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

$$\begin{split} &\left[\frac{\partial^{2}}{\partial t^{2}}-i\left(2Q_{u}-3\right)\frac{U}{\hbar}\frac{\partial}{\partial t}-\left(Q_{u}^{2}-4Q_{u}+3\right)\frac{U^{2}}{\hbar^{2}}\right]\left(i\hbar\frac{\partial\Psi}{\partial t}+\frac{\hbar^{2}}{2\mu}\nabla^{2}\Psi\right)+\left(2Q_{u}-1\right)\frac{U}{2\mu}\left[i\hbar\frac{\partial}{\partial t}+\left(\frac{Q_{u}^{2}}{2Q_{u}-1}-2\right)U\right]\nabla^{2}\Psi+\left(Q_{u}^{2}-2Q_{u}+1\right)\frac{U^{3}}{\hbar^{2}}\Psi=0\\ &\left.\hbar^{4}\frac{\partial^{4}\Psi}{\partial t^{4}}-2\mu c^{2}\hbar^{2}\frac{\partial^{2}}{\partial t^{2}}\left\{\left[1+\left(Q_{u}-2\right)\frac{U}{\mu c^{2}}\right]i\hbar\frac{\partial\Psi}{\partial t}+\frac{\hbar^{2}}{2\mu}\nabla^{2}\Psi\right\}+i2\left(2Q_{u}-3\right)\mu c^{2}U\hbar\frac{\partial}{\partial t}\left\{\left[1+\frac{Q_{u}^{2}-6Q_{u}+6}{2\left(2Q_{u}-3\right)}\cdot\frac{U}{\mu c^{2}}\right]i\hbar\frac{\partial\Psi}{\partial t}-\frac{\hbar^{2}}{\left(2Q_{u}-3\right)\mu}\nabla^{2}\Psi\right\}\\ &+2\left(Q_{u}-1\right)\left(Q_{u}-3\right)\mu c^{2}U^{2}\left\{\left[1-\left(\frac{Q_{u}-2}{Q_{u}-3}\right)\frac{U}{\mu c^{2}}\right]i\hbar\frac{\partial\Psi}{\partial t}+\frac{\hbar^{2}}{2\left(Q_{u}-1\right)\left(Q_{u}-3\right)\mu}\nabla^{2}\Psi\right\}\\ &=\left(Q_{u}^{2}-2Q_{u}+1\right)\left(2\mu c^{2}-U\right)U^{3}\Psi\end{split}$$

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.

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.



Seeing through a single multimode 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 spatiotemporal resolution phasesensitive 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 Reflectometry, Guolu Yin; Chongqing 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 photonic switches, Daoxin Dai; Zhejiang Univ., China. In this talk, we give a review for the development of calibration-

free silicon photonic switches with nearzero 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

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 entaglement assisted quantum communication through fiber channels, Xiaolong Su; Shanxi Univ.; China.

Tu2B.3 • 14:10 Invited



Frequency Response Enhancement of UWFBG DAS with TDM method, Feng Wang; Nanjing 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.

Tu2D.3 • 14:10 Invited



Multi-parameter quantumenhance 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 Keynote



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

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.

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

Al methods for optical network control and management will be described including the potential for integration of optical sensing and situational data.

Room 215, Track 2

13:30-15:30

Tu2H. Optical Transmission IPresider: 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.

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.

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.

Tu2G.2 • 13:50 Invited



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

Tu2H.2 • 13:50 Invited



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

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 zerodimensional Cs4PbBr6, onedimensional C4N2H14SnBr4 and twodimensional (C4H12N)4AgBiBr8 halide Perovskites.

Tu2F.3 • 14:10 Invited



Nonlinear dynamics of nanosecond 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.

Tu2G.3 • 14:10 Invited



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

Tu2H.3 • 14:10 Invited



Measurement of Modal Impairments 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.

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.

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.

Room 206, Track 9

Tu2D.4 • 14:30 Invited



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

Tu2A.5 • 14:50 Invited



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

Tu2B.5 • 14:50 Invited



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

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.

Tu2D.5 • 14:50 Invited



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

Tu2B.6 • 15:10 Invited



China.

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

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

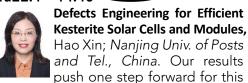
Room 210, Special 1

Room 211, Track 7

Room 212, Track 3

Room 215, Track 2

Tu2E.4 • 14:40 Invited



and Tel., China. Our results push one step forward for this low-cost and environmentally benign thin film solar cell to practical



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.

Tu2G.4 • 14:30 Invited



Design and Optimization of Flat Dynamic Routing Protocol for Satellite Networks, Zhu Tang, Peng Liu, **Baokang Zhao**, Hengyi Zhu, Jiaxu Han and

Junjie Wang; National Univ. of Defense Tech., China. This paper studies the design and optimization of flat routing protocols for LEO Satellite Network.

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 weaklycoupled FMF. 3.6-dB Q2-factor margin are observed for 80-km LP01 /LP02 MDM transmission.

Tu2E.5 • 15:00 Invited



application.

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

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.

Tu2G.5 • 14:50 Invited



Design, Training, and Structural **Optimization of Opto-Electronic** Convolutional Neural Networks. Jin Wang, Xiaofeng Shao, Jingyi Su and Antonio Bonque

Kamongua; Nanjing Univ. of Posts and Tel., China. This work presents the architecture design of OE-CNN based on MZIs.

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

integrated sensina and communication system based on optical wireless communication.

Tu2E.6 • 15:20 Invited



Comprehensive strategies to overcome the limitation of bulkheterojunction organic solar cells, Lijian Zuo; Zhejiang Univ., China.

Tu2F.6 • 15:10 Invited



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



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

Tu2H.6 • 15:10 Invited



Multidimensionaldivisionmultiplexing optical based 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 Yuan¹, Qi Zhang¹, Xiangjun Xin², Ran Gao², Xiaofang Hu³, Gang Fan³, Qihan Zhao¹, Yi Zhao¹, Zhiqi Huang¹, Fu Wang¹, Feng Tian¹, Yongjun Wang¹ and Qinghua Tian¹; ¹Beijing Univ. of Posts and Tel., China; ²Beijing 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 Peng¹, Ruifeng Chen¹, H. Y. Fu² and Qian Li¹; ¹Shenzhen Uni., China; ¹Peking Uni., China; ²Tsinghua Uni., China. We demonstrate a stable all-polarization-maintaining Erdoped 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 **½** 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 shortwavelength mid-infrared (SWMIR) spectral region.

P1.12 * 2122

Accuracy Enhancement of Fiber Shape Sensing by Localized Torsion Compensation, Xuanyu Zheng¹, Tenglong Zhou¹, Yunlu Fan¹, Rui Zhu², Yuming Dong¹, Xiangjin Song³, Shanshan Chen³, Tianyu Yang¹, Jianwei Wu⁴ and Huanhuan Liu¹; ¹CAS Shenzhen Inst., China; ²Shenzhen Vivolight Medical Device & Tech. Co., Ltd., China; ³Hosp.of Zhengzhou Univ., China; ⁴Chongqing 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 Pan¹, Qinghua Tian¹, Fangxu Yang¹, Feng Tian¹, Fu Wang¹, Leijing Yang¹, Qi Zhang¹ and Xiangjun Xin²; ¹Beijing Univ. of Posts and Tel., China; ²Beijing 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 Li¹, Ning Jiang^{1,2}, Bingjie Xu¹, Yong Geng¹, Qi Li¹, Yinhang Liu¹, Ji Qi¹ and Kun Qiu¹; ¹Univ. of Electron. Sci.and Tech. of China, China; ²Tianfu 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 Sui¹, Yanyang Lei¹, Peng Guan², Ping Xu³, Yongkang Dong¹ and Dexin Ba¹; ¹Harbin Inst. of Tech., China; ²Real Photonics Co. Ltd., China; ³Harbin 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 He¹, Qinghua Tian¹, Yiqun Pan¹, Xiao Zhang¹, Fu Wang¹, Feng Tian¹, Qi Zhang¹ and Xiangjun Xin²; ¹Beijing Univ. of Posts and Tel., China; ²Beijing 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 He¹, Shuqi Xu¹, Siyi Xie¹, Dongrui Xiao¹, Liyang Shao², Lin Wang¹, Fuchuan Luo¹ and Jun Hong¹; ¹Hunan Inst. of Tech., China; ²Southern 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 Bai¹, Junhui Sun², Renan Xu¹, Yichen Cheng¹, Zihan Huang¹, Li-Yang Shao ²and Weihao Lin¹; ¹Xiamen 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 Cai¹, Qinghua Tian¹, Zuxian Li¹, Fangxu Yang¹, Sitong Zhou¹, Feng Tian¹, Qi Zhang¹ and Xiangjun Xin²; ¹Beijing Univ. of Posts and Tel., China; ²Beijing 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 Lin¹, Renan Xu¹, Yutong Liu¹, Mingkun Zhang¹, Junjie Bai¹, Yihua He¹, Boqiang Lin¹ and Li-Yang Shao²; ¹Xiamen Inst. of Tech., China; ²Southern 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 Wang¹, Hao Jiang¹, Jianwei Li¹, Zhonghua Liang,¹ Yijia Zheng² and Yuan Cao²; ¹China Academy of Info. and Comm. Tech., China; ²Nanjing 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 Yu¹, Zecheng Zhao¹, Yinyin Hu¹, Zhijun Zhang¹, Jingshu Guo² and Yuechun Shi¹; ¹Yongjiang Lab, China; ²Zhejiang 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 * 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. An Er-Yb co-doped waveguide amplifier fabricated via wafer-scale processes, using 200-nm-thick SiN photonic integrated circuits.

P1.34 🌞 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.

P1.35 🌞 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.

P1.36 🔆 2331

Single-Polarization, Low-Loss, and High-Manufacturability Hollow-Core Fiber Based on Truncated Capillary Glass Tubes, Shuaihang Wang¹, Yongjun Wang¹, Li Li¹, Zhipei Li², Qi Zhang¹, Feng Tian¹, Qinghua Tian¹, Fu Wang¹ and Haifeng Yang¹; ¹BUPT, China; ²Beijing Institute of Tech., China. This paper proposes a single-polarization hollow-core fiber achieving exceptional performance at 1550 nm wavelength.

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

P1.37 🔆 3736

High modal gain Er,Yb:Ta₂O₅-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:Ta₂O₅-cladding.

P1.38 0288

Atmospheric Turbulence Compensation of Digital Micromirror Device Based on Weighted Gerchberg-Saxton Algorithm, Hui Li¹, Zhiguo Zhang¹ and Zhehao Yan²; ¹Beijing Univ. of Posts and Tel., China; ²Beihang 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 Zhang¹, Wenbin Liu¹, Xin Meng¹, Jianxiao Luo¹, Zhiwei Wang¹, Junxian Chao¹, Shen Cai¹, Bin Yin¹, Ling Chen¹, Jingyu Lin¹, Chuan Ge¹, Yifan Hong² and Xianbin Yu³; ¹China Mobile (Hangzhou) Info. Tech. Co., Ltd., ²China; China Mobile Commu. Group Shandong Co., Ltd., China; ³Zhejiang Univ., China.

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 1980

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

P1.45 0734

A Method for Improving Signal-to-noise Ratio in Longdistance 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 Liu¹, Weihua Gong¹, Zhaowei Wang¹, Shumeng Wang¹, Yubin Wei¹, Ruizhan Zhai¹, Chongjun Yang² and Yangfei Hou³; ¹Qilu Univ. of Tech., China; ²¹Jining Public Security Bureau, China; ³Jinan Landong Laser Tech. Co. Ltd., China. This study develops a mid-infrared TDLAS system (4.6 μm QCL, 20 cm cell) for N₂O 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 0144

Adaptive Symbol Detection and Branch Pruning MLSE for Quatrobinary Shaping FTN WDM System, Jiayi Hao¹, Zhipei Li¹, Chenchen Wang¹, Dong Guo¹, Huan Chang¹, Xiaolong Pan¹, Fu Wang², Ze Dong¹, Ran Gao¹ and Xiangjun Xin¹; ¹Beijing Inst. of Tech., China; ²BUPT, China. In this paper, a pilot-aided adaptive symbol detection scheme with adaptive branch pruning MLSE is proposed.

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 Xie¹, Xuanyu Zheng², Yuming Dong², Tianyu Yang², Huanhuan Liu² and Xinyong Dong¹; ¹Guangdong 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 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.

P1.59 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.

P1.60 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 He¹, Yifeng Zhu², Xiaohui Tang¹, Meng Xia¹, Shuaiqi Liu¹, Yanyang Lei¹ and Yongkang Dong¹; ¹Harbin Inst. of Tech., China; ²China 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 modelocking 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).

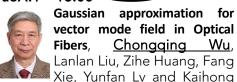
16:00-18:00

China

VIP Room 3, Track 1

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

Tu3A.1 • 16:00 Invited



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 fewfibers, Ryszard mode Buczynski; Univ. of Warsaw, Poland.

VIP Room 4, Track 6

16:00-18:00

Tu3B. Measurement & Imaging II Presider: Yongkang Dong, Harbin Institute of Technology, China



W<u>u</u>,

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

Tu3B.2 • 16:20 Invited



Bent optical microfibre sensor its application for and nanonewton force measure-Qiang Wu; ment, Northumbria Univ., UK.



Tu3C.2 • 16:20

Optical Feedback Insensitivity Hvbrid-cavity Semiconductor Lasers, Yong-Zhen Huang; Inst. of Semiconductors, CAS, China. Hvbrid-cavity semiconductor

Invited

lasers with a deformed square microcavity as a wavelength selective high reflectivity mirror have been proposed and demon-strated experimentally.

Room 205, Track 4

Presider: Jianjun He, Zhejiang University,

Recent Advances in Widely

Tunable V-Coupled-Cavity Lasers,

Jianjun He; Zhejiang Univ.,

China. Recent advances in

widely tunable V-coupled-

Tu3C. Optoelectronic Integration II

Tu3C.1 • 16:00 Invited

cavity lasers are presented.

Tu3A.3 • 16:40 Invited



Dispersion-Shifted Non-Zero Ring-Core Fibers for OAM Modes, Yang Yue, Wengian Zhao and Yuxiang Huang; Xi'an Jiaotong Univ., China.

paper summarizes NZDSRF design con-figurations and provides comparative analyses of their dispersion characteristics.

Tu3B.3 • 16:40 Invited



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

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

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 patternmatching system using a semiconductor optical amplifier (SOA).

Tu3D.2 • 16:15 🔷



Tu3D.3 • 16:30 🔷

Towards High-Speed and Hardware-Efficient IM-DD Noise Whitening for AI Clusters, Qi Wu¹, Zhaopeng Xu² and Weisheng Hu³; ¹HK Polytechnic Univ., HK; ²Penachena Lab, China; ³Shanghai Jiao Tong Univ., China. We experimentally investigate the impact of fixed-point resolution on the noise whitening filter in an ultra-highspeed 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.

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.*

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 Wavelength-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.

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.

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 metaelectrode 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 solutionprocessed OLEDs sensitized by TADF polymers, Junqiao Ding; Yunnan Univ., China.

Tu3F.2 • 16:20 Invited



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

Tu3G.2 • 16:20 Invited



Dynamic Nonlinear Bandwidth
Defragmentation in Multi-Band
Optical Networks, Jiaxin Liu¹,
Rentao Gu¹, M. Guang², K.
Long² and Yuefeng Ji¹; ¹BUPT,

China. We investigate dynamic nonlinear bandwidth fragmentation in multiband optical networks and propose a defragmentation strategy addressing bandwidth mismatch and wavelength discontinuity.

Tu3F.3 • 16:40 Invited



C/S-inter-band all-optical wavelength 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.

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.

Tu3H.2 • 16:20 Invited



High-capacity Optical Interconnects Towards Nextgeneration 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

VIP Room 4, Track 6

Room 205, Track 4 Room 206, YSA

Tu3A.4 • 17:00 Invited



Tunable three-dimensional waveguiding microstructures fabricated on the tip of standard single-mode optical Sławomir Ertman: fibers.

Warsaw Univ. of Tech., Poland.

Tu3B.4 • 17:00 Invited



Optical fiber coherent anti-Stokes Raman scattering microspectroscopy, Junfeng Jiang, Jinchao Dou, Tong Wang, Shuana Wana, Kun Liu,

Xiaoshuang Dai, Jinying Ma and Tiegen Liu; Tianjin Univ., China.

Tu3C.4 • 17:00 Invited



Ultra-wideband photonic terahertz noise source and its applications, Pu Li; Guangdong Univ. of Tech., China. Here, we report a series of terahertz

photonic noise sources with photomixing multiple Gaussian-shaped noise slices from a super luminescent diode.

Tu3D.4 • 16:45 🔷

Adiabatic-tapered few-mode-fiber-based system for integrating optical fiber sensing telecommunication, Quandona Huang¹, Yahao Li¹, Ou Xu¹, Xinyong Dong¹, Sławomir Ertman², Tomasz Woliń ski², Perry Shum³ and Yuwen Qin¹; ¹Guangdong Univ. of Tech. China. We demonstrated an adiabatic-tapered fewmode-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 Zeng¹, Jingtao Wang¹, Chaowen Tang¹ and Ruonan Deng²; ¹Xiangtan Univ., China. We propose and demonstrate a polar-coordinates-assisted digitalanalog radio-over-fiber technique based on cascaded analog pulse code modulation and digital modulation with hybrid constellation shaping.

Tu3A.5 • 17:20 Invited

Tu3A.6 • 17:40 Invited



China.

Broadband Multi-channel OAM Mode Convertors Based on the Long-Period Fiber Gratings, Yungi Liu; Shanghai Univ., China. We demonstrate the

Single-Channel Single-Fiber 3D

Shape Sensing Based on

Cladding Fiber Bragg Gratings

and Scatters. Ruohui Wana:

Beijing Northwest

fabrication of long-period gratings (LPFGs) in multicore and few mode fibers by using focused carbon dioxide laser.

Tu3B.5 • 17:20 Invited



Flying particle sensor in hollowcore optical fibers, Beijing Inst. of Tech., China.

Tu3C.5 • 17:20 Invited

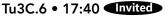


Fabrication of high speed directly modulated DFB laser array, Song Liang; Inst. of Semiconductors, CAS, China.



Univ.,

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





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

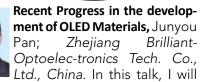
Tu3D.6 • 17:15 🔷

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



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 Openstructured 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 Fu¹, Tianye Huang¹, Hongbo Zheng¹, Jianxing Pan¹, Jing Zhang¹, Zhichao Wu¹, Xiang Li¹, Zhenxing Chen¹ and Perry Ping Shum²; ¹China Univ. of Geosci., China; ²South 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.

Room 215, Track 2

Tu3H.4 • 17:00 Invited



A modified Kolmogorov-Arnold Network for laser field classification under atmospheric turbulence channel, Yongye Qiu¹, Kaige Yang¹, Junsong Chen¹,

Jiaqi Peng¹, Fucan Zhang¹, Ting Zhang², Haixia Feng³ and <u>Kaimin Wang</u>¹; ¹Univ. of Shanghai for Sci. and Tech., 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.

Tu3H.5 • 17:20 Invited



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

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



Wednesday, 30 July

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, Weiging 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 A Novel Modified Uni-traveling Carrier sensor based on core-offset structure coating smart hydrogel, Jinglei Zhang¹, Haiwei Zhang¹, Qi Lu¹, Zhihong Chen¹, Lifang Xue¹, Jia Shi², Wei Shi³ and Jianguan Yao³; ¹Tianjin Univ. of Tech., China; ²Tiangong Univ., China; ³Tianjin 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 Pressure Sensors via Federated Learning, Sufen Ren¹, Shengchao Chen², Hao Shi¹ and Guanjun Wang¹; ¹Hainan Univ., China. ²Univ. 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 💢

Photodiode with Dual Electric Field Control Lavers, Zhien Li, Dan Yang, Lei Han, Minmin Zhu and Xiaogiang 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 Xiaogiang 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; Chongging Univ., China.

W1C.4 • 08:45 ★

Method for Fiber-Optic Fabry-Pérot Cross-Shaped Metasurface for Wide-Angle **Spectral-Scanning LiDAR,** Yaqi Han¹, Chenxingyu Huang¹, Qian Li² and Hongyan Fu¹; ¹Tshinghua Univ., China; ²Peking 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 longlived 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.

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.

Room 212, Track 3

08:00-10:00 W1G. Optical Networks III

Presider: Xiaosona Yu, Beijina Univ. of Posts and Tel., China

W1G.1 • 08:00 Invited



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

W1H.1 • 08:00 *

08:00-10:00

Ultra-encrypted Optical Wireless Communication Based on High-dimensional OAM Hybrid Nerual Network, Chaoxu Chen¹, Jiayi Qi², Xinjie Zhang¹, Haoyu Zhang¹, Yuan Wei¹, Ziwei Li¹, Chao Shen¹ Junwen Zhang¹, Nan Chi¹, Haiwen Cai³ and Jianyang Shi¹; ¹Fudan Univ., China.

Room 215, Track 2

Presider: Xiaoguang Zhang, Beijing

W1H. Optical Transmission III

Univ. of Posts and Tel., 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, Yugin 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.

W1E.2 • 08:20 Invited



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

W1F.2 • 08:20 Invited



Programmable Processing of **Optical Frequency Combs Using** Spectral Talbot Amplifier, Chester Shu; The Chinese Univ. of Hona Kona, HK. We

demonstrate programmable control of broadband frequency combs via denoising amplification.

W1G.2 • 08:20 Invited



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

W1E.3 • 08:40 Invited



Flexible Printed Electronics and Wengyong Devices, Nanjing Univ. of Posts and Tel., China. This research designs highprintable

performance organic polymer optoelectronic materials and interfaces to overcome fabrication bottlenecks in flexible electronics.

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.

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.

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 Zhang¹, Jiageng Chen¹, Hanzhao Li¹, Xuhui Yu² and Zuyuan He²; ¹Shanghai Jiao Tong Univ., China; ²Ningbo AllianStream Photonics Technology Co., Ltd., China.

W1B.7 • 09:30 ★

Low crosstalk salinity sensor operates at $1.55~\mu m$ and $2~\mu m$ 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 Zhou¹, Xuanyu Zheng¹, Yunlu Fan¹, Tianyu Yang¹, Rui Zhu², Xiangjin Song³, Shanshan Chen³, Yihui Cao², Yuming Dong¹, Jianwei Wu⁴ and Huanhuan Liu¹; ¹Shenzhen 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 Ran¹, Yahao Li¹, Kedi Peng¹, Xu Ou¹, Xinyong Dong¹, Slawomir Ertman², Tomasz R. Woliński², Perry Ping Shum³ and Quandong Huang¹; ¹Guangdong Univ. of Tech., China.

W1C.7 • 09:30 *

On-Chip Refractive Index Sensor based on Micro-Ring Resonator with Micro-structure Slot, Xue Tang¹, Zongyang Cai¹, Juncheng Zhou¹, Ou Xu¹, Xinyong Dong¹, Slawomir Ertman², Tomasz R. Wolinski², Perry Ping Shum³ and Quandong Huang¹; ¹Guangdong Univ. of Tech., China.

W1C.8 • 09:45 *

Ultra-bandwidth dual-mode (de)multiplexer based on adiabatic asymmetric directional couplers, Juncheng Zhou¹, Quandong Huang¹, Wanyu Wu¹, Kaijian Zhang¹, Ou Xu¹, Sławomir Ertman², Tomasz Woliński², Perry Shum³ and Xinyong Dong¹; ¹Guangdong 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/AIN quantum dot structure as a single photon source, Zonghai Hu; Beijing Univ. of Sci. and Tel., China. In this work, MBE-grown

coupled GaN/AIN quantum dot structures exhibit photoluminescence between 300~360 nm.



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

Room 210, Special 1

W1E.4 • 09:00 Invited



Efficient perovskite optoelectronic devices, Jingbi You; Inst. of Semiconductors, CAS, China. I will talk about work recent

perovskite solar cells and lightemitting diodes.

W1E.5 • 09:20 Invited



Large-area growth of organic single crystals toward highopoelectronic performance devices, Jiansheng Soochow Univ., China. We

further demonstrated the application of organic single crystal in highperformance optoelectronic devices.

W1E.6 • 09:40 Invited



Recent progress of deep UV LED and applications, Changging 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 injectionlocked 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 Yu¹, Hui Yang¹, Qiuyan Yao¹, Yang Zhao², Jie Zhang¹ and Mohamed Cheriet³; ¹Beijing Univ. of Posts and Tel., China: ²China Mobile Research Inst., China; ³Univ. 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 Kev 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 Li¹, Feng Tian¹, Xiangjun Xin^{1,2}, Qi Zhang¹, Yongjun Wang¹, Qinghua Tian¹, Fu Wang¹, Sitong Zhou¹, Junyuan Song², Jianwei Zhou¹, Jue Wanq¹, Jing Zhanq¹ and Chuanji Yan¹; ¹Beijing 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 Meng¹, Yu Qin¹, Jianyu Long¹, Jianjun Yu¹, Jie Zhu^{1,2}, Limin Xiao¹ and Kaihui Wang¹; ¹Fudan Univ., China; ²Zhongtian 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

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 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.

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 L-carrageenan/sucrose detects Cu(II). Detection relies on disruption of the L-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 Deng¹, Bozhong Li¹, Jun Wu², Tong Chen¹, Yong Xiang², Yang Li¹, Peng Li², Jun Chu², Lei Zhang², Hongyan Zhou², Zhiyi Guo¹ and Liping Ke²; ¹State Grid Info. & Tel. Branch, China; ²YOFC, 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 Cen¹, Tailong Lv¹, Xiaowei Huang¹, Yining Zhang¹, Kaiyu Zeng¹, Chi Cai¹ and Xiaohui Tang²; ¹Haikou Subbureau, Guangzhou Bureau, EHV Transmission Company of China Southern Power Grid Co., Ltd., China; ²Harbin 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.

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 Wang¹, Feng Tian¹, Qi Zhang¹, Yongjun Wang¹, Qinghua Tian¹, Fu Wang¹, Zhipei Li² and Biao Luo³; ¹BUPT, 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 Lin¹, Fei Wang¹, Qi Xu¹, Wei Yan¹, Yingyan Zhang², Yang Lv³, Huan Chang¹, Ran Gao¹ and Xiangjun Xin¹; ¹Beijing Inst. of Tech., China; ²China Academy of Tel. Tech., China; ³Marine 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 Li¹, Shangbo Lin², Chaozhi Wang¹, Tangze Qin² and Zhiqun Gu²; ¹Beijing Orient Insti. of Meas. and Test, China, ²BUPT, 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.

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 Guo¹, Linjie Xu², Xiaogang Wang², Yanwen Zhu¹, Zirui Ding¹, Yixin Wang¹ and Jie Zhang¹; ¹BUPT, China; ²WMCRI, China. An ET-based adaptive scheme for classical key postprocessing reduces LDPC decoding iterations by 76.8% a high SNR temperature sensor based on a fiber laser. and high-error FER by 74.2%

P2.27 9750

C-band Fluorescence Temperature Measurement System Based on Erbium-doped Single-mode Fiber, Xian Li¹, Bangning Mao¹, Yanging Qiu¹, Jiawen Hu², Jingxiang Xu², Jian Kong² and Xuegiao Zhang²; ¹China Jiliang Univ., China; ²Hangzhou Dianzi Univ., China. This work demonstrates C-band fluorescence temperature measurement system based on erbium-doped sin ale-mode fiber.

P2.28 3209

Design and characterization of grating couplers for an ultrathin silicon waveguide at 2 µm wave band, Penghao Ding¹, Yingqi Xu¹, Guoxian Wu¹, Jiaqi Wang¹, Xu Li¹, Chuxian Tan¹¹, Yu Du, Youfu Genq¹, Xuejin Li ¹and Zhenzhou Cheng²; ¹Shenzhen Univ., China; ²Tianjin 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.

3328 P2.30

An Ultra-high SNR Temperature Sensor Based on PDMS-Embedded FBG Integrated Ring Laser, Yihua He¹, Junhui Sun², Junjie Bai¹, Keng Chen¹, Sirong Wu¹, Kaijun Cai¹ and Weihao Lin²; ¹Xiamen Inst. of Tech., China; ²Southern Univ. of Sci. and Tech., China, We proposed

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 Braga 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 Zhang¹, Xianzu Liu¹, Chanpeng Xu¹, Yao Xu¹, Huan Ma¹, Yuzhuo Chen², Junchang Huang², Wei Ruan¹ and Chengcheng He¹; ¹State Grid Anhui Ultra High Voltage Co., China; ²China 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, Bogiang 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 5242

Intensity-interrogated hot-wire anemometer with cobaltdoped 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.

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 investigated.

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 Jing¹, Wenge Guo¹, Xinxing Guo², Lina Sun², Tao Liu², Ruifang Dong² and Shougang Zhang²; ¹Xi'an Shiyou Univ., China; ²National 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, Simei Sun, Shuang Cao, Mingyue Huang and Chao Jiang; 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 Li¹, Qi Zhang¹, Xiangjun Xin², Ran Gao², Fu Wang¹, Yi Zhao³, Ying Song³, Feng Tian¹, Yongjun Wang¹, Qinghua Tian¹, Sitong Zhou¹ and Leijing Yang¹; ¹BUPT, China; ²Beijing Univ. of Tech., China; ³Beijing 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 Zhang¹, Wenbin Liu¹, Yifan Hong¹, Jinjiang Wang¹, Guangkuo Lin¹, Jing Chen¹, Qi Wu¹, Wei Wang¹, Dingyuan Qi¹, Zhihui Li¹, Chuan Ge¹ and Xianbin Yu²; ¹China Mobile, China; ²Zhejiang 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 Hong¹, Lingbo Wu¹, Jianfeng Zheng¹, Jialin We¹i, Fangzhou Yan¹, Dahai Han² and Min Zhang²; ¹Shenzhen Smartcity Comm., China; ²BUPT, 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, Yuyao Wen, Jun Ming, Ze Dong, Shaonan Liu and Junyuan Song; *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.

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 Sun¹, Xue Wei¹, Hengbo Qi¹, Wenhua Ren¹ and Yu Tang²; ¹Beijing Jiaotong Univ., China; ²China Unicom Research Inst., China. We propose a neural network-based gain prediction model(R² = 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 Li¹, Yuwei Qu², Jingao Zhang¹, Zefeng Li¹, Lan Rao¹, Kuiru Wang¹ and Jinhui Yuan¹; *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 Liu¹, Jun Wang¹, Hao Liu¹, Kai Liu¹, Yanan Chen¹, Shuaicheng Liu¹, Qing Ge¹, Hao Zhai¹, Yiming Bai², Yongqing Huang¹ and Xiaomin Ren¹; ¹BUPT, ²North China Electric Power Univ., China. We design an adaptive method to fabricate microring lasers with narrow ring width.

P2.57 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.

P2.58 9743

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 Han¹, Lili Han¹, Zhaowei Wang¹, Shumeng Wang¹, Kai Wang² and Yangfei Hou³; ¹Qilu Univ. of Tech., China; ²UIBE, China; ³Jinan 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 Li¹, Zhijian Mao¹, Guoxian Wu¹, Jiaqi Wang¹, Penghao Ding¹, Chuxian Tan¹, Yu Du¹, Youfu Geng¹, Xuejin Li¹ and Zhenzhou Cheng²; ¹Shenzhen Univ., China; ²Tianjin 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 S² 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



Al-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 Al-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.

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 fiberoptic 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.*

Room 205, Track 4



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.

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.*

W2C.2 • 10:50 Invited



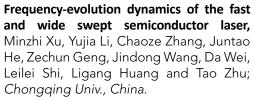
Performance improvement of integrated acousto-optic modulators using dielectric acoustic reflectors, Lei Wan; Ningxia Univ., China.

W2D.2 • 10:50 Invited



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

W2A.3 • 11:10 ★



W2B.3 • 11:10 Invited



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

W2C.3 • 11:10 Invited



Heterogeneous Integrated Optical Modulators, Junjia Wang; Southeast Univ., 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, Rongiun 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.

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.

W2E.3 • 11:10 Invited



Selenium-Containing Purely **Organic Room Temperature Phos**phorescence Emitters. Hui Tona: Chanachun Institute of Applied Chemistry, CAS, China.

Several metal-free small molecules and polymers incorporating seleniumcontaining aromatic units have been developed, demonstrating efficient RTP in film states.

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 W2H.2 • 10:50 Invited Coordination Mechanism. Shenave Gona. 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: Niangiang Li, Soochow. of

China



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



Harnessing Nonlinear Dynamics in Laser Systems: Advances in Optical Chaos. Reservoir Computing. and Secure Communication, Niangiang 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, Huivi Guo, Zhi Wang and Yan-Ge Liu; Nankai Univ., China. This work proposes an allfiber scheme for generating vortex beam superposition states.

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.

Room 205, Track 4

W2C.4 • 11:30 Invited



Silicon photonic RF self-interference cancellation chip for inband full-duplex communications, Xiuyou Han, Meng Chao, Yicheng Du, Xuan Li, Zerong

Duan, Mingshan Zhao; Dalian Univ. of Tech., China.

Room 206, Track 9

W2D.4 • 11:30 Invited



Preparation and manipulation of optical hybrid entangled states, Meihong Wang; Shanxi Univ., China. This demonstrates the generation

of high-power cylindrical vector beams (CVB) in a fiber cavity integrating oscillator and amplifier.

W2A.5 • 11:40 🗡

Optimization of Six-Mode Photonic Lanterns for Mode Conversion in O-Band and toward 2 μm Wavelength Band, Wanyu Wu¹, Chaoyue Wang¹, Quandong Huang¹, Ou Xu¹, Sławomir Ertman², Tomasz R. Woliński², Perry Ping Shum³ and Xinyong Dong¹; ¹Guangdong Univ. of Tech., China. ²Warsaw Univ. of Tech., China. Six-mode photonic lantern mode converters are designed and optimized for the O-band and toward the 2 µm band.

W2B.5 • 11:45 0447

Multi-Point Temperature Monitoring in Food Using Embedded Fiber Bragg Grating Sensors: A Case Study with Mashed Potatoes, Lucas Cao¹, Rui Wu, Sabrina Abedin², Lidan Cao² and Xingwei Wang²; ¹Weston High School., USA; ²Univ. of Massachusetts Lowell, USA. This paper presents a Fiber Bragg Grating (FBG) Poland; ³Southern Univ. of Sci. and Tech., sensor with a diameter of 125 μm designed to test heat distribution in food within an oven using mashed potatoes as the test subject.

W2C.5 • 11:50 8548

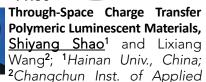
All-Optical Max-Pooling Operation with Integrated FP-SA Spiking Neuron, Yingjun Fang¹, Ning Jiang^{1,2}, Bingjie Xu³, Bingkun Liu¹, Zichun Zhao¹, Beikang Ren¹ and Kun Qiu¹; ¹Univ. of Electron. Sci. and Tech. of China; ²TianfuJiangxi Lab, China; ³National Key Lab of Secure Comm., China. We demonstrate an allmax-pooling optical operation architecture based on a Fabry-Perot laser with a saturable absorber.

W2D.5 • 11:50 5189

An Intensity-Stable Pulse Source Based on Optical Injection for High-Speed Quantum Key Distribution, Wenxu Zhao¹, Tao Wang¹, Xun Zhou², Yixin Wang¹ and Jie Zhang¹; ¹Beijing Univ. of Posts and Tel, China: ²Wuhan 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.

Room 210, Special 1

W2E.4 • 11:30 Invited



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 Dai¹, Tong Yang¹, Yiwen Lu¹, Xinpeng Wang¹, Zhen Feng¹, Feifei Yin¹ and Ming Li²; ¹Beijing Univ. of Posts and Tel., China; ²Inst.of Semiconductors, CAS, China. We propose a phase noise suppression system using a MZI and oscillator to extract and suppress noise via feedforward

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. We proposed a Posts and Tel., China. Our FPGA system combines TSN with power line communication, simplifying wiring and ensuring timely traffic, proven in noise ratio estimation. synchronized device tests.

Room 215, Track 2

W2H.4 • 11:30 4167

Joint Modulation Format Identification and OSNR Monitoring using MT-LIN model, Meng Liang and Yugi Wu; Xi'an Univ. of multi-task model joint monitoring model modulation for format identification and optical signal-to-

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

5582 W2G.6 • 11:45

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.

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.

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.

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, Xianqfei Chen; Nanjing Univ., China. Tunable lasers based on

Precision Photon Integratio (@PIC) are investigated and their applications in sensors are studied and discussed.

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.

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.

W3A.2 • 13:50 Invited



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

W3B.2 • 13:50 Invited



Deep learning enabled multimode fiber imaging and spectral imaging, Zhenming Yu; Beijing Univ. of Posts and Tel., China.

W3C.2 • 13:50 Invited



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

W3D.2 • 13:50 Invited



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

W3A.3 • 14:10 Invited



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

W3B.3 • 14:10 Invited



Ultrathin endoscope based on W3C.3 • 14:10 Invited 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.



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

Tech., 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.

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.

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*.

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.

W3E.2 • 13:50 Invited



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

W3F.2 • 13:50 Invited



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

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.

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.

W3F.3 • 14:10 Invited



High Power Ultrafast Midinfrared Fiber Lasers and the Applications, Chunyu Guo; Shenzhen Univ., China. Multitypes of fluoride fiber mode-

locked lasers and MOPA systems at 3 µm have been demonstrated in our group.

W3G.3 • 14:10 Invited



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

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

VIP Room 4, Track 6

Room 205, Track 4

Room 206, Special 3

W3A.4 • 14:30 Invited



All fiber acousto-optic frequency shifter and its applications, Feng Gao; Nankai Univ., China. The progresses of all fiber acoustooptic frequency shifter are

presented with its applications in heterodyne detection and hyper sampling imaging as examples.

W3B.4 • 14:30 Invited



High birefringent and low thermal sensitive photonicbandgap hollow-core fibers. Fei Yu; Shanghai Inst. of Optics and Fine Mechanics. CAS.

W3C.4 • 14:30 Invited



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

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.

W3A.5 • 14:50 Invited



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

W3B.5 • 14:50 Invited



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

W3C.5 • 14:50 Invited



China.

Efficient and versatile on-chip nonlinear applications based on AlGaAsOI photonic integrated Weigiang circuits, Xie: Shanghai Jiao Tong Univ., 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.

W3A.6 • 15:10 Invited

hand tactile sensors.



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

W3B.6 • 15:10 Invited



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

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

Room 211, Track 7

Room 212, Special 2

Room 215, Track 8

W3E.4 • 14:30 Invited



Surface reconstruction of quantum dots and its activematrix display application, Xingliang Dai; Zhejiang Univ., China. 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.

W3G.4 • 14:30 Invited



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

W3H.4 • 14:30 Invited



Multi-hop routing for Underwater Wireless Communication, Yang Qiu; Southwest Minzu 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. W3F.5 • 14:50 Invited



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

W3G.5 • 14:50 Invited



Lab for Micro/Nanoscale Sensors and Systems, Daquan Yang; Beijing Univ. of Posts and Tel., China. W3H.5 • 14:50 Invited



LED Layout Optimization Based on Improved PSO in Visible Light Communication, Jingyu Li, Jie Ma, <u>Jianfei Liu</u>, Jia Lu, Xiangye Zeng and Mingming Luo;

Hebei Univ. of Tech., China.



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. W3F.6 • 15:10 Invited



Ultrafast thin disk laser, Xing Liu; Shenzhen Technology Univ., China. W3G.6 • 15:10 Invited



All-Optical Nonlinear Activation Function Based on Graphene, Yifan Chen, <u>Jian Zhao</u>, Haowei Sha and Mingyu Chang; Tianjing Univ., China. W3H.6 • 15:10 5929

Advanced Modulation Formats for Longwave Infrared Free-space Optical Communication, Mengyao Han¹, Muguang Wang², Richard Schatz³, Yan-Ting Sun³, Lu Zhang⁴, Xianbin Yu⁴, Oskars Ozolins⁵, Ran Pang¹, Xiongyan Tang¹ and Xiaodan Pang; ¹China Unicom, China; ²Beijing Jiao Tong Univ., China; ³KTH Royal Inst. of Tech., Sweden; ⁴Zhejiang Univ., China; ⁵RISE 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 Zhao¹, Qi Zhang¹, Xiangjun Xin², Ran Gao², Qihan Zhao¹, Xinyu Yuan¹, Yun Wang¹, Zhiqi Huang¹, Fu Wang¹, Feng Tian¹, Yongjun Wang¹ and Qinghua Tian¹; ¹BUPT, China; ²BIT, 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 Xiong, 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, Yongging 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 Zhang¹, Qi Zhang¹, Xiangjun Xin², Ran Gao², Fu Wang¹, Yi Zhao³, Ying Song³, Feng Tian¹, Yongjun Wang¹, Qinghua Tia¹n, Sitong Zhou¹ and Leijing Yang¹: ¹BUPT, China: ²BIT, China: ³Beijing Inst. of Ctrl. & Electron. Tech., China. A Double Q-learningbased distributed routing algorithm is proposed.

P3.16 6195

A high-accuracy OSNR monitoring scheme in high-speed coherent optical fiber systems, Yungiu Xu¹, Qi Zhang¹, Yi Zhao¹, Qihan Zhao¹, Xinyu Yuan¹, Xiangyu Liu², Xiangjun Xin³, Ran Gao³, Fu Wang¹, Feng Tian¹, Yongjun Wang¹, Qinghua Tian¹, Sitong Zhou¹ and Leijing Yang¹; ¹BUPT, China; ²Beijing Inst. of Ctrl. & Electron. Tech., China; ³BIT, 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, Yongqinq 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, Hangi Li, Yu Li, Xiaofeng Duan, Kai Liu and Yongqing Huang; Beijing Univ. of Posts and Tel., China.

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 Yongging Huang; Beijing Univ. of Posts and Tel., China. The performance dependence on the well-thickness of a single-well at 1925 fps with MTF>0.6. GaAs/AlGaAs superluminescent diode experimentally investigated.

6801 P3.21

Displacement Monitoring Method Based on Double Intensity Modulation Phase Detection, Xuegian 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 Zhou¹, Jianguo Yu¹, Kaile Li², Zhanjiang Wang¹, Qiufei Song¹, Yuting Huang¹ and Tong Li¹; ¹BUPT, China; ²Xidian 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 Li¹, Lian Xiang² and Xiaodi You¹; ¹Soochow Univ., China; ²Shanghai Univ.of Electric Power., China. The transport layer in an InGaAs/InAlAs avalanche A nonlinear crosstalk model incorporating dispersion photodiode (APD) is optimized to improve bandwidth. 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

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 Li¹, Zhibao Huang¹ and Tingting Lang²; ¹China Jiliang Uni., China; ²Zhejiang 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.

P3.34 472

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.

P3.35 439

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 Dong¹, Xinyong Dong¹, Yuming Dong², Qiang Wang¹, Xingyu Zhang² and Zhiyuan Chen²; ¹Guangdong Univ. of Tech., China; ²Shenzhen 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 Gao¹, Wen Li², Jinghao Pan² and Min Li²; ¹NMPA, China; ²ZJIMDT. 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 Deng¹, Liming Chen², Dongdong Zou³ and Fan Li¹; ¹Sun Yat-sen Univ., China; ²China Southern Power Grid, China; ³Soochow 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 Bai¹, Yichen Cheng¹, Zihan Huang¹, Yang Yang¹, Yuhui Liu², Fang Zhao² and Weihao Lin¹; ¹Xiamen Inst. of Tech., China; ²SUSTech, 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, Jianhua Wang¹, Jun Tian², Ruiming Zheng ², Hao Sun², Yunxu Sun* and Wei Liu*; ¹Guoneng Shuohuang Railway Development Co., Ltd., China; ²Harbin Inst. of Tech. Shenzhen, 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 (NH₃) sensor based on the Mach-Zehnder interferometer (MZI) principle.

ICOCN 2025—Wednesday, 30 July

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 Xu¹, Jianrong Chen¹, Jingqi Fang¹, Keyan Xiao¹, Yuhong Xu¹, Chuliang Wei¹ and Jiawang Chen²; ¹Shantou Univ., China; ²Donghai Lab., China. This paper proposes a real-time submarine cable monitoring method.

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.

ICOCN 2025—Wednesday, 30 July

VIP Room 3, Track 1

16:00-18:00 W4A. Novel Fibers & Devices VI Presider: **Hualona Bao.** Soochow

University, China

W4A.1 • 16:00 Invited



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

VIP Room 4, Track 6

16:00-18:00

W4B. Measurement & Imaging VI Presider: Wenjun Zhou, China Jiliana 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.

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.

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.

W4A.2 • 16:20 Invited



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

W4B.2 • 16:20 Invited



Development of a High-Precision Demodulation System for Fiber-Optic Current Sensors, Qianyue Ma, Mei Sang, Qingrui Yang, Yupeng Wang, Xiaomei Zheng,

Junfeng Jiang, Zhenzhou Cheng and Qun Han; Tianjin Univ., China.

W4C.2 • 16:20 Invited



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

W4D.2 • 16:20 Invited



Graphene-Based Optoelectronic Conversion Towards High Performance and Intelligence. Xingzhan Wei; Chongging Inst. of Green and Intelligent Tech.,

CAS. China. We will introduce some interesting phenomena such as polaritytunable photovoltage-driven and effects.

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

based on internal optical oscillatory with high-gain silica fiber was presented in the report.

W4B.3 • 16:40 Invited



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

W4C.3 • 16:40 Invited



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

W4D.3 • 16:40 Invited



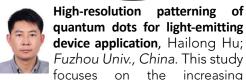
Exciton transport and ultrafast dynamics in 2D energy landscape, Pengfei Qi; Nankai Univ., China.

ICOCN 2025—Wednesday, 30 July

Room 210, Special 1

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

W4E.1 • 16:00 Invited



demand of high-resolution patterning of quantum dots.

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.

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.

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.

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.

W4F.2 • 16:20 Invited



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

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.

W4E.3 • 16:40 Invited



Critical Issues in the Electrohydrodynamic 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.

W4F.3 • 16:40 Invited



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

W4G.3 • 16:40 Invited



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



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

VIP Room 3, Track 1

VIP Room 4, Track 6

Room 205, Track 4

Room 206, Special 3

W4A.4 • 17:00 Invited



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

W4B.4 • 17:00 Invited



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

W4C.4 • 17:00 Invited

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

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.

W4A.5 • 17:20 Invited



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

W4B.5 • 17:20 Invited



Fiber optic interferometers for precision physical quantity measurement. Zhilin Xu: Tech., China.

W4C.5 • 17:20 6390

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

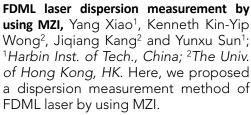
W4D.5 • 17:20 Invited

W4D.4 • 17:00 Invited



Broadband and large-depth terahertz modulation by selfassembly monolaver silver nanoparticle arrays, Wei'en Lai; Hefei Univ. of Tech., China.

W4A.6 • 17:40 4161



W4B.6 • 17:40 Invited



Interferometric Diffuse Optics for Measuring Cerebral Blood Flow with High Brain Specificity, Univ., China.

W4C.6 • 17:35 4559

Advances in Sub-THz Uni-Traveling-Carrier Photodiodes and System Integration, Qingtao Chen¹ and Huijuan Niu²; Wenjun Zhou; China Jiliang ¹Polytech Montréal, Canada; ²Liaocheng Univ., China. This paper reviews the design of sub-terahertz uni-travelingcarrier photodiodes and their inte-gration prospects in photonics-based wireless systems.

W4D.6 • 17:40 1626

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

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

Room 210, Special 1

Room 211, Track 7

Room 212, Special 2 Room 215, Track 2

W4E.4 • 17:00 Invited

W4E.5 • 17:20 Invited

electronic



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

Infrared Quantum Dot Opto-

Devices, Zeke Liu; Soochow

Univ., China. I will present the

direct synthesis of PbS

quantum dot conductive ink and the fabrication of photoelectric conversion

Materials

and

W4F.4 • 17:00 Invited

W4F.5 • 17:20 Invited



devices and their optical sensing Yat-sen Univ., China.

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.

W4G.4 • 17:00 3039

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

> End-to-End Modeling of FSO Communication Systems with QNSC Encryption under **Different Turbulence Conditions.** Zihao Zhanq¹, Yanwen Zhu¹, Xun Zhou², Xiaogang Wang², Yixin Wang¹ and Jie Zhang¹; ¹Beijing Univ. of Posts and Tel.,

W4G.5 • 17:15 2368

China.

W4G.6 • 17:30 0891



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.

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.



devices.

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.

W4F.6 • 17:40 Invited



High power ultrafast lasers enabling high-efficiency optical parametric conversion, Junging Zhao: Shenzhen Tech. Univ... China. Various high-efficiency

optical parametric conversion sources covering 2-5 µm mid-infrared region will be presented.

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 Jiaotona University, China

Th1A.1 • 08:00 Invited



TBD, Guanjun Wang; Hainan Univ., China.

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 nonuniformly correlated beams. Jiayi Yu; Shandong Normal Univ., China.

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; Beiiina Uni. of Posts and Tel., China.

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.

Th1A.2 • 08:20 Invited



Improving the Study on 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.

Th1B.3 • 08:20 Invited



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

Th1C.2 • 08:20 Invited



Effect of Weakly Correlated **Crystallizations: Experimental** Verification and Application in High-Quality GaAs/Si Heteroepitaxial Growth, Yidong Zhang

Xiaomin Ren, Qi Wang, Hao Liu and Yongqing Huang; Beijing Uni. of Posts and Tel., 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.

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 crosscore coupling in multi-core fibers.

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 superconducting nanowire fractal single-photon detectors and their metal halide optoelectronic materials applications in LiDAR imaging.

Th1C.3 • 08:40 Invited



The Structural Design and Device **Fabrication of Low-Dimensional** Metal Halide Optoelectronic Materials, Yigiang Zhang; Zhengzhou Univ., China. This

talk focuses on the structural design and device fabrication of low-dimensional

Th1D.3 • 08:40 Invited



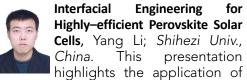
Design of ultra-broadband highefficiency metalens based on a single-layer plasmonic metasurface with hybrid dispersion, Yong-Qiang Liu, Chen Qi,

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 materials in enhancing the performance and stability of PSCs.

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.

Room 212, Special 4

08:00-10:00

Th1G. Optical Biosensors I

Presider: Yang Ran, Jinan University,

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.

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.

Th1E.2 • 08:20 Invited



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

ThF.2 • 08:20 Invited



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

insensitive magnetic field measurement system based on photoelectric oscillation links.

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.

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.

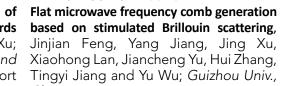
Th1E.3 • 08:40 Invited



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 *China*. of PSCs towards mass production developed in our group.

Th1F.3 • 08:40 3818



Th1G.3 • 08:40 Invited



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

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 Wang¹, Yakun Hu², Shikui Shen², He Zhang², Zelin Wang², Jun Luo³, Xinyan Zhou³, Jun Wu³, Hongyan Zhou³, Guangquan Wang², Xiongyan Tang² and Min Zhang⁴; ¹China Unicom Network Comm. Co., Ltd., China.

VIP Room 3, Track 1

VIP Room 4, Track 6

Room 205, Track 4 Room 206, Special 3

Th1A.4 • 09:00 Invited



Multifunctional imaging using single multimode fiber, Zhona Wen; Zhejiang Univ., China. We present a single-fiber phase imaging method usina

frequency modulation.

Th1B.4 • 09:00 Invited



Qi Zhang; Shanghai Univ, China.

Th1C.4 • 09:00 1835

Sensitivity-enhanced fiber-optic Design of a fast-tuning reflective element vibration measurement through for external cavity laser resonance, Hu deflection amplification structure, Shuling, Zhou Xiang and Qi Binzhi; Beihang Univ, China. An integrated external cavity feedback element suitable for on-chip lasers has been proposed.

Th1D.4 • 09:00 Invited



In-sensor dynamic computing and sensing/wireless communication integration, Yuekun Yang¹, Chen Pan², Shi-Jun Liang¹ and Feng Miao¹; ¹Nanjing Univ.,

China; ²Nanjing Univ. of Sci. & Tech., China. In-sensor dynamic computing can be used for accurate detection of dim targets.

Th1A.5 • 09:20 Invited



Center-Assisted Ring-Core Fibers and their Mode Degeneracy Manipulating Characteristics, Zheng; Jingjing Beijing Jiaotong Univ, China. Several

center-assisted ring-core fibers are proposed for the spatially degenerate mode control of LPmn mode groups.

Th1B.5 • 09:20 Invited



Multicore Gratings, Yunhe Shanghai Maritime China.

Th1C.5 • 09:15 2094

Recent Progress in Theoretical Design for Sub-THz Uni-Traveling-Carrier Photodiodes, Fiber Long-Period Huijuan Niu¹, Qinqtao Chen², Kai Liu³, Zhao; Xiaofeng Duan³, Yongging Huang³ and Chenglin Bai¹; ¹Liaocheng Univ., China. We propose novel sub-THz MUTC photo-detectors with waveguide and vertical designs, achieving hiah responsivity, high output power, and wide bandwidth under low bias.

Invited Th1D.5 • 09:20



Research on Mid-Infrared Antimonide Lasers with Lowdimensional Structures. Chena-Αo Yang; Inst. of Semiconductors, CAS, China.

Th1A.6 • 09:40 1785

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

Th1B.6 • 09:40 Invited



Fiber-Optic Sensors. Shun

China.

Th1C.6 • 09:30 3940

Research on the widening method of Recent Research on Sensitivity sensing measurement range based on and Stability Enhancement in CMRR, Yuxia Song¹, Xiangxu Wei¹, Interferometric Jiamei Gu², Mingyu Li¹, Tuo Chen¹ and Wang; Jian-Jun He²; ¹Changchun Univ. of Sci. Guangdong Univ. of Tech., and Tech., China. This paper proposes a method based on a cascaded microring resonator structure to calculate the free spectral range and shifts in the spectrum envelope.

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

Th1E.4 • 09:00 Invited



Functional Layer Regulation and Low-Temperature Properties of Perovskite Solar Cells, Yuving 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; Chongging 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 multithreshold logic-switch circuit.

Th1E.6 • 09:40 Invited



Passivation strategie interface engineering for highly efficient perovskite solar cells, Xueging Xu; Guangzhou Inst. of Energy Conversion, China.

This review focuses on passivation strategies, and interface engineering to overcome these hurdles.

Th1F.4 • 08:55 3941

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

Room 211, Track 5

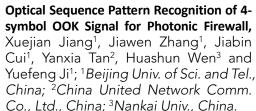
Th1F.5 • 09:10 4916

Robust and High-speed Polarization Modulation Based on Nonreciprocity of Lithium Niobate Modulator for Quantum **Key Distribution,** Zexu Wang¹, Huaxing Xu², Bo Liu³, ¹Feifei Yin, ¹Kun Xu and ¹Yitang Dai; ¹Beijing Univ. of Posts and Tel., China; ²China Academy of Electron. and Info. Tech., China; ³National 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



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 micronano 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.

Th1H.4 • 08:55 9620

Real-Time Breakpoint Localization by Stokes Assisted **Forward-Propagation Communication,** Jialing Liu¹ and Zhun Huang²; ¹China Yangtze Power Co., Ltd, China; ²Accelink Technologies Co. Ltd.

Th1H.5 • 09:10 0111

Fiber Eavesdropping Detection with Anti-Interference in Coherent Optical **Transmission,** Yuyuan Liang¹, Yuang Li¹, Shuang Wei¹, Haokun Song², Yajie Li¹ and Jie Zhang¹; ¹Beijing Univ. of Posts & Tel., China; ²China 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

P4.1 8615

Antiresonant Fiber With Waterdrop-Shaped Nested Tubes, Jingmin He, Hu Zhang, Jiagi Wang, Xiaoguang Zhang and Lixia Xi; Beijing Univ. of Posts & Tel., China. We propose a weakly coupled two-mode waterdropshaped nested antiresonant fiber

P4.2 8803

Miniaturized optical fiber displacement probe with largecollection-angle, Chengpin Wu, Leiming Wu, Xikai Hou, Jiagi 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,** Yagiang 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

Design of Weakly Coupled Two-Mode Hollow-Core 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 highsensitivity optical fiber flow velocity sensor based on Vernier effect is proposed.

P4.6

Analysis of the Thermal Sensitivity of the Resistivity of **Titanium Nitride,** Yi Xu, Shigi 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 acquisitionpointing-tracking system in satellite communication scenarios.

8719 P4.8

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 comb, it is possible to achieve ultraoptical 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 timedomain convolutional mask network.

P4.10 8887

Operando monitoring the chemical polymerization with a fiber grating-based sensor, Yan Zhou¹, Wenjun Zhou², Changyu Shen² and Rui-Pin Chen¹; Zhejiang ¹Sci-Tech Univ., China; ²China 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

Sub-Nyquist Single-Pixel Image Transmission under **Turbulent Channels,** Haixia Feng¹, Ting Zhang², Yongyuan Wang³³, Junjie Wu, Yongye Qiu³ and Kaimin Wang³; ¹Sanda Univ., China; ²Jiangxi Univ. of Fin. & Econ., China; 3USST. 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)

9425 P4.13

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

Quantum Secure in Flexible Optical satellite Network: State-of-the-Art and Challenges, Guan Wang¹, Nan Feng² and Youjian Zhao¹; ¹Tsinghua Univ., China; ²The 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 Chaoticmutation-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

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 photonic devices without traditional solvers. 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

Selective Ethanol Sensing based on Nile Red Functionalized Fiber Bragg Grating, Shijie Li¹, Yiwei Li², Yuchen Wang², Zhenheng Xu¹, Yuehuan Lin¹, Jiaming Zhang¹, Teng Tan² and Baicheng Yao²; ¹China Southern Power Grid Co., Ltd., China; ²UESTC, China. A novel highsensitivity 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 Zhanq¹, Yulin Zhanq² and Chungang Liu³; ¹Heilongjiang Univ. of Chinese Medicine, China; ²Qiandongnan Prefecture People's Hosp., China; ³CSPC-NBP Pharmaceutical Co., Ltd., China. We demonstrated the real-time monitoring of human heart rate using the DAS.

P4.20

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 microcavity sensor specifically detects polystyrene

P4.21

Bidirectional dual-comb fiber laser based on a novel fourport circulator and hybrid mode-locking, Shijie Li¹, Zhangru Shi², Mingjun Wang², Guoyuan Cai¹, Yagian Zhao¹, Weixun Zhang¹ and Bowen Li¹; ¹China Southern Power Grid Co., Ltd., China; ²UESTC, 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; Chongging 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

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 nanoplastics (0.02 - 0.1% (w/v)) in water.

P4.25

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

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

Design and Optimization of Glass-Based Optical Waveguide Directional Couplers, Zhenzhen Wang, Guoliang Chen and Guigi 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

Resource Allocation Based on Traffic Engineering and Spectrum Window Prioritization in Power Backbone Elastic Optical Networks, Chunying Wang¹, Zhiyuan An¹, Lijie Wu¹, Lei Sheng¹, Huifang Liu¹, Xiaohan Cui², Shaobo Qin² and Ruijie Zhu²; ¹State Grid Henan Electric Power Info. & Tel. Co., ²Zhengzhou Univ., China. This paper proposes a traffic engineering and spectrum window optical networks.

P4.29

Multi-sensor spatio-temporal attention network for fault Ultralong Waveguide Grating for optical phased array, Yanging Qiu¹, Panxiang Jin¹ and Tingting Lang²; ¹China Jiliang Univ., China; ²Zhejiang 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

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

Dynamic Thermal Error Mitigation in Laser Diode Testing via Automated Interval Control, Zegi 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

An Intent Extraction Method for LEO Satellite Networks Based on a Rotational Position Encoding BERT Model, Weikang Zhou¹, Qi Zhang¹, Gengyu Li², Hongyuan Zhang², Fu Wang¹, Feng Tian¹, Yongjun Wang¹, Qinghua Tian¹, Sitong Zhou¹ and Leijing Yang¹; ¹BUPT, China; ²China Academy of Space Tech., China. This paper proposes a RoPE and BiLSTM-enhanced BERT prioritization algorithm in power backbone elastic model for intent extraction in LEO satellite networks.

P4.33 3929

Stable 532nm laser output based on Hansch-Couillaud technology, Miaomiao Jin¹, Shuling Hu¹, Bing Li², Jiagi Yu², Nan Li² and Jianguo He²; ¹Beihang Univ., China; ²CAS, China. A stable output of 532nm laser based on the Hansch-Couillaud frequency doubling ring cavity is achieved.

P4.34

Miniaturized fiber photoacoustic spectroscopy for ppblevel 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

Design and Simulation of an Anti-Resonant Hollow-Core Fiber Fabry-Pérot Etalon for Precision Wavelength Calibration, Xingwang Cao¹, Tongjun Liu², Huigi Ye² and Dong Xiao²; ¹Nanjing Univ. of Posts and Tel. China;., ²Nanjing 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

Performance Study of Compressive Perception Computational Ghost Imaging for Underwater **Transmission,** Meiyong Xu¹, Lan Xiang², Yongye Qiu², Junjie Wu², Yongyuan Wang², Ting Zhang³ and Kaimin Wang²; ¹BUPT, China; ²Univ. of Shanghai for Sci. & Te., China; ³Jiangxi Univ. of Fin.& Econ., China. We investigate the underwater transmission performance of compressive perception computational ghost imaging schemes.

P4.37 3327

Miniature Czerny-Turner Spectrometer, Zhihui Fu¹, Zhuoyang Liu² and Tingting Lang²; ¹Hangzhou Dianzi Univ., China; ²Zhejiang Univ. of Sci. and Tech., China. This study develops a miniaturized Czerny-Turner fiber-optic spectrometer covering visible and nearinfrared bands for portable spectral analysis..

3115 P4.38

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

SFC Deployment Algorithm for Satellite Networks Based on MLP and PPO, Yanxiang Wang¹, Qi Zhang¹, Furong Chai¹, Dandan Sun¹, Xiao Feng², Yi Zhao³, Fu Wang¹, Feng Tian¹, Xiujuan Qing¹, Qinghua Tian¹ and Yongjun Wanq¹; ¹BUPT, China; ²China Electron. Tech. Taiji ³, China. A deployment method based on Multi-Layer Perceptrons (MLP) and Proximal Policy Optimization (PPO) is proposed.

P4.40

An efficient deep learning strategy for non-invasive optical fiber sensor monitoring of ECG signal reconstruction from ballistocardiogram, Kaili Yang¹, Xiuyuan Wang², Wei Xu² and Changyuan Yu³; ¹2nd People's Hosp. of Changshu, China; ²The HK Polytechnic Univ., HK; ³Suzhou Univ. of Tech., China. In this paper, we established a noninvasive optical fiber sensor and a novel deep learning model for mapping BCG waveforms to ECG.

P4.41

Current Development Status of Ultra Short Throw Purity characterization of mixed mode groups in a **Projection Technology and Comparative Analysis of Lens** Structure Performance, Fanghao Li¹, Huanxin Liu¹ and Mingming Luo, Caiyun Wang and Jianfei Liu; Hebei Tingting Lang²; ¹China JiLiang Univ., China; ²Zhejiang Univ. of Tech., China. We propose a characterization Univ. of Sci. and Tech., China. This paper reviews the for mode purity in a directional mode convertor using current status of ultra-short throw projection OFDR. technology.

P4.42

A Visual Method for Locating Stoves, Fanghao Li¹, Qimeng Tao¹, Haibin Zhang², Shaosheng Tang² and Tingting Lang²; ¹China Jiliang Univ., China; ²Zhejiang Univ. of Sci. and Tech., China. This paper presents contour extraction and pixel calculation.

P4.43

High sensitivity hydrogen gas sensor based on PDMS-Pt Spatial-temporal Feature Fusion-Based Brillouin Frequency coated microrod., Zhenheng Xu¹, Shuya Yuan², Yanhong Guo¹, Weixun Zhang¹, Jiaming Zhang¹, Shijie L¹i, Teng Tan² and Baicheng Yao²; ¹China Southern Power Grid Co., Ltd., ²Univ. of Electron. Scie. and Tech. of China, China. We design PDMS-Pt coated microrod cavity, based on this device, ppb-level detection of hydrogen neural networks is proposed. gas is demonstrated.

P4.44

High-resolution gas sensing based on graphene-coated Dshaped fiber in an active F-P Cavity, Yagian Zhao¹, Yutong Li², Yuchen Wang², Shengrong Liu¹, Yuehuan Lin¹, Qiancheng Lv1, Yanhong Guo2, Teng Tan2 and Baicheng Yao²; ¹China Southern Power Grid Co., Ltd., China; ²Univ. of Electron. Sci. and Tech. of China., China. A gas sensor based on graphene-functionalized Dshaped active Fabry-Pérot cavity is proposed.

2207 P4.45

directional mode convertor using OFDR method,

P4.46

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 pointinduced nonreciprocal transmission.

P4.47

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

P4.48

Ultra-broadband 1950-nm dual-comb fiber laser for photoacoustic spectroscopy, Zhenheng Xu¹, Xu Yin¹, Shijie Li¹, Zhiming Gu¹, Yuting Tan¹, Zixiang Meng² and Bowen Li²; ¹China Southern Power Grid Co., Ltd., China; ²Univ. 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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P4.49 1416

Wavelength scanning high-sensitivity surface plasmon resonance (SPR) sensor operating in 1550nm band, Zisheng Zhang¹, Jiamei Gu¹, Mingyu Li² and Jianjun He¹; ¹Zhejiang Univ., China; ²Changchun 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, Chaohui Zhang¹, Ruiming Zheng², Jun Tian², Hao Sun², Yunxu Sun* and Wei Liu*; ¹Guoneng Shuohuang Railway Development Co., Ltd, China; ²Harbin Inst. of Tech. Shenzhen, 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 Ren¹, Ping Li¹, Chenyang Ma², Zhengyang Xie² and Zheng Zheng²; ¹Beijing Inst. of Tech., China; ²Beihang 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, Liang Fang, Jinman Chen, Yingjie Zhou, Fan Fan, Lili Miao and Chunjun Zhao; *Hunan Univ., China*. We introduce centroid ellipses that are geometrically mapped from optical orbital angular momentum superpositions on modal Poincaré sphere by coaxial interference.

P4.54 081'

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 wavelengthmode hybrid multiplexed signals.

P4.58 0659

All-Optical Image Encryption Using Incoherent Diffractive Neural Networks, Wenbo Zhang¹, Haibo Wang², Zhemg Lee¹, Guanju Peng³ and Zongze Li⁴; ¹Tianjin Univ., China; ²Shanghai Inst. of Satellite Eng., China; ³Huawei Tech. Ltd., China; ⁴Pengcheng 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; ¹China Jiliang Uni., China; ²Zhejiang 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 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.

P4.63 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.

P4.64 5711

Adhesive free packaging method for high stability fiber MEMS sensors based on laser fusion bonding, Haojun Lin, Mei Sang, Shuang Wang, Hongyu Liu, Xuesong Xiang, Junfeng Jiang and Tiegen Liu; *Tianjin Univ., China*. This article proposes a glue free packaging method for fiber MEMS sensors based on laser fusion, which has good data measurement stability.

P4.65 1983

Multi-strategy resource allocation method for satellite networks based on Lyapunov optimization, Chenxu Lu¹, Qi Zhang¹, Xiangjun Xin², Ran Gao², Xiangyu Liu³, Junqing Wu³, Feng Tian¹, Yongjun Wang¹, Qinghua Tian¹, Sitong Zhou¹ and Leijing Yang¹; BUPT, China; Beijing Inst. of Tech., China; Univ., China. A Lyapunov optimization-based multi-strategy resource allo-cation method for satellite networks is proposed.

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 cuttingedge waveguides research of polymer fiber, aggregation-

induced emission fiber, and lotus root fiber. These microfibers act as passive, active and hybrid optical wavequides.

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.

Room 205, Special 1

10:30-12:00

Th2C. Organic Optoelectronics X 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.

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.

Th2A.2 • 10:50 Invited



Th2A.3 • 11:10

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

3142

Research on the Application of Hollow Core

Fiber in the Construction of Power grid, Li

Deng, Bozhona 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.

Th2B.2 • 10:50 Invited



Fiber optic microcavity multiparameter 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.

Th2C.2 • 10:50 Invited



based on chiral materials, latest progress in circularly China.

polarized light detectors based on chiral materials.

Th2D.2 • 10:45 🏠 5218

Circular polarized light detector Lightweight Neural Network for FBGs **Overlapping** Spectrum Separation, Longzhen Qiu; Hefei Univ. of Zhengyong Liu, Chaorui Zhang, Jun Hao, Tech., China. We reported our Zigi Liu and Jing Li; Sun Yat-sen Univ.,

Th2B.3 • 11:10 Invited



Ultrafast Single-pixel Imaging based on Compressive Sensing and In-fiber Diffraction. Guoging Wang¹, Yuan Zhou², E Du¹, Xingguan Li¹, Jun He³

and Chao Wang⁴; ¹Shenzhen Inst. of Info. Tech., China.

Th2C.3 • 11:10 Invited



Colloidal quantum dot based upconversion photodetector, Zhijun Ning: Shanghai Tech of Posts and Tel., China. 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.

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.

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.

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.

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.

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 strategy advances the design development of deep-blue MR-TADF emitters meeting the BT.2020 color standard.

Th2E.3 • 11:10 Invited



Colloidal quantum-well lightemitting diodes. Baiquan Liu:

have been comprehensively discussed. Posts and Tel., China.

Th2F.2 • 10:50 Invited



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

Th2G.2 • 10:50 Invited



The integration of cytosensing and therapy using the fiber opticbased LSPR. Zewei Luo: Sichuan Univ., China. A novel sandwich laver of PDA/AuNPs/PDA.

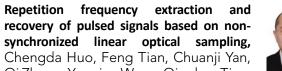
coated around the Ω -shaped fiber optic $(\Omega$ -FO) was designed.

Th2H.2 • 10:50 Invited



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

Th2F.3 • 11:10 6592



synchronized linear optical sampling. Sun Yat-sen Univ., China. Chengda Huo, Feng Tian, Chuanji Yan, Herein, device engineering in Qi Zhang, Yongjun Wang, Qinghua Tian, olloidal quantum well LEDs Fu Wang and Meng Qiu; Beijing Univ. of

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.

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 Comprehensive Performance Assessment Based on Nonlinear Polarization Rotation and Power Amplification, Jing Zhang, Feng Tian, Jianwei Zhou, Xingyu Wu, Qi Zhang, Qinghua Tian, Fu Wang and TDFL centered at 1895 nm was experimentally demonstrated.

Th2A.5 • 11:40 6448

Transmission and Optical-Amplification Smart insoles: Monitor sole pressure based Position Prediction Method for Fiber 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 the rectangular pulse evolution based manner. on a passively mode-locked erbiumdoped fiber laser.

VIP Room 4, Track 6

Th2B 4 • 11:30 0866

of Coherent Φ-OTDR Implementation Schemes, Chunye Liu¹, Jialin Jiang² and Zinan Wang¹; ¹Uni. of Electronic Sci. and Tech. of China, China; ²Chongging Chuanji Yan; Beijing Univ. of Sci. and Tel., FUNA Technology CO., Ltd., China. In China. An NPR-based mode-locked this paper, a comprehensive multidimensional performance evaluation for phase-demodulated Φ-OTDR conducted.

Th2B.5 • 11:45 1620

on surface array Fiber Bragg Grating, Yihao He, Qiang Ling, Chenning Tao, Zhangwei Yu and Daru Chen; Zhejiang Yiwen Shen; Shanghai Univ., China. Normal Univ., China. An intelligent insole system for monitoring foot investigated the effects of transmission pressure based on surface array fiber fiber parameters and the gain of the gratings. This system can analyze gait in erbium-doped fiber amplifier (EDFA) on a portable, cost-effective and real-time

Room 205, Track 4

Th2C.4 • 11:30 Invited



Low-Voltage Flexible Organic Transistors for Sensing and Memory Applications, Zhigang Yin; Chongging 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.

Th2C.5 • 11:50 6325

Disturbance Based on Semiconductor Laser Reservoir Computing, Nian Fang and

Th2D.5 • 11:30 **\(\psi \)** 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 modelocked laser based on tapered fiber saturable absorber, Xiuquan Li, Wengi 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 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, Kungian 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 Th2G.5 • 11:50 signal based on microwave photonic realtime 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 timefrequency information processing method for negative signal-to-noise ratio signal based on microwave photonic real-time experimentally demonstrated.

Th2G.4 • 11:30 Invited

Room 212, Special 4



Fiber-optic photoacoustic spectroscopy and imaging for Jinan Univ., China. The fusion of fiber-optic sensing with

photoacoustic effect brings new possibilities advance to the photoacoustic spectro-scopy imaging techniques.

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 highprecision surface recognition and reconstruction by capturing object spectrum system is proposed and features and generating an isomorphic depiction.

Th2H.4 • 11:25 2031

Multi-Objective Marine Predator Routing in MEO-LEO Cross-Layer Satellite Optical biomedical applications, Jun Ma; Networks, Xiaoke Sun¹, Haicheng Li¹, Yanyan Xie¹, Pengfei Lv², Zihao Qin¹, Lei Shi¹, Bin Liu¹ and Ruijie Zhu¹; ¹Zhengzhou Univ., China; ²Songshan 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

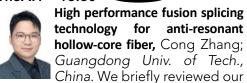
QoS-Guaranteed Energy-Efficient Routing in Satellite Optical Networks, Shaobo Qin, Zihao Qin, Lilong Zhou, Yinghao Tong, Yanyan Xie, Haicheng Li, Xiaoke Sun and Ruijie Zhu; Zhengzhou Univ., China. This paper proposes a QoS-quaranteed energy-efficient routing algorithm in LEO satellite optical networks.

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



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 VIII *Presider: Yin Xu, Soochow University, China*



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 *China*. 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, Yuqiang He¹,Hao Sun², Zhicheng Han², Jinyao Guo², Yunxu Sun* Zhou, and Wei Liu*; ¹Guoneng Shuohuang Railway Development Co., Ltd., China; China. ²Harbin Inst. of Tech. Shenzhen, China

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



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

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.*

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.

Th3E.2 • 13:50 Invited



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

Th3F.2 • 13:50 Invited



Single-shot full-field characterization over femtosecond pulses via linear spectral interferometry, Guoqing Pu; Shanghai Jiao Tong Univ., China Th3G.2 • 13:50 Invited



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

Th3E.3 • 14:10 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 Nadepletion strategy (30% lower than the standard Ag-alloyed CIGS Na baseline) under Ag doping.

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.

Th3G.3 • 14:10 Invited



Dual-modal High-resolution Quantitative Functional Photo- acoustic/Ultrasound Microscopy,Jingyi Zhu; *City Univ.of Hong Kong, HK.* We have

developed a dual-mode high-resolution quantitative functional photoacoustic/ultrasound microscopy. 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.

Dual-Wavelength Switchable Square-Wave A refractive index sensor based on surface Simulation of Intrinsic Timing Jitter in Passively Mode-Locked Erbium-Doped **Fiber Laser in the L Band,** Yi Liu, Dongfang Jia, Lei Huang and Boxin Li; Tianjin Univ., Zhang¹, Yuwei Qu², Jingao Zhang¹, Zefeng China. An L-band dual-wavelength Li¹, Lan Rao¹, Kuiru Wang¹ and Jinhui switchable, passively mode-locked Yuan¹; ¹BUPT, China; ²Hengshui Univ., 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 Codoped Fiber Amplifier Supporting Orbital Angular Momentum Modes, Jiaqi Wang, Hu Zhang, He Wen, Shengxi Zeng and Xiaoquang Zhang; BUPT, China. A ringcore erbium-vtterbium co-doped fiber amplifier is proposed to amplify 10 orbital angular momentum modes.

Th3B.4 • 14:25 1044

plasmon resonance effect utilizing hollowcore negative curvature fiber, Weixuan 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 Song¹, Xiaowei Ding¹, Fei Cheng¹, Xuyang Chen¹, Qichao Ru² and Yi Xiao²; ¹Zhejiang HuaYun Electric Power Eng. Design & Consult. Co., Ltd., China; ²Shanghai Maritime Univ., China.

Th3B.7 • 15:10 6298

OPGW Testing Under Diverse Stimulated Factors Using Convolutional Neural **Networks,** Jing Song¹, Xiaowei Ding¹, Fei Cheng¹, Li Chen¹, Yi Xiao² and Qichao Ru²; ¹Zhejiang HuaYun Electric Power Eng. Design & Consult. Co., Ltd., China; ²Shanghai Maritime Univ., China.

Th3C.4 • 14:25 0055

ICOCN 2025—Thursday, 31 July

Inhomogeneous NbN Nanostrip Photon Detectors, Chang Xu and Xiaolong Hu; Tianjin Univ., China. We simulate photontriggered 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, Jiagi Ran, Ou Xu, Di Peng, Shuoyang Qiu, Xinyong Dong, Yuwen Qin and Quandong Huang; Guangdong Univ. of Tech., China.

Room 210, Special 1

Room 211, Track 7

Room 215, Track 8

Th3E.4 • 14:30 Invited



Th3F.4 • 14:30 Invited



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

Th3G.4 • 14:30 Invited



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

Room 212, Special 4

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.

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.

Th3G.5 • 14:50 Invited



Label-free Fiber optic sensors for DNA detection, Jiale Xie, Kai Zhang and Hongdan Wan; Anjing Univ. of Posts and Tel., China. Tapered two-mode

fiber interferometer with diameter a of 12.5 μ m is fabricated for label-free DNA detection.

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.*

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 bioprobe functionalization for myocardial biomarker detection, wearable fiber optic pulse wave detectors, etc.

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 Qin¹, Shaobo Qin¹, Pengfei Lv², Yajuan Qin¹, Yanyan Xie¹, Xiaoke Sun¹, Haicheng Li¹ and Ruijie Zhu¹; ¹Zhengzhou Univ., China; ²Songshan Lab, China.

Th3H.7 • 15:05 1685

Distributed Cross-Domain Service Function Chains Deployment in Satellite Optical Networks, Haicheng Li¹, Xiaoke Sun¹, Yixiang Zhang¹, Pengfei Lv², Kecai Chen¹, Yanyan Xie¹ and Ruijie Zhu¹; ¹Zhengzhou Univ., China; ²Songshan Lab, 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.