

2010 9th International Conference on Optical Internet

(COIN 2010)

**Jeju, South Korea
11 – 14 July 2010**



**IEEE Catalog Number: CFP1096E-PRT
ISBN: 978-1-4244-7181-2**

TABLE OF CONTENTS

Half Century of Semiconductor Lasers in Photonics.....	1
<i>Y. Suematsu</i>	
Delay-Differentiated Routing Algorithm to Enhance Delay Performance of WOBAN	4
<i>X. Chen, A. Reaz, L. Shi, P. Chowdhury, Y. Zhang, R. Wang, B. Mukherjee</i>	
The Novel Convergence of Optical Internet, Telecommunication Network and Broadcasting Network.....	7
<i>K. Long, X. Yang, Y. Peng, Y. Kuang, J. Xu</i>	
Long-Reach Passive Optical Networks for Rural and Remote Areas	10
<i>A.V. Tran, K.L. Lee, J.C. Ellershaw, J.L. Riding, K. Hinton, B.S.G. Pillai, T. Smith, R.S. Tucker</i>	
Burst-mode Transceiver Technology for 10G-EPON Systems	13
<i>M. Noda, N. Suzuki, S. Yoshima, E. Igawa, K. Ishii, M. Nogami, J. Nakagawa</i>	
Field Trial of Multichannel EPON Reach Extenders Employing Tunable Lasers Based on Polymer Waveguides	16
<i>H. Yoon, C. Kim, J. Kim</i>	
Applicable Area Estimation of Bidirectional Optical Amplifiers to 10-Gb/s Class Long-Reach PON Systems	19
<i>K. Taguchi, M. Fujiwara, T. Imai, K. Suzuki, H. Ishii, N. Yoshimoto, H. Hadama</i>	
GPON Upstream Link Utilization Analysis with Integrated Network Surveillance	22
<i>H. Bang, M. Thollabandi, S. Kim, D. Lee, J. Kim, C. Park</i>	
FTTH Network Survivability Security based on Massive Fiber Optic Mechanical Switch in Consolidated Central Office	25
<i>Y.W. Lee, Y.G. Lee</i>	
Distributed Storage Solutions for Video-Rich Services over Next Generation Access Networks	28
<i>E. Wong, C. Jayasundara, C.A. Chan, A. Nirmalathas</i>	
Next Mobile Network based on Optical Switching.....	31
<i>M. Yabasaki, J. Widmer, L. Scalia</i>	
On the QoS Behavior of a Converged ONU-BS	34
<i>B.O. Obele, M. Kang</i>	
Implementation of Multicast Network for Video signal based on WDM-PON with an Injection-locked F-P LD	37
<i>K.J. Park, H.K. Lee, H.J. Lee, C.H. Lee</i>	
An Approach of Multipath Transmission from Intelligent OLT in Optical-Wireless Converged Networks.....	40
<i>S.H.S. Newaz, S.H. Jeon, J.H. Lee, J. Lee, J. Choi, M.H. Kang</i>	
Coherent Optical Modulation and Demodulation.....	43
<i>K. Kikuchi</i>	
DFT-Spread OFDM for Optical Communications	46
<i>W. Shieh, Y. Tang, B.S. Krongold</i>	
Clock Recovery Based on In-band Pilot for 160 Gbps OTDM Signal.....	49
<i>S. Zhang, F. Gomez-Agis, Yong Liu, Yongzhi Liu, N. Calabretta, E. Tangdiongga, H.J.S. Dorren</i>	
Multi-Rate Transmission Performance of 100-Gb/s QPSK based Modulation Format in 10/40/100 Gb/s Hybrid Systems	52
<i>H.S. Chung, S.H. Chang, K. Kim</i>	
SPM-induced Power Gain in Optical Subcarrier-multiplexed Transmission Systems	55
<i>K. Kim, J. Lee, J. Jeong</i>	
Configuration of Time-Division Interferometer for Stability Enhancement of One-Way QKD System.....	58
<i>J. Cho, S. Kang, K. Kim</i>	
Virtualized Compute and Network Resource Management for Large Scale Networking.....	61
<i>T. Miyamoto, M. Hayashi, H. Tanaka</i>	
Next Generation IPTV Platform	64
<i>C. Yoon, H. Lee, W. Ryu</i>	
ID-based New Generation Network Research in AKARI Project	67
<i>V.P. Kafle, M. Inoue, H. Harai</i>	
Queueing Analysis for Context Profile Handling Mechanism in Proxy Mobile IP	70
<i>J. Lee, S.H.S. Newaz, J. Lee, J. Choi</i>	
A Study on PMIP Deployment over EPON	73
<i>S.H.S. Newaz, Y. Bae, M.S. Absan, J.K. Choi</i>	

Fiber Optic Distributed Sensing for Smart Structures and Smart Materials.....	76
<i>K. Hotate</i>	
Applications of Carbon Nanotube to Photonics	79
<i>S. Yamashita</i>	
Dual Shape Large Core Single-Mode Fiber for High Power Applications	82
<i>A. Kumar, V. Rastogi, Y. Chung, W. Han</i>	
Polarization Characteristics of Highly Birefringent Photonic Crystal Fiber with Squeezed Lattice	85
<i>K.J. Hwang, G.H. Kim, K. Lee, J.W. Park, S.B. Lee</i>	
Design of Single-mode Large-core Polymer Optical Fibers	88
<i>M. Chen, Y. Zhang, B. Sun, X. Fu</i>	
Gradient-Index Plastic Optical Fiber for All-Optical Gigabit Internet Infrastructure in Home/Office Network	91
<i>C. Park, O. Kwon, S.S. Hwang, S.Y. Lee</i>	
An Optical Network with Distributed PCEs and its Performance	94
<i>X. Zheng, X. Wan, Q. Li, L. Wang, S. Shang, X. Chen, H. Zhang</i>	
Ethernet Ring Protection Networks	97
<i>J.K. Rhee, D. Lee, K. Lee, E. Park</i>	
Reconfigurable and Programmable Router: Motivation and Architecture.....	100
<i>D. Xu, J. Wang, K. Long</i>	
High Available System Control Network in the Packet Transport System	103
<i>B. Kim, W. Choi, J. Youn, H. Kim, H. Lee, J. Yu</i>	
An Experimental Implementation of MPLS-TP Controlled Ethernet Transport Network for Mobile Backhaul.....	106
<i>J.S. Choi, H.P. Kim, M.S. Kim, S. Shin, J.M. Park, E. Park</i>	
Incorporating Optical Private Network in Network Virtualization for Emerging Network Services	109
<i>S. Xu, H. Harai, H. Otsuki, A. Nakao</i>	
Prototyping a Data Plane Virtualization with Network Processor	112
<i>S. Kang, W. Lee</i>	
Ultrafast Pulsation of Fiber Lasers by Carbon Nanostructures	115
<i>Y. Song</i>	
Simultaneous Inverted and Non-inverted Outputs All-optical Flip-flop Using Fabry-Perot Laser Diodes	118
<i>M.R. Uddin, T.Q. Hoai, B. Nakrarmi, Y.H. Won</i>	
APC Receptacle Type Cooled RSOA-TOSA for WDM-PON Transceiver.....	121
<i>E. Lee, S. Cho, Jong-Hoon Lee, Jie-Hyun Lee, H.H. Lee, B. Choi, D. Kim, O. Kwon, S. Lee, M. Song, J. Kim</i>	
Beam-Propagation Analysis of Switched Directional Couplers Using Reverse-Proton-Exchanged LiNbO₃ Waveguides	124
<i>S. Kakio, T. Sugisawa, Y. Nakagawa</i>	
Improvement of Efficiency for Red Resonant-Cavity Light-emitting Diodes Using Periodic Gain Medium with Modified Electron Stopped Layers	127
<i>V.V. Lysak, C.Y. Park, K.W. Park, Y.T. Lee</i>	
Integration and Simplification of QoS Guarantee and Multicasting for a New-Generation Network	130
<i>K. Fujikawa, M. Ohta</i>	
High-energy Efficient Layer-3 Network Architecture Based on Solitary Universal Cloud Router and Optical Aggregation Network.....	133
<i>H. Takeshita, D. Ishii, N. Yamanaka</i>	
Implementation of Hierarchical QoS Mechanism on PBB-TE System	136
<i>W. Lee, C. Choi, T. Cheung, S. Kim, H. Song</i>	
32 Gbaud Real-Time FPGA-Based Multi-Format Transmitter for Generation of Higher-Order Modulation Formats.....	139
<i>J. Hilt, M. Nolle, L. Molle, M. Seimetz, R. Freund</i>	
1.25/10.3-Gbit/s Dual-rate Burst-Mode Receiver with Automatic Bit-rate Discrimination Circuit for Coexisting PON Systems	142
<i>K. Hara, S. Kimura, H. Nakamura, N. Yoshimoto, H. Hadama</i>	
Performance Test of Ultra-Compact Waveband Cross-Connect Module.....	145
<i>K. Ishii, H. Hasegawa, K. Sato, M. Okuno, H. Takahashi</i>	
Single and Multi-carrier Coherent Detection Using DSP Technologies for Future Optical Access Systems	148
<i>S. Kim</i>	
Outside Plant Architecture of Fiber-based Access Network	151
<i>B. Kim, W. Lee, J. Han</i>	

Delay-Differentiated Routing Algorithm to Enhance Delay Performance of WOBAN	154
<i>X. Chen, A. Reaz, L. Shi, P. Chowdhury, Y. Zhang, R. Wang, B. Mukherjee</i>	
Simultaneous Transmission of Two Independent Gigabit Wired/Wireless Data in WDM-RoF Access Link.....	157
<i>H. Kim, Y. Won, Y. Son, S. Han</i>	
Nanoscale Light Sources for On-chip Optical Interconnects	160
<i>K. Yu, A. Lakhani, M.C. Wu</i>	
Reconfigurable Optical Interconnect Architecture Using an Opto-VLSI Processor for High-performance Optical Networks	163
<i>Y.T. Lee, Y.M. Song, F. Xiao, K. Alameh</i>	
Implementation of 40 Gb/s DPSK Modulator with Highly Flexible PCB Interconnection	166
<i>J.C. Lee, J.K. Lee, S. Kang, K. Kim</i>	
The Generalized Optical Burst Switching (G-OBS) Enabling Multi-service Converging Transport.....	169
<i>X. Yang, K. Long</i>	
An Optical Network and IT Infrastructure Virtualisation and Provisioning Framework.....	172
<i>S. Figuerola, J.A. Garcia-Espin, J.F. Riera, N. Ciulli</i>	
A Novel Method Based on Dynamic PIT Configuration for Customer-controlled L1VPN.....	175
<i>K. Jiang, Y. Peng, K. Long</i>	
A Dynamic Routing Algorithm for Multi-Domain Photonic Networks using Maximum Flow Information between Domain Boundaries.....	178
<i>K. Shimada, S. Araki, H. Hasegawa, K. Sato</i>	
Design of Home Sensor Service Platform using Sensor Network Middleware	181
<i>D. Park, T. Ku, J. Hwang, H. Park</i>	
Design of QoS with QoE Parameters on Multimedia Service and Its Performance Analysis	184
<i>H. Kim, S. Choi</i>	
Design of Overlay Multicast Protocol supporting Mobility and Its Implementation.....	187
<i>C. Lee, S. Kim, S. Kang</i>	
A Method to Support Multiple Interfaces a Mobile Node in Network-based Mobility Management	190
<i>H. Kim, W. Choi, H. Kim, K.S. Cho, S. Choi</i>	
Call Admission Control Scheme Reflecting the Effect of User Mobility in Multimedia Wireless Networks.....	193
<i>J. Kim, T. Um, G. Lee, J. Choi</i>	
An Efficient Anti-DDoS Mechanism using Flow-based Forwarding Technology	196
<i>N. Ko, S. Noh, J. Park, S. Lee, H. Park</i>	
A Reliable Key Management Scheme for Wireless Sensor Networks	199
<i>A. Tufail, A. Ali, K. Kim</i>	
A Scheme on RFID Networking System with Security Function.....	202
<i>D.G. Yun, S.G. Choi</i>	
Camera Monitoring Service for Mobile Devices In Ubiquitous Computing Environment	205
<i>H. Lee, J. Sung, Y. Chung, E. Paik</i>	
Enhancing GMPLS Signaling Protocol for Multicast Wavelength Assignment in WDM Optical Networks.....	208
<i>S. Du, S. Zhang, Y. Peng, K. Long</i>	
Routing Information Collector for Path Computation Element.....	211
<i>B. Kim, S. Yoon, Y. Jeong, H. Song</i>	
An Group Multicast Heuristics Based on Token-ring in OVPN.....	214
<i>Z. Li, Y. Peng, K. Long</i>	
IPTV STB Remote Management Architecture According to User Usage Pattern.....	217
<i>T. Ku, B. Oh, E. Paik</i>	
Cancellation of Four-wave Mixing Light by Carrier Phase pi-Shift in Phase-Locked Multi-carrier Transmission	220
<i>A. Kodama, A. Mizutori, M. Koga</i>	
An Adaptive Equalizer for Error Free 40GbE Data Transmission on 40 inch High-Speed Backplane Channel.....	223
<i>C. Yang, K. Kim</i>	
Wavelength-Shift-Free Optical Phase Conjugation WDM Transmission Using Bandwidth-Shift-Free Optical Phase Conjugators	226
<i>P. Kaewplung, P. Rangsee</i>	
Design of a Retimed Long-Reach GPON Extender using FPGA.....	229
<i>K. Doo, S. Lee, W. Kim</i>	
Optical OFDM Signal Transmission over Passive-Optical Network	232
<i>C. Duangjarus, P. Kaewplung</i>	

Passive Protection in a Long-Reach WDM/TDM-PON.....	234
<i>D. Seol, E. Jung, S. Lee</i>	
High Modulation Bandwidth of Multisection RSOA	237
<i>H. Kim, B. Choi, K. Kim, D.C. Kim, O. Kwon, D. Oh</i>	
Low Jittered Optical Pulse Generation from a Gain-Switched Single-Mode VCSEL with an External Laser Beam Injection	240
<i>H.W. Jung, S.H. Lee, K.H. Kim, D.W. Kim, V.M. Deshmukh, M.H. Lee</i>	
High-efficiency Out of Plane Conversion and Manipulation of Surface Plasmon Waves	243
<i>X. Piao, M.S. Kumar, S. Koo, S. Yu, N. Park</i>	
Demonstration of All-optical Switch by Directly Modulated Single Mode Fabry-Perot Laser Diode	246
<i>B. Nakarmi, M.R. Uddin, Y.H. Won</i>	
Enhanced Coupling Efficiency into Photonic Crystal Waveguides Using Modification of Inlet Holes	249
<i>D. Lee, S. Lee, S. Park, E. Lee, O. Beom-Hoan</i>	
Crosstalk Analysis of Planar and Multi-chip Transmitter Modules for Optical PCB Applications.....	252
<i>I.A. Ukaegbu, M.H. Cho, T. Lee, H. Park</i>	
An IWO Algorithm for Fast and Global Optimization for Narrowing the Bandwidth of FBG Filter	255
<i>A. Haddadi, M. Nazari, A. Ghorbani</i>	
Design of Transimpedance Amplifier for Optical Receivers in 0.13 μm CMOS	259
<i>T. Ngo, T. Lee, H. Park</i>	
Network Infrastructure for Giga Internet Service : Trial Deployment and Prospects.....	262
<i>H. Park, J. Park, J. Kim</i>	
High-Capacity WDM Regional Access Networks Based on a Hierarchical Star-Ring-Bus Architecture	265
<i>S. Kuo, M. Kao, P. Peng</i>	
New Architecture for Reconfigurable WDM-PON Networks based on SOA Gating Array	268
<i>H. Jung, N. Tran, E. Tangdiongga, T. Koonen</i>	
A Pre-Spectrum-Sliced Seed Light Source for Multiple Spectrum-Sliced WDM-PONs based on R-SOAs	271
<i>H.H. Lee, S. Cho, J.H. Lee, S.S. Lee</i>	
Wavelength-dependent Characteristics of RSOA for Color-free Operations.....	274
<i>Jong Hoon Lee, Jie Hyun Lee, S. Cho, E. Lee, H.H. Lee, S. Lee</i>	
Improving Transmission Performance in EIN Limited 2.5 Gb/s Spectral Slicing Loop-Back WDM-PON Based on RSOA Employing the Dispersion Management.....	277
<i>S. Cho, Jie Hyun Lee, Jong Hoon Lee, E. Lee, H. Lee, E. Jung, S.S. Lee</i>	
Enhancement of Reflection Tolerance in a Bidirectional WDM-PON Based on RSOA Employing Near-threshold Operated DFB Laser as a Seed Light	280
<i>Jie Hyun Lee, S. Cho, Y.S. Jang, S. Lee</i>	
Future Prospects for Optical Transport Networks Beyond OADM Ring Network Era.....	283
<i>T. Takahashi, M. Fukutoku, A. Sahara</i>	
Semiconductor Photonic Integrated Switches and Buffers for Optical Packet Routing.....	286
<i>T. Tanemura, I.M. Sognnaci, Y. Nakano</i>	
Demonstration of Packet-Optic Integrated Transport System	289
<i>J. Youn, B. Kim, W. Choi, H. Lee, H. Kim, J. Yu</i>	
A Novel Iterative Clustering Steiner Tree Algorithm for Optimal Resource Reservation in Hose Based VPN.....	292
<i>D. Wang, Y. Peng, K. Long</i>	
Multi-degree Optical Node for Effective Utilization of Optical Transponders in WDM Mesh Networks	295
<i>S.H. Chang, H.S. Chung, K. Kim</i>	
An Intelligent Services-aware Generalized Optical Burst Assembly Mechanism Enabling Multi-services Transmission.....	298
<i>S. Peng, X. Yang, J. Zhou, K. Long, Z. Liu</i>	
Optical Signal Processing Towards Optical Router.....	301
<i>Y. Liu, L. Chen, S. Zhang, P. Duan, Z. Peng, Y. Liu</i>	
High Speed Optical Transmission R&D in ETRI	304
<i>K. Kim, H.S. Chang, S.H. Chang, J.K. Lee, J.C. Lee, S. Kang, J. Shin, J. Kim</i>	
PMD Insensitive CD Monitoring Based on RF Power Ratio in D8PSK and DQPSK Systems	307
<i>J. Yang, C. Yu, L. Cheng, Z. Li, C. Lu</i>	
OSNR Monitoring Technique based on Four-wave Mixing for Polarization-division Multiplex Transmission	310
<i>J.Y. Huh, H.S. Chung, Y.C. Chung, G.J. Kim</i>	
Prime-Length M-Signatures Reconfiguration to Enhance Optical CDMA Confidentiality.....	313
<i>J. Huang, C. Huang, Y. Chang, Y. Dai</i>	

Optimization Scheme for Complete Second-order PMD Compensation	316
<i>R. Zhang, W. Zhang, Z. Chen, H. Wang</i>	
Digitized Radio over Fiber Technology Employing Hardware Implemented NTP Technique.....	319
<i>S. Kuwano, Y. Yamada, M. Teshima</i>	
Blind Channel Estimation in LTE Uplink System Using Variable Step Size Based LMS Algorithm	322
<i>M.M. Rana, J. Kim, W. Cho</i>	
Implementation of OEO Based Reach Extender for 60km Long Reach GPON.....	325
<i>K. Kim, K. Doo, S. Lee</i>	
Efficient Clustering Algorithm for Delay Sensitive PON-based Wireless Sensor Network.....	328
<i>M. Hossen, K. Kim, Y. Park</i>	
Performance Analysis of Sub-carrier Mapping in LTE Uplink Systems	331
<i>M.M. Rana, J. Kim, W. Cho</i>	
A Load Aware Hybrid Channel Assignment for Multi-Radio Wireless Mesh Network.....	334
<i>T.M. Trung, H.Y. Geun, P.J. Su</i>	
Practical Cell Planning for Internetworking between PON and WMN	337
<i>D. Shin, S. Lee, B. Jung, Y.M. Allawi, M. Kang</i>	
[Invited] MiDORi: Energy Efficient Network Based on Optimizing Network Design Tool, Remote Protocol and New Layer-2 Switch	340
<i>N. Yamanaka, H. Takeshita, S. Okamoto, S. Gao</i>	
Analysis of Energy Consumption in Packet Burst Switching Networks	343
<i>Y. Kim, C. Lee, J.K. Rhee</i>	
Localized Adaptation for Energy-Aware Packet Transportation in WDM Networks	346
<i>X. Wan, X. Zheng</i>	
Optical Fast Circuit Switching Networks Applying Waveband Grooming	349
<i>T. Ogawa, Y. Yamada, H. Hasegawa, K. Sato</i>	
A Distributed Protocol to Reduce Blocking for Short Flows in Optical Flow Switching Networks.....	352
<i>Z. Qian, K.S. Ho, A. Xu, K.W. Cheung</i>	
Impact on Burst Size in OBS Network with Adaptive Link Rate	355
<i>J. Lee, W. Yang, D. Kang, F. Tong, R. Xie, Y. Kim</i>	
What is the Role of DSP in Future Optical Access?.....	358
<i>E. Ip, N. Cvijetic, D. Qian, T. Wang</i>	
Photonic In-Building Networks – Architectures and Advanced Techniques.....	361
<i>A.M.J. Koonen, H.P.A. Van Den Boom, H.D. Jung, H. Yang, O. Martinez, P. Guignard, E. Tangdiengga</i>	
High Extinction Ratio Phase Re-modulation for 10-Gb/s WDM-PON with Enhanced Tolerance to Rayleigh Noise.....	364
<i>J. Xu, L. Chen, C. Chan</i>	
Feasibility of Employing OCDMA on Passive Optical Network.....	367
<i>R. Maneekut, P. Kaewplung</i>	
Experimental Demonstration of Optical Concatenated Coding Enabling Channel Grouping on OCDM Networks	370
<i>M. Hanawa, Y. Okamura, S. Nozaki, K. Hosoya</i>	
Author Index	