

2008 6th International Symposium on Communication Systems, Networks and Digital Signal Processing

**Graz, Austria
23-25 July 2008**

Pages 1-308



**IEEE Catalog Number:
ISBN 13:**

**CFP0874D-PRT
978-1-4244-1875-6**

Table of Contents

Employing Concatenated-FEC to Mitigate Polarization-Sensitivity in All-optical Wavelength-Conversion.....	1
<i>A. Tychopoulos, P. Zakynthinos, O. Koufopavlou, H. Avramopoulos</i>	
Extending the Lifetime of Multi Hop Ad hoc Networks by Managing the Use of Relay Nodes.....	5
<i>D. Khan, P. Ball, G. Childs</i>	
Distributed mobility management for fast terminals in an IP-based micro-cellular network along roads	10
<i>Takahiko YAMADA, Satoshi YAMASHITA, Takashi OKUMURA, Phan Thanh Hoa</i>	
Call Blocking Probabilities in a W-CDMA Cell with Fixed Number of Channels and Finite Number of Traffic Sources.....	16
<i>Georgios A. Kallos, Vassilios G. Vassilakis, Michael D. Logothetis</i>	
Automatic Impedance Matching for 13.56 MHz NFC Antennas	20
<i>Michael Roland , Harald Witschnig, Erich Merliny, Christian Saminger</i>	
Response Time Analysis for Composite Web Services	24
<i>S. Haddad, L. Mokdad, S. Youcef</i>	
Performance Analysis of Over-determined Noisy ICA: Bayesian Approach versus Signal Transformation	29
<i>Yuanjia Wu, W.L. Woo, S.S. Dlay</i>	
An Adaptive Multi-Purpose Transmission Scheme for H.264 Encoded Video in Wireless Networks.....	34
<i>Markus Quaritsch, Mario Wiesingery, Bernhard Stroblz, Bernhard Rinner</i>	
Wireless Synchronous Broadband Last Mile Access Solutions for Multimedia Applications in License Free Frequency Spectrums.....	39
<i>P. Mandl, P. Schrotter, E. Leitgeb</i>	
Influence of RF EMI Filter Structures on High Speed Digital Signals	43
<i>T. Keiler, M. Stadler</i>	
Wiener's Loop Filter for PLL-based Carrier Recovery with OQPSK and MSK.....	47
<i>Arnaldo Spalvieri, Maurizio Magarini</i>	
Decrease of Oscillator Phase Noise and I/Q Imbalance Impacts on a WLAN Transmitter Using Appropriate Predistortion	52
<i>E.A. Karagianni, P.S. Tsenes, N.C. Athanasopoulos, R.J. Makri</i>	
Broadband NFC - A System Analysis for the Uplink.....	56
<i>D. Rinner, H. Witschnig, E. Merlin</i>	
Wavelength Requirements in Optical Transport Networks Based on High-Altitude Platforms.....	61
<i>C. Fortuna, A. Vilhar, J. Horwath, M. Mohorcic</i>	
Development of a Competition Model for a Cryptosystem Based on the Analytical Hierarchic Process.....	66
<i>J. Serey, L. Quezada, B. Ontiveros, I. Soto, R. Carrasco</i>	
Chaos Communication Performance Analysis: Taking Advantage of Statistical Theory.....	71
<i>A.J. Lawrance</i>	
Design of Multiple-Accessing Chaotic Digital Communication System based on Interleaved Chaotic Differential Peaks Keying (I-CDPK).....	77
<i>T. I Chien, N. Z. Wang, T. L. Liao, S. B. Chang</i>	
Embedded Node around a DSP core for Mobile Sensor Networks over 802.11 infrastructure.....	82
<i>Maximilian Nicolae, Radu Dobrescu, Matei Dobrescu, Dan Popescu</i>	
Simulated S-band satellite-to-indoor link, measurement results and channel characterization	86
<i>F. Perez-Fontan, V. Hovinen, M. Schönhuber, R. Prieto-Cerdeira, F. Teschl, P. Valtr</i>	
Performance Analysis of Non-Directed Equalized Indoor Optical Wireless Systems.....	92
<i>G. Ntogari, T. Kamalakis, T. Sphicopoulos</i>	

Table of Contents

Challenges in Establishing Free Space Optical Communications Between Flying Vehicles	97
<i>S. Sheikh Muhammad, T. Plank, E. Leitgeb, A. Friedl, K. Zettl, T. Javornik, N. Schmitt</i>	
High Quality Low Order Nonrecursive Digital Filters Design Using Modified Kaiser Window.....	102
<i>K.Avci, A.Nacaroglu</i>	
An Investigation of Coded OFDM and CEOFDM Waveforms Utilizing Different Modulation Schemes on HF Channels.....	106
<i>J. W. Nieto</i>	
System Requirements for Optical HAP-Satellite Links	111
<i>N. Perlot, E. Duca, J. Horwath, D. Giggenbach, E. Leitgeb</i>	
The Effect of Atmospheric Turbulence on the Performance of the Free Space Optical Communications.....	116
<i>A. Chaman Motlagh, V. Ahmadi, Z. Ghassemlooy, K. Abedi</i>	
A Novel Method for Determining the Mutual Inductance for 13.56MHz RFID Systems	120
<i>S. Hackl, C. Lanschutzer, P. Raggam, W.L. Randeu</i>	
Fuzzy Vault Crypto Biometric Key Based on Fingerprint Vector Features	124
<i>M. S. AlTarawneh, W.L. Woo, S.S Dlay</i>	
Distribution Function For Continental and Maritime Fog Environments For Optical Wireless Communication.....	129
<i>M. Saleem Awan, E. Leitgeb, S. Sheikh Muhammad, Marzuki, F. Nadeem, M. Saeed Khan, C. Capsoni</i>	
Comparative Investigation of Coded Cooperative Communication Systems.....	134
<i>L. Chen, R. A. Carrasco, V. Ganepola, S. Le Goff, I. J. Wassell</i>	
Efficient recurrence relations for sincN FIR filter coefficients.....	139
<i>J. Le Bihan</i>	
Design of a Communication and Power Supply System Providing the Spaceborne Magnetometer Front-end ASIC at Remote Locations.....	143
<i>A. Pollinger, W. Magnes, A. Valavanoglou, H. Ottacher</i>	
A Recursive Prediction Error Algorithm for Digital Predistortion of FIR Wiener Systems.....	147
<i>Emad Abd-Elrady</i>	
High Data-Rate Optical Wireless Communications in Passenger Aircraft: Measurements and Simulations.....	151
<i>D.C. O'Brien, G.E. Faulkner, S.Zikic, N.P. Schmitt</i>	
Transmit Power Minimization for Poisson Distributed Wireless Ad-hoc Relay Networks in Rayleigh Fading Channels	155
<i>Nam-Soo Kim, Beongku An, Do-Hyeon Kim, Ye Hoon Lee</i>	
Efficient Fingerprint Feature Extraction: Algorithm and Performance Evaluation.....	160
<i>L.R. Palmer, M.S. Al-Tarawneh, S.S. Dlay, W.L. Woo</i>	
A Multi-Objective Optimization Framework for Video Compression and Transmission	164
<i>Ashraf A. Al-Najdawi, Roy S. Kalawsky</i>	
A Novel Design of Sharp Transition FIR Filter for Digital Beamforming	168
<i>Lucy J. Gudino, Jagadeesha S.N., Joseph X. Rodrigues</i>	
A Novel Approach to Implementation of Quantum Entanglement Purification in Optical Quantum Communication.....	172
<i>Shamsolah Salemian, Shahram Mohammad Nejad</i>	
Two Dimensional Principle Component Analysis of Gabor Features for Face Representation and Recognition.....	176
<i>R.M. Mutelo, W.L. Woo, S.S. Dlay</i>	

Table of Contents

Hardware Implementation of Pragmatic Trellis Coded Modulation Applied to 8PSK and 16QAM for DVB Standard	181
<i>Rizwan Manzoor, Abid Rafique, Khalid Bashir Bajwa</i>	
Space and Atmospheric Planetary Communication Links as Scientific Tools	186
<i>H.U. Eichelberger, G. Prattes, K. Schwingenschuh, O. Aydogar, B.P. Besser, I. Jernej, H. Lammer, E. Leitgeb, H.I.M. Lichtenegger, M. Stachel, T. Tokanoz</i>	
Authentication Process Based on the Synchronization of Chaotic Oscillator Networks	190
<i>L. Laval</i>	
Performance study of Non-binary LDPC Codes over GF(q)	195
<i>V.S. Ganepola, R.A. Carrasco, I. J. Wassell, S. Le Goff</i>	
Optical Burst-Switched WDM Networks with Channel Bonding	200
<i>SlaviIa Aleksic</i>	
Comparing The Fog Effects on Hybrid Network Using Optical Wireless and GHz Links	205
<i>F. Nadeem, B. Flecker, E. Leitgeb, M. S. Khan, M. S. Awan, T. Javornik</i>	
From Power to Performance in 13.56 MHz Contactless Credit Card Technology	210
<i>M. Gebhart, W. Eber, W. Winkler, D. Kovac, H. Krepelka</i>	
Analytical Model of the Address Auto-configuration Protocol LHA in Ad hoc Networks	215
<i>A. Yousef, H. Al-mahdi, A. Mitschele-Thiel</i>	
Blind Seismic Deconvolution of Single Channel Using Instantaneous Independent Component Analysis	220
<i>Aws Al-Qaisi, W.L. Woo, S.S. Dlay</i>	
Full-vectorial Finite Difference for Optical Analysis of Travelling Wave Electroabsorption Modulators	225
<i>K. Abedi, V. Ahmadi, M. K. Moravvej-farshi, A. Chaman Motlagh</i>	
Electronic Signal Processing for Optical Code Division Multiple Access Networks	230
<i>Miguel Pimenta, Izzat Darwazeh</i>	
Reduction of Non-Orthogonality Effect in Nanometrology System by Modified Optics and Signal Conditioner	233
<i>Saeed Olyaei, Shahram Mohammad Nejad</i>	
Diffuse Infrared Personal Optical Wireless Based on Modified OFDM/OQAM	237
<i>Mamdouh El Tabach, Patrick Tortelier, Ramesh Pyndiah, Olivier Bouchet</i>	
Physical Architectures for Packet-Switching Network Nodes Based on Nonlinear Logic Gates	241
<i>Petrantonakis, Kostas Yiannopoulos, Leontios Stampoulidis, Hercules Avramopoulos, Didier Erasme</i>	
Open Diameter Conformance Testing	245
<i>Dario Djuric, Ognjen Dobrijevic, Darko Huljenic, Maja Matijasevic</i>	
Controlled Loops: A New QoS Differentiation Framework for Delay-Sensitive OBS Networks	250
<i>Jordi Perelló, Salvatore Spadaro, Jaume Comellas and Gabriel Junyent</i>	
Accurate Optical Fiber Refractive Index Reconstruction from Near Field	254
<i>A.C. Boucouvalas, C.A. Thraskias</i>	
Identifying Differentiating Characteristics of Internet Applications using Principal Component Analysis	260
<i>Roberto Nogueira, Antonio Nogueira, Paulo Salvador, Rui Valadas</i>	
Visibility and Attenuation Due to Hydrometeors at 850 nm Measured on an 850 m Path	265
<i>V. Kvicera, M. Grabner, O. Fiser</i>	
An Adaptive Burst Assembly scheme for OBSGRID networks	268
<i>Nikos Korkakakis, Kyriakos Vlachos</i>	
Equalisation for High-Speed Visible Light Communications using White-LEDs	272
<i>Lubin Zeng, Hoa Le Minh, Dominic O'Brien, Grahame Faulkner, Kyungwoo Lee, Daekwang Jung, YunJe Oh</i>	

Table of Contents

Experimental Development and Study of Wi-Fi and FSO links	276
<i>J. A. R. Pacheco de Carvalho, H. Veiga, P. A. J. Gomes, A. D. Reis</i>	
Performance Investigation of Pattern Effect Suppression in Semiconductor Optical Amplifier Using Optical Delay Interferometer	281
<i>K.E. Zoiros, T. Siarkos, C.S. Koukourlis</i>	
Dispersion-Managed Ring Laser Using SOA and Dispersion-Compensating Fibre for Pulse Reshaping and Clock Recovery	286
<i>Arnaud Fernandez, Lu Chao, Jacques W. D. Chi</i>	
End-to-End Service Availability Guarantee with Generalized Dedicated Protection	290
<i>P. Babarczy, J. Tapolcai</i>	
Adaptive Predistortion of IIR Hammerstein Systems Using the Nonlinear Filtered-x LMS Algorithm	295
<i>Li Gan, Emad Abd-Elrady</i>	
Using Presence Information for an Effective Collaboration	299
<i>K. Peternel, L. Zebec, A. Kos</i>	
Towards Real-Time Measurement of Information in a Scientific Setting	304
<i>M.R. Titchener</i>	
Laser Attenuation by Falling Snow	309
<i>R. Nebuloni, C. Capsoni</i>	
Bandwidth-efficient Indoor Optical Wireless Communications with White Light-emitting Diodes	314
<i>J. Grubor, S. Randel, K.D. Langer, J.W. Walewski</i>	
An interoperable GMPLS/OBS Control Plane: RSVP and OSPF extensions proposal	319
<i>P. Pedroso, D. Careglio, R. Casellas, M. Klinkowski, J. Solé-Pareta</i>	
Analytical Modelling of the Iub Interface in the UMTS Network	324
<i>M. Stasiak, J. Wiewióray, P. Zwierzykowski</i>	
Performance Evaluation of Parallel Download in Streaming Services	328
<i>Noriaki Kamiyama, Ryoichi Kawahara, Haruhisa Hasegawa</i>	
ML and EM Algorithm for Non-Data-Aided SNR Estimation of Linearly Modulated Signals	333
<i>W. Gappmair, R. López-Valcarce, C. Mosquera</i>	
Compensation of Distortions Caused by Periodic Nonuniform Holding Signals	338
<i>Christian Vogel, Christoph Krall</i>	
Forecasting of Traffic Load in a Live 3G Packet Switched Core Network	342
<i>Philipp Svoboda, Manfred Buerger, Markus Rupp</i>	
A New Chaos-based Communication Scheme Using Observers	347
<i>K. Busawon, Rupak Kharel, Z. Ghassemlooy</i>	
Capacity-Maximized MPPM Constellations for Free-Space Optical Communications	352
<i>Trung Thanh Nguyen, Lutz Lampe</i>	
Improvement on Cooperative Balanced Space-Time Block Coding with Relay Selection	357
<i>Ali Eksim, Mehmet E. Çelebi</i>	
Triple-Wavelength Fiber Ring Laser Based on a Hybrid Gain Medium Actively Mode-locked at 10 GHz	362
<i>C. O'Riordan, M.J. Connelly, P.M. Anandarajah, R. Maher, L.P. Barry</i>	
Cognitive Radio Access Discovery Strategies	365
<i>Zoran Damjanovic</i>	
LP Decoding of LDPC Codes in HARQ Systems	370
<i>Michael Lunglmayr, Jens Berkmann, Mario Huemer</i>	

Table of Contents

New Design Process for Optical Chips	375
<i>W.Pribyl, D.Seyringer, H.Seyringer</i>	
A BIBD Based MAC Protocol for Wireless Ad Hoc Networks with Directional Antennas	379
<i>G. Boggia, P. Camarda, C. Cormio, L. A. Grieco</i>	
Asymptotic Ergodic Capacity of Multidimensional Vector-Sensor Array MIMO Channels	384
<i>Ozgur Ertug</i>	
Multi-space Random Projection of Face Biometric in the Radon Domain	389
<i>M. A. Dabbah, S. S. Dlay, W. L. Woo</i>	
Avoiding Adjacent Channel Interference in Static RWA	393
<i>K. Manousakis, K. Christodoulopoulos, E. Varvarigos</i>	
Performance Study of the Mobile IPv6 Protocol and its Variations	398
<i>George Aristomenopoulos, Christos Bouras, Kostas Stamos</i>	
Laser Doppler Vibrometry System using the Synthetic-Heterodyne Interferometric Demodulation Scheme Implemented on a CMOS DSP Camera	403
<i>M.J. Connelly, P.M. Szczówka, R. Jallapuram, S. Martin, V. Toal, M.P. Whelan</i>	
A Public Key Encryption Model For Wireless Sensor Networks	407
<i>H. Rodríguez, B. Ontiveros, I. Soto, R. Carrasco</i>	
HAP-GEO Optical Links: Performance Analysis Under Weak Turbulence Conditions	412
<i>Silvello Betti, Elisa Duca, Italo Toselli</i>	
All-optical Decrementing of a Packet's Time-to- Live (TTL) Field Using Logic XOR Gates	417
<i>R. Vilar, J. M. Martinez, F. Ramos, J. Marti</i>	
System Analysis of Non-Mechanical Compact Optical Transceiver for Wireless Communications with a VCSEL Array	421
<i>M. Toyoshima, N. Miyashita, Y. Takayama, H. Kunimori, S. Kimura</i>	
WAP over TETRA Trial Services	425
<i>A. Stern, M. Volk, G. Kandus, T. Javornik, A. Hrovat, J. Belter</i>	
Properties of a Test Bench to Verify Standard Compliance of Proximity Transponders	430
<i>M. Gebhart, S. Birnstingl, J. Bruckbauer, E. Merlin</i>	
A Novel Method for Determining the Resonance Frequency of PICCs	435
<i>Wei Lin, Bernd Geck, Hermann Eul, Christian Lanschuetzer, Peter Raggam</i>	
Experimental Analysis of VoIP Call Quality Support in IEEE 802.11 DCF	440
<i>Paolo Dini, Oriol Font-Bach, Josep Mangues-Bafalluy</i>	
Impact of Physical Effects onto the Optimal Signal Power in CWDM Optical Networks	445
<i>Áron Szabó, Szilárd Zsigmond, Tibor Cinkler</i>	
Maximum Entropy Payout Delay Distribution for Real-time Speech Communication in Packet Networks	450
<i>Muhammad Sarwar Ehsan, Gernot Kubin</i>	
Impact of Dependent Failures on the Availability of the Optical Network	455
<i>O. Lapcevic, M. Lackovic, B. Mikac</i>	
Modelling of Systems with Overflow Multi-rate Traffic and Finite Number of Traffic Sources	460
<i>Mariusz Glabowski, Katarzyna Kubasik, Maciej Stasiak</i>	
Optimization of Beam Width, Bit Error Rate and Availability for Free-Space Optical Links	464
<i>Ahmed A. Farid, Steve Hranilovic</i>	
An Analog Front-End Receiver with Desensitization to Input Capacitance for Free Space Optical Communication	469
<i>Yiling Zhang, Valencia Joyner</i>	

Table of Contents

Facility Location and Mobile Transactions in a University Environment.....	473
<i>J. Bravo, R. Carrasco, B. Sharif, I. Soto</i>	
Orthogonal Frequency Division Multiplexing for Indoor Optical Wireless Communications using Visible Light LEDs	479
<i>S. K. Hashemi, Z. Ghassemlooy, L. Chao, D. Benhaddou</i>	
Pulsed Digital Oscillators	484
<i>M. Domínguez, J. Ricart, J. Pons, F. Rubio</i>	
Evaluation of a Call Admission Control Scheme in W-CDMA Cellular Networks	489
<i>Vassilios G. Vassilakis, Georgios A. Kallos, Ioannis D. Moscholios, Michael D. Logothetis</i>	
A New Miniaturized LTCC Transversal Bandpass Filter for RF and Microwave Applications	493
<i>R. Kravchenko, D. Orlenko, M. Stadler</i>	
Chaotic Communications, their Applications and Advantages over Traditional Methods of Communication.....	497
<i>Anjam Riaz, Maaruf Ali</i>	
Reduced Model Channel Method for Impulse Response: Characterization of Indoor Wireless Optical Channels	501
<i>Adrian Mihaescu, Alain Songue, Pascal Besnard, Olivier Bouchet, Qiang Liu</i>	
Near Field Antenna Development for Metal and Semiconductor Detection	505
<i>Klaus Gundolf, Walter L. Randeu</i>	
Simulation of an All-Optical 1×2 SMZ Switch with a High Contrast Ratio.....	508
<i>M. F. Chiang, Z. Ghassemlooy, W. P. Ng, H. Le Minh</i>	
On the bounds of the Titchener T-complexity.....	512
<i>Ulrich Speidel</i>	
On Stopping Criteria for Low-Density Parity-Check Codes	517
<i>D. Alleyne, J. Sodha</i>	
Numerical Investigation and Optimization of a 2d- Photonic Crystal Fiber with Ultra-Low Confinement Loss and Ultra-Flattened Dispersion	522
<i>M. Pourmahayabadi, Sh. Mohammad Nejad</i>	
Techno-Economic Study of a Modeled Active Ethernet FTTB Deployment.....	527
<i>Siamak Azodolmolky, Ioannis Tomkos</i>	
Personal Optical Wireless Communications: LOS/WLOS/DIF propagation model and QOFL.....	531
<i>Mathieu Bertrand, Olivier Bouchet, Pascal Besnard</i>	
A Mixed Data Flow and Local Feedback in the Resource Allocation of Ad Hoc Networks.....	535
<i>Shaopeng Wu, Rolando Carrasco, Satnam Dlay</i>	
BER Performance of DPSK Subcarrier Modulated Free Space Optics in Fully Developed Speckle.....	540
<i>W.O. Popoola, Z. Ghassemlooy, E. Leitgeb</i>	
Dynamic Traffic Control for QoS-Aware IP Networks using Flatness based Trajectory Tacking Controller	545
<i>Lynda Zitoune, Hugues Mounier, Véronique Vèque, Amel Hamdi</i>	
Spectral Analysis of Convolutional Coded DPIM for Indoor Optical Wireless Communications	549
<i>Z. Ghassemlooy, S. K. Hashemi, M. Amiri</i>	
Performance Analysis of Decentralized User Information Management System for Peer-to-Peer Real-Time Communication Services	553
<i>Kazuhiko Kuraya, Hiroyuki Masuyama, Shoji Kasahara, Yutaka Takahashi</i>	

Table of Contents

Hybrid Wireless Optics (HWO): Building the Next-Generation Home Network	558
<i>Olivier Bouchet, Mamdouh El Tabach, Mike Wolf, Dominic C. O'Brien, Grahame E. Faulkner, Joachim W. Walewski, Sebastian Randel, Martin Franke, Stefan Nerreter, Klaus-Dieter Langer, Jelena Grubor, Thomas Kamalakis</i>	
SDR Direct-Sampling Device for Multistandard GNSS Signals	563
<i>A. Alonso, J.M. Perre, I. Arizaga</i>	
Two Links Robot Controlling Based on Time Petri Net	567
<i>Heydar Toossian Shandiz, Soheil Arastehfar</i>	
Performance of DWT-ANN Based Signal Detector/Equalizer for DPIM in Practical Indoor Optical Wireless Links	571
<i>S. Rajbhandari, Z. Ghassemlooy, M. Angelova</i>	
Quantum-Dot Cellular ROM: A Nano-Scale Level Approach to Digital Data Storage	575
<i>Ehsan Rahimi, Shahram Mohammad Nejad</i>	
Code Design For Coordinate Interleaved Coded Cooperation	579
<i>Ozgur Oruc, Umit Aygolu</i>	
Symbol Synchronizers Based on Filter with Phase Lock Loop	584
<i>António D. Reis, José F. Rocha, Atilio S. Gameiro, José P. Carvalho</i>	
A Lossless Compression Method for Data from a Spaceborne Magnetometer	588
<i>D. Fischer, G. Berghofer, W. Magnes, T. L. Zhang</i>	
Characterization of Set of Vectors Represented by Lattices	593
<i>Charlotte Yuk-Fan Ho, Bingo Wing-Kuen Ling, Muhammad Habib Ullah Nasir, Hak-Keung Lam, Herbert H. C. Iu</i>	
Loss Models in Traffic-Groomed WDM All-Optical Networks	598
<i>John S. Vardakas, Vassilios G. Vassilakis, Michael D. Logothetis</i>	
Performance Analysis of an Interferometric Scheme for Media with limited Cross-Phase Modulation Nonlinearity	603
<i>R. Bonk, S. Sygletos, P. Vorreau, T. Vallaitis, J. Wang, W. Freude, J. Leuthold, R. Brenot, F. Lelarge, G. H. Duan</i>	
Adaptive Electronic Equalization for Non-Ideal Optical Coherent Receivers	608
<i>A. Vgenis, C. S. Petrou, I. Roudas, I. Chochliouros, G. Agapiou, T. Doukoglou</i>	
A Separable Kernel Filter Design Procedure For Signal Time-Frequency Analysis	613
<i>Victor Sucic</i>	
Fractal Analysis of Internet Traffic using a Parallel Processing Network Simulator	618
<i>Radu Dobrescu, Matei Dobrescu, Daniela Hossu, Sebastian Tarahunga</i>	