Session Title	Mode Division Multiplexing	Session Code	3A1
Date & Time	July 3 (Tue.) / 14:00-15:30		
Place	Room A (Samda Hall A)		
Session Chair	Guifang Li (Univ. of Central Florida)		

3A1-1 (Paper No. SC1_1027) | Invited | 14:00-14:30 (30')

Recent Progress on Space Division Multiplexing Technology

Kazuhide Nakajima[1], Takashi Matsui[1], Yukihiro Goto[1], Yutaka Miyamoto[1], and Itsuro Morita[2]
[1]NTT Corp., Japan, [2]KDDI Research, Japan

3A1-2 (Paper No. SC1_1074) | Invited | 14:30-15:00 (30')

SDM for Power-Efficient Undersea Transmission

Oleg Sinkin, Alexey Turukhin, Maxim Bols8htyansky, Dmitri Foursa, and Alexei Pilipetskii
TE SubCom, USA

3A1-3 (Paper No. SC1_1069) 15:00-15:15 (15')

Experimental Evaluation on Switching Operation for Mode and Wavelength Switched Network (M-WSON) using Weakly-Coupled Few-Mode Fiber

Seiya Sumita, Daiki Soma, Shohei Beppu, Yuta Wakayama, Hidenori Takahashi, and Takehiro Tsuritani
KDDI Research, Inc., Japan

3A1-4 (Paper No. SC1_1067) 15:15-15:30 (15')

Demonstration of 4-Channel MDM System based on Digital Optical Phase Conjugation

Sunghyun Bae, Byoung Gon Kim, and Yun C. Chung
KAIST, Korea

Session Title	Direct-Detection Systems	Session Code	3B1
Date & Time	July 3 (Tue.) / 14:00-15:30		
Place	Room B (Samda Hall B)		
Session Chair	Nobuhiko Kikuchi (Hitachi)		

3B1-1 (Paper No. SC2_1080) | Invited | 14:00-14:30 (30')

Advanced Signal Processing Techniques for Direct Detected Short Reach Systems

Xian Zhou[1,2], Jiahao Huo[1,2], Baoxian Yu[3], Changjian Guo[1], Changyuan Yu[1], Alan Pak Tao Lau[1], and Chao Lu[1]
[1]The Hong Kong Polytechnic Univ., China, [2]Univ. of Sci. and Tech. Beijing, China, [3]Sun Yat-Sen Univ., China

3B1-2 (Paper No. SC2_1034) 14:30-14:45 (15')

Achievement of 186-Gb/s PAM-4 under 20.5- GHz Bandwidth Limitation using MLSE based on 2nd Order Volterra Filter

Hiroki Taniguchi, Shuto Yamamoto, Akira Masuda, and Mitsunori Fukutoku
NTT Corp., Japan

3B1-3 (Paper No. SC2_1056) 14:45-15:00 (15')

78.41-Gb/s Direct-Detection OFDM Transmission over 80-km SMF using Four-State Chirp Control with DEMZM

Shota Ishimura and Kosuke Nishimura
KDDI Research, Inc., Japan

3B1-4 (Paper No. SC2_1019) 15:00-15:15 (15')

A Modified Fractional DFT based FTNNOFDM Technique for IM/DD Optical Systems

Zhouyi Hu and Chun-Kit Chan
The Chinese Univ. of Hong Kong, China

3B1-5 (Paper No. SC2_1082) 15:15-15:30 (15')

Optical Equalization of 56-Gb/s PAM-4 Signals by FM-to-AM Conversion using DMLs with Insufficient Bandwidth

Zhong-Jie Zhang[1], Hong-Sing Lee[2], Lung Wei Chung[1], and San-Liang Lee[1]
[1]Nat'l Taiwan Univ. of Sci. and Tech., Taiwan, [2]Tamkang Univ., Taiwan

Session Title	Optical Fiber Applications	Session Code	3C1
Date & Time	July 3 (Tue.) / 14:00-15:30		
Place	Room C (301)		
Session Chair	Ju Han Lee (Univ. Of Seoul)		

3C1-1 (Paper No. SC3_1034) | Invited | 14:00-14:30 (30')

Optical Multi-Mode Fiber Link for in-Vehicle Applications

T.Aiba, N.Serizawa, and T.Wakabayashi
YAZAKI Corp., Japan

3C1-2 (Paper No. SC3_1024) | Invited | 14:30-15:00 (30')

Few-Mode-Fiber Developments and Applications

Pierre Sillard
Parc des Industries Artois Flandres, France

3C1-3 (Paper No. SC3_1047) 15:00-15:15 (15')

Nonlinear Characteristics of a Fiber Ring Circuit with a Semiconductor Optical Amplifier for Sensing Applications

K. Kitamura and H. Masuda
Shimane Univ., Japan

3C1-4 (Paper No. SC3_1022) 15:15-15:30 (15')

Investigation of High-Yield Microlens for Laser Coupling to Polarization Maintaining Fibers

Shiun-Chi Huang[1], Chun-Nien Liu[1], Szu-Chin Lei[2], Yi-Cheng Hsu[3], Chin-Ping Yu[2], Che-Hsin Lin[2], and Wood-Hi Cheng[1]
[1]Nat'l Chung Hsing Univ., Taiwan, [2]Nat'l Sun Yat-Sen Univ., Taiwan, [3]Nat'l Pingtung Univ. of Sci. and Tech., Taiwan

Session Title	Silicon Photonics	Session Code	3D1
Date & Time	July 3 (Tue.) / 14:00-15:30		
Place	Room D (302)		
Session Chair	Zhiping Zhou (Peking Univ.)		

3D1-1 (Paper No. SC4_1067) | Invited | 14:00-14:30 (30')

Silicon Photonic Integrated Circuits for Telecom and Datacom Applications

Po Dong, Argishti Melikyan, and Kwangwoong Kim
Nokia Bell Labs, USA

3D1-2 (Paper No. SC4_1066) | Invited | 14:30-15:00 (30')

3D Silicon Photonic-Electronic Integrated Circuits for Computing, Networking, and Imaging Applications

S. J. Ben Yoo
Univ. of California, USA

3D1-3 (Paper No. SC4_1045) 15:00-15:15 (15')

Optofluidic Ring Resonator Laser with Biocompatible Liquid Gain Medium

Wonsuk Lee[1] and Dong Ki Yoon[2]
[1]KIST, Korea, [2]KAIST, Korea

3D1-4 (Paper No. SC4_1019) 15:15-15:30 (15')

Graphene Quantum Dots for Emission Wavelength Tuning in OLEC

Zingway Pei[1], Wei-Hung Chiang[2], Dinesh Kumar[1], Hong-Yu Shi[1], and Jhih-Siang Yang[2]
[1]Nat'l Chung Hsing Univ., Taiwan, [2]Nat'l Taiwan Univ. of Sci. and Tech., Taiwan

Session Title	Passive Devices	Session Code	3E1
Date & Time	July 3 (Tue.) / 14:00-15:30		
Place	Room E (Halla Hall A)		
Session Chair	Arne Leinse (LioniX International)		

3E1-1 | Tutorial | 14:00-15:00 (60')

Compact Brillouin Devices through Hybrid Integration on Silicon

Benjamin J. Eggleton
The Univ. of Sydney, Australia

3E1-2 (Paper No. SC5_1054) | Invited | 15:00-15:30 (30')

Two-Dimensional Phosphorene-based Smart Nanostructures for Biophotonics

Han Zhang
Shenzhen Univ., China

Session Title	Photonic Signal Processing 1	Session Code	3A2
Date & Time	July 3 (Tue.) / 16:00-17:30		
Place	Room A (Samda Hall A)		
Session Chair	Xianbin Yu (Zhejiang Univ.)		

3A2-1 (Paper No. SC1_1008) | Invited | 16:00-16:30 (30')

Ultra-High Resolution Real-Time Radar Imaging based on Microwave Photonics

Shilong Pan and Fangzheng Zhang
Nanjing Univ. of Aeronautics and Astronautics, China

3A2-2 (Paper No. SC1_1034) | Invited | 16:30-17:00 (30')

Software-Defined Microwave Photonic Filter with High Reconfigurable Resolution

Lilin Yi[1], Wei Wei[1], Yves Jaouen[2], and Weisheng Hu[1]
[1]Shanghai Jiaotong Univ., China, [2]Université Paris Saclay, France

3A2-3 (Paper No. SC1_1039) 17:00-17:15 (15')

Suppression of Laser Frequency Noise Induced Phase Noise in Brillouin Optoelectronic Oscillator

Huanfa Peng, Rui Guo, Huayang Du, Yongchi Xu, Jingbiao Chen, and Zhangyuan Chen
Peking Univ., China

3A2-4 (Paper No. SC1_1049) 17:15-17:30 (15')

Polarization-Division Multiplexing based Multifunction Lidar System

Kai Chen, Hongxiang Zhang, Zhongyang Xu, and Shilong Pan
Nanjing Univ. of Aeronautics and Astronautics, China

Session Title	Capacity-Approaching Techniques	Session Code	3B2
Date & Time	July 3 (Tue.) / 16:00-17:15		
Place	Room B (Samda Hall B)		
Session Chair	Henning Buelow (Nokia Bell Labs)		

3B2-1 (Paper No. SC2_1102) | Invited | 16:00-16:30 (30')

Adaptive Multicarrier Modulation for Flexible Optical Networks

Di Che and William Shieh
The Univ. of Melbourne, Australia

3B2-2 (Paper No. SC2_1101) | Invited | 16:30-17:00 (30')

High Spectral Efficiency Optical Transmission with Probabilistic Constellation Shaping

Junho Cho, Sethumadhavan Chandrasekhar, Gregory Raybon, Xi Chen, Samuel L. I. Olsson, and Peter J. Winzer
Nokia Bell Labs, USA

3B2-3 (Paper No. SC2_1044) 17:00-17:15 (15')

Auxiliary-Channel Adaptation for Probabilistically-Shaped QAM Signals Degraded by Transmitter Nonlinearity

Masashi Binkai, Keisuke Matsuda, Ryosuke Matsumoto, Tsuyoshi Yoshida, and Naoki Suzuki
Mitsubishi Electric Corp., Japan

Session Title	Specialty Fibers	Session Code	3C2
Date & Time	July 3 (Tue.) / 16:00-17:30		
Place	Room C (301)		
Session Chair	Yongmin Jung (University of Southampton)		

3C2-1 (Paper No. SC3_1060) | Invited | 16:00-16:30 (30')

Ultralow Thermal Sensitivity of Phase and Propagation Delay in Hollow-Core Fibers

Eric Numkam Fokoua, Marco N. Petrovich, Tom Bradley, Francesco Poletti, David J. Richardson, and Radan Slavík
Univ. of Southampton, UK

3C2-2 (Paper No. SC3_1023) 16:30-16:45 (15')

Dependence of Cladding Diameter on Inter-Core Crosstalk in Heterogeneous Multi-Core Fibers

Yoshimichi Amma[1], Katsuhiro Takenaga[1], Takeshi Fujisawa[2], Kunimasa Saitoh[2], Masanori Koshiba[2], and Kazuhiko Aikawa[1]
[1]Fujikura Ltd., Japan, [2]Hokkaido Univ., Japan

3C2-3 (Paper No. SC3_1051) 16:45-17:00 (15')

Multiple-Hollow-Core Anti-Resonant Fiber

Jichao Zang, Xiaosheng Huang, and Seongwoo Yoo
Nanyang Technological Univ., Singapore

3C2-4 (Paper No. SC3_1003) | Invited | 17:00-17:30 (30')

Pressure-Tuned Phase-Matched Generation of Non-Classical Light in Microstructure Fibre

N. Y. Joly[1,2], J. Hammer[1,2], R. Pennetta[1], A. Cavanna[1], and M. V. Chekhova[1,2,3]
[1]Max-Planck Inst. for the Sci. of Light, Erlangen - Germany [2]Univ. of Erlangen-Nuremberg, Germany, [3]Moscow State Univ., Russia

Session Title	Optical Transmitter 1	Session Code	3D2
Date & Time	July 3 (Tue.) / 16:00-17:30		
Place	Room D (302)		
Session Chair	Nicola Calabretta (TU/e)		

3D2-1 (Paper No. SC4_1056) | Invited | 16:00-16:30 (30')

Modeling Depletion-Type Si Ring Modulators

Woo-Young Choi[1], Minkyu Kim[1], Myungjin Shin[1], Byung-Min Yu[1], Christian Mai[2], Stefan Lischke[2], and Lars Zimmermann[2].
[1]Yonsei Univ., Korea, [2]IHP, Germany

3D2-2 (Paper No. SC4_1057) | Invited | 16:30-17:00 (30')

Ultra-Low-Power Microring Modulators for PAM and WDM Links

Wei Shi and Yelong Xu
Université Laval, Canada

3D2-3 (Paper No. SC2_1083) 17:00-17:15 (15')

A Wavelength Stabilization Integrated Circuit for 25-Gb/s Si Micro-Ring Modulator

Min-Hyeong Kim[1], Lars Zimmermann[2], and Woo-Young Choi[1]
[1]Yonsei Univ., Korea, [2]IHP, Germany

3D2-4 (Paper No. SC4_1016) 17:15-17:30 (15')

An Actively Mode-Locked Laser based on a 5th Order Micro-Ring Resonator

Qihong Wu[1], Yuhua Li[2], Shaohao Wang[3], Qian Li[1], and Sai Tak Chu[2]
[1]Peking Univ., China, [2]City Univ. of Hong Kong, China, [3]Fuzhou Univ., China

Session Title	Integrated Photonics 1	Session Code	3E2
Date & Time	July 3 (Tue.) / 16:00-17:30		
Place	Room E (Halla Hall A)		
Session Chair	Benjamin Eggleton (The Univ. of Sydney)		

3E2-1 (Paper No. SC5_1010) | Invited | 16:00-16:30 (30')

Silicon Nitride (TriPleX™) based Photonic Integrated Circuits for a Broad Range of Application Modules

Arne Leinse
LioniX International, The Netherlands

3E2-2 (Paper No. SC5_1019) | Invited | 16:30-17:00 (30')

Integrated Polarization Diversity Devices

Kyong Hon Kim[1], Yudeuk Kim[1], Yoohan Kim[1], Dong Wook Kim[1], and Moon Hyoek Lee[2]
[1]Inha Univ., Korea, [2]Heinrich Hertz Inst., Germany

3E2-3 (Paper No. SC5_1024) 17:00-17:15 (15')

Two- and Three-Dimensional Polymer Directional Coupler for High-Density Optical Interconnects at 1550 nm

Xiao Xu, Lin Ma, and Zuyuan He
Shanghai Jiaotong Univ., China

3E2-4 (Paper No. SC5_1015) 17:15-17:30 (15')

Analytical Investigation of Generic Form Expressing Adaptive Dispersion of Optical Fractional Fourier Transform Circuit

Tomohiro NAGANUMA and Hiroyuki UENOHARA
Tokyo Inst. of Tech., Japan

Session Title	Photonic Signal Processing 2	Session Code	4A1
Date & Time	July 4 (Wed.) / 08:30-10:00		
Place	Room A (Samda Hall A)		
Session Chair	Kwan-il Lee (KIST)		

4A1-1 (Paper No. SC1_1012) | Invited | 08:30-09:00 (30')

Ultra-Broadband THz Photonic Wireless Transmission

Xianbin Yu[1], Shi Jia[1], Hao Hu[2], Michael Galili[2], Toshio Morioka[2], Peter U. Jepsen[2], and Leif K. Oxenløwe[2]
[1]Zhejiang Univ., China, [2]Technical Univ. of Denmark, Denmark

4A1-2 (Paper No. SC1_1046) | Invited | 09:00-09:30 (30')

Fiber-Wireless Seamless Transport based on Radio over Fiber Technologies for 5G and beyond

Atsushi Kanno
Nat'l Inst. of Information and Communications Tech., Japan

4A1-3 (Paper No. SC1_1064) 09:30-09:45 (15')

Low Phase Noise X-Band Optoelectronic Oscillator Utilizing a Phase Locked Loop

Huanfa Peng, Rui Guo, Huayang Du, Yongchi Xu, Cheng Zhang, Jingbiao Chen, and Zhangyuan Chen
Peking Univ., China

4A1-4 (Paper No. SC1_1017) 09:45-10:00 (15')

Flight Demonstration of Power-Over-Fiber Drone for Airborne Base Stations

Ryo Yazawa and Motoharu Matsuura
The Univ. of Electro-Communications, Japan

Session Title	High Spectral Efficiency	Session Code	4B1
Date & Time	July 4 (Wed.) / 08:30-10:00		
Place	Room B (Samda Hall B)		
Session Chair	Itsuro Morita (KDDI)		

4B1-1 (Paper No. SC2_1030) | Invited | 08:30-09:00 (30')

Faster-than-Nyquist Signaling for Optical Communications

Yaojun Qiao, Ji Zhou, Mengqi Guo, Xizi Tang, Jia Qi, and Yueming Lu
Beijing Univ. of Posts and Telecommunications, China

4B1-2 (Paper No. SC2_1064) | Invited | 09:00-09:30 (30')

Spectrally Efficient Submarine Transmission with Flexible WME

Shaoliang Zhang
NEC Laboratories America, Inc., USA

4B1-3 (Paper No. SC2_1016) 09:30-09:45 (15')

Reverse Phase Modulation Technique for GAWBS Noise Error Floor Elimination in 1024 QAM-160 km Digital Coherent Transmission

Masato Yoshida, Naoya Takefushi, Masaki Terayama, Keisuke Kasai, Toshihiko Hirooka, and Masataka Nakazawa
Tohoku Univ., Japan

4B1-4 (Paper No. SC2_1036) 09:45-10:00 (15')

200 Gbit/s, 10 Gsymbol/s-1024 QAM Injection Locked Coherent Transmission over 160 km with a Pilot-Assisted Adaptive Equalizer

Keisuke Kasai[1], Yixing Wang[1], Seiji Okamoto[1,2], Masato Yoshida[1], and Masataka Nakazawa[1]
[1]Tohoku Univ., Japan, [2]NTT Corp., Japan

Session Title	Fiber Fabrication and Applications	Session Code	4C1
Date & Time	July 4 (Wed.) / 08:30-10:00		
Place	Room C (301)		
Session Chair	Tetsuya Hayashi (Sumito Electric)		

4C1-1 (Paper No. SC3_1010) | Invited | 08:30-09:00 (30')

Ultra-High Density Optical Fiber Cable with Rollable Multicore Fiber Ribbon

Masayoshi Tsukamoto, Tetsuya Yasutomi, Koichi Maeda, and Ryuichi Sugizaki
Furukawa Electric Co., Ltd, Japan

4C1-2 (Paper No. SC3_1020) 09:00-09:15 (15')

Large-Mode-Area Fiber with Non-Circular Cores

J. Ji[1], H. Lin[2], R. Sidharthan[1], D. Ho[1], Y. Zhou[1], N. Xia[1], J. Nilsson[2], and S. Yoo[1]
[1]Nanyang Technological Univ., Singapore, [2]Univ. of Southampton, UK

4C1-3 (Paper No. SC3_1037) 09:15-09:30 (15')

Dual-Wavelength Pumping (793 nm + 1600 nm) for Thulium Doped Silica Fiber Laser

W. J. Lai and Y. C. Tan
Nanyang Tech. Univ., Singapore

4C1-4 (Paper No. SC3_1013) | Invited | 09:30-10:00 (30')

Metamaterials Fabricated by Fibre Drawing

S. Fleming[1], A. Stefani[1,2], J. Hayashi[1], and B. Kuhlmey[1]
[1]Univ. of Sydney, Australia, [2]Technical Univ. of Denmark, Denmark

Session Title	Optical Transmitter 2	Session Code	4D1
Date & Time	July 4 (Wed.) / 08:30-10:00		
Place	Room D (302)		
Session Chair	Kyoungsik Yu (KAIST)		

4D1-1 (Paper No. SC4_1028) | Invited | 08:30-09:00 (30')

Heterogeneously Integrated III-V/Si Mach-Zehnder Modulator

T. Hiraki, T. Aihara, K. Hasebe, T. Fujii, K. Takeda, T. Tsuchizawa, T. Kakitsuka, H. Fukuda, and S. Matsuo
NTT Corp., Japan

4D1-2 (Paper No. SC4_1052) | Invited | 09:00-09:30 (30')

Silicon-on-Chip Laser based on Bound States in the Continuum

Il-Sug Chung[1,2], Sushil Tandukar[1], and Alireza Taghizadeh[1]
[1]Technical Univ. of Denmark, Denmark, [2]UNIST, Korea

4D1-3 (Paper No. SC4_1041) 09:30-09:45 (15')

High Performance and Reliable 1.3 μm

□InAs Q

Daehwan Jung[1], Robert Herrick[2], Justin Norman[1], Yating Wan[1], Arthur C. Gossard[1], and John E. Bowers[1]
[1]Univ. of California Santa Barbara, USA, [2]Intel Corp., USA

4D1-4 (Paper No. SC4_1027) 09:45-10:00 (15')

High Speed Data Transmission under Voltage Modulation of Transistor Lasers

Chien-Ting Tung[1], Shu-Wei Chang[2], and Chao-Hsin Wu[1]
[1]Nat'l Taiwan Univ., Taiwan, [2]Academia Sinica, Taiwan

Session Title	Integrated Photonics 2	Session Code	4E1
Date & Time	July 4 (Wed.) / 08:30-10:00		
Place	Room E (Halla Hall A)		
Session Chair	Linjie Zhou (Shanghai Jiaotong Univ.)		

4E1-1 (Paper No. SC5_1053) | Invited | 08:30-09:00 (30')

Dynamic High Dimensional Free-Space Optical Interconnects for Urban Deployment

Majtaba Mansour Abadi, Rakan E. Alsaigh, and Martin P.J. Lavery
Univ. of Glasgow, UK

4E1-2 (Paper No. SC5_1035) | Invited | 09:00-09:30 (30')

Semiconductor-Insulator-Semiconductor (SIS) Structures for High-Performance Optical Modulation

Jae-Hoon Han[1,2], Shinichi Takagi[1], and Mitsuru Takenaka[1]
[1]The Univ. of Tokyo, Japan, [2]KIST, Korea

4E1-3 (Paper No. SC5_1040) 09:30-09:45 (15')

Flexible and Wearable Optical Pressure Sensor using 3D Polymer Directional Coupler

Xiaoyu Yang, Lin Ma, and Zuyuan He
Shanghai Jiaotong Univ., China

4E1-4 (Paper No. SC5_1033) 09:45-10:00 (15')

Polymer Waveguide Tunable Optical Delay Line with a Wide Tuning Range

Sung-Moon Kim, Tae-Hyun Park, Guanghao Huang, and Min-Cheol Oh
Pusan Nat'l Univ., Korea

Session Title	Short Reach Networks	Session Code	4A2
Date & Time	July 4 (Wed.) / 10:30-12:00		
Place	Room A (Samda Hall A)		
Session Chair	Ampalavanapillai (Thas) Nirmalathas (The Univ. of Melbourne)		

4A2-1 (Paper No. SC1_1045) | Invited | 10:30-11:00 (30')

Low-Complexity Digital Signal Processing Techniques to Enable Coherent Optical Systems for Metro and Access Networks

X. Pang[1,3], O. Ozolins[2], J. Rodrigo Navarro[1,2], A. Udalcovs[2], A. Kakkar[1], R. Lin[1], R. Schatz[1], M. Tang[4], S. Fu[4], D. Liu[4], G. Jacobsen[2], S. Popov[1], and J. Chen[1]
[1]KTH Royal Inst. of Tech., Sweden, [2]RISE Acreo AB, Sweden, [3]Infinera, Sweden, [4]Huazhong Univ. of Sci. and Tech., China

4A2-2 (Paper No. SC1_1091) | Invited | 11:00-11:30 (30')

Application of Few-Mode Fibers for Optical Access Networks and Microwave Photonics

Juhao Li[1] and Guifang Li[2]
[1]Peking Univ., China, [2]Univ. of Central Florida, USA

4A2-3 (Paper No. SC1_1066) 11:30-11:45 (15')

Requirement of DML's Chirp Parameters for RoF-based Mobile Fronthaul Networks

Byung Gon Kim, Sung Hyun Bae, and Yun C. Chung
KAIST, Korea

4A2-4 (Paper No. SC1_1052) 11:45-12:00 (15')

First Demonstration of PAM4/PAM3-OCDM System for Optical Short-Reach Transmission

T. Kodama[1], T. Miyazaki[1], M. Hanawa[1], A. Maruta[2], N. Wada[3], G. Cincotti[4], and K. Kitayama[5]
[1]Univ. of Yamanashi, Japan, [2]Osaka Univ., Japan, [3]Nat'l Inst. of Information and Communications Tech., Japan, [4]Univ. Roma Tre, Italy, [5]Graduate School for the Creation of New Photonics Industries, Japan

Session Title	Light Propagation in SDM Fiber	Session Code	4B2
Date & Time	July 4 (Wed.) / 10:30-12:00		
Place	Room B (Samda Hall B)		
Session Chair	Takashi Matsui (NTT Corp.)		

4B2-1 | Tutorial | 10:30-11:30 (60')

Propagation Effects in Fibers Supporting Multiple Spatial Modes

René-Jean Essiambre
Nokia Bell Labs, USA

4B2-2 (Paper No. SC2_1105) | Invited | 11:30-12:00 (30')

Weakly-Coupled Mode Multiplexed Optical Fiber Transmission

Takehiro Tsuritani and Daiki Soma
KDDI Research, Inc., Japan

Session Title	Fiber Amplifiers	Session Code	4C2
Date & Time	July 4 (Wed.) / 10:30-12:00		
Place	Room C (301)		
Session Chair	Kazi Abedin (OFS Lab)		

4C2-1 (Paper No. SC3_1053) | Invited | 10:30-11:00 (30')

Fully Integrated SDM Amplifiers

Yongmin Jung, Saurabh Jain, Shaif-Ul Alam, and David J. Richardson
Univ. of Southampton, UK

4C2-2 (Paper No. SC3_1044) | Invited | 11:00-11:30 (30')

Gain-Clamped Multimode Erbium Doped Fiber Amplifier

M. Wada, S. Aozasa, T. Sakamoto, T. Ymamoto, and K. Nakajima
NTT Corp., Japan

4C2-3 (Paper No. SC3_1025) 11:30-11:45 (15')

Reduction of Power Consumption of Optical Amplification with Hybrid Pumping Scheme MC-EDFA Controlled for Signal Allocation

E. Le Taillandier de Gabory, K. Matsumoto, H. Takeshita, and S. Yanagimachi
NEC Corp., Japan

4C2-4 (Paper No. SC3_1018) 11:45-12:00 (15')

Gain Enhancement of Broadband Single-Mode Cr-Doped Fibers Employing Thermal Annealing

Kai-Chieh Chang[1], Jhuo-Wei Li[1], Chun-Nien Liu[1], Ting-Sou Rou[1], Nan-Kuang Chen[2], Sheng-Lung Huang[3], and Wood-Hi Cheng[1]
[1]Nat'l Chung Hsing Univ., Taiwan, [2]Liaocheng Univ., China, [3]Nat'l Taiwan Univ., Taiwan

Session Title	Photonic Crystal	Session Code	4D2
Date & Time	July 4 (Wed.) / 10:30-12:00		
Place	Room D (302)		
Session Chair	Seok-Hwan Jeong (PETRA)		

4D2-1 | Tutorial | 10:30-11:30 (60')

Very Small Lasers and Resonators

Yong-Hee Lee
KAIST, Korea

4D2-2 (Paper No. SC4_1006) 11:30-11:45 (15')

Novel All-Optical Diode based on Single-Port and Four-Port Photonic Crystal Cavities

Takanori Sato, Takeshi Fujisawa, and Kunimasa Saitoh
Hokkaido Univ., Japan

4D2-3 (Paper No. SC4_1001) 11:45-12:00 (15')

Performance Limitation of Selective and Tunable Wavelength Converters using QPM LiNbO3 Devices with Dual Pump Configuration

Yutaka Fukuchi
Tokyo Univ. of Sci., Japan

Session Title	Silicon Photonics 1	Session Code	4E2
Date & Time	July 4 (Wed.) / 10:30-12:00		
Place	Room E (Halla Hall A)		
Session Chair	Daoxin Dai (Zhejiang Univ.)		

4E2-1 (Paper No. SC5_1009) | Invited | 10:30-11:00 (30')

Switching Devices and Systems based on Advanced Silicon Photonics

Keijiro Suzuki, Ryotaro Konoike, Satoshi Suda, Hiroyuki Matsuura, Kazuhiro Ikeda, Shu Namiki, and Hitoshi Kawashima
AIST, Japan

4E2-2 (Paper No. SC5_1014) | Invited | 11:00-11:30 (30')

FPGA-Controlled Multi-Microring Network on Chip in Silicon Photonic Platform

N. Andriolli
Scuola Superiore Sant'Anna, Italy

4E2-3 (Paper No. SC5_1050) 11:30-11:45 (15')

Silicon Photonics Waveguide Chirped Gratings Enabled by Laser Interference Lithography

Chia-Wei Kao, Nai-Wen Cheng, You-Cheng Lu, Chia-Wei Huang, and Yung-Jr Hung
Nat'l Sun Yat-sen Univ., Taiwan

4E2-4 (Paper No. SC5_1021) 11:45-12:00 (15')

Proposal of Si Four-Wavelength Multiplexer using Higher-Order Mode for 100GbE

Junya Takano[1], Takanori Sato[1], Yusuke Sawada[1], Takeshi Fujisawa[1], Taiji Sakamoto[2], Takashi Matsui[2], Kyozo Tsujikawa[2], Kazuhide Nakajima[2], and Kunimasa Saitoh[1]
[1]Hokkaido Univ., Japan, [2]NTT Corp., Japan

Session Title	Poster Session 1	Session Code	P1
Date and Time	July 4 (Wed.) / 13:00-14:00		
Place	Lobby, ICC Jeju 3F		

P1-01 **SC1_1004**

Hybrid Multiplexing over FlexE Group

Sen Zhang, Qiwen Zhong, Min Zha, and Tianjian Zuo
Huawei Technologies Co., Ltd., China

P1-02 **SC1_1006**

Load-Balancing Dynamic RSA of Joint Multicast and Anycast with Flexible Window in Elastic Optical Networks

A. Rong Ma, B. Shan Yin, C. Bao Wang, D. Yidong Chen, and E. Sha
Beijing Univ. of Posts and Telecommunications, China

P1-03 **SC1_1007**

Web-based Remote Management System for Optical Switch in AWG-STAR with Loopback Function

Seiya Aso, Yudai Tomioka, Osanori Koyama, Takumi Niihara, Yuki Ogura, and Makoto Yamada
Osaka Prefecture Univ.,Japan

P1-04 **SC1_1010**

Physical Impairment Aware Routing Scheme with MIMO Equalization in SDM Network

Shijia Guo, Shan Yin, Rong Ma, Bao Wang, and Shanguo Huang
Beijing Univ. of Posts and Telecommunications, China

P1-05 **SC1_1014**

Polarization-Multiplexed Rolling Shutter Demodulation in Mobile-Phone Based Visible Light Communication

Yuan-Chia Chang1, Chia-Wei Chen1, Yen-Chun Liu1, Ruei-Jie Shiu1, Chi-Wai Chow1, and Chien-Hung Yeh2
1Nat'l Chiao Tung Univ., Taiwan, 2Feng Chia Univ., Taiwan

P1-06 **SC1_1016**

Gate Shrunk Time Aware Shaper: Dynamic Shaping Control on White Box Switch

D. Hisano1, K. Nishimura2, Y. Nakayama1, T. Kubo1, M. Hirota2, Y. Fukada1, J. Terada1, and A. Otaka1
1NTT Corp., Japan, 2Fujitsu Ltd., Japan

P1-07 **SC1_1031**

Simultaneous Wavelength and Format Conversion in Data Center Interconnect Node for NFV/SDN Optical Network based on FWM in SOA

Yueying Zhan1, Danshi Wang2, Min Zhang2, and Shaojun Wu1
1Chinese Academy of Sci., China, 2Beijing Univ. of Posts and Telecommunications, China

P1-08 **SC1_1043**

Load Balance based Deflection Routing for Optical Burst Switching

Jiahui Kang1, Yongli Zhao1, Huibin Zhang1, Wei Wang1, Jinyu Guo1, Jie Zhang1, Chuan Liu2, Gangsong Dong3, and Qi Shao3
1Beijing Univ. of Posts and Telecommunications, China, 2Global Energy Interconnection Research Inst. Co., Ltd., China, 3State Grid Henan Information&Telecommunication Company, China

P1-10 **SC1_1060**

Sextuple Frequency Two-Tone Signal Generation using Cascaded Mach-Zehnder Modulators for Multiple Harmonics Cancelling

Takuya Nishiaki, Kazunori Osato, and Moriya Nakamura
Meiji Univ., Japan

P1-11 **SC1_1068**

Traffic Grooming Approaches in Flexible Bandwidth Optical Networks with Distributed Data Centers

Jie Zhang1, Yu Lei1, Bowen Chen1, Mingyi Gao1, Lian Xiang1, and Qianwu Zhang2
1Soochow Univ., China, 2Shanghai Univ., China

P1-12 **SC1_1070**

FC-AE-1553 Switching Network Supporting IP Services based on Parallel Scheduling Strategy

Zhuofu Zhong1, Liqian Wang1, JingJing Li1, Xue Chen1, Yueying Zhan2, Suzhi Cao2, and Shaojun Wu2
1Beijing Univ. of Posts and Telecommunications, China, 2Chinese Academy of Sci., China

P1-13 **SC1_1072**

Experimental Demonstration of Simple RS Code based PON-FEC for 25 Gbps/wavelength Optical Access

Seung Hwan Kim and Hwan Seok Chung
ETRI, Korea

P1-14 **SC1_1078**

Micro-Optics based Polarization Decoding Module for Free-Space Quantum Key Distribution

Byung-Seok Choi, Haesin Ko, Joong-Seon Choe, Kap-Joong Kim, Chun Ju Youn, Jong-Hoi Kim, and Yongsoon Baek
ETRI, Korea

P1-15 **SC1_1079**

Sidelobe Suppression Improvement in Microwave Photonic Filter via Time-to-Frequency Mapping

Minje Song, Sungil Kim, Jungmin Park, Joontae Ahn, Jaesik Sim, Sangpil Han, and Minhyup Song
ETRI, Korea

P1-16 **SC1_1083**

Position Tracking based on AOA and MIMO Combined Technique with Visible Light

Kaoru Kosai, Yuki Hirata, Tsubasa Furuta, Takanori Matsuzaki, and Wataru Imajuku
Kindai Univ., Japan

P1-17 **SC1_1086**

A Dynamic Cryptography Door Lock System based on Visible Light Communication

Shuyan Chen1, Jianhua Shen2, Xiaodi You2, Jian Chen2, and Changyuan Yu3
1Nanjing Univ., China, 2Nanjing Univ. of Posts & Telecommunications, China, 3The Hong Kong Polytechnic Univ., China

P1-18 **SC2_1002**

Transmission of 2.5Gb/s PM-BPSK over 606.5km with a Span Loss in Excess of 101dB

Jian Xu1, Liyan Huang1, Jiekui Yu1, Ming Li1, Min Xiang1, Weihua Li2, Zhen Wu2, and He Lu
1Accelink Technologies Co. Ltd, China, 2State Grid Information and Telecommunication Branch, China

P1-19 **SC2_1004**

A Machine Learning Enabled Optical IMDD SDM OFDM System

Q. W. Zhang, M. Liu, H. Zhou, F. Wang, J. Chen, B. Y. Cao, Y. X. Song, J. J. Zhang, Y. C. Li, and M. Wang
Shanghai Univ., China

P1-20 **SC2_1007**

Experimental Demonstration of SPM Compensation based on Digital Signal Processing using a Complex-Valued Neural Network for 40-Gbit/s Optical 16QAM Signals

Yuta Fukumoto[1], Shotaro Owaki[1], Takahide Sakamoto[2], Naokatsu Yamamoto[2], and Moriya Nakamura[1]

[1]Meiji Univ., Japan, [2]Nat'l Inst. of Information and Communications Tech., Japan

P1-21 **SC2_1008**

Nonlinear Distortion and Phase-Noise Compensation using a Polarization-Multiplexed and Intensity-Modulated Pilot-Carrier

Noriki Sumimoto, Yuya Takanashi, and Moriya Nakamura

Meiji Univ., Japan

P1-22 **SC2_1009**

Performance Evaluation of Twin-SSB Methods with Detection using a Electric Butterfly Operation

Yuya Takanashi, Shogo Kashiwagi, Damia Dalilah Binti Zainudin, and Moriya Nakamura

Meiji Univ., Japan

P1-23 **SC2_1023**

Signal Degradation Factor of a Correlation Receiver with an Analog Integration Circuit

S. Nakata, Y. Miyoshi, H. Kubota, and M. Ohashi

Osaka Prefecture Univ., Japan

P1-24 **SC2_1024**

Performance Evaluation of Residual Dispersion Equalization by an Optical Correlation Receiver

K. Morimoto, Y. Miyoshi, H. Kubota, and M. Ohashi

Osaka Prefecture Univ., Japan

P1-25 **SC2_1029**

Computational-Complexity Comparison of Artificial Neural Network and Volterra Series Transfer Function for Optical Nonlinearity Compensation

Yuta Otsuka, Yuta Fukumoto, Shotaro Owaki, and Moriya Nakamura

Meiji Univ., Japan

P1-26 **SC2_1031**

10-GSample/s, 15-level Optical Quantization using Frequency Chirp in a Quantum-Dot SOA

Takuya Okada, Hiroki Hoshino, and Motoharu Matsuura

The Univ. of Electro-Communications, Japan

P1-27 **SC2_1032**

Condition for Gaussian-Schell Model Beam to Maintain the Polarization Property in Wireless Optical Communication

Ziyang Li, Jiankun Zhang, and Anhong Dang

Peking Univ., China

P1-28 **SC2_1038**

Nonlinear Transmission Characteristics of DWDM Coherent Optical Signal through Multiple Dispersion-Shifted Fiber Spans

Yasuhiro Aoki, Xin Zhang, and Qian Tong

Saitama Inst. of Tech.

P1-29 **SC2_1050**

Aero-Aqua Optical Transmission System with Retroreflector and Self-Homodyne Receiver

Wataru Imajuku1, Kaoru Kosai1, Yuki Kakushi2, Yoshihiko Hibino2, Ryo Amano2, Yasushi Mitsunaga3, and Yoshinobu Maeda2

Kindai Univ., Japan

P1-30 **SC2_1053**

112 Gb/s PDM to MDM PAM4 Signal Conversion for Short Reach Hybrid Networks

H. Zhou[1], Y. Li[1], L.Feng[1], W.Li[1], X.Hong[1], H.Guo[1], Y.Zuo[1], J.Qiu[1], H. Yu[2], and J. Wu[1]

[1]Beijing Univ. of Posts and Telecommunications, China, [2]Fiberhome Telecommunication Technologies Co. Ltd., China

P1-31 **SC2_1075**

58.125 Gb/s 80 km Transmission of PAM-4 Signal with Improved Dispersion Tolerance

Sang-Rok Moon1, Hun-Sik Kang1, Hae Young Rha2, and Joon Ki Lee1

1ETRI, Korea, 2MIROandI, Korea

P1-32 **SC2_1093**

Performance Analysis for Coherent Space-to-Ground Optical Communication Systems in Turbulence Channels

Yuebing Zhu1, Xuesong Wang3, Yang Sun3, and Yueying Zhan3

1Univ. Sci. and Tech. Beijing, China, 2China Electronics Tech. Group, China, 3Chinese Academy of Sci., China

P1-33 **SC2_1100**

DSP-based Collective-Compensation of Interchip Intensity Slope for QPSK-OCDM System

T. Kodama, T. Nukanobu, T. Miyazaki, and M. Hanawa

Univ. of Yamanashi, Japan

P1-34 **SC5_1004**

Silicon-on-Insulator (SOI) based Polarization Exchanger using Asymmetric Directional Coupler

Ching-Wei Peng1, Yuan-Chia Chang1, Ming-Wei Cheng1, Yung Hsu1, Liang-Yu Wei1, Chi WaiChow1, and Chien-Hung Yeh2

1Nat'l Chiao Tung Univ., Taiwan, 2Feng Chia Univ., Taiwan

P1-35 **SC5_1006**

Color Generation using Multi-Layered Metasurfaces

Jeong-Geun Yun, Chulsoo Choi, and Byoungho Lee

Seoul Nat'l Univ., Korea

P1-36 **SC5_1027**

Compact Silicon-on-Insulator Lower-Order Mode Suppressor

Mohammad H. Sharaf1,2, Ahmed Shalaby3, and Hossam M. H. Shalaby1

1Egypt-Japan Univ. of Sci. and Tech. (E-JUST), Egypt, 2Al-Azhar Univ., Egypt, 3Banha Univ., Egypt

P1-37 **SC5_1032**

Analysis of Non-Propagating Modes for Light Trapping in Plasmonic Waveguides

Syed Muhammad Anas Ibrahim and Kyoung-Youm Kim

Sejong Univ., Korea

P1-38 **SC5_1041**

Optimization of Interferometric Sensing Heads for Active Mode Locking Laser Sensor

Chang Hyun Park1, Gyeong Hun Kim1, Hwi Don Lee2, Minsik Jo3, and Chang-Seok Kim1

1Pusan Nat'l Univ., Korea, 1GIST, Korea, 3Agency for Defense Development, Korea

P1-39 **SC5_1046**

Multiplexing of Sagnac Interferometric Filter for Strain Sensing with Phase Shift

Sang Min Park[1], Seung Won Jun[1], Minsik Jo[2], and Chang-Seok Kim[1]
[1]Pusan Nat'l Univ., Korea, [2]Agency for Defense Development, Korea

P1-40 **SC5_1047**

Spectral Compression of Mid-Infrared Pulse in a Suspended Silicon Waveguide Taper

Yujun Cheng1, Jinhui Yuan1,2, Chao Mei1, Feng Li2, Zhe Kang2, Xianting Zhang2, Yin Xu2, Binbin Yan1, Kuiru Wang1, Xinzhu Sang1, Xian Zhou2, and Chongxiu Yu1

1Beijing Univ. of Posts and Telecommunications, China, 2The Hong Kong Polytechnic Univ., China

P1-41 **SC5_1048**

Cylindrical Diffusing Optical Fiber Probe for Photo-Dynamic Therapy

Gaye Park, Hyeyeon Lee, Derek Minwoo Jung, Chanho Hwang, Changhyun Jung, Jaesun Kim, and Chihwan Ouh

TAIHAN Fiberoptics Co., Ltd, Korea

P1-42 **SC5_1049**

The Effect of Dy2O3 Doped Glass System on Transmission Properties for Laser Sealing

So Young Kim1,2, June Park1, Seon Hoon Kim1, and Ju Hyeon Choi1

1KOPTI, Korea, 2Chonnam Nat'l Univ., Korea

P1-43 **SC5_1051**

Holographic Solar Concentrator using Multiplexed Holographic Optical Elements

Hui-Ying Wu1, Seo-Yeon Park1, Jae-Min Lee1, Seok-Hee Jeon2, and Nam Kim1

1Chungbuk Nat'l Univ., Korea, 2Incheon Nat'l Univ., Korea

Session Title	Optical Access for 5G 1	Session Code	4A3
Date & Time	July 4 (Wed.) / 14:00-15:30		
Place	Room A (Samda Hall A)		
Session Chair	Hwan Seok Chung (ETRI)		

4A3-1 | Tutorial | 14:00-15:00 (60')

Optical Access Technologies for 5G Wireless

Xiang Liu
Huawei Co. Ltd., USA

4A3-2 (Paper No. SC1_1058) | Invited | 15:00-15:30 (30')

Radio-over-Fiber Transmission Technology for Future Mobile Access Network toward beyond-5G Era

Kosuke Nishimrua, Shota Ishimura, Kazuki Tanaka, Abdelmoula Bekkali, Shinobu Nanba, and Masatoshi Suzuki
KDDI Research, Inc., Japan

Session Title	Nonlinear Transmission	Session Code	4B3
Date & Time	July 4 (Wed.) / 14:00-15:30		
Place	Room B (Samda Hall B)		
Session Chair	Shaoliang Zhang (NEC Labs America)		

4B3-1 (Paper No. SC2_1079) | Invited | 14:00-14:30 (30')

Propagation and Mutual Information of a Nonlinear Frequency Division Multiplexed Signal

Henning Buelow, Vahid Aref, and Son Thai Le
Nokia Bell Labs, Germany

4B3-2 (Paper No. SC2_1025) | Invited | 14:30-15:00 (30')

Multi-Channel Fiber Nonlinearity Mitigation in Coherent DWDM Systems

Inwoong Kim, Olga Vassilieva, Paparao Palacharla, and Tadashi Ikeuchi
Fujitsu Laboratories of America, Inc., USA

4B3-3 (Paper No. SC2_1033) 15:00-15:15 (15')

Precoding for Dual Polarization Soliton Transmission

Alexander Span[1], Vahid Aref[2], Henning Buelow[1], and Stephan ten Brink[1]
[1]Univ. of Stuttgart, Germany, [2]Nokia Bell Labs, Germany

4B3-4 (Paper No. SC2_1077) 15:15-15:30 (15')

Low-Complexity-Nonlinear Compensation Method using Phase Linear Approximation for 16QAM Signals

Shin TAKANO and Hiroyuki UENOHARA
Tokyo Inst. of Tech., Japan

Session Title	Fiber Amplifers and Light Sources	Session Code	4C3
Date & Time	July 4 (Wed.) / 14:00-15:30		
Place	Room C (301)		
Session Chair	Enrique Antonio-Lopez (Univ. of Central Florida)		

4C3-1 (Paper No. SC3_1005) | Invited | 14:00-14:30 (30')

THz Time-Domain Spectroscopy based on Prechirped Mode-Locked Yb-Doped Fiber Laser

Min Yong Jeon[1], Ji Su Kim[1], Hyun Moon Yang[1], Sang-Pil Han[2], Kiwan Moon[2], and Kyung Hyun Park[2]
[1]Chungnam Nat'l Univ., Korea, [2]ETRI, Korea

4C3-2 (Paper No. SC3_1021) 14:30-14:45 (15')

Large-Mode-Area Multicore Fiber Amplifier at 1070 nm

Junhua Ji[1], Sidharthan Raghuraman[1], Xiaosheng Huang[1], Jichao Zang[1], Daryl Ho[1], Yanyan Zhou[1], Wenn Jing Lai[3], Yehuda Benudiz[2], Udi Ben Ami[2], Amiel A. Ishaaya[2], Seongwoo Yoo[1]
[1]Nanyang Technological Univ., Singapore [2]Ben-Gurion Univ. of the Negev, Israel

4C3-3 (Paper No. SC3_1004) 14:45-15:00 (15')

Wavelength-Swept Source at 2.0 μm through Second Harmonic Generation

Sisi Tan[1], Xiaoming Wei[1,2], Bowen Li[1], Kevin K. Tsia[1], and Kenneth K. Y. Wong[1]
[1]The Univ. of Hong Kong, China, [2]California Inst. of Tech., USA

4C3-4 (Paper No. SC3_1019) | Invited | 15:00-15:30 (30')

Fluorotellurite Microstructured Fibers and their Applications

Guanshi Qin, Zhixu Jia, Fei Wang, and Weiping Qin
Jilin Univ., China

Session Title	Optical Transmitter 3	Session Code	4D3
Date & Time	July 4 (Wed.) / 14:00-15:30		
Place	Room D (302)		
Session Chair	Long Chen (Acacia Communications)		

4D3-1 (Paper No. SC4_1020) | Invited | 14:00-14:30 (30')

Silicon Photonics in Optical Coherent Systems

L. Chen, C. Doerr, R. Aroca, J. Heanue, T. Nielsen, S. Azemati, G. Ali, Li Chen, B. Guan, and H. Zhang
Acacia Communications, USA

4D3-2 (Paper No. SC4_1008) | Invited | 14:30-15:00 (30')

Low Cost 400-Gbps Micro-Intradyne Coherent Receiver using Chip-to-Chip Bonding and FPCB Wirings

Young-Tak Han, Seo-Young Lee, Jong-Hoi Kim, Young-Ho Ko, Hyun-Do Jung, Joong-Seon Choe, Chun-Ju Youn, Won-Seok Han, Seok-Tae Kim, and Yongsoon Baek
ETRI, Korea

4D3-3 (Paper No. SC4_1054) 15:00-15:15 (15')

Two Stacks of MQW for Fabricating High-Speed Electro-Absorption Modulator Integrated DFB Laser

Yang-Jeng Chen[1], Rih-You Chen[1], Chuang Han Shih[1], W. Lin[2], and Yi-Jen Chiu[1]
[1]Nat'l Sun Yat-Sen Univ., Taiwan, [2]LandMark Optoelectronics, Inc., Taiwan

4D3-4 (Paper No. SC4_1026) 15:15-15:30 (15')

25Gbps Electroabsorption Modulated DFB Laser Diodes for Digital Fronthaul Network

Namje Kim, Miran Park, Shinmo An, Tae-Soo Kim, Won Seok Han, and O-Kyun Kwon
ETRI, Korea

Session Title	Silicon Photonics 2	Session Code	4E3
Date & Time	July 4 (Wed.) / 14:00-15:30		
Place	Room E (Halla Hall A)		
Session Chair	Sangin Kim (Ajou Univ.)		

4E3-1 (Paper No. SC5_1055) | Invited | 14:00-14:30 (30')

Silicon Photonics Device Technologies for On-Chip WDM Applications

Seok-Hwan Jeong
Photonics Electronics Technology Research Association

4E3-2 (Paper No. SC5_1044) | Invited | 14:30-15:00 (30')

Silicon Photonics for Radio-Frequency Signal Processing

Linjie Zhou, Xinyi Wang, Jiayu Jing, Liangjun Lu, and Jianping Chen
Shanghai Jiaotong Univ., China

4E3-3 (Paper No. SC5_1031) 15:00-15:15 (15')

Optical Absorption and Free Carrier Dynamics in MoS_2-on-Silicon Waveguide

Yi Wang[1], Ming Feng[2], and Hon Ki Tsang[1]
[1]The Chinese Univ. of Hong Kong, China, [2]Nankai Univ., China

4E3-4 (Paper No. SC5_1030) 15:15-15:30 (15')

Mode Evolution in Cladding-Modulated Si Photonics Waveguide Gratings

You-Cheng Lu, Ya-Ching Liang, Chong-Jia Wu, and Yung-Jr Hung
Nat'l Sun Yat-sen Univ., Taiwan

Session Title	Optical Wireless Access	Session Code	4A4
Date & Time	July 4 (Wed.) / 16:00-17:30		
Place	Room A (Samda Hall A)		
Session Chair	Gee-Kung Chang (Georgia Inst. of Tech.)		

4A4-1 (Paper No. SC1_1087) | Invited | 16:00-16:30 (30')

High-Speed Optical Wireless Communications for Local Area Networks

Ampalavanapillai Nirmalathas[1], Tian Liang[1], Sampath Edirisinghe[1], Christina Lim[1], Elaine Wong[1], Ke Wang[2], and Kamal Alameh[3]
[1]The Univ. of Melbourne, Australia, [2]RMIT Univ., Australia, [3]Edith Cowan Univ., Australia

4A4-2 (Paper No. SC1_1024) 16:30-16:45 (15')

Over 1-km Power-over-Fiber using a Double-Clad Fiber for Bidirectional RoF Systems

Nana Tajima, Akira Yoneyama, Daisuke Kamiyama, and Motoharu Matsuura
The Univ. Electro-Communications, Japan

4A4-3 (Paper No. SC1_1040) 16:45-17:00 (15')

A Protection Scheme for Central Offices in Radio-on-Fiber Cloud Radio Access Networks

Qianmei Yang and Chun-Kit Chan
The Chinese Univ. of Hong Kong, China

4A4-4 (Paper No. SC1_1042) 17:00-17:15 (15')

On the Performance of Probabilistically-Shaped CAP over Optical Wireless Communications

Yang Hong[1,2], Tingting Song[2], Yingjie Shao[1], Lian-Kuan Chen[1], Christina Lim[2], Ka-Lun Lee[2], Ampalavanapillai Nirmalathas[2], and Elaine Wong[2]
[1]The Chinese Univ. of Hong Kong, China, [2]The Univ. of Melbourne, Australia

4A4-5 (Paper No. SC1_1051) 17:15-17:30 (15')

Modulation Recognition and Nonlinearity Resistance of RoF System based on Clustering Algorithm

Di Zhang, Yao Ye, Deming Liu, Minming Zhang, Jiang Tang, Kun He, and Shu Wang
Huazhong Univ. of Sci. & Tech., China

Session Title	SSB DD Systems	Session Code	4B4
Date & Time	July 4 (Wed.) / 16:00-17:15		
Place	Room B (Samda Hall B)		
Session Chair	Willian Shieh (The Univ. Melbourne)		

4B4-1 (Paper No. SC2_1018) | Invited | 16:00-16:30 (30')

High-Speed Optical SSB Transmissions using Direct Detection

Xingwen Yi[1,2], Mingyue Zhu[2], Jing Zhang[2], Xiatao Huang[2], and Kun Qiu[2]
[1]Sun Yat-Sen Univ., China, [2]Univ. of Electronic Sci. and Tech. of China, China

4B4-2 (Paper No. SC2_1081) 16:30-16:45 (15')

Kramers-Kronig Direct Detection of 40-Gb/s OFDM Signal Generated by using EML

Sunghyun Moon, Tianwai Bo, Byung Gon Kim, Daeho Kim, and Hoon Kim
KAIST, Korea

4B4-3 (Paper No. SC2_1098) 16:45-17:00 (15')

Polarization Mode Dispersion Impacts on Kramers-Kronig Receiver

Chuanbowen Sun, Di Che, Robert Schmid, and William Shieh
The Univ. of Melbourne, Australia

4B4-4 (Paper No. SC2_1078) 17:00-17:15 (15')

Impact of the IQ Imbalance on the Performance of Kramers-Kronig Receiver

Tianwai Bo and Hoon Kim
KAIST, Korea

Session Title	Fiber Lasers	Session Code	4C4
Date & Time	July 4 (Wed.) / 16:00-17:30		
Place	Room C (301)		
Session Chair	Wada Masaki (NTT Corp.)		

4C4-1 (Paper No. SC3_1056) | Invited | 16:00-16:30 (30')

Wavelength Programmable Fiber Lasers for Biomedical Applications

Chang-Seok Kim[1] and Hwidon Lee[2]
[1]Pusan Nat'l Univ., Korea, [2]GIST, Korea

4C4-2 (Paper No. SC3_1016) 16:30-16:45 (15')

Influence of Graphene Layers on Tunable Range and Pulsewidth in Mode-Locked Lasers

Heng-Yi Su[1], Tsung-Hau Wang[1], Chun-Nien Liu[1], Pi-Ling Huang[1], Chao-Yung Yeh[2], and Wood-Hi Cheng[1]
[1]Nat'l Chung Hsing Univ., Taiwan, [2]Metal Industries Research and Development Center, Taiwan

4C4-3 (Paper No. SC3_1050) 16:45-17:00 (15')

A Burst-Mode Figure-Eight Fiber Laser for Linearly-Polarized, Dissipative Soliton Pulses

Jinho Lee, Seunghwan Ko, and Ju Han Lee
Univ. of Seoul, Korea

4C4-4 (Paper No. SC3_1058) | Invited | 17:00-17:30 (30')

Low-Noise Ultrafast Fiber Lasers

Jungwon Kim
KAIST, Korea

Session Title	Optical Receivers	Session Code	4D4
Date & Time	July 4 (Wed.) / 16:00-17:30		
Place	Room D (302)		
Session Chair	Tatsurou Hiraki (NTT Corp.)		

4D4-1 (Paper No. SC4_1032) | Invited | 16:00-16:30 (30')

High-Performance Waveguide-Coupled Ge Photo Detectors for a Photonic BiCMOS Technology

Stefan Lischke, Dieter Knoll, Christian Mai, and Lars Zimmermann
IHP, Germany

4D4-2 (Paper No. SC4_1037) | Invited | 16:30-17:00 (30')

CMOS-based Single-Photon Detectors: Technology and Applications

Myung-Jae Lee, Claudio Bruschini, and Edoardo Charbon
EPFL, Switzerland

4D4-3 (Paper No. SC4_1064) 17:00-17:15 (15')

Frequency Dependence of Negative Differential Capacitance in InP-Based Photodetectors with Wide Spectral Range

Xiaokai Ma, Yongqing Huang, Tao Liu, Xiaofeng Duan, Kai Liu, and Xiaomin Ren
Beijing Univ. of Posts and Telecommunications, China

4D4-4 (Paper No. SC4_1022) 17:15-17:30 (15')

2.8μm Infrared Photodetectors based on PbSe Colloidal Quantum Dot Films

M. Thambidurai[1], Youngjin Jang[2], Arthur Shapiro[2], Gao Yuan[1], Hu Xiaonan[1], Yu Xuechao[1], Qi Jie Wang[1], Efrat Lifshitz[1], Hilmi Volkan Demir[1], and Cuong Dang[1]
[1]Nanyang Technological Univ., Singapore, [2]Schulich Faculty of Chemistry, Israel

Session Title	Silicon Photonics 3	Session Code	4E4
Date & Time	July 4 (Wed.) / 16:00-17:00		
Place	Room E (Halla Hall A)		
Session Chair	Nicola Andriolli (Scuola Superiore)		

4E4-1 (Paper No. SC5_1028) | Invited | 16:00-16:30 (30')

Silicon Photonic Integrated Devices for Mode-Division-Multiplexing

Daoxin Dai
Zhejiang Univ, China

4E4-2 (Paper No. SC5_1005) | Invited | 16:30-17:00 (30')

Ultrafast Photonic Devices based on Nanomaterials

Pulak C. Debnath[1], Siam Uddin[1,2], and Yong-Won Song[1,2]
[1]KIST, Korea, [2]Korea Univ. of Sci. and Tech., Korea

Session Title	Indoor Network	Session Code	5A1
Date & Time	July 5 (Thu.) / 08:30-10:00		
Place	Room A (Samda Hall A)		
Session Chair	Hanhyub Lee (ETRI)		

5A1-1 (Paper No. SC1_1073) | Invited | 08:30-09:00 (30')

Experimental Demonstrations of RoF Technologies for 5G Indoor DAS Applications

Seung-Hyun Cho, Hwan Seok Chung, Joonyoung Kim, Minkyu Sung, Joon ki Lee, and Jong Hyun Lee
ETRI, Korea

5A1-2 (Paper No. SC1_1033) 09:00-09:15 (15')

Demonstration of Indoor Optical Wireless Communications with Spatial Diversity using Repetition-Coding and Space-Time-Block-Coding

Tingting Song[1], Ke Wang[2], Ampalavanapillai Nirmalathas[1], Christina Lim[1], Elaine Wong[1], and Kamal Alameh[3]
[1]The Univ. of Melbourne, Australia, [2]RMIT Univ., Australia, [3]Edith Cowan Univ., Australia

5A1-3 (Paper No. SC1_1062) 09:15-09:30 (15')

3D Indoor Visible Light Positioning System using RSS Ratio with Neural Network

Sheng Zhang, Pengfei Du, Chen Chen, and Wen-De Zhong
Nanyang Technological Univ., Singapore

5A1-4 (Paper No. SC1_1085) 09:30-09:45 (15')

Receiving Area Enlargement using Expanded Laser Beam for Indoor Optical Wireless Communication

Kai-Min Wang[1],Yi-Lin Yu[1], Huai-Ching Wang[1], Shien-Kuei Liaw[1], Hiroki Kishikawa[2], and Nobuo Goto[2]
[1]Taiwan Tech, Taiwan, [2]Tokushima Univ., Japan

5A1-5 (Paper No. SC1_1035) 09:45-10:00 (15')

Dimmable Optical OFDM based on Discrete Hartley Transform for Indoor Visible Light Illumination and Communication

M. Che, T. Kuboki, and K. Kato
Kyushu Univ., Japan

Session Title	Polarization Issues & Monitoring	Session Code	5B1
Date & Time	July 5 (Thu.) / 08:30-10:00		
Place	Room B (Samda Hall B)		
Session Chair	Yuichi Akiyama (Fujitsu Laboratories Ltd.)		

5B1-1 (Paper No. SC2_1047) **08:30-08:45 (15')**

Polarization De-Multiplexing using Modified Kalman Filter with Singularity Elimination in Coherent Optical OFDM Transmissions

Yang Jiang[1], Xingwen Yi[1,2], Xiatao Huang[1], Shaohua Hu[1], Wenjing Zhou[1], Jing Zhang[1], and Kun Qiu[1]
[1]Univ. of Electronic Sci. and Tech. of China, China, [2]Sun Yat-Sen Univ., China

5B1-2 (Paper No. SC2_1010) **08:45-09:00 (15')**

Sensitivity Analyses of Stokes-Vector Receivers for Cubic-Lattice Polarization Modulation

K. Kikuchi
Nat'l Inst. for Academic Degrees and Quality Enhancement of Higher Education, Japan

5B1-3 (Paper No. SC2_1099) **09:00-09:15 (15')**

Effect of Polarization-Dependent Loss on Polarization Slew Rate

R. M. Jopson and E. C. Burrows III
Nokia Bell Labs, USA

5B1-4 (Paper No. SC2_1012) **09:15-09:30 (15')**

Blind Modulation Format Identification based on Fourier Fitting for Coherent Receivers

Lin Jiang, Lianshan Yan, Anlin Yi, Yan Pan, Ming Hao, Wei Pan, and Bin Luo
Southwest Jiaotong Univ., China

5B1-5 (Paper No. SC2_1072) **09:30-09:45 (15')**

Artificial Neural Network based Modulation Identification for Elastic Optical Networks

Q. W. Zhang, M. Liu, H. Zhou, J. Chen, B. Y. Cao, Y. X. Song, J. J. Zhang, Y. C. Li, and M. Wang
Shanghai Univ., China

5B1-6 (Paper No. SC2_1043) **09:45-10:00 (15')**

Fiber Link Analysis and Q-factor Estimation using CNN on Eye-Diagram

Jianqiang Li[1], Danshi Wang[1], Jin Li[1], Wei Yang[2], and Min Zhang[1]
[1]Beijing Univ. of Posts and Telecommunications, China, [2]Beijing Information Sci. & Tech. Univ., China

Session Title	Optical Fiber Sensors	Session Code	5C1
Date & Time	July 5 (Thu.) / 08:30-10:00		
Place	Room C (301)		
Session Chair	Tristan Kremp (OFS Laboratories)		

5C1-1 (Paper No. SC3_1052) | Invited | 08:30-09:00 (30')

Signal Processing in Optical Fiber Sensor Networks

Lianshan Yan, Zonglei Li, Haijun He, Yin Zhou, and Xinpu Zhang
Southwest Jiaotong Univ., China

5C1-2 (Paper No. SC3_1029) | Invited | 09:00-09:30 (30')

High-Performance Optical Fibre Sensing

Marcelo A. Soto
Univ. Técnica Federico Santa María, Chile

5C1-3 (Paper No. SC3_1012) 09:30-09:45 (15')

Single-Ended Fiber Latency Measurement with Picosecond-Accuracy using Correlation OTDR

Michael H. Eiselt and Annika Dochhan
ADVA Optical Networking SE, Germany

5C1-4 (Paper No. SC3_1046) 09:45-10:00 (15')

Modal-Interference-based Displacement Sensing using Partially Strained Plastic Optical Fibers

Sonoko Hagiwara, Tomohito Kawa, Heeyoung Lee, Yosuke Mizuno, and Kentaro Nakamura
Tokyo Inst. of Tech., Japan

Session Title	Secure & Free-Space Communications	Session Code	5D1
Date & Time	July 5 (Thu.) / 08:30-10:00		
Place	Room D (302)		
Session Chair	C. J. Youn (ETRI)		

5D1-1 (Paper No. SC2_1048) **08:30-08:45 (15')**

Digital Coherent Detection with Decryption in PSK Y-00 Quantum Stream Cipher

Ken Tanizawa and Fumio Futami
Tamagawa Univ., Japan

5D1-2 (Paper No. SC2_1058) **08:45-09:00 (15')**

Secure Communication using Anti-Correlated Noise from an ASE-Injected F-P LD

Il-Pyeong Hwang[1], Myeonggyun Kye[1], and Chang-Hee Lee[1,2]
[1]KAIST, Korea, [2]Chongqing Univ. of Tech., China

5D1-3 (Paper No. SC2_1070) **09:00-09:15 (15')**

Applying DFTs-OFDM to QAM-based Quantum Noise Stream Cipher Transmission

Xiaokun Yang, Wei Wang, Cheng Xu, Kai Wang, Guangyu Gong, Yongli Zhao, Huibin Zhang, Guanjun Gao, Xiaosong Yu, and Jie Zhang
Beijing Univ. of Posts and Telecommunications, China

5D1-4 (Paper No. SC2_1042) **09:15-09:30 (15')**

Link Availability of Terrestrial Free-Space Optical Communication Systems in Korea Estimated by using Macro-Meteorological Data

Vuong V. Mai and Hoon Kim
KAIST, Korea

5D1-5 (Paper No. SC2_1074) **09:30-09:45 (15')**

Environmental Factor Impact to Free-Space Optical Bi-directional Transmission

Shien-Kuei Liaw[1], Kuang-Yu Hsu[2], Jai-Ger Yeh[1], Y u-Ming Lin[1], Yilin Yu[1], and Le-Minh Hoa[3]
[1]Nat'l Taiwan Univ. of Sci. and Tech., Taiwan, [2]Maven Optronics Inc., Taiwan, [3]Northumbria Univ., UK

5D1-6 (Paper No. SC2_1096) **09:45-10:00 (15')**

Link Availability of Airborne Free-Space Optical Communication Systems under Effect of Generalized Misalignment

Vuong V. Mai and Hoon Kim
KAIST, Korea

Session Title	Sensing Devices	Session Code	5E1
Date & Time	July 5 (Thu.) / 08:30-10:00		
Place	Room E (Halla Hall A)		
Session Chair	Chang-Seok Kim (Pusan Nat'l Univ.)		

5E1-1 (Paper No. SC5_1017) | Invited | 08:30-09:00 (30')

Ultra-Weak FBG Array for Fiber-Optic Sensing Applications

Cheng Cheng, Jianguan Tang, and Minghong Yang
Wuhan Univ. of Tech., China

5E1-2 (Paper No. SC5_1023) | Invited | 09:00-09:30 (30')

Optical Reflectometry with Ultra-High Spatial Resolution and Long Measurement Range

Xinyu Fan and Zuyuan He
Shanghai Jiaotong Univ., China

5E1-3 (Paper No. SC5_1013) 09:30-09:45 (15')

Si Photonics Waveguide Bragg Reflector based on Thin Graphene Oxide Grating Overlay

Nai-Wen Cheng, Chia-Wei Huang, Shih Hu, Chun-Hu Chen, and Yung-Jr Hung
Nat'l Sun Yat-sen Univ., Taiwan

5E1-4 (Paper No. SC5_1025) 09:45-10:00 (15')

Integrated High-Q Optomechanical Nanobeam Cavity for Refractive Index Sensing

Fei Pan, Kaiyu Cui, Guoren Bai, Xue Feng, Fang Liu, Wei Zhang, and Yidong Huang
Tsinghua Univ., China

Session Title	High Speed PON	Session Code	5A2
Date & Time	July 5 (Thu.) / 10:30-12:00		
Place	Room A (Samda Hall A)		
Session Chair	Bin Yeong Yoon (ETRI)		

5A2-1 (Paper No. SC1_1059) | Invited | 10:30-11:00 (30')

Low Latency and High Bandwidth Access Network with 100G-EPON

Han Hyub Lee, Kyeong-Hwan Doo, Kwangok Kim, Seung Hwan Kim, Jun Ki Lee, and Hwan Seok Chung
ETRI, Korea

5A2-2 (Paper No. SC1_1089) | Invited | 11:00-11:30 (30')

NG -PON2 Development for 10G Internet Service : A Study Case of SK

Hongseok Shin, Youngjae Shim, and Sungmin Cho
SK Telecom, Korea

5A2-3 (Paper No. SC1_1013) 11:30-11:45 (15')

Experiment Demonstration of IM-DD based 50-Gbps PAM4 TDM-PON Downstream Scheme Enabled by Transmitter Pre-Emphasis and MLSE

Qi Guo[1], Bingchang Hua[1], Cheng Ju[1], Zhiguo Zhang[1], Yanxu Chen[1], Zhijuan Tu[2], Xingang Huang[2], Renzhong Guo[3], and Qianwen Wu[3]
[1]Beijing Univ. of Posts and Telecommunications, China, [2]ZTE Corp., China, [3]Jiujiang Electric Power Supply Company, China

5A2-4 (Paper No. SC1_1082) 11:45-12:00 (15')

28-Gb/s Faster-than-Nyquist PON with Optimized ISI Cancellation Algorithm

Jia Qi, Xizi Tang, Ji Zhou, Mengqi Guo, Tiantian Zhang, Shuangyue Liu, Xuekai Xu, Yueming Lu, and Yaojun Qiao
Beijing Univ. of Posts and Telecommunications, China

Session Title	Space Division Multiplexing	Session Code	5B2
Date & Time	July 5 (Thu.) / 10:30-12:00		
Place	Room B (Samda Hall B)		
Session Chair	Sun Hyok Chang (ETRI)		

5B2-1 (Paper No. SC2_1084) | Invited | 10:30-11:00 (30')

Accelerate Multi-Core Fiber Application using Current Standard Technology

Takashi Matsui and Kazuhide Nakajima
NTT Corp., Japan

5B2-2 (Paper No. SC2_1103) | Invited | 11:00-11:30 (30')

Ultra High-Capacity Transmission using Space-Division-Multiplexing

Itsuro Morita, Daiki Soma, Takehiro Tsuritani, and Masatoshi Suzuki
KDDI Research

5B2-3 (Paper No. SC2_1026) 11:30-11:45 (15')

Channel Number Dependency of Vector-Domain Signal Quality Equalization to Mitigate Core-to-Core Q-Difference

Hidenori Takahashi and Takehiro Tsuritani
KDDI Research, Inc., Japan

5B2-4 (Paper No. SC2_1017) 11:45-12:00 (15')

Deterministic Core Scrambling for Multi-Core Fiber Transmission System

Akram Abouseif, Ghaya Rekaya Ben-Othman, and Yves Jaouen
Télécom ParisTech, France

Session Title	Nonlinear Interaction of Light	Session Code	5C2
Date & Time	July 5 (Thu.) / 10:30-12:00		
Place	Room C (301)		
Session Chair	Marcelo A. Soto (Universidad Técnica Federico Santa María)		

5C2-1 (Paper No. SC3_1031) | Invited | 10:30-11:00 (30')

Coherent Photonic-Phononic Interactions in Integrated Circuits

Birgit Stiller, Moritz Merklein, and Benjamin J. Eggleton
The Univ. of Sydney, Australia

5C2-2 (Paper No. SC3_1067) | Invited | 11:00-11:30 (30')

Nonlinear Optical Effects and Application in Two-Dimensional Materials

Jun Wang
Shanghai Inst. of Optics and Fine Mechanics (SIOM), Chinese Academy of Sci. (CAS)

5C2-3 (Paper No. SC3_1027) 11:30-11:45 (15')

PSA Design, Counting Longitudinal Chromatic Dispersion Fluctuation in Highly Nonlinear Fiber

Youichi Akasaka[1], Haoqian Song[2], Yinwen Cao[2], Fatemeh Alishahi[2], Alan E. Willner[2], and Tadashi Ikeuchi[1]
[1]Fujitsu Lab. of America, USA, [2]Univ. of Southern California, USA

5C2-4 (Paper No. SC3_1002) 11:45-12:00 (15')

Fiber and Integrated Thermo-Optic Devices based on 2D Materials

Kan Wu
Shanghai Jiaotong Univ., China

Session Title	Photonic Integrated Circuits	Session Code	5D2
Date & Time	July 5 (Thu.) / 10:30-12:00		
Place	Room D (302)		
Session Chair	Stefan Lischke (IHP)		

5D2-1 (Paper No. SC4_1053) | Invited | 10:30-11:00 (30')

Photonic Integrated WDM Cross-Connects for Telecom and Datacom Networks

Nicola Calabretta, Kristif Prifti, and Xuwei Xue
Eindhoven Univ. of Tech., The Netherlands

5D2-2 (Paper No.) | Invited | 11:00-11:30 (30')

Monolithically Integrated SG-DBR Tunable Lasers for Optical Communications

Su Hwan Oh[1], Ki-Hong Yoon[2], Oh Kee Kwon[1], Ki Soo Kim[1], Chul Wook Lee[1]
[1]ETRI, Korea, [2]OE Solutions, Co., Ltd., Korea

5D2-3 (Paper No. SC4_1010) 11:30-11:45 (15')

Optical Phased Array based on Silicon Waveguides with Non-Uniform Widths

Jingye Chen[1], Yanling Sun[2], Shijie Wei[2], Xiang'e Han[2], and Yaocheng Shi[1]
[1]Zhejiang Univ., China, [2]Xi'dian Univ., China

5D2-4 (Paper No. SC4_1030) 11:45-12:00 (15')

Monolithically Integrated Optical NAND Gate using Light-Emitting Transistors

Hsuan-Han Chen, Chi-Wei Wang, and Chao-Hsin Wu
Nat'l Taiwan Univ, Taiwan

Session Title	Fiber Devices	Session Code	5E2
Date & Time	July 5 (Thu.) / 10:30-12:00		
Place	Room E (Halla Hall A)		
Session Chair	Sergio Leon-saval (Univ. of Sydney)		

5E2-1 (Paper No. SC5_1037) | Invited | 10:30-11:00 (30')

In-Fiber Devices via Laser Direct Writing

M. Beresna
Univ. of Southampton, UK

5E2-2 (Paper No. SC5_1042) | Invited | 11:00-11:30 (30')

Progress of Optical Fiber Sensors based on the Special Two-Mode Fiber with Critical Wavelength

Xiaopeng Dong[1], Chenxu Lu[1], Su Juan[2], and Yunqing Guan[1]
[1]Xiamen Univ., China, [2]Shandong Univ., China

5E2-3 (Paper No. SC5_1045) 11:30-11:45 (15')

Estimation of Fabrication-Imperfection-Induced Crosstalk in Silicon AWGs

Heuk Park[1], Sae-Kyoung Kang[1], Jonghyun Lee[1], Sangsoo Lee[2], and Hwan Seok Chung[1]
[1]ETRI, Korea, [2]Optella, USA

5E2-4 (Paper No. SC5_1036) 11:45-12:00 (15')

Shuffle Converter using 3D Waveguides for MCF/SMF Fan-in Fan-out Configuration toward over 1,000 Port Count Optical Matrix Switch

K. Hamamoto, Y. Hinokuma, S. Ghosh, R. Kuwahata, and H. Jiang
Kyushu Univ., Japan

Session Title	Poster Session 2	Session Code	P2
Date and Time	July 5 (Thu.) / 13:00-14:00		
Place	Lobby, ICC Jeju 3F		

P2-01 **SC3_1001**

Triangular Multi-Core Hollow Optical Fiber for Uncoupled Space-Division and Mode-Division Multiplexing

Seongjin Hong, Yongsoo Lee, Byungjoo Kim, and Kyunghwan Oh
Yonsei Univ., Korea

P2-02 **SC3_1006**

Technique for Simultaneously Measuring Differential Group Delay of Each Core in a Fewmode Multi-Core Fiber

Ryuki Miyazaki1, Masaharu Ohashi1, Hirokazu Kubota1, Yuji Miyoshi1, Nori Shibata2, Yusuke Sasaki3, and Kazuhiko Aikawa3
1Osaka Prefecture Univ., Japan, 2Nihon Univ., Japan, 3Fujikura Ltd., Japan

P2-03 **SC3_1007**

Surface Plasmon Polariton based on Goldcoated D-Shaped Photonic Crystal Fiber Biosensor

Xuanyi Liu, M. S. Aruna Gandhi, and Qian Li
Peking Univ., China

P2-04 **SC3_1008**

Vibration Monitoring based on the Polarization Dependent Loss of Long Period Fiber Gratings

Yui Shindo1, Yasuhiro Tsutsumi2, Takahiro Hase1, Masaharu Ohashi1, Yuji Miyoshi1, and Hirokazu Kubota1
1Osaka Prefecture Univ., Japan, 2Ritsumeikan Univ, Japan

P2-05 **SC3_1009**

Evaluation of High Alcohol Concentration using a 1.7-□m Band Near-Infrared Spectroscopy System using Multi-Mode Optical Fibers

Yusuke Tano[1], Motoki Tanaka[1], Yuma Honda[1], Akihiro Maeda[1], Xiaoen Du[1], Fumiki Hanafuji[1], Osanori Koyama[1], Kazuya Ota[1,2], Tatsuro Endo[1], and Makoto Yamada[1]
[1]Osaka Prefecture Univ., Japan, [2]Trimatiz Ltd., Japan

P2-06 **SC3_1011**

Transmittance Modeling of Long-Period Fiber Gratings based on the Photo-Elastic Effect

Kenta Kitahara1, Yasuhiro Tsutsumi2, Takahiro Hase1, Masaharu Ohashi1, Hirokazu Kubota1, and Yuji Miyoshi1
1Osaka Prefecture Univ., Japan, 2Ritsumeikan Univ., Japan

P2-07 **SC3_1014**

High Density Multicore Fibers Employing Small MFD Cores for Datacenters

Yusuke Sasaki, Katsuhiro Takenaga, and Kazuhiko Aikawa
Fujikura Ltd., Japan

P2-08 **SC3_1017**

Study on 6-LP Mode Amplification of Ring-Core Erbium-Doped Fibers

Masashi Yoshimura1, Shota Miyagawa1, Daiki Nobuhira1, Osanori Koyama1, Makoto Yamada1, and Hirotaka Ono2
1Osaka Prefecture Univ., Japan, 2NTT Corp., Japan

P2-09 **SC3_1026**

Simultaneous Measurement of Relative Humidity and Temperature by using Polymer Fiber Fizeau/Airgap Fiber Fabry-Perot Interferometers

Jen-Yao Chang1, Cheng-Ling Lee1, and Pin Han2

P2-10 **SC3_1032**

Dispersion Characteristics of High Order Modes of Photonic Bandgap Fibers

H. Kubota, N. Kosake,Y. Miyoshi, and M. Ohashi

Osaka Prefecture Univ., Japan

P2-11 **SC3_1036**

Femtosecond Mode-Locked Fiber Laser using an Etched Optical Fiber Immersed in Liquid Mxene as a Saturable Absorber

Jeong Je Kim1,2, Hyerim Kim2, Chong Min Koo2, Jae Ha Lee2, Sang Bae Lee2, and Kwanil Lee1,2

1University of Science and Technology, Korea, 2KIST, Korea

P2-12 **SC3_1038**

Dense Double-Cladding Photonic Crystal Fiber with High Birefringence, Large Negative Dispersion and High Nonlinearity

Yong Soo Lee1, Seongjin Hong1, So Eun Kim2, Byungjoo Kim1, and Kyunghwan Oh1

1Yonsei Univ., Korea, 2GIST, Korea

P2-13 **SC3_1040**

The Rayleigh and Polarization Fading Elimination in Phase-Extracted OTDR

Gukbeen Ryu1,2, Gyu-Tae Kim2, Kwang Yong Song3, Sang Bae Lee1, and Kwanil Lee1

1KIST, Korea, 2Korea Univ., Korea, 3Chung-Ang Univ., Korea

P2-14 **SC3_1041**

PER Enhancement of Panda PM Fibers by Polarization Axis Alignment

Yohan Kim[1,2], Byunghyuck Moon[1,2], Minkyu Park[3], Hwanseong Jeong[4], Seongmook Jeong[4], Byeong Kwon Ju[2], and Young Min Jhon[1]

[1]KIST, Korea, [2]Korea Univ., Korea, [3]Agency for Defense Development, Korea, [4]LIG NEX1, Korea

P2-15 **SC3_1043**

Multicore Fiber Mach-Zehnder Interferometers by Programmable Offset Splicing Technique

Xuan Zhan, Ming Tang, Ruoxu Wang, Songnian Fu, and Deming Liu

Huazhong Univ. of Sci. and Tech., China

P2-16 **SC3_1049**

Domain Wall Dark Pulse Generation at 1.95 μm using Topological Insulator Saturable Absorber

Joonhoi Koo and Woojin Shin

GIST, Korea

P2-17 **SC3_1055**

Long Range One-End Accessible BOCDA Adopting Time Domain Data Processing

Gukbeen Ryu1,2, Gyu-Tae Kim2, Kwang Yong Song3, Sang Bae Lee1, and Kwanil Lee1

1KIST, Korea, 2Korea Univ., Korea, 3Chung-Ang Univ., Korea

P2-18 **SC3_1059**

The Novel Rotation Writing Method of Fiber Bragg Grating in Multicore Fiber

Deng Shunge, Ma Xin, Li Xinwan, and Gao Kan

Shanghai Jiao Tong Univ., China

P2-19 **SC3_1061**

MOPA Fiber Laser for Photoacoustic Tomography using Arrayed Ultrasound Transducer

A. Yong-Jae Lee1, B. Jun-Tae Ahn2, C. Joo Yong Sim2, D. Bong Kyu Kim2, E. Min Yong Jeon3, and F. Byeong Ha Lee1

1Advanced Photonics Research Inst., Korea, 2ETRI, Korea, 3Chungnam Nat'l Univ., Korea

P2-20 **SC3_1062**

Conically Shaped Radial-Firing Fiber Tip Comprised of Air-Pocket and its Optical Characteristics

Yong-Tak Ryu1, Seongmin Ju1, Seong Gu Kang1, Yuseung Lee1, and Won-Taek Han1,2

1GIST, Korea, 2Zetto Co. Ltd., Korea

P2-21 **SC3_1064**

Particles Vibration Frequency Measurement using MultiCore Fiber

Ma Xin, Deng Shunge, and Li Xinwan

Shanghai Jiao Tong Univ., China

P2-23 **SC4_1003**

Temperature-Sensing System Employing Longperiod Fiber Grating in Optical IP Network

Makoto Matsui, Osanori Koyama, Akihiro Kusama, Toshinori Murakami, and Makoto Yamada

Osaka Prefecture Univ., Japan

P2-24 **SC4_1004**

A Room-Temperature Near-Infrared Nanowire/Quantum-Well Laser

Wei Wei[1], Xin Yan[2], Xiaofeng Ma[1], Vittorio Giarola[1], and Xia Zhang[2]

[1]Guangzhou Univ., China, [2]Beijing Univ. of Posts and Telecommunications, China

P2-25 **SC4_1005**

A Multi-Diameter GaAs Nanowire Array Solar Cell with Axial p-i-n Junctions

Lei Gong1, Xin Yan1, Wei Wei2, Yao Wu1, Bang Li1, Qichao Lu1, Yanbin Luo1, Xia Zhang1, and Xiaomin Ren

1Beijing Univ. of Posts and Telecommunications, China, 2Guangzhou Univ., China

P2-27 **SC4_1011**

All-Printed Organic and Oxide Tetero-Structure Device with Photoconductivity

Gul Hassan, Muhammad Umair Khan, Muhammad Asim Raza, and Jinho Bae

Jeju Nat'l Univ., Korea

P2-29 **SC4_1013**

Thickness and Temperature Dependency of Variation of Dielectric Functions of Phase-Change VO2 Film

Sun-Je Kim1, Sungwook Choi2, Jangwoon Sung1, Yong Wook Lee2, and Byoungho Lee1

1Seoul Nat'l Univ., Korea, 2Pukyong Nat'l Uni., Korea

P2-30 **SC4_1015**

A High-Responsivity Subwavelength GaAs Nanowire Photodetector with a Dipole Antenna

Yanni Tang1, Xin Yan1, Wei Wei2, Bang Li1, Qichao Lu1, Yanbin Luo1, Xia Zhang1, and Xiaomin Ren1

1Beijing Univ. of Posts and Telecommunications, China, 2Guangzhou Univ., China

P2-31 **SC4_1017**

Multi-Mirror Alexandrite Laser Cavity Design with Thermal Lens Effect

Young Jun An1,2, Byunghyuck Moon1,2, Hee Dong Yang1, Byeong-Kwon Ju2, and Young Min Jhon1

1KIST, Korea, 2Korea Univ., Korea

P2-32 **SC4_1018**

Characterization of Degradation in Organic Light Emitting Diodes by Terahertz Spectroscopy

Yeongkon Jeong1,2, Soo Jong Park2, Sang-Hun Lee1, Byeong-Kwon Ju2, Young Min Jhon1, and Minah Seo1

1KIST, Korea, 2Korea Univ., Korea

P2-33 **SC4_1023**

Side-Channel PCF for Surface-Enhanced Raman Spectroscopy

Udaya Rahubadde, Li Xia, and Nishan Wu

Huazhong Univ. of Sci. and Tech., China

P2-34 **SC4_1029**

Piezo-Phototronic Dependent Enhanced Charge Transportation in SbSI Micro Rod Photodetector

Yuvasree Purusothaman, Nagamalleswara Rao Alluri, and Sang-Jae Kim

Jeju Nat'l Univ., Korea

P2-35 **SC4_1033**

Inductively Coupled Plasma Dry Etching for Nano Structured III-V on Si Lasers

Sushil Tandukar[1], and Il-Sug Chung[1,2]

[1]Technical Univ. of Denmark, Denmark, [2]UNIST, Korea

P2-36 **SC4_1034**

Wavelength Tunable Intra-Cavity Nonlinear Polarization Rotation Mode-Locked Single Pulse Laser

Byunghyuck Moon1,2, Hee Dong Yang1,3, Byeong-kwon Ju2, and Young Min Jhon1

1KIST, Korea, 2Korea Univ., Korea, 3Univ. of Seoul, Korea

P2-37 **SC4_1036**

Ohmic Contacts to n-Type InP for High-Speed Silicon-on-Chip Vertical-Cavity Lasers

Vladimir Topi´c1, Sushil Tandukar1, Gyeong Cheol Park1, and Il-Sug Chung1,2

1Technical Univ. of Denmark, Denmark, 2UNIST, Korea

P2-38 **SC4_1038**

Theoretical Study of a Tunable Transmissive Subtractive Color Filter using Thin Metal Films and Transparent Conducting Oxide

Jungsan Kim and Min-Suk Kwon

UNIST, Korea

P2-39 **SC4_1044**

On-Chip Temperature Sensor using High-Q Si_3N_4 Micro-Disk Resonator

Gumin Kang

KIST, Korea

P2-40 **SC4_1046**

All-Printed Stretchable Photo-Conductive Device Fabricated on Engineered PDMS

Muhammad Asim Raza, Gul Hassan, Muhammad Umair Khan, and Jinho Bae

Jeju Nat'l Univ., Korea

P2-41 **SC4_1048**

Optical Complex Signal Generation based on Optical Injection Locking and Its Performance Analysis

Jun-Hyung Cho, Yoo-Seung Hong, and Hyuk-Kee Sung

Hongik Univ., Korea

P2-42 **SC4_1049**

Inkjet Printed Organic-Inorganic Bilayer Photoconductive Sensor

Muhammad Umair Khan, Gul Hassan, Muhammad Asim Raza, Chong Hyun Lee, and Jinho Bae
Jeju Nat'l Univ., Korea

P2-43 **SC4_1055**

Bandwidth Improvement of DML by Change of Bondwire Length

Hyoung-Joo Jeon1, Young-Tak Han2, Seok-Tae Kim2, and Yongsoon Baek2
1Univ. of Sci. and Tech., Korea, 2ETRI, Korea

P2-44 **SC4_1058**

On-Chip Photon Pair Source in Silicon Waveguide

Woncheol Shin, Kyungdeuk Park, and Heedeuk Shin
POSTECH, Korea

Session Title	Signal Processing for Access Network	Session Code	5A3
Date & Time	July 5 (Thu.) / 14:00-15:30		
Place	Room A (Samda Hall A)		
Session Chair	Seung-Hyun Cho (ETRI)		

5A3-1 (Paper No. SC1_1030) | Invited | 14:00-14:30 (30')

Lite-Coherent Technology for Access Networks

Keisuke Matsuda, Ryosuke Matsumoto, Masashi Binkai, Tsuyoshi Yoshida, and Naoki Suzuki
Mitsubishi Electric Corp., Japan

5A3-2 (Paper No. SC1_1090) | Invited | 14:30-15:00 (30')

Injection Seeding Technologies and Their Applications

Chang-Hee Lee[1,2] and Il-Pyeong Hwang[1]
[1]KAIST, Korea, [2]Chongqing Univ. of Tech., China

5A3-3 (Paper No. SC1_1075) 15:00-15:15 (15')

Performance Improvement of RSOA-based Coherent WDM PON using SBS Suppression and Erasing Frequency-Dithering Tone

Daeho Kim, Byung Gon Kim, Tianwai Bo, and Hoon Kim
KAIST, Korea

5A3-4 (Paper No. SC1_1005) 15:15-15:30 (15')

Pro-Active Control VOA for Canceling Transient Response in Burst Optical Signal Transmission

Kana Masumoto, Masahiro Nakagawa, Toshiya Matsuda, Hidetoshi Onda, Masaru Katayama, and Kazuyuki Matsumura
NTT Corp., Japan

Session Title	High Capacity Transmission	Session Code	5B3
Date & Time	July 5 (Thu.) / 14:00-15:30		
Place	Room B (Samda Hall B)		
Session Chair	Inwoong Kim (Fujitsu Lab of America)		

5B3-1 (Paper No. SC2_1076) | Invited | 14:00-14:30 (30')

Perspectives of Multi-Band Optical Communication Systems

Antonio Napoli[1], Nicola Calabretta[2], Johannes K. Fischer[3], Nelson Costa[4], Silvio Abrate[5], Joao Pedro[4], Victor Lopez[6], Vittorio Curri7, Darko Zibar8, Erwan Pincemin9, Sebastien Grot[1]0 , Günther Roelkens[11] , Chris Matrakidis[12] , Wladek Forysiak[13]
[1]Coriant R&D GmbH, Germany, [2]TU/e, The Netherlands, [3]Fraunhofer HHI, Germany, [4]Coriant, Portugal, [5]ISMB, Italy, [6]Telefonica, Spain, 7Politecnico di Torino, Italy, 8DTU, Denmark, 9Orange Labs, France, [1]0Lea-Photonics, France, [11]Ghent Univ., Belgium, [12]Univ. of Peloponnese, Greece,13Aston Univ., UK

5B3-2 (Paper No. SC2_1089) | Invited | 14:30-15:00 (30')

Multi-Dimensional Modulation with Iterative Decoder for High Capacity Optical Transport Network

Masanori Nakamura, Fukutaro Hamaoka, Asuka Matsushita, and Yoshiaki Kisaka
NTT Corp., Japan

5B3-3 (Paper No. SC2_1049) 15:00-15:15 (15')

50.4 Tbit/s, 128 QAM L-band WDM Injection Locked Coherent Transmission over 160 km with Spectral Efficiency of 10.5 bit/s/Hz

Takashi Kan, Keisuke Kasai, Masato Yoshida, Toshihiko Hirooka, and Masataka Nakazawa
Tohoku Univ., Japan

5B3-4 (Paper No. SC2_1005) 15:15-15:30 (15')

Single-Channel 7.68 Tbit/s, 64 QAM Coherent Nyquist Pulse Transmission over 150 km with a Spectral Efficiency of 9.7 bit/s/Hz

Kosuke Kimura, Junpei Nitta, Masato Yoshida, Keisuke Kasai, Toshihiro Hirooka, and Masataka Nakazawa
Tohoku Univ., Japan

Session Title	Optical Fibers for SDM	Session Code	5C3
Date & Time	July 5 (Thu.) / 14:00-15:00		
Place	Room C (301)		
Session Chair	Seongwoo Yoo (Nanyang Technological Univ.)		

5C3-1 (Paper No. SC3_1066) | Invited | 14:00-14:30 (30')

Multimode and Coupled-Core Fiber Amplifiers for SDM

J. Enrique Antonio-Lopez[1], J. Carlos Alvarado-Zacarias[1], Zeinab Sanjabi-Eznaveh[1], Pierre Sillard[2], Adrian Amezcua-Correa[2], Cedric Gonnet[2], Marianne Bigot-Astruc[2], Nicolas K. Fontaine[3], Roland Ryf[3], Haoshuo Chen[3], and Rodrigo Amezcua-Correa[1]
[1]the Univ. of Central Florida, USA, [2]Prysmian Group, France, [3]Nokia Bell Labs, USA

5C3-2 (Paper No. SC3_1042) | Invited | 14:30-15:00 (30')

Mode Dependent Loss Reduced Few-Mode Multi-Core Fiber Design for Repeated Dense SDM Transmission

T. Sakamoto[1], K. Saitoh[2], S. Saitoh[3], K. Shibahara[1], M. Wada[1], Y. Abe[1], A. Urushibara[1], K. Takenaga[3], T. Mizuno[1], T. Matsui[1], K. Aikawa[3], Y. Miyamoto[1], and K. Nakajima[1]
[1]NTT Corp., Japan, [2]Hokkaido Univ., Japan, [3]Fujikura Ltd., Japan

Session Title	Quantum Communication Devices	**Session Code**	5D3
Date & Time	July 5 (Thu.) / 14:00-15:30		
Place	Room D (302)		
Session Chair	Hyun Do Jung (ETRI)		

5D3-1 (Paper No. SC4_1051) | Invited | 14:00-14:30 (30')

Optical Components and System for Free-Space Quantum Key Distribution

Chun Ju Youn, Haesin Ko, Byung-Seok Choi, Joong-Seon Choe, Kap-Joong Kim, Jong-Hoi Kim, and Yongsoon Baek
ETRI, Korea

5D3-2 (Paper No. SC4_1065) | Invited | 14:30-15:00 (30')

Modern Tools for Classical and Quantum Communication with Vector Vortex Beams

Andrew Forbes
Univ. of the Witwatersrand, South Africa

5D3-3 (Paper No. SC4_1060) 15:00-15:15 (15')

A Quantum Hacking Method without Eve's Detection and Generation Device

Min Soo Lee, Sang-Wook Han, and Sung Moon
KIST, Korea

5D3-4 (Paper No. SC4_1047) 15:15-15:30 (15')

Spectral Correlation of Photon Pairs Generated in the Normal Group-Velocity-Dispersion Regime Beside Pump

Kyungdeuk Park, Dongjin Lee, Yoon-Ho Kim, and Heedeuk Shin
POSTECH, Korea

Session Title	Photonic Devices 1	Session Code	5E3
Date & Time	July 5 (Thu.) / 14:00-15:30		
Place	Room E (Halla Hall A)		
Session Chair	Martynes Beresna (Univ. of Southampton)		

5E3-1 (Paper No. SC5_1001) | Invited | 14:00-14:30 (30')

Optical Side-Coupling of Laser-Diode Array to Fiber using Genetic Algorithm Designed Sub-Wavelength Grating

I-Chou Wu[1], Yen-Yin Li[1], Yin-Wen Lee[2], and Sheng-Lung Huang[1]
[1]Nat'l Taiwan Univ., Taiwan, [2]Nat'l Taipei Univ. of Tech., Taiwan

5E3-2 (Paper No. SC5_1008) | Invited | 14:30-15:00 (30')

Remote Sensing Systems based on Photonics

A. Bogoni[1,2], G. Serafino[1], and P. Ghelfi[2]
[1]TeCIP Inst., Italy, [2]Consorzio Nazionale Interuniversitario per le Telecomunicazioni (CNIT), Italy

5E3-3 (Paper No. SC5_1039) 15:00-15:15 (15')

Hybrid Surface Wave Device

Myun-Sik Kim and Hans Peter Herzig
EPFL, Switzerland

5E3-4 (Paper No. SC5_1052) 15:15-15:30 (15')

Full-Parallax Holographic Stereogram Printing based on Computer-Generated Hologram

Anar Khuderchuluun[1], Erkhembaatar Dashdavaa[1], Young-Tae Lim[1], Jong-Rae Jeong[2], and Nam Kim[1]
[1]Chungbuk Nat'l Univ., Korea, [2]Suwon Sci. College, Korea

Session Title	Optical Access for 5G 2	Session Code	5A4
Date & Time	July 5 (Thu.) / 16:00-17:30		
Place	Room A (Samda Hall A)		
Session Chair	Hong Seok Shin (SKT)		

5A4-1 (Paper No. SC1_1009) | Invited | 16:00-16:30 (30')

Grand Challenges of Fiber Wireless Convergence for 5G Mobile Data Communications

Gee-Kung Chang[1] and Peng-Chun Peng[2]
[1]Georgia Inst. of Tech., USA, [2]Nat'l Taipei Univ. of Tech., Taiwan

5A4-2 (Paper No. SC1_1022) 16:30-16:45 (15')

Service-Aware Network Slicing Supporting Delay-Sensitive Services for 5G Fronthaul

Lin Zhang[1], Min Zhang[1], Chuang Song[1], Luyao Guan[1], Danshi Wang[1], Shanyi Guo[1], Wei Liu[1], Yueying Zhan[2], Shaojun Wu[2], and Jianhua He[2]
[1]Beijing Univ. of Posts and Telecommunications, China, [2]Chinese Academy of Sci., China

5A4-3 (Paper No. SC1_1032) 16:45-17:00 (15')

Demonstration of Remote Management and Control in WDM-PON System for 5G Fronthaul

Kyosuke Sone, Goji Nakagawa, Yoshio Hirose, and Takeshi Hoshida
Fujitsu Ltd., Japan

5A4-4 (Paper No. SC1_1080) 17:00-17:15 (15')

Polarization-Insensitive DDO-MMW-OFDM Modulation for a 5G Mobile Fronthaul Uplink

Jhih-Heng Yan, Sheng-Yang Lin, Hsu-Hung Hunag, and Kai-Ming Feng
[1]Nat'l Tsing Hua Univ., Taiwan

5A4-5 (Paper No. SC1_1025) 17:15-17:30 (15')

Experimental Demonstration of Traffic-Aware Load Balancing for Fronthaul Network

Luyao Guan[1], Min Zhang[1], Chuang Song[1], Lin Zhang[1], Danshi Wang[1], Qing Li[1], Wei Liu[1], Yueying Zhan[2], Suzhi Cao[2], and Shaojun Wu[2]
[1]Beijing Univ. of Posts and Telecommunications, China, [2]Chinese Academy of Sci., China

Session Title	Transceiver Technologies	Session Code	5B4
Date & Time	July 5 (Thu.) / 16:00-17:30		
Place	Room B (Samda Hall B)		
Session Chair	Xingwen Yi (Sun Yat-Sen Univ.)		

5B4-1 (Paper No. SC2_1094) | Invited | 16:00-16:30 (30')

Flexible Transceivers and Solutions for Semi-Filterless Metro Networks

F. Cugini[1], C. Porzi[2], N. Andriolli[2], A. Bogoni[1,2] and P. Castoldi[2]
[1]CNIT, Italy, [2]Scuola Superiore Sant'Anna, Italy

5B4-2 (Paper No. SC2_1039) | Invited | 16:30-17:00 (30')

Rate Adaptive Flexible Optical Transceivers

Kim Roberts
Ciena, Canada

5B4-3 (Paper No. SC2_1067) 17:00-17:15 (15')

Cascade Compensation Scheme for IQ Imbalance and Polarization Crosstalk

Juntao Cao, Yanfu Yang, Qian Xiang, Qun Zhang, Xue Mao, and Yong Yao
Harbin Inst. of Tech. (Shenzhen), China

5B4-4 (Paper No. SC2_1065) 17:15-17:30 (15')

Compensation of IQ Imbalance using Kalman Filter in Coherent Optical Systems

Qian Xiang, Yanfu Yang, Qun Zhang, Juntao Cao, and Yong Yao
Harbin Inst. of Tech. (Shenzhen), China

Session Title	Specialty Fibers for High Power Lasers	Session Code	5C4
Date & Time	July 5 (Thu.) / 16:00-17:00		
Place	Room C (301)		
Session Chair	Kan Wu (Shanghai Jiaotong Univ.)		

5C4-1 | Tutorial | 16:00-17:00 (60')

Advanced Specialty Optical Fibers and Their Applications in High-Power Fiber Lasers

Liang Dong
Clemson Univ., USA

Session Title	Advanced Optical Devices 1	Session Code	5D4
Date & Time	July 5 (Thu.) / 16:00-17:30		
Place	Room D (302)		
Session Chair	Ii-Sug Chung (DTU)		

5D4-1 (Paper No. SC4_1002) | Invited | 16:00-16:30 (30')

Optimized Optical Devices for Active Integrated Quantum Photonics Applications

Ching Eng Png, Jun Rong Ong, Thomas Y. L. Ang, Alagappan Gandhi, and Soon Thor Lim
Inst. of High Performance Computing, Singapore

5D4-2 (Paper No. SC4_1035) | Invited | 16:30-17:00 (30')

Electro-Absorption Modulator for Advanced Modulation Format

U. Mankong[1,2], P. Mekbungwan[1], K. Inagaki[2], and T. Kawanishi[2,3]
[1]Chiang Mai Univ., Thailand, [2]Nat'l Inst. of Information and Communications Tech., Japan, [3]Waseda Univ., Japan

5D4-3 (Paper No. SC4_1039) 17:00-17:15 (15')

A Simple Route Towards Heat Resistant Halide Perovskite-based Optoelectronics

In Soo Kim[1] and Alex B. F. Martinson[2]
[1]KIST, Korea, [2]Argonne Nat'l Lab., USA

5D4-4 (Paper No. SC4_1014) 17:15-17:30 (15')

Cavity-Dumped Mode-Locked Picosecond Alexandrite Single Pulse Laser with Double Trigger System

Hee Dong Yang[1,2], Byunghuck Moon[1], Ju Han Lee[2], and Young Min Jhon[1]
[1]KIST, Korea, [2]Univ. of Seoul, Korea

Session Title	Photonic Devices 2	Session Code	5E4
Date & Time	July 5 (Thu.) / 16:00-17:30		
Place	Room E (Halla Hall A)		
Session Chair	Yang Liu (Univ. of Sydney)		

5E4-1 (Paper No. SC5_1002) | Invited | 16:00-16:30 (30')

The Photonic Lantern

Sergio G. Leon-Saval
The Univ. of Sydney, Australia

5E4-2 (Paper No. SC5_1026) | Invited | 16:30-17:00 (30')

Structured Light Communications: Devices, Techniques and Applications

Jian Wang
Huazhong Univ. of Sci. and Tech., China

5E4-3 (Paper No. SC5_1029) 17:00-17:15 (15')

Integrated All-Optical Wavelength Conversion of Orbital Angular Momentum Carrying Modes

S. F. Mousavi and R. Nouroozi
Inst. for Advances Studies in Basic Sci. (IASBS), Iran

5E4-4 (Paper No. SC5_1007) 17:15-17:30 (15')

A Broadband Silicon Two-Mode Multiplexer Designed by Wavefront Matching Method

Y. Sawada, T. Sato, T. Fujisawa, and K. Saitoh
Hokkaido Univ., Japan

Session Title	Novel Algorithm for Optical Network	Session Code	6A1
Date & Time	July 6 (Fri.) / 08:30-10:00		
Place	Room A (Samda Hall A)		
Session Chair	Jian Chen (Nanjing Univ. of Posts & Telecommunications)		

6A1-1 (Paper No. SC1_1088) | Invited | 08:30-09:00 (30')

Optical Monitoring based on Convolutional Neural Networks

T. Tanimura, T. Kato, S. Watanabe, and T. Hoshida
Fujitsu Laboratories Ltd., Japan

6A1-2 (Paper No. SC1_1041) 09:00-09:15 (15')

Multi-Granular Optical Path Computations based on Physical Network Topology Descriptions

Kiyo Ishii[1], Atsuko Takefusa[2], Shu Namiki[1], and Tomohiro Kudoh[1,3]
[1]AIST, Japan, [2]Nat'l Inst. of Informatics, Japan, [3]The Univ. of Tokyo, Japan

6A1-3 (Paper No. SC1_1047) 09:15-09:30 (15')

Machine Learning with Service Classification for Detecting Control Plane Intrusions in Software Defined Optical Networks

Fei Wang[1], YongLi Zhao[1], Wei Wang[1], Dongmei Liu[2], Jun Liu[2], Shulin Zhang[2], Zhengyang Ding[3], Shen Jin[4], and Jie Zhang[1]
[1]Beijing Univ. of Posts and Telecommunications, China, [2]State Grid Information & Telecommunication Company Ltd., China, [3]State Grid Jiangsu Information & Telecommunication Company Ltd., China, [4]State Grid Jibei Information & Telecommunication Company Ltd.

6A1-4 (Paper No. SC1_1026) 09:30-09:45 (15')

Alarm Compression based on Machine Learning and Association Rules Mining in Optical Networks

Liqi Lou[1], Min Zhang[1], Danshi Wang[1], Jin Li[1], Xiongyan Tang[2], and Lin Ai[1]
[1]Beijing Univ. of Posts and Telecommunications, China, [2]China Unicom research Inst. Beijing, China

6A1-5 (Paper No. SC1_1037) 09:45-10:00 (15')

Assessment of Optical Cross-Connect Architectures for the Creation of Next Generation Optical Networks

Mungun-Erdene Ganbold, Takuma Yasuda, Yojiro Mori, Hiroshi Hasegawa, and Ken-ichi Sato
Nagoya Univ., Japan

Session Title	Performance Monitoring	Session Code	6B1
Date & Time	July 6 (Fri.) / 08:30-10:00		
Place	Room B (Samda Hall B)		
Session Chair	Tianwai Bo (KAIST)		

6B1-1 (Paper No. SC2_1073) | Invited | 08:30-09:00 (30')

Time-Frequency Signal Processing based on Fractional Fourier Transform for Coherent Optical Communications

Ming Tang, Huibin Zhou, Hexun Jiang, Xi Chen, Songnian Fu, and Deming Liu
Huazhong Univ. of Sci. and Tech., China

6B1-2 (Paper No. SC2_1062) | Invited | 09:00-09:30 (30')

Transmission Characteristics Monitoring by Digital Signal Processing in Coherent Receiver

Zhenning Tao[1], Yangyang Fan[1], Xiaofei Su[1], Hao Chen[1], and Takeshi Hoshida[2]
[1]Fujitsu R&D Center, China, [2]Fujitsu Laboratories Ltd., Japan

6B1-3 (Paper No. SC2_1022) 09:30-09:45 (15')

ADTP-based OSNR Monitoring Technique using Convolutional Neural Network

Mengyuan Wang[1], Danshi Wang[1], Wei Yang[2], and Min Zhang[1]
[1]Beijing Univ. of Posts and Telecommunications, China, [2]Beijing Information Sci. and Tech. Univ., China

6B1-4 (Paper No. SC2_1052) 09:45-10:00 (15')

OSNR Monitoring based on Link Analysis for EDFA-Only DWDM Transmission Systems

Yating Xiang[1], Bo Yong[2], Ming Tang[1], Qiong Wu[1], Huibin Zhou[1], Songnian Fu[1], and Deming Liu
[1]Huazhong Univ. of Sci. & Tech., China, [2]Fiberhome Telecommunication Technologies Co. Ltd., China

Session Title	Distributed Fiber Sensing	Session Code	6C1
Date & Time	July 6 (Fri.) / 08:30-10:00		
Place	Room C (301)		
Session Chair	Kwang Yong Song (Chungang Univ.)		

6C1-1 (Paper No. SC3_1028) | Invited | 08:30-09:00 (30')

Advances in Fiber-optic Distributed Acoustic Sensors

Zuyuan He, Qingwen Liu, and Dian Chen
Shanghai Jiaotong Univ., China

6C1-2 (Paper No. SC3_1048) 09:00-09:15 (15')

Highly Sensitive Slope-Assisted BOCDR Utilizing Polarization-Maintaining Fiber

Heeyoung Lee, Yosuke Mizuno, and Kentaro Nakamura
Tokyo Inst. of Tech., Japan

6C1-3 (Paper No. SC3_1054) 09:15-09:30 (15')

Comparison of Three Combining Methods for Polarization-Diversity Receiving in φ-OTDR

Fangmei Gu, Yingchun Li, Linghuan Liang, Minjie Zhang*
Shanghai Univ., China

6C1-4 (Paper No. SC3_1030) | Invited | 09:30-10:00 (30')

Characteristics of Continuous Grating Arrays in Single and Multicore Fiber for Distributed Sensing

Tristan Kremp, Kenneth S. Feder, and Paul S. Westbrook
OFS Lab., USA

Session Title	Advanced Optical Devices 2	Session Code	6D1
Date & Time	July 6 (Fri.) / 08:30-09:30		
Place	Room D (302)		
Session Chair	Jong-Hoi Kim (ETRI)		

6D1-1 (Paper No. SC4_1050) | Invited | 08:30-09:00 (30')

Spatial Light Control for Multimode Optical Fibre

Joel Carpenter
The Univ. of Queensland, Australia

6D1-2 (Paper No. SC4_1021) 09:00-09:15 (15')

Theoretical Investigation of a Plasmonic Waveguide Modulator using Grating-Assisted Coupling to a Graphene Plasmon

Yonghan Kim and Min-Suk Kwon
UNIST, Korea

6D1-3 (Paper No. SC4_1040) 09:15-09:30 (15')

Active Control of Optical Signal via Applied Bias Assisted by Nanoscale Metal-Dielectric Multilayers

Yohan Lee, Sun-Je Kim, and Byoungho Lee
Seoul Nat'l Univ., Korea

Session Title	Photonics Devices 3	Session Code	6E1
Date & Time	July 6 (Fri.) / 08:30-10:00		
Place	Room E (Halla Hall A)		
Session Chair	Antonella Bogoni (Scuola Superiore)		

6E1-1 (Paper No. SC5_1018) | Invited | 08:30-09:00 (30')

All-Optimized Integrated Microwave Photonic Bandstop Filter

Yang Liu[1], Jason Hotten[1], Amol Choudhary[1], David Marpaung[1], and Benjamin J. Eggleton[1]
[1]Univ. of Sydney, Australia, [2]Univ. of Twente, Netherlands

6E1-2 (Paper No. SC5_1020) | Invited | 09:00-09:30 (30')

PLC-based Mode Controlling Devices for Mode-Division-Multiplexing

Takeshi Fujisawa[1], Taiji Sakamoto[2], Takashi Matsui[2], Kyozo Tsujikawa[2], Kazuhide Nakajima[2], and Kunimasa Saitoh[1]
[1]Hokkaido Univ., Japan, [2]NTT Corp., Japan

6E1-3 (Paper No. SC5_1011) 09:30-09:45 (15')

Demonstration of on-Chip Mode Conversion, Multiplexing and Demultiplexing using Cascaded MMI Couplers on InP Substrate

Zhaosong Li[1,2], Dan Lu[1,2], Yiming He[1,2], Hongyan Yu[1,2], Xuliang Zhou[1,2], and Jiaoqing Pan[1,2]
[1]Chinese Academy of Sci., China, [2]Univ. of Chinese Academy of Sci., China

6E1-4 (Paper No. SC5_1022) 09:45-10:00 (15')

Directly Inscribed Mode (de)Multiplexer over C-Band based on Tapered Mode-Selective Coupler

Xiao Xu, Lin Ma, and Zuyuan He
Shanghai Jiaotong Univ., China

Session Title	Visible Light Communication	Session Code	6A2
Date & Time	July 6 (Fri.) / 10:30-12:00		
Place	Room A (Samda Hall A)		
Session Chair	Sung Man Kim (Kyungsung Univ.)		

6A2-1 (Paper No. SC1_1053) **10:30-10:45 (15')**

Faster-than-Nyquist DFT-S-OFDM over Visible Light Communications

Yingjie Shao, Yang Hong, Shuang Gao, and Lian-Kuan Chen
The Chinese Univ. of Hong Kong, China

6A2-2 (Paper No. SC1_1018) **10:45-11:00 (15')**

100-m Long Distance RGB Visible Light Camera Communication

Yen-Chun Liu[1], Ruei-Jie Shiu[1], Liang-Yu Wei[1], Chin-Wei Hsu[1], Chi-Wai Chow[1], and Chien-Hung Yeh[2]
[1]Nat'l Chiao Tung Univ., Taiwan, [2]Feng Chia Univ., Taiwan

6A2-3 (Paper No. SC1_1023) **11:00-11:15 (15')**

Visible Light Communication Using Advertisement-Light-Board and Rolling-Shutter-Effect based CMOS Mobile-Phone Camera

Ruei-Jie Shiu[1], Yen-Chun Liu[1], Chi-Wai Chow[1], Liang-Yu Wei[1], Yung Hsu[1], Chin-Wei Hsu[1], Chien-Hung Yeh[2], Xin-Lan Liao[3], Kun-Hsien Lin[3], Yi-Chang Wang[3], and Yi-Yuan Chen[3]
[1]Nat'l Chiao Tung Univ., Taiwan, [2]Feng Chia Univ., Taiwan, [3]Industrial Technology Research Inst., Taiwan

6A2-4 (Paper No. SC1_1076) **11:15-11:30 (15')**

Demonstration of Probabilistic Shaping PAM4 for Visible Light Communications

Dongsheng Wu, Min Zhang, Ze Li, Danshi Wang, Weishu Xu, and Jin Li
Beijing Univ. of Posts and Telecommunications, China

6A2-5 (Paper No. SC1_1056) **11:30-11:45 (15')**

Error-Free Transmission for Rolling-Shutter-based Optical Camera Communication

K. Shintai, K. Mohri, T. Zinda, and W. Chujo
Meijo Univ., Japan

6A2-6 (Paper No. SC1_1081) **11:45-12:00 (15')**

Experimental Demonstration of Indoor Positioning System based on Visible Light Communications

Hao Wu, Haozhe Chen, Junjie Ding, Mingrui Yang, Shihang Bian, Ying Wang, Jie Pang, Wei Liu, Honglong Cao, Minglai Zhou, Jianling Hu, and Shanhong You
Soochow Univ., China

Session Title	Technologies for Datacenter Applications	Session Code	6B2
Date & Time	July 6 (Fri.) / 10:30-12:00		
Place	Room B (Samda Hall B)		
Session Chair	Hoon Kim (KAIST)		

6B2-1 (Paper No. SC2_1104) | Invited | 10:30-11:00 (30')

Electrical Frequency Multiplexing for High Symbol Rate Generation

Xi Chen, Sethumadhavan Chandrasekhar, and Peter Winzer
Nokia Bell Labs, USA

6B2-2 (Paper No. SC2_1061) | Invited | 11:00-11:30 (30')

Data Center Interconnects at 400G and beyond

Michael H. Eiselt, Annika Dochhan, and Joerg-Peter Elbers
ADVA Optical Networking SE, Germany

6B2-3 (Paper No. SC2_1021) 11:30-11:45 (15')

Power Consumption Evaluation of ASIC for Short-Reach Optical Interconnects

Jingchi Cheng[1], Chongjin Xie[2], Ming Tang[3], and Songnian Fu[3]
[1]Alibaba Group, China, [2]Alibaba Group, USA, [3]Huazhong Univ. of Sci. and Tech., China

6B2-4 (Paper No. SC2_1055) 11:45-12:00 (15')

80-GBd PDM-64QAM Signal Generation for 800-Gbps DCI Application

A. Matsushita, M. Nakamura, S. Okamoto, F. Hamaoka, and Y. Kisaka
NTT Corp., Japan

Session Title	Access Network Technologies	Session Code	6C2
Date & Time	July 6 (Fri.) / 10:30-12:00		
Place	Room C (301)		
Session Chair	Keisuke Matsuda (Mitsubishi Electric Corp.)		

6C2-1 (Paper No. SC1_1055) **10:30-10:45 (15')**

A Coexistence Scheme for Different Kinds of PONs based on Weakly-Coupled MDM-PON

Kaiwei Zhang[1], Juhao Li[1], Jinglong Zhu[1], Dawei Ge[1], Yichi Zhang[2], Zhangyuan Chen[1], and Yongqi He[1]
[1]Peking Univ., China, [2]Wuhan Research Inst. of Posts and Telecommunications, China

6C2-2 (Paper No. SC1_1065) **10:45-11:00 (15')**

Effects of Modulation Formats on 25.78-Gb/s MMF Transmission based on Mode-Field Matched Center-Launching Technique

Minsik Kim, Byung Gon Kim, S. H. Bae, and Y. C. Chung
KAIST, Korea

6C2-3 (Paper No. SC1_1054) **11:00-11:15 (15')**

Joint Routing and Scheduling for Low-Latency Packet Forwarding in Fronthaul Bridged Network

Yu Nakayama, Daisuke Hisano, Takahiro Kubo, Youichi Fukada, Jun Terada, and Akihiro Otaka
NTT Corp., Japan

6C2-4 (Paper No. SC1_1038) **11:15-11:30 (15')**

Deeply-Modulated IMDD Link with Stable Low Bias Angle

Yanming Liu, Feifei Yin, Yitang Dai, and Kun Xu
Beijing Univ. of Posts and Telecommunications, China

6C2-5 (Paper No. SC1_1021) **11:30-11:45 (15')**

Energy-Efficient Metro-Access Network with Virtual OLT Migration

Shanyi Guo, Min Zhang, Chuang Song, Zhilong Wang, Danshi Wang, Jin Li, Ze Li, and Lin Zhang
Beijing Univ. of Posts and Telecommunications, China

6C2-6 (Paper No. SC1_1057) **11:45-12:00 (15')**

Proposal on New Preemptive Priority Control for Scale Free Traffic

Tsukasa Kodama and Tetsuya Yokotani
Kanazawa Inst. of Tech.

Session Title	Digital Signal Processing	Session Code	6D2
Date & Time	July 6 (Fri.) / 10:30-12:00		
Place	Room D (302)		
Session Chair	Chul Han Kim (Univ. of Seoul)		

6D2-1 (Paper No. SC2_1035) **10:30-10:45 (15')**

Experimental Investigation of Laser Linewidth Tolerance of 32-GBaud DP-256QAM Optical Coherent System

T. Sasai, F. Hamaoka, A. Matsushita, M. Nakamura, H. Kawakami, and Y. Kisaka
NTT Corp., Japan

6D2-2 (Paper No. SC2_1068) **10:45-11:00 (15')**

Cold-Start of Decision-Aided Maximum Likelihood in Coherent Optical Receivers

Xiaodi You[1], Jian Chen[1], and Changyuan Yu[2]
[1]Nanjing Univ. of Posts & Telecommunications, China, [2]The Hong Kong Polytechnic Univ., China

6D2-3 (Paper No. SC2_1059) **11:00-11:15 (15')**

An Improved Algorithm for Symbol Timing Synchronization in CO-OFDM System

Xueqi Wu, Jianfei Liu, Xiangye Zeng, Jia Lu, and Yanpeng Xu
Hebei Univ. of Tech., China

6D2-4 (Paper No. SC2_1054) **11:15-11:30 (15')**

Peak-to-Average Power Ratio Suppression based on MPGA-SLM

Yang Ye[1], Mingyi Gao[1], Wei Chen[1], Junfeng Zhang[1], Xiaoyi Chen[1], Yuanyuan Ma[1], and Wei Chen[2]
[1]Soochow Univ., China, [2]Jiangsu Hengtong Fiber Sci. and Tech. Corp., China

6D2-5 (Paper No. SC2_1092) **11:30-11:45 (15')**

An Iterative SLM for PAPR Reduction in Optical FRFT-OFDM Systems

Mengxin Han, Yating Wu, Yanzan Sun, Qianwu Zhang, and Baofeng Chen
Shanghai Univ., China