

2021 Optical Fiber Communications Conference and Exhibition (OFC 2021)

**San Francisco, California, USA
6 – 11 June 2021**

Pages 1-698



**IEEE Catalog Number: CFP21OFC-POD
ISBN: 978-1-6654-2938-2**

**Copyright © 2021, The Optical Society (OSA)
All Rights Reserved**

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP21OFC-POD
ISBN (Print-On-Demand):	978-1-6654-2938-2
ISBN (Online):	978-1-943580-86-6

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

SPECIAL SESSION: VISION TALKS: BEYOND 2021 AND TOWARDS 2030 (PART 1)

OPTICAL MICROSYSTEM TECHNOLOGIES AND APPLICATIONS	1
<i>Gordon A. Keeler</i>	

OFC DEMO ZONE (PART 1)

DEMONSTRATION OF AN SDN-ENABLED VCSEL-BASED PHOTONIC SYSTEM FOR SPECTRAL/SPATIAL CONNECTIVITY IN DISAGGREGATED OPTICAL METRO NETWORKS	3
<i>M. Svaluto Moreolo, R. Martínez, J. M. Fabrega, R. Casellas, J. Vílchez, L. Nadal, R. Vilalta, R. Muñoz, C. Neumeyr, H. D. Jung, J. U. Shin, A. Gatto, P. Parolari, P. Boffi, D. Larrabeiti, J. P. Fernández-Palacios</i>	
OPERATIONALIZING PARTIALLY DISAGGREGATED OPTICAL NETWORKS: AN OPEN STANDARDS-DRIVEN MULTI-VENDOR DEMONSTRATION	6
<i>E. Le Rouzic, A Lindgren, S. Melin, D. Provencher, R. Subramanian, R. Joyce, F. Moore, D. Reeves, A. Rambaldi, P. Kaczmarek, K. Weeks, S. Neidlinger, G. Agrawal, S. Krishnamoha, B. Raszczuk, T. Uhlar, R. Casellas, O. Gonzalez De Dios, V. Lopez</i>	
A NON-PROPRIETARY NETWORK OPERATIONS PLATFORM FOR OPENROADM ENVIRONMENT	9
<i>Nathan Ellsworth, Behzad Mirkhanzadeh, Tianliang Zhang, Shweta Vachhani, Balagangadhar Bathula, Gilles Thouenon, Christophe Betoule, Olivier Renais, Miguel Razo, Andrea Fumagalli</i>	
DEMONSTRATION OF EXTENSIBLE DISAGGREGATED NE MANAGEMENT BASED ON A SONIC-COMPLIANT SOFTWARE-AGENT OPTICAL OPENCONFIG/GNMI TELEMETRY GO IMPLEMENTATION	12
<i>Abhinava Sadasivarao, Yawei Yin, Karthikeyan Balasubramanian, Ryan Morgan, Paulo Gomes, Sharfuddin Syed, Loukas Paraschis</i>	
SCALABLE FOR CLOUD-NATIVE TRANSPORT SDN CONTROLLER USING GNPY AND MACHINE LEARNING TECHNIQUES FOR QOT ESTIMATION	15
<i>Carlos Manso, Ricard Vilalta, Raul Muñoz, Ramon Casellas, Ricardo Martínez</i>	
GNPY & YANG: OPEN APIS FOR END-TO-END SERVICE PROVISIONING IN OPTICAL NETWORKS	18
<i>Jan Kundrát, Esther Le Rouzic, Jonas Mårtensson, Andrea Campanella, Ondrej Havliš, Andrea D'Amico, Gert Grammel, Gabriele Galimberti, Vittorio Curri, Josef Vojtech</i>	
ALL-INDOOR OPTICAL CUSTOMER PREMISES EQUIPMENT FOR FIXED WIRELESS ACCESS	21
<i>Dominic Schulz, Julian Hohmann, Peter Hellwig, Christoph Kottke, Ronald Freund, Volker Jungnickel, Ralf-Peter Braun, Frank Geilhardt</i>	
HIGH PRECISION INDOOR ROBOT LOCALIZATION USING VLC ENABLED SMART LIGHTING	24
<i>Yiru Wang, Weipeng Guan, Babar Hussain, C. Patrick Yue</i>	

LI-POSTER: REAL-TIME NON-LINE-OF-SIGHT OPTICAL CAMERA COMMUNICATION FOR HAND-HELD SMARTPHONE APPLICATIONS.....	27
<i>Liqiong Liu, Lian-Kuan Chen</i>	

SPECIAL SESSION: VISION TALKS: BEYOND 2021 AND TOWARDS 2030 (PART 2)

PHOTONICS VISION 2030 IN AFRICA	30
<i>Kithinji Muriungi, Fidel Makatia</i>	
FUTURE OPTICAL NETWORKS IN A 10 YEAR TIME FRAME	34
<i>Andrew Lord, Catherine White, Asif Iqbal</i>	
OPTICAL COMMUNICATION IN THE AGE OF AI	37
<i>Henning Lysdal</i>	
CAPACITY SCALING THROUGH SPATIAL PARALLELISM: FROM SUBSEA CABLES TO SHORT-REACH OPTICAL LINKS.....	38
<i>Peter J. Winzer</i>	

OFC DEMO ZONE (PART 2)

A NEW FOWLP PLATFORM FOR HYBRID OPTICAL PACKAGING - DEMONSTRATION ON 100GBPS TRANSCEIVER.....	39
<i>Seongwook Choi, Yoonyoung Bae, Sukyoon Oh, Seungman Han, David Dongwoo Park, Young June Park</i>	
RSE-BASED OPTICAL CAMERA COMMUNICATION IN UNDERWATER SCENERY WITH BUBBLE DEGRADATION	42
<i>Zihao Zhou, Shangsheng Wen, Weipeng Guan</i>	
DEMONSTRATION OF A DYNAMIC QKD NETWORK CONTROL USING A QKD-AWARE SDN APPLICATION OVER A PROGRAMMABLE HARDWARE ENCRYPTOR	45
<i>R. S. Tessinari, E. Arabul, O. Alia, A. S. Muqaddas, G. T. Kanellos, R. Nejabati, D. Simeonidou</i>	
DEMONSTRATION OF SOFTWARE-DEFINED KEY MANAGEMENT FOR QUANTUM KEY DISTRIBUTION NETWORK	48
<i>Joo Yeon Cho, Jose-Juan Pedreno-Manresa, Sai Patri, Andrew Sergeev, Jörg-Peter Elbers, Helmut Griesser, Catherine White, Andrew Lord</i>	
DEMONSTRATION OF MACHINE-INTELLIGENT SOFT-FAILURE LOCALIZATION USING SDN TELEMETRY	51
<i>Rossano P. Pinto, Kayol S. Mayer, Jonathan A. Soares, Dalton S. Arantes, Darli A. A. Mello, Vinicius Cavalcante, Leonardo L. Santos, Filipe D. Moraes, Christian E. Rothenberg</i>	
DEMONSTRATION OF ML-AIDED IMPAIRMENT-AWARE L0 PATH COMPUTATION IN FULLY DISAGGREGATED MULTI-VENDOR OPTICAL TRANSPORT NETWORKS	54
<i>Huy Tran Quang, Quan Pham-Van, Dominique Verchere, Huu-Trung Thieu, Djamel Zeglache</i>	
INTER-OPERATOR MACHINE LEARNING MODEL TRADING OVER ACUMOS AI FEDERATED MARKETPLACE	57
<i>Behnam Shariati, Pooyan Safari, Geronimo Bergk, Felix Immanuel Oertel, Johannes Karl Fischer</i>	

SDN-CONTROLLED DYNAMIC FRONT-HAUL PROVISIONING, EMULATED ON HARDWARE AND VIRTUAL COSMOS OPTICAL X-HAUL TESTBEDS	60
<i>Bob Lantz, Jiakai Yu, Ayush Bhardwaj, Alan A. Díaz-Montiel, Aamir Quraishy, Steven Santaniello, Tingjun Chen, Rina Fujieda, Atri Mukhopadhyay, Gil Zussman, Marco Ruffini, Dan Kilper</i>	

EXPERIMENTAL DEMONSTRATION OF SCALABLE AND LOW LATENCY CROWD MANAGEMENT ENABLED BY 5G AND AI IN AN ACCELERATED EDGE CLOUD.....	63
<i>J. C. Borromeo, K. Kondepu, S. Fichera, P. Castoldi, L. Valcarenghi</i>	

DEMONSTRATION OF P4 NEURAL NETWORK SWITCH	66
<i>Francesco Paolucci, Lorenzo De Marinis, Piero Castoldi, Filippo Cugini</i>	

SILICON PHOTONICS IN COMMUNICATIONS AND BEYOND

EDGE-COUPLED ACTIVE AND PASSIVE WAFER-SCALE MEASUREMENTS ON 300MM SILICON PHOTONICS WAFERS	69
<i>Kenneth M. Jabon, Christopher V. Poulton, Ren-Jye Shiue, Matthew J. Byrd, Zhan Su, Mohammad H. Teimourpour, Scott Breitenstein, Ronald P. Millman, Dogan Atlas, Michael R. Watts, Erman Timurdogan</i>	

INTEGRATED SILICON PHOTONICS TRANSMITTER IN 400GBASE-DR4 QSFP-DD TRANSCIEVER	72
<i>Xingyu Zhang, David Zheng, Zhoufeng Ying, Yong Li, Ming Ding, Dobby Lam, Shijun Tu, Rui Wu, Xia Zhang, Yonghuan Sun, Xiong Wang, Xiaolei Huang, Tongqing Wang</i>	

INTEGRATED SILICON PHOTONICS TRANSCIEVER MODULE FOR 100GBIT/S 20KM TRANSMISSION	75
<i>Matt Traverso, Marco Mazzini, Kumar Lakshmikummar, Sanjay Sunder, Alex Kurylak, Craig Appel, Cristiana Muzio, Ravi Tummidi, Alberto Cervasio, Mary Nadeau, Weizhuo Li, Jarrett Neiman, Mark Webster</i>	

SYSTEM OPTIMIZATION OF HIGH-EFFICIENCY 400 GB/S PAM4 SILICON PHOTONICS TRANSMITTER FOR DATA CENTER APPLICATIONS.....	78
<i>Siamak Amiralizadeh, Wenhua Lin, David Patel, Yann Malinge, Stefan Burmeister, Kadhair Al-Hemyari, Haijiang Yu, Jung Park, Christian Malouin, Kejia Li, Pengyue Wen, Xueyan Zheng, Sanjeev Gupta, Raghuram Narayan, Ansheng Liu, Daniel Zhu, Boping Xie, Yuliya Akulova, Sunil Priyadarshi, Charlie Wang, Jin Hong</i>	

SILICON PHOTONICS APPLICATIONS FOR 5G AND DATA CENTERS.....	81
<i>Rang-Chen Yu, Dong Pan</i>	

QUANTUM COMMUNICATION AND PHOTONIC COMPUTING

TIME-ENERGY ENTANGLED PHOTON PAIRS GENERATED VIA SFWM IN AN ALGAASOI RING RESONATOR.....	84
<i>Joshua E. Castro, Trevor J. Steiner, Lin Chang, Quynh Dang, Weiqiang Xie, Chenlei Li, Justin Norman, John E. Bowers, Galan Moody</i>	

CRYO-COMPATIBLE, SILICON SPOKED-RING MODULATOR IN A 45NM CMOS PLATFORM FOR 4K-TO-ROOM-TEMPERATURE OPTICAL LINKS.....	87
<i>Hayk Gevorgyan, Anatol Khilo, Derek Van Orden, Deniz Onural, Bozhi Yin, Mark T. Wade, Vladimir M. Stojanovic, Miloš A. Popovic</i>	

COMPACT AND INEXPENSIVE PHOTONIC ISING MACHINES BASED ON OPTOELECTRONIC OSCILLATORS	90
<i>Guy Van Der Sande, Fabian Böhm, Thomas Van Vaerenbergh, Guy Verschaffelt</i>	

MULTI-CHANNEL QUANTUM COMMUNICATION RECEIVER MADE FROM WAVEGUIDE-INTEGRATED SUPERCONDUCTING NANOWIRE SINGLE-PHOTON DETECTORS	93
<i>Matthias Häußler, Robin Terhaar, Helge Gehring, Martin A. Wolff, Fabian Beutel, Wladick Hartmann, Nicolai Walter, Max Tillmann, Michael Wahl, Tino Röhlicke, Hans-Jürgen Rahn, Doreen Wernicke, Nicolas Perlot, Jasper Rödiger, Wolfram H. P. Pernice, Carsten Schuck</i>	

OPTIMIZATION OF SINGLE-MODE FIBERS AND CABLES

OPTIMIZATIONS OF THIN GLASS DIAMETER FIBERS	96
<i>Kazunori Mukasa, Tamás Mihálffy, Zoltán Várallyay</i>	

THIN-COATED FIBERS FOR HIGH-DENSITY OPTICAL INTERCONNECTS	99
<i>Weijun Niu, Matthew Drake, Brett R Knowlton, Yali Zhang, Arthur L Wallace, Jeffery S Stone, Yunfeng Gu, Shandon D Hart, Hector M De Pedro, Aramais R. Zakharian, Ming-Jun Li</i>	

1,728-FIBER CABLE WITH 12-FIBER RIBBONS COMPRISING 160- μ M COATING FIBER WITH 80- μ M CLADDING	102
<i>S. Matsuo, K. Yamashiro, K. Hoshi, Y. Tsujimoto, M. Miyata, H. Asada, T. Nakajima, K. Osato</i>	

AUTONOMOUS PHYSICAL LAYER CHARACTERIZATION IN COGNITIVE OPTICAL LINE SYSTEMS	105
<i>Giacomo Borraccini, Stefano Straullu, Andrea D'Amico, Antonino Nespolo, Stefano Piciaccia, Alberto Tanzi, Gabriele Galimberti, Vittorio Curri</i>	

ESTIMATING NONLINEAR PHASE SHIFT IN A MULTI-SPAN FIBER-OPTIC LINK USING A COHERENT TRANSCEIVER	108
<i>Rongqing Hui, Maurice O'Sullivan</i>	

ESTIMATION OF CORE-CLADDING CONCENTRICITY ERROR FROM GAWBS NOISE SPECTRUM	111
<i>Fatih Yaman, Kohei Nakamura, Eduardo Mateo, Shinsuke Fujisawa, Hussam G. Batshon, Takanori Inoue, Yoshihisa Inada</i>	

A BILSTM-CNN BASED MULTITASK LEARNING APPROACH FOR FIBER FAULT DIAGNOSIS	114
<i>Khouloud Abdelli, Helmut Grießer, Carsten Tropschug, Stephan Pachnicke</i>	

LIGHTNING-INDUCED STATE OF POLARIZATION CHANGE IN OPGW USING A TRANSMISSION LINE MODEL	117
<i>W. C. Snider, R. C. Moore, A. J. Erdman, D. Doucet, D. Charlton</i>	

SPATIAL DIVISION MULTIPLEXING DEVICES AND AMPLIFIERS

CLADDING-PUMPED MULTICORE AMPLIFIERS WITH RING DOPING	120
<i>S. Laroche, C. Matte-Breton, C. Kelly, R. J. Essiambre</i>	

HIGH SPATIAL CHANNEL COUNT MULTICORE SDM AMPLIFIERS	123
<i>S. Jain, T. Sakamoto, Y. Jung, P. Barua, I. Davidson, J. Hayes, K. Shibahara, T. Mizuno, Y. Miyamoto, K. Nakajima, D. J. Richardson</i>	
FIFO-LESS CORE-PUMP COMBINER FOR MULTICORE FIBER AMPLIFIER	126
<i>Yuta Wakayama, Noboru Yoshikane, Takehiro Tsuritani</i>	
HERMITE-GAUSSIAN MODE MULTIPLEXER SUPPORTING 1035 MODES	129
<i>Nicolas K. Fontaine, Haoshuo Chen, Mikael Mazur, Lauren Dallachiesa, K. W. Kim, Roland Ryf, David Neilson, Joel Carpenter</i>	
PARALLEL PHASE STABILIZATION OF 45 SINGLE-MODE FIBER INPUTS FEEDING A MODE MULTIPLEXER.....	132
<i>Mikael Mazur, Nicolas K. Fontaine, Lauren Dallachiesa, Haoshuo Chen, Roland Ryf, Louis-Anne De Montmorillon, Pierre Sillard, David T. Neilson</i>	
4.36 TBIT/S SILICON CHIP-TO-CHIP TRANSMISSION VIA FEW-MODE FIBER (FMF) USING 2D SUB-WAVELENGTH GRATING COUPLERS	135
<i>Pin-Cheng Kuo, Yeyu Tong, Chi-Wai Chow, Jui-Feng Tsai, Yang Liu, You-Chia Chang, Chien-Hung Yeh, Hon Ki Tsang</i>	

ADVANCED NETWORK ARCHITECTURES: TECHNO-ECONOMICS AND PERFORMANCE

SCALING REGIONAL OPTICAL TRANSPORT NETWORKS WITH PLUGGABLE AND INTEGRATED HIGH-CAPACITY LINE INTERFACES.....	138
<i>João Pedro, Nelson Costa, Steve Sanders</i>	
COMPARING IP-OPTICAL ARCHITECTURES & WDM TRANSPORT TECHNOLOGIES IN METRO, REGIONAL AND LONG-HAUL NETWORKS.....	141
<i>Serge Melle, Thierry Zami, Oriol Bertran-Pardo, Bruno Lavigne</i>	
TOWARDS DYNAMIC NETWORK RECONFIGURATIONS FOR FLEXIBLE OPTICAL NETWORK PLANNING.....	144
<i>Amir Varasteh, Sai Kireet Patri, Achim Autenrieth, Carmen Mas-Machuca</i>	
PERFORMANCE COMPARISON OF TRANSLUCENT C-BAND AND TRANSPARENT C+L- BAND NETWORK.....	147
<i>Rasoul Sadeghi, Bruno Correia, Emanuele Virgillito, Antonio Napoli, Nelson Costa, João Pedro, Vittorio Curri</i>	
MISSING PIECES CURRENTLY PREVENTING EFFECTIVE APPLICATION OF MACHINE LEARNING TO QOT ESTIMATION IN THE FIELD.....	150
<i>Jelena Pesic</i>	
QOT-E DRIVEN OPTIMIZED AMPLIFIER CONTROL IN DISAGGREGATED OPTICAL NETWORKS.....	153
<i>Giacomo Borraccini, Stefano Straullu, Andrea D'Amico, Emanuele Virgillito, Lalit Kumar, Stefano Piciaccia, Stefano Bottacchi, Scott Swail, Gabriele Galimberti, Vittorio Curri</i>	
ADAPTIVE AND ITERATIVE QOT ESTIMATOR RETRAINING FOR LAUNCH POWER OPTIMIZATION	156
<i>Ankush Mahajan, Kostas Christodoulopoulos, Ricardo Martínez, Raul Muñoz, Salvatore Spadaro</i>	

DC/ACCESS NETWORKS

SILICON PHOTONIC ZR/ZR+ DCO-CFP2 INTERFACE FOR DCI AND METRO-REGIONAL 400G OPTICAL COMMUNICATIONS	159
<i>E. Pincemin, Y. Lousouarn</i>	
FIELD TRIAL OF A SYSTEM-INDEPENDENT INFRASTRUCTURE MONITORING SYSTEM FOR ACCESS NETWORKS	162
<i>Michael Straub, Volker Hückstädt, Marc Ulrich, Thomas Pfeiffer, Rene Bonk</i>	
25 AND 50G OPTICAL ACCESS NETWORK DEPLOYMENT FORECASTS USING BI- LOGISTIC CURVES	165
<i>Cláudio Rodrigues, Francisco Rodrigues, Cátia Pinho, Nuno Bento, Marlene Amorim, António Teixeira</i>	

DSP AND AI FOR PON TRANSMISSION

LINEAR BURST-MODE RECEIVERS FOR DSP-ENABLED PASSIVE OPTICAL NETWORKS	168
<i>Xin Yin, Gertjan Coudyzer, Peter Ossieur, Laurens Breyne, Borre Van Lombergen, Johan Bauwelinck</i>	
RECURRENT NEURAL NETWORK BASED EQUALIZER WITH EMBEDDED PARALLELIZATION FOR 100GBPS/? PON	171
<i>Xiaoan Huang, Dongxu Zhang, Xiaofeng Hu, Chenhui Ye, Kaibin Zhang</i>	
DIGITAL PREDISTORTION ENHANCEMENT BY CONVOLUTIONAL NEURAL NETWORK FOR PROBABILISTIC SHAPED DISCRETE MULTI-TONE SIGNAL TRANSMISSION IN PASSIVE OPTICAL NETWORK.....	174
<i>Qi Zhou, Rui Zhang, Shuyi Shen, Chin-Wei Hsu, Shuang Yao, Shang-Jen Su, Gee-Kung Chang</i>	
>55-GBPS AND 30-DB LOSS BUDGET LR-OFDM PON DOWNSTREAM ENABLED BY ANN-BASED PREDISTORTION.....	177
<i>Hong-Minh Nguyen, Szu-Chi Huang, Chia-Chien Wei, Chun-Yen Chuang, Jyehong Chen</i>	
IMPACT OF DFE ON SOFT-INPUT LDPC DECODING FOR 50G PON.....	180
<i>Amitkumar Mahadevan, Yannick Lefevre, Wouter Lanneer, Paul Cautereels, Doutje Van Veen, Noriaki Kaneda, Vincent Houtsma</i>	
PERFORMANCE IMPROVEMENTS IN BANDWIDTH-LIMITED AND DIGITALLY- EQUALIZED 50G-PON DOWNSTREAM TRANSMISSION VIA BLOCK-INTERLEAVING OVER FOUR LDPC CODEWORDS	183
<i>Xiang Liu, Andy Shen, Ning Cheng, Yuanqiu Luo, Frank Effenberger</i>	

AI TECHNIQUES AND ADVANCED PROCESSING

DIGITAL TWIN-ENABLED POWER OPTIMIZER FOR MULTI-SPAN TRANSMISSION SYSTEM USING AUTOENCODER	186
<i>Shengnan Li, Danshi Wang, Yuchen Song, Qirui Fan, Min Zhang, Chao Lu, Alan Pak Tao Lau</i>	

EXPERIMENTAL STUDY OF DEEP NEURAL NETWORK EQUALIZERS PERFORMANCE IN OPTICAL LINKS	189
<i>Pedro J. Freire, Yevhenii Osadchuk, Bernhard Spinnler, Wolfgang Schairer, Antonio Napoli, Nelson Costa, Jaroslaw E. Prilepsky, Sergei K. Turitsyn</i>	
GEOMETRIC SHAPING OPTIMIZATION OF 64-APSK EIGENVALUE TRANSMISSION BASED ON NONLINEAR FOURIER TRANSFORM.....	192
<i>Junda Chen, Yizhao Chen, Yuxiang Duan, Deming Liu, Ming Tang</i>	
JOINTLY SHAPED DUAL POLARIZATION SYSTEMS	195
<i>Mrinmoy Jana, Lutz Lampe, Jeebak Mitra, Chuandong Li</i>	
ACHIEVABLE RATE COMPARISON BETWEEN PROBABILISTICALLY-SHAPED SINGLE- CARRIER AND ENTROPY-LOADED MULTI-CARRIER SIGNALING IN A BANDWIDTH- LIMITED 1-TB/S COHERENT SYSTEM.....	198
<i>Di Che, Xi Chen</i>	
ON THE COMPARISON OF SINGLE-CARRIER VS. DIGITAL MULTI-CARRIER SIGNALING FOR LONG-HAUL TRANSMISSION OF PROBABILISTICALLY SHAPED CONSTELLATION FORMATS	201
<i>Kaoutar Benyahya, Amirhossein Ghazisaeidi, Vahid Aref, Mathieu Chagnon, Aymeric Arnould, Stenio Ranzini, Haik Mardoyan, Fred Buchali, Jeremie Renaudier</i>	
COUPLED-CHANNEL ENHANCED SSFM FOR DIGITAL BACKPROPAGATION IN WDM SYSTEMS.....	204
<i>S. Civelli, E. Forestieri, A. Lotsmanov, D. Razdoburdin, M. Secondini</i>	
SOLVING THE NONLINEAR SCHRÖDINGER EQUATION IN OPTICAL FIBERS USING PHYSICS-INFORMED NEURAL NETWORK.....	207
<i>Xiaotian Jiang, Danshi Wang, Qirui Fan, Min Zhang, Chao Lu, Alan Pak Tao Lau</i>	
<u>COHERENT TRANSCEIVERS AND TRANSMISSION</u>	
4096-ARY EIGENVALUE MODULATION USING 12 TRIANGULAR-LATTICE-SHAPED EIGENVALUES	210
<i>Ken Mishina, Hiroyuki Takeuchi, Takeyuki Kodama, Yuki Yoshida, Daisuke Hisano, Akihiro Maruta</i>	
882 GBPS TRANSMISSION OVER 100 KM OF SSMF USING A SELF-CALIBRATED SINGLE-ENDED COHERENT RECEIVER	213
<i>Son Thai Le, Vahid Aref, Junho Cho, Xi Chen, Di Che</i>	
TECHNIQUES FOR SUBSEA TRANSMISSION SYSTEMS.....	216
<i>Massimiliano Salsi</i>	
DIGITAL COMPENSATION OF RESIDUAL PUMP DITHERING IN OPTICAL PHASE CONJUGATION OF HIGH-ORDER QAM.....	219
<i>T. T. Nguyen, S. Boscolo, A. A. I. Ali, M. Tan, S. Sygletos, S. Takasaka, R. Sugizaki, A. D. Ellis</i>	
REVEALING RAMAN-AMPLIFIED POWER PROFILE AND RAMAN GAIN SPECTRA WITH DIGITAL BACKPROPAGATION	222
<i>Takeo Sasaki, Masanori Nakamura, Takayuki Kobayashi, Hiroto Kawakami, Etsushi Yamazaki, Yoshiaki Kisaka</i>	

HIGH-FREQUENCY APPLICATIONS USING MICROWAVE, MILLIMETER AND TERAHERTZ PHOTONICS

MILLIMETER-WAVE AND TERAHERTZ PHOTONICS FOR COMMUNICATIONS AND SENSORS	225
<i>Tadao Nagatsuma, Masayuki Fujita, Li Yi</i>	
DEMONSTRATION OF 470 GHZ BANDWIDTH WIRELESS TRANSMITTER BASED ON PHOTO-MIXER FOR SIMULTANEOUS TRANSMISSION OF PHOTONICS-GENERATED SIGNALS IN ALL-BAND 6G SYSTEMS.....	228
<i>Li Zhao, Yitong Li, Cuiwei Liu, Jianguo Yu, Wen Zhou, Kaihui Wang, Yanyi Wang, Feng Zhao, Dongfang Ning, Qingqing Fo, Jianjun Yu</i>	
28-GHZ MMWAVE HYBRID BEAMFORMING SYSTEM INTEGRATED WITH A 64-ELEMENT GLASS ANTENNA.....	231
<i>Xinying Li, Po-Tsung Boris Shih, Qing Ji, Hou-Tzu Kurt Huang, Solomon T. Abraha, Cheolbok Kim, David R. Peters, David F. Castellana, Anthony Ng'Oma</i>	
DEMONSTRATION OF 8-CHANNEL 32-GBIT/S QPSK WIRELESS COMMUNICATIONS AT 0.28-0.33 THZ USING 2 FREQUENCY, 2 POLARIZATION, AND 2 MODE MULTIPLEXING	234
<i>Xinzhou Su, Huibin Zhou, Kaiheng Zou, Amir Minoofar, Hao Song, Runzhou Zhang, Kai Pang, Haoqian Song, Nanzhe Hu, Zhe Zhao, Ahmed Almainan, Shlomo Zach, Moshe Tur, Andreas F. Molisch, Hirofumi Sasaki, Doohwan Lee, Alan E. Willner</i>	
FRONTHAUL OPTICAL LINKS IMPLEMENTED BY USING SUB-NYQUIST SAMPLING RATE ADC FOR B5G/6G SUB-THZ MA-MIMO BEAMFORMING	237
<i>Pin-Hsuan Ting, Shao-Hung Yu, Zheng-Wei Huang, Chia-Chien Wei, Sien Chi, Chun-Ting Lin</i>	
COMPACT K-BAND PHOTONIC BEAMSTEERER ASSISTED WITH WEAKLY-COUPLED MULTI-CORE FIBER	240
<i>Ailee Trinidad, Maria Morant, Eduward Tangdionga, Ton Koonen, Roberto Llorente</i>	

SPECIAL SESSION: FREE SPACE OPTICAL (FSO) COMMUNICATION IS FINALLY REAL (PART 1)

FREE SPACE OPTICAL COMMUNICATION FOR LOW EARTH ORBIT DATA RELAY NETWORKS.....	243
<i>Timothy M. Yarnall</i>	

INTEGRATED PHOTONICS DEVICES AND SYSTEMS

OVERVIEW AND FUTURE CHALLENGES ON III-V INTEGRATION TECHNOLOGIES IN SILICON PHOTONICS PLATFORM.....	244
<i>Richard Jones</i>	

HYBRID III-V LASER INTEGRATION ON A MONOLITHIC SILICON PHOTONIC PLATFORM.....	247
<i>Yusheng Bian, Koushik Ramachandran, Bo Peng, Brittany Hedrick, Scott Mills, Keith Donegan, Armand Rundquist, Ed Vail, Vaishnavi Karra, Firat Yasar, Monica Esopi, Benjamin Fasano, Asli Sahin, Thomas Houghton, Karen Nummy, Hanyi Ding, Takako Hirokawa, Kevin Dezfulian, Zhuojie Wu, Daniel Fisher, Jim Pape, Jay Steffes, Louis Medina, Subharup Gupta Roy, Harry Cox, Bart Green, Jorge Lubguban, Won Suk Lee, Abdelsalam Aboketaf, Michal Rakowski, Kate McLean, Zoey Sowinski, Oh-Jung Kwon, Gabrielle Robert, Massimo Sorbara, Subramanian Krishnamurthy, Andy Stricker, Jae Kyu Cho, Ian Melville, Dave Riggs, Rod Augur, Norman Robson, Daniel Berger, Luke Lee, Vikas Gupta, Anthony Yu, Ken Giewont, Ted Letavic, John Pellerin</i>	
RECORD HIGH POWER SINGLE-MODE OPERATION AND BEAM STEERING OF VCSEL-INTEGRATED AMPLIFIER/BEAM SCANNER.....	250
<i>Shanting Hu, Xiaodong Gu, Ahmed Hassan, Masanori Nakahama, Satoshi Shinada, Fumio Koyama</i>	
RECORD PERFORMANCE OF 53GB GE/SI AVALANCHE PHOTODIODE ROSA	253
<i>Bin Shi, Yanhui Duan, Fan Qi, Pengfei Cai, Xueping Chen, Zhenhua Wei, Guanghui Hou, Tzungi Su, Su Li, Wang Chen, Chingyin Hong, Dong Pan</i>	
>25 GBIT/S LIFI WITH LASER BASED SMD WHITE LIGHT SOURCE	256
<i>James Raring, Changmin Lee, Mohamed Sufyan Islim, Adrian Sparks, Stefan Videv, Melvin McLaurin, Binith Shah, Paul Rudy, Harald Haas</i>	

NONLINEAR OPTICAL DEVICES

NEUROMORPHIC PHOTONICS FOR OPTICAL COMMUNICATION SYSTEMS.....	259
<i>Chaoran Huang, Thomas Ferreira De Lima, Shinsuke Fujisawa, Alexander N. Tait, Hsuan-Tung Peng, Bhavin J. Shastri, Ting Wang, Paul R. Prucnal</i>	
WIDEBAND PPLN-BASED OPTICAL PARAMETRIC AMPLIFIERS FOR SCALABLE OPTICAL TRANSPORT NETWORK.....	262
<i>Y. Miyamoto, T. Kobayashi, T. Umeki, T. Kazama, K. Enbutsu, S. Shimizu, R. Kasahara</i>	
ROBUST POLARIZATION-INSENSITIVE C & L BAND FOPA WITH >17DB GAIN FOR BOTH WDM AND BURSTY TRAFFIC	265
<i>Vladimir Gordienko, Chandra B. Gaur, Florent Bessin, Ian D. Phillips, Nick J. Doran</i>	
DUAL-POLARIZATION C+L-BAND WAVELENGTH CONVERSION IN A TWIN-CORE HIGHLY NONLINEAR FIBRE	268
<i>Aron D. Szabó, Vitor Ribeiro, Chandra B. Gaur, Abdallah A. I. Ali, Arnaud Mussot, Yves Quiquempois, Géraud Bouwmans, Nick J. Doran</i>	
PARAMETRIC FREQUENCY COMB GENERATION USING SILICON CORE FIBER.....	271
<i>Ronit Sohanpal, Haonan Ren, Li Shen, Callum Deakin, Alexander M. Heidt, Thomas W. Hawkins, John Ballato, Ursula J. Gibson, Anna C. Peacock, Zhixin Liu</i>	
NONLINEAR FOURIER TRANSFORM ENABLED MULTIPLE PULSES PURIFICATION FOR SOLITON COMMUNICATION.....	274
<i>Yutian Wang, Songnian Fu, Ming Tang, Chi Zhang, Xiahui Tang, Jian Kong, Luming Zhao</i>	

TRANSMISSION SYSTEMS MODELING

A CLOSED-FORM NONLINEARITY MODEL FOR FORWARD-RAMAN-AMPLIFIED WDM OPTICAL LINKS	277
<i>M. Ranjbar Zefreh, F. Forghieri, S. Piciaccia, P. Poggiolini</i>	
MODELING OF NONLINEAR INTERFERENCE POWER FOR DUAL-POLARIZATION 4D FORMATS	280
<i>Gabriele Liga, Bin Chen, Astrid Barreiro, Alex Alvarado</i>	
IMPACT OF CROSSTALK ON 800 GB/S 90 GBAUD 64QAM CHANNEL	283
<i>Thierry Zami, Kaoutar Benyahya, Aymeric Arnould, Haik Mardoyan, Jérémie Renaudier, Bruno Lavigne</i>	
HIGHLY ACCURATE MEASUREMENT-BASED GAIN MODEL FOR CONSTANT-PUMP EDFA FOR NON-FLAT WDM INPUTS	286
<i>Alexis Carbo Meseguer, Jean-Christophe Antona, Alberto Bononi, Junho Cho, Stephen Grubb, Pascal Pecci, Olivier Courtois, Vincent Letellier</i>	

ADVANCED DETECTION AND FIBERS

RECENT BREAKTHROUGHS IN HOLLOW CORE FIBER TECHNOLOGY	289
<i>Gregory T Jasion, Thomas D Bradley, Kerrienne Harrington, Hesham Sakr, Yong Chen, Eric Numkam Fokoua, Ian A Davidson, Austin Taranta, John R Hayes, David J Richardson, Francesco Poletti</i>	
RECORD-LOW-LOSS 83 μm^2 EFFECTIVE AREA FIBER AND TRANSMISSION OF 40X369 GB/S CHANNELS OVER A TRANS-ATLANTIC SUBMARINE LINK WITH 101 KM SPANS	292
<i>John D. Downie, Xiaojun Liang, Jason Hurley, Hazel Matthews, Darren Stainer, Sergejs Makovejs, Dana Smith</i>	

MACHINE LEARNING FOR OPTICAL SUBSYSTEMS

NONLINEAR IMPAIRMENT COMPENSATION USING NEURAL NETWORKS	295
<i>Shinsuke Fujisawa, Fatih Yaman, Hussam G. Batshon, Massaki Tanio, Naoto Ishii, Chaoran Huang, Thomas Ferreira De Lima, Yoshihisa Inada, Paul R. Prucnal, Norifumi Kamiya, Ting Wang</i>	
54.5 TB/S WDM TRANSMISSION OVER FIELD DEPLOYED FIBER ENABLED BY NEURAL NETWORK-BASED DIGITAL PRE-DISTORTION	298
<i>Vinod Bajaj, Fred Buchali, Mathieu Chagnon, Sander Wahls, Vahid Aref</i>	
NEURAL NETWORK TRAINING FRAMEWORK FOR NONLINEAR SIGNAL-TO-NOISE RATIO ESTIMATION IN HETEROGENEOUS OPTICAL NETWORKS	301
<i>Aazar S. Kashi, John C. Cartledge, Wai-Yip Chan</i>	
RECURRENT NEURAL NETWORK SOFT DEMAPPING FOR MITIGATION OF FIBER NONLINEARITIES AND ISI	304
<i>Maximilian Schaedler, Fabio Pittalà, Stefano Calabrò, Georg Böcherer, Christian Bluemm, Stephan Pachnicke</i>	
HARDWARE-EFFICIENT NONLINEAR EQUALIZER BASED ON JOINT UNSUPERVISED LEARNING AND SUPERVISED WEIGHTS	307
<i>Zheng Yang, Songnian Fu, Ming Tang, Yuncai Wang, Yuwen Qin</i>	

KERNEL-BASED LEARNING-AIDED PHASE NOISE COMPENSATION IN DUAL-PUMP OPTICAL PHASE CONJUGATION COHERENT SYSTEM.....	310
<i>T. T. Nguyen, S. Boscolo, A. A. I. Ali, M. Tan, T. Zhang, S. Takasaka, R. Sugizaki, S. Sygletos, A. D. Ellis</i>	

COHERENT FOR DATA-CENTER APPLICATIONS: DSP

INTEROPERABLE COHERENT OPTICS FOR EXTENDED REACH - ASSISTING DATA CENTER EVOLUTION	313
<i>Atul Srivastava</i>	

SIMPLEST DSP IN SELF-HOMODYNE COHERENT TRANSMISSION USING BIDIRECTIONAL ADAPTIVE POLARIZATION CONTROLLER	316
<i>Li Wang, Yizhao Chen, Xuefeng Wang, Can Zhao, Junda Chen, Ming Tang</i>	

COST-EFFECTIVE AND HARDWARE-EFFICIENT COHERENT SCHEME FOR 400G SHORT-REACH TRANSMISSION	319
<i>Tingting Zhang, Qian Xiang, Sen Zhang, Lei Liu, Tianjian Zuo</i>	

SPECIAL SESSION: FREE SPACE OPTICAL (FSO) COMMUNICATION IS FINALLY REAL (PART 2)

LIFI IS READY FOR MAINSTREAM.....	322
<i>A. Alistair Banham, R. Ron Schaeffer, S. Sarah Scace</i>	

LIFI AT THE HEART OF FUTURE INTELLIGENT COMMUNICATIONS NETWORKS	326
<i>Micheline Perrufel, Sylvain Leroux</i>	

SYMPOSIA: ON THE EDGE: MEC- BASED NETWORK ARCHITECTURES IN SUPPORT OF ENTERPRISE CLOUD (PART 1)

EDGE-BASED 5G NETWORK ARCHITECTURES IN SUPPORT OF ZERO DOWNTIME MOBILITY FOR ENTERPRISE APPLICATIONS	329
<i>Dan Warren, Xenofon Vasilakos, Walter Featherstone</i>	

MEC AND FIXED ACCESS NETWORKS SYNERGIES	332
<i>Gaël Simon, Philippe Chanclou, Minqi Wang, Luiz Anet Neto, Anas El Ankouri, Fabienne Saliou, Jérémy Potet</i>	

TUTORIALS ON ADVANCED DIRECTLY-MODULATED LASERS

HIGH SPEED VCSEL: TECHNOLOGY AND APPLICATIONS - TUTORIAL	336
<i>V. A. Shchukin, V. P. Kalosha, N. N. Ledentsov, L. Chorchos, O. Makarov, M. Bou Sanayeh, J. P. Turkiewicz</i>	

DIRECT MODULATION OF MEMBRANE DISTRIBUTED REFLECTOR LASERS USING OPTICAL FEEDBACK	361
<i>Shinji Matsuo, Nikolaos-Panteleimon Diamantopoulos, Suguru Yamaoka, Hidetaka Nishi</i>	

CHALLENGES AND OPPORTUNITIES OF DIRECTLY MODULATED LASERS IN FUTURE DATA CENTER AND 5G NETWORKS.....	365
<i>Tsurugi Sudo, Yasuhiro Matsui, Glen Carey, Ashish Verma, Ding Wang, Viral Lowalekar, Martin Kwakernaak, Ferdous Khan, Nicholas Dalida, Ronak Patel, Alexander Nickel, Bruce Young, Jimmy Zeng, Yuk Lung Ha, Charles Roxlo</i>	

POLARIZATION AND BEAM SPLITTING OPTICAL DEVICES

HIGH-PERFORMANCE POLARIZATION-HANDLING DEVICES ON SILICON.....	368
<i>Daoxin Dai, Zhuoning Zhu</i>	
MODE-EVOLUTION-BASED INP/INGAASP POLARIZATION ROTATOR WITH ETCHING-STOP LAYER.....	371
<i>Ryota Tanomura, Abdulaziz E. Elfiqi, Dawei Yu, Warakorn Yanwachirakul, Haifeng Shao, Yuto Suzuki, Takuo Tanemura, Yoshiaki Nakano</i>	
DEMONSTRATION OF AN INTEGRATED PHOTONIC MAGIC T – A ROBUST BEAM SPLITTER AND NOVEL POLARIZATION DIVERSITY BUILDING BLOCK.....	374
<i>Manuj Singh, Josep M. Fargas Cabanillas, Dorde Gluhovic, Bohan Zhang, Miloš A. Popovic</i>	
HIGH-PERFORMANCE SILICON QUADPLEXER FOR PASSIVE OPTICAL NETWORKS.....	377
<i>Dajian Liu, Long Zhang, Hexin Jiang, Daoxin Dai</i>	
ULTRA-COMPACT AND BROADBAND 3-DB POWER SPLITTER BASED ON SUBWAVELENGTH GRATING AT 2- μ M.....	380
<i>Zelu Wang, Yingjie Liu, Shuai Wang, Yilin Liu, Jiangbing Du, Qinghai Song, Ke Xu</i>	
A SILICON NITRIDE RECONFIGURABLE LINEAR OPTICAL PROCESSOR.....	383
<i>L. De Marinis, G. Contestabile, P. Castoldi, N. Andriolli</i>	
INTEGRATED-OPTIC GATE-FREE TUNABLE FILTER FOR DEMULTIPLEXING VARIOUS CHANNEL SYMBOL RATE OFDM SIGNALS.....	386
<i>Koichi Takiguchi, Hideaki Masaki</i>	

HIGH-SPEED TRANSMITTERS

224-GB/S PAM4 UNCOOLED OPERATION OF LUMPED-ELECTRODE EA-DFB LASERS WITH 2-KM TRANSMISSION FOR 800GBE APPLICATION.....	389
<i>Syunya Yamauchi, Koichiro Adachi, Hideaki Asakura, Hayato Takita, Yoshihiro Nakai, Yoriyoshi Yamaguchi, Masatoshi Mitaki, Ryosuke Nakajima, Shigehisa Tanaka, Kazuhiko Naoe</i>	
HIGH-POWER LOW-MODULATING-VOLTAGE 1.5 μ M-BAND CWDM UNCOOLED EMLS FOR 800 GB/S (53.125 GBAUD-PAM4) TRANSCIEVERS.....	392
<i>Shinya Okuda, Takeshi Yamatoya, Tsutomu Yamaguchi, Yusuke Azuma, Yoshikazu Tanaka</i>	
60GB/S WAVEGUIDE-COUPLED O-BAND GESI QUANTUM-CONFINED STARK EFFECT ELECTRO-ABSORPTION MODULATOR.....	395
<i>S. A. Srinivasan, C. Porret, S. Balakrishnan, Y. Ban, R. Loo, P. Verheyen, J. Van Campenhout, M. Pantouvaki</i>	
106-GB/S PAM4 OPERATION OF DIRECTLY MODULATED DFB LASERS FROM 25 TO 70°C FOR TRANSMISSION OVER 2-KM SMF IN THE CWDM RANGE.....	398
<i>Takayuki Nakajima, Masaru Onga, Yuji Sekino, Akira Nakanishi, Noriko Sasada, Shigenori Hayakawa, Shigetaka Hamada, Kazuhiko Naoe</i>	

ULTRA-WIDE BANDWIDTH THIN-FILM LINBO ₃ MODULATOR WITH RECORD-LOW HALF-WAVE-VOLTAGE LENGTH PRODUCT.....	401
<i>Xuecheng Liu, Bing Xiong, Changzheng Sun, Zhibiao Hao, Lai Wang, Jian Wang, Yanjun Han, Hongtao Li, Jiadong Yu, Yi Luo</i>	

DAC-LESS PAM-4 SLOW-LIGHT SILICON PHOTONIC MODULATOR ASSISTED BY COUPLED BRAGG GRATING RESONATORS.....	404
<i>Omid Jafari, Sasan Zhalehpour, Wei Shi, Sophie Larochelle</i>	

25-GBIT/S 100-KM TRANSMISSION USING 1358-NM-WAVELENGTH SOA ASSISTED EXTENDED REACH EADFB LASER (AXEL) FOR 25 GBIT/S-CLASS PON.....	407
<i>Takahiko Shindo, Shigeru Kanazawa, Yasuhiko Nakanishi, Mingchen Chen, Masahiro Nada, Toshihide Yoshimatsu, Atsushi Kanda, Hirotaka Nakamura, Kimikazu Sano</i>	

WIDE-BAND AMPLIFIERS

HIGH GAIN BI-DOPED FIBER AMPLIFIER OPERATING IN THE E-BAND WITH A 3-DB BANDWIDTH OF 40NM.....	410
<i>Y. Wang, N. K. Thipparapu, D. J. Richardson, J. K. Sahu</i>	

THERMAL QUENCHING INDUCED LUMINESCENCE ENHANCEMENT OF BISMUTH/ERBIUM CO-DOPED FIBER (BEDF) UNDER 830 PUMPING.....	413
<i>Qiancheng Zhao, Qun Hao, Jiaqi Qu, Zongru Yang, Yifan Liu, Changyuan Yu, Gang-Ding Peng</i>	

4-CHANNEL E-BAND DATA TRANSMISSION OVER 160 KM OF SMF-28 USING A BISMUTH-DOPED FIBRE AMPLIFIER.....	416
<i>Aleksandr Donodin, Vladislav Dvoyrin, Egor Manuylovich, Ian Phillips, Wladek Forysiak, Mikhail Melkumov, Valery Mashinsky, Sergei Turitsyn</i>	

O+E BAND BDFA WITH FLATTOP 116 NM GAIN BANDWIDTH PUMPED WITH 250 MW AT 1256 NM.....	419
<i>Aleksandr Khagai, Yan Ososkov, Sergei Firstov, Konstantin Riumkin, Sergey Alyshev, Alexander Kharakhordin, Alexey Lobanov, Alexey Guryanov, Mikhail Melkumov</i>	

OPTIMIZATION OF A HYBRID EDFA-RAMAN C+L BAND AMPLIFIER THROUGH NEURAL-NETWORK MODELS.....	422
<i>F. Da Ros, U. C. De Moura, R. S. Luis, G. Rademacher, B. J. Puttnam, A. M. Rosa Brusin, A. Carena, Y. Awaji, H. Furukawa, D. Zibar</i>	

MASTER-SLAVE SYNCHRONIZATION OF RANDOM MICROCAVITY LASERS.....	425
<i>Hong Yang Zhu, Jin Chuan Zhang, Wei Li Zhang</i>	

GIANT BRILLOUIN AMPLIFICATION IN GAS USING HOLLOW-CORE FIBER.....	428
<i>Luc Thévenaz, Fan Yang, Flavien Gyger</i>	

MACHINE LEARNING IN OPTICAL NETWORKS

ESTIMATING QUALITY OF TRANSMISSION IN A LIVE PRODUCTION NETWORK USING MACHINE LEARNING.....	431
<i>Jasper Müller, Tobias Fehenberger, Sai Kireet Patri, Kaida Kaeval, Helmut Griesser, Marko Tikas, Jörg-Peter Elbers</i>	

MANHOLE LOCATING TECHNIQUE USING DISTRIBUTED VIBRATION SENSING AND MACHINE LEARNING	434
<i>Masaki Wada, Yuu Maeda, Hiroki Shimabara, Takaaki Aihara</i>	

IN-BAND OSNR ESTIMATION FROM TRANSPONDER TELEMETRY USING ENSEMBLE LEARNING.....	437
<i>Yingkan Chen, Bernhard Spinnler</i>	

OPTICS FOR EMERGING COMPUTING ARCHITECTURES

SPATIAL PHOTONIC RESERVOIR COMPUTING BASED ON NON-LINEAR PHASE-TO-AMPLITUDE CONVERSION IN MICRO-RING RESONATORS	440
<i>Charis Mesaritakis, Kostas Sozos, Dimitris Dermanis, Adonis Bogris</i>	

TIME STRETCH COMPUTING FOR ULTRAFAST SINGLE-SHOT DATA ACQUISITION AND INFERENCE	443
<i>Bahram Jalali, Tingyi Zhou, Fabien Scalzo</i>	

A DYNAMIC TIME-EVOLUTION CONTROL METHOD TO IMPROVE THE PERFORMANCE OF OPTOELECTRONIC COHERENT ISING MACHINE	446
<i>Zhenhua Li, Jie Liu, Siyuan Yu</i>	

SECURITY AND QUANTUM NETWORKING

AUTONOMOUS SECURITY MANAGEMENT IN OPTICAL NETWORKS.....	449
<i>Carlos Natalino, Andrea Di Giglio, Marco Schiano, Marija Furdek</i>	

EXPERIMENTAL DEMONSTRATION OF PROGRAMMABLE 100 GB/S SDN-ENABLED ENCRYPTORS/DECRYPTORS FOR QKD NETWORKS.....	452
<i>E. Arabul, R. S. Tessinari, O. Alia, E. Hugues-Salas, G. T. Kanellos, R. Nejabati, D. Simeonidou</i>	

GB/S SECURE KEY DISTRIBUTION BASED ON SYNCHRONIZATION OF POLARIZATION STATES	455
<i>Liuming Zhang, Weisheng Hu, Xuelin Yang</i>	

AI-ENABLED LARGE-SCALE ENTANGLEMENT DISTRIBUTION QUANTUM NETWORKS.....	458
<i>R. Wang, S. K. Joshi, G. T. Kanellos, D. Aktas, J. Rarity, R. Nejabati, D. Simeonidou</i>	

END-TO-END NETWORK SLICE STITCHING USING BLOCKCHAIN-BASED PEER-TO-PEER NETWORK SLICE MANAGERS AND TRANSPORT SDN CONTROLLERS	461
<i>Pol Alemany, Ricard Vilalta, Raul Muñoz, Ramon Casellas, Ricardo Martínez</i>	

FUTURE DIRECTIONS IN ACCESS AND LOCAL AREA NETWORKS

LESSONS LEARN FROM A TACTILE INTERNET TESTBED: AN ACCESS NETWORK PERSPECTIVE	464
<i>Hwan Seok Chung, Han Hyub Lee, Kwang Ok Kim, Kyung-Hwan Doo</i>	

SPATIAL DIVERSITY PERFORMANCE OF DMT, PAM4 GIGABITS PER SECOND TRANSMISSION USING POF AS LUMINAIRES.....	467
<i>C. R. B. Corrêa, E. Tangdionga, A. M. J. Koonen</i>	

RESEARCH ON PRECODING ENABLED GEOMETRICALLY SHAPED 64-QAM SIGNAL IN SHORT-REACH DMT TRANSMISSION SYSTEMS	470
<i>Jie Ma, Jing He, Zhihua Zhou, Jing He</i>	

EXPERIMENTAL DEMONSTRATION OF ADAPTIVE BIT AND POWER LOADING ALGORITHM FOR OFDM-NOMA PON	473
<i>Geyang Wang, Zhaoquan Fan, Jian Zhao</i>	

PHOTONIC INTEGRATED SUBSYSTEMS

TUTORIAL: PROGRAMMABLE PHOTONICS	476
<i>Wim Bogaerts</i>	

LOSSLESS SILICON PHOTONIC ROADM BASED ON A SI ₃ N ₄ PLATFORM AND A MONOLITHICALLY INTEGRATED ERBIUM DOPED AMPLIFIER	541
<i>C. Vagionas, A. Tsakyridis, T. Chrysostomidis, I. Roumpos, K. Fotiadis, A. Manolis, J. Mu, M. Dijkstra, Sm Garcia Blanco, R. M. Oldenbeuving, P. W. L. Van Dijk, C. G. H. Roeloffzen, K. Vysokinos, N. Pleros, T. Alexoudi</i>	

20 GB/S WDM OPTICAL RAM ROW ARCHITECTURE BASED ON FOUR MONOLITHIC INTEGRATED INP MEMORY CELLS	544
<i>Theoni Alexoudi, Konstantinos Fotiadis, George Mourgias-Alexandris, Nikos Pleros, Christos Vagionas</i>	

WIDEBAND LASER LINEWIDTH REDUCTION USING A HYBRID INTEGRATED PHASE NOISE FILTER.....	547
<i>Mohamad Hossein Idjadi, Firooz Aflatouni</i>	

FIBER-OPTICAL SENSING SYSTEMS

DISTRIBUTED ACOUSTIC SENSING FOR SEISMIC MONITORING	550
<i>Miguel Gonzalez-Herraez, Maria R. Fernandez-Ruiz, Regina Magalhaes, Luis Costa, Hugo F. Martins, Carlos Becerril, Sonia Martin-Lopez, Ethan Williams, Zhongwen Zhan, Roel Vantillo</i>	

SYMPOSIA: ON THE EDGE: MEC- BASED NETWORK ARCHITECTURES IN SUPPORT OF ENTERPRISE CLOUD (PART 2)

USING THE CAPACITY AND LOW LATENCY OF MOBILE EDGE CLOUDS FOR COMMUNITY APPLICATIONS.....	553
<i>Dan Kilper, Hongying Dong, Aaron T. Knife, Jiakai Yu, Qi Liu, Kevin Kim, Bruce Lincoln, Clayton Banks, Sheila Foster, Olivier Sylvain, Rider Foley, Ronald D. Williams</i>	

SYMPOSIA: EMERGING PHOTONIC TECHNOLOGIES AND ARCHITECTURES FOR FEMTOJOULE PER BIT OPTICAL NETWORKS (PART 1)

PLASMONIC DATA CENTER INTERCONNECTS (DCIS)	556
<i>Juerg Leuthold, Benedikt Baeuerle, Wolfgang Heni, Claudia Hoessbacher, Loïc Chérix, David Moor, Marco Eppenberger, Yuriy Fedoryshyn, Ueli Koch, Jasmin Smajic</i>	

SYMPOSIA: EMERGING PHOTONIC TECHNOLOGIES AND ARCHITECTURES FOR FEMTOJOULE PER BIT OPTICAL NETWORKS (PART 2)

PROSPECTS FOR OPTICAL TRANSCEIVERS EXPANDING TO ACCESS, METRO AND LONG-HAUL 559
Michael Y. Frankel

GETTING TO FEMTOJOULE OPTICS – WHAT PHYSICS AND WHAT TECHNOLOGY?..... 562
David A. B. Miller

PROCESS TOLERANT DEVICES AND DESIGN METHODS

PROCESS VARIATION-AWARE PHOTONIC DESIGN 564
Duane S. Boning, Sally I. El-Henawy, Zhengxing Zhang

FABRICATION-TOLERANT NITRIDE LATTICE FILTER FOR CWDM..... 567
Jonathan Y. Lee, Tao Ling, Ravi S. Tummidi, Mark Webster, Prakash Gothoskar

CALIBRATION-FREE MACH-ZEHNDER SILICON-PHOTONIC SWITCH 570
Lijia Song, Huan Li, Daoxin Dai

DEMONSTRATION AND FABRICATION TOLERANCE STUDY OF A LOW-LOSS, ULTRA-BROADBAND RAPID ADIABATIC 3-DB COUPLER IN A NEXT-GENERATION 45 NM MONOLITHIC ELECTRONIC-PHOTONIC PLATFORM 573
Josep M. Fargas Cabanillas, Derek M. Kita, Anatol Khilo, Forrest Sedgwick, John Fini, Miloš A. Popovic, Mark T. Wade

THERMO-OPTIC MACH-ZEHNDER INTERFEROMETER INTEGRATED WITH SI PN DIODE SWITCH FOR BIPOLAR OPTICAL PHASE CONTROL..... 576
Hanzhi Tang, Shuhei Ohno, Yuto Miyatake, Kasidit Toprasertpong, Shinichi Takagi, Mitsuru Takenaka

VCSEL COMMUNICATION LINKS

1060NM SINGLE-MODE METAL APERTURE VCSEL ARRAY WITH TRANSVERSE RESONANCE FOR 5KM SINGLE-MODE FIBER TRANSMISSION 579
Hameeda R Ibrahim, Ahmed Hassan, Xiodong Gu, Satoshi Shinada, Moustafa Ahmed, Fumio Koyama

ADVANCED SINGLE-MODE 850 NM VCSELS FOR RECORD NRZ AND PAM4 DATA RATE ON SMF-28 FIBER UP TO 1 KM..... 582
Junyi Qiu, Dufei Wu, Hsiao-Lun Wang, Milton Feng, Xin Yu

850-NM DUAL-MODE VCSEL CARRIED 53-GBPS NRZ-OOK TRANSMISSION IN 100-M GRADED-INDEX SINGLE-MODE FIBER 585
Shao-Yung Lee, Xin Chen, Wei-Chi Lo, Kangmei Li, Chia-Hsuan Wang, Cheng-Ting Tsai, Chih-Hsien Cheng, Chao-Hsin Wu, Hao-Chung Kuo, Ming-Jun Li, Gong-Ru Lin

CRYOGENIC OXIDE-VCSELS WITH BANDWIDTH OVER 50 GHZ AT 82 K FOR NEXT-GEN HIGH-SPEED COMPUTING..... 588
Wenning Fu, Haonan Wu, Dufei Wu, Milton Feng, Dennis Deppe

HIGH-POWER, LOW-NOISE, AND HIGH-SPEED 850 NM VCSEL ARRAYS WITH FOR OPTICAL WIRELESS TRANSMISSION	591
<i>Zuhaib Khan, Lukasz Chorchos, Yong-Hao Chang, Nikolay Ledentsov, Yen-Yu Huang, Yaung-Cheng Zhao, Nikolay Ledentsov, Jin-Wei Shi</i>	

SHORT-REACH SYSTEMS

DISTANCE-AGNOSTIC AUTO-ENCODERS FOR SHORT REACH FIBER COMMUNICATIONS	594
<i>Boris Karanov, Laurent Schmalen, Alex Alvarado</i>	

A HIGH-SKEW-TOLERANT AND HARDWARE-EFFICIENT ADAPTIVE EQUALIZER FOR SHORT-REACH COHERENT TRANSMISSION.....	597
<i>Tingting Zhang, Qian Xiang, Sen Zhang, Lei Liu, Tianjian Zuo</i>	

LONG SHORT-TERM MEMORY NEURAL NETWORK FOR MITIGATING TRANSMISSION IMPAIRMENTS OF 160 GBIT/S PAM4 MICRORING MODULATION.....	600
<i>Ching-Wei Peng, David W. U Chan, Yeyu Tong, Chi-Wai Chow, Yang Liu, Chien-Hung Yeh, Hon Ki Tsang</i>	

HYBRID DIGITAL-ANALOG RADIO-OVER-FIBER (DA-ROF) MODULATION AND DEMODULATION ACHIEVING A SNR GAIN OVER ANALOG ROF OF >10 DB AT HALVED SPECTRAL EFFICIENCY	603
<i>Xiang Liu</i>	

ENTANGLEMENT ASSISTED COMMUNICATION VS. CLASSICAL OPTICAL COMMUNICATION	606
<i>Ivan B. Djordjevic</i>	

POSITIONING, LOCALIZATION AND TRACKING SYSTEMS

PASSIVE POSITIONING USING VISIBLE LIGHT SYSTEMS.....	609
<i>Khaqan Majeed, Steve Hranilovic</i>	

LIDAR INTEGRATED HIGH-CAPACITY INDOOR OWC SYSTEM WITH USER LOCALIZATION CAPABILITY	612
<i>Zhi Li, Zihan Zang, Mutong Li, H. Y. Fu</i>	

USING DIALUX AND REGRESSION-BASED MACHINE LEARNING ALGORITHM FOR DESIGNING INDOOR VISIBLE LIGHT POSITIONING (VLP) AND REDUCING TRAINING DATA COLLECTION.....	615
<i>Shao-Hua Song, Dong-Chang Lin, Yun-Han Chang, Yun-Shen Lin, Chi-Wai Chow, Yang Liu, Chien-Hung Yeh, Kun-Hsien Lin, Yi-Chang Wang, Yi-Yuan Chen</i>	

PHOTON-COUNTING LIDAR BASED ON A FRACTAL SNSPD.....	618
<i>Nan Hu, Yifan Feng, Liang Xu, Yun Meng, Kai Zou, Samuel Gyger, Stephan Steinhauer, Val Zwiller, Xiaolong Hu</i>	

AUTO-ALIGNED OWC RECEIVER FOR INDOOR MOBILE USERS USING GRADIENT DESCENT ALGORITHM	621
<i>N. Q. Pham, K. A. Mekonnen, E. Tangdiongga, A. Mefleh, A. M. J. Koonen</i>	

REAL-TIME DEMONSTRATION OF 5G MMW BEAMFORMING AND TRACKING USING INTEGRATED VISIBLE LIGHT POSITIONING SYSTEM.....	624
<i>Chin-Wei Hsu, Shang-Jen Su, You-Wei Chen, Qi Zhou, Yahya Alfadhli, Gee-Kung Chang</i>	

DATA-EFFICIENT ARTIFICIAL NEURAL NETWORKS WITH GAUSSIAN PROCESS REGRESSION FOR 3D VISIBLE LIGHT POSITIONING.....	627
<i>Weikang Zeng, Huayang Chen, Jiajia Chen, Xuezhi Hong</i>	

RF PHOTONICS

INTEGRATED MICROWAVE PHOTONIC FILTERS	630
<i>Yang Liu, Amol Choudhary, David Marpaung, Benjamin J. Eggleton</i>	

PHOTONICS-BASED TUNABLE 1-50 GHZ RF TRANSMITTER ON SILICON CHIP	633
<i>F. Falconi, C. Porzi, M. Malik, F. Scotti, A. Malacarne, P. Ghelfi, A. Bogoni</i>	

HIGH PERFORMANCE MICROWAVE PHOTONIC DOWNCONVERSION IN A COMMERCIAL INP PLATFORM	636
<i>Christian G. Bottenfield, Michael Hoff, Varghese A Thomas, Ardy Winoto, Yuchun Zhou, Ashish Bhardwaj, Gloria E. Hoefler, Richard Desalvo, Stephen E. Ralph</i>	

PERFORMANCE OF DUAL FREQUENCY COMB CHANNELIZERS FOR RF SIGNAL PROCESSING.....	639
<i>Callum Deakin, Zhixin Liu</i>	

A POWER-EFFICIENT 20–35 GHZ MZM DRIVER WITH PROGRAMMABLE LINEARIZER IN 28NM CMOS	642
<i>Yu-Lun Luo, Ali Ershadi, Ramy Rady, Kamran Entesari, Samuel Palermo</i>	

OPTICAL UP/DOWN-CONVERSION OF OFDM WIRELESS SIGNALS BASED ON ULTRACOMPACT SILICON OPTOMECHANICAL CAVITIES.....	645
<i>Laura Mercadé, Maria Morant, Amadeu Griol, Roberto Llorente, Alejandro Martínez</i>	

PHOTONIC-ASSISTED MICROWAVE OFDM QUANTUM-NOISE RANDOMIZED CIPHER GENERATION VIA IM/DD IFOF TRANSMISSION.....	648
<i>Ken Tanizawa, Fumio Futami</i>	

PHOTONIC NEURAL NETWORKS

A SILICON PHOTONIC COHERENT NEURON WITH 10GMAC/SEC PROCESSING LINE-RATE	651
<i>George Mourgias-Alexandris, Miltiadis Moralis-Pegios, Stelios Simos, George Dabos, Nikos Passalis, Manos Kirtas, Teerapat Rutirawut, Frederic Y. Gardes, Anastasios Tefas, Nikos Pleros</i>	

ROBUST ZERO-CHANGE SELF-CONFIGURATION OF THE RECTANGULAR MESH	654
<i>Ryan Hamerly, Saumil Bandyopadhyay, Dirk Englund</i>	

PROGRAMMABLE, HIGH-SPEED ALL-OPTICAL NONLINEAR ACTIVATION FUNCTIONS FOR NEUROMORPHIC PHOTONICS	657
<i>Aashu Jha, Chaoran Huang, Paul R. Prucnal</i>	

HIGH-PERFORMANCE NEUROMORPHIC COMPUTING BASED ON PHOTONIC TECHNOLOGIES.....	660
<i>P. Stark, J. Weiss, R. Dangel, F. Horst, J. Geler-Kremer, B. J. Offrein</i>	

ENERGY-EFFICIENT PHOTONIC SPIKING NEURAL NETWORK ON A MONOLITHIC SILICON CMOS PHOTONIC PLATFORM.....	663
<i>Yun-Jhu Lee, Mehmet Berkay On, Xian Xiao, S. J. Ben Yoo</i>	

SCALABLE AND COMPACT 3D TENSORIZED PHOTONIC NEURAL NETWORKS 666
Xian Xiao, S. J. Ben Yoo

COHERENT HOMODYNE SYNAPTIC INTERCONNECT WITH SIGN- AND WEIGHT-
TUNABLE DETECTION 669
Bernhard Schrenk

OPTICAL TECHNOLOGIES IN DATA CENTERS

EXPERIMENTAL DEMONSTRATION OF A NANOSECONDS OPTICAL SWITCH BASED
DISAGGREGATED DATA CENTER NETWORK 672
*Xiaotao Guo, Xuwei Xue, Bitao Pan, Yu Wang, Shaojuan Zhang, Georgios Exarchakos,
Nicola Calabretta*

EXPERIMENTAL ASSESSMENTS OF FAST OPTICAL SWITCH AND CONTROL SYSTEM
FOR DATA CENTER NETWORKS 675
*Xuwei Xue, Bitao Pan, Sai Chen, Kristif Prifti, Xiaotao Guo, Fulong Yan, Rafael Kraemer,
Shaojuan Zhang, Chongjin Xie, Nicola Calabretta*

PERFORMANCE STUDIES OF 3D-HYPER-FLEX-LION FOR HPC APPLICATIONS 678
Zhiyan Liu, Roberto Proietti, Xiaoliang Chen, S. J. Ben Yoo

INTEGRATION IN PHOTONIC SYSTEMS

SIMPLIFYING DATACENTER NETWORKS WITH THE 100G/CHANNEL OPTICS
ECOSYSTEM 681
Cyriel Minkenbergh

FULLY-LOADED OPERATION OF 0.29-PJ/BIT WALL-PLUG EFFICIENCY, 81.9-TB/S
THROUGHPUT 32 × 32 SILICON PHOTONICS SWITCH 684
*Ryosuke Matsumoto, Ryotaro Konoike, Keijiro Suzuki, Hiroyuki Matsuura, Kazuhiro Ikeda,
Takashi Inoue, Shu Namiki*

DEMONSTRATION OF CROSSTALK-FREE WDM DEMULTIPLEXING ON SI NANOWIRE
PIC CONTROLLED BY SI CMOS ASIC 687
*Tomoyuki Akiyama, Motoyuki Nishizawa, Akio Sugama, Yasuhiro Nakasha, Shinsuke Tanaka,
Yu Tanaka, Shoichiro Oda, Takeshi Hoshida*

POLARIZATION-TRANSPARENT FSR-FREE MICRORING RESONATOR FILTER WITH
WIDE HITLESS TUNABILITY 690
Mazyar Milanizadeh, Matteo Petrini, Francesco Morichetti, Andrea Melloni

INTEGRATED PHOTONIC INTERROGATOR WITH ON-CHIP REFERENCES 693
Glen P. Koste, Baokai Cheng, Loucas Tsakalacos

DEVICE RESPONSE TIME REDUCTION FOR LARGE-SCALE AND FAST OPTICAL
SWITCHING SYSTEMS 696
*Kenya Suzuki, Kazushige Yonenaga, Noboru Takachio, Toshiki Tanaka, Osamu Moriwaki,
Hiroshi Onaka*

MULTI-CORE FIBERS 1

MULTI-CORE FIBER TECHNOLOGY FOR SDM: COUPLING MECHANISMS AND DESIGN 699
Kunimasa Saitoh

OPTICAL FIBER CABLE EMPLOYING 200 μ M-COATED MULTICORE FIBERS FOR HIGH DENSITY WIRING IN DATACOM.....	718
<i>Yusuke Sasaki, Ryohei Fukumoto, Katsuhiro Takenaga, Shogo Shimizu, Kazuhiko Aikawa</i>	
GAWBS NOISE CORRELATION BETWEEN CORES IN FOUR-CORE FIBER.....	721
<i>Kozo Sato, Masato Yoshida, Keisuke Kasai, Toshihiko Hirooka, Masataka Nakazawa</i>	
STANDARD CLADDING DIAMETER MULTI-CORE FIBER TECHNOLOGY.....	724
<i>Takashi Matsui, Yusuke Yamada, Yuto Sagae, Kazuhide Nakajima</i>	

NOVEL SENSORS AND APPLICATIONS

MEETING INDUSTRIAL NEEDS WITH OPTICAL FIBER SENSORS.....	727
<i>Kenneth T. V. Grattan, Tong Sun</i>	
MONITORING THE RED PALM WEEVIL INFESTATION USING MACHINE LEARNING AND OPTICAL SENSING.....	730
<i>Yuan Mao, Islam Ashry, Biwei Wang, Yousef Al-Fehaid, Abdulmoneim Al-Shawaf, Tien Khee Ng, Changyuan Yu, Boon S. Ooi</i>	
INCHWORM-INSPIRED SOFT ROBOTIC CLIMBER WITH EMBEDDED FIBER OPTIC SENSORS.....	733
<i>Mei Yang, Liam Paul Cooper, Sammanth Elena Vo, Mable P. Fok</i>	
FIBER OPTIC SENSOR NETWORK FOR A MONITORING AND DIAGNOSIS SYSTEM OF THE UNDERGROUND 22.9K XLPE CABLE.....	736
<i>Si-Woong Park, Chan Il Yeo, Hyun Jin Kim, Hyun Seo Kang, In-Jin Seo, Hyoung-Jun Park</i>	
PHOTONIC SENSOR AND MINIATURE INTERROGATOR BASED ON CASCADED SILICON MICRORING RESONATORS.....	739
<i>Fan Yang, Wenjia Zhang, Yue Jiang, Jifang Tao, Zuyuan He</i>	
SENSITIVITY IMPROVEMENT FOR SILICON MS-SW BG SENSORS BY WAVEGUIDE HEIGHT INCREASE OR BY WAVEGUIDE SUSPENSION WITH SUPPORTING SHAPE MODIFICATION.....	742
<i>Siim Heinsalu, Anna Kawano, Yuji Isogai, Yuichi Matsushima, Hiroshi Ishikawa, Katsuyuki Utaka</i>	
A HYBRID COATING BASED FIBER PROBE FOR ULTRASOUND GENERATION AND DETECTION.....	745
<i>Dongchen Xu, Liuyang Yang, Fang Fang, Geng Chen, Yanpeng Li, Qizhen Sun</i>	

HIGH-SPEED AND REAL-TIME COHERENT SYSTEMS

BEYOND 1 TBIT/S TRANSMISSION USING HIGH-SPEED DACS AND ANALOG MULTIPLEXING.....	748
<i>Fred Buchali</i>	
REAL-TIME 100.4 GBD PCS-64QAM TRANSMISSION OF A 1.6 TB/S SUPER-CHANNEL OVER 1600 KM OF G.654.E FIBER.....	776
<i>R. Maher, M. R. Chitgarha, I. Leung, A. Rashidinejad, B. Buscaino, Z. Wang, M. Torbatian, A. Kakkar, Z. A. El-Sahn, M. Osman, A. Kumpera, R. M. Nejad, A. Yekani, G. Soliman, C. Doggart, M. I. Olmedo, S. Kerns, J. Diniz, Z. Morbi, S. Koenig, L. Dardis, B. Ellis, A. Le Liepvre, M. Missey, S. Blakey, Y. Wu, P. Samra, V. Dominic, S. Makovejs, V. Lal, M. Ziari, H. Sun, K-T. Wu, S. Sanders, P. Kandappan</i>	

REAL-TIME 400G CFP2-DCO USING 69GBAUD/DP-16QAM- PS OVER 1000KM 75GHZ- SPACED DWDM SYSTEMS.....	779
<i>You-Wei Chen, Shaoyun Yi, Gang Ling, Brian West, Liang Zhao, Winston I. Way</i>	

FPGA IMPLEMENTATION OF HIERARCHICAL SUBCARRIER RATE AND DISTRIBUTION MATCHING FOR UP TO 1.032 TB/S OR 262144-QAM	782
<i>Tsuyoshi Yoshida, Koji Igarashi, Yoshiaki Konishi, Magnus Karlsson, Erik Agrell</i>	

REAL TIME FPGA INVESTIGATION OF PROBABILISTIC SHAPING 16QAM WITH HIDM AND OFEC	785
<i>Liangjun Zhang, Weiming Wang, Weifeng Qian, Kai Tao, Yi Cai</i>	

SYSTEMS FOR 5G AND BEYOND

HIGH-SPEED AND WIDE FOV AUTONOMOUS BEAMFORMER DRIVING FORWARD TO 4D RESOURCE ALLOCATION IN 6G RAN ERA	788
<i>You-Wei Chen, Shang-Jen Su, Chin-Wei Hsu, Min-Yu Huang, Hua Wang, Gee-Kung Chang</i>	

64 GBIT/S, 256 QAM TRANSMISSION THROUGH COHERENT OPTICAL-WIRELESS LINK AT 61 GHZ USING SIMPLE AND HIGH OSNR CARRIER FREQUENCY CONVERTER	791
<i>Keisuke Kasai, Taisei Sato, Toshihiko Hirooka, Masato Yoshida, Masataka Nakazawa</i>	

3×3 MIMO 60-GHZ DIRECT-DETECTION OFDM ROF/MF SYSTEM WITH MITIGATION OF OPTICAL CARRIER POWER FADING	794
<i>Ping-Yao Huang, Zhen-Xiong Xie, Tung-Han Hsieh, Shao-Hung Yu, Chia-Chien Wei, Sien Chi, Chun-Ting Lin</i>	

HIGH-PERFORMANCE FOUR-CHANNEL ANALOG OPTICAL TRANSCEIVER FOR 5G AROF-BASED MOBILE FRONTHAUL.....	797
<i>Haiping Song, Mengyao Ai, Runze Hu, Zhe Fu, Di Li, Mengfan Cheng, Deming Liu, Lei Deng</i>	

NOMA-COMP FOR 5G MMW FIBER WIRELESS INTEGRATION FRONTHAUL SYSTEM WITH SFBC.....	800
<i>Jih-Heng Yan, Jin-Wei Hsu, Jian-Kai Huang, Yu-Yang Lin, Kai-Ming Feng</i>	

FIBER SENSING IN TELECOM FIBER NETWORKS

DISTRIBUTED FIBER SENSOR NETWORK USING TELECOM CABLES AS SENSING MEDIA: APPLICATIONS	803
<i>Ezra Ip, Yue-Kai Huang, Ming-Fang Huang, Milad Salemi, Yaowen Li, Ting Wang, Yoshiaki Aono, Glenn A Wellbrock, Tiejun J Xia</i>	

STATIC WEIGHT DETECTION AND LOCALIZATION ON AERIAL FIBER CABLES USING DISTRIBUTED ACOUSTIC SENSING	806
<i>Sarper Ozharar, Yangmin Ding, Yue Tian, Ting Wang, Yukihide Yoda, Yoshiaki Aono</i>	

OPTICAL SWITCHING AND NETWORK DEVICES

WAVELENGTH SELECTIVE SWITCH COMPONENTS WITH HIGH SPECTRAL RESOLUTION AND COMPACTNESS	809
<i>Haoshuo Chen, Nicolas K. Fontaine, Mikael Mazur, Roland Ryf, David T. Neilson, Qingguo Song, Zhijun Yan</i>	

INTEGRATED TUNABLE SIDEBAND SUPPRESSOR FOR APPLICATION OF REMOTE OPTICAL CARRIER REUSE	812
<i>Yi-Hsuan Chen, Kuan-Heng Chen, Jih-Heng Yan, The Anh Nguyen, Kai-Ming Feng, Ming-Chang M. Lee</i>	
ULTRA-WIDEBAND AND LOW-LOSS CORE SELECTIVE SWITCH EMPLOYING TWO-DIMENSIONALLY ARRANGED MEMS MIRRORS	815
<i>Masahiko Jinno, Itsuki Urashima, Tsubasa Ishikawa, Takahiro Kodama</i>	
5.5%- Δ -PLC/SILICON PHOTONICS HYBRID WAVELENGTH MUX/DEMUX-AND-SWITCH DEVICE	818
<i>Kazuhiro Ikeda, Noritaka Matsubara, Junichi Hasegawa, Ryotaro Konoike, Hiroyuki Matsuura, Keijiro Suzuki, Hitoshi Kawashima</i>	
WAVELENGTH SELECTIVE SWITCHES FOR SDM PHOTONIC NODES BASED ON SPOC PLATFORM.....	821
<i>Kazunori Seno, Naru Nemoto, Yutaka Miyamoto</i>	
FAST OPTICAL SWITCH UTILIZING COHERENT DETECTION ENABLED BY COOPERATIVE FILTERING OF TRANSMISSION SIGNAL AND LOCAL OSCILLATOR (LO) WAVELENGTH SOURCED FROM AN LO BANK	824
<i>Ryosuke Matsumoto, Ryotaro Konoike, Hiroyuki Matsuura, Keijiro Suzuki, Takashi Inoue, Kazuhiro Ikeda, Shu Namiki, Ken-Ichi Sato</i>	
<u>HIGH-PERFORMANCE CW LASERS</u>	
ALGAINAS MQW LASER REGROWTH ON HETEROGENEROUS INP-ON-SOI: PERFORMANCE FOR DIFFERENT SILICON CAVITY DESIGNS	827
<i>C. Besancon, D. Néel, J. Ramirez, D. Bitauld, G. Cerulo, D. Make, N. Vaissiere, F. Pommereau, F. Fournel, L. Sanchez, C. Dupré, V. Muffato, K. Hassan, J. Decobert</i>	
8-CH, 160-NM-WAVELENGTH-RANGE MEMBRANE LASER ARRAY USING SELECTIVE EPITAXY ON INP-ON-INSULATOR SUBSTRATE	830
<i>Takuro Fujii, Tomonari Sato, Nikolaos-Panteleimon Diamantopoulos, Koji Takeda, Hidetaka Nishi, Takuma Tsurugaya, Tai Tsuchizawa, Shinji Matsuo</i>	
INTEGRATED COHERENT TUNABLE LASER (ICTL) WITH 118 NM TUNING RANGE AND SUB-100 HZ LORENTZIAN LINEWIDTH.....	833
<i>P. A. Morton, C. Xiang, J. B. Khurgin, C. Morton, M. Tran, J. Peters, J. Guo, M. Morton, J. E. Bowers</i>	
NON-ABELIAN GAUGE FIELDS WITH FIBER OPTICS AND BEYOND.....	836
<i>Yi Yang, Marin Soljacic</i>	
NARROW LINEWIDTH AND LOW THERMAL TUNING POWER THERMALLY TUNED MULTI-CHANNEL INTERFERENCE WIDELY TUNABLE SEMICONDUCTOR LASER.....	839
<i>Kuankuan Wang, Quanan Chen, Chun Jiang, Zifeng Chen, Qianyin Lu, Weihua Guo</i>	
TUNABLE DBR LASER WITH INTEGRATED OPTICAL ISOLATOR.....	842
<i>Hauke Conradi, Tianwen Qian, Martin Kresse, Jakob Reck, David De Felipe, Moritz Kleinert, Madeleine Weigel, Crispin Zawadzki, Norbert Keil, Martin Schell</i>	
RECORD-HIGH POWER 1.55- μ M DISTRIBUTED FEEDBACK LASER DIODES FOR OPTICAL COMMUNICATION	845
<i>Yuanfeng Mao, Yuanbing Cheng, Benbo Xu, Ruiqiang Ji, Yanbo Li</i>	

PHOTONIC SWITCHING AND COMMUNICATIONS

140 GB/S WDM DATA ROUTING IN A LOSSLESS STRICTLY NON-BLOCKING SOA-BASED PHOTONIC INTEGRATED 8×8 SPACE SWITCH.....	848
<i>D. W. Feyisa, B. Shi, B. Smalbrugge, K. A. Williams, N. Calabretta, R. Stabile</i>	
ALL-OPTICAL SWITCHING WITH GRAPHENE-LOADED PLASMONIC WAVEGUIDES IN THE FEMTOJOULE AND FEMTOSECOND RANGE.....	851
<i>Masaaki Ono, Masanori Hata, Masato Tsunekawa, Kengo Nozaki, Hisashi Sumikura, Hisashi Chiba, Masaya Notomi</i>	
SELF-HOMODYNE PHOTONIC TRANSMITTER IN A MONOLITHIC INP PLATFORM FOR RF APPLICATIONS.....	854
<i>Michael T. Hoff, Christian G. Bottenfield, Varghese A. Thomas, Ardy Winoto, Yuchun Zhou, Ashish Bhardwaj, Gloria E. Hoefler, Stephen E. Ralph</i>	
2D GRATING COUPLER INDUCED POLARIZATION CROSSTALK IN COHERENT TRANSCEIVERS FOR NEXT GENERATION DATA CENTER INTERCONNECTS	857
<i>Galina Georgieva, Pascal M. Seiler, Christian Mai, Klaus Petermann, Lars Zimmermann</i>	

NOVEL FIBER AND WAVEGUIDE BASED DEVICES

SILICON-PHOTONICS-BASED SPECTROSCOPIC SENSING FOR ENVIRONMENTAL MONITORING AND HEALTH CARE	860
<i>Roel Baets</i>	
META-OBJECTIVE WITH SUB-MICROMETER RESOLUTION FOR MICROENDOSCOPES	902
<i>Yan Liu, Qing-Yun Yu, Ze-Ming Chen, Hao-Yang Qiu, Rui Chen, Shao-Ji Jiang, Xin-Tao He, Fu-Li Zhao, Jian-Wen Dong</i>	
SOLID-STATE VCSEL BEAM SCANNER WITH ULTRA-LARGE FIELD OF VIEW AND HIGH RESOLUTION.....	905
<i>Ruixiao Li, Zeuku Ho, Xiaodong Gu, Satoshi Shinada, Fumio Koyama</i>	
OPTICAL-PHASED ARRAY BEAM-STEERING USING MULTI-INPUT SLAB COUPLER IN SILICON NITRIDE WAVEGUIDES.....	908
<i>P. Muñoz, D. Pastor, J. Benítez, G. Micó, L. A. Bru, D. J. Goodwill, E. Bernier</i>	
UNIFORM EMISSION OF LARGE-SCALE OPTICAL PHASE ARRAYS WITH WIDE WAVELENGTH TUNING.....	911
<i>Hongjie Wang, Caiming Sun, Lesi Yang, Xiaomin Nie, Binghui Li, Aidong Zhang</i>	

OPTICAL NETWORKS FOR DATA CENTER AND EDGE

FAST EDGE-TO-EDGE SERVERLESS MIGRATION IN 5G PROGRAMMABLE PACKET-OPTICAL NETWORKS	914
<i>István Pelle, Francesco Paolucci, Balázs Sonkoly, Filippo Cugini</i>	
FAST AND UNIFORM OPTICALLY-SWITCHED DATA CENTRE NETWORKS ENABLED BY AMPLITUDE CACHING	917
<i>Thomas Gerard, Kari Clark, Adam Funnell, Kai Shi, Benn Thomsen, Philip Watts, Krzysztof Jozwik, Istvan Haller, Hugh Williams, Paolo Costa, Hitesh Ballani</i>	

ACCELERATION AND EFFICIENCY WARRANTY FOR DISTRIBUTED MACHINE LEARNING JOBS OVER DATA CENTER NETWORK WITH OPTICAL CIRCUIT SWITCHING.....	920
<i>Cen Wang, Noboru Yoshikane, Filippas Balasis, Takehiro Tsuritani</i>	

TRAFFIC RATE MATRIX DECOMPOSITION BASED CONFLICT FREE SCHEDULING FOR A FAST OPTICAL SWITCHING NETWORK	923
<i>Fulong Yan, Chongjin Xie, Nicola Calabretta</i>	

NETWORK DESIGN AND OPERATION

ATTENTION MECHANISM-DRIVEN POTENTIAL FAULT CAUSE IDENTIFICATION IN OPTICAL NETWORKS	926
<i>Chunyu Zhang, Danshi Wang, Jinwei Jia, Lingling Wang, Songlin Liu, Luyao Guan, Min Zhang</i>	

RELIABLE PROVISIONING FOR DYNAMIC CONTENT REQUESTS IN OPTICAL METRO NETWORKS.....	929
<i>G. Le, S. Ferdousi, A. Marotta, S. Xu, Y. Hirota, Y. Awaji, M. Tornatore, B. Mukherjee</i>	

POWER-SAVING AWARE OPTICAL PATH ASSIGNMENT FOR OVER-PETA-BIT- THROUGHPUT SDM PHOTONIC NODE	932
<i>Fumikazu Inuzuka, Toshifumi Nakamura, Hidemi Noguchi, Shigeyuki Yanagimachi, Takafumi Tanaka, Yutaka Miyamoto</i>	

RESOURCE-EFFICIENT SLICING WITH TOPOLOGY-LEVEL PROTECTION IN OPTICAL ACCESS/AGGREGATION NETWORKS FOR 5G AND BEYOND	935
<i>Yuming Xiao, Jiawei Zhang, Yuefeng Ji</i>	

ENABLING DYNAMIC ALL OPTICAL IP OFF-LOADING AT TB/S RATES IN LARGE METRO NETWORKS	938
<i>J. A. Hernández, M. Rapisarda, A. Gatto, P. Parolari, M. Svaluto Moreolo, J. M. Fabrega, L. Nadal, R. Martínez, V. López, J. P. Fernandez-Palacios, P. Boffi, G. Otero, D. Larrabeiti</i>	

DEPLOYING ULTRA-LOW LOSS FIBERS FOR ENHANCING LIGHTPATH PROVISIONING PERFORMANCE IN AN ELASTIC OPTICAL NETWORK.....	941
<i>Hao Yang, Yongcheng Li, Ningning Guo, Gangxiang Shen, Biswanath Mukherjee</i>	

C TO C+L BANDS UPGRADE WITH RESOURCE RE-PROVISIONING IN OPTICAL BACKBONE NETWORKS	944
<i>Tanjila Ahmed, Sabidur Rahman, Aniket Pradhan, Abhijit Mitra, Massimo Tornatore, Andrew Lord, Biswanath Mukherjee</i>	

OPTICAL POWER CONTROL STRATEGIES FOR OPTIMIZED C+L+S-BANDS NETWORK PERFORMANCE	947
<i>Bruno Correia, Rasoul Sadeghi, Emanuele Virgillito, Antonio Napoli, Nelson Costa, João Pedro, Vittorio Curri</i>	

DISAGGREGATED AND MULTILAYER OPTICAL NETWORKS

TELEMETRY SOLUTIONS IN DISAGGREGATED OPTICAL NETWORKS: AN EXPERIMENTAL VIEW	950
<i>Francesco Paolucci, Andrea Sgambelluri, Piero Castoldi, Filippo Cugini</i>	

GNPY EXPERIMENTAL VALIDATION ON FLEX-GRID, FLEX-RATE WDM OPTICAL TRANSPORT SCENARIOS.....	953
<i>Andrea D'Amico, Elliot London, Bertrand Le Guyader, Florian Frank, Esther Le Rouzic, Erwan Pincemin, Nicolas Brochier, Vittorio Curri</i>	

COORDINATING PLUGGABLE TRANSCEIVER CONTROL IN SONIC-BASED DISAGGREGATED PACKET-OPTICAL NETWORKS.....	956
<i>Andrea Sgambelluri, Davide Scano, Alessio Giorgetti, Francesco Paolucci, Emilio Riccardi, Roberto Morro, Piero Castoldi, Filippo Cugini</i>	

DELAY-AWARE AND RESOURCE-EFFICIENT VNF-SERVICE CHAIN DEPLOYMENT IN INTER-DATACENTER ELASTIC OPTICAL NETWORKS	959
<i>Jiahua Gu, Min Zhu, Tianyu Shen, Chenglin Shi, Xueqi Ren</i>	

MULTI-LAYER TRANSPORT NETWORK SLICING WITH HARD AND SOFT ISOLATION	962
<i>A. Alcalá, S. Barguil, V. López, L. M. Contreras, C. Manso, P. Alemany, R. Casellas, R. Martínez, D. González-Pérez, X. Liu, J. M. Pulido, J. P. Fernández-Palacios, R. Muñoz, R. Vilalta</i>	

COST-EFFECTIVE PON

ASSESSMENT OF AN SOA FOR BURST MODE PRE-AMPLIFICATION IN HIGHER SPEED PON REACHING 30DB OF OPTICAL BUDGET	965
<i>Jeremy Potet, Fabienne Saliou, Gaël Simon, Mathilde Gay, Laurent Bramerie, Philippe Chanclou, Monique Thual</i>	

32DB OF OPTICAL BUDGET WITH DSP-FREE REAL TIME EXPERIMENTATION UP TO 50GBIT/S NRZ USING O-BAND DFB-EAM AND SOA-PIN FOR HIGHER SPEED PONS.....	968
<i>Fabienne Saliou, Mathilde Gay, Laurent Bramerie, Jeremy Potet, Hamza Hallak Elwan, Gael Simon, Philippe Chanclou, Francois Lelarge, Hélène Debrégeas</i>	

THE BEST MODULATION FORMAT FOR SYMMETRICAL SINGLE-WAVELENGTH 50-GB/S PON AT O-BAND: PAM, CAP OR DMT?.....	971
<i>Jiao Zhang, Min Zhu, Kaihui Wang, Qingyi Zhou, Bingchang Hua, Yuancheng Cai, Mingzheng Lei, Yucong Zou, Aijie Li, Weiliang Xu, Jikuan Wang, Xiang Liu, Jianjun Yu</i>	

UP TO 20 MB/S AUXILIARY MANAGEMENT AND CONTROL CHANNEL SIGNAL TRANSMISSION IN 50 GB/S PON SYSTEM.....	974
<i>Haipeng Guo, Chuanchuan Yang, Xin Qin, Yunfeng Gao, Ziyuan Zheng, Hongbin Li</i>	

REAL-TIME AND HIGH-DATA RATE TRANSMISSION

REAL-TIME UNREPEATERED C-BAND TRANSMISSION OF 30.5 TB/S OVER 276.4 KM AND 29.45 TB/S OVER 292.5 KM.....	977
<i>H. Bissessur, C. Bastide, A. Busson, D. Kravchenko, F. Hedaraly, J. Esparza</i>	

16-TB/S REAL-TIME DEMONSTRATION OF 100-KM MDM TRANSMISSION USING COMMERCIAL 200G OTN SYSTEM	980
<i>Lei Shen, Dawei Ge, Shikui Shen, Shuo Wang, Chunxu Zhao, Guangquan Wang, Lei Zhang, Jie Luo, Xiaobo Lan, Lan Deng, Mingqing Zuo, Yuyang Gao, Juhao Li</i>	

10,000 KM STRAIGHT-LINE TRANSMISSION USING A REAL-TIME SOFTWARE-DEFINED GPU-BASED RECEIVER	983
<i>Sjoerd Van Der Heide, Ruben S. Luis, Benjamin J. Puttnam, Georg Rademacher, Ton Koonen, Satoshi Shinada, Yoshinari Awaji, Hideaki Furukawa, Chigo Okonkwo</i>	

DEMONSTRATION OF 800-GBIT/S/CARRIER TPS-64QAM WDM TRANSMISSION OVER 2,000 KM USING MIMO VOLTERRA EQUALIZATION	986
<i>Miao Kong, Cuiwei Liu, Bohan Sang, Kaihui Wang, Junjie Ding, Junting Shi, Li Zhao, Wen Zhou, Xiangjun Xin, Bo Liu, Bing Ye, Weizhang Chen, Jianjun Yu</i>	

RADIO-OVER-FIBER (ROF) SYSTEMS

OVER 100GB/S PS-4096 QAM SIGNAL BI-DIRECTIONAL TRANSMISSION IN A FULL-DUPLEX MMW-ROF SYSTEM AT E-BAND	989
<i>Kaihui Wang, Li Zhao, Wen Zhou, Cuiwei Liu, Yanyi Wang, Feng Zhao, Jianjun Yu</i>	

SIMPLIFIED COHERENT RECEIVER FOR ZERO-TOUCH WIRELESS INTEGRATION IN POWER-SPLITTING ODN WITH >40 DB BUDGET	992
<i>Dinka Milovancev, Nemanja Vokic, Fotini Karinou, Bernhard Schrenk</i>	

ORTHOGONAL CHIRP-DIVISION MULTIPLEXING FOR PERFORMANCE ENHANCED OPTICAL/MILLIMETER-WAVE 5G/6G COMMUNICATIONS.....	995
<i>Colm Browning, Xing Ouyang, Devika Dass, Giuseppe Talli, Paul Townsend</i>	

DEMONSTRATION OF 28-GHZ BAND RADIO SIGNAL TRANSMISSION INTO VEHICLE BY ANALOG RADIO OVER MULTI-MODE FIBER	998
<i>Hiroki Yasuda, Toshinori Suzuki, Hsuan-Yun Kao, Satoshi Tanaka, Shota Ishimura, Kazuki Tanaka, Naokatsu Yamamoto, Atsushi Kanno, Ryo Inohara, Kosuke Nishimura, Takamitsu Aiba, Tomohiro Wakabayashi, Tetsuya Kawanishi</i>	

A QUANTUM-DASH DUAL-WAVELENGTH DFB LASER FOR OPTICAL MILLIMETER-WAVE RADIO-OVER-FIBER SYSTEMS.....	1001
<i>Khan Zeb, Zhenguo Lu, Jiaren Liu, Youxin Mao, Mohamed Rahim, Philip J Poole, Pedro Barrios, Guocheng Liu, Grzegorz Pakulski, Weihong Jiang, Martin Vachon, Daniel Poitras, Xiupu Zhang</i>	

4×10 GB/S WDM FIBER WIRELESS MULTI-IFOF RECONFIGURABLE FRONTHAUL USING A LOW-LOSS SI ₃ N ₄ ROADM FOR MMWAVE 5G.....	1004
<i>Eugenio Ruggeri, Dimosthenis Spasopoulos, Christos Vagionas, George Kalfas, Ruud M. Oldenbeuving, Paul W. L. Van Dijk, Chris G. H. Roeloffzen, Nikos Pleros, Amalia Miliou</i>	

SYMPOSIA: THE ROLE OF MACHINE LEARNING IN OPTICAL SYSTEMS AND THE ROLE OF OPTICS IN MACHINE LEARNING SYSTEMS (PART 1)

MACHINE-LEARNING-AIDED BANDWIDTH AND TOPOLOGY RECONFIGURATION FOR OPTICAL DATA CENTER NETWORKS	1007
<i>Roberto Proietti, Che-Yu Liu, Xiaoliang Chen, S. J. Ben Yoo</i>	

JOINT POSTER SESSION 1

TOWARDS FULLY AUTOMATED TESTING AND CHARACTERIZATION FOR PHOTONIC COMPACT MODELING ON 300-MM WAFER PLATFORM	1010
<i>Abdelsalam Aboketaf, Crystal Hedges, Vishal Dhurgude, Brendan Harris, Fen Guan, Frank Pavlik, Ted Anderson, Andy Stricker, Yusheng Bian, Michal Rakowski, Arunima Dasgupta, Andrea Paganini</i>	

32 TBIT/S TRANSMISSION OVER 1400 KM USING POWER ALLOCATION OPTIMIZATION	1013
<i>A. Lorences-Riesgo, T.-H. Nguyen, S. Mumtaz, D. Le Gac, I. F. De Jauregui Ruiz, M. Sales-Llopis, S. Dris, Y. Frignac, G. Charlet</i>	
LOW POWER CONSUMPTION SILICON PHOTONICS DATACENTER INTERCONNECTS ENABLED BY A PARALLEL ARCHITECTURE	1016
<i>Aditya Malik, Songtao Liu, Erman Timurdogan, Mark Harrington, Andrew Netherton, Mitra Saeidi, Daniel J. Blumenthal, Luke Theogarajan, Michael Watts, John E. Bowers</i>	
RESERVOIR COMPUTING BASED ON MUTUALLY INJECTED PHASE MODULATED LASERS: A MONOLITHIC INTEGRATION APPROACH SUITABLE FOR SHORT-REACH COMMUNICATION SYSTEMS	1019
<i>Kostas Sozos, Charis Mesaritakis, Adonis Bogris</i>	
SYSTEM-LEVEL INVERSE DESIGN FOR STOKES RECEIVERS ON A COMMERCIAL FOUNDRY PLATFORM	1022
<i>Alec M. Hammond, Stephen E. Ralph</i>	
DYNAMIC AUTO-NEGOTIATION WITH REAL-TIME TRANSPONDERS IN SOFTWARE DEFINED OPTICAL NETWORKS	1025
<i>Alexandre Gouin, Arnaud Dupas, Lluís Gifre Renom, Ahmed Benabdallah, Fabien Boitier, Patricia Layec</i>	
MULTI-CHIPLET SYSTEM ARCHITECTURE WITH SHARED UNIFORM ACCESS MEMORY BASED ON BOARD-LEVEL OPTICAL INTERCONNECTS	1028
<i>Arastu Sharma, Nikolaos Bamiedakis, Fotini Karinou, Richard Penty</i>	
PHOTONIC SPIKING VCSEL NEURONS USING MULTI-FREQUENCY SWITCHING.....	1031
<i>Bangqi Fu, Wenjia Zhang, Yao Lu, Zuyuan He</i>	
POLARIZATION ROTATION ENHANCED NONLINEAR-OPTICAL LOOP MIRROR (PR- NOLM) MULTILEVEL AMPLITUDE REGENERATOR.....	1034
<i>Biao Guo, Feng Wen, Baojian Wu, Kun Qiu</i>	
AN ULTRA-BROADBAND TWO-MODE TRANSVERSE-ELECTRIC MULTIPLEXER IN SOI PLATFORM.....	1037
<i>Bruna Paredes, Zakriya Mohammed, Juan Villegas, Mahmoud Rasras</i>	
HIGH-PRECISION EDGE-CLOUD COLLABORATION WITH FEDERATED LEARNING IN EDGE OPTICAL NETWORK.....	1040
<i>Chao Li, Hui Yang, Quiyan Yao, Zhengjie Sun, Jie Zhang</i>	
ENABLING TRANSMISSION-AWARE ADAPTIVE OPTICAL TIME SLICE SWITCHING IN TIME-VARYING OPTICAL TIME SLICED NETWORKS	1043
<i>Chen Zhao, Nan Hua, Kangqi Zhu, Jipu Li, Bofan Yang, Xiaoping Zheng</i>	
JOINT MULTI-EIGENVALUE DEMODULATION USING COMPLEX MOMENT-BASED EIGENVALUE SOLVER AND ARTIFICIAL NEURAL NETWORK	1046
<i>Yuhei Terashi, Daisuke Hisano, Ken Mishina, Yuki Yoshida, Akihiro Maruta</i>	
UNIVERSAL VIRTUAL LAB: A FAST AND ACCURATE SIMULATION METHOD FOR NONLINEAR DWDM SYSTEMS.....	1049
<i>David Dahan, Michael Zarubinsky, Yunhua Liang, Ori Golani, Mark Shtaif</i>	

FIELD TRIAL OF SEMI-ACTIVE WDM SYSTEM BASED ON MULTI-CARRIER PILOT-TONE FOR 5G C-RAN FRONT-HAUL NETWORK	1052
<i>Dong Wang, Youxi Lin, Jiang Sun, Dawei Ge, Dechao Zhang, Gongyuan Zhao, Qian Cai, Yunbo Li, Yang Zhao, Liuyan Han, Enbo Zhou, Han Li</i>	
PRINCIPAL AXES TWIST OF ANTIRESONANT HOLLOW-CORE FIBER	1055
<i>Elizaveta A. Yelistratova, Stanislav O. Leonov, Vladimir V. Demidov, Valeriy E. Karasik</i>	
BENCHMARKING OF CARRIER PHASE RECOVERY CIRCUITS FOR M-QAM COHERENT SYSTEMS	1058
<i>Erik Börjesson, Per Larsson-Edefors</i>	
100 GBAUD SSB PAM-4 SIGNAL TRANSMISSION OVER 80-KM SMF WITH THP AND KK RECEIVER	1061
<i>Dongdong Zou, Qihan Zhang, Wei Wang, Qi Sui, Xingwen Yi, Zhaohui Li, Xiaoxue Gong, Fan Li</i>	
QUANTIZATION NOISE SUPPRESSION WITH NOISE-SHAPING TECHNIQUE IN DMT-MODULATED IM/DD OPTICAL INTERCONNECTS UTILIZING LOW-RESOLUTION DAC	1064
<i>Ke Bai, Zhibin Luo, Dongdong Zou, Wei Wang, Qi Sui, Xianfeng Tang, Fan Li, Zhaohui Li</i>	
EXPERIMENTAL DEMONSTRATION OF REMOTELY CONTROLLED AND POWERED TUNABLE OPTICAL 2-4 TAPS CORRELATOR OF A 20-100 GBIT/S QPSK CHANNEL BASED ON LASER-DELIVERED BIAS AND CONTROL SIGNALS	1067
<i>F. Alishahi, A. Minoofar, A. Fallahpour, K. Zou, H. Zhou, J. Habif, M. Tur, A. E. Willner</i>	
HOW LARGE SHOULD BE THE FIBER EFFECTIVE AREA: A NETWORK-ORIENTED CASE STUDY?	1070
<i>Ningning Guo, Yichun Shen, Xinli Jiang, Shanshan Cao, Gangxiang Shen, Biswanath Mukherjee</i>	
WIDELY TUNABLE APODIZED BRAGG GRATING FILTER FABRICATED IN A SILICON PHOTONIC FOUNDRY	1073
<i>Gareeyasee Saha, Stephen E. Ralph</i>	
STRUCTURED SPARSITY LEARNING-BASED PRUNED RETRAINING VOLTERRA EQUALIZATION FOR DATA-CENTER INTERCONNECTS	1076
<i>Govind Sharan Yadav, Chun-Yen Chuang, Kai-Ming Feng, Jyehong Chen, Young-Kai Chen</i>	
ADVANCED BEAM SHAPING FOR ENHANCED UNDERWATER WIRELESS OPTICAL COMMUNICATION	1079
<i>Jiewen Nie, Lei Tian, Song Yue, Zichen Zhang, Haining Yang</i>	
DEMONSTRATION OF 2-GBIT/S FREE-SPACE OPTICAL COMMUNICATIONS THROUGH DYNAMIC AEROSOL AND DYNAMIC WATER INTERFACE USING ORBITAL-ANGULAR-MOMENTUM MULTIPLEXING	1082
<i>Haoqian Song, Runzhou Zhang, Nanzhe Hu, Huibin Zhou, Xinzhou Su, Kaiheng Zou, Kai Pang, Hao Song, Cong Liu, Brittany Lynn, Daeyoung Park, Moshe Tur, Alan E. Willner</i>	
HIGH RADIX SOA-BASED LOSSLESS OPTICAL SWITCH PROTOTYPING FOR 25 GBAUD PAM4 TRANSMISSION IN MODERN INTRA-DATACENTER APPLICATIONS	1085
<i>Hassan Rahbardar Mojaver, Shanglin Li, Valery Tolstikhin, Kin-Wai Leong, Odile Liboiron-Ladouceur</i>	
ENTANGLEMENT BLOCKING IN DLCZ-BASED NETWORKS	1088
<i>Ian Tillman, Dan Kilper, Abdella Battou</i>	

107.6 TB/S GMI THROUGHPUT OVER 220 KM SSMF USING DISCRETE C- AND L-BAND AMPLIFICATION ACROSS >12 THZ.....	1091
<i>I. Demirtzioglou, D. F. Bendimerad, I. F. De Jauregui Ruiz, D. Le Gac, A. Lorences-Riesgo, N. El Dahdah, A. Gallet, H. Elfaiki, S. Yu, G. Gao, S. Escobar-Landero, R. Brenot, Y. Frignac, G. Charlet</i>	
NON-VOLATILE OPERATION OF A SI PN RING RESONATOR WITH A FERROELECTRIC CAPACITOR	1094
<i>Seung-Min Han, Dae-Won Rho, Dae-Hwan Ahn, Jin-Dong Song, Woo-Young Choi, Jae-Hoon Han</i>	
LOW-COMPLEXITY SYMBOL-RATE RX DSP FOR SHORT-REACH OPTICAL COHERENT TRANSMISSION SYSTEMS.....	1097
<i>Jianhong Ke, Zilong He, Chao Xin, Ting Yang, Chuandong Li</i>	
LINewidth LIMIT OF A SINGLE LONGITUDE-MODE FIBER LASER WITH DIFFERENT CAVITY LENGTH	1100
<i>Jianming Shang, Siqiao Li, Zhengkang Wang, Yaojun Qiao, Song Yu</i>	
EML-BASED 200-GBIT/S/λ DMT SIGNAL TRANSMISSION OVER 10-KM SSMF USING ENTROPY LOADING AND SIMPLIFIED VOLTERRA EQUALIZATION	1103
<i>Jing Zhang, Qun Liu, Mingyue Zhu, Hong Lin, Shaohua Hu, Xingwen Yi, Kun Qiu</i>	
POWER EFFICIENCY IN SUBMARINE SYSTEMS USING VARIOUS CAPACITY METRICS.....	1106
<i>John D. Downie, Xiaojun Liang, Petr Sterlingov</i>	
EXPERIMENTAL DEMONSTRATION OF A SILICON-PHOTONICS WDM NFT SOLITON TRANSMITTER.....	1109
<i>J. Koch, A. Moscoso-Mártir, J. Müller, A. Tabatabaei Mashayekh, A. D. Das, F. Merget, S. Pachnicke, J. Witzens</i>	
ANALYSIS OF THE EXTREMES OF SNR TIME SERIES DATA USING EXTREME VALUE STATISTICS.....	1112
<i>Josh W. Nevin, Seb J. Savory</i>	
SCALABLE FEDERATED LEARNING OVER PASSIVE OPTICAL NETWORKS	1115
<i>Jun Li, Lei Chen, Jiajia Chen</i>	
PHOTONIC GATEWAY FOR DIRECT AND PROTOCOL-INDEPENDENT END-TO-END USER CONNECTIONS.....	1118
<i>Kazuaki Honda, Takuya Kanai, Yasunari Tanaka, Kazutaka Hara, Shin Kaneko, Jun-Ichi Kani, Tomoaki Yoshida</i>	
THEORY OF SPONTANEOUS EMISSION FACTORS OF OPTICAL PARAMETRIC AMPLIFIERS.....	1121
<i>Kazuro Kikuchi</i>	
DYNAMIC DECODING OF ZIPPER CODES.....	1124
<i>Kechao Huang, Shiyao Xiao, Deyuan Chang, Xiaoling Yang, Qinhui Huang, Huixiao Ma, W. K. Leung</i>	
DEMONSTRATION OF ASYNCHRONOUS SUCCESSIVE INTERFERENCE CANCELLER FOR UPLINK NOMA-PON	1127
<i>Kosuke Suzuoki, Daisuke Hisano, Ken Mishina, Kazuki Maruta, Akihiro Maruta</i>	

MODE DIVISION MULTIPLEXING ON STANDARD 50/125 μ M MULTI MODE FIBER USING PHOTONIC LANTERNS	1130
<i>Lars Gruner-Nielsen, Neethu Mariam Mathew, Magnus Hornhaver Nymann, Mads Lillieholm, Michael Galili, Karsten Rottwitt</i>	
DAC-LESS AND DSP-FREE 20 GB/S PAM-4 TRANSMISSION BASED ON A DUAL MODULATION SCHEME USING DML AND EXTERNAL MODULATION	1133
<i>Laurent Bramerie, Sastien Lobo, Mathilde Gay</i>	
BRILLOUIN PHASE SPECTRUM RECOVERY BASED ON KRAMERS-KRONIG RELATION IN DIRECT-DETECTION BOTDA SENSORS.....	1136
<i>Keyan Zeng, Liang Wang, Ming Tang, Deming Liu</i>	
DEMONSTRATION OF SLICE FAULT MONITORING AND HANDLING FOR CONVERGED OPTICAL-WIRELESS ACCESS NETWORKS	1139
<i>Lianyu Wu, Jiabin Cui, Jiawei Zhang, Yuefeng Ji</i>	
UNCERTAINTY ANALYSIS FOR FAILURE PREDICTION IN OPTICAL TRANSPORT NETWORK USING BAYESIAN NEURAL NETWORK.....	1142
<i>Lingling Wang, Danshi Wang, Chunyu Zhang, Songlin Liu, Min Zhang</i>	
BROADBAND POLARIZATION BEAM SPLITTERS BASED ON MMI COUPLERS WITH INTERNAL PHOTONIC CRYSTALS FABRICATED USING 193 NM PHOTOLITHOGRAPHY	1145
<i>Luhua Xu, Deng Mao, Jinsong Zhang, Yun Wang, Zhenping Xing, Md Samiul Alam, Maxime Jacques, Yannick D’Mello, Santiago Bernal, David V. Plant</i>	
EXPERIMENTAL VERIFICATION OF 64-GBD/64-QAM INTERWORKING OF PROBABILISTIC SHAPING WITH A DIGITAL RESOLUTION ENHANCER	1148
<i>Mahmood Abu-Romoh, Tu T. Nguyen, Pavel Skvortcov, Yaron Yoffe, Ian Phillips, Tomislav Drenski, Wlodek Forysiak</i>	
STATEFUL DBA HYPERVISOR SUPPORTING SLAS WITH LOW LATENCY & HIGH AVAILABILITY IN SHARED PON.....	1151
<i>Frank Slyne, Sanwal Zeb, Marco Ruffini</i>	
INVERSE-DESIGNED INP-BASED POLARIZATION ROTATOR-SPLITTER.....	1154
<i>Marko Perestjuk, Hendrik Boerma, Alexander Schindler, Shahram Keyvaninia, Patrick Runge, Martin Schell</i>	
C-BAND 4x200 GBIT/S TRANSMISSION OVER 40 KM OF SSMF WITH AN RF DELAY-ASSISTED WDM-SSB TRANSMITTER.....	1157
<i>Md Samiul Alam, Xueyang Li, Zhenping Xing, Mohammad E. Mousa-Pasandi, Maurice O’Sullivan, David V. Plant</i>	
HYPERSCALE DATACENTER NETWORKS WITH HYBRID FABRIC AGGREGATOR ARCHITECTURES	1160
<i>Md Nooruzzaman, Xavier Fernando</i>	
<u>EMERGING ADVANCES IN OPTICAL TRANSCEIVER TECHNOLOGIES</u>	
PROTOTYPE OF DSP-FREE IM/DD MDM TRANSCEIVER BASED ON MULTIPLE-RING-CORE FMF FOR DATACENTER INTERCONNECTION.....	1163
<i>Yuyang Gao, Dawei Ge, Lei Shen, Yongqi He, Zhangyuan Chen, Guifang Li, Juhao Li</i>	

DEMONSTRATION OF A TUNABLE, BROADBAND PIXEL-ARRAY-BASED PHOTONIC-
INTEGRATED-CIRCUIT RECEIVER FOR RECOVERING TWO 100-GBIT/S QPSK
ORBITAL-ANGULAR-MOMENTUM MULTIPLEXED CHANNELS..... 1166

Hao Song, Huibin Zhou, Kaiheng Zou, Runzhou Zhang, Kai Pang, Haoqian Song, Xinzhou Su, Amir Minoofar, Nanzhe Hu, Cong Liu, Robert Bock, Brittany Lynn, Shlomo Zach, Moshe Tur, Alan E. Willner

HYBRID-INTEGRATED 400G TROSA MODULE AND ITS PERFORMANCE EVALUATION
USING PAM4 DSP CHIP..... 1169

Seok-Jun Yun, Young-Tak Han, Seok-Tae Kim, Jang-Uk Shin, Sang-Ho Park, Dong-Hoon Lee, Seo-Young Lee, Yongsoon Baek

SELF-TUNING BIDIRECTIONAL 50GBASE-ER OPTICAL TRANSCEIVER BASED ON
TEMPERATURE CONTROL AND SILICA-BASED COMB FILTER 1172

Dong Wang, Yongpeng Zhao, Jiang Sun, Dawei Ge, Qian Cai, Yunbo Li, Yang Zhao, Liuyan Han, Zhiguang Xu, Dechao Zhang, Han Li

IMPAIRMENT IDENTIFICATION FOR PAM-4 TRANSCEIVERS AND LINKS USING
MACHINE LEARNING 1175

Daniel Lippiatt, Alirio Melgar, Varghese A. Thomas, Siddharth Varughese, Pavel Zivny, Shane Hazzard, Stephen E. Ralph

MULTI-CORE FIBERS 2

DYNAMIC SKEW IN MULTI-CORE FIBERS: FROM LAB MEASUREMENTS TO FIELD
TRIALS..... 1178

Ruben S. Luis, Benjamin J. Putnam, Georg Rademacher, Andrea Marotta, Cristian Antonelli, Fabio Graziosi, Antonio Mecozzi, Tetsuya Hayashi, Tetsuya Nakanishi, Satoshi Shinada, Yoshinari Awaji, Hideaki Furukawa, Naoya Wada

WEAKLY-COUPLED MCF DIRECT-DETECTION OOK SYSTEMS IMPAIRED BY LASER
PHASE NOISE..... 1181

T. M. F. Alves, J. L. Rebola, A. V. T. Cartaxo

DISTRIBUTED MEASUREMENT OF BIREFRINGENCE IN UNCOUPLED MULTICORE
FIBERS 1184

R. Veronese, C. Antonelli, A. Mecozzi, T. Hayashi, M. Santagiustina, A. Galtarossa, L. Palmieri

DISTRIBUTED MEASUREMENT OF THE SHAPE OF MICROBENDS IN OPTICAL FIBERS..... 1187

Raja Ahmad, Wing Ko, Kenneth S. Feder, Paul S. Westbrook

SDM FIBERS AND DEVICES: DESIGN, MANUFACTURING, AND APPLICATIONS 1190

J. Enrique Antonio-Lopez, J. Carlos Alvarado-Zacarias, Steffen Wittek, Daniel Cruz-Delgado, Julian Martinez-Mercado

DISTRIBUTED FIBER LASING AND SENSING

SPATIO-TEMPORAL OVERSAMPLING-DOWNSAMPLING TECHNIQUE FOR HIGH SNR
FIBER DISTRIBUTED ACOUSTIC SENSING 1193

Hao Li, Cunzheng Fan, Tao Liu, Tao He, Junfeng Chen, Yixiang Sun, Zhijun Yan, Qizhen Sun

AN OFDM-MIMO DISTRIBUTED ACOUSTIC SENSING OVER DEPLOYED TELECOM FIBERS	1196
<i>Christian Dorize, Sterenn Guerrier, Elie Awwad, Peter A. Nwakamma, Haik Mardoyan, Jérémie Renaudier</i>	
FULLY DISTRIBUTED HYDROACOUSTIC SENSING BASED ON LIGHTWEIGHT OPTICAL CABLE ASSISTED WITH SCATTERING ENHANCED FIBER	1199
<i>Junfeng Chen, Hao Li, Tao Liu, Cunzheng Fan, Zhijun Yan, Qizhen Sun</i>	
EXPERIMENTAL DEMONSTRATION OF PHASE-SENSITIVE OTDR WITH ADAPTIVE PROBE-PULSE MODULATION.....	1202
<i>Yongxin Liang, Zinan Wang, Shengtao Lin, Yunjiang Rao</i>	
HIGHLY STABILIZED BRILLOUIN RANDOM FIBER LASER BASED ON SELF-INScribed DYNAMIC FIBER GRATING	1205
<i>Zenghuan Qiu, Zhelan Xiao, Jilin Zhang, Haoran Xie, Yikun Jiang, Fufei Pang, Liang Zhang</i>	
DISTRIBUTED ACOUSTIC WAVE SENSING IN A BRILLOUIN RANDOM FIBER LASER	1208
<i>Zichao Zhou, Haiyang Wang, Yuan Wang, Liang Chen, Xiaoyi Bao</i>	
FIBER LASERS WITH REGULAR AND RANDOM DISTRIBUTED FEEDBACK.....	1211
<i>Sergey A. Babin, Alexey G. Kuznetsov, Alexey A. Wolf, Mikhail I. Skvortsov, Alexander V. Dostovalov, Sergey I. Kablukov, Evgeniy V. Podivilov, Stefan Wabnitz</i>	

SDM TRANSMISSION

HIGH CAPACITY AND LONG-HAUL TRANSMISSION WITH SPACE-DIVISION MULTIPLEXING	1214
<i>Georg Rademacher, Ruben S. Luís, Benjamin J. Puttnam, Roland Ryf, Sjoerd Van Der Heide, Tobias A. Eriksson, Nicolas K. Fontaine, Haoshuo Chen, René-Jean Essiambre, Yoshinari Awaji, Hideaki Furukawa</i>	
LONG-HAUL WDM/SDM TRANSMISSION OVER COUPLED 4-CORE FIBER WITH COUPLED 4-CORE EDFA AND ITS MDL CHARACTERISTICS ESTIMATION.....	1217
<i>Manabu Arikawa, Kohei Hosokawa, Kazunori Hayashi</i>	
50.47-TBIT/S STANDARD CLADDING ULTRA-LOW-LOSS COUPLED 4-CORE FIBER TRANSMISSION OVER 9,150 KM	1220
<i>Daiki Soma, Shohei Beppu, Yuta Wakayama, Seiya Sumita, Hidenori Takahashi, Noboru Yoshikane, Itsuro Morita, Takehiro Tsuritani, Masatoshi Suzuki</i>	
REAL-TIME MIMO-DSP TECHNOLOGIES FOR SDM SYSTEMS	1223
<i>S. Beppu, K. Igarashi, M. Kikuta, H. Mukai, M. Shigihara, Y. Saito, D. Soma, H. Takahashi, N. Yoshikane, I. Morita, T. Tsuritani</i>	
360-CHANNEL WDM-MDM TRANSMISSION OVER 25-KM RING-CORE FIBER WITH LOW-COMPLEXITY MODULAR 4×4 MIMO EQUALIZATION.....	1226
<i>Zhenrui Lin, Junyi Liu, Jianpei Lin, Lei Shen, Jingxing Zhang, Junwei Zhang, Shuqi Mo, Peng Li, Lan Deng, Jie Liu, Siyuan Yu</i>	

FREE SPACE OPTICS

- EXPERIMENTAL DEMONSTRATION OF A 1-GBIT/S "PIN-LIKE" LOW-DIVERGENCE BEAM USING A LIMITED-SIZED RECEIVER APERTURE AT VARIOUS DISTANCES 1229
Nanzhe Hu, Huibin Zhou, Runzhou Zhang, Haoqian Song, Kai Pang, Kaiheng Zou, Hao Song, Xinzhou Su, Cong Liu, Brittany Lynn, Moshe Tur, Alan E. Willner
- 240-GBPS SDM-FSO COMMUNICATION USING 4-BUNDLE FIBER AND 2D PHOTODETECTOR ARRAY 1232
Toshimasa Umezawa, Kunio Jitsuno, Naokatsu Yamamoto, Tetsuya Kawanishi
- DEMONSTRATION OF 100GBIT/S REAL-TIME ULTRA HIGH DEFINITION VIDEO TRANSMISSION OVER FREE SPACE OPTICAL COMMUNICATION LINKS..... 1235
Yueying Zhan, Yang Sun, Ziyuan Shi, Ning Yang, Lei Yang
- ELLIPTICAL-APERTURE MULTIMODE DIVERSITY RECEPTION FOR FREE-SPACE OPTICS COMMUNICATIONS UNDER ANISOTROPIC TURBULENCE 1238
Yetan Huang, Hanzi Huang, Haoshuo Chen, Juan Carlos Alvarado, Qianwu Zhang, Nicolas K. Fontaine, Mikael Mazur, Roland Ryf, Yingchun Li, Rodrigo Amezcua-Correa, Yingxiong Song, Min Wang
- DEMONSTRATION OF FREE-SPACE 300-GBIT/S QPSK COMMUNICATIONS USING BOTH WAVELENGTH- AND MODE- DIVISION-MULTIPLEXING IN THE MID-IR 1241
Kaiheng Zou, Kai Pang, Hao Song, Jintao Fan, Zhe Zhao, Haoqian Song, Runzhou Zhang, Huibin Zhou, Amir Minoofar, Cong Liu, Xinzhou Su, Nanzhe Hu, Andrew McClung, Mahsa Torfeh, Amir Arbabi, Moshe Tur, Alan E. Willner
- FIBER-TO-FIBER FSO SYSTEM WITH ADVANCED VCM CONTROLLED LASER BEAM POINTING AND TRACKING 1244
Abdelmoula Bekkali, Hideo Fujita, Michikazu Hattori
- HIGH-SPEED MIMO COMMUNICATION AND SIMULTANEOUS ENERGY HARVESTING USING NOVEL ORGANIC PHOTOVOLTAICS 1247
Iman Tavakkolnia, Lethy K. Jagadamma, Rui Bian, Pavlos P. Manousiadis, Stefan Videv, Graham A. Turnbull, Ifor D. W. Samuel, Harald Haas
- IMPLEMENTATION AND EVALUATION OF 2.5 GBPS MOBILE FSO COMMUNICATION SYSTEM BASED ON 2.5 GBASE-T STANDARD 1250
Young Soon Heo, Ji Hyoung Ryu, Chan Il Yeo, Siwoong Park, Hyun Seo Kang

IM-DD FOR INTRA/INTER DATA-CENTERS

- SILICON PHOTONIC MZM ARCHITECTURES FOR 200G PER LAMBDA IM/DD TRANSMISSION 1253
Maxime Jacques, Alireza Samani, Eslam El-Fiky, David V. Plant
- LOW COST 100GB/S/λ PAM-4 SIGNAL TRANSMISSION FOR 40-KM INTER-DCI WITH 4-BIT RESOLUTION DAC IN O-BAND..... 1256
Mingzhu Yin, Wei Wang, Dongdong Zou, Qi Sui, Xingwen Yi, Zhaohui Li, Fan Li
- FEASIBILITY OF TRANSMITTING 270 GBIT/S WITH PAM-8 IN O-BAND CWDM4 WITH IM/DD SYSTEM 1259
Md Sabbir-Bin Hossain, Talha Rahman, Nebojša Stojnacic, Tom Wettlin, Stefano Calabrò, Jinlong Wei, Changsong Xie, Stephan Pachnicke

224-GB/S 16QAM SV-DD TRANSMISSION USING PILOT-ASSISTED POLARIZATION RECOVERY WITH INTEGRATED RECEIVER.....	1262
<i>Sen Zhang, Liwang Lu, Linsheng Fan, Bin Chen, Tingting Zhang, Tianjian Zuo, Lei Liu, Jin Tang, Li Zeng, Pengxin Chen, Jiahao Huo, Xian Zhou, Alan Pak Tao Lau, Chao Lu, Liu Liu, Changjian Guo</i>	

ERROR-FEEDBACK NOISE SHAPING FOR LOW-RESOLUTION HIGH-SPEED IM/DD AND COHERENT TRANSMISSION SYSTEMS	1265
<i>Liang Shu, Zhenming Yu, Kaixuan Sun, Zhiquan Wan, Hongyu Huang, Kun Xu</i>	

800GB/S-FR4 SPECIFICATION AND INTEROPERABILITY ANALYSIS.....	1268
<i>Yu Tian, Youxi Lin, Jianyu Zheng, Jin Tang, Qinhui Huang, Huixiao Ma, Talha Rahman, Maxim Kuschnerov, Raymond Leung, Lewei Zhang</i>	

QUANTIZATION NOISE-AWARE PARTIAL PRE-EMPHASIS MODEL AND EXPERIMENTAL VALIDATION IN HIGH-SPEED IM-DD SYSTEM.....	1271
<i>Qi Wu, Yixiao Zhu, Longjie Yin, Weisheng Hu</i>	

JOINT POSTER SESSION 2

INTERPRETABLE AND VISUALIZED SHAP-BASED EQUALIZER WITH FEATURE SELECTION IN IMDD SYSTEM.....	1274
<i>Chenyu Wang, Xin Miao, Yu Xi, Meihua Bi, Longsheng Li, Weisheng Hu</i>	

FLEXIBLE BANDWIDTH ALLOCATION USING OFDM IN MODE FORMING OPTICAL ACCESS NETWORK.....	1277
<i>Miho Akiyama, Hirokazu Kobayashi, Katsushi Iwashita</i>	

MDM TRANSMISSION OF 3-D CAP OVER 4.1-KM RING-CORE FIBER IN PASSIVE OPTICAL NETWORKS	1280
<i>Min Yang, Lulu Wang, Hongya Wang, Lei Shen, Lei Zhang, Jie Luo, Jian Wang</i>	

CROSSTALK STATISTICAL DISTRIBUTIONS IN MULTICORE FIBERS UNDER DIFFERENT DEPLOYMENT CONDITIONS	1283
<i>Vladimir Nazarov, Sergey A. Kuchinsky, Aramais R. Zakharian, Ming-Jun Li</i>	

SECURITY ANALYSIS OF QUANTUM NOISE STREAM CIPHER UNDER FAST CORRELATION ATTACK.....	1286
<i>Mingrui Zhang, Yajie Li, Haokun Song, Bo Wang, Yongli Zhao, Jie Zhang</i>	

MICROWAVE FREQUENCY COMB GENERATION BASED ON ACTIVE MODE-LOCKING OF A POLARIZATION-MULTIPLEXED DUAL LOOP OPTOELECTRONIC OSCILLATOR.....	1289
<i>Yan Li, Muguang Wang, Jing Zhang, Hongqian Mu, Chuncan Wang, Fengping Yan</i>	

A NOVEL LINEARIZATION METHOD FOR OPTICAL TRANSMITTERS BASED ON DIRECTLY-MODULATED LASERS	1292
<i>N. Bamiedakis, D. G. Cunningham, R. V. Penty</i>	

WAVELENGTH RESOURCES MANAGEMENT AND SWITCHING OF ACTIVE ENTANGLEMENT DISTRIBUTION CIRCUITS IN OPTICAL NETWORKS.....	1295
<i>O. Alia, R. S. Tessinari, E. Hugues-Salas, G. T. Kanellos, R. Nejabati, D. Simeonidou</i>	

HIGH-SPEED TRANSMISSIONS WITH DIRECT-MODULATION ROOM-TEMPERATURE SEMICONDUCTOR LASERS EMITTING IN THE TRANSPARENCY WINDOW AROUND 4 μM	1298
<i>O. Spitz, L. Durupt, P. Didier, D. A. Díaz-Thomas, L. Cerutti, A. N. Baranov, M. Carras, F. Grillot</i>	
HARDWARE COMPARISON OF FEED-FORWARD CLOCK RECOVERY ALGORITHMS FOR OPTICAL COMMUNICATIONS.....	1301
<i>Patrick Matalla, Md Salek Mahmud, Christoph Füllner, Christian Koos, Wolfgang Freude, Sebastian Randel</i>	
DEMONSTRATION OF A RF-SOURCE-FREE MICROWAVE PHOTONIC RADAR BASED ON AN OPTICALLY INJECTED SEMICONDUCTOR LASER.....	1304
<i>Pei Zhou, Renheng Zhang, Zhidong Jiang, Nianqiang Li, Shilong Pan</i>	
HIGH SPEED, LOW VOLTAGE POLARIZATION CONTROLLER BASED ON HETEROGENEOUS INTEGRATION OF SILICON AND LITHIUM NIOBATE.....	1307
<i>Zhiwen Zheng, Liwang Lu, Chijun Li, Wei Wang, Sen Zhang, Linsheng Fan, Tingting Zhang, Tianjian Zuo, Lei Liu, Alan Pak Tao Lau, Chao Lu, Pengxin Chen, Changjian Guo, Liu Liu</i>	
LASER-BASED NITRIC OXIDE DETECTION AT 5.26 μM USING ANTIRESONANT HOLLOW-CORE FIBER.....	1310
<i>Piotr Jaworski, Grzegorz Dudzik, Pier J. Sazio, Walter Belardi, Karol Krzempek</i>	
IMPACT OF CHROMATIC DISPERSION IN DISCRETE RAMAN AMPLIFIERS ON COHERENT TRANSMISSION SYSTEMS.....	1313
<i>Pratim Hazarika, Mahmood Abu-Romoh, Mingming Tan, Lukasz Krzczanowicz, Tu T. Nguyen, Md Asif Iqbal, Ian Phillips, Paul Harper, Ming-Jun Li, Wlodek Forysiak</i>	
SCALABLE AND RECONFIGURABLE TRUE TIME DELAY LINE BASED ON HIGH PERFORMANCE SWITCHES.....	1316
<i>Qian Qian Song</i>	
ORBITAL ANGULAR MOMENTUM (OAM) RECOGNITION WITH GENERATIVE ADVERSARIAL NETWORK (GAN) BASED ATMOSPHERIC MODELING.....	1319
<i>Chenda Lu, Qinghua Tian, Xiangjun Xin, Lei Zhu, Qi Zhang, Haipeng Yao, Huan Chang, Ran Gao</i>	
A GENERALIZED PAIRWISE OPTIMIZATION ACCELERATOR UNIT FOR DESIGNING GEOMETRIC SHAPING 64-QAM.....	1322
<i>Rachata Maneekut, Daniel J. Elson, Shohei Beppu, Hidenori Takahashi, Noboru Yoshikane</i>	
CHANNEL MATCHING: AN ADAPTIVE TECHNIQUE TO INCREASE THE ACCURACY OF SOFT DECISIONS.....	1325
<i>Reza Rafie Borujeny, Frank R. Kschischang</i>	
TOWARDS CO-EXISTENCE OF 100 GBPS CLASSICAL CHANNEL WITHIN A WDM QUANTUM ENTANGLEMENT NETWORK.....	1328
<i>R. S. Tessinari, O. Alia, S. K. Joshi, D. Aktas, M. Clark, E. Hugues-Salas, G. T. Kanellos, J. Rarity, R. Nejabati, D. Simeonidou</i>	
NEURAL-NETWORK-BASED MDG AND OPTICAL SNR ESTIMATION IN SDM TRANSMISSION.....	1331
<i>Ruby S. B. Ospina, Menno Van Den Hout, Sjoerd Van Der Heide, Chigo Okonkwo, Darli A. A. Mello</i>	

SIMULTANEOUS RECEPTION OF ASK-BASED AMCC SIGNALS AND QPSK SIGNALS WITH SINGLE COHERENT RECEIVER.....	1334
<i>Ryo Igarashi, Ryo Koma, Kazutaka Hara, Kazuaki Honda, Jun-Ichi Kani, Tomoaki Yoshida</i>	
OPTIMIZING COHERENT INTEGRATED PHOTONIC NEURAL NETWORKS UNDER RANDOM UNCERTAINTIES.....	1337
<i>Sanmitra Banerjee, Mahdi Nikdast, Krishnendu Chakrabarty</i>	
SUB-WAVELENGTH GRATINGS ASSISTED RIDGE WAVEGUIDE SURFACE COUPLERS ON LITHIUM NIOBATE THIN FILM.....	1340
<i>Sipan Yang, Yaqian Li, Jinbin Xu, Liying Wu, Xueling Quan, Xiulan Cheng</i>	
SEMI-SUPERVISED ANOMALY DETECTION WITH IMBALANCED DATA FOR FAILURE DETECTION IN OPTICAL NETWORKS.....	1343
<i>Songlin Liu, Danshi Wang, Chunyu Zhang, Lingling Wang, Min Zhang</i>	
CLOCK RECOVERY PERFORMANCE ON PROBABILISTICALLY-SHAPED TRANSMISSIONS	1346
<i>André L. N. De Souza, José Hélio C. Júnior, Tiago Sutili, Rafael C. Figueiredo</i>	
VEHICLE RUN-OFF-ROAD EVENT AUTOMATIC DETECTION BY FIBER SENSING TECHNOLOGY	1349
<i>Tingfeng Li, Yuheng Chen, Ming-Fang Huang, Shaobo Han, Ting Wang</i>	
LOW-COMPLEXITY NONLINEARITY COMPENSATION FOR SHORT-REACH IM/DD SYSTEMS USING PAM	1352
<i>Tom Wettlin, Talha Rahman, Stefano Calabrò, Jinlong Wei, Md Sabbir-Bin Hossain, Nebojsa Stojanovic, Stephan Pachnicke</i>	
GENERALIZATION PROPERTIES OF MACHINE LEARNING-BASED RAMAN MODELS.....	1355
<i>U. C. De Moura, D. Zibar, A. M. Rosa Brusin, A. Carena, F. Da Ros</i>	
A SUM-DIFFERENCE MICRORING FILTER FOR LOSSLESS BANDWIDTH TUNING.....	1358
<i>Yang Ren, Zhiping Jiang, Vien Van</i>	
NEURAL-NETWORK-BASED NONLINEARITY EQUALIZER FOR 128 GBAUD COHERENT TRANSCIEVERS	1361
<i>Vladislav Neskorniuk, Fred Buchali, Vinod Bajaj, Sergei K. Turitsyn, Jaroslaw E. Prilepsky, Vahid Aref</i>	
FABRICATION-TOLERANT POLARIZATION ROTATOR-SPLITTER BASED ON SILICON NITRIDE PLATFORM.....	1364
<i>Xiangyang Dai, Qianyin Lu, Weihua Guo</i>	
LARGE DYNAMIC RANGE MICROWAVE PHOTONIC PHASE SHIFTER BASED ON MULTI-ORDER SIDEBANDS OPTICAL SPECTRUM VECTOR PROCESS TECHNIQUE.....	1367
<i>Yunping Bai, Xiyao Song, Zhonghan Su, Zhennan Zheng, Hao Zhang, Xinlu Gao, Shanguo Huang</i>	
MACH-ZEHNDER INTERFEROMETER BASED ENDLESSLY ADAPTIVE POLARIZATION CONTROLLER ON SILICON-PHOTONIC PLATFORM.....	1370
<i>Xuefeng Wang, Yifan Zeng, Ruolin Liao, Can Zhao, Hao Wu, Ming Tang</i>	
DESIGN OPTIMIZATION OF UNCOUPLED SIX-CORE FIBERS IN STANDARD CLADDING DIAMETER USING ARTIFICIAL INTELLIGENCE.....	1373
<i>Xun Mu, Filipe M. Ferreira, Alessandro Ottino, Georgios Zervas</i>	

SOA-BASED SCINTILLATION-SUPPRESSED MLPOLSK DETECTION IN FSO COMMUNICATIONS.....	1376
<i>Yan-Qing Hong, Sang-Kook Han</i>	
DEMONSTRATION OF CHANNEL-PREDICTABLE FREE SPACE OPTICAL COMMUNICATION SYSTEM USING MACHINE LEARNING.....	1379
<i>Song Song, Yejun Liu, Tianming Xu, Shasha Liao, Lei Guo</i>	
LOW-LOSS THREE-DIMENSIONAL FAN-IN/FAN-OUT DEVICES FOR MULTI-CORE FIBER INTEGRATION.....	1382
<i>Yi-Chun Ling, Shuyun Yuan, S. J. Ben Yoo</i>	
RF PHASE CONTROLLED TRUE TIME DELAY	1385
<i>Xiangzhi Xie, Jilong Li, Feifei Yin, Kun Xu, Yitang Dai</i>	
C-BAND DIRECT DETECTION TRANSMISSION OF 90GBAUD PAM-6/4 OVER 10/20KM SSMF WITH 2-TAP PRE-EQUALIZATION AND SKEW-ENABLED VSB SHAPING.....	1388
<i>Yixiao Zhu, Lei Zhang, Xiansong Fang, Fan Zhang, Weisheng Hu</i>	
SLICING AND SLIDING ALGORITHM COMPATIBLE WITH PAM/SCM SIGNAL FOR CHIRP AND DISPERSION INDUCED DISTORTION COMPENSATION IN DML-BASED DD SYSTEM.....	1391
<i>Yixiao Zhu, Xin Miao, Qi Wu, Weisheng Hu</i>	
EXPERIMENTAL ASSESSMENT OF AN ULTRA-WIDE BAND (O TO L) POLYMER THERMO-OPTIC SWITCH MATRIX	1394
<i>Yu Wang, Netsanet Tessema, Hyun-Do Jung, Jang-Uk Shin, Nicola Calabretta</i>	
A NOVEL METHOD FOR DISTRIBUTED PHASE BIREFRINGENCE MEASUREMENT BASED ON CHIRPED PULSE ϕ -OTDR.....	1397
<i>Yuan Wang, Liang Chen, Xiaoyi Bao</i>	
MITIGATION OF WAVE-INDUCED PACKET LOSS FOR WATER-AIR OPTICAL WIRELESS COMMUNICATION BY A TRACKING SYSTEM	1400
<i>Yujie Di, Yingjie Shao, Lian-Kuan Chen</i>	
LOW-COMPLEXITY, LOOP-UNROLLED DECISION-FEEDBACK EQUALIZER FOR IM/DD SYSTEM USING PAM FORMATS.....	1403
<i>Yukui Yu, Yi Che, Tianwai Bo, Daeho Kim, Hoon Kim</i>	
MONOLITHICALLY INTEGRATED SILICON NITRIDE PLATFORM	1406
<i>Yusheng Bian, Colleen Meagher, Karen Nummy, Sujith Chandran, Won Suk Lee, Abdelsalam Aboketaf, Danhao Ma, Ryan Sporer, Michal Rakowski, Nuh Yuksek, Monica Esopi, Bo Peng, Yangyang Liu, Abu Thomas, Tymon Barwicz, Takako Hirokawa, Javier Ayala, Asli Sahin, Andy Stricker, Subramanian Krishnamurthy, Shuren Hu, Zoey Sowinski, Kate McLean, Louis Medina, Kevin Dezfulian, Michelle Zhang, Mona Nafari, Zhuoqiang Jia, Kaushikee Mishra, Asif Chowdhury, Francis Afzal, Brendan Harris, Salman Mosleh, Bruna Paredes, Marcus Dahlem, Jaime Viegas, Rod Augur, Dave Riggs, Luke Lee, Wenhe Lin, Ajey Jacob, Fen Jamin, Mai Randall, Hemanth Parsa, Vikas Gupta, Anthony Yu, Ken Giewont, Ted Letavic, John Pellerin</i>	
TOWARDS LOW COMPUTATIONAL COMPLEXITY FOR NEURAL NETWORK-BASED EQUALIZATION IN PAM4 SHORT-REACH DIRECT DETECTION SYSTEMS BY MULTI-SYMBOL PREDICTION.....	1409
<i>Zhaopeng Xu, Chuanbowen Sun, Shuangyu Dong, Jonathan H. Manton, William Shieh</i>	

COMPUTING-AWARE PROACTIVE NETWORK RECONFIGURATION FOR OPTICAL NETWORKS INTERCONNECTED EDGE COMPUTING SYSTEM 1412
Zhekang Li, Rentao Gu, Linna Wang, Yuefeng Ji

MICROBENDING LOSS PROPERTIES OF DIFFERENT FIBER DESIGNS 1415
Zoltán Várallyay, Tamás Mihálffy, Sándor Bilicz, Gábor Varga, Kazunori Mukasa

2-BIT DELTA-SIGMA MODULATED 32-QAM OFDM BASED DUAL-WAVELENGTH DIGITAL ROF LINK..... 1418
Zu-Kai Weng, Atsushi Kanno, Tetsuya Kawanishi

SYMPOSIA: QUANTUM INFORMATION SCIENCE AND TECHNOLOGY (QIST) IN THE CONTEXT OF OPTICAL COMMUNICATIONS (QUANTUM KEY DISTRIBUTION)

QUANTUM KEY DISTRIBUTION (QKD) AND THE QUANTUM INTERNET: THE CHALLENGES FACING THIS NEW TECHNOLOGY 1421
Andrew Lord, Catherine White, Emilio Hugues Salas

MADRID QUANTUM COMMUNICATION INFRASTRUCTURE: A TESTBED FOR ASSESSING QKD TECHNOLOGIES INTO REAL PRODUCTION NETWORKS 1424
D. Lopez, J. P. Brito, A. Pastor, V. Martin, C. Sánchez, D. Rincon, V. Lopez

SYMPOSIA: QUANTUM INFORMATION SCIENCE AND TECHNOLOGY (QIST) IN THE CONTEXT OF OPTICAL COMMUNICATIONS (QUANTUM NETWORKS AND APPLICATIONS)

ENTANGLED SENSOR NETWORKS EMPOWERED BY MACHINE LEARNING 1428
Yi Xia, Wei Li, William Clark, Darlene Hart, Quntao Zhuang, Zheshen Zhang

ADVANCED PHOTONIC INTEGRATION AND CO-PACKAGING

POLYMER WAVEGUIDE-COUPLED CO-PACKAGED SILICON PHOTONICS-DIE EMBEDDED PACKAGE SUBSTRATE 1431
T. Amano, A. Noriki, I. Tamai, Y. Ibusuki, A. Ukita, S. Suda, T. Kurosu, K. Takemura, T. Aoki, D. Shimura, Y. Onawa, H. Yaegashi

8 TBPS CO-PACKAGED FPGA AND SILICON PHOTONICS OPTICAL IO 1434
Kaveh Hosseini, Edwin Kok, Sergey Y. Shumarayev, Chia-Pin Chiu, Arnab Sarkar, Asako Toda, Yanjing Ke, Allen Chan, Daniel Jeong, Mason Zhang, Sangeeta Raman, Thungoc Tran, Kumar Abhishek Singh, Pavan Bhargava, Chong Zhang, Haiwei Lu, Ravi Mahajan, Xiaoqian Li, Nitin Deshpande, Conor O’Keeffe, Tim Tri Hoang, Uma Krishnamoorthy, Chen Sun, Roy Meade, Vladimir Stojanovic, Mark Wade

3.2T/6.4T CWDM ROSA FOR CO-PACKAGED OPTIC TRANSCEIVER..... 1437
Li Zhang, Yao Sun, Xiaoqiong Qin, Liangpeng Guan, Caixia Zhu, Yinhe Peng, Jianhu Wei, Shuchao Lv, Yunyan Sun, Jinlong Shang, Jieming Xu, Xiongwen Chen, Wei Si, Shanshan Zeng

3D-INTEGRATED MULTICHIP MODULE TRANSCEIVER FOR TERABIT-SCALE DWDM INTERCONNECTS 1440
Stuart Daudlin, Anthony Rizzo, Nathan C. Abrams, Sunwoo Lee, Devesh Khilwani, Vaishnavi Murthy, James Robinson, Terence Collier, Alyosha Molnar, Keren Bergman

KERR COMB-DRIVEN SILICON PHOTONIC TRANSMITTER.....	1443
<i>Anthony Rizzo, Asher Novick, Vignesh Gopal, Stuart Daudlin, Vaishnavi Murthy, Hao Yang, Qixiang Cheng, Yoshitomo Okawachi, Bok Young Kim, Xingchen Ji, Michael Fanto, Michal Lipson, Alexander Gaeta, Keren Bergman</i>	

FILTERING AND ACTIVE STABILIZATION DEVICES

SELF-SIMILAR ULTRA-HIGH Q Si_3N_4 INTEGRATED RESONATORS FOR BRILLOUIN LASER LINEWIDTH NARROWING AND STABILIZATION.....	1446
<i>Kaikai Liu, Grant M. Brodnik, Mark W. Harrington, Andrei Isichenko, Qiancheng Zhao, John Dallyn, Ryan O. Behunin, Paul Morton, Scott Papp, Daniel J. Blumenthal</i>	

ARBITRARY DISPERSION COMPENSATION OF PERIODIC WAVEFORMS USING ON-CHIP DISCRETE PHASE FILTERS.....	1449
<i>Saket Kaushal, José Azaña</i>	

AUTOMATED CLONING AND LOOKUP TABLE GENERATION FOR RECONFIGURABLE PHOTONIC INTEGRATED FILTERS	1452
<i>Matteo Petrini, Maziya Milanizadeh, Francesco Morichetti, Andrea Melloni</i>	

SILICON NITRIDE BUS-COUPLED SPIRAL-RING RESONATOR FOR DUAL-MODE LOCKING TEMPERATURE STABILIZATION	1455
<i>Qiancheng Zhao, Mark W. Harrington, Andrei Isichenko, Debapam Bose, Jiawei Wang, Kaikai Liu, Ryan O. Behunin, Peter T. Rakich, Chad W. Hoyt, Chad Fertig, Daniel J. Blumenthal</i>	

EXTERNAL MODULATOR-BASED AUTOMATIC TUNING OF RECONFIGURABLE SILICON PHOTONIC 4 TH -ORDER APF-BASED POLE/ZERO FILTERS	1458
<i>Ramy Rady, Gihoon Choo, Christi Madsen, Samuel Palermo, Kamran Entesari</i>	

ACTIVE COMPENSATION OF NONLINEAR EFFECTS IN SILICON PHOTONIC MICRORING FILTERS	1461
<i>Matteo Petrini, Maziya Milanizadeh, Francesco Morichetti, Andrea Melloni</i>	

LONG-HAUL AND MULTIBAND SYSTEMS

OPTICAL AMPLIFIERS FOR WIDEBAND OPTICAL TRANSMISSION SYSTEMS.....	1464
<i>Lutz Rapp, Michael Eiselt</i>	

S, C AND EXTENDED L-BAND TRANSMISSION WITH DOPED FIBER AND DISTRIBUTED RAMAN AMPLIFICATION	1467
<i>Benjamin J. Puttnam, Ruben S. Luís, Georg Rademacher, Manuel Mendez-Astudilio, Yoshinari Awaji, Hideaki Furukawa</i>	

SINGLE- VS. MULTI-BAND OPTIMIZED POWER CONTROL IN C+L WDM 400G LINE SYSTEMS.....	1470
<i>Emanuele Virgillito, Elliot London, Andrea D'Amico, Bruno Correia, Antonio Napoli, Vittorio Curri</i>	

TECHNO-ECONOMIC ANALYSIS OF MULTICORE FIBERS IN SUBMARINE SYSTEMS.....	1473
<i>John D. Downie, Xiaojun Liang, Sergejs Makovejs</i>	

9 TB/S TRANSMISSION USING 29 MW OPTICAL PUMP POWER PER EDFA WITH 1.24 TB/S/W POWER EFFICIENCY OVER 15,050 KM.....	1476
<i>J.-X. Cai, M. V. Mazurczyk, G. Vedala, Y. Hu, O. Sinkin, M. A. Bolshtyansky, D. G. Foursa, A. N. Pilipetskii</i>	

ADVANCED DIRECT DETECTION TECHNIQUES

ORTHOGONAL CIRCULANT MULTIPLEXING BASED ON THE CHIRP-LIKE POLYPHASE SEQUENCE IN SHORT-REACH IM/DD SYSTEMS.....	1479
<i>Zhaoquan Fan, Jian Zhao</i>	
GENERALIZED CARRIER ASSISTED DIFFERENTIAL DETECTION WITH SIMPLIFIED RECEIVER STRUCTURE	1482
<i>Honglin Ji, Chuanbowen Sun, Ranjith Rajasekharan Unnithan, William Shieh</i>	
SPACE-TIME DIVERSITY PHASE RETRIEVAL RECEIVER.....	1485
<i>Haoshuo Chen, Nicolas K. Fontaine, René-Jean Essiambre, Hanzhi Huang, Mikael Mazur, Roland Ryf, David T. Neilson</i>	
KRAMERS-KRONIG RECEIVER COMBINED WITH DIGITAL RESOLUTION ENHANCER	1488
<i>Menno Van Den Hout, Sjoerd Van Der Heide, Chigo Okonkwo</i>	
ADVANCED DIRECT DETECTION SCHEMES.....	1491
<i>William Shieh, Honglin Ji</i>	

DCI SWITCHING/INTERCONNECT SUBSYSTEMS

CLOCK-SYNCHRONIZED CLOCK AND DATA RECOVERY TO ENABLE SUB-NANOSECOND OPTICALLY-SWITCHED NETWORKS.....	1522
<i>Zhixin Liu, Kari A. Clark</i>	
CLOCK SYNCHRONIZED TRANSMISSION OF 51.2 GBD OPTICAL PACKETS FOR OPTICALLY SWITCHED DATA CENTER INTERCONNECTS	1525
<i>Zichuan Zhou, Kari Clark, Callum Deakin, Petros Laccotripes, Zhixin Liu</i>	
EXPERIMENTAL EVALUATION OF OPTICAL CROSS-CONNECTS WITH FLEXIBLE WAVEBAND ROUTING FUNCTION FOR SDM NETWORKS	1528
<i>Takuma Kuno, Yojiro Mori, Suresh Subramaniam, Masahiko Jinno, Hiroshi Hasegawa</i>	
ADD-DROP LOSSLESS SWITCH NODE IN MULTI-HOP MULTI-TB/S METROPOLITAN AREA NETWORKS	1531
<i>Mariangela Rapisarda, Alberto Gatto, Paola Parolari, Netsanet Tessema, Nicola Calabretta, Christian Neumeyr, Pierpaolo Boffi</i>	
SINGLE-PHOTODIODE 100 GBAUD PAM-6 TRANSMISSION WITH EXTENDED TRANSMITTER BANDWIDTH USING OPTICAL TIME AND POLARIZATION INTERLEAVING	1534
<i>Yan Fu, Xiaoling Zhang, Deming Kong, Longsheng Li, Shi Jia, Weisheng Hu, Hao Hu</i>	
100 GBIT/S PAM-16 TRANSMISSION IN THE 2- μ M BAND OVER A 1.15-KM HOLLOW-CORE FIBER.....	1537
<i>Deming Kong, Zhengqi Ren, Yongmin Jung, Yong Chen, Natalie Wheeler, Michael Galili, Leif K Oxenløwe, David J Richardson, Hao Hu</i>	

SCALABLE 1×N SWITCH VIA ON-CHIP TUNABLE METASURFACE	1540
<i>Yingjie Liu, Xi Wang, Yong Yao, Jiangbing Du, Qinghai Song, Ke Xu</i>	

FIBER AND QUANTUM SENSING SYSTEMS

WIRELESS BODY-AREA NETWORKS IN MEDICAL APPLICATIONS USING OPTICAL SIGNAL TRANSMISSION	1543
<i>Oussama Haddad, Mohammad Ali Khalighi, Anatolij Zubow</i>	

ARTIFICIAL NEURAL NETWORKS FOR DISTRIBUTED OPTICAL FIBER SENSING (INVITED)	1546
<i>Sascha Liehr</i>	

FIELD DEMONSTRATION OF DISTRIBUTED QUANTUM SENSING WITHOUT POST-SELECTION	1550
<i>Si-Ran Zhao, Yu-Zhe Zhang, Wen-Zhao Liu, Jian-Yu Guan, Weijun Zhang, Cheng-Long Li, Bing Bai, Ming-Han Li, Yang Liu, Lixing You, Jun Zhang, Jingyun Fan, Feihu Xu, Qiang Zhang, Jian-Wei Pan</i>	

EXPERIMENTAL COEXISTENCE INVESTIGATION OF DISTRIBUTED ACOUSTIC SENSING AND COHERENT COMMUNICATION SYSTEMS	1553
<i>Zhensheng Jia, L. Alberto Campos, Mu Xu, Haipeng Zhang, Miguel Gonzalez-Herraez, Hugo F. Martins, Zhongwen Zhan</i>	

OPTICAL FIELD TRIALS

(INVITED) GOOGLE FIBER DEPLOYMENTS: LESSONS LEARNED AND FUTURE DIRECTIONS	1556
<i>Cedric. F. Lam</i>	

FIELD TRIAL OF ABNORMAL ACTIVITY DETECTION AND THREAT LEVEL ASSESSMENT WITH FIBER OPTIC SENSING FOR TELECOM INFRASTRUCTURE PROTECTION	1559
<i>Tiejun J. Xia, Glenn A. Wellbrock, Ming-Fang Huang, Shaobo Han, Yuheng Chen, Milad Salemi, Philip N. Ji, Ting Wang, Yoshiaki Aono</i>	

QUANTUM KEY SECURED COMMUNICATIONS FIELD TRIAL FOR INDUSTRY 4.0.....	1562
<i>R. I. Woodward, J. F. Dynes, P. Wright, C. White, R. C. Parker, A. Wonfor, Z. L. Yuan, A. Lord, A. J. Shields</i>	

BLACK-BOX ASSESSMENT OF OPTICAL SPECTRUM SERVICES	1565
<i>Kaida Kaeval, Jörg-Peter Elbers, Klaus Grobe, Marko Tikas, Tobias Fehenberger, Helmut Grießer, Gert Jervan</i>	

OPTICAL INTERCONNECTS AND NETWORKING

OPTICAL NETWORKS FOR MEMORY-DRIVEN COMPUTING.....	1568
<i>Terry Morris</i>	

A NON-VOLATILE OPTICAL MEMORY IN SILICON PHOTONICS.....	1571
<i>Jacqueline Geler-Kremer, Felix Eltes, Pascal Stark, Ankita Sharma, Daniele Caimi, Bert Jan Offrein, Jean Fompeyrine, Stefan Abel</i>	

EXPERIMENTAL DEMONSTRATION OF XOR SEPARATION BY ON-CHIP TRAINING A LINEAR SILICON PHOTONIC CIRCUIT.....	1574
<i>Guangwei Cong, Noritsugu Yamamoto, Takashi Inoue, Yuriko Maegami, Morifumi Ohno, Shota Kita, Shu Namiki, Koji Yamada</i>	

OPTICAL INTERCONNECTS FOR LARGE SCALE COMPUTING: HOW DO WE GET BEYOND THE COST & POWER WALL?	1577
<i>M. A. Taubenblatt</i>	

MACHINE LEARNING FOR FAILURE MANAGEMENT AND PERFORMANCE ESTIMATION / PREDICTION

MACHINE LEARNING FOR FAILURE MANAGEMENT IN OPTICAL NETWORKS.....	1580
<i>Francesco Musumeci</i>	

GAN BASED SOFT FAILURE DETECTION AND IDENTIFICATION FOR LONG-HAUL COHERENT TRANSMISSION SYSTEMS	1608
<i>Huazhi Lun, Xiaomin Liu, Meng Cai, Yiwen Wu, Mengfan Fu, Lilin Yi, Weisheng Hu, Qunbi Zhuge</i>	

DEEP CONVOLUTIONAL NEURAL NETWORK FOR NETWORK-WIDE QOT ESTIMATION.....	1611
<i>Pooyan Safari, Behnam Shariati, Geronimo Bergk, Johannes Karl Fischer</i>	

LEVERAGING ML-BASED QOT TOOL PARAMETER FEEDING FOR ACCURATE WDM NETWORK PERFORMANCE PREDICTION.....	1614
<i>Nathalie Morette, Ivan Fernandez De Jauregui Ruiz, Yvan Pointurier</i>	

FORECASTING LIGHTPATH QOT WITH DEEP NEURAL NETWORKS.....	1617
<i>Hussein Chouman, Petar Djukic, Christine Tremblay, Christian Desrosiers</i>	

SILICON PHOTONICS AND RESONANT MODULATORS

HIGH TEMPERATURE PERFORMANCE OF HETEROGENEOUS MOSCAP MICRORING MODULATORS	1620
<i>Sudharsanan Srinivasan, Di Liang, Raymond G Beausoleil</i>	

NEUROMORPHIC PHOTONIC NETWORKS	1623
<i>Bhavin J. Shastri, Simon Bilodeau, Bicky A. Marquez, Alexander N. Tait, Thomas Ferreira De Lima, Chaoran Huang, Lukas Chrostowski, Sudip Shekhar, Paul R. Prucnal</i>	

MOSCAP RING MODULATOR WITH 1.5 μM RADIUS, 8.5 THZ FSR AND 30 GHZ/V SHIFT EFFICIENCY IN A 45 NM SOI CMOS PROCESS.....	1625
<i>Hayk Gevorgyan, Anatol Khilo, Mark T. Wade, Vladimir M. Stojanovic, Miloš A. Popovic</i>	

MULTI-MODE FIBERS

LEARNING TO SEE AND COMPUTE THROUGH MULTIMODE FIBERS.....	1628
<i>Babak Rahmani, Ugur Tegin, Mustafa Yildirim, Ilker Oguz, Damien Loterie, Eirini Kakkava, Navid Borhani, Demetri Psaltis, Christophe Moser</i>	

PERFORMANCE OF SINGLE-MODE TRANSMISSION OVER MULTIMODE FIBER: OFFSET LAUNCH V.S. FUNDAMENTAL MODE LAUNCH	1631
<i>Bulent Kose, Jose M. Castro, Rick Pimpinella, Paul Huang, Brett Lane</i>	

MEASUREMENT OF PROPAGATION CONSTANTS OF GRADED INDEX MULTI-MODE FIBER USING RAYLEIGH BACKSCATTERED LIGHT	1634
<i>Lauren Dallachiesa, Riccardo Veronese, Nicolas Fontaine, Mikael Mazur, Haoshuo Chen, Roland Ryf, Luca Palmieri, Marianne Bigot, Pierre Sillard</i>	

TRANSCEIVER CALIBRATION AND MODELLING

SIMULTANEOUSLY PRECISE CALIBRATION OF FREQUENCY RESPONSE AND IQ SKEW FOR 100GBAUD OPTICAL TRANSCEIVER.....	1637
<i>Di Li, Zexin Chen, Li Zhang, Pin Yi, Jingchuan Wang, Haiping Song, Mengfan Cheng, Songnian Fu, Ming Tang, Yuwen Qin, Deming Liu, Lei Deng</i>	

SIMULTANEOUS MONITORING OF FREQUENCY-DEPENDENT IQ IMBALANCES IN A DUAL-POLARIZATION IQ MODULATOR BY USING A SINGLE PHOTODETECTOR: A PHASE RETRIEVAL APPROACH	1640
<i>Yuki Yoshida, Setsuo Yoshida, Shoichiro Oda, Takeshi Hoshida, Naokatsu Yamamoto</i>	

DIRECT-DETECTION BASED FREQUENCY-RESOLVED I/Q IMBALANCE CALIBRATION FOR COHERENT OPTICAL TRANSMITTERS	1643
<i>Xi Chen, Di Che</i>	

IN-FIELD CALIBRATION OF PHASE RESPONSE OF OPTICAL TRANSMITTER USING BUILT-IN MONITOR PHOTODIODE.....	1646
<i>Yangyang Fan, Zhenning Tao, Hisao Nakashima, Takeshi Hoshida</i>	

PERFORMANCE PREDICTION OF 100 GB/S PAM4 OPTICAL SYSTEMS USING A FREQUENCY DEPENDENT NONLINEAR MODEL	1649
<i>Christian Malouin, Siamak Amiralizadeh, Yann Malinge, Raghuram Narayan, Kadhair Al-Hemyari, Sanjeev Gupta, Syed S. Islam, Yiching Lin, Wenhua Lin, Jin Hong</i>	

GENERALIZED SOFT FAILURE IDENTIFICATION ENABLED BY DIGITAL RESIDUAL SPECTRUM AND AUTOENCODER.....	1652
<i>Kaixuan Sun, Zhenming Yu, Liang Shu, Zhiquan Wan, Kun Xu</i>	

OPTICAL-WIRELESS CONVERGED TRANSMISSION SYSTEMS

UNDERWATER AND WATER-AIR OPTICAL WIRELESS COMMUNICATION	1655
<i>Lian-Kuan Chen, Yingjie Shao, Yujie Di</i>	

ADAPTIVE LOADING FOR WATER-AIR SIMO OWC SYSTEM BASED ON THE TEMPORAL AND SPATIAL PROPERTIES OF WAVES	1658
<i>Yingjie Shao, Yujie Di, Lian-Kuan Chen</i>	

SINGLE-WAVELENGTH TERABIT FSO CHANNEL FOR DATACENTER INTERCONNECTS ENABLED BY ADAPTIVE PCS	1661
<i>Marco A. Fernandes, Paulo P. Monteiro, Fernando P. Guiomar</i>	

115-GBPS/ λ FIBER/FSO TRANSMISSION WITH SUPERVISED AND SEMI-SUPERVISED NONLINEARITY CORRECTION USING LASSO	1664
<i>Rui Zhang, Xizi Tang, Chin-Wei Hsu, You-Wei Chen, Qi Zhou, Shuyi Shen, Shuang Yao, Yahya Alfadhli, Shang-Jen Su, Gee-Kung Chang</i>	

LDPC CODED PAM-4/8 TRANSMISSION IN FIBER-FSO LINK USING UNIPOLAR PROBABILITY DISTRIBUTION AND PRE-DISTORTION.....	1667
<i>Rui Zhang, Chin-Wei Hsu, Xizi Tang, Qi Zhou, Gee-Kung Chang</i>	

DEMONSTRATION OF SPATIAL MULTIPLEXING BY DIGITAL BEAMFORMING IN 5G FIBER-WIRELESS INTEGRATED NETWORK.....	1670
<i>Shang-Jen Su, Chin-Wei Hsu, Shuyi Shen, Shuang Yao, Yahya Alfadhli, Rui Zhang, Qi Zhou, Gee-Kung Chang</i>	

COHERENT/FREE-SPACE OPTICS FOR DATA-CENTER APPLICATIONS

PHASE RETRIEVAL-BASED COHERENT RECEIVERS	1673
<i>Elaine S. Chou, Hrishikesh Srinivas, Joseph M. Kahn</i>	

SILICON PHOTONICS COHERENT OPTICAL SUBASSEMBLY FOR HIGH-DATA-RATE SIGNAL TRANSMISSIONS.....	1676
<i>Shogo Yamanaka, Yusuke Nasu</i>	

VIRTUAL CARRIER ASSISTED SELF-COHERENT DETECTION EMPLOYING DC-VALUE METHOD.....	1679
<i>Romil K. Patel, Fernando P. Guiomar, Marco A. Fernandes, Isiaka A. Alimi, Paulo P. Monteiro, Nelson J. Muga, Armando N. Pinto</i>	

DEMONSTRATION OF SINGLE-LANE 350-GB/S PS-PAM-16 IN THE C-BAND USING SINGLE-DAC FOR DATA CENTER INTERCONNECTS	1682
<i>Jiao Zhang, Min Zhu, Kaihui Wang, Bingchang Hua, Yuancheng Cai, Mingzheng Lei, Yucong Zou, Aijie Li, Weiliang Xu, Jikuan Wang, Xiang Liu, Qingyi Zhou, Jianjun Yu</i>	

SILICON PHOTONICS FOR DATA CENTER NETWORKS

ACCELERATING PARALLEL SORT ON TIGHTLY-COUPLED FPGAS ENABLED BY ONBOARD SI-PHOTONICS TRANSCEIVERS.....	1685
<i>Kenji Mizutani, Hiroshi Yamaguchi, Yutaka Urino, Michihiro Koibuchi</i>	

ENERGY-EFFICIENT AND SCALABLE DATA CENTERS WITH FLEXIBLE BANDWIDTH SIPH ALL-TO-ALL FABRICS	1688
<i>Roberto Proietti, Zhiyan Liu, Xian Xiao, Xiaoliang Chen, S. J. Ben Yoo</i>	

SILICON PHOTONIC SWITCH-ENABLED SERVER REGROUPING USING BANDWIDTH STEERING FOR DISTRIBUTED DEEP LEARNING TRAINING.....	1691
<i>Ziyi Zhu, Shijia Yan, Madeleine Strom Glick, Min Yee Teh, Keren Bergman</i>	

EVOLUTION OF COHERENT PON TECHNOLOGY

ENABLING TECHNOLOGIES FOR COMPREHENSIVE OPTICAL MOBILE FRONTHAUL ACCESS NETWORK.....	1694
<i>Weisheng Hu, Yixiao Zhu, Longsheng Li, Kuo Zhang, Haiyun Xin, Yan Fu, Xin Miao</i>	

LOW-COMPLEXITY PHASE-AND-POLARIZATION-DIVERSITY COHERENT RECEIVER WITH HIGH SPECTRAL EFFICIENCY FOR UDWDM	1697
<i>Jeison Tabares, Josep Prat</i>	

WAVELENGTH COLLISION-FREE AND LOW-LOSS FULL-DUPLEX TRANSMISSION OVER SWITCHABLE FULL-COUPLING OR HALF-SPLIT COHERENT WDM-PON SYSTEM WITH SHARED PROTECTION	1700
<i>Takahiro Kodama, Tetsuji Goto, Ryosuke Matsumoto</i>	

ADAPTIVE MODULATION AND CODING SCHEME IN COHERENT PON FOR ENHANCED CAPACITY AND RURAL COVERAGE..... 1703
Mu Xu, Haipeng Zhang, Zhensheng Jia, Luis Alberto Campos

SIMPLIFIED DIGITAL COHERENT TECHNOLOGIES FOR BEYOND 100G OPTICAL ACCESS SYSTEMS IN THE B5G/6G ERA..... 1706
Naoki Suzuki, Hiroshi Miura, Keita Mochizuki, Keisuke Matsuda

VISIBLE LIGHT COMMUNICATION

3.129-GBIT/S OFDM VISIBLE LIGHT COMMUNICATION USING SEMIPOLAR GREEN μ -LIGHT EMITTING DIODE (μ -LED) ARRAY..... 1709
Yun-Han Chang, Guan-Hao Chang, Fang-Jyun Liou, Ching-Wei Peng, Wahyu Hendra Gunawan, Chi-Wai Chow, Hao-Chung Kuo, Yang Liu, Chien-Hung Yeh

DOUBLING THE SPECTRAL EFFICIENCY WITH EVM AS THE OBJECTIVE FUNCTION FOR TRAINING NEURAL NETWORKS IN NON-ORTHOGONAL VISIBLE LIGHT COMMUNICATIONS SYSTEMS 1712
Scott Stainton, Paul Anthony Haigh

EMBEDDED ORTHOGONAL-FREQUENCY-DIVISION-MULTIPLEXING (OFDM) TO COLOR-SHIFT-KEYING (CSK) MODULATION FOR LASER-DIODE BASED VISIBLE LIGHT COMMUNICATION (VLC)..... 1715
Wahyu Hendra Gunawan, Chi-Wai Chow, Yang Liu, Chien-Hung Yeh

Z-SCORE AVERAGING NEURAL NETWORK AND BACKGROUND CONTENT REMOVAL FOR HIGH PERFORMANCE ROLLING SHUTTER BASED OPTICAL CAMERA COMMUNICATION (OCC) 1718
Yun-Shen Lin, Yang Liu, Chi-Wai Chow, Yun-Han Chang, Dong-Chang Lin, Shao-Hua Song, Ke-Ling Hsu, Chien-Hung Yeh

99.999% TRANSMISSION RELIABILITY BASED ON MAC LAYER FEEDBACK-REPEAT SCHEME FOR LIFI NETWORKING WITH B5G/6G..... 1721
Qiguan Chen, Min Zhang, Dahai Han, Zhiguo Zhang, Weishu Xu

VLC USING A RED SMD LED AS 2.48 GB/S MULTI-CARRIER RECEIVER AND WIDE FIELD-OF-VIEW 25 MB/S OOK TRANSMITTER..... 1724
Dinka Milovancev, Nemanja Vokic, Bernhard Schrenk

BENEFITS OF MIMO MODE SWITCHING, ANGULAR DIVERSITY AND MULTIUSER MULTIPLEXING FOR LIFI 1727
S. M. Kouhini, P. Hellwig, D. Schulz, R. Freund, V. Jungnickel

OPTIMIZATIONS OF PROBABILISTIC CONSTELLATION SHAPING SUPERPOSITION SCHEMES FOR THE MISO VISIBLE LIGHT COMMUNICATION SYSTEM..... 1730
Peng Zou, Junwen Zhang, Guoqiang Li, Fangchen Hu, Nan Chi

NONLINEAR AND OPTOMECHANICAL SUBSYSTEMS

WHOLE BAND WAVELENGTH CONVERSION FOR WIDEBAND TRANSMISSION 1733
Tomoyuki Kato, Shigeki Watanabe, Tomohiro Yamauchi, Goji Nakagawa, Hidenobu Muranaka, Yu Tanaka, Yuichi Akiyama, Takeshi Hoshida

EFFECTIVE LINEWIDTH REDUCTION IN SELF-HOMODYNE COHERENT RECEPTION ENABLED BY STIMULATED BRILLOUIN SCATTERING	1736
<i>Cai Li, Moritz Merklein, Yang Liu, Amol Choudhary, Benjamin J. Eggleton, Bill Corcoran</i>	
CARRIER ENHANCEMENT FOR MULTICHANNEL KRAMERS–KRONIG DETECTION VIA SELF-SEEDED BRILLOUIN AMPLIFICATION.....	1739
<i>Honghui Zhang, Qiulin Zhang, Chester Shu</i>	
REDUCED IMPACT OF FREQUENCY DITHERING ON THE PERFORMANCE OF HIGH- ORDER MODULATION FORMAT PHASE CONJUGATION	1742
<i>A. A. I. Ali, T. T. Nguyen, S. Boscolo, S. Takasaka, R. Sugizaki, A. D. Ellis</i>	
CAPTURING NONLINEAR SIGNAL DISTORTIONS BY THE SPECTRAL CORRELATION METHOD.....	1745
<i>Lutz Rapp, Florian Azendorf, Wolfgang Mönch</i>	
OPTO-MECHANICAL INTER-CORE CROSSTALK IN MULTI-CORE FIBERS	1748
<i>Hilel Hagai Diamandi, Avi Zadok</i>	

OPEN DISAGGREGATED OPTICAL NETWORKS

MATHEMATICAL MODEL OF OPTICAL FUNCTIONAL BLOCKS FOR AUTOMATING FULLY DISAGGREGATED OPTICAL NETWORKS.....	1751
<i>Kiyo Ishii, Shu Namiki</i>	
BLADE ABSTRACTION INTERFACE FOR DIVERSE BLADE INTEGRATION AND UNIFIED CONTROL OF DISAGGREGATE/LEGACY ROADMS	1754
<i>Sugang Xu, Kiyo Ishii, Noboru Yoshikane, Takehiro Tsuritani, Yoshinari Awaji, Shu Namiki</i>	
TESTING TIP OPEN SOURCE SOLUTIONS IN DEPLOYED OPTICAL NETWORKS	1757
<i>Emanuele Virgillito, Ralf-Peter Braun, Dirk Breuer, Andreas Gladisch, Vittorio Curri, Gert Grammel</i>	
HOW IBN CAN BE EMBEDDED WITHIN OPTICAL TRANSPORT NETWORKS.....	1760
<i>Luis Velasco</i>	

OPTICAL ACCESS TECHNOLOGY IN SUPPORT OF MOBILE SITE CONNECTIVITY

DIGITAL ORTHOGONAL FILTERING-ENABLED SYNCHRONOUS TRANSMISSIONS OF I/Q WAVEFORMS AND CONTROL WORDS FOR BANDWIDTH-EFFICIENT AND LOW- COMPLEXITY MOBILE FRONTHAUL.....	1787
<i>M. L. Deng, T. Mamadou, Z. B. Xing, X. Kang, Z. R. Luo, J. W. Shi, L. Wang</i>	
NOVEL SCALABLE AND RECONFIGURABLE OPTICAL FRONTHAUL NETWORK FOR CONVERGED RADIO FREQUENCY AND DATA SERVICES USING SILICON PHOTONIC SWITCHING.....	1790
<i>Junfei Xia, Tongyun Li, Qixiang Cheng, Shuai Yang, Keren Bergman, Richard Penty</i>	
DEMONSTRATION OF AI-ASSISTED INTENT-BASED TRAFFIC GROOMING IN 5G OPTICAL ACCESS NETWORK	1793
<i>Luyao Guan, Min Zhang, Danshi Wang, Chunyu Zhang</i>	

ADVANCES OF COHERENT TECHNOLOGIES

- COHERENT OPTICAL COMMUNICATIONS USING COHERENCE-CLONED KERR SOLITON MICROCOMBS AS CARRIERS AND LOCAL OSCILLATORS..... 1796
Yong Geng, Xinjie Han, Guangwei Deng, Qiang Zhou, Kun Qiu, Heng Zhou
- TRANSMITTER-RECEIVER OPTICAL SUB ASSEMBLY USING ULTRA-COMPACT TUNABLE DBR/RING LASER..... 1799
Kazuya Nagashima, Yozo Ishikawa, Atsushi Izawa, Masayoshi Nishita, Noritaka Matsubara, Hiroyuki Ishii, Thanakit Saeyang, Yoshihiro Ogiso, Yuta Ueda, Masaki Kohtoku
- HIGH-PERFORMANCE 100 GBAUD COHERENT PHOTONIC MODULES..... 1802
M. Ziari, V. Lal, P. Studenkov, H. Hodaie, T. Frost, C. Tsai, K. Hoshino, B. Behnia, R. Going, S. Wolf, S. Porto, M. Kuntz, T. Vallaitis, E. Sooudi, J. Lavrencik, R. Salvatore, N. Modi, P. Abolghasem, M. Fisher, S. Murthy, S. Buggaveeti, R. Brigham, D. Pavinski, J. Zhang, J. Zhang, S. Corzine, P. Evans, V. Dominic, R. Maher, P. Mertz, S. Sanders, H. Sun, J. Osenbach, P. Kandappan
- SELF-COHERENT SINGLE-SIDEBAND SIGNAL GENERATION BY INJECTION LOCKING OF A 2-SECTION LASER DIODE..... 1805
Rongqing Hui, Mustafa Al-Qadi, Charles Laperle, Doug Charlton, Maurice O'Sullivan
- BROADBAND DYNAMIC INJECTION-LOCKING PERFORMANCE OF FABRY-PEROT LD AND ITS APPLICATION TO COHERENT HOMODYNE RECEIVER 1808
Takashi Kan, Keisuke Kasai, Masato Yoshida, Toshihiko Hirooka, Masataka Nakazawa

METAMATERIAL AND MULTIMODE DEVICES FOR OPTICAL COMMUNICATIONS

- ULTRA-COMPACT SILICON MODE CONVERTER BASED ON A ZIGZAG-TYPE METASURFACE STRUCTURE..... 1811
Hongwei Wang, Yu He, Lu Sun, Yong Zhang, Yikai Su
- FOUR-MODE WAVEGUIDE CROSSING VIA DIGITIZED META-STRUCTURE..... 1814
Yingjie Liu, Zhongqiu Zhong, Shuai Wang, Yilin Liu, Yong Yao, Jiangbing Du, Qinghai Song, Ke Xu
- EXPERIMENTAL DEMONSTRATION OF BROADBAND SILICON 4-MODE (DE)MULTIPLEXER DESIGNED BY WAVEFRONT-MATCHING METHOD 1817
Yusuke Sawada, Takeshi Fujisawa, Takanori Sato, Kunimasa Saitoh
- SILICON NITRIDE BAND SPLITTER BASED ON MULTIMODE BRAGG GRATINGS 1820
Jonathan Cauchon, Jonathan St-Yves, Francois Menard, Wei Shi
- SUBWAVELENGTH GRATING METAMATERIAL STRUCTURES FOR INTEGRATED PHOTONICS..... 1823
R. Halir, A. Sánchez-Postigo, J. M. Luque-González, A. Hadij-Elhouati, D. Pereira-Martín, J. Leuermann, P. Ginel-Moreno, C. Pérez-Armenta, A. Torres-Cubillo, A. Herrero-Bermello, A. Dias-Ponte, D. González-Andrade, A. V. Velasco, J. G. Wangüemert-Pérez, A. Ortega-Moñux, J. De-Oliva-Rubio, P. Cheben, J. H. Schmid, J. Ctyroký, M. Nedeljkovic, G. Z. Mashanovich, Í. Molina-Fernández

PHOTODETECTORS

- MONOLITHIC INTEGRATION OF III-V/SI HYBRID MOS OPTICAL PHASE SHIFTER AND INGAAS MEMBRANE PHOTODETECTOR..... 1826
Shuhei Ohno, Stéphane Monfray, Frederic Boeuf, Kasidit Toprasertpong, Shinichi Takagi, Mitsuru Takenaka
- BUTT-COUPLED III-V PHOTODETECTOR MONOLITHICALLY INTEGRATED ON SOI WITH DATA RECEPTION AT 50 GBPS OOK..... 1829
Preksha Tiwari, Pengyan Wen, Svenja Mauthe, Michael Baumann, Bertold Ian Bitachon, Heinz Schmid, Juerg Leuthold, Kirsten E. Moselund
- RECESS-TYPE WAVEGUIDE INTEGRATED GERMANIUM ON SILICON AVALANCHE PHOTODIODE 1832
Mengyuan Huang, Kelly Magruder, Yann Malinge, Parastou Fakhimi, Hao-Hsiang Liao, David Kohen, Gregory Lovell, Wei Qian, Kiyoung Lee, Carsten Brandt, Mahtab Hakami, Yen-Jung Chen, Erin Carabajal, Erle Guillermo, Seth Slavin, Ansheng Liu
- HIGH SPEED AND LOW DARK CURRENT INGAAS PHOTODIODES ON CMOS-COMPATIBLE SILICON BY HETEROEPITAXY 1835
Bowen Song, Bei Shi, Si Zhu, Simone Šuran Brunelli, Jonathan Klamkin
- HIGH-SPEED AND HIGH SATURATION POWER AVALANCHE PHOTODIODE FOR COHERENT COMMUNICATION 1838
Nassem Nassem, Sean Yang, Sheng-Yun Wang, Hsiang-Szu Chang, H.-S. Chen, Jack Jia-Sheng Huang, Emin Chou, Yu-Heng Jan, Jin-Wei Shi
- INP-BASED PIC INTEGRATED WITH BUTT-JOINT COUPLED WAVEGUIDE P-I-N PDS FOR 100GBAUD COHERENT NETWORKS..... 1841
Takuya Okimoto, Hideki Yagi, Koji Ebihara, Kouichiro Yamazaki, Satoru Okamoto, Yusuke Ohkura, Kazuhiko Horino, Ken Ashizawa, Mitsuru Ekawa, Yoshihiro Yoneda
- DUAL M-LAYERS AVALANCHE PHOTODIODES WITH EXTREMELY WIDE DYNAMIC RANGES AND ULTRA-HIGH BANDWIDTH-RESPONSIVITY PRODUCT PERFORMANCES IN FMCW LIDAR SYSTEMS..... 1844
Zohauddin Ahmad, Yan-Min Liao, Sheng-I Kuo, You-Chia Chang, Rui-Lin Chao, Naseem Naseem, Yi-Shan Lee, Jin-Wei Shi

HIGH-SPEED DIRECT DETECTION DEMONSTRATIONS

- 120 GSA/S BICMOS ANALOG MULTIPLEXER ENABLING 360 GBIT/S DSCM-PCS-256QAM IM/DD TRANSMISSION..... 1847
Qian Hu, Karsten Schuh, Michael Collisi, Vahid Aref, Horst Hettrich, Rolf Schmid, Fred Buchali, Michael Möller
- 147-GB/S TRANSMISSION OF OPTICAL SINGLE SIDEBAND DMT SIGNAL GENERATED BY DUAL MODULATION OF DML AND EAM..... 1850
Tianwai Bo, Hoon Kim
- ADVANCED NONLINEAR DIGITAL SIGNAL PROCESSING FOR SHORT-REACH APPLICATIONS..... 1853
Xiang Li, Md. Saifuddin Faruk, Seb J. Savory

320GB/S NYQUIST-SHAPED TWIN SSB 16-QAM SIGNAL TRANSMISSION OVER 80KM
SSMF WITH A SILICON IQ MODULATOR 1856
Fan Yang, Lei Zhang, Xinyu Chen, Xiansong Fang, Chenjia Li, Fan Zhang

465 GBPS SINGLE SIDE BAND DIRECT DETECTION TRANSMISSION OVER 40 KM OF
SSMF USING A SINGLE-ENDED PHOTODIODE 1859
Son Thai Le, Karsten Schuh

EXPERIMENTAL COMPARISON OF UNIFORM AND PROBABILISTICALLY SHAPED
PAM-8 FOR IMDD SYSTEM AT TRANSMISSION RATES BEYOND 200 GBIT/S 1862
*Md Sabbir-Bin Hossain, Talha Rahman, Georg Böcherer, Nebojša Stojanovic, Tom Wettlin,
Stefano Calabrò, Jinlong Wei, Changsong Xie, Stephan Pachnicke*

QUANTUM AND NOVEL SUBSYSTEMS

MICRORESONATOR BRILLOUIN LASER GYROSCOPE WITH EARTH-ROTATION-RATE
SENSITIVITY 1865
Myoung-Gyun Suh, Yu-Hung Lai, Kerry J. Vahala

SIMPLIFYING MEASUREMENT-DEVICE-INDEPENDENT QUANTUM KEY
DISTRIBUTION WITH DIRECTLY MODULATED LASER SOURCES 1868
*R. I. Woodward, Y. S. Lo, M. Pittaluga, M. Minder, T. K. Paraiso, M. Lucamarini, Z. L. Yuan,
A. J. Shields*

NOVEL LINK ARCHITECTURE MINIMIZING THERMAL ENERGY DISSIPATION FOR
CRYOGENIC OPTICAL INTERCONNECTS 1871
*Steven B. Estrella, Thomas P. Dorch, Trevor M. Cooper, Aaron Maharry, Takako Hirokawa,
Daniel S. Renner, Clint L. Schow*

SYNCHRONIZATION OF ELECTRO-OPTICALLY MODULATED KERR SOLITON COMB
TO A CHIP-SCALE MODE-LOCKED LASER PIC VIA HARMONIC INJECTION LOCKING 1874
*C. Shirpurkar, R. Bustos-Ramirez, L. Trask, S. Pericherla, T. C. Briles, J. R. Stone, S. P. Yu,
A. Bhardwaj, G. E. Hoefler, S. B. Papp, P. J. Delfyett*

ALL-OPTICAL BI-DIRECTIONAL POLARIZATION DEMULTIPLEXING FOR SELF-
HOMODYNE COHERENT DETECTION 1877
*Yizhao Chen, Xuefeng Wang, Yifan Zeng, Junda Chen, Weihao Li, Yao Zhang, Mingming
Zhang, Can Zhao, Deming Liu, Ming Tang*

OPTICAL ARBITRARY WAVEFORM MEASUREMENT (OAWM) ON THE SILICON
PHOTONIC PLATFORM 1880
*Dengyang Fang, Andrea Zazzi, Juliana Müller, Daniel Drayß, Christoph Füllner, Pablo
Marin-Palomo, Ali Tabatabaei Mashayekh, Arka Dipta Das, Maxim Weizel, Sergiy Gudyriev,
Wolfgang Freude, Sebastian Randel, Christoph Scheytt, Jeremy Witzens, Christian Koos*

SIMULTANEOUS GENERATION OF 16×10 GB/S WDM CHANNELS USING A SINGLE A-SI
WAVEGUIDE BASED TIME LENS SOURCE 1883
*Xiaoyu Xu, Peter Girouard, Mads Lillieholm, Lars Emil Gutt, Lars H. Frandsen, Leif K.
Oxenløwe, Pengyu Guan*

CO-PACKAGED OPTICS AND DISAGGREGATED DATA-CENTER ARCHITECTURES

SILICON PHOTONIC BASED STACKED DIE ASSEMBLY FOR 4×200-GBIT/S SHORT-
REACH TRANSMISSION 1886
Ying Zhao, Li Chen, Ricardo Aroca, Ninghui Zhu, Dinh Ton, David Inglis, Christopher Doerr

10GB/S INTRA-CHIP COMPACT ELECTRO-OPTICAL INTERCONNECT	1889
<i>Marco Eppenberger, Mattia Bonomi, David Moor, Marco Mueller, Bertold Ian Bitachon, Thomas Burger, Luca Alloatti</i>	
OPTICAL SWITCHING FOR MEMORY-DISAGGREGATED DATACENTERS.....	1892
<i>Nicola Calabretta, Xiaotao Guo, Georgios Exarchakos, Xuwei Xue, Bitao Pan</i>	
BI-DIRECTIONAL INTERLEAVED SUB-BAND AMPLIFICATION IN DWDM APPLICATION USING SINGLE UNIDIRECTIONAL EDFA AND 8×8 CYCLIC-AWG	1895
<i>Ziyu Cheng, Zidong Guo, Yixiao Zhu, Weisheng Hu</i>	

MACHINE LEARNING AND DATA ANALYTICS FOR AUTONOMOUS NETWORK OPERATION

RELIABLE AND ACCURATE AUTONOMOUS FLOW OPERATION BASED ON OFF-LINE TRAINED REINFORCEMENT LEARNING.....	1898
<i>Sima Barzegar, Marc Ruiz, Luis Velasco</i>	
NODE-ORIENTED TRAFFIC PREDICTION AND SCHEDULING BASED ON GRAPH CONVOLUTIONAL NETWORK IN METRO OPTICAL NETWORKS.....	1901
<i>Bowen Bao, Hui Yang, Yu Wan, Qiuyan Yao, Ao Yu, Jie Zhang, Bijoy Chand Chatterjee, Eiji Oki</i>	
A MACHINE LEARNING FRAMEWORK FOR SCALABLE ROUTING AND WAVELENGTH ASSIGNMENT IN LARGE OPTICAL NETWORKS	1904
<i>Davide Andreoletti, Cristina Rottondi, Andrea Bianco, Silvia Giordano</i>	
COMBINING LONG-SHORT TERM MEMORY AND REINFORCEMENT LEARNING FOR IMPROVED AUTONOMOUS NETWORK OPERATION.....	1907
<i>Fatemehsadat Tabatabaeimehr, Sima Barzegar, Marc Ruiz, Luis Velasco</i>	
REAL-TIME CONTROL PLANE OPERATIONS FOR GOSNR QOT ESTIMATION THROUGH OSNR MONITORING.....	1910
<i>Alan A. Díaz-Montiel, Ayush Bhardwaj, Bob Lantz, Jiakai Yu, Aamir N. Quraishy, Dan Kilper, Marco Ruffini</i>	
SELF-ADAPTIVE NETWORK MONITORING IN IP-OVER-EONS: WHEN MULTILAYER TELEMETRY IS FLEXIBLE AND DRIVEN BY DATA ANALYTICS	1913
<i>Shaofei Tang, Jianquan Peng, Siqi Liu, Jiawei Kong, Zuqing Zhu</i>	

HIGH CAPACITY PON, 100GB/S AND BEYOND

FIRST EXPERIMENTAL DEMONSTRATION OF FLEXIBLE RATE PON BEYOND 100GB/S WITH PROBABILISTIC AND GEOMETRIC SHAPING.....	1916
<i>Noriaki Kaneda, Rui Zhang, Yannick Lefevre, Amitkumar Mahadevan, Doutje Van Veen, Vincent Houtsma</i>	
SPECTRALLY EFFICIENT DOWNSTREAM 100 GB/S POLMUX MULTI-CAP OSSB TRANSMISSION AND COHERENT RECEPTION USING 10G ELECTRONICS FOR PASSIVE OPTICAL NETWORKS	1919
<i>M. Barrio, D. Izquierdo, J. Cerdá, S. Sarmiento, J. A. Altabás, J. A. Lázaro, I. Garcés</i>	
CARRIER-RECOVERY-FREE KK DETECTION FOR PDM-BIPOLAR-PAM IN 100 GB/S SIMPLIFIED COHERENT PON	1922
<i>Haiyun Xin, Xiaoling Zhang, Deming Kong, Shi Jia, Weisheng Hu, Hao Hu</i>	

INTER-BAND INTERFERENCE CANCELLATION BASED ON INDEPENDENT COMPONENT ANALYSIS FOR 200GB/S/ λ NON-ORTHOGONAL M-CAP NGFI-II DATA TRANSMISSION IN 5G FRONTHAUL	1925
<i>Yinaer Ha, Ming Luo, Zhixue He, Junwen Zhang, Fangchen Hu, Zhe Wang, Nan Chi</i>	

FREE-SPACE BEAM STEERING DEVICES

USE OF COMMERCIALY AVAILABLE FIBER OPTIC COMPONENTS IN EMERGING SPACE LASER COMMUNICATIONS APPLICATIONS: OPTIMIZING PERFORMANCE, COST, AND RELIABILITY	1928
<i>Neal W. Spellmeyer</i>	

LARGE-SCALE SILICON PHOTONICS FOCAL PLANE SWITCH ARRAY FOR OPTICAL BEAM STEERING	1931
<i>Xiaosheng Zhang, Kyungmok Kwon, Johannes Henriksson, Jianheng Luo, Ming C. Wu</i>	

8 \times 8 PROGRAMMABLE MULTI-BEAM PATTERN PROJECTION BASED ON MULTICAST SILICON PHOTONIC MEMS SWITCHES.....	1934
<i>Dong U. Kim, Myung S. Hong, Do Y. Kim, Young J. Park, Alain Y. Takabayashi, Youngjae Jeong, Jongwoo Park, Seungjun Han, Niels Quack, Kyoungsik Yu, Sangyoon Han</i>	

IMPACT OF APERTURE SIZE ON BEAM EVOLUTION OF OPTICAL PHASED ARRAYS	1937
<i>Weihan Xu, Chuxin Liu, Yuyao Guo, Xinhang Li, Liangjun Lu, Jianping Chen, Linjie Zhou</i>	

ORBITAL ANGULAR MOMENTUM MODE MULTIPLEXING AND DATA TRANSMISSION USING A SILICON PHOTONIC INTEGRATED MUX.....	1940
<i>Yaixin Liu, Lars Sogaard Rishøj, Yunhong Ding, Quentin Saudan, Leif Katsuo Oxenløwe, Toshio Morioka</i>	

LARGE-SCALE PROGRAMMABLE INTEGRATED PHOTONICS.....	1943
<i>Oded Raz, Ripalta Stabile, Jimmy Melskens, Francesco Pagliano, Chenhui Li, Christian C. M. Sproncken, Berta Gumí-Audenis, Emilija Lazdanaitė, Wilhelmus M. M. Kessels, Ilja K. Voets, Mahir Asif Mohammed</i>	

SILICON PHOTONICS AND EMERGING APPLICATIONS

PHOTONIC CRYSTAL MODULATOR IN A CMOS FOUNDRY PLATFORM.....	1946
<i>Kenaish Al Qubaisi, Deniz Onural, Hayk Gevorgyan, Miloš A. Popovic</i>	

OPTICAL MODULATOR BASED ON TRANSITION-METAL DICHALCOGENIDES (TMDS)	1949
<i>Michal Lipson</i>	

HOLLOW-CORE FIBERS

OPPORTUNITIES AND CHALLENGES FOR LONG-DISTANCE TRANSMISSION IN HOLLOW-CORE FIBRES	1953
<i>Pierluigi Poggiolini, Francesco Poletti</i>	

FIRST DEMONSTRATION OF 400ZR DWDM TRANSMISSION THROUGH FIELD DEPLOYABLE HOLLOW-CORE-FIBRE CABLE	1956
<i>Md Asif Iqbal, Paul Wright, Neil Parkin, Mike Fake, Marcelo Alonso, Seyed Reza Sandoghchi, Andrew Lord</i>	

LOW LATENCY TRANSMISSION OVER 400 M HOLLOW-CORE-FIBER CABLE AT 100G PAM-4 PER WAVELENGTH.....	1959
<i>Jose M. Castro, Bulent Kose, Rick Pimpinella, Paul Huang, Brett Lane, Gabe Puc, Tristan Kremp, Kyle Dube, Mohandtahar Irid, Brian J. Mangan</i>	
DESIGN RULES FOR MULTI-MODE ANTI-RESONANT HOLLOW-CORE FIBRES	1962
<i>William Shere, Gregory T. Jasion, Eric Numkam Fokoua, Francesco Poletti</i>	
LOW BENDING LOSS SINGLE-MODE HOLLOW-CORE ANTI-RESONANT FIBER WITH MULTI-SIZE TUBES	1965
<i>Shuai Gu, Xin Wang, Shibo Yan, Haoqiang Jia, Shuqin Lou, Pu Wang</i>	
HOLLOW-CORE FIBER CHARACTERIZATION WITH CORRELATION-OPTICAL TIME DOMAIN REFLECTOMETRY	1968
<i>Florian Azendorf, Bernhard Schmauss, Bo Shi, Eric Numkam Fokoua, Radan Slavík, Michael Eiselt</i>	

DSP FOR COHERENT TRANSCEIVERS

QUANTIFYING THE GAIN OF ENTROPY-LOADED DIGITAL MULTICARRIER FOR BEYOND 100 GBAUD TRANSMISSION SYSTEMS	1971
<i>Trung-Hien Nguyen, Abel Lorences-Riesgo, Sami Mumtaz, Yu Zhao, Iosif Demirtzioglou, Ivan Fernandez De Jauregui Ruiz, Marti Sales-Llopis, Yann Frignac, Gabriel Charlet, Stefanos Dris</i>	
AI-BASED COOPERATIVE OPTIMIZATION OF PRE- AND POST-COMPENSATION FILTERS FOR COHERENT TRANSCEIVERS WITH LIMITED BANDWIDTH AND ENOB	1974
<i>Marco A. Fernandes, Bruno T. Brandão, Adriano C. Messias, Tomaz De M. Vilela, Daniel A. Formiga, Jacklyn D. Reis, Paulo P. Monteiro, Fernando P. Guiomar</i>	
ADAPTIVE PATTERN-DEPENDENT EQUALIZATION FOR COHERENT OPTICAL FIBER COMMUNICATION SYSTEMS	1977
<i>Yi Cai, Hungchang Chien, Meng Xiang, Zihe Hu, Mingyi Gao</i>	
SQUEEZING OUT THE ACHIEVABLE INFORMATION RATE FROM COHERENT QAM SYSTEMS THROUGH AMPLITUDE MODULATION OF CPE-PILOTS.....	1980
<i>F. P. Guiomar, B. M. Oliveira, M. S. Neves, M. A. Fernandes, P. P. Monteiro</i>	
EVALUATION OF AN AUTONOMOUS DIGITAL PRE-DISTORTION SCHEME FOR OPTICAL MULTIBAND SYSTEMS	1983
<i>Matheus Sena, Robert Emmerich, Behnam Shariati, Johannes K. Fischer, Ronald Freund</i>	
END-TO-END AUTOENCODER FOR SUPERCHANNEL TRANSCEIVERS WITH HARDWARE IMPAIRMENT	1986
<i>Jinxiang Song, Christian Häger, Jochen Schröder, Alexandre Graell Amat, Henk Wymeersch</i>	
ENABLING S-C-L-BAND SYSTEMS WITH STANDARD C-BAND MODULATOR AND COHERENT RECEIVER USING NONLINEAR PREDISTORTION.....	1989
<i>Robert Emmerich, Matheus Sena, Robert Elschner, Carsten Schmidt-Langhorst, Isaac Sackey, Colja Schubert, Ronald Freund</i>	

QUANTUM COMMUNICATIONS

- DEMONSTRATION OF PROBABILISTIC CONSTELLATION SHAPING FOR CONTINUOUS VARIABLE QUANTUM KEY DISTRIBUTION..... 1992
François Roumestan, Amirhossein Ghazisaeidi, Jérémie Renaudier, Patrick Brindel, Eleni Diamanti, Philippe Grangier
- CV-QKD SYSTEM USING A COMMERCIAL COHERENT TRANSCEIVER MODULE 1995
Max Rückmann, Christian G. Schaeffer
- A RESOURCE-EFFECTIVE QKD FIELD-TRIAL IN PADUA WITH THE IPOGNAC ENCODER 1998
Marco Avesani, Luca Calderaro, Giulio Foletto, Costantino Agnesi, Francesco Picciariello, Francesco Santagiustina, Alessia Scriminich, Andrea Stanco, Francesco Vedovato, Mujtaba Zahidy, Giuseppe Vallone, Paolo Villorosi
- FULLY CONNECTED ENTANGLEMENT-BASED QUANTUM COMMUNICATION NETWORK WITHOUT TRUSTED NODE..... 2001
Xu Liu, Rong Xue, Yidong Huang, Wei Zhang
- ANALYSIS OF THE IMPACT OF RADIATION-INDUCED OPTICAL TRANSIENTS ON DEEP-SPACE OPTICAL COMMUNICATIONS SYSTEMS USING PPM..... 2004
George N. Tzintzarov, Jeffrey W. Teng, Adrian Ildefonso, John D. Cressler
- MINIMIZING SPONTANEOUS RAMAN SCATTERING NOISE FOR QUANTUM KEY DISTRIBUTION IN WDM NETWORKS..... 2007
Rui Lin, Jiajia Chen
- QUANTUM RNG INTEGRATION IN AN NG-PON2 TRANSCEIVER 2010
Nemanja Vokic, Dinka Milovancev, Christoph Pacher, Martin Achleitner, Hannes Hübel, Bernhard Schrenk

FIBER WIRELESS SUBSYSTEMS

- EXPERIMENTAL ANALYSIS OF FOURIER TRANSFORM BASED BLIND FREQUENCY OFFSET ESTIMATION FOR PS-QAM IN W-BAND FIBER-MILLIMETER WAVE INTEGRATED SYSTEM..... 2013
Shuang Yao, Chin-Wei Hsu, Rui Zhang, Shuyi Shen, Qi Zhou, Shang-Jen Su, Yahya Alfidhli, John R. Barry, Gee-Kung Chang
- INTEGRATED DUAL-DFB LASER CHIP-BASED PAM-4 PHOTONIC-WIRELESS TRANSMISSION IN W-BAND 2016
Shi Jia, Mu-Chieh Lo, Deming Kong, Robinson Guzman, Longsheng Li, Leif K. Oxenløwe, Guillermo Carpintero, Hao Hu
- PHOTONIC INTEGRATED CIRCUITS FOR TERAHERTZ COMMUNICATION: THE HYBRID INTEGRATED MICROWAVE PHOTONIC APPROACH 2019
Guillermo Carpintero, Luis González, Robinson Guzmán, Muhsin Ali, David De Felipe, Tianwen Qian, Norbert Keil, Robert Grootjans, Chris Roeloffzen

NEXT GENERATION FIELD TRIALS AND STANDARDIZATION

HIGH BAUD RATE MODULATION: APPLICATIONS FOR NEXT-GENERATION BACKBONE NETWORKS	2021
<i>Jeffrey Rahn, Elizabeth Rivera Hartling, Stephen Grubb, Steve Armstrong, Vishal Gadiya, Matthew Mitchell</i>	
TRANS-ATLANTIC REAL-TIME FIELD TRIAL USING SUPER-GAUSSIAN CONSTELLATION-SHAPING TO ENABLE 30TB/S+ CAPACITY	2024
<i>M. F. C. Stephens, P. Mertz, S. G. Grubb, G. Shartle, A. Kumpera, J. O'Connor, R. Maher, M. R. Chitgarha, C. Doggart, S. Thomson, S. Edirisinghe, A. Afonso, M. Elam, K. Gelov, B. Boyanov, V. Dominic, S. Sanders, P. Kandappan</i>	
UNREPEATED TRANSMISSION OF SINGLE-CARRIER 800GB/S OVER 404KM WITH COMMERCIAL TRANSCEIVER AND ENHANCED ROPA SYSTEM.....	2027
<i>Jianjun Wu, Jian Xu, Qianggao Hu, Jiekui Yu, Jiasheng Liu, Qing Luo, Wenzhong Wang, Liyan Huang, Chao Huang, Han Long, Shujuan Sun, Mingxiong Duan, Ming Xiang, Guoliang He</i>	
20.8 TB/S TRANSMISSION OVER 1200 KM USING G654E FIBERS, HYBRID AMPLIFICATION AND 400 GB/S CFP2-DCO INTERFACES	2030
<i>B. Lavigne, M. Le Monnier, T. Zami, D. Bode, G. A. Azzini, R. Peruta, L. Suberini, S. Jovane, O. Bertran-Pardo, A. Ghazisaeidi</i>	

EMERGING NETWORK ARCHITECTURES FOR 5G AND BEYOND

TOWARD 6G: A NEW ERA OF CONVERGENCE [INVITED]	2033
<i>Martin Maier</i>	
A LATENCY-AWARE REAL-TIME VIDEO SURVEILLANCE DEMO: NETWORK SLICING FOR IMPROVING PUBLIC SAFETY.....	2036
<i>B. Shariati, J. J. Pedreno-Manresa, A. Dochhan, A. S. Muqaddas, R. Casellas, O. González De Dios, L. L. Canto, B. Lent, J. E. López De Vergara, S. López-Buedo, F. J. Moreno, P. Pavón, L. Velasco, S. Patri, A. Giorgetti, F. Cugini, A. Sgambelluri, R. Nejabati, D. Simeonidou, R.-P. Braun, A. Autenrieth, J.-P. Elbers, J. K. Fischer, R. Freund</i>	
CAPTURING VALUE FROM LATENCY CONTROL IN TIME-SLOTTED OPTICAL COMMUNICATIONS: A TECHNO-ECONOMIC ASSESSMENT	2039
<i>Mijail Szczerban, Sebastien Bigo, Nihel Benzaoui</i>	
AUTONOMOUS SDN-BASED GLOBAL CONCURRENT RESTORATION FOR HIGH- CAPACITY OPTICAL METRO NETWORKS	2042
<i>R. Martínez, R. Casellas, M. Svaluto Moreolo, J. M. Fabrega, R. Vilalta, R. Muñoz, L. Nadal, J. P. Fernández-Palacios, V. López, D. Larrabeiti, G. Otero, J. A. Hernández</i>	
FIRST SCALABLE MACHINE LEARNING BASED ARCHITECTURE FOR CLOUD-NATIVE TRANSPORT SDN CONTROLLER	2045
<i>Carlos Manso, Noboru Yoshikane, Ricard Vilalta, Raul Muñoz, Ramon Casellas, Ricardo Martínez, Cen Wang, Filippos Balasis, Takehiro Tsuritani, Itsuro Morita</i>	

LOW LATENCY ACCESS NETWORKS

- A NOVEL LOW-LATENCY DBA FOR VIRTUALISED PON IMPLEMENTED THROUGH P4
IN-NETWORK PROCESSING 2048
Diego Rossi Mafioletti, Frank Slyne, Robin Giller, Michael O'Hanlon, Brendan Ryan, Marco Ruffini
- DRL-BASED CHANNEL AND LATENCY AWARE SCHEDULING AND RESOURCE
ALLOCATION FOR MULTI-USER MILLIMETER-WAVE RAN 2051
Shuyi Shen, Ticao Zhang, Shiwen Mao, Gee-Kung Chang

POSTDEADLINE PAPERS 1

- EXPERIMENTAL DEMONSTRATIONS OF CONCURRENT ADAPTIVE INTER-ONU AND
UPSTREAM COMMUNICATIONS IN IMDD HYBRID SSB OFDM-DFMA PONS 2054
*Z. Q. Zhong, W. Jin, S. Jiang, J. X. He, D. Chang, R. P. Giddings, Y. H. Hong, M. O'Sullivan,
T. Durrant, G. Mariani, J. Trewern, J. M. Tang*
- WIDE AND PARALLEL LED-BASED OPTICAL LINKS USING MULTI-CORE FIBER FOR
CHIP-TO-CHIP COMMUNICATIONS 2057
Bardia Pezeshki, Alex Tselikov, Robert Kalman, Cameron Danesh
- RECORD HIGH-ORDER MODE-DIVISION-MULTIPLEXED TRANSMISSION ON CHIP
USING GRADIENT-DUTY-CYCLE SUBWAVELENGTH GRATINGS 2060
Yu He, Shaohua An, Xingfeng Li, Yetian Huang, Yong Zhang, Haoshuo Chen, Yikai Su
- LONG-TERM RELIABLE >200-GB/S DIRECTLY MODULATED LASERS WITH 800GBE-
COMPLIANT DSP 2063
*Di Che, Yasuhiro Matsui, Richard Schatz, Gregory Raybon, Vipul Bhatt, Martin Kwakernaak,
Tsurugi Sudo*
- HOLLOW CORE NANFS WITH FIVE NESTED TUBES AND RECORD LOW LOSS AT 850,
1060, 1300 AND 1625NM 2066
*Hesham Sakr, Thomas D Bradley, Gregory T Jasion, Eric Numkam Fokoua, Seyed Reza
Sandoghchi, Ian A Davidson, Austin Taranta, Gianluca Guerra, William Shere, Yong Chen,
John R Hayes, David J Richardson, Francesco Poletti*
- OVERCOMING THE QUANTUM NOISE LIMIT WITH CONTINUOUS-WAVE PHASE-
SENSITIVE PARAMETRIC AMPLIFICATION BASED ON A SINGLE INTEGRATED
SILICON-NITRIDE WAVEGUIDE 2069
Ping Zhao, Zhichao Ye, Magnus Karlsson, Victor Torres-Company, Peter A. Andrekson

POSTDEADLINE PAPERS 2

- BOW: FIRST REAL-WORLD DEMONSTRATION OF A FIREWALL-BASED BAYESIAN
OPTIMIZATION SYSTEM FOR WAVELENGTH DEPLOYMENT 2072
*Zhizhen Zhong, Manya Ghobadi, Maximilian Balandat, Sanjeevkumar Katti, Abbas
Kazerouni, Jonathan Leach, Mark McKillop, Ying Zhang*
- FIELD TRIAL OF VIBRATION DETECTION AND LOCALIZATION USING COHERENT
TELECOM TRANSPONDERS OVER 380-KM LINK 2075
G. A. Wellbrock, T. J. Xia, E. Ip, Y.-K. Huang, M.-F. Huang, T. Wang, Y. Aono

319 TB/S TRANSMISSION OVER 3001 KM WITH S, C AND L BAND SIGNALS OVER >120NM BANDWIDTH IN 125 μM WIDE 4-CORE FIBER	2078
<i>Benjamin J. Puttnam, Ruben S. Luís, Georg Rademacher, Yoshinari Awaji, Hideaki Furukawa</i>	
REAL-TIME TRANSOCEANIC COUPLED 4-CORE FIBER TRANSMISSION	2081
<i>S. Beppu, M. Kikuta, K. Igarashi, H. Mukai, M. Shigihara, Y. Saito, D. Soma, H. Takahashi, N. Yoshikane, I. Morita, M. Suzuki, T. Tsuritani</i>	
ULTRA-LONG-HAUL WDM TRANSMISSION IN A REDUCED INTERMODAL INTERFERENCE NANF HOLLOW-CORE FIBER	2084
<i>Antonino Nespola, Seyed Reza Sandoghchi, Lucy Hooper, Marcelo Alonso, Thomas D Bradley, Hesham Sakr, Gregory T Jasion, Eric Numkam Fokoua, Stefano Straullu, Francesco Garrisi, Gabriella Bosco, Andrea Carena, Ann Margareth Rosa Brusin, Yong Chen, John R Hayes, Fabrizio Forghieri, David J Richardson, Francesco Poletti, Pierluigi Poggiolini</i>	

POSTDEADLINE PAPERS 3

TRANSPARENT OPTICAL-THZ-OPTICAL LINK TRANSMISSION OVER 5/115 M AT 240/190 GBIT/S ENABLED BY PLASMONICS	2087
<i>Yannik Horst, Tobias Blatter, Laurenz Kulmer, Bertold Ian Bitachon, Benedikt Baeuerle, Marcel Destraz, Wolfgang Heni, Stefan Koepfli, Patrick Habegger, Marco Eppenberger, Eva De Leo, Claudia Hoessbacher, Delwin L. Elder, Scott Hammond, Lewis Johnson, Yuriy Fedoryshyn, Yannick Salamin, Maurizio Burla, Juerg Leuthold</i>	
FIELD DEMONSTRATION OF REAL-TIME 14 TB/S 220 M FSO TRANSMISSION WITH CLASS 1 EYE-SAFE 9-APERTURE TRANSMITTER	2090
<i>Keisuke Matsuda, Masashi Binkai, Shota Koshikawa, Tsuyoshi Yoshida, Hayato Sano, Yoshiaki Konishi, Naoki Suzuki</i>	
ENABLING TECHNOLOGY FOR 9.5-DB SNR ENHANCEMENT UTILIZING FOUR-WAVE MIXING BETWEEN A CONJUGATE PAIR OF ANGLE MODULATION FOR ANALOG RADIO-OVER-FIBER LINKS	2093
<i>Shota Ishimura, Hidenori Takahashi, Takehiro Tsuritani, Masatoshi Suzuki</i>	
TRANSPARENT FIBER-RADIO-FIBER BRIDGE AT 101 GHZ USING OPTICAL MODULATOR AND DIRECT PHOTONIC DOWN-CONVERSION	2096
<i>Pham Tien Dat, Yuya Yamaguchi, Keizo Inagaki, Masayuki Motoya, Satoshi Oikawa, Junichiro Ichikawa, Atsushi Kanno, Naokatsu Yamamoto, Tetsuya Kawanishi</i>	
TRANSMISSION OF 200-GBAUD PDM PROBABILISTICALLY SHAPED 64-QAM SIGNALS MODULATED VIA A 100-GHZ THIN-FILM LINBO ₃ I/Q MODULATOR	2099
<i>Xi Chen, Greg Raybon, Di Che, Junho Cho, K. W. Kim</i>	
AN ERROR-FREE 1 TBPS WDM OPTICAL I/O CHIPLET AND MULTI-WAVELENGTH MULTI-PORT LASER	2102
<i>M. Wade, E. Anderson, S. Ardalan, W. Bae, B. Beheshtian, S. Buchbinder, K. Chang, P. Chao, H. Eachempatti, J. Frey, E. Jan, A. Katzin, A. Khilo, D. Kita, U. Krishnamoorthy, C. Li, H. Lu, F. Luna, C. Madden, L. Okada, M. Patel, C. Ramamurthy, M. Raval, R. Roucka, K. Robberson, M. Rust, D. Van Orden, R. Zeng, M. Zhang, V. Stojanovic, F. Sedgwick, R. Meade, N. Chan, J. Fini, B. Kim, S. Liu, C. Zhang, D. Jeong, P. Bhargava, M. Sysak, C. Sun</i>	

Author Index