2010 International Conference on **Advanced Technologies for Communications**

(ATC 2010)

Ho Chi Minh City, Vietnam 20 – 22 October 2010



ISBN:

IEEE Catalog Number: CFP10ATC-PRT 978-1-4244-8875-9

Table of Contents

The 2010 International Conference on Advanced Technologies for Communications

Keynote talk 1
Towards the Year 2020: Evolution of Telecommunications Infrastructures and Biz i Saracco Roberto, Telecom Italia, Italy
Keynote talk 2
Opportunistic Unsynchronized Cognitive Radio Networks
Keynote talk 3
Squeezing the Spectral Lemon: Advances in Signal Processing and Coding to Improve Spectral Efficiency
Sébastien Roy, Laval University, Canada
Keynote talk 4
Wireless Sensors Networks Infrastructure for Oil Industryx Magdy A. Bayoumi, University of Louisiana at Lafayette, USA
Keynote talk 5
Recent Trend of Power Amplifiers for Transmitters of Mobile Communication xi Bumman Kim, Pohang University of Science and Technology, Korea
Keynote talk 6
Green Wireless Communications for the Future xi Mérouane Debbah, Supeléc, France
Session 1A: Communication Theory
Performances of Coded OFDM/OQAM Over PLC Impaired by Impulsive and Colored Noise
Improved Decoder Schemes for QOSTBCs Based on Single-Symbol Decoding Pham Van Bien, Weixing Sheng, Xiaofeng Ma, and Hao Wang ———————————————————————————————————

A Deterministic Lower Bound for the Radius in Sphere Decoding Search Victor M. García, Sandra Roger, Rafael A. Trujillo, Antonio M. Vidal, and Alberto Gonzalez	11
Session 2A: Ad hoc and Sensor Networks I	
Invited paper: Ad Hoc Network in a Disaster Area: a Composite Mobility Model and its Evaluation <i>Stéphane Pomportes, Joanna Tomasik, and Véronique Vèque</i>	17
Power and Performance Tradeoff of MAC Protocol for Wireless Sensor Network Employing UAV	23
Energy Efficiency of Cooperative Strategies in Wireless Sensor Networks Le Quang Vinh Tran, Olivier Berder, and Olivier Sentieys	29
WiSeCoMaSys: a Tool for Data Collection and Management of Wireless Sensor Networks Vo Que Son, Bernd-Ludwig Wenning, Carmelita Görg, and Andreas Timm-Giel	33
An Expending Ring Search Algorithm for Mobile Adhoc Networks Duy Ngoc Pham, Van Duc Nguyen, Van Tien Pham, Ngoc Tuan Nguyen, Xuan Bac Do, Trung Du Nguyen, Claus Kuperschmidt, and Thomas Kaiser	39 ung
Session 1B: Cognitive Radio	
A More Practical Spectrum Sensing Technique in Cognitive Radio Networks Pham Duy Phong, Dang Trung Chinh, Vu Van Yem, and Nguyen Van Khang	45
A Novel Multi-Dimensional Spectrum Estimation Technique Viet-Ha Pham, Dominic Grenier, and Jean-Yves Chouinard	50
Joint Power and Admission Control for Underlay Spectrum Sharing in Cognitive Radio Networks Sooyeol Im, Wonsop Kim, Yunsuk Kang, and Hyuckjae Lee	56
QoS Provisioning Multi-level Spectrum Allocation Algorithm	62
Session 2B: Signal Detection and Interference Mitigation Techniques	3
An Improved Lattice Reduction Aided Detection Based on Gram-Schmidt Procedure Caio Masakazu Kinoshita, Yusuke Sasaki, and Tadashi Fujino	68
An MMSE Detector Applying Reciprocal-Lattice Reduction in MIMO Systems	74
Combined Iterative Channel Estimation and Data Detection for Space-Time Block Codes Ngoc Trung Tran, Xuan Nam Tran, and The Cuong Dinh	80
Performance Analysis of Wavelet Subband Based Voice Activity Detection in Cocktail Patentironment Tuan V Pham Michael Stark, and Erhard Rank	arty 85

Session 1C: Ultra Wide Band

Ultra-Wide Band Low-profile Spiral Antennas Using an EBG Ground Plane Vu Van Yem and Tran The Phuong	_ 89
Experimental Evaluation of UWB Transmission Waveform for Short-Range Wireless Networks	_ 95
Investigation of Doppler Effect in UWB-Based Rotor-Telemetry System Amina Ayadi-Miessen, Claus Kupferschmidt, Thi Chung Le, Hans-Peter Kuchenbecker, and The Kaiser	_ 99 omas
Band-Notched Characteristic using Ground Stubs for Compact UWB Antennas Y. F. Weng, S. W. Cheung and T. I. Yuk	104
Compact Planar Antennas for Ultra-Wideband Applications	108
Session 2C: Channel Modeling and Estimation	
Design of Measurement-Based Correlation Models for Shadow Fading Matthias Pätzold, Nurilla Avazov, and Van Duc Nguyen	112
On the Autocorrelation Function of Rice Processes for Unsymmetrical Doppler Power Spectral Den	sities
Akmal Fayziyev, Matthias Pätzold, and Neji Youssef	
Channel Auto-Correlation and Doppler Spectrum of MIMO Systems Using Circular Array	124
Designing Orthogonal Pilot Scheme for Semi-blind Channel Estimation in MIMO Systems	128
ETP Model Approximation for SIMO-OFDM MRC System in Rayleigh Fading Environment	132
Session 3C: Signal Processing I	
A Tensorial Approach to Single Trial Recognition for Brain Computer Interface Anh Huy Phan, Andrzej Cichocki, and Thanh Vu-Dinh	138
Classification of Scenes Based on Multiway Feature Extraction	142
Accelerated Parallel Magnetic Resonance Imaging with Multi-Channel Chaotic Compressed Sensing Tran Duc Tan, Dinh Van Phong, Truong Minh Chinh, and Nguyen Linh-Trung	146
Super-Resolution Image Construction from High-Speed Camera Sequences Hong-Thinh Nguyen, Viet-Dung Nguyen, and Ha Vu Le	152
Texture Image Retrieval using Phase-Based Features in the Complex Wavelet Domain Hoang Nguyen-Duc, Thuong Le-Tien, Tuan Do-Hong, and Cao Bui-Thu	158

Session 1D: Wireless Communications I Non-cooperative Power Scheduling for Wireless MIMO Networks 164 Chao Zhou, Yizhi Xu, Bui Thi Oanh, and Pingping Xu A Study of SLM PAPR Reduction of OFDM Signals without Side Information 168 Toshiharu Kojima, Yuki Shida, and Tadashi Fujino Performance Analysis of Threshold-based Relaying with Partial Relay Selection over Rayleigh Fading Channels Vo Nguyen Quoc Bao, Le Quoc Cuong, and Hyung Yun Kong A 16QAM Super-Orthogonal Space-Frequency Code for Broadband Mobile Communication Systems with Two Transmit Antennas Corneliu Eugen D. Sterian, Yi Wu, and Matthias Pätzold Session 2D: Ad hoc and Sensor Networks II Performance of Decode-and-Forward Cooperative Relaying over Rayleigh Fading Channels with Impulsive Noise Khuong Ho Van and Tho Le-Ngoc Predictive RSS with Fuzzy Logic Based Vertical Handoff Algorithm in Heterogeneous Wireless Networks Sunisa Kunarak and Raungrong Suleesathira Performance Analysis of Decode-and-Forward Relaying for Multi-hop Alamouti Transmission over Rayleigh Fading Channels Nguyen Thi Be Tam, Thanh Tran-Thien, Tuan Do-Hong, and Vo Nguyen Quoc Bao Invited paper: Channel Assignment in Ad-Hoc Networks using a Common Channel: Algorithms and Metrics Husnain Mansoor Ali, Anthony Busson, Véronique Vèque, and Thanh Minh Tran **Session 3D: Systems & Circuits for Communications** Modified Second Order Digital Phase Locked Loop with Large Lock-in Range 206 Santanu Chattopadhyay 2.4-GHz 0.18-µm CMOS Highly Linear Power Amplifier _______210 Yongbing Qian, Wenyuan Li, and Zhigong Wang Compact Tri-band Bandpass Filter Based on Short Stubs and Crossed Open Stubs 213 Wenjie Feng, MinhTan Doan, and Wenquan Che A 3rd- and 5th-Order Intermodulation Products Generator for Predistortion of Base-Station HPAs 217 X.L. Sun, S.W. Cheung, and T.I. Yuk Design of Dual Band Band-pass Filter using Defected Ground Structure 221 Changjiang You and Xiaowei Zhu

Session 1E: Wireless Communications II

Wideband Beamforming for Reducing Co-Channel Interference in Broadband Wireless Communica	tion
Systems	225
Tuan Do-Hong, Chau Dang-Nguyen, Tuan Le-Hoang Nguyen, and Ha Ta-Hong	_
Analysis of Power Control in Satellite-based WCDMA Links <i>K. Sam Shanmugan</i>	_ 231
Performance Analysis of Hybrid Scheme for Semiblind Channel Estimation in MIMO Systems	_ 237
A Wideband Time-delay Line Inspired by CRLH TL Unit Cell	_ 241
Session 2E: Communication Protocols and Networking	
Network Simulator: Importance of an Accurate Model of the Physical Layer Q.A Bui and S. Houcke	_ 245
Implementation and Evaluation of Local Breakout Method for IP-based Femtocell Networks Tsunehiko Chiba, Manabu Ito, Hidetoshi Yokota, and Yoshikazu Miyanaga	_ 249
Road Connectivity-based Routing for Vehicular Ad Hoc Networks	_ 255
Nadia.Brahmi, Mounir.Boussedjra, Joseph.Mouzna, and Mireille.Bayart	
Error Reduction in Non-electric Measurement by Interpolation Combined with Loop Transform Method Pham Ngoc Thang and Bui Trung Thanh	mation 260
Optimal Spatial-Temporal Weight Prediction for Inter-Frame Coding of H.264/AVC Video Sequence	
Dung T. Vo, Chan-Won Seo, Daqian Jin, Jong-Ki Han, and Truong Q. Nguyen	_ 266
A Code Tracking Bias Analysis of the Single and Double EML Schemes for GNSS Civil Signals	_ 270
Direct Modulation of an Opto-Electronic Oscillator: towards Radio over Fiber Nguyên Lâm Duy, Bernard Journet, Vu Doan Miên, and Vu Van Luc	_ 274
A Photonic Band Gap Power-Balanced Asymmetrical T-Junction Ngo Thi Thu, Dao Ngoc Chien, and Nguyen Van Khang	_ 279
Session 1F: VLSI & Embedded Systems	
A Hardware/Software Approach to Detect Memory Corruptions in Embedded Systems	_ 285
Genetic Programming Approach for SoC/IP Floorplanning Applications	_ 291
Optimal Routing Algorithms for Hyper-De Bruijn Networks	_ 297

Ngoc Chi Nguyen and Thanh Vu-Dinh	
FPGA-Based Architecture for Cognitive Radio Handheld Devices Duong Nguyen The Dai, Thuong Le Tien, Hoang Ngo Duc, Ngoc Nguyen Minh Khanh, Thanh Le Phu, Cao Bui Thu, and Son Nguyen Hai	301
Session 2F: Cooperative Communications	
Invited paper: Jointly Optimal Precoder and Power Allocation for an Amplify-and-Forward Half-De Relay System	uplex 305
Relay System	
General Order Antenna Selection in Dual-Hop Amplify Forward System with Multi-Antenna Relay _ Arun K. Gurung, Fawaz S. Al-Qahtani, Zahir M. Hussain, and Hussein Alnuweiri	311
Adaptive Modulation for Distributed Switch-and-Stay Combining with Single Relay	316
Performance Analysis of Amplify-Forward Relay in Mixed Nakagami-m and Rician Fading Channels	321
Arun K. Gurung, Fawaz S. Al-Qahtani, Zahir M. Hussain, and Hussein Alnuweiri	
Cooperative MIMO and Relay Association Strategy	327
Session 3F: Antennas and Propagation	
Design Dual Band Microstrip Antenna for Next Generation Mobile Communication <i>Tran Minh Tuan</i>	331
Flexible PSO-based Optimization of Millimeter-Wave Triple-Band Antennas by the Use of Fi	ractal 336
Nguyen Duc Hieu, Dao Ngoc Chien, and Nguyen Khac Kiem	
Novel Compact Antennas for MIMO Wireless Communication Systems Dinh Thanh Le, Masahiro Shinozawa, and Yoshio Karasawa	341
Antennas and Propagation for Body Area Networks Da Ma and Wen Xun Zhang	346
An Empirical Channel Model for Human Body Communication Thanh Viet Pham, Youn Tae Kim, Le Thi Minh Thuy, and Ho Anh Tuy	352

Author Index