ACP 2018 Postdeadline Sessions Abstracts

Su2B • Postdeadline Session I (Track 1, 5 & 6)

Room: Minghou Hall, 4F
Time: 10:30--12:15, Oct. 28
Presider: Perry Ping Shum; Nanyang Tech. Univ., Singapore

Su2B.1 • 10:30
Spatiotemporal dynamics in spatiotemporal mode-locked multimode fiber lasers, Xiaosheng Xiao1, Yihang Ding1 and Changxi Yang1; iTsinghua Univ., China. For the first time, as far as we know, spatiotemporal dynamics are experimentally observed in spatiotemporal mode-locked multimode fiber lasers. A simple theoretical model is proposed, by which the observed spatiotemporal dynamics are explained.

Su2B.2 • 10:45
Chaotic behavior of pulsating soliton in a fiber laser, Zhi-Wei Wei1, Meng Liu1, Shu-Xian Mings1, Ai-Ping Luo1, Wen-Cheng Xu1 and Zhi-Chao Luo1; iSouth China Normal Univ., China. We provide the first experimental evidence of the pulsating soliton with chaotic behavior in an ultrafast fiber laser. By utilizing the real-time spectroscopy technique, the chaotic behavior of pulsating soliton featuring the spectral collapse is clearly unveiled in the fiber laser.

Su2B.3 • 11:00
Optical rogue wave in random fiber laser: first demonstration and manipulation, Jiangming Xu1, Pu Zhou1, Jun Ye1, Jian Wu1, Jiaxin Song1 and Hanwei Zhang1; iNational Univ. of Defense Technology, China. We report the first demonstration and manipulation of stimulated-Brillouin-scattering induced optical rogue wave in random fiber laser (RFL) by employing an intensity-fluctuation-controllable superfluorescent-fiber-source, which may highlight a novel field of temporal statistic investigation in RFL.

Su2B.4 • 11:15
All-Fiber Orbital Angular Momentum (OAM) Broadband Functional Devices for OAM Generation and Beam Splitting in Conventional Graded-index Multimode Fiber, Wei Zhou1, Han Cao1 and Jian Wang1; iHuazhong Univ. of Science and Technology, China. We propose, design and fabricate all-fiber broadband orbital angular momentum (OAM) generator and OAM 1*2 coupler in conventional graded-index multimode fiber, based on which OAM ±1 and OAM ±2 modes with high purity from 1480 nm to 1620 nm are generated and OAM ±1 modes are split into two branches over the C-band.

Su2B.5 • 11:30
A microwave photonics phase synchronization network for distributed coherent aperture radar, Zhennan Zheng1, Xinlu Gao1, Binli Guo1, Xin Li, Shan Yin1 and Shanguo Huang1; iBeijing Univ. of Posts and Telecommunications, China. We propose a microwave photonics phase synchronization network for distributed coherent aperture radar for the first time.

Su2B.6 • 11:45
Wideband slow light in grating waveguides, Gaoyang Ye1, Ran Hao1, Erping Li1, Jianyao Jiao1, Zhen Zhen1 and Xiaobin Lin1; iZhejiang Univ., China. Slow light, a technology to control the optical signal by reducing the group velocity, has been widely studied to obtain enhanced nonlinearities and increased phase shifts owing to its promoting light-matter interaction ability. In this work, a wide band slow light is achieved in a simple grating waveguide. A flat band indicating slow light with group index of 13 and bandwidth over 10nm is obtained by plane wave expansion calculation. Meanwhile, by introducing a grating coupler, the coupling efficiency could be improved remarkably from below 20% to 60%.

Su2B.7 • 12:00
Coherent Detection of Terahertz Waves with a Gas Plasma, Xinyang Gu1, Kejia Wang1 and Jinsong Liu1; iHuazhong Univ. of Science and Technology, China. We demonstrate an alternative coherent detection technique via terahertz induced second-harmonic (TISH) in a laser-induced plasma for terahertz waves. In this method, the probe beam requires neither high voltage bias nor optically field bias.
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Su2C  •  Postdeadline Session II (Track 2 & 4)

Room: Mingrui Hall, F4
Time: 10:30 -- 12:00, Oct. 28
Presider: Chao Lu; The Hong Kong Polytechnic Univ., China

Su2C.1  •  10:30
Field Trial of Probabilistic-Shaping-Programmable Real-Time 200-Gb/s Coherent Transceivers in an Intelligent Core Optical Network, Junjie Li, Anxu Zhang1, Chengliang Zhang1, Xiaoli Huo1, Qifang Yang1, Jianfeng Wang2, Jianwu Wang2, Wenjun Qu2, Yin Wang2, Jian Zhang2, Minggang Si2, Zhuhong Zhang2 and Xiang Liu3; 1China Telecom, China; 2Huawei Technologies, China; 3Huawei Technologies, US. We report the first demonstration of the use of probabilistic-shaping-programmable real-time 200-Gb/s coherent transceivers in a deploying intelligent core network to achieve improved performance, energy-efficiency, and protection in case of fiber cuts, showing the benefits of such probabilistic-shaping-programmable transceivers.

Su2C.2  •  10:45
14.4Tb/s (30×480Gbps) faster-than-Nyquist WDM transmission with 60Gbaud PDM 16-QAM signals at 55GHz channel spacing, Yixiao Zhu1, Lei Zhang1, Pengfei Wang1, Chenjia Li1 and Fan Zhang1; 1Peking Univ., China. We demonstrate record 14.4Tb/s (30×480Gbps) faster-than-Nyquist WDM transmission over 80km SSMF with 60Gbaud PDM 16-QAM signal at 55GHz channel spacing. The bit error rates of all the 30 channels are below $1.5 \times 10^{-2}$.

Su2C.3  •  11:00
100.5Tb/s MLC-CS-256QAM Transmission over 600-km Single Mode Fiber with C+L Band EDFA, Yi Yu1, Lili Jin1, Zhiyu Xiao1, Fan Yu1, Yanzhao Liu1, Ling Liu1, Wanyang Wu1 and Lianchuan Liu1; 1Huawei Technologies Co., Ltd., China. In this paper, we report a new record of 100.5 Tb/s net-capacity with 10.3-b/Hz net-spectral efficiency by using CS-256QAM with multi-level coded (MLC) modulation scheme over 6x100-km G.654 single-mode fiber with 9.75-THz C+L band EDFA.

Su2C.4  •  11:15
260-Gb/s PAM-6 Transmission Using Joint Optical Pre-equalization and a Low-complexity Volterra Equalizer for Short-Reach Optical Interconnects, Yongsheng Xu1, Junwei Zhang2, Ziqi Lin1, Baoxian Yu2, Sen Zhang3, Tianjian Zuo3, Lei Liu3, Jie Liu2 and Changjian Guo1; 1South China Normal Univ., China; 2Sun Yat-Sen Univ., China; 3Huawei Technologies Co., Ltd., China. We experimentally demonstrate a 260-Gbit/s PAM-6 transmission over 500-m SSMF using optical pre-equalization and a simplified Volterra nonlinear feed-forward and decision-feedback equalizer (NL-FF-DFE), achieving the BER below the 7% forward error correction threshold.

Su2C.5  •  11:30
Dense III-V/Si Phase Shifters for Optical Phased Arrays, Weiqiang Xie1, Tin Komljenovic1, Jinxin Huang1 and John Bowers1; 1UC SANTA BARBARA, US. In this work, we report a dense heterogeneous integration of III-V/Si phase shifters for optical phased arrays. The phase shifters have a V2pi of 0.9 V and optical loss of 0.15 dB at 1550 nm for 2pi phase shift with low power consumption of less than 3 nW. We integrate those phase shifters in optical phased arrays with a pitch of 4 μm and the number of channel up to 240. 2D beamsteering is also demonstrated in a 32-channel optical phased array.

Su2C.6  •  11:45
Compact, Broadband, and Polarization-insensitive 3 dB power splitter on silicon, Xiaohui Jiang1 and Daoxin Dai1; 1Zhejiang Univ., China. An ultra-compact, ultra-broadband and polarization-insensitive 2×2 3 dB power splitter on silicon is proposed and demonstrated with a coupling region as short as 4.6 μm. The fabricated 3dB power splitter works very well for both TE and TM polarizations in a broad band from 1520 nm to 1610 nm.