

# **2016 IEEE Photonics Conference (IPC 2016)**

**Waikoloa, Hawaii, USA  
2-6 October 2016**

**Pages 1-373**



**IEEE Catalog Number: CFP16LEO-POD  
ISBN: 978-1-5090-1907-6**

**Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. 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:	CFP16LEO-POD
ISBN (Print-On-Demand):	978-1-5090-1907-6
ISBN (Online):	978-1-5090-1906-9
ISSN:	1092-8081

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

<b>MA1.1 - INTEGRATED PHOTONICS FOR MWP .....</b>	1
<i>John E. Bowers ; Tin Komljenovic ; Jared Hulme ; Michael Davenport ; Chong Zhang</i>	
<b>MA1.2 - HETEROGENEOUS INTEGRATION OF COMPACT LITHIUM NIOBATE MICRORING AND MACH-ZEHNDER MODULATOR ON SILICON.....</b>	<b>3</b>
<i>S. Fathpour ; A. Rao ; P. Rabiei ; A. Patil ; R. Desalvo ; A. Paoletta ; J. Chiles ; M. Malinowski</i>	
<b>MA1.3 - INTEGRATED MICROWAVE PHOTONICS.....</b>	<b>5</b>
<i>Daniel Pérez ; Ivana Gasulla ; José Capmany</i>	
<b>MA2.2 - GRAPHENE PLASMONICS FOR TERAHERTZ PHOTONICS.....</b>	<b>7</b>
<i>M. M. Jadidi ; A. B. Sushkov ; M. Mittendorff ; K. M. Daniels ; A. K. Boyd ; Rachael L. Myers-Ward ; H. D. Drew ; M. S. Fuhrer ; D. K. Gaskell ; T. E. Murphy</i>	
<b>MA2.3 - RF PHOTONIC INTEGRATED CIRCUIT AND COMPONENTS.....</b>	<b>9</b>
<i>Leif A Johansson ; Steven Estrella ; Jeremy Thomas ; Jenna Campbell ; Daniel Renner ; Milan Mašanovic</i>	
<b>MA3.1 - SILICON MICRORING WEIGHT BANKS FOR MULTIVARIATE RF PHOTONICS.....</b>	<b>11</b>
<i>A. N. Tait ; T. Ferreira De Lima ; A. X. Wu ; E. Zhou ; M. A. Nahmias ; B. J. Shastri ; M. P. Chang ; P. R. Prucnal</i>	
<b>MA3.2 - DATA COMPRESSED PHOTONIC TIME-STRETCH OPTICAL COHERENCE TOMOGRAPHY .....</b>	<b>13</b>
<i>Chaitanya K Mididoddi ; Guoqing Wang ; Chao Wang</i>	
<b>MA3.3 - INNOVATIVE APPLICATIONS OF MICROWAVE PHOTONICS .....</b>	<b>15</b>
<i>Loïc Morvan ; Yoann Attal ; Ghaya Baili ; Perrine Berger ; Vincent Crozatier ; Daniel Dolfi ; Oriane Lelièvre ; Pascale Nouchi ; Grégoire Pillet ; Muriel Schwarz</i>	
<b>MA3.5 - FREQUENCY COMBS FOR ROBUST OPTICAL TIMEKEEPING .....</b>	<b>19</b>
<i>Ian Coddington ; Stefan Droste ; Jean-Daniel Deschênes ; Laura C. Sinclair ; Daniel I. Herman ; William C. Swann ; Nathan R Newbury</i>	
<b>MA4.1 - WIRELESS DATA TRANSFER IN 60 GHZ-BAND USING ARRAY-ANTENNA-ELECTRODE ELECTRO-OPTIC MODULATOR .....</b>	<b>21</b>
<i>Toshiyuki Inoue ; Takashi Ikeda ; Hiroshi Murata ; Yasuyuki Okamura</i>	
<b>MA4.2 - GENERATION OF UNCORRELATED MULTI-CHANNEL CHAOS FROM A SINGLE CHAOTIC LASER FOR MIMO CHAOS RADAR .....</b>	<b>23</b>
<i>Chih-Hao Cheng ; Yi-Cheng Chen ; Fan-Yi Lin</i>	
<b>MA4.3 - OPTICAL FREQUENCY DISCRIMINATOR WITH ULTRAHIGH-AMPLITUDE-AND-PHASE LINEARITY FOR FREQUENCY-MODULATED MICROWAVE PHOTONIC LINKS .....</b>	<b>25</b>
<i>Benjamin Dingel ; Nicholas Madamopoulos</i>	
<b>MA4.4 - PHOTONIC MICROWAVE TIME DELAYS USING NONLINEAR DYNAMICS OF SEMICONDUCTOR LASERS FOR ANTENNA REMOTING APPLICATIONS.....</b>	<b>27</b>
<i>Kun-Lin Hsieh ; Sheng-Kwang Hwang</i>	
<b>MA4.5 - THE CONVERGENCE OF MICROWAVE PHOTONIC AND OPTICAL WIRELESS SYSTEMS WITH MILITARY COMMUNICATION AND SENSOR SYSTEMS .....</b>	<b>29</b>
<i>Richard Desalvo ; Charles Middleton ; Elliott Grafer ; Alex Cramer ; Kevin Anzalone ; Elias Soto ; Brandon Devenport</i>	
<b>MB1.1 - OPTICAL CARRIER PHASE ESTIMATION BASED ON 8-PSK PARTITIONING AND MODIFIED VITERBI-VITERBI FOR 32-QAM .....</b>	<b>31</b>
<i>Heba M. Shehata ; Ziad A. El-Sahn</i>	
<b>MB1.2 - EVALUATION OF POWER EFFICIENCY OF HYBRID MODULATION TECHNIQUES .....</b>	<b>33</b>
<i>Ahmed E. Morra ; Mohamed Rihan ; Abdulaziz E. El-Fiqi ; Hossam M. H. Shalaby ; Salah S. A. Obayya</i>	
<b>MB1.4 - ENOB REQUIREMENTS FOR NON-SQUARE 64-QAM .....</b>	<b>37</b>
<i>Siddharth Varughese ; Varghese A. Thomas ; Pierre Isautier ; Jerrod Langston ; Mohammad Alfiad ; Sorin Tibuleac ; Stephen E. Ralph</i>	
<b>MB2.1 - A 50 M/40 GBPS 680-NM VCSEL-BASED FSO COMMUNICATION .....</b>	<b>39</b>
<i>Wen-Shing Tsai ; Hai-Han Lu ; Chung-Yi Li ; Ting-Chieh Lu ; Chen-Hong Liao ; Chien-An Chu ; Peng-Chun Peng</i>	
<b>MB2.2 - DATA TRANSMISSION FOR HIGH-BANDWIDTH NEURAL INTERFACING USING VISIBLE LIGHT COMMUNICATION.....</b>	<b>41</b>
<i>Gábor Várkonyi ; Jonathan J. D. McKendry ; Niall McAlinden ; Martin D. Dawson ; Keith Mathieson</i>	
<b>MB2.3 - A 50 M/320 GBPS DWDM FSO COMMUNICATION .....</b>	<b>43</b>
<i>Wen-Shing Tsai ; Hai-Han Lu ; Chung-Yi Li ; Ting-Chieh Lu ; Hung-Hsien Lin ; Bo-Rui Chen ; Chang-Jen Wu</i>	
<b>MB2.6 - FIBER-WIRELESS AND FIBER-IVLLC CONVERGENCES.....</b>	<b>47</b>
<i>Bo-Rui Chen ; Hung-Hsien Lin ; Chang-Jen Wu ; Chun-Yu Lin ; Chung-Yi Li ; Hai-Han Lu</i>	

<b>MB3.2 - DESIGN AND FABRICATION OF DUAL MSM PHOTODETECTORS FOR DATA NETWORKS AND MULTISPECTRAL APPLICATIONS</b>	51
<i>Pallav Kanukuntla ; Ayodeji Kuti ; Demetris Geddis</i>	
<b>MB3.5 - OPTICAL STEGANOGRAPHY COMMUNICATION USING SIGNAL-CARRYING NOISE DISPERSION</b>	55
<i>Philip Y. Ma ; Ben Wu ; Bhavin J. Shastri ; Paul R. Prucnal</i>	
<b>MB3.6 - OPTICALLY ENCRYPTED MULTIDIMENSIONAL CODED MODULATION FOR MULTI-PB/S OPTICAL TRANSPORT</b>	57
<i>Ivan B. Djordjevic ; Shaoliang Zhang ; Ting Wang</i>	
<b>MB4.1 - OPTICAL INTERCONNECTS FOR DATA CENTERS</b>	59
<i>Chongjin Xie</i>	
<b>MB4.2 - EXPERIMENTAL DEMONSTRATION OF 2,160×2,160 OPTICAL CIRCUIT SWITCH FOR INTRA-DATACENTER NETWORKING</b>	61
<i>Koh Ueda ; Yojiro Mori ; Hiroshi Hasegawa ; Hiroyuki Matsuura ; Kiyo Ishii ; Haruhiko Kuwatsuka ; Shu Namiki ; Ken-Ichi Sato</i>	
<b>MB4.4 - TWO-TAP DIGITAL PRE-EMPHASIS FOR LOW-BANDWIDTH 112 GBPS, PAM-4 TRANSMISSIONS</b>	63
<i>Cristian Prodaniuc ; Nebojsa Stojanovic ; Zhang Qiang ; Roberto Llorente</i>	
<b>MC1.2 - COMPARISON OF 1.55 μM INAS/INP QUANTUM-DOT AND QUANTUM-DASH LASERS UNDER DIRECT MODULATION</b>	65
<i>T. Sadeev ; D. Arsenijevic ; D. Bimberg</i>	
<b>MC1.3 - SELECTIVE MOCVD GROWTH OF STRAINED (IN)GAAS QUANTUM DOT ACTIVE REGION LASER DIODE ON GAAS SUBSTRATES EMPLOYING DIBLOCK COPOLYMER LITHOGRAPHY</b>	67
<i>Honghyuk Kim ; Jonathan Choi ; Thomas F Kuech ; Padma Gopalan ; Luke J Mawst</i>	
<b>MC1.4 - COHERENT CONTROL IN INAS / INP QUANTUM DOT OPTICAL AMPLIFIERS OPERATING AT ROOM-TEMPERATURE</b>	69
<i>Gadi Eisenstein ; Johann Peter Reithmaier</i>	
<b>MC2.1 - THZ QUANTUM CASCADE LASERS WITH LOW EFFECTIVE MASS ACTIVE REGION</b>	70
<i>M. Brandstetter ; M. Krall ; M. Kainz ; S. Schönhuber ; C. Deutsch ; T. Zederbauer ; A. M. Andrews ; G. Strasser ; K. Unterrainer</i>	
<b>MC2.2 - THZ EMISSION BY DIFFERENCE-FREQUENCY GENERATION IN SINGLE ACTIVE REGION QUANTUM CASCADE LASERS</b>	72
<i>Frederic Demmerle ; Wolfhard Oberhausen ; Jochen Bissinger ; Jonas Krakofsky ; Hannes Schmeiduch ; Gerhard Böhm ; Markus-Christian Amann</i>	
<b>MC2.3 - SPECTROSCOPIC STUDY OF TERAHERTZ DIFFERENCE-FREQUENCY NONLINEAR SUSCEPTIBILITY IN MID-INFRARED QUANTUM CASCADE LASERS</b>	74
<i>Yifan Jiang ; Seungyong Jung ; Jae Hyun Kim ; Karun Vijayraghavan ; Mikhail A. Belkin</i>	
<b>MC2.4 - ELECTRICAL TUNING OF SINGLE-MODE TERAHERTZ QUANTUM-CASCADE LASERS OPERATING AT HIGH TEMPERATURES</b>	76
<i>Le Zhao ; Sudeep Khanal ; Liang Gao ; John L. Reno ; Sushil Kumar</i>	
<b>MC2.5 - MID-IR RANDOM LASING EFFECT INDUCED BY INCREASED IMPACT OF DISORDER IN A PLANAR SLAB</b>	78
<i>Carlo Molardi ; Houkun K. Liang ; Xia Yu ; Annamaria Cucinotta ; Stefano Selleri</i>	
<b>MC3.2 - MID-INFRARED INTERBAND CASCADE LASERS</b>	80
<i>Sven Höfling ; Robert Weihl ; Martin Kamp</i>	
<b>MC3.3 - INTERBAND CASCADE (IC) MODE-LOCKED LASERS</b>	82
<i>Mahmood Bagheri ; Clifford Frez ; Igor Vurgaftman ; Mathieu Fradet ; Chadwick L. Canedy ; William W. Bewley ; Charles D. Merritt ; Chul Soo Kim ; Siamak Forouhar ; Jerry R. Meyer</i>	
<b>MC3.4 - HIGH BRIGHTNESS PS-PULSES FROM 1060-NM PBC SEMICONDUCTOR LASERS</b>	84
<i>R. Rosales ; V. P. Kaiosha ; D. Himberg ; D. Klemme ; K. Lauritsen ; R. Erdmann</i>	
<b>MC4.1 - REALIZATION OF DEEP ULTRAVIOLET RANDOM LASING IN MGZNO METAL-SEMICONDUCTOR-METAL DEVICES</b>	86
<i>Mohammad Suja ; Sunayna Binte Bashar ; Longxing Su ; Jianlin Liu</i>	
<b>MC4.2 - REMARKABLE INTERPLAY BETWEEN STRAIN AND PARASITIC ABSORPTION UNRAVELLING THE BEST ROUTE FOR SI-COMPATIBLE GERMANIUM LASER AT ROOM TEMPERATURE</b>	88
<i>Shashank Gupta ; Jan Petykiewicz ; Donguk Nam ; David Sukhdeo ; Jelena Vuckovic ; Krishna Saraswat</i>	
<b>MC4.3 - MONOLITHIC WHITE LASERS AND SEMICONDUCTOR ALLOY NANOSTRUCTURES WITH A WIDE RANGE OF COMPOSITION CONTROL</b>	90
<i>Fan Fan ; Sunay Turkdogan ; Zhicheng Liu ; Cun-Zheng Ning</i>	

<b>MD1.1 - A SIMPLE DESIGN METHOD OF REFLECTION-SUPPRESSED PHOTONIC CRYSTAL CAVITY WITH ASYMMETRIC WAVEGUIDES</b>	91
<i>Takanori Sato ; Shuntaro Makino ; Takeshi Fujisawa ; Kunimasa Saitoh</i>	
<b>MD1.2 - HIGH-Q WHISPERING GALLERY MODE DIRECTLY ON A SILICON SUBSTRATE</b>	93
<i>Li Wang ; Shu-Xin Zhang ; Qinghai Song ; Qihuang Gong ; Yun-Feng Xiao</i>	
<b>MD1.3 - POLYMERIC WHISPERING GALLERY MODE MICRO-RESONATORS</b>	95
<i>H. Kalt ; T. Siegle ; S. Krämer ; A. M. Flatae ; S. Schierle ; B. Richter ; S. Nocentini ; C. Parmeggiani ; H. Zeng ; M. Burresi ; D. S. Wiersma ; S. F. Wondimu ; P. Schuch ; C. Koos</i>	
<b>MD2.1 - IMPACT OF AMBIENT PERTURBATIONS ON PHOTONIC MICRORESONATOR STABILITY</b>	97
<i>Jinkang Lim ; Chee Wei Wong ; Anatoliy A. Savchenkov ; Elijah Dale ; Wei Liang ; Danny Eliyahu ; Vladimir Ilchenko ; Andrey B. Matsko ; Lute Maleki</i>	
<b>MD2.2 - RING RESONATOR THERMOMETRY</b>	99
<i>Nikolai Klimov ; Zeeshan Ahmed</i>	
<b>MD2.3 - A STIMULATED BRILLOUIN MICRORESONATOR LASER REFERENCED TO RUBIDIUM</b>	101
<i>William Loh ; Matthew T. Hummon ; Holly F. Leopardi ; Tara M. Fortier ; F. Quinlan ; J. Kitching ; S. B. Papp ; S. A. Diddams</i>	
<b>MD2.4 - STIMULATED BRILLOUIN SCATTERING COUPLED FOUR-WAVE MIXING IN A MICROBOTTLE RESONATOR</b>	103
<i>M. Asano ; R. Ikuta ; N. Imoto ; T. Yamamoto ; S. K. Özdemir ; L. Yang</i>	
<b>MD2.5 - MODE-SELECTIVE SPECTRALLY-CLEANED-UP MICROBOTTLE RESONATOR LASER</b>	105
<i>S. Bakhtiari Gorajooobi ; G. Senthil Murugan ; M. N. Zervas</i>	
<b>MD3.1 - MICHELSON INTERFEROMETER THERMO-OPTIC SWITCH ON SOI WITH A 50-<math>\mu</math>W POWER CONSUMPTION</b>	107
<i>Zeqin Lu ; Kyle Murray ; Hasitha Jayatilleka ; Lukas Chrostowski</i>	
<b>MD3.2 - CARRIER LIFETIME MEASUREMENT IN A MICROCRYSTALLINE SILICON WIRE WAVEGUIDE</b>	111
<i>Yuichi Maekawa ; Ryohei Takei ; Yuya Shoji ; Tetsuya Mizumoto ; Toshihiro Kamei</i>	
<b>MD3.5 - A SILICON-ON-INSULATOR MICRORING RESONATOR FILTER WITH BENT CONTRADIRECTIONAL COUPLERS</b>	115
<i>Nourhan Eid ; Robert Boeck ; Hasitha Jayatilleka ; Lukas Chrostowski ; Wei Shi ; Nicolas A. F. Jaeger</i>	
<b>MD3.6 - PHOTONIC DIGITAL-TO-ANALOG CONVERSION AND M-PAM SIGNAL GENERATION VIA DIRECT-DIGITAL-DRIVE MICRORING MODULATOR</b>	117
<i>Yossef Ehrlichman ; Ofer Amrani ; Shlomo Ruschin</i>	
<b>MD4.1 - FIVE-MODE MULTIPLEXER BASED ON CASCADED VERTICAL DIRECTIONAL COUPLERS</b>	119
<i>Quandong Huang ; Yunfei Wu ; Wei Jin ; Kin Seng Chiang</i>	
<b>MD4.4 - HYBRID GRAPHENE/SILICON INTEGRATED OPTICAL ISOLATORS WITH PHOTONIC SPIN-ORBIT INTERACTION</b>	125
<i>Jingwen Ma ; Xiang Xi ; Zejie Yu ; Xiankai Sun</i>	
<b>MD4.5 - VISIBLE-FREQUENCY BROADBAND ASYMMETRIC TRANSMISSION OF LINEAR POLARIZED LIGHT THROUGH A TAPERED GRATING</b>	127
<i>Bin Tang ; Zhongyang Li ; Zizhuo Liu ; Francois Callewaert ; Koray Aydin</i>	
<b>ME2.1 - LARGE-SCALE COMPUTATIONAL MICROSCOPY</b>	129
<i>Laura Waller</i>	
<b>ME2.2 - TWO PHOTON IMAGING OF MOUSE RETINA WITH SENSORLESS ADAPTIVE OPTICS</b>	130
<i>Daniel J. Wahl ; Michelle Cua ; Sujin Lee ; Yuan Zhao ; Robert J. Zawadzki ; Stefano Bonora ; Yifan Jian ; Marinko V. Sarunic</i>	
<b>ME2.3 - MULTIMODAL QUANTITATIVE ULTRASOUND AND OPTOACOUSTIC IMAGING</b>	132
<i>M. Frenz ; K. G. Held ; H. G. Akarcay ; M. Jaeger</i>	
<b>ME3.2 - A MODEL OF OPTICAL COHERENCE TOMOGRAPHY IMAGE FORMATION BASED ON MAXWELL'S EQUATIONS</b>	134
<i>Peter R. T. Munro ; Andrea Curatolo ; David D. Sampson</i>	
<b>ME3.3 - RECIPROCITY CONSTRAINTS IN CATHETER-BASED POLARIMETRY</b>	136
<i>Martin Villiger ; David Adams ; Ahhyun S. Nam ; Norman Lippok ; Néstor Uribe-Patarroyo ; Benjamin Vakoc ; Melissa Suter ; Brett E. Bouma</i>	
<b>ME3.4 - EXTRACTING SOMETHING FROM NOTHING: IN VIVO IMAGING OF HUMAN CUTANEOUS LYMPHATIC VESSELS USING OPTICAL COHERENCE TOMOGRAPHY</b>	138
<i>Peijun Gong ; Shaghayegh Es'Haghian ; Karl-Anton Harms ; Alexandra Murray ; Suzanne Rea ; Fiona M. Wood ; David D. Sampson ; Robert A. McLaughlin</i>	

<b>ME3.5 - INFLUENCE OF SPEED AND RESOLUTION ON OCT ANGIOGRAPHY AND DOPPLER OCT IMAGING IN HUMAN RETINAL AND CHOROIDAL CAPILLARY SYSTEMS</b>	140
<i>L. Gorczynska ; J. V. Migacz ; R. S. Jonnal ; R. J. Zawadzki ; J. S. Werner</i>	
<b>ME4.1 - QUANTITATIVE MOLECULAR FINGERPRINTING WITH STIMULATED RAMAN SCATTERING</b>	142
<i>Dan Fu</i>	
<b>ME4.2 - MICROSCOPE-LESS LAB-ON-A-CHIP RAMAN SPECTROSCOPY OF CELL-MEMBRANES</b>	144
<i>Ashim Dhakal ; Pieter Wuytens ; Frédéric Peyskens ; Andre Skirtach ; Nicolas Le Thomas ; Roel Baets</i>	
<b>ME4.3 - MUSE: MICROSCOPY VIA UV EXCITATION FOR RAPID HISTOLOGY</b>	146
<i>Farzad Fereidouni ; Zachary Harmann ; Stavros Demos ; Richard Levenson</i>	
<b>ME4.4 - BESEL BEAM ILLUMINATION REDUCES RESOLUTION DEGRADATION DUE TO MICRO-ARCHITECTURAL HETEROGENEITIES FOR DUAL-AXIS CONFOCAL MICROSCOPY OF TISSUES</b>	148
<i>Ye Chen ; Jonathan T. C. Liu</i>	
<b>ME4.5 - 3D MESOSCOPIC IMAGING OF NEURAL CONNECTIONS IN SENSORY AND MOTOR CORTICES</b>	150
<i>Qinggong Tang ; Vassiliy Tsytsov ; Jonathan Lin ; Yi Liu ; Chao-Wei Chen ; Reha S. Erzurumlu ; Yu Chen</i>	
<b>MF1.1 - HIGH-RESOLUTION SPECTROSCOPY USING A FREQUENCY-VARIABLE COMB LIGHT SOURCE</b>	152
<i>Hiroaki Sugimoto ; Mitsutaka Ito ; Motohiro Koriba ; Satoshi Seki ; Tatsutoshi Shioda ; Yosuke Tanaka ; Ken Kashiwagi ; Takashi Kurokawa</i>	
<b>MF1.4 - 12.5-GHZ-SPACED LASER FREQUENCY COMB COVERING OVER 100 THZ AND FREQUENCY SHIFT OF ALL INDIVIDUAL LINES FOR CALIBRATION OF INFRARED DOPPLER INSTRUMENT</b>	156
<i>Takahiro Mori ; Tsukasa Kokubo ; Takashi Kurokawa ; Yosuke Tanaka ; Ken Kashiwagi ; Takayuki Kotani ; Jun Nishikawa ; Motohide Tamura</i>	
<b>MF1.5 - HIGH-Q AND LOW-LOSS CHALCOGENIDE WAVEGUIDE FOR NONLINEAR SUPERCONTINUUM GENERATION</b>	158
<i>Jean-Etienne Tremblay ; Yung-Hsiang Lin ; Meer N. Sakib ; Marcin Malinowski ; Spencer Novak ; Pengfei Qiao ; Connie Chang-Hasnain ; Kathleen Richardson ; Sasan Fathpour ; Ming C. Wu</i>	
<b>MF2.1 - RECENT PROGRESS ON ATTOSECOND SCIENCE AT RIKEN</b>	160
<i>Katsumi Midorikawa</i>	
<b>MF2.2 - ARBITRARY CONTROL OF THE FREE SPECTRAL RANGE OF PERIODIC OPTICAL FREQUENCY COMBS THROUGH LINEAR ENERGY-PRESERVING TIME-FREQUENCY TALBOT EFFECTS</b>	162
<i>Luis Romero Cortés ; Reza Maram ; Hugues Guillet De Chatellus ; José Azaña</i>	
<b>MF2.3 - THE DEPENDENCE OF GRAPHENE LAYER STACKING ON DYNAMIC RANGE AND PULSEWIDTH IN MODE-LOCKED LASERS</b>	164
<i>Pi Ling Huang ; Chao-Yung Yeh ; Wood-Hi Cheng</i>	
<b>MF3.1 - SINGLE FREQUENCY 1178 NM LASER BASED ON CRYSTALLINE RAMAN LASER AND AMPLIFIER</b>	166
<i>Zhaojun Liu ; Shaojie Men ; Zhenhua Cong ; Yang Liu ; Han Rao ; Qingjie Huang ; Sasa Zhang ; Xingyu Zhang</i>	
<b>MF3.2 - ENHANCEMENTS OF RAMAN OSCILLATION AND AMPLIFICATION AND FREQUENCY UPCONVERSION BY PHONON-POLARITON RESONANCES</b>	168
<i>Yujie J. Ding</i>	
<b>MF3.3 - RIN NOISE REDUCTION EFFECT OF A 10 GHZ HYBRID BOUND SOLITON MODE-LOCKED FIBER LASER</b>	170
<i>Cheng-Jhii Luo ; Yinchieh Lai</i>	
<b>MF3.4 - EVIDENCE OF PSEUDO-HIGH-ORDER GROUP-VELOCITY-LOCKED VECTOR DISSIPATIVE SOLITONS</b>	172
<i>Shengnan Zhu ; Deming Liu ; Xinxin Jin ; Lei Li ; Ming Tang ; Songnian Fu ; Luming Zhao</i>	
<b>MF3.5 - FULL-FIELD BROADBAND INVISIBILITY CLOAKING</b>	174
<i>Luis Romero Cortés ; Reza Maram ; José Azaña</i>	
<b>MF3.6 - DYNAMICS OF DISSIPATIVE SOLITONS IN A HIGH REPETITION RATE NORMAL-DISPERSION ERBIUM-DOPED FIBER LASER</b>	176
<i>Lei Li ; Luming Zhao</i>	
<b>MF4.1 - 110 W ALL-FIBER PICOSECOND LASER IN MOPA CONFIGURATION WITH HIGH PEAK POWER</b>	178
<i>Wei Shi ; Zhenhua Yu ; Xinzhen Dong ; Jinhui Li ; Yuzhu Zhao ; Huixian Liu</i>	

<b>MF4.4 - SPIKE CODED BIT SEQUENCE GENERATION USING PHOTONIC EXCITABLE LASER.....</b>	184
<i>Philip Y. Ma ; Bhavin J. Shastri ; Ben Wu ; Thomas Ferreira De Lima ; Alexander N. Tait ; Mitchell A. Nahmias ; Paul R. Prucnal</i>	
<b>MF4.5 - ER: FIBER FREQUENCY COMB FOR SYNTHESIS OF OPTICAL FREQUENCIES AT THE 10-18 LEVEL.....</b>	186
<i>Holly Leopardi ; Josue Davila-Rodriguez ; Franklyn Quinlan ; Scott Diddams ; Tara Fortier</i>	
<b>MG1.3 - ENERGY TRANSFER FROM ZNO NANOCRYSTALS TO TERBIUM (3+) IONS: A SPECTRAL OVERLAP STUDY.....</b>	190
<i>Vivek Mangalam ; Kantisara Pita</i>	
<b>MG1.4 - CHARACTERIZATION OF PHOTORESPONSE IN SINGLE SI NANOWIRE P-N JUNCTION USING CONDUCTIVE ATOMIC FORCE MICROSCOPY.....</b>	192
<i>Veerendra Dhyani ; Samaresh Das</i>	
<b>MG2.3 - PHOTONIC CRYSTAL COUPLED PLASMONIC HYBRID NANOSENSORS.....</b>	198
<i>Jui-Nung Liu ; Keng-Ku Liu ; Qinglan Huang ; Srikanth Singamaneni ; Brian T. Cunningham</i>	
<b>MG3.1 - PHOTONIC SPIN-CONTROLLED MULTIFUNCTIONAL SHARED-APERTURE ANTENNA ARRAY.....</b>	200
<i>Elhanan Maguid ; Igor Yulevich ; Dekel Veksler ; Vladimir Kleiner ; Mark L. Brongersma ; Erez Hasman</i>	
<b>MG3.2 - DIRECT GLIMPSE INTO THE SPATIOTEMPORAL DYNAMICS OF PLASMONIC VORTICES .....</b>	202
<i>G. Spektor ; D. Kilbane ; A. K. Mahro ; B. Frank ; L. Gal ; P. Kahl ; D. Podbiel ; H. Giessen ; F. -J. Meyer Zu Heringdorf ; M. Aeschlimann ; M. Orenstein</i>	
<b>MG3.3 - PLASMONIC "TEMPLAR CROSS" ANTENNAS FOR SUBWAVELENGTH ADDRESSING OF SPIN STATES IN DIAMONDS .....</b>	204
<i>Tzach Jaffe ; Ofir Sorias ; Lior Gal ; Rafi Kalish ; Meir Orenstein</i>	
<b>MG3.4 - NANOPHOTONIC PHASED ARRAY FOR VISIBLE LIGHT IMAGE PROJECTION.....</b>	206
<i>Manan Raval ; Ami Yaacobi ; Daniel Coleman ; Nicholas M. Fahrenkopf ; Christopher Baiocco ; Gerald Leake ; Thomas N. Adam ; Douglas Coolbaugh ; Michael R. Watts</i>	
<b>MG3.5 - SILICA/GOLD BI-COMPOSITE LAYER BASED DIPOLE NANO-ANTENNA .....</b>	208
<i>Abdul Khaleque ; Evgeny Mironov ; Liming Liu ; Harolodo T. Hattori</i>	
<b>MG4.1 - NANOSCALE ENGINEERING OPTICAL NONLINEARITIES AND NANOEMITTERS.....</b>	210
<i>Y. Fainman ; M. Puckett ; R. Sharma ; J. Smalley ; A. Pang ; Q. Gu ; A. El Amili ; F. Vallini</i>	
<b>MG4.2 - QUANTUM DOT-MICROPILLARS: A BRIGHT SOURCE OF COHERENT SINGLE PHOTONS.....</b>	212
<i>Sebastian Unsleber ; Yu-Ming He ; Sebastian Maier ; Stefan Gerhardt ; Xing Ding ; Yu He ; Z. -C. Duan ; Niels Gregersen ; M. -C. Chen ; Chao-Yang Lu ; Jian-Wei Pan ; Christian Schneider ; Sven Höfling</i>	
<b>MG4.3 - SINGLE-CYSTAL ERBIUM CHLORIDE SILICATE NANOWIRES WITH INTERNAL NET GAIN LARGER THAN 300 DB/CM .....</b>	214
<i>Hao Sun ; Yize Zheng ; Zhicheng Liu ; Leijun Yin ; Xue Feng ; Yongzhuo Li ; Jianxing Zhang ; Cun-Zheng Ning</i>	
<b>MG4.4 - TOWARD 100 GHZ DIRECT MODULATION RATE OF ANTENNA COUPLED NANOLED .....</b>	216
<i>Seth A. Fortuna ; Alireza Taghizadeh ; Eli Yablonovitch ; Ming C. Wu</i>	
<b>MG4.5 - DOUBLE OPTICAL CAVITIES OPTOMECHANICALLY COUPLED VIA SLAB OSCILLATOR FOR SPONTANEOUS EMISSION CONTROL .....</b>	218
<i>F. Tian ; H. Sumikura ; E. Kuramochi ; H. Taniyama ; M. Notomi</i>	
<b>MH1.1 - HIGH-SPEED (&gt;100 GBIT/S) EADFB LASER MODULE USING FLIP-CHIP INTERCONNECTION TECHNIQUE .....</b>	220
<i>Shigeru Kanazawa ; Yuta Ueda ; Wataru Kobayashi ; Hiroyuki Ishii ; Hiroaki Sanjoh</i>	
<b>MH1.2 - COMPARATIVE STUDY OF OPTOELECTRONICS RECEIVER FRONT-END IMPLEMENTATION IN INP, SIGE, AND CMOS .....</b>	222
<i>Bahaa Radi ; Vernon Elmo Paul ; Valery Tolstikhin ; Odile Liboiron-Ladouceur</i>	
<b>MH3.2 - DESIGN ASPECTS OF MULTI-SOLITON PULSES FOR OPTICAL FIBER TRANSMISSION .....</b>	224
<i>Vahid Aref ; Zhenhua Dong ; Henning Buelow</i>	
<b>MH4.1 - INTEGRATED OPTICAL SWITCHES AND SHORT PULSE GENERATION USING A GENERIC INTEGRATION PLATFORM .....</b>	226
<i>Adrian Wonfor ; Qixiang Cheng ; Richard V. Penty ; Ian H. White</i>	
<b>MH4.2 - CONTINUOUSLY TUNABLE TERAHERTZ SIGNAL GENERATION WITH AN INTEGRATED 1.55-<math>\mu</math>M DUAL-WAVELENGTH DFB PHOTONIC CHIP .....</b>	228
<i>Mengdie Sun ; Qiang Kan ; Songtao Liu ; Fei Guo ; Shaoyang Tan ; Dan Lu ; Ruikang Zhang ; Xinke Wang ; Yan Zhang ; Song Liang ; Chen Ji</i>	

<b>MH4.3 - A CROSS-LAYER MULTI-PHYSICS DESIGN FLOW FOR ELECTRONIC-PHOTONIC INTEGRATED CIRCUITS .....</b>	230
<i>Jing Gao ; Yanan Sun ; Weifeng He ; Hui Wu</i>	
<b>MI1.1 - MONOLITHIC III-NITRIDE NANOWIRE DETECTORS ON SILICON .....</b>	232
<i>Arnab Hazari ; Md. Zunaid Baten ; Pallab Bhattacharya</i>	
<b>MI1.2 - INFRARED ABSORPTION IN MACETCH FABRICATED SILICON QUANTUM WALLS.....</b>	234
<i>Joshua Duran ; Andrew Sarangan</i>	
<b>MI1.5 - MULTI-METALLIC NANOSTRUCTURES OF CHITOSAN-GRAPHENE OXIDE SURFACE PLASMON RESONANCE SENSOR FOR LEAD (II) ION DETECTION.....</b>	238
<i>Nur Hasiba Kamaruddin ; A. Ashrif A. Bakar ; Mohd Saiful Dzulkifly Zan ; Norhana Arsad</i>	
<b>MI1.6 - WORKING TOWARDS GRAPHENE-BASED DETECTORS FOR HIGH SENSITIVITY PHOTODETECTION.....</b>	240
<i>Jamie O D Williams ; Jon S Lappington ; Mervyn Roy ; Ian B Hutchinson ; Jack A Alexander-Webber ; Abhay A Sagade ; Marie-Blandine Martin ; Philipp Braeuninger-Weimer ; Andrea Cabrero-Vilatela ; Ruizhi Wang ; Andrea De Luca ; Florin Udrea ; Stephan Hofmann</i>	
<b>MI2.1 - A FOURIER MULTISPECTRAL IMAGING CAMERA WITH PIXEL-LEVEL SINUSOIDAL FILTER ARRAYS .....</b>	242
<i>Chuan Ni ; Jie Jia ; Keigo Hirakawa ; Andrew Sarangan</i>	
<b>MI2.2 - INTELLIGENT BIAS-SELECTION METHOD FOR COMPUTATIONAL IMAGING ON A CMOS IMAGER .....</b>	244
<i>Manish Bhattarai ; Javad Ghasemi ; Glauco R. C. Fiorante ; Payman Zarkesh-Ha ; Sanjay Krishna ; Majeed M. Hayat</i>	
<b>MI2.3 - COMPRESSED ULTRAFAST PHOTOGRAPHY: REDEFINING THE LIMIT OF PASSIVE ULTRAFAST IMAGING.....</b>	246
<i>Liang Gao</i>	
<b>MI2.4 - SURFACE HARMONICS ON LIQUID LENSES .....</b>	248
<i>M. Strauch ; H. P. Urbach</i>	
<b>MI2.5 - TUBULAR ASTIGMATISM-TUNABLE FLUIDIC LENS BASED ON A FLEXIBLE POLYMIDE FOIL .....</b>	250
<i>Daniel Kopp ; Hans Zappe</i>	
<b>MI3.2 - MODE-EVOLUTION BASED COUPLER FOR GE-ON-SI PHOTODETECTORS .....</b>	252
<i>Matthew J. Byrd ; Erman Timurdogan ; Zhan Su ; Christopher V. Poulton ; Daniel Coleman ; Nicholas M. Fahrenkopf ; Thomas N. Adam ; Gerald Leake ; Douglas D. Coolbaugh ; Michael R. Watts</i>	
<b>MI3.3 - HIGH-EFFICIENCY HETEROGENEOUSLY INTEGRATED PHOTODIODES ON SOI NANO-WAVEGUIDES .....</b>	254
<i>Y. Wang ; Q. Yu ; X. Xie ; M. Mitos ; A. Ramaswamy ; E. Norberg ; G. Fish ; A. Beling</i>	
<b>MI3.4 - INP-BASED WAVEGUIDE INTEGRATED PHOTODETECTORS .....</b>	256
<i>Patrick Runge ; Gan Zhou ; Tobias Beckerwerth ; Felix Ganzer ; Sven Mutschall ; Angela Seeger</i>	
<b>TUI1.1 - AUNASSB SEPARATE ABSORPTION, CHARGE, AND MULTIPLICATION AVALANCHE PHOTODIODES .....</b>	258
<i>Min Ren ; Scott J. Maddox ; Madison E. Woodson ; Yaojia Chen ; Seth R. Bank ; Joe C. Campbell</i>	
<b>TUI1.2 - CROSSTALK CHARACTERIZATION AND MITIGATION IN GEIGER-MODE AVALANCHE PHOTODIODE ARRAYS.....</b>	260
<i>R. D. Younger ; J. P. Donnelly ; W. D. Goodhue ; E. K. Duerr ; K. A. McIntosh ; J. Frechette ; R. J. Bailey ; A. C. Ruff ; J. G. Macdonald</i>	
<b>TUI1.3 - HIGH RESPONSIVITY DOUBLE-JUNCTION CMOS-COMPATIBLE AVALANCHE PHOTODIODE.....</b>	262
<i>Md. Mottaleb Hossain ; Majeed M. Hayat</i>	
<b>TUI1.4 - CHINA SILICON PHOTOMULTIPLIER TECHNOLOGY .....</b>	264
<i>N. D'Ascenzo ; V. Saveliev ; Q. Xie</i>	
<b>TUA1.1 - LOW-NOISE OPTICAL FREQUENCY COMBS AND THEIR APPLICATIONS IN MICROWAVE PHOTONICS.....</b>	266
<i>Jungwon Kim</i>	
<b>TUA2.1 - PHOTONIC MICROWAVE GENERATION USING OPTICALLY INJECTED SEMICONDUCTOR LASERS SUBJECT TO SHORT OPTICAL FEEDBACK .....</b>	268
<i>Kai-Hung Lo ; Sheng-Kwang Hwang</i>	
<b>TUA2.2 - OPTOELECTRONIC OSCILLATOR WITH LOW TEMPERATURE INDUCED FREQUENCY DRIFT.....</b>	270
<i>U. S. Mutugala ; J. Kim ; T. D. Bradley ; N. V. Wheeler ; S. R. Sandoghchi ; J. Hayes ; E. Numkam-Fokoua ; F. Poletti ; M. N. Petrovich ; D. J. Richardson ; R. Slavik</i>	
<b>TUA2.3 - OPTICALLY GENERATED ULTRA-STABLE MICROWAVES.....</b>	272
<i>T. M Fortier</i>	

<b>TUA2.4 - WAVELENGTH-INDEPENDENT OPTICAL TWO-TONE SIGNAL GENERATOR COMPOSED OF ONE SINGLE MACH-ZEHNDER OPTICAL MODULATOR AND A POLARIZER .....</b>	273
<i>Akito Chiba ; Yosuke Akamatsu ; Kazumasa Takada</i>	
<b>TUA2.5 - HIGH-Q OPTOELECTRONIC OSCILLATOR USING AN ACTIVE UR RECIRCULATING DELAY LINE .....</b>	275
<i>Georgios Charalambous ; Andreas Perentos ; Stavros Iezekiel</i>	
<b>TUA3.1 - EXTREMELY-WIDEBAND SPECTRALLY AGILE COHERENT DETECTION RF-IF DOWN CONVERTING LINK .....</b>	277
<i>C. Lin ; S. B. Jester ; D. Chao ; D. C. Evans ; J. R. Adleman ; T. B. Simpson</i>	
<b>TUA3.2 - PHOTONIC FREQUENCY CONVERSION FOR DYNAMIC SPECTRAL ACCESS AND SIGNAL REMOTING .....</b>	279
<i>Andrew J. Stark ; Michael D. Merritt ; Jerrod Langston ; Charles Middleton ; Richard Desalvo ; Stephen E. Ralph</i>	
<b>TUA3.3 - SILICON-ON-INSULATOR PHOTONIC CRYSTAL MULTI-TAP MICROWAVE PHOTONICS FILTER .....</b>	281
<i>Jérôme Bourderionnet ; Grégory Moille ; Sylvain Combrié ; Alfredo De Rossi ; Xavier Checoury ; Zheng Han ; Mathilde Gay ; Laurent Bramerie ; Jean-Claude Simon ; Christophe Peucheret</i>	
<b>TUA3.4 - TUNABLE W-BAND MICROWAVE PHOTONIC FILTER WITH ULTRA-HIGH QUALITY FACTOR.....</b>	283
<i>Yurong Gao ; Shangyuan Li ; Yang Yu ; Xiaoping Zheng ; Hanyi Zhang ; Bingkun Zhou</i>	
<b>TUA3.5 - HEXAGONAL WAVEGUIDE MESH DESIGN FOR UNIVERSAL MULTIPORT INTERFEROMETERS.....</b>	285
<i>Daniel Pérez ; Ivana Gasulla ; José Capmany ; Richard A. Soref</i>	
<b>TUB1.1 - SINGLE-WAVELENGTH FULL-DUPLEX 10 GBPS REFLECTIVE PON CAPABLE OF 31 DB OF ODN LOSS .....</b>	287
<i>S. Straullu ; S. Abrate ; V. Ferrero ; R. Gaudino</i>	
<b>TUB1.2 - IMPROVEMENT OF OPTICAL ACCESS M-QAM TRANSMISSION CAPACITY USING DSP BASED NON-ORTHOGONAL FREQUENCY SHIFT KEYING .....</b>	289
<i>Yong-Yuk Won ; Sang Min Yoon ; Dongsun Seo</i>	
<b>TUB1.3 - OPTIMIZATION OF DSP-BASED CHANNEL AGGREGATION PARAMETERS FOR FRONT-HAULING OVER PON INFRASTRUCTURE .....</b>	291
<i>S. Straullu ; M. Befekadu ; S. Abrate ; R. Gaudino</i>	
<b>TUB1.4 - EXPERIMENTAL DEMONSTRATION OF 125GBIT/S HALF-CYCLE 32QAM NYQUIST-SCM TRANSMISSION SYSTEM FOR SHORT REACH COMMUNICATIONS .....</b>	293
<i>Kangping Zhong ; Xian Zhou ; Yiguang Wang ; Liang Wang ; Yanfu Yang ; Changyuan Yu ; Alan Pak Tao Lau ; Chao Lu</i>	
<b>TUB1.5 - LASER-SHARING IN PON .....</b>	295
<i>S. Straullu ; S. Abrate ; V. Ferrero ; R. Gaudino</i>	
<b>TUB1.6 - HIGH-SPEED OPTICAL WIRELESS PERSONAL AREA COMMUNICATION SYSTEM SUPPORTING MULTIPLE USERS .....</b>	297
<i>Tingting Song ; Ke Wang ; Ampalavanapillai Nirmalathas ; Tian Liang ; Elaine Wong ; Jing Ma</i>	
<b>TUB2.2 - SELF-HOMODYNE AND PHASE MEASUREMENTS FOR MCF TRANSMISSION WITH WIDEBAND COMB TRANSMITTER.....</b>	299
<i>Benjamin J. Puttnam ; Ruben. S. Luis ; Yoshinari Awaji ; Naoya Wada</i>	
<b>TUB2.3 - SPATIAL DIVISION MULTIPLEXED PHOTONIC SPECTRAL PROCESSORS USING SPATIAL AND PLANAR OPTICAL CIRCUIT .....</b>	301
<i>Mitsumasa Nakajima ; Kenya Suzuki ; Keita Yamaguchi ; Hirotaka Ono ; Mikitaka Itoh ; Yuichiro Ikuma ; Yuzo Ishii ; Takayuki Mizuno ; Yutaka Miyamoto ; Toshikazu Hashimoto</i>	
<b>TUB2.4 - EXPERIMENTAL STUDY OF RECEIVER COMPLEXITY IN OAM-MDM TRANSMISSION SYSTEMS .....</b>	303
<i>Reza Mirzaei Nejad ; Karen Allahverdyan ; Charles Brunet ; Sophie Larochelle ; Leslie A. Rusch</i>	
<b>TUB3.2 - JOINT ITERATIVE DETECTION AND DECODING USING SPATIALLY COUPLED LDPC CODES .....</b>	305
<i>Mario A. Castrillón ; Damian A. Morero ; Mario R. Hueda</i>	
<b>TUB3.3 - EXPERIMENTAL DEMONSTRATION OF A VARIABLE-RATE LDPC CODE WITH ADAPTIVE LOW-POWER DECODING FOR NEXT-GENERATION OPTICAL NETWORKS.....</b>	307
<i>Damian A. Morero ; Mario A. Castrillón ; Teodoro A. Goette ; Matías S. Schnidrig ; Facundo A. Ramos ; Martín C. Asinari ; Diego E. Crivelli ; Mario R. Hueda</i>	
<b>TUB3.4 - ACHIEVABLE INFORMATION RATES OF NONBINARY CODES FOR OPTICAL FIBER TRANSMISSION .....</b>	309
<i>Gabriele Liga ; Alex Alvarado ; Polina Bayvel ; Erik Agrell</i>	
<b>TUC1.1 - ELECTRICALLY INJECTED ALGAN NANOWIRE DEEP ULTRAVIOLET LASERS.....</b>	311
<i>Z. Mi ; S. Zhao ; X. Liu ; S. Y. Woo ; M. Bugnet ; G. A. Botton</i>	

<b>TUC1.2 - III-NITRIDE NANOWIRE ARRAY EDGE-EMITTING 1.3 <math>\mu</math>M DIODE LASER ON (001) SILICON SUBSTRATE.....</b>	313
<i>Arnab Hazari ; Pallab Bhattacharya</i>	
<b>TUC1.3 - LINEARLY AND CIRCULARLY POLARIZED ULTRAVIOLET GAN MICROCAVITY POLARITON LASERS.....</b>	315
<i>Aniruddha Bhattacharya ; Md Zunaid Baten ; Ivan Iorsh ; Thomas Frost ; Alexey Kavokin ; Pallab Bhattacharya</i>	
<b>TUC1.4 - DEVELOPMENT OF III-NITRIDE NANOSTRUCTURES FOR LOW THRESHOLD LASING AND SEMIPOLEAR GAN TOWARDS YELLOW/ORANGE LASING.....</b>	317
<i>T. Wang</i>	
<b>TUC2.1 - DIRECTLY MODULATED PHOTONIC CRYSTAL LASERS FOR EXTREMELY SHORT OPTICAL LINKS.....</b>	319
<i>Shinji Matsuo ; Koji Takeda ; Takuro Fujii</i>	
<b>TUC2.2 - INTEGRATED COHERENT COMBINING OF PHOTONIC CRYSTAL BRAGG LASERS WITH TRIANGULAR LATTICE.....</b>	321
<i>Yunsong Zhao ; Yeyu Zhu ; Lin Zhu</i>	
<b>TUC2.3 - 1060 NM LASERS BASED ON ASYMMETRIC EXTENDED VERTICAL WAVEGUIDE FOR HIGH BRIGHTNESS, NARROW AND ASTIGMATISM-FREE CIRCULAR BEAM EMISSION.....</b>	323
<i>M. J. Miah ; V. P. Kalosha ; D. Bimberg</i>	
<b>TUC2.4 - PHASED LOCKED LASER DIODE BY USING PASSIVE ARRAY OF MULTI-MODE INTERFERENCE COUPLERS.....</b>	325
<i>Lianping Hou ; Song Tang ; Marc Sorel ; John H. Marsh</i>	
<b>TUC2.5 - SINGLE-MODE BEHAVIOR OF LITHOGRAPHIC VCSELS FOR DENSELY PACKED ARRAYS .....</b>	327
<i>J. Beadsworth ; N. Cox ; Ja. Leshin ; Je. Leshin ; M. Li ; X. Yang ; L. Eifert ; F. Tucker ; D. Deppe</i>	
<b>TUC3.1 - PARITY-TIME SYMMETRY ANALOGS IN COHERENTLY COUPLED VERTICAL CAVITY LASER ARRAYS.....</b>	329
<i>Zihe Gao ; Stewart T. M. Frysliie ; Bradley J. Thompson ; Matthew T. Johnson ; Kent D. Choquette</i>	
<b>TUC3.2 - MONOLITHIC INJECTION LOCKING FOR ENHANCED BANDWIDTH IN COHERENTLY COUPLED, PHASED VERTICAL CAVITY LASER ARRAYS.....</b>	331
<i>Stewart T. M. Frysliie ; Zihe Gao ; Kent D. Choquette</i>	
<b>TUC3.3 - HIGH-CONTRAST-GRATING-BASED FABRY-PÉROT FILTER ARRAY FOR MONOLITHIC MULTIWAVELENGTH VCSEL ARRAYS.....</b>	333
<i>Annjin Liu ; Philip Wolf ; Jan-Hindrik Schulze ; Wanhua Zheng ; Dieter Bimberg</i>	
<b>TUC3.4 - IMPACT OF PHOTON LIFETIME ON MAXIMUM BITRATE AND TEMPERATURE STABILITY OF 980 NM VCSELS FOR 50 GB/S OPTICAL INTERCONNECTS .....</b>	335
<i>Gunter Larisch ; Philip Moser ; James A. Lott ; Dieter Bimberg</i>	
<b>TUC3.5 - LONG WAVELENGTH VCSELS MADE BY WAFER FUSION .....</b>	337
<i>A. Mereuta ; A. Caliman ; P. Wolf ; A. Sirbu ; V. Iakovlev ; D. Ellafi ; A. Rudra ; D. Bimberg ; E. Kapon</i>	
<b>TUD1.1 - MINIATURE NMR GYROS .....</b>	339
<i>Thad G. Walker</i>	
<b>TUD1.2 - OPTICAL RING RESONATORS AND IMPLICATIONS FOR RESONANT MICRO-OPTIC GYROSCOPES .....</b>	341
<i>Huilian Ma ; Jianjie Zhang ; Ying Lu ; Zhonghe Jin</i>	
<b>TUD1.3 - SENSITIVITY LIMITATIONS OF A RESONANT MICROPHTONIC GYROSCOPE .....</b>	343
<i>Lute Maleki ; W. Liang ; D. Eliyahu ; E. Dale ; V. S. Ilchenko ; A. A. Savchenkov ; A. B. Matsko</i>	
<b>TUD2.1 - STIMULATED BRILLOUIN LASER MICROCAVITY GYROSCOPE .....</b>	345
<i>Jiang Li ; Myoung-Gyun Suh ; Kerry Vahala</i>	
<b>TUD2.3 - CHIP-SCALE OPTICAL GYROS BASED ON INTEGRATED ULTRA LOW LOSS WAVEGUIDE COILS AND SILICON PHOTONIC FRONT ENDS .....</b>	347
<i>Daniel J. Blumenthal</i>	
<b>TUD3.1 - KERR COMBS IN MICRORESONATORS: FROM CHAOS TO SOLITONS.....</b>	349
<i>M. L. Gorodetsky</i>	
<b>TUD3.2 - INVESTIGATION ON SOLITON RELATED EFFECTS IN MID-INFRARED QUANTUM-CASCADE LASERS .....</b>	350
<i>Jing Bai ; Hanquan Wang ; Debao Zhou</i>	
<b>TUD3.3 - COHERENT PHASE-LOCKED SINGLE-MODE FREQUENCY MICROCOMBS IN THE C AND L BANDS WITHOUT MODE-CROSSING DISRUPTIONS.....</b>	352
<i>H. Liu ; S. -W. Huang ; J. Yang ; A. K. Vinod ; M. Yu ; D. -L. Kwong ; C. W. Wong</i>	
<b>TUD3.4 - STABILIZING THE MICRORESONATOR FREQUENCY COMB.....</b>	354
<i>Wei Liang ; Anatoliy A. Savchenkov ; Vladimir S. Ilchenko ; Danny Eliyahu ; Andrey B. Matsko ; Lute Maleki</i>	

<b>TUD3.5 - DIRECTED ASSEMBLY OF MICROSPHERE-STABILIZED LASER ARRAYS .....</b>	356
<i>J. A. Rivera ; T. C. Galvin ; J. G. Eden</i>	
<b>TUE1.2 - INTELLIGENT BIAS-SELECTION METHOD FOR COMPUTATIONAL IMAGING ON A CMOS IMAGER .....</b>	358
<i>Manish Bhattarai ; Javad Ghasemi ; Glauco R. C. Fiorante ; Payman Zarkesh-Ha ; Sanjay Krishna ; Majeed M. Hayat</i>	
<b>TUE1.3 - MMI WAVEGUIDE BASED MULTISPECTRAL DETECTION OF NUCLEIC ACIDS FOR ANALYSIS OF DRUG-RESISTANT BACTERIA .....</b>	360
<i>G. G. Meena ; M. A. Stott ; D. Ozcelik ; T. A. Wall ; R. Robison ; A. R. Hawkins ; H. Schmidt</i>	
<b>TUE1.4 - LIQUID CRYSTAL SENSOR FOR LABEL-FREE MONITORING PROTEIN SOLUTION .....</b>	362
<i>Jhao-Cian Gao ; Nan-Fu Chiu ; Hua-Yang Lin ; Meng-Zhu Zhang ; Yin Lin ; Shug-June Hwang</i>	
<b>TUE1.5 - FACILE DETECTION OF BIOGENIC AMINES IN PLASMA USING PHOTONIC CRYSTAL BIOSILICA COMBINING SURFACE-ENHANCED RAMAN SPECTROSCOPY AND THIN LAYER CHROMATOGRAPHY .....</b>	364
<i>Xianming Kong ; Alan X. Wang</i>	
<b>TUE2.2 - HIGH-THROUGHPUT TIME-STRETCH IMAGING CELLULAR ASSAY BASED ON A HIGH-SPEED SPINNING PLATFORM .....</b>	368
<i>Anson H. L. Tang ; Antony C. S. Chan ; P. Yeung ; Barbara P. Chan ; Edmund Y. Lam ; Kenneth K. Y. Wong ; Kevin K. Tsia</i>	
<b>TUE2.3 - OPTOFLUIDIC CHIPS WITH INTEGRATED WAVEGUIDES AND ACTIVE MICROFLUIDICS FOR SINGLE PARTICLE DETECTION .....</b>	370
<i>J. W. Parks ; H. Schmidt</i>	
<b>TUE2.4 - HIGH-THROUGHPUT REAL-TIME IMAGING FLOW CYTOMETRY BASED ON FOURIER SAMPLING .....</b>	372
<i>Qiang Guo ; Hongwei Chen ; Yuxi Wang ; Minghua Chen ; Sigang Yang ; Shihong Xie</i>	
<b>TUE2.5 - DESIGN AND CHARACTERIZATION OF INTEGRATED 2D ABEL TRAP .....</b>	374
<i>M. Rahman ; M. A. Stott ; A. R. Hawkins ; H. Schmidt</i>	
<b>TUE2.6 - FRET LASERS USING BIOTIN-STREPTAVIDIN BIOCONJUGATES AND CHARACTERISTICS OF FLUORESCENT PROTEIN LASERS .....</b>	376
<i>José A. Rivera ; J. Gary Eden</i>	
<b>TUF1.1 - GRAPHENE METASURFACES FOR ARBITRARY WAVEFRONT CONTROL .....</b>	386
<i>Liming Liu ; Yair Zarate ; Haroldo T. Hattori ; Dragomir N. Neshev ; Ilya V. Shadrivov ; David A. Powell</i>	
<b>TUF1.2 - ULTRA-WIDE ANGLE, DIRECTIONAL SPECTRUM SPLITTING WITH VISIBLE-FREQUENCY VERSATILE METASURFACES .....</b>	388
<i>Zhongyang Li ; Edgar Palacios ; Serkan Butun ; Koray Aydin</i>	
<b>TUF1.4 - SUBWAVELENGTH RESOLUTION IMAGING BY ULTRA-THIN META-LENS .....</b>	390
<i>M. Khorasaninejad ; W. T. Chen ; J. Oh ; A. Y. Zhu ; R. C. Devlin ; F. Capasso</i>	
<b>TUF1.5 - METASURFACE INVISIBILITY SKIN CLOAK .....</b>	392
<i>Zi Jing Wong ; Xingjie Ni ; Michael Mrejen ; Yuan Wang ; Xiang Zhang</i>	
<b>TUF2.2 - EPITAXIAL INDIUM PHOSPHIDE NANOFAG OPTICAL ANTENNAS: DIRECTIONAL AND POLARIZED EMISSION AND ABSORPTION .....</b>	394
<i>Ofir Sorias ; Alexander Kelrich ; Ran Gladstone ; Dan Ritter ; Meir Orenstein</i>	
<b>TUF2.3 - COLLOIDAL QUANTUM DOT COLOR CONVERTERS FOR VISIBLE LIGHT COMMUNICATIONS .....</b>	396
<i>J. M. Santos ; M. Leitão ; C. Foucher ; B. Guilhabert ; S. Watson ; A. E. Kelly ; S. Rajbhandari ; H. Chun ; H. Haas ; G. Faulkner ; D. C. O'Brien ; N. Laurand ; M. D. Dawson</i>	
<b>TUF2.4 - INAS SINGLE QUANTUM DOTS IN WURTZITE INP NANOWIRES EMITTING AT TELECOMMUNICATION WAVELENGTHS .....</b>	398
<i>S. Haffouz ; D. Dalacu ; P. J. Poole</i>	
<b>TUF3.3 - ANTIRESONANT HOLLOW CORE FIBER WITH SEVEN NESTED CAPILLARIES .....</b>	402
<i>Jose E. Antonio-Lopez ; Selim Habib ; Amy Van Newkirk ; Gisela Lopez-Galmiche ; Zeinab S. Eznaveh ; Juan C. Alvarado-Zacarias ; Ole Bang ; Morten Bache ; Axel Schülgen ; Rodrigo Amezcua Correa</i>	
<b>TUF3.4 - 2016 IEEE PHOTONICS CONFERENCE FABRICATION OF THE PERIODIC STRUCTURE ON LIQUID PHASE IN HOF AND CONFIRMATION OF TRANSMISSION THROUGH LIQUID GRATING FIBER DEPENDENT ON TEMPERATURE .....</b>	404
<i>Jihyun Hwang ; Jongki Kim ; Jiyoung Park ; Kyunghwan Oh</i>	
<b>TUG1.2 - CONFORMAL AND TUNABLE OPTICAL DIELECTRIC METASURFACES BASED ON FLEXIBLE STRETCHABLE SUBSTRATES .....</b>	406
<i>Seyedeh Mahsa Kamali ; Ehsan Arbabi ; Amir Arbabi ; Yu Horie ; Andrei Faraon</i>	
<b>TUG1.3 - MULTI-LEVEL STORAGE IN NON-VOLATILE PHASE-CHANGE NANOPHOTONIC MEMORIES .....</b>	408
<i>Carlos Ríos ; Matthias Stegmaier ; C. David Wright ; Wolfram H. P. Pernice ; Harish Bhaskaran</i>	

<b>TUG1.4 - ULTRA-COMPACT PLASMONIC WAVEGUIDES WITH HIGH EFFICIENCY DIPOLE NANOANTENNAS .....</b>	410
<i>Qian Gao ; Alan X. Wang</i>	
<b>TUG1.5 - OPTIMALLY-TUNED PLASMONIC NANOANTENNA DIMER ARRAYS FOR ELECTRO-OPTICAL SENSING.....</b>	412
<i>D. T. Zimmerman ; R. A. Wambold ; G. J. Weisel ; B. G. Willis</i>	
<b>TUG2.2 - EXPERIMENTAL DEMONSTRATION OF A HIGH EFFICIENCY COMPACT BILAYER INVERSE TAPER EDGE COUPLER FOR SI PHOTONICS.....</b>	414
<i>Arnab Dewanjee ; J. Stewart Aitchison ; Mo. Mojahedi</i>	
<b>TUG2.3 - EXPERIMENTAL DEMONSTRATION OF A POLARIZATION BEAM SPLITTER BASED ON AUGMENTED LOW INDEX GUIDING STRUCTURE .....</b>	416
<i>X. Sun ; J. S. Aitchison ; M. Mojahedi</i>	
<b>TUG2.5 - PERFECT LENSING WITH LOSSY METAMATERIALS: A BLUEPRINT FOR REALIZATION.....</b>	420
<i>Gilad Rosenblatt ; Meir Orenstein</i>	
<b>TUG3.1 - MULTI-CHANNEL DETECTION OF PHOTONIC ORBITAL ANGULAR MOMENTUM STATES USING METAHOLOGRAM .....</b>	422
<i>Guanghao Rui ; Qiwen Zhan</i>	
<b>TUG3.3 - PLASMONIC MODE CONTROLLER AND MODULATOR.....</b>	435
<i>Abdul Khaleque ; Haroldo T. Hattori</i>	
<b>TUG3.5 - ULTRASMALL SILICON MODE CONVERTERS DESIGNED BY WAVEFRONT MATCHING METHOD DEVELOPED FOR WAVEGUIDE DISCONTINUITY PROBLEM .....</b>	439
<i>Shuntaro Makino ; Takeshi Fujisawa ; Kunimasa Saitoh</i>	
<b>TUG3.6 - NON-LINEAR INTERNAL DYNAMICS OF A DAMPED-DRIVEN POLARITON GAS.....</b>	441
<i>Nina S. Voronova ; Andrei A. Elistratov ; Yurii E. Lozovik</i>	
<b>TUH1.1 - HIGH HARMONIC GENERATION IN SOLIDS: ELECTRONIC MOTION AND BAND STRUCTURES REVEALED .....</b>	443
<i>T J Hammond ; Giulio Vampa ; Paul Corkum</i>	
<b>TUH1.3 - NARROWBAND, HIGH POWER VUV LAMPS (HV = 7.2 EV) COMPRISING LARGE ARRAYS OF MICROCAVITY PLASMAS .....</b>	446
<i>S. -J. Park ; C. M. Herring ; J. H. Cho ; H. J. Yang ; J. G. Eden</i>	
<b>TUH1.4 - NANOSCALE IMAGING WITH HIGH PHOTON FLUX TABLE-TOP XUV SOURCES .....</b>	448
<i>Jan Rothhardt ; Getnet K. Tadesse ; Steffen Hädrich ; Robert Klas ; Stefan Demmler ; Jens Limpert ; Andreas Tünnermann</i>	
<b>TUH2.1 - DIODE-PUMPED HIGH ENERGY SHORT PULSE LASERS AND THEIR APPLICATIONS .....</b>	450
<i>Brendan A. Reagan ; Cory Baumgarten ; Michael Pedicone ; Herman Bravo ; Hanchen Wang ; Liang Yin ; Carmen S. Menoni ; Jorge J. Rocca</i>	
<b>TUH2.2 - STRATEGIES FOR DESIGNING HIGH PERFORMANCE INTERFERENCE COATINGS FOR 1–2 μM HIGH ENERGY LASERS.....</b>	452
<i>C. S. Menoni ; D. Schiltz ; D. Patel ; C. Baumgarten ; B. Reagan ; J. J. Rocca</i>	
<b>TUH2.3 - 100 MJ INFRARED FEMTOSECOND PULSES GENERATED BY DUAL-CHIRPED OPTICAL PARAMETRIC AMPLIFICATION.....</b>	454
<i>Yuxi Fu ; Eiji J. Takahashi ; Katsumi Midorikawa</i>	
<b>TUH2.4 - HIGH-CONTRAST 0.1-HZ 4-PW LASER AT CORELS .....</b>	456
<i>Jae Hee Sung ; Seong Ku Lee ; Hwang Woon Lee ; Je Yoon Yoo ; Chang Hee Nam</i>	
<b>TUH3.1 - HIGH-ENERGY MULTI-CHANNEL WAVEFORM SYNTHESIZER FOR GENERATING MICROJOULE-LEVEL ISOLATED ATTOSECOND PULSES .....</b>	458
<i>Eiji. J. Takahashi</i>	
<b>TUH3.3 - CONTAMINATION MEDIATED CONTINUOUS-WAVE LASER DAMAGE OF OPTICAL MATERIALS .....</b>	462
<i>Andrew Brown ; Albert Ogloza ; Kyle Olson ; Joseph Talghader</i>	
<b>TUI2.1 - TYPE-II SUPERLATTICE UNIPOLAR BARRIER INFRARED DETECTORS.....</b>	466
<i>David Z. Ting ; Alexander Soibel ; Linda Höglund ; Arezou Khoshakhlagh ; Cory J. Hill ; Sam A. Keo ; Sir B. Rafol ; Anita M. Fisher ; Edward M. Luong ; Jason M. Mumolo ; John K. Liu ; Brian J. Pepper ; Sarath D. Gunapala</i>	
<b>TUI2.2 - BAND ENGINEERING, GROWTH AND CHARACTERISTICS OF TYPE-II INAS/GASB SUPERLATTICE-BASED DETECTORS .....</b>	468
<i>A. Khoshakhlagh ; D. Z. Ting ; A. Soibel ; C. J. Hill ; L. Höglund ; S. A. Keo ; S. D. Gunapala</i>	
<b>TUI2.3 - DIFFUSION CHARACTERIZATION OF IN(GA)AS/INASSB TYPE-II SUPERLATTICES VIA ELECTRON BEAM INDUCED CURRENT AND TIME-RESOLVED PHOTOLUMINESCENCE .....</b>	470
<i>N. Yoon ; C. J. Reyner ; G. Ariyawansa ; J. E. Scheihing ; J. Mabon ; D. Wasserman</i>	

<b>TUI2.4 - HIGH-SPEED AND HIGH-POWER GASB BASED PHOTODIODE FOR 2.5 <math>\mu</math>M WAVELENGTH OPERATIONS.....</b>	472
<i>Rui-Lin Chao ; Jhiih-Min Wun ; Yu-Wen Wang ; Yi-Han Chen ; J. E. Bowers ; Jin-Wei Shi</i>	
<b>TUI3.1 - ANALYZING PHASE-AMPLITUDE COUPLING EFFECTS ON THE DYNAMICS OF SEMICONDUCTOR RING LASER GYROSCOPE .....</b>	476
<i>Arpit Khandelwal ; Y. S. Hossein ; Azeemuddin Syed ; M. R. Sayeh ; Jagannath Nayak</i>	
<b>TUI3.2 - ULTRA-LOW LOSS STITCHING FOR LARGE-AREA WAVEGUIDE BASED DELAY-LINE GYROSCOPES.....</b>	478
<i>Taran Huffman ; Michael Davenport ; Michael Belt ; John E. Bowers ; Daniel J. Blumenthal</i>	
<b>TUI3.3 - SEMICONDUCTOR RING LASER GYROSCOPE WITH IMPROVED ROTATION SENSITIVITY .....</b>	480
<i>Arpit Khandelwal ; Azeemuddin Syed ; Jagannath Nayak</i>	
<b>TUI3.4 - ULTRAFAST INTERROGATION OF FULLY DISTRIBUTED CHIRPED FIBRE BRAGG GRATING STRAIN SENSOR .....</b>	482
<i>Eamonn J Ahmad ; Chao Wang ; Dejun Feng ; Zhijun Yan ; Lin Zhang</i>	
<b>TUI3.6 - LIGHT-TRANSMISSIVE ORGANIC PHOTOCONDUCTIVE CELL FOR STACK-TYPE IMAGE SENSOR .....</b>	484
<i>Toshikatsu Sakai ; Tomomi Takagi ; Yosuke Hori ; Hiroshi Otake</i>	
<b>TUJ4.2 - QUANTUM COMMUNICATION FOR TOMORROW .....</b>	486
<i>William J. Munro</i>	
<b>WA1.1 - EXTREME BANDWIDTH SPECTRUM ANALYSIS.....</b>	487
<i>Kristian D. Merkel ; Scott H. Bekker ; Aaron S. Traxinger ; Colton R. Stiffler ; Alex J. Woidtke ; Michael D. Chase ; Wm. Randall Babbitt ; Cal H. Harrington ; Zeb W. Barber</i>	
<b>WA1.2 - DISPERSION-OPTIMIZED MULTICORE FIBER TRUE TIME DELAY FOR MICROWAVE SIGNAL PROCESSING.....</b>	489
<i>Sergi García ; Ivana Gasulla</i>	
<b>WA1.3 - HIGH-PRECISION MICROWAVE PHOTONIC TRUE TIME DELAY MEASUREMENT BASED ON MULTI-CHANNEL MICROWAVE INTERFERENCE .....</b>	491
<i>Boyu Chen ; Xiaoxiao Xue ; Shangyuan Li ; Xiaoping Zheng ; Hanyi Zhang ; Bingkun Zhou</i>	
<b>WA1.4 - A MICROWAVE PHOTONIC CANCELLER FOR IMPROVED INTERFERENCE REJECTION IN FULL DUPLEX RADIO.....</b>	493
<i>Matthew P Chang ; Jingyi Jenny Sun ; Eric C. Blow ; Yue-Kai I Huang ; Paul R. Prucnal</i>	
<b>WA1.5 - HYPERFINE MAGNITUDE RESPONSE MEASUREMENT FOR OPTICAL FILTERS BASED ON LOW-FREQUENCY DETECTION .....</b>	495
<i>Shangjian Zhang ; Xinhai Zou ; Chong Zhang ; Heng Wang ; Yali Zhang ; Yong Liu ; John E. Bowers</i>	
<b>WA2.1 - LOW VOLTAGE AND WIDE BANDWIDTH III-V ELECTRO-OPTIC MODULATORS WITH SERIES CONNECTED ARMS.....</b>	497
<i>Nak Ki Kim ; Nadir Dagli</i>	
<b>WA2.2 - SILICON PHOTONICS FREQUENCY SHIFTER BASED ON I&amp;Q DUAL MACH-ZEHNDER MODULATOR.....</b>	499
<i>Jérôme Bourderionnet ; Arnaud Brignon ; Carmello Scarella ; Alan Naughton ; Peter O'Brien ; Thijs Spuesens ; G. Lepage ; P. Verheyen ; P. De Heyn ; P. Absil</i>	
<b>WA2.3 - PHOTONIC ANALOG-TO-DIGITAL CONVERTER DESIGN OPTIMIZATION THROUGH PHOTODIODE PULSED RESPONSE.....</b>	501
<i>Jean H. Kalkavage ; Keith G. Petillo ; Thomas R. Clark</i>	
<b>WA2.4 - CAVITY EFFECT ON PHASE NOISE OF FABRY-PEROT MODULATOR-BASED OPTICAL FREQUENCY COMB.....</b>	503
<i>Joonyoung Kim ; David J. Richardson ; Radan Slavík</i>	
<b>WB1.1 - PHASE-SENSITIVE FOUR-WAVE MIXING IN ALGAAS-ON-INSULATOR NANO-WAVEGUIDES .....</b>	505
<i>F. Da Ros ; M. Pu ; L. Ottaviano ; H. Hu ; E. Semenova ; M. Galili ; K. Yvind ; L. K. Oxenlowe</i>	
<b>WB1.2 - DEMULTIPLEXING PERFORMANCE INVESTIGATION OF N-OTDM SIGNAL BY TEMPORAL MAGNIFICATION AND COHERENT OPTICAL SAMPLING .....</b>	507
<i>X. Hong ; D. Kong ; L. Yue ; Y. Li ; Y. Liu ; J. Wu</i>	
<b>WB1.3 - ADVANCED OPTICAL SIGNAL PROCESSING OF BROADBAND PARALLEL DATA SIGNALS .....</b>	509
<i>L. K. Oxenlowe ; H. Hu ; N. K. Kjoller ; K. M. Roge ; M. Lillieholm ; P. Guan ; M. Galili</i>	
<b>WB1.4 - FIRST DEMONSTRATION OF NON-DEGENERATE PHASESENSITIVE AMPLIFICATION WITH PUMP LIGHT RECOVERED BY OPTICAL PHASE-LOCKED LOOP .....</b>	511
<i>Yasuhiro Okamura ; Masashi Abe ; Kotaro Kondo ; Yuya Ohmichi ; Takushi Kazama ; Takeshi Umeiki ; Masafumi Koga ; Atsushi Takada</i>	

<b>WB1.5 - 16-QAM FIELD-QUADRATURE DECOMPOSITION USING POLARIZATION-ASSISTED PHASE SENSITIVE AMPLIFICATION</b>	513
<i>N. K. Kjoller ; M. Piels ; F. Da Ros ; K. Dalgaard ; M. Galili ; L. K. Oxenlowe</i>	
<b>WB2.1 - RECORD ACHIEVEMENTS IN SDM TRANSMISSION CAPACITY</b>	515
<i>Yoshinari Awaji ; Benjamin J. Puttnam ; Jun Sakaguchi ; Ruben S. Luís ; Jose Manuel Delgado Mendinueta ; Werner Klaus ; Naoya Wada</i>	
<b>WB2.2 - EFFICIENT ADAPTIVE FILTERING TECHNIQUES USING HYBRID RLS-LMS ALGORITHM FOR CHANNEL EQUALIZATION IN OPTICAL FEW-MODE FIBER COMMUNICATION SYSTEMS</b>	517
<i>Yi Weng ; Xuan He ; Junyi Wang ; Zhongqi Pan</i>	
<b>WB2.3 - ANALYTICAL MODEL OF INTER-CORE CROSSTALK OF REAL HOMOGENEOUS MULTI-CORE FIBERS</b>	519
<i>Adolfo V. T. Cartaxo ; Tiago M. F. Alves</i>	
<b>WB2.4 - THEORETICAL MODELLING OF RANDOM TIME NATURE OF INTER-CORE CROSSTALK IN MULTICORE FIBERS</b>	521
<i>Tiago M. F. Alves ; Adolfo V. T. Cartaxo</i>	
<b>WB2.5 - TRAINING-AIDED 6×6 MIMO FREQUENCY-DOMAIN EQUALIZER FOR OPTICAL SDM TRANSMISSION SYSTEMS</b>	523
<i>F. Pittala ; A. Zanaty ; F. J. Vaquero Caballero ; G. Goeger ; Y. Ye</i>	
<b>WB3.2 - CONSTELLATION-INDUCED SNR GAIN IN SHORT-REACH OPTICAL OFDM</b>	525
<i>Mingyang Lyu ; Siamak Amiralizadeh ; Leslie A. Rusch</i>	
<b>WB3.3 - RECENT PROGRESS IN SUBMARINE TRANSMISSION TECHNOLOGIES</b>	527
<i>D. G. Foursa</i>	
<b>WB3.4 - ANALOG FRONT-END CHARACTERIZATION OF INTRADYNE COHERENT RECEIVERS USING POLARIZATION MULTIPLEXED LASER SOURCE</b>	528
<i>Qiang Wang ; Yang Yue ; Murat Arabaci ; Massimiliano Salsi ; Bo Zhang ; Andre Vovan ; Jon Anderson</i>	
<b>WB3.5 - IMPACT OF LINEAR MODE-COUPLING ON NONLINEAR PERFORMANCE OF LONG-HAUL STRONG-COUPLED MULTICORE FIBERS TRANSMISSION</b>	530
<i>Abdulaziz E. El-Fiqi ; Hossam M. H. Shalaby ; Kazutoshi Kato</i>	
<b>WC1.1 - ENHANCED RANDOM LASING FROM Au-ZNO NANOWIRE SCHOTTKY DIODE BY USING DISTRIBUTED BRAGG REFLECTOR</b>	532
<i>Sunayna Binte Bashar ; Mohammad Suja ; Wenhao Shi ; Jianlin Liu</i>	
<b>WC1.2 - REFINED PROCEDURE FOR GAIN MEASUREMENT IN FABRY-PEROT SEMICONDUCTOR LASERS</b>	534
<i>Nicolas Volet ; Eric J. Stanton ; Michael L. Davenport ; Alexander Spott ; Lin Chang ; John E. Bowers</i>	
<b>WC1.3 - DEEP-ETCHED III-V LASERS GROWN DIRECTLY ON SILICON SUBSTRATES</b>	536
<i>Samuel Shutts ; Stella N. Elliott ; Peter M. Smowton ; Angela Sobieserski ; Jiang Wu ; Siming Chen ; Qi Jiang ; Mingchu Tang ; Huiyun Liu</i>	
<b>WC1.4 - 10 GBIT/S DATA TRANSMISSION THROUGH OPTICAL LINK BY USING MEMBRANE DFB LASER AND PIN-PD</b>	538
<i>Daisuke Inoue ; Takuho Hiratani ; Kai Fukuda ; Gu Zhichen ; Takahiro Tomiyasu ; Tomohiro Amemiya ; Nobuhiko Nishiyama ; Shigehisa Arai</i>	
<b>WC1.5 - HETEROGENEOUSLY INTEGRATED LASERS USING EPITAXIALLY GROWN III-V ACTIVE LAYER ON DIRECTLY BONDED INP/SIO2/SI SUBSTRATE</b>	540
<i>Takuro Fujii ; Koji Takeda ; Erina Kanno ; Koichi Hasebe ; Hidetaka Nishi ; Tsuyoshi Yamamoto ; Takaaki Kakitsuka ; Shinji Matsuo</i>	
<b>WC1.6 - DEMONSTRATION OF A DISCRETELY TUNABLE III-V/SOI SAMPLED GRATING DISTRIBUTED FEEDBACK LASER</b>	542
<i>Soren Dhoore ; Liyan Li ; Amin Abbasi ; Gunther Roelkens ; Geert Morthier</i>	
<b>WC2.1 - HETEROGENEOUS PHOTONIC INTEGRATION ON SILICON</b>	544
<i>John E. Bowers</i>	
<b>WD1.1 - ENABLING TECHNOLOGIES FOR A NEW WAVELENGTH WINDOW AT 2MICRONS</b>	546
<i>F. C. Garcia Gunning ; N. Kavanagh ; K. Shortiss ; H. Zhang ; M. Sadiq ; K. Thomas ; A. Gocalinska ; Y. Zhao ; E. Pelucchi ; P. O'Brien ; F. H. Peters ; B. Corbett</i>	
<b>WD1.2 - REAL-TIME PRE-COMPENSATION OF ROADM FILTERING USING A GENERALIZED PRE-EMPHASIS FILTER</b>	548
<i>Jie Pan ; Sorin Tibuleac</i>	
<b>WD1.4 - COMPARISON OF ROADM FILTER SHAPE MODELS FOR ACCURATE TRANSMISSION PENALTY ASSESSMENT</b>	550
<i>Jie Pan ; Cibby Pulikkaseril ; Luke Stewart ; Sorin Tibuleac</i>	
<b>WD1.5 - DEMONSTRATION OF VIRTUAL DIRECT LINK OPTICAL NETWORKS</b>	552
<i>Yusaku Ito ; Masaki Niwa ; Koh Ueda ; Yojiro Mori ; Hiroshi Hasegawa ; Ken-Ichi Sato</i>	

<b>WD2.1 - LINEAR TECHNIQUE OF OPTICAL QUANTIZATION FOR PHOTONIC ANALOG-TO-DIGITAL CONVERSION .....</b>	554
<i>Tsuyoshi Konishi ; Motoki Hiraoka ; Yu Yamasaki ; Tomotaka Nagashima</i>	
<b>WD2.2 - POLARIZATION AND WAVELENGTH SELECTIVE SWITCHES.....</b>	556
<i>Gabriella Cincotti</i>	
<b>WD2.4 - HIGHLY RELIABLE AND COST-EFFECTIVE LARGE-SCALE OPTICAL CROSS-CONNECT ARCHITECTURE.....</b>	558
<i>Shuhei Yamakami ; Masaki Niwa ; Yojiro Mori ; Hiroshi Hasegawa ; Ken-Ichi Sato</i>	
<b>WD2.5 - CONTROL OF AUTOMATED SYSTEMS WITH A STRUCTURED LIGHT ILLUMINATION SOURCE.....</b>	560
<i>Johannes Herrnsdorf ; Michael J. Strain ; Martin D. Dawson</i>	
<b>WD3.1 - HIGH SPEED PHOTORECEIVER OVER 100 GHZ AND ITS APPLICATION.....</b>	562
<i>T. Umezawa ; K. Kashima ; K. Akahane ; A. Matsumoto ; A. Kanno ; N. Yamamoto ; T. Kawanishi</i>	
<b>WD3.2 - DEMONSTRATION OF BIDIRECTIONAL PON BASED ON MODE DIVISION MULTIPLEXING .....</b>	564
<i>Tao Hu ; Juhao Li ; Fang Ren ; Ruizhi Tang ; Jinyi Yu ; Qi Mo ; Yili Ke ; Cheng Du ; Zhijian Liu ; Yongqi He ; Zhengbin Li ; Zhangyuan Chen</i>	
<b>WE1.1 - SPATIAL AND SPECTRAL NONLINEAR SHAPING OF MULTIMODE WAVES.....</b>	572
<i>K. Krupa ; A. Tonello ; A. Bendahmane ; R. Dupiol ; B. M. Shalaby ; M. Fabert ; A. Barthélémy ; G. Millot ; S. Wabnitz ; V. Couderc</i>	
<b>WE1.2 - COHERENT KERR FREQUENCY COMB GENERATION IN MICRORESONATORS WITH <math>x^{(2)}</math> AND <math>x^{(3)}</math> NONLINEARITIES .....</b>	574
<i>Xiaoxiao Xue ; Yi Xuan ; Jose A. Jaramillo-Villegas ; Pei-Hsun Wang ; Yang Liu ; Daniel E. Leaird ; Minghao Qi ; Andrew M. Weiner</i>	
<b>WE1.3 - REDUCTION OF PULSE ENERGY FOR FREQUENCY STABILIZATION WITH DUAL-PITCH PERIODICALLY POLED LITHIUM NIOBATE WAVEGUIDES .....</b>	576
<i>K. Hara ; K. Hitachi ; O. Tadanaga ; T. Ishizawa ; T. Nishikawa ; T. Sogawa ; H. Gotoh</i>	
<b>WE1.4 - MODULATION FORMAT CONVERSION FROM PDM-QPSK TO PDM-BPSK USING FWM AND INTERFERENCE .....</b>	578
<i>Hiroki Kishikawa ; Nobuo Goto ; Lawrence R. Chen</i>	
<b>WE1.5 - INTERMODAL NONLINEAR CONVERSION OF ORBITAL ANGULAR MOMENTUM VIA MMF LINKS .....</b>	580
<i>Yi Weng ; Ting Wang ; Zhongqi Pan</i>	
<b>WE2.1 - ADVANCED QUASI-PHASE-MATCHED MATERIALS AND TECHNOLOGIES .....</b>	582
<i>Sunao Kurimura</i>	
<b>WE2.2 - TUNABLE WAVELENGTH CONVERTER USING CASCADE OF SUM FREQUENCY MIXING AND DIFFERENCE FREQUENCY MIXING IN QUASI-PHASE MATCHED LITHIUM NIOBATE .....</b>	583
<i>Yutaka Fukuchi</i>	
<b>WE2.3 - HIGHLY EFFICIENT AND TUNABLE ALL-OPTICAL WAVELENGTH CONVERSION OF 40-GBPS NRZ SIGNALS EMPLOYING A QUASI-PHASE MATCHED LITHIUM NIOBATE WAVEGUIDE DEVICE .....</b>	585
<i>Yutaka Fukuchi</i>	
<b>WE2.4 - A THIN-FILM PPLN WAVEGUIDE FOR SECOND-HARMONIC GENERATION AT 2-<math>\mu</math>M.....</b>	587
<i>Lin Chang ; Nicolas Volet ; Yifei Li ; Jon Peters ; John E. Bowers</i>	
<b>WE2.5 - 2D HIGH-CONTRAST ALGAAS WAVEGUIDES FOR NONLINEAR APPLICATIONS .....</b>	589
<i>Pisek Kultavewuti ; Zhongfa Liao ; J. Stewart Aitchison</i>	
<b>WE3.3 - GAN SUPERLUMINESCENT DIODES AND THEIR APPLICATIONS .....</b>	593
<i>C. Vélez ; M. Duelk ; Castiglia ; M. Rossetti ; N. Grandjean ; J-F Carlin</i>	
<b>WF2.1 - FUTURE-GENERATION FIBERS FOR HIGH-CAPACITY COMMUNICATIONS.....</b>	595
<i>R. Ryf</i>	
<b>WF2.2 - DEMONSTRATION OF FULL SYSTEM REACHES OF 100G SR4, 40G SWDM, AND 100G CWDM4 TRANSMISSIONS OVER UNIVERSAL FIBER .....</b>	597
<i>Xin Chen ; Jason E. Hurley ; Jeff Stone ; Doug Coleman ; Ming-Jun Li</i>	
<b>WF2.3 - OPTIMUM DESIGN OF 4LP-MODE MULTICORE FIBERS WITH LOW DIFFERENTIAL MODE DELAY FOR HIGH SPATIAL MULTIPLICITY .....</b>	599
<i>Yuki Tobita ; Taiji Sakamoto ; Takashi Matsui ; Shota Saitoh ; Katsuhiro Takenaga ; Kazuhiko Aikawa ; Takeshi Fujisawa ; Shinichi Aozasa ; Kazuhide Nakajima ; Kunimasa Saitoh</i>	
<b>WF2.4 - ULTRA-LOW LOSS FIBER FOR PRACTICABLE TRANS-OCEANIC HIGH CAPACITY TRANSMISSION .....</b>	601
<i>Takemi Hasegawa ; Yoshinori Yamamoto ; Yoshiaki Tamura ; Tetsuya Hayashi</i>	

<b>WF3.3 - A HYBRID Q-SWITCHED LASER WITH TUNGSTEN DISULFIDE NANO-PARTICLES AND AN ACOUSTO-OPTIC MODULATOR.....</b>	607
<i>Abdul Khaleque ; Liming Liu ; Haroldo T. Hattori</i>	
<b>WF3.4 - GROUP VELOCITY DISPERSION MEASUREMENTS OF 3 OAM STATES IN 1 KILOMETER RING-CORE FIBER LINK.....</b>	609
<i>Haozhe Yan ; Shangyuan Li ; Boyu Chen ; Luxin Yang ; Xiaoping Zheng ; Cheng Du ; Hanyi Zhang ; Bingkun Zhou</i>	
<b>WF3.5 - IMPACT OF POLARIZATION DEPENDENT LOSS ON THE PROPAGATION OF ENTANGLLED PHOTONS OVER FIBER OPTIC LINKS .....</b>	611
<i>B. T. Kirby ; M. Brodsky</i>	
<b>WF3.6 - DOUBLE-FREQUENCY-SPACED OPTICAL COMB GENERATION TECHNIQUE BASED ON QUAD-PARALLEL PHASE MODULATORS .....</b>	613
<i>Takahide Sakamoto</i>	
<b>WG1.1 - LOSS AND CROSSTALK OF SCALABLE MZI-BASED SWITCH TOPOLOGIES IN SILICON PHOTONIC PLATFORM .....</b>	615
<i>Meisam Bahadori ; Sebastien Rumley ; Robert Polster ; Keren Bergman</i>	
<b>WG1.2 - INTER-CHANNEL MODULATION POWER PENALTY FOR A SILICON PHOTONICS TRANSMITTER .....</b>	617
<i>M. Ashkan Seyed ; Chin-Hui Chen ; Marco Fiorentino ; Raymond G. Beausoleil</i>	
<b>WG1.4 - LOW-POWER DPSK MODULATION AT 10 GBPS USING A SILICON PHOTONIC LOOP MIRROR MODULATOR.....</b>	619
<i>Fatemeh Soltani ; David Patel ; Michael Menard ; David V. Plant ; Andrew G. Kirk</i>	
<b>WG1.5 - BIDIRECTIONAL TRANSMISSIONS IN A RING-BASED PACKAGED OPTICAL NOC WITH 12 ADD-DROP MICRORINGS .....</b>	621
<i>S. Faralli ; N. Andriolli ; F. Gambini ; P. Pintus ; G. Preve ; M. Chiesa ; R. Ortúñoz ; O. Liboiron-Ladouceur ; I. Cerutti</i>	
<b>WG2.2 - GAN BASED CYAN LIGHT-EMITTING DIODES WITH GHZ BANDWIDTH .....</b>	623
<i>Jin-Wei Shi ; Kai-Lun Chi ; Jhih-Min Wun ; J. -E. Bowers ; J. -K. Sheu</i>	
<b>WG2.3 - EXPERIMENTAL DEMONSTRATION OF VERTICALLY INTEGRATED ALGAAS/GAAS WAVEGUIDES .....</b>	625
<i>Zhongfa Liao ; Muhammad Alam ; J. Stewart Aitchison</i>	
<b>WG2.5 - DGD MITIGATION ARCHITECTURE TO EXPAND REACH OF 100GBE OPTICAL INTERFACES BY PSEUDO-QPSK TRANSFORM WITH DIGITAL SIGNAL PROCESSING .....</b>	627
<i>Toshiya Matsuda ; Toru Homemoto ; Kana Masumoto ; Masaru Katayama ; Katsutoshi Koda</i>	
<b>WG3.1 - 12×12 PACKAGED DIGITAL SILICON PHOTONIC MEMS SWITCHES .....</b>	629
<i>Tae Joon Seok ; How Yuan Hwang ; Jun Su Lee ; Alex Forencich ; Hannah R. Grant ; Dylan Knutson ; Niels Quack ; Sangyoon Han ; Richard S. Muller ; Lee Carroll ; George C. Papen ; Peter O'Brien ; Ming C. Wu</i>	
<b>WG3.2 - EFFICIENT AND BROAD BAND COUPLING BETWEEN SILICON AND ULTRA-LOW-LOSS SILICON NITRIDE WAVEGUIDES.....</b>	631
<i>Michael L. Davenport ; John E. Bowers</i>	
<b>WG3.3 - HYBRID INTEGRATION FOR COHERENT LASER BEAM COMBINING ON SILICON PHOTONICS PLATFORM.....</b>	633
<i>Yunsong Zhao ; Yeyu Zhu ; Lin Zhu</i>	
<b>WH1.2 - THEORETICAL AND EXPERIMENTAL MANIPULATION OF PLASMON-POLARITON BANDGAPS AT INFRARED FREQUENCIES IN INDIUM-TIN-OXIDE NANOROD ARRAYS .....</b>	637
<i>Xiangfan Chen ; Peijun Guo ; Bigin Dong ; Zhirou Zhang ; Robert P. H. Chang ; Cheng Sun</i>	
<b>WH1.3 - AB INITIO COMPUTATIONAL STUDY OF QUANTUM PLASMONS IN GRAPHENE NANOFOLAKES .....</b>	639
<i>David Zs. Manrique ; Nicolae C. Panoiu</i>	
<b>WH2.1 - EFFICIENT CONVERSION OF SECOND HARMONIC GENERATION IN HIGH-Q SIC PHOTONIC CRYSTAL NANOCAVITIES.....</b>	645
<i>Yuki Yamaguchi ; Seungwoo Jeon ; Bong-Shik Song ; Takashi Asano ; Susumu Noda</i>	
<b>WH2.2 - NARROWBAND INFRARED TRANSMISSION FILTERS VIA ASYMMETRIC SUBWAVELENGTH DIELECTRIC GRATINGS .....</b>	647
<i>Martin Scherr ; Justin Foley ; Jamie Phillips</i>	
<b>WH2.3 - OBSERVATION OF ROBUST STATISTICAL PARITY-TIME SYMMETRY BREAKING IN ULTRA-LONG CAVITIES.....</b>	649
<i>Ali K. Jahromi ; Absar U. Hassan ; Demetrios N. Christodoulides ; Ayman Abouraddy</i>	

<b>WH2.4 - IMPROVEMENT OF OUT-COUPLING OF THE OBLIQUE WAVEGUIDE IN THREE-DIMENSIONAL PHOTONIC CRYSTALS BY INTRODUCING A SYMMETRIC END STRUCTURE .....</b>	651
<i>Kou Gondaira ; Kenji Ishizaki ; Keisuke Kitano ; Takashi Asano ; Susumu Noda</i>	
<b>WH2.5 - ULTRA-THIN VCSELS BASED ON MONOLITHIC SUBWAVELLENGTH HIGH-INDEX CONTRAST SURFACE GRATINGS .....</b>	653
<i>M. Gebski ; E. Haglund ; A. Wojcik-Jedlinska ; M. Riaziat ; P. Moser ; M. Dems ; M. Bugajski ; A. Larsson ; T. Czyszanowski ; J. A. Lott</i>	
<b>WH2.6 - DESIGN SCALABLE PHOTONIC CRYSTALS AS REFLECTIVE OPTICAL LIMITERS .....</b>	655
<i>Jarrett Vella ; John Goldsmith ; Nicholaos Limberopoulos ; Ilya Vitebskiy ; Eleana Makri ; Tsampikos Kottos</i>	
<b>WH3.2 - LARGE AREA MOS<sub>2</sub> VAN DER WAALS EPITAXY ON III-NS AND THE EPITAXIAL FORMATION OF A N-MOS<sub>2</sub>/P-INGAN DIODE .....</b>	657
<i>Kyooho Jung ; Che-Yu Liu ; J D Kim ; Wonsik Choi ; Weidong Zhou ; Hao-Chung Kuo ; Xiuling Li</i>	
<b>WH3.3 - LOCALIZED SURFACE PLASMONS IN NANOSTRUCTURED MONOLAYER BLACK PHOSPHORUS .....</b>	659
<i>Zizhuo Liu ; Koray Aydin</i>	
<b>WI1.1 - HIGH P-TYPE GAN FOR ADVANCED OPTOELECTRONIC DEVICES .....</b>	661
<i>H. Okumura ; M. Malinverni ; D. Martin ; N. Grandjean</i>	
<b>WI1.3 - CHALLENGES TO REALIZING DEEP-UV ALGAN-BASED LASERS .....</b>	663
<i>Thomas Wunderer</i>	
<b>WI2.1 - HIGHLY FLEXIBLE AMOLED INTEGRATED WITH ULTRATHIN ON-CELL TOUCH PANEL .....</b>	665
<i>Cheng-Chung Lee ; Jia-Chong Ho ; Kuang-Jung Chen ; Ming-Hua Yeh ; Yuh-Zheng Lee ; Janglin Chen</i>	
<b>WI3.1 - 2015 HAS ALREADY BEEN CLAIMED AS INTERNATIONAL YEAR OF LIGHT BY UNITED NATIONS .....</b>	669
<i>N/A</i>	
<b>WI3.2 - HOMOGENEOUS ILLUMINATION FOR DIRECTIONAL BACKLIGHT AUTOSTEREOSCOPIC DISPLAY .....</b>	674
<i>Yangui Zhou ; Hang Fan ; Kunyang Li ; Jiahui Wang ; Jianying Zhou</i>	
<b>WI3.3 - APPLYING STATIC SYNCHRONOUS COMPENSATOR IN WHITE ORGANIC LIGHT-EMITTING DIODES FOR POWER FACTOR CORRECTION .....</b>	676
<i>Henglong Yang ; Meng-Huan Hsieh</i>	
<b>WJ4.1 - LIFI: CONCEPTIONS, MISCONCEPTIONS AND OPPORTUNITIES .....</b>	680
<i>Harald Haas</i>	
<b>WP1 - A DIFFERENTIAL ELLIPSOMETRIC METHOD FOR ACCURATE CHIRALITY MEASUREMENT .....</b>	682
<i>Guangcan Mi ; Vien Van</i>	
<b>WP2 - MEASUREMENTS OF VITAMIN B12 IN HUMAN BLOOD SERUM USING RESONANCE RAMAN SPECTROSCOPY .....</b>	684
<i>G. Tsiminis ; E. P. Schartner ; J. L. Brooks ; M. R. Hutchinson</i>	
<b>WP3 - INFRARED MICROSCOPY FOR RECOGNIZING ANATOMICAL STRUCTURES IN THERMAL MAPS OF INDEX FINGER PADS .....</b>	686
<i>Laura A. Viafora ; Sergio N. Torres ; Sebastián E. Godoy ; Wagner E. Ramírez ; Pablo A. Gutiérrez ; Guillermo E. Machuca ; Anselmo Jara</i>	
<b>WP4 - THREE-PHOTON INDUCED FLUORESCENCE FROM GRAPHENE OXIDES IN TISSUE PHANTOM .....</b>	688
<i>Seung Won Jun ; Sang Min Park ; Soo Kyung Chun ; Chang-Seok Kim</i>	
<b>WP5 - MONOLITHIC PDMS GRIN WAVEGUIDE WITH CONCENTRIC MICROFLUIDIC CHANNEL .....</b>	690
<i>Mutasem Odeh ; Bob Voort ; Arslan Anjum ; Clara Dimas</i>	
<b>WP6 - DIFFUSE OPTICAL IMAGING BASED ON INTENSITY-MODULATED WAVELENGTH-SWEPT LASER .....</b>	692
<i>Hansol Jang ; Gyeong Hun Kim ; Gahee Han ; Chang-Seok Kim</i>	
<b>WP7 - NOVEL DTIRC-BASED LENS DESIGN FOR USE WITH AN EXTENDED LIGHT SOURCE FOR A RECTANGULAR FOOTPRINT .....</b>	694
<i>Sina Babadi ; Roberto Ramirez-Iniguez ; Tuleen Boutaleb ; Tapas Malick</i>	
<b>WP8 - FREEFORM LENS DESIGN FOR UNIFORM RECTANGULAR ILLUMINATION .....</b>	696
<i>Sina Babadi ; Roberto Ramirez-Iniguez ; Tuleen Boutaleb ; Tapas Malick</i>	
<b>WP9 - COMPARING FREEFORM LENSES AND OPTIMISED DTIRC FOR UNIFORM ILLUMINATION .....</b>	698
<i>Sina Babadi ; Roberto Ramirez-Iniguez ; Tuleen Boutaleb ; Tapas Malick</i>	

<b>WP10 - BLUE SHIFT AND ELECTROSTATIC DISCHARGE DEGRADATION STUDIES OF 10G UNCOOLED RIDGE QUANTUM WELL LASERS .....</b>	700
<i>Jack Jia-Sheng Huang ; Yu-Heng Jan ; Ping Sung ; Rendy Chang ; Emin Chou</i>	
<b>WP11 - HIGH-POWER CMOS-COMPATIBLE PHOTONIC INTEGRATED THULIUM-DOPED DISTRIBUTED FEEDBACK LASER.....</b>	702
<i>Nanxi Li ; Purnawirman ; Zhan Su ; Emir Salih Magden ; Patrick T. Callahan ; Katia Shtyrkova ; Ming Xin ; Alfonso Ruocco ; Nicholas Fahrenkopf ; Christopher Baiocco ; Gerald Leake ; Daniel Coleman ; Douglas Coolbaugh ; Erich P. Ippen ; Franz X. Kärtner ; Diedrik Vermeulen ; Michael R. Watts</i>	
<b>WP13 - PHASE-FLUCTUATION-CANCELLED COMPONENT COMBINING TECHNIQUE IN OFFSET-FREQUENCY-SPACED TWO-TONE COHERENT DETECTION SYSTEM .....</b>	706
<i>Toshiaki Kuri ; Takahide Sakamoto</i>	
<b>WP16 - TRANSFER PRINTING OF SEMICONDUCTOR NANOWIRES .....</b>	712
<i>D. Jevtic ; B. Guilhabert ; A. Hurtado ; Q. Gao ; H. H. Tan ; C. Jagadish ; M. D. Dawson</i>	
<b>WP17 - EFFECT OF DESIGNED TOP P-ELECTRODE ON OUTPUT PERFORMANCE OF LED BY NUMERICAL MODELING .....</b>	714
<i>Yohei Nishidate ; Julia Khlopova ; Anatoly Kovalchuk ; Evgeny Polushkin ; Bogdan Shevchenko ; Irina Khmyrova ; Sergei Shapoval</i>	
<b>WP19 - SIMULATION OF HEATING BY OPTICAL ABSORPTION IN NANOPARTICLE DISPERSIONS.....</b>	718
<i>Benjamin C. Olbricht</i>	
<b>WP22 - CONTRAST RATIO AND NOISE TOLERANCE IN MULTISYMBOL-QPSK-LABEL RECOGNITION DEVICES .....</b>	722
<i>Kensuke Inoshita ; Yoshihiro Makimoto ; Hiroki Kishikawa ; Nobuo Goto ; Shin-Ichiro Yanagiya</i>	
<b>WP23 - DYNAMIC BANDWIDTH ALLOCATION FOR MULTI-BAND OFDM WIRELESS VLC SYSTEM.....</b>	724
<i>C. H. Yeh ; C. W. Chow ; H. Y. Chen ; Y. L. Liu</i>	
<b>WP27 - DEMONSTRATION OF HIGH SPEED IMAGING 3×3 MIMO-OFDM VISIBLE LIGHT COMMUNICATION SYSTEM .....</b>	729
<i>Chin-Wei Hsu ; I-Cheng Lu ; Yen-Liang Liu ; Chien-Hung Yeh ; Chi-Wai Chow</i>	
<b>WP28 - RIN OF MODE-LOCKED QUANTUM DOT EXTERNAL CAVITY LASER.....</b>	731
<i>Nuran Dogru ; Mike J. Adams</i>	
<b>WP29 - ALL-POLARIZATION MAINTAINING MODE-LOCKED FIBER LASER BASED ON CARBON NANOWALLS SATURABLE ABSORBER .....</b>	733
<i>Shintaro Kurata ; Norihito Kawaguchi</i>	
<b>WP30 - REFRACTIVE INDEX SENSOR BASED ON ALL-FIBER LIQUID CRYSTAL INTERFEROMETER.....</b>	735
<i>Meng-Zhu Zhang ; Yin Lin ; Jhao-Cian Gao ; You-Xin Wang ; Huey-Jiuan Lin ; Shug-June Hwang</i>	
<b>WP31 - CURVATURE-INDUCED BRILLOUIN FREQUENCY SHIFTS OF FUNDAMENTAL MODE IN FEW MODE FIBER.....</b>	737
<i>Ruoxu Wang ; Hao Wu ; Ming Tang ; Songnian Fu ; Zhenhua Feng ; Perry Shum</i>	
<b>WP34 - RESONANT COUPLING IN REFRACTIVE INDEX SENSOR BASED ON PHOTONIC CRYSTAL FIBER .....</b>	743
<i>M. C. Lopez-Bautista ; S. Khotaitsev ; O. Martynyuk</i>	
<b>WP35 - ALIGNMENT CONTROL OF LIQUID CRYSTAL MOLECULES IN THE HOLLOW OPTIC FIBER .....</b>	745
<i>Yin Lin ; Meng-Zhu Zhang ; Kai-Hsiang Chan ; Hua-Yang Lin ; Jhao-Cian Gao ; Shug-June Hwang</i>	
<b>WP37 - WAVELENGTH REMODULATION FOR OPTICAL INTERCONNECT .....</b>	749
<i>S. Straullu ; M. S. Khaliq ; V. Curri ; S. Abrate</i>	
<b>WP38 - 2 λ × 100GBPS PAM-4 WIDEBAND FIBER 100M LINKS USING 850NM AND 940NM VCSELS .....</b>	751
<i>Justin Lavencik ; Siddharth Varughese ; Varghese A. Thomas ; Gary Landry ; Yi Sun ; Roman Shubochkin ; Kasyapa Balembarthy ; Jim Tatum ; Stephen E. Ralph</i>	
<b>WP39 - FABRICATION FOR LOW LOSS GRADED-INDEX POLYMER CROSSED OPTICAL WAVEGUIDE USING THE SOFT-LITHOGRAPHY METHOD .....</b>	753
<i>Kohei Abe ; Takaaki Ishigure</i>	
<b>WP40 - A BROADBAND OPTICAL SWITCH BASED ON ADIABATIC COUPLERS.....</b>	755
<i>Minh A. Tran ; Chong Zhang ; John E. Bowers</i>	
<b>WP41 - FILM FOR ENHANCED PHYSICAL CONTACT IN MULTI-FIBER CONNECTOR INTERFACES .....</b>	757
<i>M. Wong ; J. Ahadian ; D. Pommer ; R. Hagan ; H. Lenos ; C. Kuznia</i>	
<b>WP42 - BROADLY TUNABLE SOLID MICROBOTTLE RESONATOR .....</b>	759
<i>Mohd Narizee Mohd Nasir ; Ganapathy Senthil Murugan ; Michalis N. Zervas</i>	

<b>WP46 - HIGH EFFICIENCY ELECTROABSORPTION MODULATOR BY USING LOCAL QUANTUM WELL INTERMIXING .....</b>	767
<i>Po-Yun Wang ; Rih-You Chen ; Yang-Jeng Chen ; Bo-Hong Chen ; Yi-Jen Chiu</i>	
<b>WP47 - COMPACT SI REFLECTION TYPE ARRAYED-WAVEGUIDE GRATING WITH LOOPBACK MIRRORS .....</b>	769
<i>Takahiro Inaba ; Hiroyuki Tsuda</i>	
<b>WP48 - QUANTIFICATION OF UPCONVERSION EMISSION IN RARE EARTH DOPED GLASSES .....</b>	771
<i>C. L. Zhu ; H. Lin ; E. Y. B. Pun</i>	
<b>WP49 - SPUTTER-DEPOSITED SEEDLAYER-FREE CERIUM-DOPED TERBIUM IRON GARNETS FOR SOI WAVEGUIDE ISOLATORS .....</b>	773
<i>Prabesh Dulal ; Thomas E. Gage ; Andrew D. Block ; Emiliana Cofell ; David C. Hutchings ; Bethanie. J. H. Stadler</i>	
<b>WP51 - HIGH SENSITIVE CHOLESTERIC LIQUID CRYSTAL VAPOR SENSOR BY USING GRAPHENE OXIDE.....</b>	777
<i>Kai-Hsiang Chan ; Hua-Yang Lin ; Meng-Zhu Zhang ; Yin Lin ; Shug-June Hwang</i>	
<b>WP52 - A NEW APPROACH FOR DRILLING LATERAL MICROCHANNELS IN PHOTONIC CRYSTAL FIBRES.....</b>	779
<i>Mohammad Amanzadeh ; Saeid M. Aminossadati</i>	
<b>WP53 - POLARIZATION-INDEPENDENT FRESNEL LENS BASED ON BLUE PHASE LIQUID CRYSTAL AND POLYMER COMPOSITE FILMS.....</b>	781
<i>Hua-Yang Lin ; Kai-Hsiang Chan ; Yin Lin ; Jhao-Cian Gao ; Huey-Jiuan Lin ; Shug-June Hwang</i>	
<b>WP55 - HIGHLY RESIDUAL FACET REFLECTION IMMUNE EML DEVICES BY ENHANCING LASER DYNAMICS .....</b>	785
<i>Puspa Devi Pukhrambam ; San-Liang Lee ; Chun-Liang Yang ; Hong-Sing Lee ; Gerd Keiser</i>	
<b>THA1.1 - MULTIMODE-INTERFERENCE-BASED PHASE ADJUSTER IN CASCADED ALL-PLASMONIC LOGIC CIRCUITS .....</b>	787
<i>M. Ota ; A. Sumimura ; T. Furuki ; R. Watanabe ; K. Nakayama ; Y. Ishii ; M. Fukuda</i>	
<b>THA1.2 - A COMPACT AND LOW-LOSS PLC-BASED LPIIA/LPIIB MODE ROTATOR WITH CURVED TRENCH STRUCTURE.....</b>	789
<i>Yoko Yamashita ; Shuntaro Makino ; Takeshi Fujisawa ; Kunimasa Saitoh ; Nobutomo Hanzawa ; Taiji Sakamoto ; Takashi Matsui ; Kyozo Tsujikawa ; Fumihiko Yamamoto ; Kazuhide Nakajima</i>	
<b>THA1.3 - EPITAXY AND WAFER BONDING OF ALGALNP MULTIPLE-QUANTUM WELLS AND LIGHT-EMITTING DIODES ON 8" SI SUBSTRATES .....</b>	791
<i>Bing Wang ; Kwang Hong Lee ; Shuyu Bao ; Cong Wang ; Chuan Seng Tan ; Soon Fatt Yoon ; Eugene A. Fitzgerald ; Jurgen Michel</i>	
<b>THA1.4 - TOPOLOGY OPTIMIZED DESIGN OF A TRANSVERSE ELECTRIC HIGHER ORDER MODE CONVERTER .....</b>	793
<i>Louise F. Frellsen ; Yunhong Ding ; Ole Sigmund ; Lars H. Frandsen</i>	
<b>THB1.1 - FOUR WAVE MIXING IN DISTRIBUTED RAMAN AMPLIFIED OPTICAL TRANSMISSION SYSTEMS .....</b>	795
<i>Mohammad A. Z. Al-Khateeb ; Mingming Tan ; Md Asif Iqbal ; Mary McCarthy ; Paul Harper ; Andrew D. Ellis</i>	
<b>THB1.3 - THE BENEFIT OF SPLIT NONLINEARITY COMPENSATION FOR SINGLE CHANNEL OPTICAL FIBER COMMUNICATIONS .....</b>	799
<i>Domaniç Lavery ; David Ives ; Gabriele Liga ; Alex Alvarado ; Seb J. Savory ; Polina Bayvel</i>	
<b>THB1.5 - THEORETICAL ANALYSIS OF CHROMATIC DISPERSION, PHASE NOISE, AND SSBI IN DIRECT-DETECTION SINGLE-SIDE-BAND OPTICAL OFDM TRANSMISSION .....</b>	805
<i>Amin Yekani ; Siamak Amiralizadeh ; Leslie A. Rusch</i>	
<b>THE1.1 - HIGH SPEED PERFORMANCE OF III-NITRIDE LASER DIODE GROWN ON (2021) SEMIPOLAR PLANE FOR VISIBLE LIGHT COMMUNICATION .....</b>	809
<i>Changmin Lee ; Chong Zhang ; Daniel Becerra ; Seunggeun Lee ; Sang Ho Oh ; Robert M. Farrell ; James S. Speck ; Shuji Nakamura ; John E. Bowers ; Steven P. Denbaars</i>	
<b>THE1.2 - VISIBLE LASER AND SUPERLUMINESCENT DIODE BASED FREE SPACE AND UNDERWATER COMMUNICATIONS .....</b>	811
<i>Boon S. Ooi</i>	
<b>THE1.3 - GHZ MODULATION ENABLED USING LARGE EXTINCTION RATIO WAVEGUIDE-MODULATOR INTEGRATED WITH 404 NM GAN LASER DIODE .....</b>	813
<i>Chao Shen ; Changmin Lee ; Tien Khee Ng ; James S. Speck ; Shuji Nakamura ; Steven P. Denbaars ; Ahmed Y. Alyamani ; Munir M. Eldesouki ; Boon S. Ooi</i>	
<b>THF1.2 - LOW LOSS POLYMER FIBER BRAGG GRATINGS SENSORS FOR EFFECTIVE OPTICAL SENSING OF STRAIN AND TEMPERATURE .....</b>	815
<i>Amédée Lacraz ; Antreas Theodosiou ; Kyriacos Kalli</i>	

<b>THF1.3 - SIMULTANEOUS TEMPERATURE AND STRAIN SENSING UTILIZING BRILLOUIN FREQUENCY SHIFTS CONTRIBUTED BY MULTIPLE ACOUSTIC MODES.....</b>	817
<i>Xin Zhou ; Zhen Guo ; Changjian Ke ; Deming Liu</i>	
<b>THF1.4 - LOW POWER FIBER SENSOR NETWORK DEPLOYING BOTH WIRED AND WIRELESS SENSORS USING OPTICAL POWER SUPPLY WITH WDM TECHNIQUE.....</b>	819
<i>Yosuke Tanaka ; Shuhei Kobayashi ; Akimasa Shiomiichi ; Takashi Kurokawa</i>	
<b>THF1.5 - BRILLOUIN GAIN EFFICIENCY IN SHORT OPTICAL FIBERS.....</b>	821
<i>Achar V. Harish ; Kyoungyoon Park ; Yoonchan Jeong ; Johan Nilsson</i>	
<b>THG1.1 - EFFICIENCY IMPROVEMENT OF AN O-BAND SOI-MZI THERMO-OPTIC MATRIX SWITCH.....</b>	823
<i>Rubana Bahar Priti ; Yule Xiong ; Odile Liboiron-Ladouceur</i>	
<b>THG1.4 - RAISED COSINE PULSE SHAPES FOR NEXT GENERATION MMF LINKS .....</b>	825
<i>Siddharth Varughese ; Justin Lavrencik ; Varghese A. Thomas ; Stephen E. Ralph</i>	
<b>THG1.5 - A ROBUST METHOD FOR CHARACTERIZATION OF OPTICAL WAVEGUIDES AND COUPLERS .....</b>	827
<i>Minh A. Tran ; Tin Komljenovic ; Jared C. Hulme ; Michael L. Davenport ; John E. Bowers</i>	
<b>THH1.2 - FEASIBILITY OF STRAIN DETECTION IN GRAPHENE NEMS USING SILICON PHOTONICS .....</b>	829
<i>Aneesh Dash ; Akshay Naik ; Shankar Kumar Selvaraja</i>	
<b>THH1.3 - PRECISION MEASUREMENTS IN MICRORESONATORS AND MICRORESONATOR FREQUENCY COMBS .....</b>	831
<i>C. W. Wong ; J. Lim ; S. -W. Huang ; A. Kumar ; J. Yang ; P. Mortazavian</i>	
<b>THI1.1 - DILUTE-ANION III-NITRIDE: A POTENTIAL VISIBLE LIGHT EMITTER.....</b>	834
<i>Chee-Keong Tan ; Wei Sun ; Damir Borovac ; Jonathan J. Wierer ; Nelson Tansu</i>	
<b>THI1.2 - SEMI-POLAR INGAN/GAN BASED LONG EMISSION WAVELENGTH EMITTER FOR LIGHTING AND DISPLAYS .....</b>	836
<i>T. Wang</i>	
<b>MH1.3 - EAM MODULATED DBR LASER ARRAY FOR TWDM-PON APPLICATIONS.....</b>	838
<i>J. J. Xu ; L. S. Han ; L. P. Hou ; S. Liang ; J. H. Marsh ; Y. G. Huang ; H. L. Zhu</i>	
<b>TUE3.1 - SYNCHRONOUS FLUORESCENCE LIFETIME IMAGING AND OPTICAL COHERENCE TOMOGRAPHY USING A DOUBLE CLAD FIBER.....</b>	840
<i>B. E. Sherlock ; X. Zhou ; J. Bec ; L. Marcu</i>	
<b>TUE3.2 - SPECTROSCOPIC PHANTOM IMAGING WITH STIMULATED RAMAN SCATTERING AND PHOTO-ACOUSTIC EFFECT .....</b>	842
<i>Soon-Woo Cho ; Sang Min Park ; Chang-Seok Kim ; Heesung Kang ; Sang-Won Lee</i>	
<b>TUE3.3 - A PORTABLE OPTICAL FIBER PH PROBE FOR CANCER MARGIN DETECTION .....</b>	844
<i>Erik P. Schartner ; Matthew R. Henderson ; Malcolm Purdey ; Tanya M. Monro ; P. G. Gill ; David F. Callen</i>	
<b>TUE3.4 - A COMPUTATIONAL STUDY OF A HYBRID PLASMONIC-MICRORING FOR LABEL-FREE DETECTION .....</b>	846
<i>Shaneen Braswell ; Brett Wenner ; Monica Allen ; Jeffery Allen ; Adrienne Ephrem ; Lynford L. Goddard</i>	
<b>TUE3.5 - AN INNOVATIVE 8 CHANNELS SYSTEM FOR TIME-RESOLVED DIFFUSE OPTICAL TOMOGRAPHY BASED ON SIPMS .....</b>	848
<i>E. Martinenghi ; L. Di Sieno ; S. Tagliabue ; A. Dalla Mora ; A. Farina ; A. Pifferi</i>	
<b>WD3.4 - CONDITIONING OF FLEXIBLE SUBSTRATES FOR POLYMER OPTICAL WAVEGUIDES WITH LASER STRUCTURED PRINTING FORMS .....</b>	850
<i>Gerd-Albert Hoffmann ; Tim Wolfer ; O. Suttmann ; Ludger Overmeyer</i>	
<b>IPC 2016 PD1 - 400 GB/S WDM DP-256-QAM TRANSMISSION WITH 50 GHZ CHANNEL SEPARATION .....</b>	852
<i>E. Temprana ; B. P. -P. Kuo ; N. Alic ; S. Radic ; S. Grubb</i>	
<b>IPC 2016 PD2 - A 35 GB/S SILICON PHOTODETECTOR FOR 850 NM WAVELENGTH APPLICATIONS .....</b>	854
<i>Monireh Moayed Pour Fard ; Christopher Williams ; Glenn Cowan ; Odile Liboiron-Ladouceur</i>	
<b>IPC 2016 PD3 - 260 GBIT/S PHOTONIC-WIRELESS LINK IN THE THZ BAND .....</b>	856
<i>X. Pang ; S. Jia ; O. Ozolins ; X. Yu ; H. Hu ; L. Marcon ; P. Guan ; F. Da Ros ; S. Popov ; G. Jacobsen ; M. Galili ; T. Morioka ; D. Zibar ; L. K. Oxenkwe</i>	
<b>IPC 2016 PD4 - A PHOTONIC INTEGRATED RESONANT ACCELEROMETER .....</b>	858
<i>Suraj Bramhavar ; Dave Kharas ; Paul W. Juodawlkis</i>	
<b>Author Index</b>	