

*Proceedings*

---

**2009 International Conference on  
Advanced Technologies for  
Communications**

**ATC 2009**

*October 12-14, 2009  
Hai Phong, Vietnam*



# TABLE OF CONTENTS

## SESSION 1: COMMUNICATION THEORY

<b>Invited Paper: A Lattice- Reduction Aided Detection by Combining LLL Algorithm and Gram-Schmidt Procedure</b> .....	1
<i>Tadashi Fujino, Shinjiro Wakazono, Yusuke Sasaki, and Xuan-Nam Tran</i>	
<b>Closed-Form Expressions for Symbol Error Rates of MIMO-MRC with Channel Estimation Errors</b> .....	9
<i>Arun K. Gurung, Fawaz S. Al-Qahtani, Khaizuran Abdullah, and Zahir M. Hussain</i>	
<b>Performance Analysis of Maximal Ratio Combiner in Correlated Rayleigh Fading</b> .....	13
<i>Fawaz S. Al-Qahtani, Arun K. Gurung, Noura Al-Hinai, and Zahir M. Hussain</i>	
<b>Low-complexity Scheduling Algorithms for Successive Zero-forcing Dirty Paper Coded Systems</b> .....	18
<i>Le-Nam Tran, and Een-Kee Hong</i>	

## SESSION 2: COMMUNICATION & INFORMATION SECURITY

<b>Security Analysis of Certificate Authentication in Chinese WLAN standard</b> .....	22
<i>Song Yubo, Hu Aiqun, and Chen Kaizhi</i>	
<b>Protocols for Simultaneous Signing Contracts</b> .....	26
<i>Nguyen H. Minh, and Nikolay A. Moldovyan</i>	
<b>Facial Expression Recognition Over FFT-OFDM</b> .....	30
<i>Seyed Mehdi Lajevardi, Katrina L. Neville, and Zahir M. Hussain</i>	

## SESSION 3: POWER LINE COMMUNICATION

<b>Performance of BCH Coding on Transmission of Compressed Images over PLC Channels</b> .....	34
<i>Noura Al-Hinai, Amin Z. Sadik, and Zahir M. Hussain</i>	
<b>Adaptive-threshold Clipping for Impulsive Noise Reduction in OFDM-based Power Line Communications</b> .....	38
<i>Khalifa S. Al-Mawali, and Zahir M. Hussain</i>	
<b>Performance of Bit-Interleaved Coded OFDM in Power Line Communications with Impulsive Noise</b> .....	44
<i>Khalifa S. Al-Mawali, and Zahir M. Hussain</i>	

## SESSION 4: EMBEDDED SYSTEMS & VLSI DESIGN

<b>Invited Paper: An Asynchronous Low-Power Innovative Network-on-Chip including Design-for-Test capabilities</b> .....	49
<i>Yvain Thonnart, Xuan-Tu Tran, Pascal Vivet, Edith Beigné, Fabien Clermidy, and Jean Durupt</i>	
<b>New Approaches to Design Asynchronous Circuits on FPGAs</b> .....	53
<i>Cuong Pham-Quoc, and Anh-Vu Dinh-Duc</i>	
<b>An Efficiently Phase-Shift Frequency Domain Method for Super-Resolution Image Processing</b> .....	58
<i>Cao Bui-Thu, Thuong Le-Tien, Tuan Do-Hong, and Hoang Nguyen-Duc</i>	
<b>Implementation of an OFDM System based on the TMS320C6416 DSP</b> .....	64
<i>Van Duc Nguyen, Van Long Pham, Van Xiem Hoang, Huy Dung Han, Huu Thanh Nguyen, and Tien Hoa Nguyen</i>	

## SESSION 5: SENSOR AND AD-HOC NETWORKS 1

<b>Localization of Irregular Wireless Sensor Networks Based on Multidimensional Scaling</b> .....	68
<i>Parham H. Namin, and Mohammad A. Tinati</i>	
<b>Broadcast Gossip based Distributed Hypothesis Testing for Wireless Sensor Networks</b> .....	73
<i>The-Dung Pham, Hung Quoc Ngo, Viet-Duc Le, Sungyoung Lee, and Young-Koo Lee</i>	
<b>A Distributed Range-Free Localization Algorithm for Wireless Sensor Networks Based on a Mobile Robot</b> .....	77
<i>E. Guerrero, H. G. Xion, and Q. Gao</i>	

## **SESSION 6: MIMO AND SPACE-TIME CODES**

<b>Joint Subspace Beamforming and Space-Time Coding in Wireless MIMO Systems</b> .....	83
<i>S. Morteza Razavi, and H. Zamiri-Jafarian</i>	
<b>Performance of STBC MIMO-OFDM Using Pilot-Aided Channel Estimation and Adaptive Pre-distortion</b> .....	88
<i>T. D. Tuyen, T. D. Tan, T. A. Vu, and H. H. Tue</i>	
<b>MSE based Antenna Selection for MIMO-SDM systems</b> .....	92
<i>Thanh Tam Bui, Xuan Nam Tran, and Tadashi Fujino</i>	
<b>Performance Improvement of STBC CDMA System in Correlated MIMO Channels</b> .....	97
<i>Mehdi Rahmati, and Vahid Tabataba Vakili</i>	

## **SESSION 7: OPTICAL COMMUNICATION SYSTEMS**

<b>A Fiber Based Limiter at 170 Gbit/s for All-optical Regeneration</b> .....	101
<i>Thanh Nam Nguyen, Marcia Costa e Silva, Mathilde Gay, Laurent Bramerie, Thierry Chartier, Jean-Claude Simon, Julien Fatome, and Christophe Finot</i>	
<b>Beat Noise Cancellation in 2-D OCDMA Systems using Optical Hard-limiter Array</b> .....	105
<i>Ngoc T. Dang, and Anh T. Pham</i>	
<b>Improving the Behavior of an Electro-Optic Modulator by Controlling its Temperature</b> .....	109
<i>Dang Thanh Bui, Lam Duy Nguyen, and Bernard Journet</i>	
<b>Extended Class of Reduced Crossbar Switches</b> .....	113
<i>H. Obara</i>	

## **SESSION 8: MULTIMEDIA COMMUNICATIONS**

<b>Control of Autonomous Underwater Vehicles using Adaptive Neural Network</b> .....	117
<i>Phung-Hung Nguyen, and Yun-Chul Jung</i>	
<b>Modulation Comparison Over OFDM Channel for Facial Expression Recognition</b> .....	121
<i>Seyed Mehdi Lajevardi, Khaizuran Abdullah, and Zahir M. Hussain</i>	
<b>Using Bayes Method and Fuzzy C - Mean Algorithm for Fire Detection in Video</b> .....	125
<i>Ha Dai Duong, and Nguyen Anh Tuan</i>	

## **SESSION 9: SENSOR AND AD-HOC NETWORKS 2**

<b>Capacity and Cutoff Rate of Binary Tree Network Composed of BSC</b> .....	129
<i>Shinji Tani, Ikuo Oka, and Shingo Ata</i>	
<b>Towards the Optimal Tracking Interval Management for Target Tracking Wireless Sensor Networks</b>	
<b>161</b> .....	134
<i>Hadi Jamali Rad, Bahman Abolhassani, and Mohammad-Taghi Abdizadeh</i>	

## **SESSION 10: SYSTEMS & CIRCUITS FOR COMMUNICATIONS**

<b>2.4GHz WLAN D-pHEMT LNA</b> .....	140
<i>Zhang Qian, Li Wenyan, Qian Cheng, and Zhang Xichang</i>	
<b>Study, Design and Fabrication of a L-band, High-Power Transmitter System Using a Combination Method</b> .....	144
<i>Dang Thi Thanh Thuy, Vu Tuan Anh, and Bach Gia Duong</i>	
<b>Design and Implement of Compact UWB Bandpass Filter with a Frequency Notch by Consisting of Coupled Microstrip Line Structure, DGS and EOS</b> .....	148
<i>Weiyu Zong, Xiaowei Zhu, Changjiang You, and Jingqi Wang</i>	
<b>Thermal Techniques to Improve ZnO-based FBAR Devices Characteristics</b> .....	152
<i>Linh Mai, Ngoc-Hung Do, Tuan-Anh Hoang, Van-Su Tran, Lan-Phuong Bui Pham, Thanh-Thao Nguyen Thi and Hung Ngoc Le</i>	

## **SESSION 11: COMMUNICATION PROTOCOLS**

<b>SMAV: A Solution for Multiple-Attribute Search on DHT-based P2P Network</b> .....	156
<i>Hoai Son Nguyen, Thanh Dat Nguyen, and Thi Hue Pham</i>	
<b>Performance Improvement of Chord Distributed Hash Table under high churn rate</b> .....	160
<i>Giang Ngo Hoang, Hung Nguyen Chan, Khang Nguyen Van, Thu Le thi Xuan, Thang Nguyen Manh, and Vinh Vu Thanh</i>	
<b>TS-LocalRank: A Topic Similarity Local Ranking Algorithm for Re-ranking Web Search Results</b> .....	166
<i>Dung B. Le, and Sunita Prasad</i>	

## **SESSION 12: ANTENNAS AND PROPAGATION 1**

<b>Combining Two Methods to Enhance Band-Notch Characteristic of Ultra Wide Band Antenna</b> .....	170
<i>Nguyen Duy Thong, and Vu Van Yem</i>	
<b>Input Impedance Characteristics of Microstrip Antennas on Hemispherical Multilayer Structures</b> .....	175
<i>Truong Vu Bang Giang</i>	

## **SESSION 13: SIGNAL PROCESSING**

<b>CMI and IFI Mitigation for TH-PPM Ultra Wideband Systems with a Low Complexity Receiver</b> .....	179
<i>T. K. Nguyen, T. H. Nguyen, and T. Kaiser</i>	
<b>A Novel Multiuser Detector Combining the 1-opt Local Search Algorithm and SIC Detection</b> .....	185
<i>A. Bentrchia, H. Elmorra, A. Zerguine, and A. U. Sheikh</i>	
<b>An FSMC Model for the ACM Scheme with Repetition Coding in Mobile WiMAX</b> .....	189
<i>Dinh-Thong Nguyen, Xuan-Thang Vu, and Nguyen Quoc Tuan</i>	

## **SESSION 14: NETWORK AND SERVICE MANAGEMENT**

<b>A Resource Management System for Next Generation Services</b> .....	193
<i>Seung-Hee Han, Bom-Su Kim, Chan-Kyou Hwang, Hee Won Lee, and Byungdeok Chung</i>	
<b>Network Traffic Simulation Based on Network Processor</b> .....	200
<i>Shuai Yuan, Gang Zhou, Baochao Tian, and Yi Jin</i>	
<b>Throughput and Proportional Fairness in Cognitive Radio Networks</b> .....	204
<i>Waqas Ahmed, Jason Gao, Hong Zhou, and Michael Faulkner</i>	
<b>Study Feasibility of Common Wireless Communication Services Recognition for GSM, UMTS and LTE</b> .....	209
<i>Hendra Setiawan, and Hiroshi Ochi</i>	

## **SESSION 15: ANTENNAS AND PROPAGATION 2**

<b>An Analytical Method for Calculating the Limitation of Beam Scanning in Uniform Linear Array</b> .....	213
<i>Xuan Viet Tran, and Viet Hung Pham</i>	
<b>Designing Dual-band Antenna for WiMAX</b> .....	217
<i>Nguyen Van Trinh, and Tran Minh Tuan</i>	
<b>On Antennas of Base-Station for Mobile Communications</b> .....	221
<i>Wen-Xun Zhang</i>	
<b>New Tube-Based Shooting and Bouncing Ray Tracing method</b> .....	225
<i>Chiya Saeidi, Farrokh Hodjatkashani, and Azim Fard</i>	

## **SESSION 16: COOPERATIVE COMMUNICATIONS**

<b>Design of Quasi-Orthogonal Space-Time Block Codes for Cooperative Wireless Relay Networks over Frequency Selective Fading Channels</b> .....	230
<i>Quoc-Tuan Vien, and Een-Kee Hong</i>	
<b>Multiuser Precoding and Power Allocation in Downlink of Cooperative CDMA Networks</b> .....	234
<i>Mohammad Abdizadeh, Ali Jafarnia, and Hadi Jamali Rad</i>	
<b>Cooperative Communication with Power Allocation in Downlink CDMA Networks</b> .....	239
<i>Mohammad Abdizadeh, Hadi Jamali Rad, and Ali Jafarnia</i>	

<b>Joint Optimization of Power Allocation and Cooperation in Wireless OFDM Networks</b> .....	244
<i>Phuong T. Tran, and James S. Lehnert</i>	

## **SESSION 17: WIRELESS COMMUNICATIONS**

<b>Invited Paper: Multiple Antenna UWB Systems WP3 of the EUWB-Project</b> .....	250
<i>Claus Kupferschmidt, Emil Dimitrov, and Thomas Kaiser</i>	
<b>Performance of a 2x2 STTC-MIMO-OFDM in 800-MHz-band Urban Mobile Environment</b> .....	255
<i>Takayuki Nakagawa, Kazuhiko Mitsuyama, Kohei Kambara, and Tetsuomi Ikeda</i>	
<b>A Novel AFC Scheme with Time Diversity Combining for Helicopter Satellite Communications</b> .....	259
<i>Toshiharu Kojima, Batmunkh Batbaatar, Chuluunsukh Batzorig, and Tadashi Fujino</i>	
<b>Candidates for Estimating Carrier Frequency Offset in MIMO Systems</b> .....	263
<i>Tran Ngoc Dung, Mai Thanh Nga, Vu Van Yem, Pham Duy Phong, and Nguyen Xuan Quynh</i>	
<b>Wireless Physical-Layer Security: The Challenges Ahead</b> .....	268
<i>Marco Di Renzo, and Merouane Debbah</i>	
<b>Author Index</b>	