

Symposia

- S1. Fundamental Science for Optoelectronics
- S2. Optical Communication and Fiber Photonic Technology
- S3. Micro/Nano Optics and Optoelectronic Devices
- S4. Biophotonics and Biomedical Optics
- S5. Optical Metrology, Sensing, Imaging and Displaying
- S6. Laser Technology and Industrial Application

Special Session

- SS I: 2D Material in Optoelectronics
- SS II: Key Devices and Technologies in Optical Interconnects

WorkShop

- 1. Biomedical Optics in Clinical Application
- 2. High Power Fiber Laser and Industrial Application

5 September

08:30-10:00	Plenary Talk					
10:00-10:30	Tea Break	Rose 1	Rose2	Lotus 2	Lotus4	Lotus6
10:30-12:30	Talk Session	SS1.a	S5	S6	S3.a	
12:30-14:00	Lunch					
14:00-16:00	Session	SS1.b	S2.a	S4.a, 5	S3.b	SS2.a
16:00-16:30	Tea Break					
16:30-18:30	Session	SS1.c	S2.b	S4.b, 5	SS1.d	SS2.b
18:30-19:30	Welcome Reception					

6 September

08:15-10:00	Opening	Jasmine Hall
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	Ceremony		
10:00-12:30	Plenary talk	Jasmine Hall	
12:30-14:00	Lunch		
		Rose 1	Rose 2
14:00-16:00	Poster Session/ Workshop	High Power Fiber Laser and Application	Biophotonics in Clinical Application
16:00-16:30	Tea Break		
16:30-18:30	Workshop		Panel Discussion Clinical Challenge and Business Opportunity

7 September

		Rose 1	Lotus 6
08:30-10:00	Session	S2.c	S1-a
10:00-10:30	Tea Break		
10:30-12:30	Session	S2.d	S1-b
12:30-14:00	Farewell Feast	Cantonese-style Morning Tea	

Plenary Talk:

5 Sept. 9:00-9:30

Prof. Sun Xiaowei, SUSTC

High Quality Displays and Lighting with Quantum Dot Composites

Luminescent Nanocrystals (LNCs), including quantum dots (QDs) and quantum rods (QRs), have been rapidly developed in both of academia and industries nowadays due to their outstanding luminescence performance, such as precisely tunable emission wavelength based on quantum size effect, saturated and pure color, high quantum efficiency, etc., which are beneficial in wide color gamut display and high quality lighting. With previous efforts on materials chemistry and engineering, to obtain high efficiency LNCs is no longer an issue. Next challenges concerning LNCs for display and lighting industries are suggested to be around new LNCs with higher quantum yield and narrower full width at half maximum (FWHM), and new LNC composites with higher operational stabilities. Moreover, if emissions of LNCs could be polarized, the system optical efficiency of display would be increased further more without dual brightness enhancement film (DBEF). Thus specially designed LNCs and composites with strong polarized emission also would have huge potential to decrease the power consumption of display.

5 Sept. 9:35-10:05

Prof. Han Zhang

Photonics Based on Two-dimensional Layered Materials

Enlightened by the unique optical and electronic properties of graphene, 2D layered materials have been extensively studied in recent years driven by their promising applications for a large range of novel photonic and optoelectronic devices, ranging from saturable absorbers for ultrafast lasers, to optical modulators, to photodetectors. The emergence of these 2D materials not only offers unique insights on light matter interaction at the atomic layer level but also provides unprecedented opportunities for researchers to fabricate 2D photonic device with superior performance: moderate or strong light interaction, versatile band-gap properties from wideband insulator, to narrowband semiconductor, tunable optoelectronic properties, atomically thin 2D heterostructures, compatibility with different photonic devices (waveguides and cavities). Therefore, photonics based on 2D materials, as a continuously advancing research area, is a field that investigates the light-matter interaction in 2D materials and the related applications for light generation, propagation, modulation, and detection. The intention of this talk is to introduce some of the research progress in photonics of 2D materials

ranging from graphene, transition metal dichalcogenides to black phosphorus, from its basic electronics and photonics, fabrication, light matter interaction, towards nonlinear optics, and devices. We will particularly highlight the importance of the emerging photonics opportunities from black phosphorous, including the production of phosphorene by different methods, stability or oxidation issues, device fabrications and promising biomedical applications.

6 Sept. 10:00-10:30

Prof. Zisen Zhao

Optical Fiber Development Status and Future Trend

6 Sept. 10:30-11:00

Prof. Gu Ying

Lasers Application in Clinical Medical

6 Sept. 11:00-11:30

Prof. Weiping Zhang

Schrodiner's Cat and Quantum Technology

6 Sept. 11:30-12:00

Prof. Scott Ritchey, SPIE

Global Optoelectronics Industry Development

In his presentation Scott will provide an overview of SPIE's recent activities in support of the optoelectronics industry including an update on the size and breakdown of the global photonics market, an update on the US National Photonics Initiative and outcomes from the successful International Year of Light celebration.

6 Sept. 12:00-12:30

Wang Jianyu, Vice President, Party Secretary, Shanghai Branch, Chinese

Academy of Science

Successful Launch of 'Mozi' Quantum Communication Satellite.

S1. Fundamental Science for Optoelectronics

S1-a 7 Sept. Chair: CHEN Rui

8:30-8:50	XIAO Yunfeng	Optical Microcavity sensing: from reactive to dissipative interactions
8:55-9:15	Jun Wang	Ultrafast Nonlinear Optical Effects in 2D Semiconductors
9:20-9:40	LAI Yun	Unusual wave phenomena in zero-index media
9:45-10:05	CHEN RUI	Improving the Optical Gain of Low Dimensional Semiconductor Materials

S1-b 7 Sept. Chair: XIAO Junjun

10:30-10:50	Jian-Wen DONG	Orbital angular momentum in photonic valley crystals
10:55-11:15	Guoyong Xiang	Measurement of a photon 88 ns before it is created
11:20-11:40	Zhiping (James) Zhou	Silicon High Speed Lumped Modulator for Low Energy Consumption Optical Communications
11:45-12:05	Dangyuan Lei	Fano Resonances in Metallic Nanoclusters for Ultrasensitive Biosensing and Efficient Second-harmonic Generation
12:10-12:30	Han Dezhan	Toroidal moments in the system of plasmonic particles

S2. Optical Communication and Fiber Photonic Technology

S2-a 5 Sept. Chair: Yang Yanfu

13:50-14:10	Jifang Qiu,	Interferometry-based In-Band OSNR Monitoring Techniques and Devices
14:15-14:35	Jiangbing DU	Multi-dimensional carrier-less amplitude and phase modulation for parallel optical interconnections
14:40-15:00	Jian Dai	FREQUENCY-STABILIZED OPTO-ELECTRONIC OSCILLATOR
15:05-15:20	Peter Madsen	PERFORMANCE COMPARISON OF 10G-CLASS PARTIAL RESPONSE MULTILEVEL MODULATION FORMATS IN ACCESS NETWORK SCENARIOS WITH LIMITED ELECTRONIC BANDWIDTH
15:25-15:50	Wanting Lv	Direct Detection of PAM4 Signals With Receiver-Side Digital Signal Processing for Bandwidth-Efficient Short-Reach Optical Transmissions
15:55-16:10	Yi Lei	Space-Division-Multiplexed Transmission of IEEE 802.11ac-compliant 3×3 WLAN Signals over 200-m Conventional Graded-Index Multimode Fiber

S2-b 5 Sept. Chair: Jiangbing DU

16:30-16:50	Qiang Lv, CETC	Microwave Photonic Technologies for Flexible Satellite Telecom Payloads
16:55-17:15	TANG Xuan	POLARISATION MODULATED FREE-SPACE OPTICAL COMMUNICATION SYSTEMS

17:20-17:40	Yongheng Dai	High-speed LED-ID Reading Based on OCC Using Rolling Shutter Camera
17:45-18:00	Zhuili Huang	An In-band OSNR Monitoring Technique based on Normalized Autocorrelation Function

S2-c 7 Sept. Chair: FU Songnian

8:30-8:50	Ting Mei	Generating vector/vortex beams in optical fiber with wavelength tunability
8:55-9:15	Lei Wei	Multimaterial fibers – an innovative platform for in-fiber advanced functional devices
9:20-9:40	Guo-Wei LU	Coherently-Pumped Wavelength Multicast of Multi-level Modulated Optical Signals with Tolerance against Phase Noise from Pumps
9:45-10:00	Rui Xu	Disaster Survivability in Elastic Optical Datacenter Networks

S2-d 7 Sept. Chair: Lei WEI

10:30-10:50	FU Songnian	Acquisition and processing of 4x128Gbps PDM-QPSK signals by linear optical sampling Technique
10:55-11:15	Jing Xu	All-optical wavelength conversion of mode division multiplexed superchannels
11:20-11:40	Luming Zhao	Various period doubling in fiber lasers
11:45-12:05	LIN Bo	Microwave Generation Based on Novel Fiber Lasers
12:10-12:25	Wenjun Li	Cross-Layer Security Based on Optical CDMA and Algorithmic Cryptography

S3. Micro / Nano Optics and Optoelectronic Devices

S3-a 5 Sept. Chair: Xu Ke

10:30-10:50	Ye Mingyong	Ringling phenomenon in whispering-gallery-mode microresonator and its potential application in sensing
10:55-11:15	Lin YANG	Silicon Optical Matrix Processor for Parallel Computing
11:20-11:40	Xue Li	Shanghai Institute of Technical Physics of the Chinese Academy of Science
11:45-12:05	Shi Lei	Integrated broadband passive optical diode
11:55-12:10	Zhengliang Ren	A Graphene-based Single-wavelength Silicon Evanescent Laser

S3-b 5 Sept. Chair: Ye Mingyong

14:00-14:20	linjie Zhou	Optical power detection using a silicon waveguide-based resistive microheater
14:25-14:45	Jian Wang	Recent Advances in Km-Scale Twisted Light Interconnects using Orbital Angular Momentum Fiber

14:50-15:05	Chen Xiyao	Department of Physics and Electronic Information Engineering, Minjiang University
15:10-15:30	Tao Chu,	Photonic Network and Key Optoelectronic Devices in Datacenters
15:35-15:55	Ciyuan Qiu	Silicon photonic devices for high-speed signal modulation and switching
16:00-16:15	LIU Liu	Waveguide, multiplexer, and interface structures for mode division multiplexing on silicon

S4. Biophotonics and Biomedical Optics

S4-a 5 Sept. Chair: Tymish Y. Ohulchanskyy

14:00-14:20	QU Junle	Fluorescence lifetime imaging: super-resolution & single particle microenvironment sensing
14:25-14:45	Kenneth Kin-Yip Wong	A new arena for fiber optical parametric amplifiers beyond communications
14:50-15:05	Jian Ye	Gap Enhanced Raman Tags (GERTs) for Bioimaging
15:10-15:25	Wu Tingting	Mid-infrared biosensing with tunable graphene plasmons

S4-b 5 Sept. Chair: Kenneth Kin-Yip Wong

16:30-16:50	Tymish Y. Ohulchanskyy	Optical imaging probes to guide light activated therapy
16:55-17:15	Guanghui Wang	Silicon based optical manipulation and its application in optofluidics
17:20-17:35	Lin Danying	Acquiring fluorescence lifetime of moving single particles along their trails
17:40-17:55	Shaozhuang Yang	Monitor the Effect of Kartogenin on Rat Cartilage Repair with SD-OCT

S5. Optical metrology, Sensing, Imaging and Displaying

S5 5 Sept. Chair: Guanghui Wang

10:40-11:00	JIANG hao	Nondestructive characterization of nanostructures using Mueller Matrix Ellipsometry
11:05-11:25	Dora Hu Juan Juan	Exploitation of specialty fibers for disruptive sensor technology
11:30-11:50	Tian jiajun	Fast response and high sensitivity of Fabry–Perot Interferometer Gas Refractive Index Fiber Sensor based on Photonic Crystal Fiber and Vernier Effect
11:55-12:15	Su Shuangping	The improvement of classical camera calibration method

S6. Laser Technology and Industrial Application

S6 5 Sept. Chair: Aoxiang Lin

10:40-11:00	Quan-Zhong Zhao	Subwavelength nanostructures fabricated by ultrashort pulsed
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		lasers and their applications
11:05-11:25	Betty Zhang Meng	Hollow Metallic Fiber for Low-loss Broadband Infrared Transmission
11:30-11:50	Wenxin Zheng	Fabrication of Long Period Fiber Gratings with CO ₂ Laser Fusion Splicers
11:50-12:05	Zhang Limeng	640-Gbit/s fast physical random number generation using a broadband chaotic semiconductor laser

SS I: 2D Material in Optoelectronics

SS I–a 5 Sept. Session Chair: Haixin Chang

10:30-10:40	Qiaoliang Bao	Photonics of two-dimensional materials: graphene and beyond
10:45-11:05	Chen Huanjun	Plasmonics in Graphene and Its Nanostructures
11:10-11:30	Haohai Yu	Research progress of low-dimensional passive optical switches
11:35-11:55	Kan Wu	Low-noise mode-locked fiber laser based on 2D transition metal dichalcogenides and its applications in microwave photonics
12:00-12:20	Zhengqian Luo	Ultra-compact Er:ZBLAN all-fiber lasers for 0.54, 1.7 and 2.45 μm pulse generation

SS I–b 5 Sept. Session Chair: Qiaoliang Bao

13:50-14:10	Kai Zhang	Plasmonic and band structure engineering: towards efficient tailoring the optoelectronic properties of 2D materials
14:15-14:35	Haixin Chang	Graphene and transition metal dichalcogenides (TMDs) atomic crystals for two-dimensional photonics
14:40-14:55	Shige Wang	Molybdenum disulfide-based 2D nanosheets for multifunctional tumor therapy
15:00-15:20	ZhiChao Luo	Two-Dimensional Materials-based Photonic Devices for Rogue Wave Generation in Fiber Lasers
15:25-15:45	Wenjun Liu	Broadband erbium-doped fiber laser with two dimensional material saturable absorbers
15:45-16:05	Dangyuan Lei	Exciton resonance effects in the optoelectronic properties of MoS ₂ nanomaterials

SS I–c 5 Sept. Session Chair: Haohai Yu

16:20-16:40	Peiguang Yan	Atomic-layer MoSe ₂ as a saturable absorber for passively Q-switched fiber lasers
16:45-17:05	Jianfeng Li	Hybrid mode-locked Tm-doped fiber laser and pulse amplification based on Loyt filter and SWCNT

17:10-17:25	Shaobo Fang	High-Repetition-Rate Sub-Cycle Waveform Synthesis
17:30-17:50	Suting Han	MoS2 based flexible memory devices
17:50-18:05	Yang Tan	Tailoring van der waals interaction between heterostructure and optical waveguide through ion irradiation

SS I-d 5 Sept. Session Chair: Zhengqian Luo

16:30-16:50	Meng Zhang	Low-dimensional nano-materials for fiber laser technology
16:55-17:15	Peng Huang	Graphene oxide for imaging-guided phototherapy
17:20-17:40	Zhenhua Sun	Graphene in hybrid photo-detectors
17:45-18:05	Qianjun He	Advanced Low-Dimension Nano-medicines for Controlled Gas Release
18:05-18:25	Ye Zhou	Controllable charge transport in polymer/two-dimensional material hybrids

SS II: Key Devices and Technologies in Optical Interconnects

SS II-a 5 Sept. Chair: Wang Jian

13:30-13:50	Yikai Su, Shanghai	Silicon building blocks for wavelength, polarization and mode selective switches
13:55-14:15	Kangping Zhong,	Advanced DSP for optical coherent communications
14:20-14:40	Ning Liu	TBD
14:45-15:05	Jianping Li	Multimode-multiplexing-based technology for low-cost short-reach optical interconnect

SS II-b 5 Sept. Chair: LI Zhaohui

15:15-15:35	Fan Li	Experiment demonstration of four-channel WDM 560 Gbit/s 128QAM-DMT using IM/DD for 2-km optical interconnect
15:40-16:00	Long Zhu	Free-space optical communications using vortex beams
16:05-16:25	Xiangfei Chen	TBD
16:30-16:50	Yaocheng Shi	Silicon multimode photonic integrated devices for on-chip mode-division-multiplexed optical interconnects