446 mW with far-field divergence angle of 13.6°×28°.

P3.19 6820

Optimized Design of Transport Layer for High-Speed InGaAs/InAlAs Avalanche Photodiodes, Lingtong Yang, Tianlin Ma, Hanqi Li, Yu Li, Xiaofeng Duan, Kai Liu and Yongqing Huang; *Beijing Univ. of Posts and Tel., China*. The transport layer in an InGaAs/InAlAs avalanche photodiode (APD) is optimized to improve bandwidth.

P3.20 6959

Experimental Investigation of the Performance Dependence on the Well-Thickness of a Single-Well GaAs/AlGaAs Superluminescent Diode, Doudou Wu, Xiaomin Ren, Hao Liu, Qi Wang and Yongqing Huang; *Beijing Univ. of Posts and Tel., China*. The performance dependence on the well-thickness of a single-well GaAs/AlGaAs superluminescent diode is experimentally investigated.

P3.21 6801

Displacement Monitoring Method Based on Double Intensity Modulation Phase Detection, Xueqian Bai, Qingxin Shu and Jun Hu; *Zhejiang Univ., China*. This paper proposes a quasi-distributed displacement monitoring method based on double intensity modulation.

P3.22 7026

Secure Transmission of Ultra-High-Order 16384QAM via Symbol Scrambling Based on Delta-Sigma Modulation, Shuhui Zhou[1], Jianguo Yu[1], Kaile Li[2], Zhanjiang Wang[1], Qiufei Song[1], Yuting Huang[1] and Tong Li[1]; [1]*BUPT, China;* [2]*Xidian Univ., China*. We propose a digital chaos-based symbol scrambling encryption scheme for ultra-high-order 16384-QAM-OFDM photonic THz system.

P3.23 7061

Research on Crosstalk Characteristics of Multi-Core Fibers Under Dispersion Effects Based on Coupled-Mode Theory, Minjun Li[1], Lian Xiang[2] and Xiaodi You[1]; [1]*Soochow Univ., China;* [2]*Shanghai Univ.of Electric Power., China*. A nonlinear crosstalk model incorporating dispersion effects is developed for weakly-coupled multi-core fibers.

P3.24 7076

Design of an High-Speed Near-Infrared Hyperspectral Camera Using Prism-Grating Dispersion, Chengkai Song, Kun Yuan and Wenhang Zhou; *China JiLiang Univ., China*. Hyperspectral camera design integrating sensor ROI and P-G optics achieves 201 SWIR bands at 1925 fps with MTF>0.6.

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

P3.25 7113
Hydrophobin HGFI - Integrated FPI with Vernier Effect for Sensitive Label - Free Detection of Dengue Virus Biomarker, Wenyu Wang, Lingyi Xiong, Shaoxiang Duan, Bo Liu, Hao Zhang, Wei Lin and Haifeng Liu; *Nankai Univ., China*. We propose and demonstrate a FPI biosensor with Vernier effect for label-free dengue NS1 protein detection.

P3.26 7127
Design and implementation of timing board calibrator, Xiaoqing Shen, Bin Qiu, Wei Xia, Dexuan Yang, Jue Wang and Junjin Chen; *China Satellite Maritime Tracking and Ctrl. Dept., China*. This article proposes the design of a timing board calibration instrument, introduces its software and hardware design methods.

P3.27 7138
Research on Real-Time Classification Methods for Plastics on Industrial Conveyor Belts Based on Hyperspectral Imaging, Wenhang Zhou, Kun Yuan and Chengkai Song; *China JiLiang Univ., China*. Real-time hyperspectral sorting on conveyors: PLS-DA achieves 97.33% accuracy in 18.18ms.

P3.28 7204
Experimental Investigation on Terahertz Reflection Characteristics of Metal Plates Covered with Plasma, Jinhai Sun, Zihao Liu, Yong-Qiang Liu, Xutao Zhang, He Cai, Liangsheng Li and Hongcheng Yin; *National Key Lab. of Scattering and Radiation, China*. The reflection characteristics of a metal plate covered with plasma are investigated using a terahertz time-domain spectroscopy system.

P3.29 3686
Analysis of Influencing Factors in Digital Image Recognition Based on Quantum Convolutional Neural Networks, Jing Wang, Meng Zhang, Junsen Lai and Fang Li; *China Academy of Info. and Comm. Tech., China*. This study conducts experimental validation on QCNN-based image recognition.

P3.30 0289
Effect of Intense Pulsed Light Therapeutic Apparatus Pulse Energy on Pulse Waveform, Min Li, Chunzi Fang, Wen Li, Sanfei Wang, Jinghao Pan and Qiuyu Shan; *Zhejiang Inst. of Medical Device Testing, China*. Medical large-scale IPL therapy equipment pulse width with the increase in pulse energy shows a linear broadening trend.

P3.31 2700
Deep Learning-Based MIMO Precoding Network, Silu Fan and Xi Fang; *Beijing Electron. Sci.and Tech. Inst., China*. To address MMSE precoding's high complexity, we developed a DNN-precoder.

P3.32 0904
Research on Intelligent Monitoring of Pipeline Events Based on Φ-OTDR Distributed Fiber Optic Sensor, Yutian Liu, Zijia Zhou and Hongdan Wan; *Nanjing Univ. of Posts and Tel., China*. This paper proposes a Φ-OTDR-based fiber optic sensor for monitoring pipeline blockages/leaks via vibration analysis.

P3.33 0087
Micro-ring resonator based on silicon nitride, Fanghao Li[1], Zhibao Huang[1] and Tingting Lang[2]; [1]*China Jiliang Uni., China;* [2]*Zhejiang Univ. of Sci. and Tech., China*. This paper designs a micro-ring resonator structure based on silicon nitride materials, and the structure's good resonant performance is verified through FDTD simulation results.

P3.34 4722
Performance Analysis of ZF and MMSE Linear Precoding in Multi-user MIMO-OFDM Systems via Simulation, Silu Fan and Xi Fang; *Beijing Electron. Sci.and Tech. Inst., China*. This paper compares ZF and MMSE precoding in MU-MIMO-OFDM systems.

P3.35 4395
CNN-Based Equalization for Turbulence Mitigation in FSO-OFDM Systems, Shun Lv and Lingxiao Liu; *Beijing Electron. Sci.and Tech. Inst., China*. T This paper proposes a CNN-based intelligent equalization scheme to suppress atmospheric turbulence effects in FSO-OFDM systems.

P3.36 5269
Research on Encryption and Decryption of Free Space Optical Communication Based on AES Algorithm with Continuous-Variable Quantum Key Distribution, Yilin Li, Silu Fan and Xi Fang; *Beijing Electron. Sci.and Tech. Inst., China*. This paper describes that continuous-variable quantum key distribution (CV-QKD) can securely generate keys for AES-CTR encryption.

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

P3.37 4706

Frequency Offset Equalization for High-Speed FSO-OFDM Communication Systems, Lingxiao Liu; *Beijing Electron. Sci.and Tech. Inst., China*. This paper proposes a FOE and FOC method to estimate and compensate for frequency offsets in communication systems.

P3.38 2497

Optical fiber thermal anemometer by using GaAs film based Fabry-Pérot interference, Yuke Dong[1], Xinyong Dong[1], Yuming Dong[2], Qiang Wang[1], Xingyu Zhang[2] and Zhiyuan Chen[2]; [1]*Guangdong Univ. of Tech., China;* [2]*Shenzhen Inst. of CAS, China*. An optical fiber thermal anemometer by attaching a GaAs thin film on the end-face of an optical fiber.

P3.39 4429

The influence of the number of fiber bending turns on medical fiber terminal output spot characteristics, Shen Gao[1], Wen Li[2], Jinghao Pan[2] and Min Li[2]; [1]*NMPA, China;* [2]*ZJIMDT*. The test results show that with the increase of the number of bending turns.

P3.40 6182

Robustness of Deep Learning-Enabled OFDM-FSO Systems to Universal Adversarial Perturbation Attacks, Yuxiang Liu and Lingxiao Liu; *Beijing Electron. Sci.and Tech. Inst., China*. This paper proposes a robust detector for DL-enabled OFDM-FSO system.

P3.41 7241

Comparative Study on Measurement Accuracy and Stability in Quantitative Phase Imaging, Rongmiao Xue, Liwei Guo and Chen Liu; *China JiLiang Univ., China*. This study presents a direct comparison between digital holographic microscopy and diffraction phase microscopy for quantitative phase imaging.

P3.42 7358

Silicon-on-Insulator Mach-Zehnder Interferometer Switch with 50 dB Extinction Ratio, Luyang Liu, Shiqi Zhang, Tongxin Yang and Lei Zhang; *Beijing Univ. of Posts and Tel., China*. We demonstrate a silicon photonic MZI optical switch on SOI.

P3.43 7407

Simulation of TFBG Lateral Speckles and Spectral Reconstruction, Fuhong Lin, Shenqi Yang and Yang Zhang; *Dalian Univ. of Tech., China*. This paper introduces the simulation model of the transverse spot of the Tilted Fiber Bragg Grating.

P3.44 7359

An encryption method for OFDM-PON based on Cellular Automaton-Activation Inhibition model, Songliang Tan, Qi Zhang, Yun Wang, Xiangjun Xin, Ran Gao, Fu Wang, Liang Yan, Xiangyu Liu, Zuolin Li, Feng Tian, Yongjun Wang, Qinghua Tian, Sitong Zhou and Leijing Yang; *BUPT, China*. An OFMD-PON chaotic encryption based on FE-Logistic Cellular Automata (FCA) and incorporating the Gierer Meinhardt Activation Inhibition model (GM) is proposed.

P3.45 7342

Time Diversity-Based Enhancement Method for UV NLOS Communication System, Yanbing Leng, Fengyu Cao, Yuxuan Ai and Tao Yang; *Beijing Univ. of Posts and Tel., China*. We established an ultraviolet communication system to validate the improvement of time diversity on non-line-of-sight(NLOS) UV link

P3.46 7460

A tunable color filter based on Phase-change Material Ge2Sb2Te5, Xingzhe Shi and Jinghao Qi; *Yuncheng Univ., China*. We report a tunable color filter composed of phase-change $Ge_2Sb_2Te_5$ thin film, silicon nitride thin film, and metal reflector.

P3.47 7477

Optimization of temperature detection method based on FSI-FBG hybrid interferometer structure and Convolutional Neural Network, Yuanzi Wang, Cheng Zuo, Tengfei Wang, Jiatong Luo, Benli Yu and Xuqiang Wu; *Anhui Univ., China*. This paper presents a fiber temperature sensor with FBG embedded in FSI.

P3.48 7947

Ultra-flat NIR-to-MIR all-fiber supercontinuum source pumped by dissipative-soliton-resonance pulses at 1.56 μm, Chengzhong Ling, Ruimin Li, Ding Niu, Zhuang Wang, Heping Li, Zhiyao Zhang and Yong Liu; *UESTC., China*. We demonstrate an ultra-flat all-fiber supercontinuum source spanning from the near-infrared to mid-infrared region with negligible pump residuals.

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

P3.49 7479
Enhancing Fading Suppression by Optimized Waveform Power Allocation in Frequency Domain in Φ-OTDR, AAB Mincong Deng[1], Liming Chen[2], Dongdong Zou[3] and Fan Li[1]; [1]*Sun Yat-sen Univ., China;* [2]*China Southern Power Grid, China;* [3]*Soochow Univ, China*. A probe pulse with a uniform power distribution in the frequency domain is designed.

P3.50 7569
A unified model for analyzing the performance of ground-to-air free-space optical communication systems, Zhihao Zhao, Wentao Gai, Yifan Yang, Ziqian Wang, Jiaqi Luo and Juanjuan Yan; *Beihang Univ., China*. A numerical model for analyzing the performance of a ground-to-air free-space optical communication system is developed.

P3.51 7767
A Time-efficient Theoretical Model for Link Visibility Analysis in Dense LEO Constellation, Hai Yang, Jinwang Qian, Junling Sun, Qiuchun Jin and Pengge Ma; *Zhengzhou Univ.of Aero., China*. A time-efficient theoretical model is proposed for a general walker dense LEO constellation.

P3.52 7962
Flexible Tactile Sensor Based on thin-core Optical Fiber MZI, Shengyou Huang, Kun Li, Jian Chen, Shenghui Shi and Binbin Luo; *Chongqing Univ. of Tech., China*. This paper proposes a tactile sensor based on a sandwiched thin-core fiber Mach – Zehnder interferometer (MZI) embedded in polydimethylsiloxane (PDMS).

P3.53 7494
To Enhance the Accuracy of Laser Doppler Velocimeter by Adaptive Techniques, Fu Liu, Longcheng Han and Tongqing Liao; *Anhui Univ., China*. Adaptive technology is introduced in the signal processing of the laser Doppler velocimete.

P3.54 7648
Experimental Validation of Non-Line-of-Sight Ultraviolet Communication System Performance, Yuxuan Ai, Fengyu Cao and Yanbing Leng; *Beijing Univ. of Posts & Tel., China*. This paper conducts a theoretical analysis of the ultraviolet non-line-of-sight (UV-NLOS) communication link.

P3.55 7798
An In-line MZI Based on Tapered Multimode Fiber For Salinity Measurement Inside Laser Cavity, Junjie Bai[1], Yichen Cheng[1], Zihan Huang[1], Yang Yang[1], Yuhui Liu[2], Fang Zhao[2] and Weihao Lin[1]; [1]*Xiamen Inst. of Tech., China;* [2]*SUSTech, China*. In this work, we proposed an inline Mach Zehnder interferometer for achieving salinity monitoring.

P3.56 7974
Multi-Modal Visible-Infrared Image Registration and Fusion for Enhanced Railway Track Inspection, Jun Tian, Ruiming Zheng, Hao Sun, Yunxu Sun and Wei Liu; *Harbin Inst. of Tech., China*. Proposes a registration and fusion framework for visible-infrared images in railway scenes.

P3.57 7654
3D Indoor Visible Light Positioning System Based on Improved Marine Predator Algorithm, Bangbi Hu, Jie Ma, Jianfei Liu, Jia Lu, Xiangye Zeng and Mingming Luo; *Hebei Univ. of Tech. China*. T This paper proposes an IMPA-based 3D visible light positioning system using IMU to handle receiver tilt.

P3.58 7672
Third-order Sparse Volterra Equalizer based Nonlinear Suppression Method for High-Capacity 64/256QAM WDM PDM CO-GFDM system, Xi Fang, Lingyu Liu, Yunzhang Wang and Silu Fan; *Beijing Electron. Sci.and Tech. Inst., China*. A novel sparse Volterra equalizer (SVE) based nonlinear suppressing method is proposed.

P3.59 7961
Modified Uni-Travelling-Carrier Photodiode With Step-Doping Collector Layer, Tengda Liu, Kai Liu, Xiaofeng Duan, Yongqing Huang, Xiaomin Ren and Qi Wang; *Beijing Univ. of Posts & Tel., China*. We design the MUTC-PD with a step-doping collector layer to alleviate its maximal frequency response.

P3.60 7542
A Mach-Zehnder interferometer ammonia sensor coated with Ti3C2TX/polyaniline composite film, Lijun Li, Erao Liang, Xingxia Wang, Jun Zhao, Xin Mao, Tianxiang Zhang and Jianwei Zhang; *Shandong Univ. of Sci. and Tech., China*. This paper proposes and demonstrates a high-sensitivity optical fiber ammonia (NH_3) sensor based on the Mach-Zehnder interferometer (MZI) principle.

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

P3.61 8077

Real-Time Phase Noise Compensation for Frequency Sweeping Laser Source in Optical Frequency Domain Reflectometry, Haowei Sun, Jiageng Chen, Yanming Chang and Zuyuan He; *Shanghai Jiao Tong Univ., China*. We propose a real-time phase noise compensation method for frequency sweeping laser source.

P3.62 8503

Real-Time Anomaly Detection for Submarine Cables Based on Multivariate CUSUM, Chunying Xu[1], Jianrong Chen[1], Jingqi Fang[1], Keyan Xiao[1], Yuhong Xu[1], Chuliang Wei[1] and Jiawang Chen[2]; [1]*Shantou Univ., China;* [2]*Donghai Lab., China*. This paper proposes a real-time submarine cable monitoring method.

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P3.63 8375

WGAN-based satellite laser communication networks channel modeling, Qian Wang, Yu Sun, Junde Lu, Jiaxin Zheng, Lanling Chen, Jianyu Shi, Jie Shi, Yang Yang, Shuo Jiang and Jun Qin; *Beijing Info. Sci. and Tech. Univ., China*. In this paper, we propose the first application of Wasserstein GAN (WGAN) to model inter-satellite laser channels.

P3.64 8477

Predictive Modeling of Core Strain in OPGW Cables Using Long Short-Term Memory Networks, Yifeng Zhu, Chengyu Liu, Chengliang Zhang and Meng Xia; *China Southern Power Grid Co., Ltd., China*. This study uses LSTM to predict OPGW fiber core strain from 10 months' data.

VIP Room 3, Track 1

16:00-18:00
W4A. Novel Fibers & Devices VI
*Presider: **Hualong Bao**, Soochow University, China*

W4A.1 • 16:00 Invited

Novel Fluorotellurite Glass Fibers and Their Applications, Guanshi Qin; Jilin *Univ., China.*

W4A.2 • 16:20 Invited

Carbon nanotube mode-locked Erbium doped fiber lasers, Chengbo Mou; *Shanghai Univ., China.*

W4A.3 • 16:40 Invited

Vortex Optical Fiber Laser Based on Internal Optical Oscillatory with High-gain Silica Fiber, Jianxiang Wen; *Shanghai Univ., China.* A vortex optical fiber laser based on internal optical oscillatory with high-gain silica fiber was presented in the report.

VIP Room 4, Track 6

16:00-18:00
W4B. Measurement & Imaging VI
*Presider: **Wenjun Zhou**, China Jiliang University, China*

W4B.1 • 16:00 Invited

Fiber-Optic Acoustic Sensor with Spiral-beams Supported Diaphragm for Sound Source Tracking, Jiajun Tian, Yanzhi Lv, Yuhao Xue and Aoxue Zhang; *Harbin Inst.of Tech., China.*

W4B.2 • 16:20 Invited

Development of a High-Precision Demodulation System for Fiber-Optic Current Sensorss, Qianyue Ma, Qun Han, Xiaomei Zheng, Qingrui Yang, Yupeng Wang, Junfeng Jiang and Zhenzhou Cheng; *Tianjin Univ., China.*

W4B.3 • 16:40 Invited

Research Progress on Signal Demodulation Technology of Interferometric Optical Fiber Sensors, Xuqiang Wu; Anhui Univ., *China.*

Room 205, Track 4

16:00-18:00
W4C. Optoelectronic Integration VI
*Presider: **Lijun Wang**, Hangzhou Institute of Xidian, China*

W4C.1 • 16:00 Invited

Co-Optical Package Based on Glass Substrate, Lijun Wang; *Hangzhou Inst.of Xidian Univ., China.*

W4C.2 • 16:20 Invited

Silicon photonic RF self-interference cancellation chip for in-band full-duplex communications, Xiuyou Han, Meng Chao, Yicheng Du, Xuan Li, Zerong Duan, Mingshan Zhao; *Dalian Univ.of Tech., China.*

W4C.3 • 16:40 Invited

Bioinspired Flexible Photodetector Array with Integrated Nanostructures for Multidimensional Sensing, Lan Li; *Westlake Univ., China.*

Room 206, Special 3

16:00-18:00
W4D. 2D-materials Photonics II
*Presider: **Weida Hu** & **Xuetao Gan***

W4D.1 • 16:00 Keynote

3D integration of 2D transistor via van der Waals lamination, Yuan Liu; *Hunan Univ., China.*

W4D.2 • 16:20 Invited

Graphene-Based Optoelectronic Conversion Towards High Performance and Intelligence, Xingzhan Wei; *Chongqing Inst. of Green and Intelligent Tech., CAS, China.* We will introduce some interesting phenomena such as polarity-tunable and photovoltage-driven effects.

W4D.3 • 16:40 Invited

Exciton transport and ultrafast dynamics in 2D energy landscape, Pengfei Qi; *Nankai Univ., China.*

Room 210, Special 1

16:00-18:00
W4E. Organic Optoelectronics VI
*Presider: **Zugang Liu**, China Jiliang University, China*

W4E.1 • 16:00 Invited

High-resolution patterning of quantum dots for light-emitting device application, Hailong Hu; *Fuzhou Univ., China.* This study focuses on the increasing demand of high-resolution patterning of quantum dots.

W4E.2 • 16:20 Invited

Shaping the Emission Spectra of Perovskite QDs for Wide-Color Gamut Display with Photon Recycling, Guijun Li; *Shenzhen Univ., China.*

W4E.3 • 16:40 Invited

Critical Issues in the Electro-hydrodynamic Inkjet Printing for fabrication of color conversion layer of Micro-LEDs, Yue Lin; *Xiamen Univ., China.* We introduce new techniques that has been developed in our research group recently.

Room 211, Track 7

16:00-18:00
W4F. Ultrafast & Nonlinear IV
*Presider: **Junqing Zhao**, Shenzhen Technology University, China*

W4F.1 • 16:00 Invited

Application of Nonlinear Collision Dynamics in Photonic Crystal Fibers, Hua Yang; *Hunan Univ., China.*

W4F.2 • 16:20 Invited

Pulse Splitting Induced by Higher-Order Saturable Absorption Effects in Fiber Lasers, Hebei Normal Univ., *China.*

W4F.3 • 16:40 Invited

Shaping pulse for control nonlinear effects in optical fibers, Lifu Zhang; *Shenzhen Univ., China.*

Room 212, Special 2

16:00-18:00
W4G. Machine Learning II
*Presider: **Wen Zhou**, Fudan University, China*

W4G.1 • 16:00 Invited

Optical Fiber Eavesdropping Detection Technology Based on Artificial Intelligence, Yajie Li; *Beijing Univ. of Posts and Tel., China.*

W4G.2 • 16:20 Invited

Reservoir Computing and Deep Learning in Few-Mode Fiber Optical Communications, Feng Wen; *Uni. of Electronic Sci. and Tech. of China, China.*

W4G.3 • 16:40 Invited

AI-aided broadband Terahertz communication towards 6G, Wen Zhou; *Fudan Univ., China.*

Room 215, Track 2

16:00-18:00
W4H. Optical Transmission V
*Presider: **Nan Cui,** Beijing Univ. of Posts and Tel., China*

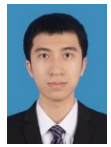
W4H.1 • 16:00 Invited

Orthogonal offset carrier-assisted differential detection of polarization multiplexed asymmetric twin-SSB signals, Jiahao Huo; *Uni. of Sci. and Tech. Beijing, China.*

W4H.2 • 16:20 Invited

Experimental Demonstration of Multi-band High-Spectral-Efficiency transmission System, Feng Tian; *Beijing Univ. of Posts and Tel., China.* The multi-band transmission system experimental is demonstrated.

W4H.3 • 16:40 Invited



Integrated Sensing and Communication in Optical Fiber-Based Access Networks, Junwei Zhang; *Sun Yat-sen Univ., China.*

VIP Room 3, Track 1

W4A.4 • 17:00 Invited

Broadband mid-infrared fiber lasers and their applications, Jianfeng Li; *Uni. of Electronic Sci. and Tech. of China, China.*

W4A.5 • 17:20 Invited

Stable Single-Frequency Laser and Frequency Comb from a Brillouin Cavity, Hualong Bao; *Soochow Univ., China.*

W4A.6 • 17:40 4161

FDML laser dispersion measurement by using MZI, Yang Xiao[1], Kenneth Kin-Yip Wong[2], Jiqiang Kang[2] and Yunxu Sun[1]; [1]*Harbin Inst. of Tech., China;* [2]*The Univ. of Hong Kong, HK.* Here, we proposed a dispersion measurement method of FDML laser by using MZI.

VIP Room 4, Track 6

W4B.4 • 17:00 Invited

Optoelectronic hybrid micro-fiber long-period grating sensor, Li-Peng Sun; *Jinan Univ., China.*

W4B.5 • 17:20 Invited

Fiber optic interferometers for precision physical quantity measurement, Zhilin Xu; *Huazhong Univ. of Sci. and Tech., China.*

W4B.6 • 17:40 Invited

Graphene functionalized micro-comb devices, Wenjun Zhou; *China Jiliang Univ., China.*

Room 205, Track 4

W4C.4 • 17:00 Invited

Broadband and Reconfigur-able Dual-Mode Optical Switch with Low Power-Consumption, Xibin Wang; *Jilin Univ., China.*

W4C.5 • 17:20 Invited

Heterogeneously integrated photonic devices based on micro-tranfer printing, Liang-jun Lu; *Shanghai Jiao Tong Univ, China.*

W4C.6 • 17:40 4559

Advances in Sub-THz Uni-Traveling-Carrier Photodiodes and System Integration, Qingtao Chen[1] and Huijuan Niu[2]; [1]*Polytech Montréal, Canada;* [2]*Liaocheng Univ., China.* This paper reviews the design of sub-terahertz uni-traveling-carrier photodiodes and their inte-gration prospects in photonics-based wireless systems.

Room 206, Special 3

W4D.4 • 17:00 Invited

Liquid lasers using colloidal quantum dots, Kaifeng Wu; *Dalian Inst. of Chemical Physics, UCAS, China.* We report liquid lasing from colour-tunable (red, orange, green and blue) alloyed core/shell QDs with impeded Auger recombination.

W4D.5 • 17:20 Invited

Broadband and large-depth terahertz modulation by self-assembly monolayer silver nanoparticle arrays, Wei'en Lai; *Hefei Univ. of Tech., China.*

W4D.6 • 17:40 1626

Terahertz-band Switchable Broadband Perfect Absorber, Huijuan Niu, Junqiang Zhang and Can Gu; *Liaocheng Univ., China*

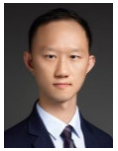
18:30-21:00 Conference Banquet & Awards Ceremony

Room 210, Special 1

W4E.4 • 17:00 Invited

Green synthesis of InP quantum dots and application, Zugang Liu; *China Jiliang Univ., China.*

W4E.5 • 17:20 Invited



Infrared Quantum Dot Optoelectronic Materials and Devices, Zeke Liu; *Soochow Univ., China.* I will present the direct synthesis of PbS quantum dot conductive ink and the fabrication of photoelectric conversion devices.

W4E.6 • 17:40 Invited

Direct in situ Photolithography of Perovskite Quantum Dots, Gaoling Yang; *Beijing Inst. of Tech., China.* We develop a direct in situ photolithography technology to pattern perovskite quantum dots with excellent fluorescence uniformity.

Room 211, Track 7

W4F.4 • 17:00 Invited

Integrated nonlinear photonic devices and their optical sensing applications, Bin Zhang; *Sun Yat-sen Univ., China.*

W4F.5 • 17:20 Invited

Beam cleanup with power scaling in multimode fiber via nonlinear effects, Tianfu Yao; *National Univ. of Defense Tech., China.* Recently, novel laser designs based on beam cleanup effect in pure passive fiber have been developed.

W4F.6 • 17:40 Invited

High power ultrafast lasers enabling high-efficiency optical parametric conversion, Junqing Zhao; *Shenzhen Tech. Univ., China.* Various high-efficiency optical parametric conversion sources covering 2-5 μm mid-infrared region will be presented.

Room 212, Special 2

W4G.4 • 17:00 3039

A Blockchain-based Multi-factor Trusted Access Control Scheme for Optical Communication Cross-domain Prediction, Yinyu Hou, Cui Zhang, Qiuyan Yao, Hui Yang and Jie Zhang; *Beijing Univ. of Posts and Tel., China.*

W4G.5 • 17:15 2368

End-to-End Modeling of FSO Communication Systems with QNSC Encryption under Different Turbulence Conditions, Zihao Zhang[1], Yanwen Zhu[1], Xun Zhou[2], Xiaogang Wang[2], Yixin Wang[1] and Jie Zhang[1]; [1]*Beijing Univ. of Posts and Tel., China.*

W4G.6 • 17:30 0891

High-Speed coherent 2×400 Gbps 16QAM Optical Transmission enabled by TCN based nonlinear equalizer, Lanling Chen, Jie Shi, Yu Sun, Junde Lu, Jiaxin Zheng, Jianyu Shi, Yang Yang, Shuo Jiang and Jun Qin; Beijing Info. Sci. and Tech. Univ., *China.*

W4G.7 • 17:45 3649

Raman rapid diagnosis of tumor pathology based on spectral-image fusion intelligent method, Minjie Zhou, Wenbo Mo and Shuang Ni; *China Academy of Engineering Physics, China.*

Room 215, Track 2

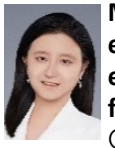
W4H.4 • 17:00 Invited

Harnessing Advanced Laser Interferometry for Integraged Vibration Sensing and Coherent Transmission using Wide-Linewidth Telecom Lasers, Xueyang Li; *Pengcheng Lab, China.*

W4H.5 • 17:20 Invited

Research on architecture and algorithm of ultra-high-speed PON systems, Tao Yang; *Beijing Univ. of Posts and Tel, China.*

W4H.6 • 17:40 Invited



Modeling, impact evaluation, and equalization of polarization effects in high baud rate optical fiber communication system, Nan Cui; *Beijing Univ. of Posts and Tel, China.*

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

VIP Room 3, Track 1

08:00-10:00
Th1A. Novel Fibers & Devices VII
*Presider: **Jingjing Zheng**, Beijing Jiaotong University, China*

Th1A.1 • 08:00 Invited

TBD, Guanjun Wang; *Hainan Univ., China.*

Th1A.2 • 08:20 Invited

Study on Improving the Performance of FBG by Laser Cladding Metalization Mounting, Bangquan Liao; *Tiangong Univ, China*. The FBG was mounted through laser cladding, and the performance comparison study was conducted.

Th1A.3 • 08:40 Invited

Preliminary exploration of cross core sensing characteristics of multi-core optical fibers, Mei Sang; *Tianjin Univ., China*. This paper proposes a novel refractive index sensor based on cross-core coupling in multi-core fibers.

VIP Room 4, Track 6

08:00-10:00
Th1B. Measurement & Imaging VII
*Presider: **Shun Wang**, Guangdong University of Technology, China*

Th1B.1 • 08:00 Invited

Synthesis of astigmatic non-uniformly correlated beams, Jiayi Yu; *Shandong Normal Univ., China.*

Th1B.3 • 08:20 Invited

Mid-infrared data encryption based on computational temporal ghost imaging, Han Wu; *Sichuan Univ., China.*

Th1B.1 • 08:40 Invited

Fractal superconducting nanowire single-photon de-tectors and their applications in LiDAR imaging, Xiaolong Hu; *Tianjin Univ., China*. I will present our recent progress in high-performance fractal superconducting nanowire single-photon detectors and their applications in LiDAR imaging.

Room 205, Track 4

08:00-10:00
Th1C. Optoelectron Integration VII
*Presider: **Xin Li**, Beijing University of Posts and Telecommunications, China*

Th1C.1 • 08:00 Invited

High-Speed and Large-Capacity All-Optical Matching System for Photonic Firewall, Xin Li; *Beijing Uni. of Posts and Tel., China.*

Th1C.2 • 08:20 Invited

Effect of Weakly Correlated Crystallizations: Experimental Verification and Application in High-Quality GaAs/Si Hetero-epitaxial Growth, Yidong Zhang Xiaomin Ren, Qi Wang, Hao Liu and Yongqing Huang; *Beijing Uni. of Posts and Tel., China.*

Th1C.3 • 08:40 Invited

The Structural Design and Device Fabrication of Low-Dimensional Metal Halide Optoelectronic Materials, Yiqiang Zhang; *Zhengzhou Univ., China*. This talk focuses on the structural design and device fabrication of low-dimensional metal halide optoelectronic materials

Room 206, Special 3

08:00-10:00
Th1D. 2D-materials Photonics III
*Presider: **Jiang Wu** & **Xiao Wang***

Th1D.1 • 08:00 Keynote

Second Harmonic Generation from Centrosymmetric Graphene Induced by Interfacial Charge Doping, Xuetao Gan, *Northwestern Polytechnical Univ., China.*

Th1D.2 • 08:20 Invited

Controllable synthesis and applications of low dimensional optoelectronic materials, Shenghuang Lin and Haoran Mu; *Songshan Lake Materials Lab, China.*

Th1D.3 • 08:40 Invited

Design of ultra-broadband high-efficiency metalens based on a single-layer plasmonic meta-surface with hybrid dispersion, Yong-Qiang Liu, Chen Qi, Jiazhi Wang and Jinhai Sun; *National Key Lab. of Scattering and Radiation, China.*

Room 210, Special 1

08:00-10:00
Th1E. Organic Optoelectronics VII
*Presider: **Baomin Xu**, Southern Univ. of Sci. and Techn., China*

Th1E.1 • 08:00 Invited

Interfacial Engineering for Highly–efficient Perovskite Solar Cells, Yang Li; *Shihezi Univ., China*. This presentation highlights the application of interfacial materials in enhancing the performance and stability of PSCs.

Th1E.2 • 08:20 Invited

High efficiency 2T Perovskite/CIGS tandem device for commercial applications, Yong Peng; Wuhan *Uni. of Tech., China*.

Th1E.3 • 08:40 Invited

Fabrication technologies of perovskite solar cells towards mass production, Baomin Xu; Southern *Univ. of Sci. and Tech., China*. I will give a short overview about fabrication technologies of PSCs towards mass production developed in our group.

Room 211, Track 5

08:00-10:00
Th1F. Optical Signal Processing III
*Presider: **Ming Deng**, Chongqing University, China*

Th1F.1 • 08:00 Invited

Research on the Performance Improvement of Distributed Acoustic Sensing, Baoquan Jin; *Taiyuan Univ. of Tech., China*.

ThF.2 • 08:20 Invited

High-resolution magnetic field measurement based on photo-electric hybrid links, Ming Deng; *Chongqing Univ., China*. This report reports a temperature-insensitive magnetic field measurement system based on photoelectric oscillation links.

Th1F.3 • 08:40 3818

Flat microwave frequency comb generation based on stimulated Brillouin scattering, Jinjian Feng, Yang Jiang, Jing Xu, Xiaohong Lan, Jiancheng Yu, Hui Zhang, Tingyi Jiang and Yu Wu; *Guizhou Univ., China*.

Room 212, Special 4

08:00-10:00
Th1G. Optical Biosensors I
*Presider: **Yang Ran**, Jinan University, China*

Th1G.1 • 08:00 Invited

Optical Fiber Bio-Sensors in Real-Life Contexts, Francesco Chiavaioli; *National Research Council of Italy, Italy*. Here an overview of most fascinating examples of optical fiber bio-sensors in real-life contexts is provided.

Th1G.2 • 08:20 Invited

Microcavity interferometers for enhanced cell culture monitoring, Mateusz Smietana; *Warsaw Univ. of Tech., Poland*. This talk will discuss the challenges of culture monitoring and how they can be addressed using microcavity interferometer techniques.

Th1G.3 • 08:40 Invited

Optical fiber detection and treatment for clinical applications, Yunyun Huang; *Jinan Univ., China*.

Room 215, Track 2

08:00-10:00
Th1H. Optical Transmission VI
*Presider: **Jinlong Wei**, Peng Cheng Lab, China*

Th1H.1 • 08:00 Invited

Quantum secure communi-cation over field deployed optical fiber, Dawei Wang; *Sun Yat-sen Univ., China*.

Th1H.2 • 08:20 Invited

FPGA Implementations of PAM-4 Lite-DSP Receiver for IM/DD optical data links, Jinlong Wei; *Peng Cheng Lab, China*. FPGA implementations of real-time high speed PAM-4 receiver digital signal processing architecture with ultra-low complexity is demonstrated.

Th1H.3 • 08:40 4231

Real-time 32×Single-carrier 800 Gbit/s with 128 GBaud PCS-16QAM signals transmission over 3000 km amplified only by EDFA, Chuangye Wang[1], Yakun Hu[2], Shikui Shen[2], He Zhang[2], Zelin Wang[2], Jun Luo[3], Xinyan Zhou[3], Jun Wu[3], Hongyan Zhou[3], Guangquan Wang[2], Xiongyan Tang[2] and Min Zhang[4]; [1]*China Unicom Network Comm. Co., Ltd., China*.

VIP Room 3, Track 1

Th1A.4 • 09:00 Invited

Multifunctional imaging using single multimode fiber, Zhong Wen; *Zhejiang Univ., China*. We present a single-fiber phase imaging method using frequency modulation.

Th1A.5 • 09:20 Invited

Center-Assisted Ring-Core Fibers and their Mode Degeneracy Manipulating Characteristics, Jingjing Zheng; *Beijing Jiaotong Univ, China*. Several center-assisted ring-core fibers are proposed for the spatially degenerate mode control of LPmn mode groups.

Th1A.6 • 09:40 1785

Cavity optomechanical sensors using fiber-optic devices, Qiang Zhang and Yongmin Li; *Shanxi Univ., China*. We introduce our recent works on cavity optomechanics

VIP Room 4, Track 6

Th1B.4 • 09:00 Invited

Sensitivity-enhanced fiber-optic vibration measurement through deflection amplification structure, Qi Zhang; *Shanghai Univ, China*.

Th1B.5 • 09:20 Invited

Multicore Fiber Long-Period Gratings, Yunhe Zhao; *Shanghai Maritime Univ., China*.

Th1B.6 • 09:40 Invited

Recent Research on Sensitivity and Stability Enhancement in Fiber-Optic Interferometric Sensors, Shun Wang; *Guangdong Univ. of Tech., China*.

Room 205, Track 4

Th1C.4 • 09:00 1835

Design of a fast-tuning reflective element for external cavity laser resonance, Hu Shuling, Zhou Xiang and Qi Binzhi; *Beihang Univ, China*. An integrated external cavity feedback element suitable for on-chip lasers has been proposed.

Th1C.5 • 09:15 2094

Recent Progress in Theoretical Design for Sub-THz Uni-Traveling-Carrier Photodiodes, Huijuan Niu[1], Qingtao Chen[2], Kai Liu[3], Xiaofeng Duan[3], Yongqing Huang[3] and Chenglin Bai[1]; [1]*Liaocheng Univ., China*. We propose novel sub-THz MUTC photo-detectors with waveguide and vertical designs, achieving high responsivity, high output power, and wide bandwidth under low bias.

Th1C.6 • 09:30 3940

Research on the widening method of sensing measurement range based on CMRR, Yuxia Song[1], Xiangxu Wei[1], Jiamei Gu[2], Mingyu Li[1], Tuo Chen[1] and Jian-Jun He[2]; [1]*Changchun Univ. of Sci. and Tech., China*. This paper proposes a method based on a cascaded micro-ring resonator structure to calculate the free spectral range and shifts in the spectrum envelope.

Room 206, Special 3

Th1D.4 • 09:00 Invited

In-sensor dynamic computing and sensing/wireless communication integration, Yuekun Yang[1], Chen Pan[2], Shi-Jun Liang[1] and Feng Miao[1]; [1]*Nanjing Univ., China;* [2]*Nanjing Univ. of Sci. & Tech., China*. In-sensor dynamic computing can be used for accurate detection of dim targets.

Th1D.5 • 09:20 Invited

Research on Mid-Infrared Antimonide Lasers with Low-dimensional Structures, Cheng-Ao Yang; *Inst. of Semiconductors, CAS, China*.

Th1D.6 • 09:40 9365

Preparation of composite nanoparticle films and their optical characterization in the terahertz band, Hao Yu and Yongliang Li; *Changchun Uni. of Sci. and Tech., China*.

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

Room 210, Special 1

Th1E.4 • 09:00 Invited

Functional Layer Regulation and Low-Temperature Properties of Perovskite Solar Cells, Yuying Hao; Taiyuan Univ. of Tech., *China.* We propose a modification strategy of streptomycin sulfate for SnO2. And we propose an additive strategy of polyacrylonitrile to enhance the low-temperature performance of PSCs.

Th1E.5 • 09:20 Invited

Smart Fiber with Overprinted Patterns to Function as Chip-like Multi-threshold Logic Switch Circuit, Xing Fan; *Chongqing Univ., China.* Herein, we presented a smart fiber with multilayers of overprinted patterns, composed of many small units with 0.3 mm long to function as a 1D array of chip-like multi-threshold logic-switch circuit.

Th1E.6 • 09:40 Invited

Passivation strategie and interface engineering for highly efficient perovskite solar cells, Xueqing Xu; *Guangzhou Inst. of Energy Conversion, China.* This review focuses on passivation strategies, and interface engineering to overcome these hurdles.

Room 211, Track 5

Th1F.4 • 08:55 3941

A simple photonic approach for joint measurement of frequency and angle-of-arrival, Xiaohong Lan, Yang Jiang, Jing Xu, Jiancheng Yu, Jinjian Feng, Yunkun Luo, Qianyou Long, Hui Zhang, Tingyi Jiang and Yu Wu; *Guizhou Univ., China.*

Th1F.5 • 09:10 4916

Robust and High-speed Polarization Modulation Based on Nonreciprocity of Lithium Niobate Modulator for Quantum Key Distribution, Zexu Wang[1], Huaxing Xu[2], Bo Liu[3], [1]Feifei Yin, [1]Kun Xu and [1]Yitang Dai; [1]*Beijing Univ. of Posts and Tel., China;* [2]*China Academy of Electron. and Info. Tech., China;* [3]*National Univ. of Defense Tech., China.*

Th1F.6 • 09:25 5296

Optoelectronic Oscillator Based on Ultra-High Q Sapphire Oscillator, Yi Zhou, Yuan Yu and Xinliang Zhang; *Huazhong Univ. of Sci. and Tech., China.*

Th1F.7 • 09:40 5507

Optical Sequence Pattern Recognition of 4-symbol OOK Signal for Photonic Firewall, Xuejian Jiang[1], Jiawen Zhang[1], Jiabin Cui[1], Yanxia Tan[2], Huashun Wen[3] and Yuefeng Ji[1]; [1]*Beijing Univ. of Sci. and Tel., China;* [2]*China United Network Comm. Co., Ltd., China;* [3]*Nankai Univ., China.*

Room 212, Special 4

Th1G.4 • 09:00 Invited

Light-controlled bio-microrobot, Hongbao Xin; *Jinan Univ., China.*

Th1G.5 • 09:20 Invited

Stretchable multimodal photonic sensor for wearable healthcare monitoring, Jingjing Guo; *Beihang Univ., China.*

Th1G.6 • 09:40 Invited

Biochemical sensing with micro-nano optical fibers, Jinhui Yuan; *Beijing Univ. of Sci. and Tel., China.* This report will introduce the relevant research results of micro-nano fibers in the field of biochemical detection.

Room 215, Track 2

Th1H.4 • 08:55 9620

Real-Time Breakpoint Localization by Stokes Assisted Forward-Propagation Communication, Jialing Liu[1] and Zhun Huang[2]; [1]*China Yangtze Power Co., Ltd, China;* [2]*Accelink Technologies Co. Ltd.*

Th1H.5 • 09:10 0111

Fiber Eavesdropping Detection with Anti-Interference in Coherent Optical Transmission, Yuyuan Liang[1], Yuang Li[1], Shuang Wei[1], Haokun Song[2], Yajie Li[1] and Jie Zhang[1]; [1]*Beijing Univ. of Posts & Tel., China;* [2]*China Mobile Group Design Institute Co., Ltd., China.*

Th1H.6 • 09:25 7404

Physics-Guided Sparse Modeling for Multimode Fiber Channels with Minimal Parameters, Haifeng Yang, Yongjun Wang, Chao Li, Lu Han, Hengdao Gao, Shaonan Hong and Qi Zhang; *Beijing Univ. of Posts & Tel., China.*

Th1H.6 • 09:40 8605

Experimental Demonstration of Optical Fiber Authentication Based on Rayleigh Backscattering Fingerprints Extracted by OTDR, Yifan He, Shuang Wei, Yuang Li, Yuyuan Liang, Yajie Li, Yongli Zhao and Jie Zhang; *Beijing Univ. of Posts & Tel., China*

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

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

P4.1 8615
Design of Weakly Coupled Two-Mode Hollow-Core Antiresonant Fiber With Waterdrop-Shaped Nested Tubes, Jingmin He, Hu Zhang, Jiaqi Wang, Xiaoguang Zhang and Lixia Xi; *Beijing Univ. of Posts & Tel., China*. We propose a weakly coupled two-mode waterdrop-shaped nested antiresonant fiber

P4.2 8803
Miniaturized optical fiber displacement probe with large-collection-angle, Chengpin Wu, Leiming Wu, Xikai Hou, Jiaqi Zhu and Xinyong Dong; *Guangdong Univ. of Tech., China*. This work proposes fiber optic displacement sensing probe with a common optical path Michelson interferometer.

P4.3 8905
An Ultra-Wideband Tunable DFB Semiconductor Laser with Compact Structure, Yaqiang Fan, Yuan Lv, Zhenxing Sun, Haolin Xia, Jingxuan Zhang, Wei Yuan, Yuechun Shi, Yan Wang, Pengfei Xu and Xiangfei Chen; *Nanjing Univ., China*. This work presents a compact 8×1 DFB laser array with high performance.

P4.4 9034
Multi-physics Simulation-Driven Thermal Distribution Optimization and Ultra-High-Power Reliability Design of Anti-Resonant Fibers, Xiaomei Zheng, Qun Han, Yupeng Wang, Qingrui Yang, Junfeng Jiang and Zhenzhou Cheng; *Tianjin Univ., China*. This study focuses on the simulation of thermal distribution and optimization in such applications.

P4.5 8757
A High-Sensitivity Differential Pressure Optical Fiber Airflow Velocity Sensor Based on the Vernier Effect, Zuhao Liao, Bo Han, Zhiyuan Liu, Taiwen Li, Jiafu Xu and Yanan Zhang; *Northeastern Univ., China*. A high-sensitivity optical fiber flow velocity sensor based on Vernier effect is proposed.

P4.6 8810
Analysis of the Thermal Sensitivity of the Resistivity of Titanium Nitride, Yi Xu, Shiqi Zhang and Lei Zhang; *XXX Beijing Univ. of Posts & Tel., China*. We report the thermal sensitivity of the resistivity and the fuse current density of the TiN heater on SOI.

P4.7 8985
Robust Coarse Tracking via Adaptive Resizing of Reception Spot in Satellite Laser Communications, Shengda Wang, Lingyun Ke, Nan Cui, Hu Zhang and Xiaosheng Xiao; *Beijing Univ. of Posts & Tel., China*. We propose an enhanced coarse tracking approach for acquisition-pointing-tracking system in satellite laser communication scenarios.

P4.8 8719
Ultra-wideband, multi-frequency, blind-spot-free frequency hopping signal generation based on single optical frequency comb, Zilong Zhou, Hua Zhou, Tao Pu, Yang Liu, Jin Li, Jilin Zheng and Xiaolong Zhao; *XXX Army Eng. Univ. of PLA, China*. By tuning the frequency shifting range to match the comb spacing of the optical comb, it is possible to achieve ultra-wideband.

P4.9 8765
A Data Augmentation Method Based on Time Domain Convolutional Mask Network for improved event recognition in φ-OTDR, Yi Shi, Jie Chen, Qizhi Liu, Zihao Sun and Chuliang Wei; *Shantou Univ., China*. We propose a data augmentation method using a time-domain convolutional mask network.

P4.10 8887
Operando monitoring the chemical polymerization with a fiber grating-based sensor, Yan Zhou[1], Wenjun Zhou[2], Changyu Shen[2], Rui-Pin Chen[1] and Beilan Li[2]; *Zhejiang [1]Sci-Tech Univ., China; [2]China JiLiang Univ., China*. We present that a fiber grating-based sensor is capable to monitor the full polymerization in a hydrogel.

P4.11 9111
KAN Enhanced CNN-BiLSTM for Accurate Modeling of Optical Fiber Channels, Shaonan Hong, Yongjun Wang, Haifeng Yang, Lu Han, Hengda Gao and Qi Zhang; *Beijing Univ. of Posts & Tel., China*. This paper proposes a hybrid model combining Kolmogorov-Arnold Network (KAN), CNN and Bi-LSTM for fiber channel modeling.

P4.12 9012
Sub-Nyquist Single-Pixel Image Transmission under Turbulent Channels, Haixia Feng[1], Ting Zhang[2], Yongyuan Wang[33], Junjie Wu, Yongye Qiu[3] and Kaimin Wang[3]; *[1]Sanda Univ., China; [2]Jiangxi Univ. of Fin. & Econ., China; [3]USST*. We evaluate the performance of various sub-Nyquist single-pixel computational ghost imaging schemes under non-Kolmogorov atmospheric turbulence channels.

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

P4.13 9425
Research on Integrated Suppression Methods for Multi-Source Noise in Weak Fiber Bragg Grating Arrays, Lifan Li, Hantao Li and Xiaoyang Hu. This paper demonstrates a tri-mode noise suppression method for weak FBG arrays.

P4.14 9133
Quantum Secure in Flexible Optical satellite Network: State-of-the-Art and Challenges, Guan Wang[1], Nan Feng[2] and Youjian Zhao[1]; [1]*Tsinghua Univ., China;* [2]*The 54th Research Inst. of CETC, China*. We described the applicability of quantum key distribution (QKD) over the optical satellite network to provide the secure scalability and the flexibility.

P4.15 9465
Prediction of Polarization Mode Dispersion Using a Chaotic-mutation-PSO-BP Neural Network, Shirui Zhang, Xianfeng Tang, Zhihan Li, Lixia Xi and Xiaoguang Zhang; *Beijing Univ. of Posts & Tel., China*. Neural network is successfully used to establish the relationship between polarization mode dispersion (PMD) and weather factors.

P4.16 9551
A Subcarrier-Number-Multiplied Light Source Enabled by a Novel Recirculating Frequency Shift Loop Structure, Shuonan Duan, Jie Zhang, Wentao Dai, Chunfeng Ge and Zhaoying Wang; *Tianjin Univ., China*. A novel optical recirculating frequency shift loop combining single-sideband modulation and higher-order modulation is proposed.

P4.17 9415
Harmonic Fiber Bragg Gratings for Wearable Optical Sensing Applications, Xu Yue, Yang Ran, Zhuo Zhang and Yu Huang; *Jinan Univ., China*. We developed a wearable optical sensor based on higher-order harmonic fiber Bragg gratings (FBGs).

P4.18 9139
Selective Ethanol Sensing based on Nile Red Functionalized Fiber Bragg Grating, Shijie Li[1], Yiwei Li[2], Yuchen Wang[2], Zhenheng Xu[1], Yuehuan Lin[1], Jiaming Zhang[1], Teng Tan[2] and Baicheng Yao[2]; [1]*China Southern Power Grid Co., Ltd., China;* [2]*UESTC, China*. A novel high-sensitivity and selective ethanol sensor based on Nile Red coated micro-FBG is reported.

P4.19 9614
Real-time Monitoring of Human Heart Rate Utilizing DAS, Shaojun Zhang[1], Yulin Zhang[2] and Chungang Liu[3]; [1]*Heilongjiang Univ. of Chinese Medicine, China;* [2]*Qiandongnan Prefecture People's Hosp., China;* [3]*CSPC-NBP Pharmaceutical Co., Ltd., China*. We demonstrated the real-time monitoring of human heart rate using the DAS.

P4.20 9527
Physics-Informed Neural Networks for Fast and Accurate Optical Simulation and Design, Wenbo Zhang, Haibo Wang, Zhemg Lee, Guanju Peng and Zongze Li; *Tianjin Univ., China*. We propose a fast, accurate DNN method using physics-based residual of Maxwell's equations as loss function to simulate and design photonic devices without traditional solvers.

P4.21 5092
Bidirectional dual-comb fiber laser based on a novel four-port circulator and hybrid mode-locking, Shijie Li[1], Zhangru Shi[2], Mingjun Wang[2], Guoyuan Cai[1], Yaqian Zhao[1], Weixun Zhang[1] and Bowen Li[1]; [1]*China Southern Power Grid Co., Ltd., China;* [2]*UESTC, China*. We generated a bidirectional single-cavity dual-comb fiber laser.

P4.22 9741
Cross-Arrayed Optical Micro/Nanofibers for Multiaxial Tactile Force Sensing, Kun Li, Shengyou Huang, Wenyi Li, Xue Zou, Decao Wu and Binbin Luo; *Chongqing Univ. of Tech., China*. This study presents a multiaxial tactile sensor using cross-arrayed micro/nano optical fibers embedded in PDMS.

P4.23 9151
Nonlinearity Mitigation in a 32APSK Visible Light Communication System Utilizing Windowed Single Carrier Frequency Domain Equalization, Xiangdong Zhang, Zhuoran Hu, Zhe Feng, Zhiwu Chen and Nan Chi; *Fudan Univ., China*. A VLC system using circularly polarized light and polarization diversity employs a novel WSCFDE pre-equalization.

P4.24 4977
Label-free specific detection of microplastics via fiber microcavity sensor functionalized with aptamer, Yicong Ma, Lingyi Xiong, Shaoxiang Duan, Bo Liu, Hao Zhang, Changjin Li, Fan Jia, Wei Lin and Haifeng Liu; *Nankai Univ., China*. The aptamer-functionalized fiber-optic microcavity sensor specifically detects polystyrene nanoplastics (0.02 – 0.1% (w/v)) in water.

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

P4.25 4575
Multi-sensor spatio-temporal attention network for fault diagnosis of wind turbine, Chunying Xu, Fuchang Chen, Liyu Chen, Yunan Liu, Yuhong Xu and Zhan Lian; *Shantou Univ., China*. A wind turbine fault classification method based on multi-sensor spatio-temporal attention network (MSSTANet) is proposed.

P4.26 4356
Highly Sensitive Curvature Sensor based on Helical Long-Period Gratings in Elliptical-Core Fiber, Ya'Nan Zhang, Ruichen Dai, Mengying Hu, Yan Jiang, Fei Pan and Yunhe Zhao; *Shanghai Maritime Univ., China*. A highly sensitive curvature sensor based on elliptical-core fiber helical long-period grating is proposed.

P4.27 4336
Design and Optimization of Glass-Based Optical Waveguide Directional Couplers, Zhenzhen Wang, Guoliang Chen and Guiqi Wang; *Xidian Univ. Hangzhou Inst. of Tech., China*. A directional coupler is designed on a glass substrate, enabling control over the propagation of optical waveguide modes for 1550nm communication light.

P4.28 9202
Resource Allocation Based on Traffic Engineering and Spectrum Window Prioritization in Power Backbone Elastic Optical Networks, Chunying Wang[1], Zhiyuan An[1], Lijie Wu[1], Lei Sheng[1], Huifang Liu[1], Xiaohan Cui[2], Shaobo Qin[2] and Ruijie Zhu[2]; [1]*State Grid Henan Electric Power Info. & Tel. Co.,* [2]*Zhengzhou Univ., China*. This paper proposes a traffic engineering and spectrum window prioritization algorithm in power backbone elastic optical networks.

P4.29 4314
Ultralong Waveguide Grating for optical phased array, Yanqing Qiu[1], Panxiang Jin[1] and Tingting Lang[2]; [1]*China Jiliang Univ., China;* [2]*Zhejiang Univ. of Sci. and Tech., China*. This paper presents a waveguide grating antenna (WGA) serving as a radiation element for optical phased arrays (OPA)

P4.30 4095
Microsphere-Based Fiber-Optic Magnetic Field Sensor Utilizing Whispering Gallery Mode and Fabry-Perot Cavity, Xiaoshan Guo and Xinling Tong; *Wuhan Univ. of Tech., China*. This paper presents a novel fiber-optic magnetic field (MF) sensor integrating dual sensing modes of whispering gallery mode (WGM) and Fabry-Perot interferometer (FPI).

P4.31 3497
Dynamic Thermal Error Mitigation in Laser Diode Testing via Automated Interval Control, Zeqi Zhu, Quankang Chen and Xiaolong Zhang. This paper proposes an automated test system that enhances data consistency by introducing controlled cooling intervals between measurements.

P4.32 9822
An Intent Extraction Method for LEO Satellite Networks Based on a Rotational Position Encoding BERT Model, Weikang Zhou[1], Qi Zhang[1], Gengyu Li[2], Hongyuan Zhang[2], Fu Wang[1], Feng Tian[1], Yongjun Wang[1], Qinghua Tian[1], Sitong Zhou[1] and Leijing Yang[1]; [1]*BUPT, China;* [2]*China Academy of Space Tech., China*. This paper proposes a RoPE and BiLSTM-enhanced BERT model for intent extraction in LEO satellite networks.

P4.33 3929
Stable 532nm laser output based on Hansch-Couillaud technology, Miaomiao Jin[1], Shuling Hu[1], Bing Li[2], Jiaqi Yu[2], Nan Li[2] and Jianguo He[2]; [1]*Beihang Univ., China;* [2]*CAS, China*. A stable output of 532nm laser based on the Hansch-Couillaud frequency doubling ring cavity is achieved.

P4.34 9975
Miniaturized fiber photoacoustic spectroscopy for ppb-level in-situ dissolved gas detection, Haojie Liu, Jun Ma and Bai-Ou Guan; *Jinan Univ., China*. An optical fiber micro-gas cavity based photoacoustic spectroscopy is proposed for fast dissolved gas sensing.

P4.35 3679
Design and Simulation of an Anti-Resonant Hollow-Core Fiber Fabry–Pérot Etalon for Precision Wavelength Calibration, Xingwang Cao[1], Tongjun Liu[2], Huiqi Ye[2] and Dong Xiao[2]; [1]*Nanjing Univ. of Posts and Tel. China;*., [2]*Nanjing Inst. of Astro. Optics & Tech.,CAS, China*. A brand new anti-resonant hollow-core fiber Fabry–Pérot etalon for astronomical wavelength calibration is constructed.

P4.36 4002
Performance Study of Compressive Perception Computational Ghost Imaging for Underwater Transmission, Meiyong Xu[1], Lan Xiang[2], Yongye Qiu[2], Junjie Wu[2], Yongyuan Wang[2], Ting Zhang[3] and Kaimin Wang[2]; [1]*BUPT, China;* [2]*Univ.of Shanghai for Sci.& Te., China;* [3]*Jiangxi Univ. of Fin.& Econ., China*. We investigate the underwater transmission performance of compressive perception computational ghost imaging schemes.

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

P4.37 3327
Miniature Czerny-Turner Spectrometer, Zhihui Fu[1], Zhuoyang Liu[2] and Tingting Lang[2]; [1]*Hangzhou Dianzi Univ., China;* [2]*Zhejiang Univ. of Sci. and Tech., China*. This study develops a miniaturized Czerny-Turner fiber-optic spectrometer covering visible and near-infrared bands for portable spectral analysis..

P4.38 3115
Deformation sensor based on tapered dispersion compensated fiber and silicone rubber, Huiling Huang and Chao Jiang; *Hubei Normal Univ., China*. A sandwich structure consisting of single-mode fiber (SMF), dispersion compensation fiber (DCF), and SMF is constructed.

P4.39 2925
SFC Deployment Algorithm for Satellite Networks Based on MLP and PPO, Yanxiang Wang[1], Qi Zhang[1], Furong Chai[1], Dandan Sun[1], Xiao Feng[2], Yi Zhao[3], Fu Wang[1], Feng Tian[1], Xiujuan Qing[1], Qinghua Tian[1] and Yongjun Wang[1]; [1]*BUPT, China;* [2]*China Electron. Tech. Taiji* [3], *China*. A deployment method based on Multi-Layer Perceptrons (MLP) and Proximal Policy Optimization (PPO) is proposed.

P4.40 8017
An efficient deep learning strategy for non-invasive optical fiber sensor monitoring of ECG signal reconstruction from ballistocardiogram, Kaili Yang[1], Xiuyuan Wang[2], Wei Xu[2] and Changyuan Yu[3]; [1]*2nd People's Hosp. of Changshu, China;* [2]*The HK Polytechnic Univ., HK;* [3]*Suzhou Univ. of Tech., China*. In this paper, we established a non-invasive optical fiber sensor and a novel deep learning model for mapping BCG waveforms to ECG.

P4.41 8019
Current Development Status of Ultra Short Throw Projection Technology and Comparative Analysis of Lens Structure Performance, Fanghao Li[1], Huanxin Liu[1] and Tingting Lang[2]; [1]*China JiLiang Univ., China;* [2]*Zhejiang Univ.of Sci. and Tech., China*. This paper reviews the current status of ultra-short throw projection technology.

P4.42 2566
A Visual Method for Locating Stoves, Fanghao Li[1], Qimeng Tao[1], Haibin Zhang[2], Shaosheng Tang[2] and Tingting Lang[2]; [1]*China Jiliang Univ., China;* [2]*Zhejiang Univ. of Sci. and Tech., China*. This paper presents contour extraction and pixel calculation.

P4.43 2981
High sensitivity hydrogen gas sensor based on PDMS-Pt coated microrod., Zhenheng Xu[1], Shuya Yuan[2], Yanhong Guo[1], Weixun Zhang[1], Jiaming Zhang[1], Shijie L[1]i, Teng Tan[2] and Baicheng Yao[2]; [1]*China Southern Power Grid Co., Ltd.,* [2]*Univ. of Electron. Scie. and Tech. of China, China*. We design PDMS-Pt coated microrod cavity, based on this device, ppb-level detection of hydrogen gas is demonstrated.

P4.44 2645
High-resolution gas sensing based on graphene-coated D-shaped fiber in an active F-P Cavity, Yaqian Zhao[1], Yutong Li[2], Yuchen Wang[2], Shengrong Liu[1], Yuehuan Lin[1], Qiancheng Lv[1], Yanhong Guo[2], Teng Tan[2] and Baicheng Yao[2]; [1]*China Southern Power Grid Co., Ltd., China;* [2]*Univ.of Electron. Sci. and Tech. of China., China*. A gas sensor based on graphene-functionalized D-shaped active Fabry–Pérot cavity is proposed.

P4.45 2207
Purity characterization of mixed mode groups in a directional mode convertor using OFDR method, Mingming Luo, Caiyun Wang and Jianfei Liu; *Hebei Univ. of Tech., China*. We propose a characterization for mode purity in a directional mode convertor using OFDR.

P4.46 1298
Design of an On-Chip Microcavity Isolator Baesd on Exceptional Point in Gain-Loss Grating Structure, Yutong Li, Teng Tan and Baicheng Yao; *Univ. of Electro. Sci. and Tech. of China, China*. This paper proposes an optical isolator structure, based on exceptional point-induced nonreciprocal transmission.

P4.47 5722
Spatial-temporal Feature Fusion-Based Brillouin Frequency Shift Extraction in BOTDA System, Caojun Zhang, Liang Zhang, Yu Chen, Weiyu Pan, Wenzhi Wang, Jie Min, Feng Qian, Mengshi Zhu, Heming Wei and Fufei Pang; *Shanghai Univ., China*. A spatial-temporal feature fusion model involving pseudo-video denoising and neural networks is proposed.

P4.48 1524
Ultra-broadband 1950-nm dual-comb fiber laser for photoacoustic spectroscopy, Zhenheng Xu[1], Xu Yin[1], Shijie Li[1], Zhiming Gu[1], Yuting Tan[1], Zixiang Meng[2] and Bowen Li[2]; [1]*China Southern Power Grid Co., Ltd., China;* [2]*Univ. of Electro. Sci.and Tech. of China, China*. This work proposes a 1950 nm dual-comb fiber laser prototype with 7 kHz repetition-rate difference and 100 nm bandwidth.
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Poster Session 4 (10:00-10:30)

P4.49 1416

Wavelength scanning high-sensitivity surface plasmon resonance (SPR) sensor operating in 1550nm band, Zisheng Zhang[1], Jiamei Gu[1], Mingyu Li[2] and Jianjun He[1]; [1]*Zhejiang Univ., China;* [2]*Changchun Univ. of Sci. and Tech., China.* A high-sensitivity 1550nm-band Kretschmann-configured SPR sensor is demonstrated.

P4.50 1295

Overview of filterless optical networks over multiple applications: Opportunities and Challenges, Guan Wang, Nan Feng and You Jian Zhao; *Tsinghua Univ., China; The 54th research Inst. of CETC, China.* We propose some opportunities and challenges in the optical satellite network.

P4.51 1004

Photonics-Based Image Enhancement and Semantic Segmentation for Railway Obstacle Detection Under Low-Light Conditions, Ruiming Zheng, Jun Tian, Hao Sun, Yunxu Sun and Wei Liu; *Harbin Inst. of Tech., China.* This study proposes a physics-guided GAN with adaptive band selection to enhance low-light/infrared images.

P4.52 1201

A detection signal phase encoder, Junfeng Ren[1], Ping Li[1], Chenyang Ma[2], Zhengyang Xie[2] and Zheng Zheng[2]; [1]*Beijing Inst. of Tech., China;* [2]*Beihang Univ., China.* A phase encoder generator based on a microwave photonic method is designed for phase encoding of single-frequency signals, linear frequency-hopping signals, and pulsed signals.

P4.53 8509

Optical centroid ellipses beyond polarization ellipses, Jia Cheng; *Hunan Univ., China.* we introduce centroid ellipses that are geometrically mapped from optical orbital angular momentum superpositions on modal Poincaré sphere by coaxial interference.

P4.54 0811

Study on Sensing Technology Based on LRSPR-FPI Coupling, Xikai Hou, Leiming Wu, Chengpin Wu, Jiaqi Zhu and Xinyong Dong; *Guangdong Univ. Tech., China.* This work proposes a coupled optical fiber sensor that integrates Long-Range Surface Plasmon Resonance (LRSPR) with a Fabry – Pérot Interferometer (FPI).

P4.55 0707

Tunable Second-Order Microring Resonator with Asymmetric MZI-Based Coupling for Broadband Flat-Top Attenuation, Tao Song, Yu Zhang, Lei Zhang and Xu Yang; *Beijing Univ. of Posts and Tel., China; The 54th Research Inst. of China Electron. Tech. Group Corp., China.* We demonstrate a tunable second-order microring resonator with MZI-based coupling control.

P4.56 0970

Fiber Channel Modeling via Transformer with Linear Attention and Rotary Position Encoding, Shiyu Dong, Yongjun Wang, Haifeng Yang, Hengda Gao, Shaonan Hong and Qi Zhang; *Beijing Univ. of Posts and Tel., China.* This paper presents a fiber channel model based on Transformer with kernel-based linear attention and rotary position encoding.

P4.57 0478

Hybrid Multiplexed Wavelength Conversion Based on Cascaded SHG/DFG in Aperiodically Poled LN Waveguides, Yihao Jian, Junmin Zou, Zhihao Fang and Shiming Gao; *Zhejiang Univ., China.* An TFAPLN waveguide is presented for wavelength conversion of wavelength-mode hybrid multiplexed signals.

P4.58 0659

All-Optical Image Encryption Using Incoherent Diffractive Neural Networks, Wenbo Zhang[1], Haibo Wang[2], Zhemg Lee[1], Guanju Peng[3] and Zongze Li[4]; [1]*Tianjin Univ., China;* [2]*Shanghai Inst. of Satellite Eng., China;* [3]*Huawei Tech. Ltd., China;* [4]*Pengcheng Lab, China.* We demonstrate that spatially incoherent diffractive deep neural networks can perform arbitrary complex-valued linear transformations.

P4.59 0247

Laser Phase Noise Measurement Using Self-Homodyne Detection and I/Q Demodulation, Yawen Chen, Kunqian Yang, Min Xue and Shilong Pan; *China Nanjing Univ. of Aero. and Astro., China.* A laser phase noise measurement method based on self-homodyne detection and I/Q demodulation is proposed and experimentally demonstrated.

P4.60 0218

Optical Next-Generation Reservoir Computing Enabling Continuous Forecasting of Atmospheric Turbulence Phase, Yifan Wang, Kaiteng Cai, Dongye Xu, Shaoyang Li, Zehui Lu, Wei Lin, Shaoxiang Duan, Hao Zhang, Haifeng Liu and Bo Liu; *Nankai Univ., China.* A scheme for predicting atmospheric turbulence phase using optical Next Generation Reservoir Computing is proposed and experimentally validated.

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

P4.61 0177

Research on 3D Path Planning Method Combining QRRT* and CHOMP, Fanghao Li, Yi Wang and Tingting Lang; [1]*China Jiliang Uni., China;* [2]*Zhejiang Univ. of Sci. and Tech., China*. This paper proposes a novel 3D path planning method that effectively combines QRRT* and CHOMP to efficiently generate smooth and collision-free trajectories.

P4.62 0131

Service Deployment Across Intelligent Computing Centers via Joint Computing Power and Spectrum Trading, Chenwei Cui and Yongcheng Li; *Soochow Univ., China*. This paper proposes service deployment algorithms across intelligent computing centers.

P4.63 1983

Multi-strategy resource allocation method for satellite networks based on Lyapunov optimization, Chenxu Lu[1], Qi Zhang[1], Xiangjun Xin[2], Ran Gao[2], Xiangyu Liu[3], Junqing Wu[3], Feng Tian[1], Yongjun Wang[1], Qinghua Tian[1], Sitong Zhou[1] and Leijing Yang[1]; *BUPT, China; Beijing Inst. of Tech., China; Univ., China*. A Lyapunov optimization-based multi-strategy resource allo-cation method for satellite networks is proposed.

P4.64 7795

Efficiency Enhancement of Perovskite Solar Cells via Benzylisothiocyanate Passivation, Zhiwen Li, Zugang Liu and Xin Yao; *China Jiliang Uni., China*. This study innovatively employs benzyl isothiocyanate as a novel passivator to perform surface passivation on the abundant defects of 3D perovskite, achieving significant reduction in defect density.

VIP Room 3, Track 1

10:30-12:00
Th2A. Novel Fibers & Devices VIII
*Presider: **Hu Zhang**, Beijing Univ. of Posts and Tel., China*

Th2A.1 • 10:30 Invited

Optical fibers and waveguide technology, Xianguang Yang; *Jinan Univ., China*. The cutting-edge waveguides research of polymer fiber, aggregation-induced emission fiber, and lotus root fiber. These microfibers act as passive, active and hybrid optical waveguides.

Th2A.2 • 10:50 Invited

Multiband rare-earth doped multimode fiber amplifier, Hu Zhang; *Beijing Univ. of Posts and Tel., China*.

Th2A.3 • 11:10 3142

Research on the Application of Hollow Core Fiber in the Construction of Power grid, Li Deng, Bozhong Li, Jun Wu, Tong Chen, Hongyan Zhou, Yang Li, Peng Li, Jun Chu, Yong Xiang, Lei Zhang, Zhiyi Guo, Lixin Gu and Jie Luo; *State Grid Info. & Te. Branch,. China; YOFC, China.*

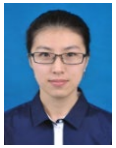
VIP Room 4, Track 6

10:30-12:00
Th2B. Measurement & Imaging VIII
*Presider: **Guoqing Wang**, Shenzhen Inst. of Info. Tech., China*

Th2B.1 • 10:30 Invited

Key Technologies and Applications for High-Precision Large-Scale Rapid 3D Measurement, Yan Shi; *China Jiliang Univ., China.*

Th2B.2 • 10:50 Invited



Fiber optic microcavity multi-parameter sensing technology and applications, *Tianjin Univ., China*. Introduce fiber optic microcavity multi-parameter sensing technology and applications in the fields of operando monitoring of lithium-ion batteries and infrasound measurement.

Th2B.3 • 11:10 Invited

Ultrafast Single-pixel Imaging based on Compressive Sensing and In-fiber Diffraction, Guoqing Wang[1], Yuan Zhou[2], E Du[1], Xingquan Li[1], Jun He[3] and Chao Wang[4]; [1]*Shenzhen Inst.of Info. Tech., China.*

Room 205, Track 4

10:30-12:00
Th2C. Optoelectron. Integration VIII
*Presider: **Zhijun Ning**, Shanghai Tech University, China*

Th2C.1 • 10:30 Invited

High-performance perovskite semiconductor direct X-ray detection and imaging, Yanliang Liu; *Shenzhen Inst. of Advanced Tech. CAS, China.*

Th2C.2 • 10:50 Invited

Circular polarized light detector based on chiral materials, Longzhen Qiu; *Hefei Univ. of Tech., China*. We reported our latest progress in circularly polarized light detectors based on chiral materials.

Th2C.3 • 11:10 Invited

Colloidal quantum dot based upconversion photodetector, Zhijun Ning; *Shanghai Tech Univ., China.*

Room 206, PDP

10:30-12:00
Th2D. Post-Deadline Papers I
*Presider: **Yunhe Zhao**, Shanghai Maritime University, China*

Th2D.1 • 10:30 ☆ 4322

Experimental demonstration of 800Gbit/s self-coherent transmission based on S-band flexible OFC, Xiaolong Zhu, Feng Tian, Xiangjun Xin, Qi Zhang, Haipeng Yao, Qinghua Tian, Fu Wang, Sitong Zhou, Jianwei Zhou and Yutian Li; *Beijing Univ. of Posts and Tel., China.*

Th2D.2 • 10:45 ☆ 5218

Lightweight Neural Network for FBGs Overlapping Spectrum Separation, Zhengyong Liu, Chaorui Zhang, Jun Hao, Ziqi Liu and Jing Li; *Sun Yat-sen Univ., China.*

Th2D.3 • 11:00 ☆ 5309

QoT-Aware Deep Reinforcement Learning for Dynamic RMSA in EONs, Yixin Wang, Haojie Wang and Jie Zhang; *Beijing Univ. of Posts and Tel., China.*

Room 210, Special 1

10:30-12:00
Th2E. Organic Optoelectronics VIII
*Presider: **Lian Duan**, Tsinghua University, China*

Th2E.1 • 10:30 Invited

Narrowband Emitters for OLEDs with BT 2020 Color Gamut, Lian Duan; *Tsinghua Univ., China.*

Th2E.2 • 10:50 Invited

Deep-blue MRTADF-OLED with Narrowband Emission Towards BT.2020 Standard, Runda Guo, Hanrui Su, Shan Huang and Lei Wang; *Huazhong Univ. of Sci. and Tech., China.* It demonstrated design strategy advances the development of deep-blue MR-TADF emitters meeting the BT.2020 color standard.

Th2E.3 • 11:10 Invited

Colloidal quantum-well light-emitting diodes, Baiquan Liu; Sun Yat-sen Univ., *China.* Herein, device engineering in olloidal quantum well LEDs have been comprehensively discussed.

Room 211, Track 5

10:30-12:00
Th2F. Optical Signal Processing IV
*Presider: **Jianghai Wo**, Jinan University, China*

Th2F.1 • 10:30 Invited

Photonics-assisted radar detection and recognition for small targets, Pei Zhou; *Soochow Univ., China.*

Th2F.2 • 10:50 Invited

Chip-scale photonic integrated multifunctional microwave radar, Jianghai Wo; *Jinan Univ., China.*

Th2F.3 • 11:10 6592

Repetition frequency extraction and recovery of pulsed signals based on non-synchronized linear optical sampling, Chengda Huo, Feng Tian, Chuanji Yan, Qi Zhang, Yongjun Wang, Qinghua Tian, Fu Wang and Meng Qiu; *Beijing Univ. of Posts and Tel., China.*

Room 212, Speical 4

10:30-12:00
Th2G. Optical Biosensors II
*Presider: **Francesco Chiavaioli**, National Research Council of Italy*

Th2G.1 • 10:30 Invited

Fiber-optic theranostics, Yang Ran; *Jinan Univ., China.*

Th2G.2 • 10:50 Invited

The integration of cytosensing and therapy using the fiber optic-based LSPR, Zewei Luo; *Sichuan Univ., China.* A novel sandwich layer of PDA/AuNPs/PDA, coated around the Ω-shaped fiber optic (Ω-FO) was designed.

Th2G.3 • 11:10 Invited

Ultra-low detection limit optical biochemical sensor based on AuNPs enhanced fiber surface plasma, Changyu Shen; *China Jiliang Univ., China.*

Room 215, Track 2

10:30-12:00
Th2H. Optical Transmission VII
*Presider: **Kaihui Wang**, Fudan University, China*

Th2H.1 • 10:30 Invited

Key techniques for high-speed optical coherent communications, Jing Zhang; *Univ. of Electronic Sci. and Tech. of China., China.*

Th2H.2 • 10:50 Invited

Design of Low-Complexity and Low-Power Digital Signal Processing Circuits for Optical Communication, Kaihui Wang; *Fudan Univ., China.*

Th2H.3 • 11:10 Invited

High-speed low-cost IM/DD short-reach optical interconnects enabled by advanced DSP, Zhaopeng Xu; *Pengcheng Lab, China.*

VIP Room 3, Track 1

Th2A.4 • 11:25 6327

Mode-Locked Thulium-Doped Fiber Laser Based on Nonlinear Polarization Rotation and Power Amplification, Jing Zhang, Feng Tian, Jianwei Zhou, Xingyu Wu, Qi Zhang, Qinghua Tian, Fu Wang and Chuanji Yan; *Beijing Univ. of Sci. and Tel., China.* An NPR-based mode-locked TDFL centered at 1895 nm was experimentally demonstrated.

Th2A.5 • 11:40 6448

Transmission and Optical-Amplification Characteristics of Rectangular Pulses, Danyang Wang, Enfan Zhou, Lei Huang, Boxin Li, Yi Liu, Dongfang Jia, Chunfeng Ge, Zhaoying Wang and Tianxin Yang; *Tianjin Univ., China.* This paper investigated the effects of transmission fiber parameters and the gain of the erbium-doped fiber amplifier (EDFA) on the rectangular pulse evolution based on a passively mode-locked erbium-doped fiber laser.

VIP Room 4, Track 6

Th2B 4 • 11:30 0866

Comprehensive Performance Assessment of Coherent Φ-OTDR Implementation Schemes, Chunye Liu[1], Jialin Jiang[2] and Zinan Wang[1]; [1]*Uni. of Electronic Sci. and Tech. of China, China;* [2]*Chongqing FUNA Technology CO., Ltd., China.* In this paper, a comprehensive multi-dimensional performance evaluation for phase-demodulated Φ-OTDR is conducted.

Th2B.5 • 11:45 1620

Smart insoles: Monitor sole pressure based on surface array Fiber Bragg Grating, Yihao He, Qiang Ling, Chenning Tao, Zhangwei Yu and Daru Chen; *Zhejiang Normal Univ., China.* An intelligent insole system for monitoring foot pressure based on surface array fiber gratings. This system can analyze gait in a portable, cost-effective and real-time manner.

Room 205, Track 4

Th2C.4 • 11:30 Invited

Low-Voltage Flexible Organic Transistors for Sensing and Memory Applications, Zhigang Yin; *Chongqing Univ., China.*

Room 206, PDP

Th2D.4 • 11:15 ☆ 7225

Demonstration of Hierarchical SDN-based Hybrid Forwarding-Negotiation Relay Strategy for End-to-End Key Provisioning in Satellite Quantum Key Distribution Networks, Jingjing Liu, Xiaosong Yu, Yuan Cao, Avishek Nag, Yongli Zhao and Jie Zhang; *Beijing Univ. of Posts & Tel., China.*

Th2D.5 • 11:30 ☆ 4035

831 Gbps Optical Interconnect for Data Centers Based on PDM-WDM Visible Light Communication System, Zhilan Lu, Xinyi Liu, Yunkai Wang, Zengyi Xu, Chao Shen, Junwen Zhang and Nan Chi; *Fudan Univ., China.*

Th2D.6 • 11:45 ☆ 4732

1550nm linear cavity spatiotemporal mode-locked laser based on tapered fiber saturable absorber, Xiuquan Li, Wenqi Ma, Yi Qin and Guijun Hu; *Jilin Univ., China.*

12:00-13:30 Lunch Break

Room 210, Special 1

Th2E.4 • 11:30 5363

Novel printable hole-transport materials for large-scale flexible organic light emitting diodes, Hao Yan and Hong Meng; *Peking Univ. Shenzhen Graduate School, China.* In this study, we synthesized a novel printable hole transport material (HTM) HT-1, addressing critical challenges in current OLED technology.

Th2E.5 • 11:45 1140

Regulation of energy band and luminescence properties in lead halide perovskite materials via lattice strain, Bo Qiao; *Beijing Jiaotong Univ., China.* The lattice strain was regulated. Their electrical structure, formation energy and ion migration activation energy were calculated.

Room 211, Track 5

Th2F.4 • 11:25 0782

Spurious-Free Dynamic Range Measurement for Optical Coherent Transmission Links, Lin Yuan, Kunqian Yang, Min Xue and Shilong Pan; *Nanjing Univ. of Aero. and Astro., China.* A spurious-free dynamic range (SFDR) measurement method is proposed for optical coherent transmission links.

Th2F.5 • 11:40 1064

Time-frequency information processing method for negative signal-to-noise ratio signal based on microwave photonic real-time spectrum system, Qingqiong Tan, Boyang Ni, Yu Zhang, Dan Zhu, Rontian Jiang, Yehui Qin and Shilong Pan; *Nanjing Univ. of Aero. and Astro., China.* A waveform extraction and time-frequency information processing method for negative signal-to-noise ratio signal based on microwave photonic real-time spectrum system is proposed and experimentally demonstrated.

Room 212, Special 4

Th2G.4 • 11:30 Invited

Fiber-optic photoacoustic spectroscopy and imaging for biomedical applications, Jun Ma; *Jinan Univ., China.* The fusion of fiber-optic sensing with photoacoustic effect brings new possibilities to advance the photoacoustic spectro-scopy and imaging techniques.

Th2G.5 • 11:50 0176

Soft Hands Integrated with Fiber Bragg Grating for Surface Recognition and Reconstruction, Lingyu Wang, Yang Li, Yiwen Tang, Wentao Zhu, Qiang Ling and Zhangwei Yu; *Zhejiang Normal Univ., China.* A soft robotic hand with fiber Bragg gratings demonstrates high-precision surface recognition and reconstruction by capturing object features and generating an isomorphic depiction.

Room 215, Track 2

Th2H.4 • 11:25 2031

Multi-Objective Marine Predator Routing in MEO-LEO Cross-Layer Satellite Optical Networks, Xiaoke Sun[1], Haicheng Li[1], Yanyan Xie[1], Pengfei Lv[2], Zihao Qin[1], Lei Shi[1], Bin Liu[1] and Ruijie Zhu[1]; [1]*Zhengzhou Univ., China;* [2]*Songshan Lab, China.* We propose an improved multi-objective routing method based on marine predator algorithm in MEO-LEO cross-layer satellite optical networks.

Th2H.5 • 11:40 9447

QoS-Guaranteed Energy-Efficient Routing in Satellite Optical Networks, Shaobo Qin, Zihao Qin, Lilong Zhou, Yinghao Tong, Yanyan Xie, Haicheng Li, Xiaoke Sun and Ruijie Zhu; *Zhengzhou Univ., China.* This paper proposes a QoS-guaranteed energy-efficient routing algorithm in LEO satellite optical networks.

12:00-13:30 Lunch Break

VIP Room 3, Track 1

13:30-16:00
Th3A. Novel Fibers & Devices IX
*Presider: **Cong Zhang**, Guangdong University of Technology, China*

Th3A.1 • 13:30 Invited

High performance fusion splicing technology for anti-resonant hollow-core fiber, Cong Zhang; *Guangdong Univ. of Tech., China.* We briefly reviewed our progress in the fusion splicing of hollow core fiber (HCF) and proposed a new type of heterogeneous fusion splicing and fast homogeneous fusion splicing technology.

Th3A.2 • 13:50 Invited

Completely quantifying and reconstructing fiber-based higher-order modal group evolution on SU(4) Poincaré hypersphere by centroid geometric mapping, Liang Fang; *Hunan Univ., China.*

Th3A.3 • 14:10 7916

Passive Q-switched mode-locked Yb-doped Fiber Laser based on Nonlinear Polarization Rotation, Jianwei Zhou, Feng Tian, Jing Zhang, Jue Wang, Yutian Li, Chuanji Yan, Qi Zhang, Qinghua Tian, Fu Wang and Xingyu Wu; *Beijing Univ. of Posts & Tel., China.* We report a Yb-doped fiber laser based on NPR, and conducts a detailed study.

VIP Room 4, Track 6

13:30-16:00
Th3B. Measurement & Imaging IX
*Presider: **Yunlong Zhu**, Harbin Engineering University, China*

Th3B.1 • 13:30 Invited

Unlocking the ionic transport dynamics of Li(Na)-ion batteries via operando optical fiber grating spectroscopy, Fu Liu; *Northwestern Polytechnical Univ., China.*

Th3B.2 • 13:50 Invited

PGC demodulation method with improved robustness to modulation depth, Yunlong Zhu; *Harbin Engineering Univ., China.* The fGLIA (filtered generalized lock-in amplifier) algorithm is introduced to PGC demodulation scheme with modified filtering procedure.

Th3B.3 • 14:10 1406

High-Sensitivity Microbend Sensor Based on Light Cones in Coreless Fiber, Yu Zhong, Lei Chen, Junhua Huang, Lina Ma, Shiqi Hu, Chao Shen, Ying Chen, Yaofei Chen, Gui-Shi Liu, Yunhan Luo and Zhe Chen; *Jinan Univ., China.* This study reveals eigenmode expansion (EME) challenges causality in multimode waveguides.

Room 205, Track 4

13:30-16:00
Th3C. Optoelectronic Integration IX
*Presider: **Yin Xu**, Soochow University, China*

Th3C.1 • 13:30 Invited

On-chip nonvolatile and erasable silicon waveguide filter enabled by low-loss phase change material, Yin Xu; *Soochow Univ., China.* We propose a nonvolatile and erasable silicon waveguide filter based on the low-loss phase change material Sb2Se3.

Th3C.2 • 13:50 Invited

Co-packaged optics based on glass substrate, Guoliang Chen; *XiDian Hangzhou Inst. of Tech., China.* This paper discusses advanced CPO technologies and outlines future directions for design, fabrication using femtosecond laser and glass.

Th3C.3 • 14:10 5609

Detection characteristics of multi-sensor in railway scenes, Hao Sun[1], Zhicheng Han[1], Jinyao Guo[1], Yunxu Sun[1] and Wei Liu[2]; [1]*Harbin Inst. of Tech. Shenzhen, China.* The detection of foreign object intrusion in railway scenes requires the collaborative integration and fusion recognition of multiple sensors for detection.

Room 205, Track 4

13:30-16:00
Th3C. Post-Deadline Papers II
*Presider: **Yunhe Zhao**, Shanghai Maritime University, China*

Th3D.1 • 13:30 ☆ 0714

Wavelength-Swept Green Random Laser for Beam Steering, Wenwen Cheng, Jun Ye, Lei Du, Siyu Chen, Yanzhao Ke, Jiangming Xu, Jinyong Leng and Pu Zhou; *National Univ. of Defense Tech., China.*

Th3D.2 • 13:45 ☆ 0486

Kilowatt-Level Narrow-Linewidth Cascaded Raman Fiber Laser Enabled by Stochastic Grating Feedback, Xiulu Hao, Bangwen Yin, Shanmin Huang, Chenchen Fan, Tianfu Yao, Jinyong Leng, Bing Lei and Pu Zhou; *National Univ. of Defense Tech., China.*

Th3D.3 • 14:00 ☆ 7107

Cluster Target Detection with Broadband Microwave Photonic MIMO Radar, Yuewen Zhou, Fangzheng Zhang and Shilong Pan; *Nanjing Univ. of Aero. and Astro., China.*

Room 210, Special 1

13:30-16:00
Th3E. Organic Optoelectronics IX
*Presider: **Wei Chen**, Huazhong Univ. of Sci.and Tech., China*

Th3E.1 • 13:30 Invited

Comprehensive strategies to overcome the limitation of bulk-heterojunction organic solar cells, Lijian Zuo; *Zhejiang Univ., China.*

Th3E.2 • 13:50 Invited

Stability Study of Inverted Perovskite Solar Cells, Wei Chen; *Huazhong Univ. of Sci.and Tech., China.*

Th3E.3 • 14:10 Invited

Interface engineering for perovskite solar cells, Jinbao Zhang; *Xiamen Univ., China.*

Room 211, Track 7

13:30-16:00
Th3F. Ultrafast & Nonlinear V
*Presider: **Lili Miao**, Hunan University, China*

Th3F.1 • 13:30 Invited

Strong THz generation and its application in vibrational induced emission, Lu Sun; *Nankai Univ., China.* The talk will introduce the THz generation studies from filamentation and the fluorescence change induced by strong THz pulses.

Th3F.2 • 13:50 Invited

Single-shot full-field characterization over femtosecond pulses via linear spectral interferometry, Guoqing Pu; *Shanghai Jiao Tong Univ., China*

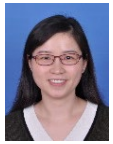
Th3F.3 • 14:10 Invited

High-energy spatiotemporal mode locked laser via multi-transverse-mode division control technique, Wenqi Ma; *Jilin Univ., China.* We propose a transverse mode division control technique using a mode MUX/DEMUX to independently control dispersion.

Room 212, Special 4

13:30-16:00
Th3G. Optical Biosensors III
*Presider: **Hongbao Xin**, Jinan University, China*

Th3G.1 • 13:30 Invited



Characterization of Selenium-Containing Metallodrugs, Li Ma; *Jinan Univ., China.*

Th3G.2 • 13:50 Invited

High-Performance Biomedical Photoacoustic Tomography, Chao Tian; *Univ. of Sci. and Tech. of China, China*

Th3G.3 • 14:10 Invited

Dual-modal High-resolution Quantitative Functional Photoacoustic/Ultrasound Microscopy, Jingyi Zhu; *City Univ.of Hong Kong, HK.* We have developed a dual-mode high-resolution quantitative functional photoacoustic/ultrasound microscopy.

Room 215, Track 8

13:30-16:00
Th3H. Wireless Communication II
*Presider: **Yi Wang**, China Jiliang University, China*

Th3H.1 • 13:30 Invited

The role of microcavity photonics in the construction of next-generation measurement standards, Yi Wang; *China Jiliang University, China.*

Th3H.2 • 13:50 0509
Dual-Mode Index Modulation Aided FBMC for Opitcal Wireless Communications, Xuan Chen, Minghua Cao, Yue Zhang and Huiqin Wang; *Lanzhou Univ. of Tech., China.*

Th3H.3 • 14:05 9559
Evaluation of Performance and Device Complexity of Simplified Coherent Free-Space Optical Communication for Inter-Satellite Link, Ziqi Tang, Penghao Luo, Guojin Qin, Fang Dong, Yingjun Zhou, Junwen Zhang, Nan Chi, Jianyang Shi and Ziwei Li; *Fudan Univ, China; Shanghai Engineering Research Center of Low-Earth-Orbit Satellite Comm. and Applications China.*

VIP Room 3, Track 1

Th3A.4 • 14:25 1631
Dual-Wavelength Switchable Square-Wave Passively Mode-Locked Erbium-Doped Fiber Laser in the L Band, Yi Liu, Dongfang Jia, Lei Huang and Boxin Li; *Tianjin Univ., China*. An L-band dual-wavelength switchable, passively mode-locked erbium-doped fiber laser based on figure-9 cavity is reported.

Th3A.5 • 14:40 3341
Impact of splicing parameters on the performance of periodically spliced fiber grating sensor, Min Li, Wenbin Luo and Renlai Zhou; *Harbin Engineering Univ., China*. We investigate the influence of splicing parameters on the performance of periodically spliced fiber grating sensor.

Th3A.6 • 14:55 6314
L-band Ring-core Erbium/ytterbium Co-doped Fiber Amplifier Supporting Orbital Angular Momentum Modes, Jiaqi Wang, Hu Zhang, He Wen, Shengxi Zeng and Xiaoguang Zhang; *BUPT, China*. A ring-core erbium-ytterbium co-doped fiber amplifier is proposed to amplify 10 orbital angular momentum modes.

VIP Room 4, Track 6

Th3B.4 • 14:25 1044
A refractive index sensor based on surface plasmon resonance effect utilizing hollow-core negative curvature fiber, Weixuan Zhang[1], Yuwei Qu[2], Jingao Zhang[1], Zefeng Li[1], Lan Rao[1], Kuiru Wang[1] and Jinhui Yuan[1]; [1]*BUPT, China;* [2]*Hengshui Univ., China*. A hollow-core negative curvature fiber refractive index sensor based on surface plasmon resonance effect is proposed.

Th3B.5 • 14:40 5352
Highly sensitive methane sensor based on ZIF-8/PDMS functionalized Fabry-Perot interferometer, Rujun Zhou, Qiang Ling, Zhangwei Yu and Daru Chen; *Zhejiang Normal Univ., China*. A highly sensitive methane sensor is proposed.

Th3B.6 • 14:55 1733
A Non-Destructive Detection Method for Heterogeneous OPGW Cables Based on Backpropagation Neural Network, Jing Song[1], Xiaowei Ding[1], Fei Cheng[1], Xuyang Chen[1], Qichao Ru[2] and Yi Xiao[2]; [1]*Zhejiang HuaYun Electric Power Eng. Design & Consult. Co., Ltd., China;* [2]*Shanghai Maritime Univ., China*.

Th3B.7 • 15:10 6298
OPGW Testing Under Diverse Stimulated Factors Using Convolutional Neural Networks, Jing Song[1], Xiaowei Ding[1], Fei Cheng[1], Li Chen[1], Yi Xiao[2] and Qichao Ru[2]; [1]*Zhejiang HuaYun Electric Power Eng. Design & Consult. Co., Ltd., China;* [2]*Shanghai Maritime Univ., China*.

Room 205, Track 4

Th3C.4 • 14:25 0055
Simulation of Intrinsic Timing Jitter in Inhomogeneous NbN Nanostrip Photon Detectors, Chang Xu and Xiaolong Hu; *Tianjin Univ., China*. We simulate photon-triggered vortex dynamics in an inhomogeneous NbN nanostrip.

Th3C.5 • 14:40 1595
High-Accuracy Operando Monitoring of State of Charge for Lithium Battery Based on Distributed Fiber Bragg Grating and Machine Learning, Kang Yang, Guoyu Li, Yan Li, Shuo Liang and Sumei Jia; *Handan Univ., China*. Multi-point temperature monitoring is achieved in real time and gas pressure.

Room 206, PDP

Th3D.4 • 14:15 ☆ 2419
Heterogeneously Integrated Thin-Film Lithium Niobate Modulator for Reducing Half-Wave Voltage, Jun Xue, Xiaofeng Liu, Ou Xu, Di Peng, Shuoyang Qiu, Xinyong Dong, Yuwen Qin and Quandong Huang; *Guangdong Univ. of Tech., China*.

Th3D.5 • 14:30 ☆ 7060
Ultra-broadband Mode Switch based on Cascaded Multimode Interference Couplers, Kedi Peng, Bin Xiao, Kaijian Zhang, Jiaqi Ran, Ou Xu, Di Peng, Shuoyang Qiu, Xinyong Dong, Yuwen Qin and Quandong Huang; *Guangdong Univ. of Tech., China*.

Room 210, Special 1

Th3E.4 • 14:30 Invited

Defect Engineering via Ag and Na Co-doping in Wide-Bandgap CIGS: From Interfacial Suppression to Bulk Enhancement, Weimin Li; *Shenzhen Inst. of Advanced Tech., CAS, China.* We propose a Na-depletion strategy (30% lower than the standard Ag-alloyed CIGS Na baseline) under Ag doping.

Th3E.5 • 14:50 Invited

Stable organic SAM materials for perovskite photovoltaics, Chuanjiang Qin; *Changchun Inst.of Applied Chemistry, CAS, China.*

Th3E.6 • 15:10 6325

Position Prediction Method for Fiber Disturbance Based on Semiconductor Laser Reservoir Computing, Nian Fang and Yiwen Shen; *Shanghai Univ., China.*

Room 211, Track 7

Th3F.4 • 14:30 Invited

Ultrafast optical response and efficient wavelength conversion in epsilon-near-zero thin film, Lili Miao; *Hunan Univ., China.*

Th3F.5 • 14:50 9923

Planar chiral resonant metasurfaces in both linear and nonlinear regime, Zi-Lan Deng, Xin Li and Meng-Xia Hu; *Jinan Univ., China.*

Th3F.6 • 15:05 5366

Quantum Noise Calculation in a Soliton Microcomb with Over 1000x Computational Speedup, Xinran Wang, Zhe Kang and Jijun He; *Nanjing Univ. of Aero. and Astro., China.*

Th3F.7 • 15:20 9724

Vector fractional-soliton in an erbium-doped fiber laser, Wen Bin Luo, Ye Li and Ren Lai Zhou; *Harbin Engineering Univ., China.*

Th3F.8 • 15:35 6032

Pulsating soliton with synchronized and unsynchronized resonant dispersive waves, Mengmeng Han, Xingliang Li and Shumin Zhang; *Harbin Normal Univ., China.*

Room 212, Special 4

Th3G.4 • 14:30 Invited

Photothermal Ultrafast PCR Based on Microfluidic Chips, Minli You; *Xi'an Jiaotong Univ., China.*

Th3G.5 • 14:50 Invited

Label-free Fiber optic sensors for DNA detection, Jiale Xie, Kai Zhang and Hongdan Wan; *Nanjing Univ. of Posts and Tel., China.* Tapered two-mode fiber interferometer with diameter a of 12.5 μm is fabricated for label-free DNA detection.

Th3G.6 • 15:10 Invited

Optical fiber biosensor for cardiovascular diseases assessment, Lili Liang; *Handan Univ., China.* We demonstrated fiber biosensors with simplified nanomaterial modification and bio-probe functionalization for myocardial biomarker detection, wearable fiber optic pulse wave detectors, etc.

Room 215, Track 8

Th3H.4 • 14:20 1311

Low Encryption Penalty LEO-to-Earth Secure Laser Communication Based on Quantum Noise Stream Cipher, Ziyan Chen, Yajie Li, Kongni Zhu, Yuang Li, Shuang Wei, Yongli Zhao and Jie Zhang; *BUPT, China.*

Th3H.5 • 14:35 1123

A Ground Testing System for Spaceborne ATP Systems Based on Dynamic Spot Tracking, Diyue Pang, Gaofei Sun, Xu Guo and Wei Wang; *Changchun Univ. of Sci. and Tech., China*

Th3H.6 • 14:50 1374

An Edge-Aware Graph Attention and Transformer Network for LEO Satellite Optical Networks Traffic Prediction, Zihao Qin[1], Shaobo Qin[1], Pengfei Lv[2], Yajuan Qin[1], Yanyan Xie[1], Xiaoke Sun[1], Haicheng Li[1] and Ruijie Zhu[1]; [1]*Zhengzhou Univ., China;* [2]*Songshan Lab, China.*

Th3H.7 • 15:05 1685

Distributed Cross-Domain Service Function Chains Deployment in Satellite Optical Networks, Haicheng Li[1], Xiaoke Sun[1], Yixiang Zhang[1], Pengfei Lv[2], Kecai Chen[1], Yanyan Xie[1] and Ruijie Zhu[1]; [1]*Zhengzhou Univ., China;* [2]*Songshan Lab, China.*