# Table of Contents

Cognitive Sensing Based on Side Information ................................................................. 1  
Seung-Chul Hong, Mai H. Vu, Vahid Tarokh

Improved 3-dB Subgroup based Algorithm for Optimal Discrete Bit-Loading ................... 7  
Asad Mahmood, Jean-Claude Belfiore

Selective Broadcasting in Multi-Hop Cognitive Radio Networks .................................. 12  
Yogesh R Kondareddy, Prathima Agrawal

Distributed Dynamic Frequency Allocation In Wireless Networks Under Time-Varying User Activities ......................................................... 17  
Behzad Babadi, Vahid Tarokh

Extending the Scope of the Resource Admission Control Subsystem (RACS) in IP Multimedia Subsystem Using Cognitive Radios ............................................. 22  
Benon Kagezi Mwonge, H. Anthony Chan

Protecting MANETs from Spurious CTS Attacks with Randomized Carrier Sensing .......... 27  
Jing Deng, Zhiguo Zhang, Sreekanth Pagadala, Pramod K. Varshney

Rate Splitting Issue for Finite Length Raptor Codes .................................................. 32  
Auguste Venkiah, Charly Pouliiat, David Declercq

Performance and Power Spectrum Calculations for Convolutionally Coded Generalized MSK with Two Symbol Periods Pulse Shape Duration ........................................ 37  
Walid Abedieid

Performance Prediction for Turbo Codes in MIMO Wireless Systems ............................ 42  
Tom McGiffen, Don Cox, John Koshy

Closed-form approximation of Coded BER in QAM-based BICM Faded Transmission ......... 47  
Leszek Szczecinski, Alex Alvarado, Rodolfo Feick

Fast Simulation for the Performance Evaluation of LDPC Codes using Fast Flat Histogram Method ................................................................. 52  
S. Kakakhail, S. Reynal, D. Declercq, V. Heinrich

Receiver design for turbo codes used in an impulsive noise environment ..................... 57  
Arnab Roy, John F. Doherty

Impact of Topology-dependent and independent Mobility Models on the Connectivity of Wireless Networks ................................................................. 62  
Evsen Yanmaz

A Receiver-Oriented Rate-Adaptation Strategy for Improving Network Efficiency in Mobile Ad-Hoc Networks ................................................................. 67  
A. Annamalai, Jing Lu, Dhadesugoor R. Vaman

Wireless, Mesh & Ad Hoc Networks Military Convoy Location and Situation Awareness .... 72  
Martin Preuss, Shery Thomas

Issues and Improvements in TCP Performance over Multihop Wireless Networks ........... 77  
Beizhong Chen, Ivan Marsic, Roy Miller

An Algorithm for Sensing Coverage Problem in Wireless Sensor Networks .................... 82  
Vinh Tran Quang, Takumi MIYOSHI

Implementation of the Distributed Hash Tables on Peer-to-peer Networks ...................... 87  
Michael Dougherty, Haklin Kimm, Ho-sang Ham

Forwarding Strategies for Uplink Gaussian Multi-source Multi-relay Network .................. 92  
Yong Peng, Dinesh Rajan

Multicast Planning for Mission-Critical Networks ....................................................... 97  
Selcuk Cevher, M. Umit Uyar, Mariusz A. Fecko, John Sucec, Sunil Santani
# Table of Contents

Cross-layer MAC Optimization for Wireless Sensor Networks ................................................................. 102  
Qiong Shi, Cristina Comaniciu

The Optimal Joint power and rate adaptation for Mobile Multicast: A Theoretical Approach .................. 107  
Haibo Wang, Hans Peter Schwefel, Thomas Skjodeberg Toftegaard

Handover-aware SIP-based VoIP provided by a Roaming-Enabled Architecture (REACH) ...................... 113  
Florian Evers, Yevgeniy Yeryomin, Jochen Seitz

An Opportunistic Combined Power and Rate Allocation Approach in CDMA Ad Hoc Networks .......... 119  
Timotheos Kastrinogiannis, Vasileios Karyotis, Symeon Papavassiliou

Performance Analysis of Slotted ALOHA in a Weibull Fading Channel .................................................. 124  
Timothy Garner, Yu-Dong Yao

On the Time-Invariant Feature of the Frame Collision Probability Under IEEE 802.11b DCF .............. 128  
Jun Liu

Equitable MAC Layer Performance Comparison of Cooperative Diversity Protocols for Wireless Networks ........................................................................................................................................................................... 133  
Waqas Bukhari, Syed Ali Khayam

Iterative Approach to Base Station Positioning In Cellular Networks ................................................... 138  
Behtash Babadi, Vahid Tarokh

Fault Diagnosis in IP Networks via Noiseless Multicast Probing ............................................................. 143  
Kiran M. Rege, Ramesh Nagarajan, Ahmet Akyama

Security Implications of Cooperative Communications in Wireless Networks ....................................... 149  
Salik Makda, Ankur Choudhary, Naveen Raman, Thanasis Korakis, Zhifeng Tao, Shivendra Panwar

Concatenating Packets in Variable-Length Input-Queued Packet Switches with Cell-Based and Packet-Based Scheduling .............................................................................................................. 155  
Nabeel A. Al-Saber, Saurabh Oberoi, Taraka Pedasangamanti, Roberto Rojas-Cessa, Sotirios G. Ziavras

Achievable Rates for Adaptive IR Hybrid ARQ ......................................................................................... 160  
Nandu Gopalakrishnan, Saul Gelfand

Rate Selection Algorithms for IR Hybrid ARQ ......................................................................................... 166  
Nandu Gopalakrishnan, Saul Gelfand

Throughput Analysis of Multi-Hop CSMA/CA Wireless Networks ......................................................... 172  
Ben Lamwens, Bart Scheers, Antoine Van de Capelle

On the Reverse Link Capacity of a CDMA Network of Femto-cells ....................................................... 178  
Deepak Das, Venkatesh Ramaswamy

Guaranteed Bandwidth Allocation and QoS support for Mobile Telemedicine Traffic ......................... 183  
Lu Qiao, Polychronis Koutsakis

Low Frequency Transceptrons for Localization ....................................................................................... 188  
Ajit Reddy

Super-Regenerative Receiver ...................................................................................................................... 192  
U. L. Rohde, A. K. Poddar

Affect of Weather on the Performance of Ka-band Traffic Radar ............................................................. 198  
Allen Katz, Allen Guida, Steve Mack, Joseph Heitmann

DEVICE MODELING USING NEURAL NETWORK TECHNIQUES FOR SOLID STATE POWER AMPLIFIER APPLICATIONS ............................................................................................................. 202  
Caroline W. Karangu, Aderinto J. Ogguniyi, Stanley L. Henriquez, Michel Reece, Carl White
# Table of Contents

Mode-Selection and Mode-Feedback Techniques Optimizes VCXO (Voltage Controlled Crystal Oscillator) Performances ........................................... 206
U. L. Rohde, A. K. Poddar

Asymmetric PSK Constellation Design to Minimize Distortion in PCM Data Transmission ........................................... 213
Jing Lu, A. Annamalai Jr., Dhadesugoor R. Vaman

Double-Differential Decode-and-Forward Cooperative Communications over Nakagami-m Channels with Carrier Offsets ........................................... 218
Manav R. Bhatnagar, Are Hjørungnes, Lingyang Song, Ranjan Bose

Adaptive Synchronization for Gbps Single-Carrier 60 GHz Wireless Systems ........................................... 223
Jun Yang, Mahbod Eyvazkhani

UWB Pulse Shaping under Spectral and Synchronization Issues ........................................... 228
Enzo Baccarelli, Mauro Biagi, Cristian Pelizzoni, Nicola Cordeschi

Improved Demodulation of Phase Shift Keyed Signals Using Wavelet Thresholding ........................................... 233
Ka Mun Ho, Canute Vaz, David G. Daut

Proactive Content Rate Selection for Enhanced Streaming Media Quality ........................................... 239
Krishna Balachandran, Doru Calin, Eunyoung Kim, Kiran M. Rege

Space and Speed Tradeoffs in TCAM Hierarchical Packet Classification ........................................... 245
Alex Kesselman, Kirill Kogan, Sergey Nemzer, Michael Segal

Rule Caching for Packet Classification Support ........................................... 251
Joji Philip, Manish Taneja, Roberto Rojas-Cessa

Multipath routing with adaptive playback scheduling for Voice over IP in Service Overlay Networks ........................................... 256
Hong Li, Lorne Mason

ITERATIVE SINR-MAX COOPERATIVE BEAMFORMING IN MULTIUSER MIMO SYSTEMS ........................................... 261
Songnan Xi, Michael D. Zoltowski

DUAL SELECTION DIVERSITY OVER CORRELATED WEIBULL FAADING CHANNELS IN THE PRESENCE OF COCHANNEL INTERFERENCE ........................................... 267
Daniela M. Milovic, Mihaílo C. Stefanovic, Anjan Biswas

HSDPA MIMO System Performance in Macro Cell Network ........................................... 271
Timo Nihtila, Ville Haikola

A Comparison of Two Lattice-Reduction-Based Receivers for MIMO Systems ........................................... 275
Jun Niu, I-Tai Lu

A Novel 45 Degree Beam Steerable Antenna For Modern Communications ........................................... 281
Arun Razaq, Sreenivasa Venugopalan, Amit Mehta

BER Performance Evaluation of Overloaded DS-CDMA System with Timing Synchronization Error ........................................... 285
Preetam Kumar, Saswat Chakrabarti

Cramer-Rao Bound for Joint Carrier Frequency Offset, Symbol Timing Offset and Channel Taps in MC-CDMA Systems ........................................... 290
Amir Seiraftan, Vahid Tabataba Yakili

BER Analysis of Hard Decision Interference Cancellation Receiver for Overloaded DS-CDMA System ........................................... 295
Preetam Kumar, Saswat Chakrabarti

MODELLING THE FRAME ERROR RATE FOR ITERATIVE DEMapping AND DECODING TECHNIQUES OVER QUASI-STATIC FAADING CHANNELS ........................................... 300
W. R. Carson, I. J. Wassell, M. R. D. Rodrigues

Downscaling Network Scenarios with Denial of Service (DoS) Attacks ........................................... 305
Wei-Min Yao, Sonia Fahmy
Table of Contents

Reliable Traffic Information Propagation in Vehicular Ad-Hoc Networks
Soyoung Park, Cliff C. Zou

New Directions in Peer-to-Peer Malware
David Dittrich, Sven Dietrich

Collaborative Location Certification for Ad-Hoc Sensor Networks
Sol Lederer, Jie Gao, Radu Sion

Integrated Bandwidth Allocation and Wavelength Assignment in WDM-PON Networks
Xin Ye, Chadi M. Assi, Mohamed A. Ali

Real-Time All-Order PMD Measurement Using Spectral Interference
Arthur Dogariu, Philip N. Ji, Ting Wang

Miniaturization of 2-D Wavelength-Hopping Time-Spreading Incoherent Optical CDMA Network by Pulse Carving of CW Laser Source
Y. Deng, M. P. Fok, I. Glesk, P. R. Prucnal

A Bandwidth Bottleneck Resolution Approach to Node Con guration Optimization in WDM Ring Networks
Megumi Isogai, Nobuo Funabiki, Yosuke Isshiki, Toru Nakanishi

Collision-captured Multicarrier Modulation System
Yafei Hou, Tomohiro Hase

1 A novel NLMS-ZF data detection approach for WCDMA based HSDPA systems
I-Tai Lu, Rajalakshmi Ramakrishnan, Rui Yang, Philip Pietraski

Continuous Phase Modulation for Multi-Level Spreading Codes in CDMA Communications
Handan Agirman-Tosun, Ali N. Akansu

A NOVEL SUBSPACE BASED METHOD FOR DIRECTION OF ARRIVAL ESTIMATION OF SIGNALS IN A MULTI-PATH CDMA SYSTEM
Maryam Abolfath Beygi, Ali Olfat

A CP-CDMA System with Comb Spectrum Codes and Its Performance Evaluation in Nakagami Fading Channels
Hongbing Cheng, Bingli Jiao, Yu-Dong Yao

A Dual-Resonant Microstrip Antenna for Paperboard in the Cold Chain
Matharasu Sivakumar, Daniel D. Deavours

A Fundamental Limit on Antenna Gain for Electrically Small Antennas
Andrew J. Compston, James D. Fluhler, Hans G. Schantz

Optimized Design and Fabrication of a Fragmented Wire Antenna
Emanuel J Merulla, Rajeev Bansal

Antenna Array Synthesis Using Derivative, Non-Derivative and Random Search Optimization
Stephen J. Blank, Senoir, Michael F. Hutt

Mode-Coupled Stubs-Tuned Planar Resonator Offers Promissing And Integrable Alternatives Of DRO (Dielectric Resonator Oscillator)
U. L. Rohde, A. K. Podlar

Comparison of bi-directional relaying protocols
Sang Joon Kim, Natasha Devroye, Patrick Mitran, Yahid Tarokh

Proof-of-Concept C-UWB Data Link
Hans G. Schantz, Kazimierz Siwiak, Tad Janik

Specific Emitter Identification using Nonlinear Device Estimation
Ming-Wei Liu, John F. Doherty
Table of Contents

Multiuser Opportunistic Scheduling for Hard Delay Constrained Systems .............................................................. 409
  Muhammad Majid Butt, Kimmo Kansanen, Ralf R. Muller

Implementation of Interleave Division Multiple Access (IDMA) .................................................................................. 414
  Sana Javed, Imtiaz Ahmad Khokhar

On improved channel estimation for OFDM systems using the additive eigen value inflation factor approach ................................................................................................................. 417
  Vinay Uday Prabhu, Devendra Jalihal

An Investigation into Initial Ranging Method for Mobile OFDMA Systems ................................................................. 422
  Jianqiang Zeng, Hlaing Minn

Analysis of a Virtual Carrier Based Carrier Frequency Offset Estimation Algorithm in the Presence of I/Q Imbalance in OFDM Systems .................................................................................................................. 427
  Jiang Chang, I-Tai Lu

AN ENHANCED FEEDBACK SCHEME FOR EXTENDED ORTHOGONAL SPACE-FREQUENCY BLOCK CODED MISO-OFDM SYSTEMS .............................................................................. 432
  N. M. Eltayeb, S. K. Kassim, J. A. Chambers