

Communication Theory Symposium

Chair: **Chintha Tellambura**, University of Alberta, Canada

Vice Chair: **Sarah Kate Wilson**, Consultant, California, USA

CT01 Advances in LDPC Codes

Tuesday, 29 November 2005 • 10:30AM–12:15PM

Room: Landmark 6/Level One/Renaissance Grand Hotel

Session Chair: **Hui-Ling Lou**, Marvell Semiconductor

CT01.1 On the EXIT Chart Analysis of Low-Density Parity-Check codes
Sreenivas Rao Kollu and Hamid Jafarkhani, University of California, Irvine, USA

CT01.2 Generalized Quad, Hex, and Octagon LDPC Codes
Zhenyu Liu and Dimitris A. Pados, State University of New York at Buffalo, USA

CT01.3 The Universality of LDPC Codes on Correlated Fading Channels with Decision Feedback Based Receiver

Xiaowei Jin, Teng Li, Oliver M. Collins and Thomas E. Fuja, University of Notre Dame, USA

CT01.4 Asymptotic Weight Distributions of Irregular Repeat-Accumulate Codes

Chun-Hao Hsu and Achilleas Anastasopoulos, University of Michigan, USA

CT01.5 Protograph-based LDPC Codes with Minimum Distance Linearly Growing with Block Size

Darius Divsalar and Christopher Jones, Sam Dolinar and Jeremy Thorpe, California Institute of Technology, USA

CT02 Cooperative Networks

Tuesday, 29 November 2005 • 10:30AM–12:15PM

Room: Complex 226/Level Two/America's Center

Session Chair: **Robert Schober**, University of British Columbia, Canada

CT02.1 Clustered Cooperative Communications in Wireless Networks
Ahmed K. Sadek and Welfeng Su, State University of New York at Buffalo, USA, K. J. Ray Liu, University of Maryland, USA

CT02.2 On the Efficiency of Channel Coding in Uncoordinated Sensor Networks

Johannes Zangl and Joachim Hagenauer, Munich University of Technology, Germany

CT02.3 Cooperative Diversity using Message Passing in Wireless Sensor Networks

Josephine P. K. Chu and Raviraj S. Adve, University of Toronto, Canada

CT02.4 Rate Bounds for MIMO Relay Channels Using Precoding
Caleb K. Lo, Sriram Vishwanath and Robert W. Heath Jr., University of Texas at Austin, USA

CT02.5 Distributed Power Allocation for Parallel Relay Networks

Min Chen, Semih Serbetli and Aylin Yener, Pennsylvania State University, USA

CT03 Decoding Methods for LDPC

Tuesday, 29 November 2005 • 2:00–3:45PM

Room: Landmark 6/Level One/Renaissance Grand Hotel

Session Chair: **Richard Wesel**, University of California, Los Angeles, USA

CT03.1 An Improved Decoding Algorithm for Low-Density Parity-Check Codes over the Binary Erasure Channel

Badri N. Vellambi R. and Faramarz Fekri, Georgia Institute of Technology, USA

CT03.2 Improved Min-Sum Decoding of LDPC Codes Using Two-Dimensional Normalization

Juntan Zhang and Marc Fossorier, University of Hawaii at Manoa, USA
Daqing Gu and Jinyun Zhang, Mitsubishi Electric Research Laboratories, USA

CT03.3 Dispersed Reed-Solomon Codes for Iterative Decoding and Construction of q-ary LDPC Codes

Lingqi Zeng, Lan Lan, Ying Y. Tai and Shu Lin, University of California, Davis, USA

CT03.4 Reduced Latency Iterative Decoding of LDPC Codes

Yige Wang, Juntan Zhang and Marc Fossorier, University of Hawaii at Manoa, USA, Jonathan S. Yedidia, Mitsubishi Electric Research Laboratories, USA

CT03.5 Efficient Encoding of Quasi-Cyclic Low-Density Parity-Check Codes

Zongwang Li, Carnegie Mellon University, USA, Lei Chen, Lingqi Zeng and Shu Lin, University of California, Davis, USA, Wai Fong, NASA, USA

CT04 Performance Analysis

Tuesday, 29 November 2005 • 2:00–3:45PM

Room: Landmark 7/Level One/Renaissance Grand Hotel

Session Chair: **Norman C. Beaulieu**, University of Alberta, Canada

CT04.1 BER Analysis of BPSK Signaling in Ricean-Faded Cochannel Interference

Zheng Du, Julian Cheng and Norman C. Beaulieu, University of Alberta, Canada

CT04.2 Optimal Packet Scheduling over Correlated Nakagami-m Fading Channels with Different Diversity-Combining Techniques

Ashok K. Karmokar and Vijay K. Bhargava, University of British Columbia, Canada

CT04.3 Error Rate of S+N Selection Combining M-ary NCFSK in Nakagami Fading

Sasan Haghighi and Norman C. Beaulieu, University of Alberta, Canada

CT04.4 On the Multivariate Generalized Gamma Distribution with Exponential Correlation

Valentine A. Aalo and Terawat Piboongunon, Florida Atlantic University, USA

CT04.5 Exact Evaluation of BER for Arbitrary Modulation and Signaling in AWGN Channel

Leszek Szczeciński, and Sonia Aissa, INRS-EMT, Canada
Cristian Gonzalez and Marcos Bacic, Universidad Técnica Federico Santa María, Chile

CT05 LDPC Applications

Tuesday, 29 November 2005 • 4:00–5:45PM

Room: Landmark 6/Level One/Renaissance Grand Hotel

Session Chair: **Shu Lin**, University of California, Davis, USA

CT05.1 Generalized LDPC Codes with Reed-Solomon and BCH Codes as Component Codes for Binary Channels

Nenad Miladinovic and Marc Fossorier, University of Hawaii at Manoa, USA

CT05.2 Design of Low Density Generator Matrix Codes for Continuous Phase Modulation

Ming Xiao and Tor M. Aulin, Chalmers University of Technology, Sweden

CT05.3 Low-Density Parity-Check Convolutional Codes Applied to Packet-based Communication Systems

Zhengang Chen, Stephen Bates and Xiaodai Dong, University of Alberta, Canada

CT05.4 Dual-Mode Decoding of Product Codes with Application to Tape Storage

Yang Han, University of Arizona, USA, William E. Ryan, University of Arizona, USA, Richard Wesel, University of California, Los Angeles, USA

CT05.5 VLSI Implementation of a Low-Error-Floor and Capacity-Approaching Low-Density Parity-Check Code Decoder with Multi-Rate Capacity

Lei Yang, Hui Liu and C.-J. Richard Shi, University of Washington, USA

CT06 Higher Level Protocols

Tuesday, 29 November 2005 • 4:00–5:45PM

Room: Landmark 7/Level One/Renaissance Grand Hotel

Session Chair: Steve Weinstein

CT06.1 Rate Adaptive Hierarchical Modulation -assisted Two-User Opportunistic Scheduling

Md. Jahangir Hossain, University of British Columbia, Canada, Mohamed-Slim Alouini, TAMU-Q, Qatar, Vijay K. Bhargava, University of British Columbia, Canada

CT06.2 A New Probability Density Function Enhancing Packet Detection Analysis for Low SNR Links

Guofeng Lu, Larry Greenstein and Predrag Spasojevic, Rutgers University, USA

CT06.3 Throughput Analysis of ARQ Protocols for Parallel Multichannel Communications

Zhihong Ding and Michael Rice, Brigham Young University, USA

CT06.4 Differential Quality-of-Service in Multiple-Access Communication via Distributed Rate Splitting

Jian Cao and Edmund Yeh, Yale University, USA

CT06.5 Asymptotic Throughput Analysis of Multiuser Diversity

Guocong Song and Ye Li, Georgia Institute of Technology, USA

CT07 Communication Theory Session

Wednesday, 30 November 2005 • 9:00AM–12:15PM

Room: Majestic C/Level Two/Renaissance Grand Hotel

Session Chair: N/A

CT07.01 On the Performance of the Zero-Forcing Receiver Operating in the Multiuser MIMO System with Reduced Noise Enhancement Effect

Chiung-Jang Chen and Li-Chun Wang, National Chiao Tung University, ROC

CT07.02 MAX Search with Parallel Verification for Frame Synchronization

Raffaella Pedone, Marco Villanti and Giovanni E. Corazza, University of Bologna, Italy

CT07.03 A New Intuitive Result for the BEP of a Jointly Optimal Single Cochannel Interferer BPSK Receiver

Amir Masoud Rabiei and Norman C. Beaulieu, University of Alberta, Canada

CT07.04 Contour Line Extraction in a Multi-Modal Field with Sensor Networks

Pei-Kai Liao, University of Southern California, USA, Min-Kuan Chang, National Chung-Hsing University, Taiwan, C.-C. Jay Kuo, University of Southern California, USA

CT07.05 Relay Search Algorithms for Coded Cooperative Systems

Zinan Lin and Elza Erkip, Polytechnic University, USA

CT07.06 Hamming Codes Are Rate-Efficient Array Codes

Esteban L. Vallés and Andres I. Vila Casado, University of California, Los Angeles, USA, Mario Blaum, Hitachi Global Storage Technologies, USA, J. Villaseñor and Richard D. Wesel, University of California, Los Angeles, USA

CT07.07 Decoding the (23,12,7) Golay Code Using Bit-Error Probability Estimates

Gregory O. Dubney and Irving S. Reed, University of Southern California, USA

CT07.08 Integrated MAP Equalization and Turbo Product Coding for Optical Fiber Communications Systems

Wenze Xi and Tülay Adalı, University of Maryland, USA

CT07.09 Frame Synchronization at the Sound of Silence

Marco Villanti, Matteo Iubatti, Alessandro Vanelli-Coralli, and Giovanni E. Corazza, University of Bologna, Italy

CT07.10 An MMSE Maximal Shortening Equalizer for 10GBASE-T Ether Networks

Haiping Wu and Mohsen Kavehrad, Pennsylvania State University, USA

CT07.11 Performance of the Successive Coding Strategy in the CEO Problem

Hamid Behroozi and M. Reza Soleymani, Concordia University, Canada

CT07.12 Finite-Length Unequal Error Protection Rateless Codes: Design and Analysis

Nazanin Rahnnavard and Faramarz Fekri, Georgia Institute of Technology, USA

CT07.13 Simplified Iterative Detection of Serially Concatenated CPM Signals

Giulio Colavolpe and Alan Barbieri, Università di Parma, Italy

CT07.14 Joint Source-Channel Decoding of Convolutionally Encoded Multiple-Descriptions

Pradeepa Yahampath and Upul Samarawickrama, University of Manitoba, Canada

CT07.15 Minimum Bandwidth Nyquist and Root-Nyquist Pulses for Optical Intensity Channels

Steve Hranilovic, McMaster University, Canada

CT07.16 Performance Analysis of Convolutional Codes over Non-Stationary-Noise Channel

R. Bosisio and U. Spagnolini, Politecnico di Milano, Italy

CT07.17 Performance Enhancement of Heavy Tailed Queuing Systems using a Hybrid Integration Approach

Mostafa H. Dahshan and Pramode K. Verma, University of Oklahoma, USA

CT07.18 Spectral Efficiency Analysis of Cellular Systems with Channel-Aware Schedulers

Jingxian Wu, Neelesh B. Mehta and Jin Zhang, Sonoma State University, USA

CT07.19 Partially Unique Mappings for Bit-Interleaved Coded Modulation with Iterative Detection

Gerhard Bauch and Prasanna Sethuraman, DoCoMo Euro-Labs, Germany, Frank Schreckenbach, Munich University of Technology, Germany

CT07.20 A Generalized Doppler Power Spectrum for 3D Non-Isotropic Scattering Environments

Jaunty T. Y. Ho, Monash University, Australia

CT08 Turbo Coding

Wednesday, 30 November 2005 • 10:30AM–12:15PM

Room: Landmark 6/Level One/Renaissance Grand Hotel

Session Chair: Stephen Bates, University of Alberta, Canada

CT08.1 Detection of Code Index in Turbo Source Coding

Javad Haghghat and M. Reza Soleymani and Walaa Hamouda, Concordia University, Canada

CT08.2 An Iterative Decoding Scheme with Turbo Code and Iteratively Demapped Multi-Dimensional QPSK Serially Concatenated

Xin Qi, Ming Zhao, Shidong Zhou, and Jing Wang, Tsinghua University, PR China

CT08.3 Filter-based Turbo Equalization for TCM Signals

Pei Xiao, Rolando Carrasco and Ian Wassell, University of Cambridge, UK

CT08.4 A Hyper-Trellis -based Turbo Decoder for Wyner-Ziv Video Coding

Arun Avudainayagam, John M. Shea and Dapeng Wu, University of Florida, USA

CT08.5 Turbo-coded Multi-Alphabet Binary CPM for Concatenated Continuous Phase Modulation

Jun Ning, Minyue Fu and Graham Wade, University of Newcastle, Australia

TECHNICAL PROGRAM

CT09 OFDM I

Wednesday, 30 November 2005 • 2:00–3:45PM

Room: Landmark 6/Level One/Renaissance Grand Hotel

Session Chair: **Hlaing Minn**, University of Texas at Dallas, USA

CT09.1 Design of Robust Pulses to Carrier Frequency Offset for OFDM/OQAM System

Gang Lin, Nils Holte and Lars Lundheim, Norwegian University of Science and Technology, Norway

CT09.2 Precise Bit Error Rate Analysis of DCT OFDM in the Presence of Carrier Frequency Offset on AWGN Channels

Peng Tan and Norman C. Beaulieu, University of Alberta, Canada

CT09.3 A New Ranging Method for OFDMA Systems

Hlaing Minn and Xiaoyu Fu, University of Texas at Dallas, USA

CT09.4 On the Cramer-Rao Bound for Carrier Frequency Estimation in the Presence of Phase Noise

Alan Barbieri, Daniele Bolletta and Giulio Colavolpe, Università di Parma, Italy

CT09.5 Blind Recursive Tracking of Carrier Frequency Offsets in MC-CDMA Systems

Feng-Tsun Chien, National Chiao Tung University, ROC, C.-C. Jay Kuo, University of Southern California, USA

CT10 MIMO I

Wednesday, 30 November 2005 • 2:00–3:45PM

Room: Landmark 7/Level One/Renaissance Grand Hotel

Session Chair: **Ravi Narasimhan**, University of California, Santa Cruz, USA

CT10.1 On the Diversity Order of Transmit Antenna Selection for Spatial Multiplexing Systems

Hongyuan Zhang, Huaiyu Dai, Quan Zhou and Brian L. Hughes, North Carolina State University, USA

CT10.2 Quantization Bounds on Grassmann Manifolds of Arbitrary Dimensions and MIMO Communications with Feedback

Wei Dai, Youjian Liu and Brian Rider, University of Colorado at Boulder, USA

CT10.3 Finite-SNR Diversity Performance of Rate-Adaptive MIMO Systems

Ravi Narasimhan, University of California, Santa Cruz, USA

CT10.4 Dispersive Covariance Codes for MIMO Precoding

R. Hayes Jr. and J. Caffery Jr., University of Cincinnati, USA

CT10.5 Multiuser Diversity Scheduling in MIMO Systems with Correlated Fading

Nan Zhang and Branimir Vojcic, The George Washington University, USA

CT11 OFDM II

Wednesday, 30 November 2005 • 4:00–5:45PM

Room: Landmark 6/Level One/Renaissance Grand Hotel

Session Chair: **Teng Joon Lim**, University of Toronto, Canada

CT11.1 Low PAPR Full-Diversity Space-Frequency Codes for MIMO-OFDM Systems

Vijay Ahirwar and B. Sundar Rajan, Indian Institute of Science, India

CT11.2 Optimal Pilot-to-Data Power Ratio for MIMO-OFDM

Taeyoon Kim and Jeffrey G. Andrews, The University of Texas at Austin, USA

CT11.3 OFDM Peak Power Reduction Using Metric-based Amplitude Predistortion

Serdar Sezginer and Hikmet Sari, SUPELEC, France

CT11.4 New Approaches to Clipped OFDM Channels: Modeling and Receiver Design

Fei Peng and William E. Ryan, The University of Arizona, USA

CT11.5 Unified Linear Precoding for Minimum SER

CT12 MIMO II

Wednesday, 30 November 2005 • 4:00–5:45PM

Room: Landmark 7/Level One/Renaissance Grand Hotel

Session Chair: **Ender Ayanoglu**, University of California, Irvine

CT12.1 On the Multiple-Access Capability of a Shared Rayleigh Wireless Channel with Binary Feedback

Khairi Ashour Hamdi, The University of Manchester, UK

CT12.2 Upper Bounds on MIMO Channel Capacity with Channel Frobenius Norm Constraints

Zukang Shen, Jeffrey G. Andrews and Brian L. Evans, The University of Texas at Austin, USA

CT12.3 Sum-Rate Optimal Multi-Antenna Downlink Beamforming Strategy Based On Clique Search

Taesang Yoo and Andrea Goldsmith, Stanford University, USA

CT12.4 Large System Capacity of MIMO Block Fading Channels with Least Squares Linear Adaptive Receivers

Yakun Sun, Motorola Inc., USA, Michael L. Honig, Northwestern University, USA

CT12.5 MIMO Broadcast Channels with Finite Rate Feedback

Nihar Jindal, University of Minnesota, USA

Nihar Jindal, University of Minnesota, USA

CT13 CDMA

Thursday, 1 December 2005 • 10:30AM–12:15PM

Room: Landmark 6/Level One/Renaissance Grand Hotel

Session Chair: **Michael Honig**

CT13.1 Performance of Space-Time Spreading in Multiuser DS-CDMA Systems over Fast-Fading Channels

Mohamed AlJerjawi and Walaa Hamouda, Concordia University, Canada

CT13.2 Generalized Window-based PN Acquisition Scheme in CDMA2000 Spread Spectrum Systems

Kwang Man Ok, and Chung Gu Kang, Korea University, Korea

CT13.3 Antenna Partitioning for Multiuser MIMO-CDMA

Wan Choi, Jeffrey G. Andrews and Robert W. Heath Jr., University of Texas at Austin, USA

CT13.4 Error Rate Analysis of Asynchronous Multicode DS-CDMA Systems

Seung Joon Lee, Electronics & Telecommunications Research Institute, Korea, Norman C. Beaulieu, University of Alberta, Canada

CT13.5 Error Performance of Multicarrier CDMA in Frequency-Selective Fading

Dongning Guo, Northwestern University, USA

CT14 CDMA Receiver Structures

Thursday, 1 December 2005 • 2:00–3:45PM

Room: Landmark 6/Level One/Renaissance Grand Hotel

Session Chair: **Timothy Thomas**, Motorola Labs, USA

CT14.1 A Variational-free Energy Minimization Interpretation of Multiuser Detection in CDMA

Darryl Dexu Lin and Teng Joon Lim, University of Toronto, Canada

CT14.2 Iterative Equalization using Improved Block DFE for Synchronous CDMA Systems

Sang-Yick Leong, Kah-Ping Lee and Yahong Rosa Zheng, University of Missouri, USA

CT14.3 Optimal Weighting of Soft-Information in a SAGE-based Iterative Receiver for Coded CDMA

Alexander Kocian, Ingmar Land and Bernard H. Fleury, Aalborg University, Denmark

CT14.4 Block Phase Precoding for Blind Multiuser Detection in QPSK/DS-CDMA Systems

A. K. S. Al-Bayati, The Hashemite University, Jordan, Shankar Prakriya and Surendra Prasad, Indian Institute of Technology, India

CT14.5 Exploiting Asynchrony in DS-CDMA Systems Through Interference Avoidance

Brandon Hombs, BAE Systems E&IS, USA, James S. Lehnert, Purdue University, USA

CT15 Space-Time Codes

Thursday, 1 December 2005 • 2:00–3:45PM

Room: Landmark 7/Level One/Renaissance Grand Hotel

Session Chair: **Hamid Jafarkhani**, University of California, Irvine, USA

CT15.1 Signal Design for Trellis-Coded Unitary Space-Time Modulation

Yi Wu, Agder University College, Norway, Vincent Lau, Hong Kong University of Science and Technology, Hong Kong, Matthias Pätzold, Agder University College, Norway

CT15.2 Space-Time Coded Systems with Continuous Phase Frequency Shift Keying

Rachel L. Maw and Desmond P. Taylor, University of Canterbury, New Zealand

CT15.3 High-Rate Full-Diversity Space-Time-Frequency Codes for MIMO Multipath Block-Fading Channels

Wei Zhang, The Chinese University of Hong Kong, China, Xiang-Gen Xia, University of Delaware, USA, P. C. Ching, The Chinese University of Hong Kong, China

CT15.4 Distributed Space-Time Block Coding

Simon Yiu, R. Schober and L. Lampe, The University of British Columbia, Canada

CT16 Receiver Design

Thursday, 1 December 2005 • 4:00–5:45PM

Room: Landmark 6/Level One/Renaissance Grand Hotel

Session Chair: **Marvin Simon**, California Institute of Technology, USA

CT16.1 Improving SNR Estimation for Autonomous Radio Receivers

Marvin Simon and Sam Dolinar, California Institute of Technology, USA

CT16.2 Single Antenna Interference Cancellation Using a List-Sequential (LISS) Algorithm

Christian Kuhn Joachim Hagenauer, Munich University of Technology, Germany

CT16.3 A Reduced-Complexity Approach to Iterative Detection of Coded MIL-STD SOQPSK

Erik Perrins, University of Kansas, USA, Michael Rice, Brigham Young University, USA

CT16.4 Equalization Algorithms in the Frequency Domain for Continuous Phase Modulations

Fabrizio Panchaldi and Giorgio M. Vitetta, University of Modena and Reggio Emilia, Italy

CT16.5 Joint Timing Recovery, ISI Equalization and Decoding Using Per-Survivor BCJR-DFE

Nitin Nangare and Krishna R. Narayanan, Texas A&M University, USA, Xueshi Yang and Erozan Kurtas, Seagate Technology, USA

CT17 Differential Space-Time Codes

Thursday, 1 December 2005 • 4:00–5:45PM

Room: Landmark 7/Level One/Renaissance Grand Hotel

Session Chair: **Desmond Taylor**, University of Canterbury, New Zealand

CT17.1 Recursive Space-Time Trellis Codes Using Differential Encoding

Shengli Fu, Xiang-Gen Xia and Haiquan Wang, University of Delaware, USA

CT17.2 Multiple-Symbol Differential Sphere Decoding for Unitary Space-Time Modulation

Volker Pauli, Universität Erlangen–Nürnberg, Germany, Lutz Lampe, University of British Columbia, Canada

CT17.3 Bit Error Probability for Orthogonal Space-Time Block Codes with Differential Detection

Thian Ping Soh, Pooi Yuen Kam and Chun Sum Ng, National University of Singapore, Singapore

CT17.4 A Low-Complexity Differential Space-Time Transmission Scheme for Large Numbers of Receive Antennas

Xinying Yu and Brian L. Hughes, North Carolina State University, USA

CT17.5 Generalized Quadratic Receivers for Unitary Space-Time Constellations with Orthogonal Design over Rayleigh Fading Channels

Rong Li, and Pooi Yuen Kam, National University of Singapore, Singapore

Computer and Network Security Symposium

Chair: **Mohsen Guizani**, Western Michigan University, USA

Vice Chair: **Hsiao-Hwa Chen**, National Sun Yat-Sen University, Taiwan

CN01 Computer & Network Security I

Tuesday, 29 November 2005 • 10:30AM–12:15PM

Room: Parkview/Aubert/Mezzanine Level/Renaissance Grand Hotel

Session Chair: **Bo Sun**, Lamar University, USA

CN01.1 On Quantum Authentication Protocols

Yoshito Kanamori, Seong-Moo Yoo and Don A. Gregory, The University of Alabama in Huntsville, USA, Frederick T. Sheldon, Oak Ridge National Laboratory, USA

CN01.2 Vulnerabilities and Security Enhancements for the IEEE 802.11 WLANs

Yang Xiao, University of Memphis, USA, Chaitanya Bandela and Yi Pan, Georgia State University, USA

CN01.3 Optimal Stream-based Cipher Feedback Mode in Error Channel

Yang Xiao, The University of Memphis, USA, Mohsen Guizani, Western Michigan University, USA

CN01.4 Securing Internal Wi-Fi Networks with Position Verification

Robert A. Malaney, University of New South Wales, Australia

CN01.5 Staggered TESLA: A Multicast Authentication Scheme Resistant to DoS Attacks

Qing Li and Wade Trappe, Rutgers University, USA

CN02 Computer & Network Security II

Tuesday, 29 November 2005 • 2:00–3:45PM

Room: Parkview/Aubert/Mezzanine Level/Renaissance Grand Hotel

Session Chair: **Nirwan Ansari**, New Jersey Institute of Technology, USA

CN02.1 Enhanced Probabilistic Packet Marking for IP Traceback

Zhiqiang Gao and Nirwan Ansari, New Jersey Institute of Technology, USA

CN02.2 Multiple-key Cryptography-based Distributed Certificate Authority in Mobile Ad hoc Networks

Hongbo Zhou, Slippery Rock University, USA

Matt W. Mutka, Michigan State University, USA

Lionel M. Ni, Hong Kong University of Science & Technology, Hong Kong

CN02.3 Multi-Pattern Signature Matching for Hardware Network Intrusion Detection Systems

Haoyu Song and John W. Lockwood, Washington University in St. Louis, USA

CN02.4 A Novel Hierarchical Matching Algorithm for Intrusion Detection Systems

Tzu-Fang Sheu, Nen-Fu Huang and Hsiao-Ping Lee, National Tsing-Hua University, Taiwan