

Coordinated Science Laboratory & Department of
Computer and Electrical Engineering of the University
of Illinois at Urbana-Champaign

45th Annual Allerton Conference
on Communication, Control,
and Computing
2007

September 26-28, 2007
Monticello, Illinois, USA

Volume 1 of 2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60560-086-4

Some format issues inherent in the e-media version may also appear in this print version.

Coordinated Science Laboratory & Department of
Computer and Electrical Engineering of the University
of Illinois at Urbana-Champaign

45th Annual Allerton Conference on
Communication, Control, and Computing
2007

TABLE OF CONTENTS

VOLUME 1

| | |
|---|----|
| Cognitive Interference Channels with Confidential Messages | 1 |
| <i>Yingbin Liang, Anelia Somekh-Baruch, H. Vincent Poor, Shlomo Shamai, Sergio Verdu</i> | |
| Competition and Collaboration on the MISO Interference Channel | 7 |
| <i>Erik G. Larsson, Eduard Jorswieck</i> | |
| Wireless Network Information Flow | 15 |
| <i>Salman Avestimehr, Suhas Diggavi, David Tse</i> | |
| How to Share a Key | 23 |
| <i>Matthias Fitz, Jesper Buus Nielsen, Stefan Wolf</i> | |
| A Rate-Distortion Approach to Anonymous Networking | 26 |
| <i>Parvathinathan Venkitasubramaniam, Lang Tong</i> | |
| A Separation Result for Secure Communication | 34 |
| <i>Vinod Prabhakaran, Kannan Ramchandran</i> | |
| Guaranteed Minimum-Rank Solutions of Linear Matrix Equations Via Nuclear Norm Minimization | 42 |
| <i>Benjamin Recht, Maryam Fazel, Pablo A. Parrilo</i> | |
| Pricing in the Presence of Peering | 49 |
| <i>Eui woong Lee, Buchfuhrer David, Lachlan Andrew, Ao Tang, Steven Low</i> | |
| A Kalman Filter Design Based on the Performance/Robustness Tradeoff | 59 |
| <i>Huan Xu, Shie Mannor</i> | |
| Lagrangian Relaxation for MAP Estimation in Graphical Models | 64 |
| <i>Jason Johnson, Dmitry Malioutov, Alan Willsky</i> | |
| Optimal Detection of Marked and Filtered Poisson Process in Additive White Gaussian Noise | 74 |
| <i>Arash Komaee</i> | |
| LQG Control Over Lossy TCP-like Networks With Probabilistic Packet Acknowledgements | 81 |
| <i>Emanuele Garone, Bruno Sinopoli, Alessandro Casavola</i> | |
| Asymptotic Analysis of Amplify and Forward Relaying in a Parallel MIMO Relay Network | 89 |
| <i>Shahab Oveis Gharan, Alireza Bayesteh, Amir K. Khandani</i> | |
| Performance Analysis of Stabilized Multi-Channel ALOHA with Capture | 96 |
| <i>Hemabh Shekhar</i> | |

| | |
|--|------------|
| Diversity-Multiplexing Tradeoff of Stacked Cyclic Delay Diversity Schemes | 101 |
| <i>Aydin Sezgin, Mohamad Charafeddine, Stephanie F. Pereira, Arogyaswami Paulraj</i> | |
| Capacity Pre-Log Achieving Schemes for Stationary Frequency-Flat Multi-Antenna Channels..... | 105 |
| <i>Umer Salim, Dirk Slock</i> | |
| The Fading Number of IID MIMO Gaussian Fading Channels with a Scalar Line-Of-Sight Component | 113 |
| <i>Stefan M. Moser</i> | |
| MIMO Broadcasting With Common Information: A Deterministic Approach | 121 |
| <i>Vinod Prabhakaran, Suhas Diggavi, David Tse</i> | |
| Coding Techniques for Primitive Relay Channels..... | 129 |
| <i>Young-Han Kim</i> | |
| Compound Wire-Tap Channels | 136 |
| <i>Yingbin Liang, Gerhard Kramer, H. Vincent Poor, Shlomo Shamai</i> | |
| Multiterminal Secrecy Capacities..... | 144 |
| <i>Imre Csiszar, Prakash Narayan</i> | |
| Constrained Consensus and Alternating Projections | 150 |
| <i>Asu Ozdaglar</i> | |
| A Bayesian Approach to Optimization under Uncertainty..... | 158 |
| <i>Constantine Caramanis, Shie Mannor</i> | |
| Exact Analysis of the Bias of the Nearest Neighbor Entropy Estimator for I.I.D. Information Sources | 165 |
| <i>Alexei Kaltchenko, Nina Timofeeva, En-hui Yang</i> | |
| Variable Prior/Loss Cost-Complexity Decision Tree Pruning | 169 |
| <i>Jae-Joon Han, Balaji Raghavan, Saul Gelfand</i> | |
| Explicit Link Parameter Estimators Based on End-To-End Measurements | 174 |
| <i>Jian Ni, Sekhar Tatikonda</i> | |
| Data Rate Theorem for Stabilization Over Fading Channels..... | 182 |
| <i>Paolo Minero, Massimo Franceschetti, Subhrakanti Dey, Girish Nair</i> | |
| Non-Coherent Wideband Capacity of Sparse Multipath Channels with Limited Feedback..... | 190 |
| <i>Gautham Hariharan, Akbar Sayeed</i> | |
| Generalized Mercury/Waterfilling for Multiple-Input Multiple-Output Channels | 198 |
| <i>Fernando Perez-Cruz, Miguel Rodrigues, Sergio Verdu</i> | |
| Throughput of Two-Hop Wireless Networks with Relay Cooperation..... | 206 |
| <i>Bo Niu, Osvaldo Simeone, Alexander Haimovich, Oren Somekh</i> | |
| Reduced State Iterative MAP Equalization and Decoding in Wireless Mobile Coded OFDM | 212 |
| <i>Daniel Liu, Michael P. Fitz</i> | |
| Robust MSE-Constrained Downlink Precoding in Multiuser MIMO Systems with Channel Uncertainty | 218 |
| <i>Nikola Vucic, Holger Boche, Shuying Shi</i> | |
| Critical Communication Radius for Sink Connectivity in Wireless Networks | 224 |
| <i>Hongchao Zhou, Fei Liu, Xiaohong Guan</i> | |
| VLSI Implementation of a Staggered Sphere Decoder Design for MIMO Detection | 228 |
| <i>Pankaj Bhagawat, Sasidharan Ekambavanan, Sabyasachi Das, Gwan Choi, Sunil Khatri</i> | |

| | |
|---|-----|
| A Novel Approach for Spatially Correlated Multi-User MIMO Channel Modeling: Impact of Surface Roughness and Directional Scattering | 236 |
| <i>Wenjie Xu, Seyed Zekavat, Hui Tong</i> | |
| Deterministic Regenerating Codes for Distributed Storage | 242 |
| <i>Yunnan Wu, Alexandros Dimakis, Kannan Ramchandran</i> | |
| Network Coding Using Non-Commutative Algebras | 250 |
| <i>Shweta Agrawal, Sriram Vishwanath</i> | |
| Joint Physical Layer Coding and Network Coding for Bi-Directional Relaying | 254 |
| <i>Krishna Narayanan, Makesh Pravin Wilson, Alex Sprintson</i> | |
| Distributed Sensing and Control over Communication Channels and a Counterexample | 260 |
| <i>Serdar Yuksel, Sekhar Tatikonda</i> | |
| Rates of Convergence for Distributed Average Consensus with Probabilistic Quantization | 268 |
| <i>Tuncer Can Aysal, Mark Coates, Michael Rabbat</i> | |
| Source Channel Coding for Gaussian Sources Over a Gaussian Multiple Access Channel | 276 |
| <i>Rajesh Ramachandran, Vinod Sharma</i> | |
| Source Coding with Mismatched Distortion Measures | 284 |
| <i>Urs Niesen, Devavrat Shah, Gregory Wornell</i> | |
| On the Reliability Function of Variable-Rate Slepian-Wolf Coding | 292 |
| <i>Jun Chen, Da-ke He, Ashish Jagmohan, Luis Alfonso Lastras-Montano</i> | |
| Computation Complexity of Comparing Real Numbers | 300 |
| <i>Sina Sohangir, John Gill</i> | |
| A Dynamic Auction for Spectrum Sharing | 308 |
| <i>Junjik Bae, Eyal Beigman, Randall Berry, Michael Honig, Rakesh Vohra</i> | |
| Revenue Management for Content Delivery | 316 |
| <i>Ramesh Johari, Srinivas Shakkottai</i> | |
| Serially Concatenated IRA Codes | 318 |
| <i>Taikun Cheng, Benjamin Belzer, Krishnamoorthy Sivakumar</i> | |
| TP Decoding | 322 |
| <i>Yi Lu, Cyril Measson, Andrea Montanari</i> | |
| Ensemble Trapping Set Enumerators for Protograph-Based LDPC Codes | 330 |
| <i>Shadi Abu-Surra, William Ryan, Dariush Divsalar</i> | |
| A Universal Theory of Pseudocodewords | 336 |
| <i>Nathan Axvig, Emily Jane Price, Eric Psota, Deanna Turk, Lance Perez, Judy Walker</i> | |
| Scalable Data Multicast Using Expanding Window Fountain Codes | 344 |
| <i>Dejan Vukobratovic, Vladimir Stankovic, Dino Sejdinovic, Lina Stankovic, Zixiang Xiong</i> | |
| Solving Constraint Satisfaction Problems through Belief Propagation-Guided Decimation | 352 |
| <i>Andrea Montanari, Federico Ricci-Tersenghi, Guilhem Semerjian</i> | |
| An Iterative Optimization Method for Unitary Beamforming in MIMO Broadcast Channels | 360 |
| <i>Ruben de Francisco, Dirk Slock</i> | |
| A Fluid Model of VoIP Over Wireless Broadband Networks | 368 |
| <i>Philip J. Fleming, Burt Simon</i> | |

| | |
|--|-----|
| Cooperative Multiplexing in a Half Duplex Relay Network: Performance and Constraints | 375 |
| <i>Yijia Fan, H. Vincent Poor, John Thompson</i> | |
| Relay vs. User Cooperation in Multiaccess Networks | 381 |
| <i>Lalitha Sankar, Gerhard Kramer, Narayan Mandayam</i> | |
| Real Network Codes: Breaking the All-Or-Nothing Barrier | 389 |
| <i>Sachin Katti, Saurabh Shintre, Sidharth Jaggi, Dina Katabi, Muriel Medard</i> | |
| MAC-Layer and PHY-Layer Network Coding for Two-Way Relaying: Achievable Rate Regions and Opportunistic Scheduling | 396 |
| <i>Feng Xue, Chun-Hung Liu, Sumeet Sandhu</i> | |
| Constricting the Adversary: A Broadcast Transformation for Network Coding | 403 |
| <i>Da Wang, Danilo Silva, Frank R. Kschischang</i> | |
| Matroidal Networks | 409 |
| <i>Randall Dougherty, Freiling Chris, Ken Zeger</i> | |
| Coordinate-Free Distributed Coverage Verification and Intruder Detection in Dynamic Sensor Networks | 417 |
| <i>Alireza Tahbaz-Salehi, Ali Jadbabaie</i> | |
| On the Effect of Graph Topology on Distributed Control | 423 |
| <i>Pedram Hovareshti, Vijay Gupta, John Baras</i> | |
| Some Results on the Analysis of Stochastic Processes with Uncertain Transition Probabilities and Robust Optimal Control | 431 |
| <i>Keyong Li, Seong-Cheol Kang, Ioannis Paschalidis</i> | |
| An Improved Channel Quantization Method for Performance Evaluation of Incremental Redundancy HARQ Based on Reliable Channel Regions | 439 |
| <i>Leonardo Badia, Marco Levorato, Michele Zorzi</i> | |
| Frame Alignment and Communication under Strong Asynchronism | 447 |
| <i>Aslan Tchamkerten, Venkat Chandar, Gregory Wornell</i> | |
| Bounds on Analog-Digital Quantization Error Effects on Multicarrier Symbols | 455 |
| <i>Gareth Middleton, Behnaam Aazhang</i> | |
| Noncoherent Channels and Noisy Feedback | 460 |
| <i>Christopher Steger, Behnaam Aazhang</i> | |
| A Note on the Rate of Decay of Mean-Square Error with SNR for the AWGN Channel | 465 |
| <i>Kapil Bhattad, Krishna Narayanan</i> | |
| New Market Models and Algorithms | 468 |
| <i>Vijay Vazirani</i> | |
| Altruism and Selfishness in Traffic Routing | 471 |
| <i>Po-An Chen, David Kempe</i> | |
| Low-Floor Decoders for LDPC Codes | 473 |
| <i>Yang Han, William Ryan</i> | |
| Interference Mutual Information Combining and Code Design for IDMA | 480 |
| <i>Yi Hong, Shlomo Shamai</i> | |
| Iterative Decoding for Sudoku and Latin Square Codes | 488 |
| <i>Edwin Soedarmadji, Robert McEliece</i> | |

| | |
|---|-----|
| Binary Quantization Using Belief Propagation with Decimation Over Factor Graphs of LDGM Codes | 495 |
| <i>Tomas Filler, Jessica Fridrich</i> | |
| Distributed Spatial Multiplexing with 1-Bit Feedback | 502 |
| <i>Jatin Thukral, Helmut Bolcskei</i> | |
| Error Exponents and Test Channel Optimization for the Wyner-Ziv Problem | 510 |
| <i>Benjamin Kelly, Aaron Wagner</i> | |
| Code Design for the Dynamic Decoding and Forward Relay Protocol | 518 |
| <i>Raj Kumar, Giuseppe Caire</i> | |
| Learning on Statistical Manifolds for Clustering and Visualization | 526 |
| <i>Kevin Carter, Raviv Raich, Alfred Hero, III</i> | |
| Loop Series and Bethe Variational Bounds in Attractive Graphical Models | 534 |
| <i>Erik Sudderth, Martin Wainwright, Alan Willsky</i> | |
| Learning Compressed Sensing | 535 |
| <i>Yair Weiss, Hyun Sung Chang, William Freeman</i> | |
| Randomized Load Balancing with Non-Uniform Task Lengths | 542 |
| <i>Randy Cogill</i> | |
| Distributed Fair Scheduling Using Variable Transmission Lengths in Carrier-Sensing-Based Wireless Networks | 550 |
| <i>Libin Jiang, Jean Walrand</i> | |
| Stable Scheduling of Multiple Resources with Different Service Capacities | 558 |
| <i>Jung Woo Lee</i> | |
| Utility Based Video Segment Transmission Scheduling for Peer-to-Peer Live Video Streaming System | 563 |
| <i>Zhu Li, Jianwei Huang, Aggelos Katsaggelos</i> | |
| Consensus-Based Distributed Least-Mean Square Algorithm Using Wireless Ad Hoc Networks | 568 |
| <i>Gonzalo Mateos, Ioannis Schizas, Georgios Giannakis</i> | |
| Consensus Over LTI Networks | 575 |
| <i>Jing Wang, Nicola Elia</i> | |
| Lower Bounds on Information Rates for Distributed Computation Via Noisy Channels | 583 |
| <i>Ola Ayaso, Devavrat Shah, Munther Dahleh</i> | |
| Relay Scheduling and Cooperative Diversity for Delay-Sensitive and Bursty Traffic | 590 |
| <i>Somsak Kittipiyakul, Tara Javidi</i> | |
| Cooperative Sensing in Cognitive Radios | 598 |
| <i>George Atia, Shuchin Aeron, Erhan Ermis, Venkatesh Saligrama</i> | |
| Analysis of Randomized Load Balancing with General Services Using the Cavity Method | 606 |
| <i>Bramson Maury, Yi Lu, Prabhakar Balaji</i> | |
| Revisiting the Performance of Large Jobs in the M/GI/1 Queue | 607 |
| <i>Adam Wierman</i> | |
| The Optimality of Two Prices: Maximizing Revenue in a Stochastic Network | 615 |
| <i>Longbo Huang, Michael J. Neely</i> | |

| | |
|---|-----|
| The MIMOME Channel | 625 |
| <i>Ashish Khisti, Gregory Wornell</i> | |
| Euclidean Information Theory | 633 |
| <i>Shashi Borade, Lizhong Zheng</i> | |

VOLUME 2

| | |
|---|-----|
| Perfect Rate-Compatible Codes for the Gaussian Channel | 641 |
| <i>LanYing Zhao, Sae-Young Chung</i> | |
| Local Approximate Inference Algorithms | 649 |
| <i>Kyomin Jung, Devavrat Shah</i> | |
| Discrete Denoising with Shifts | 657 |
| <i>Taesup Moon, Tsachy Weissman</i> | |
| Adaptive Annealing | 665 |
| <i>Andrew Barron, Xi Luo</i> | |
| On Low-Power Multiple Unicast Network Coding Over a Wireless Triangular Grid | 674 |
| <i>Sukwon Kim, Michelle Effros, Tracey Ho</i> | |
| Intersession Network Coding for Two Simple Multicast Sessions | 682 |
| <i>Chih-Chun Wang, Ness Shroff, Abdallah Khreishah</i> | |
| Wireless Full-Duplex Communications Based on Network Coding | 690 |
| <i>Vladimir Stankovic, Lina Stankovic, Abdi Moinian, Samuel Cheng</i> | |
| Network Coding for Resource Redistribution in a Unicast Network | 695 |
| <i>Jennifer Price, Tara Javidi</i> | |
| LADA Algorithms: Performance Lower Bound and Cluster-Based Variant | 700 |
| <i>Wenjun Li, Huaiyu Dai</i> | |
| Design of Distributed Detection Systems with Correlated Heterogeneous Sensors | 707 |
| <i>Kalyan Veeramachaneni</i> | |
| Distributed protocol for determining when averaging consensus is reached | 715 |
| <i>Vikas Yadav, Murti Salapaka</i> | |
| A Deterministic Approach to Wireless Relay Networks | 721 |
| <i>Salman Avestimehr, Suhas Diggavi, David Tse</i> | |
| The Capacity of Wireless Networks: Information-Theoretic and Physical Limits | 729 |
| <i>Massimo Franceschetti, Marco Migliore, Paolo Minero</i> | |
| Optimal Preview Control Across Erasure Channels | 736 |
| <i>Vijay Gupta, Nuno Martins</i> | |
| Scheduling Algorithms for Single-Carrier and Multi-Carrier Wireless Data Systems | 743 |
| <i>Lisa Zhang, Matthew Andrews</i> | |
| Using a Queue to De-Amortize Cuckoo Hashing in Hardware | 751 |
| <i>Michael Mitzenmacher, Adam Kirsch</i> | |
| Structural Properties of LDP for Queue-Length Based Wireless Scheduling Algorithms | 759 |
| <i>Venkataramanan Venkatachalam Jayaraman, Xiaojun Lin</i> | |

| | |
|---|------------|
| Noncoherent Communication Over the Doubly Selective Channel Via Successive Decoding and Channel Re-Estimation..... | 767 |
| <i>Sibasish Das, Philip Schniter</i> | |
| The Constrained Capacity of Single and Multiuser Channels with Unknown Fading..... | 775 |
| <i>Sundeep Venkatraman, Krishnan Padmanabhan, Oliver Collins</i> | |
| An Achievable Rate Region for the Causal Cognitive Radio..... | 783 |
| <i>Seyed Hossein Seyedmehdi, Yan Xin, Lian Yong</i> | |
| The Approximate Capacity of an One-Sided Gaussian Interference Channel..... | 791 |
| <i>Guy Bresler, Abhay Parekh, David Tse</i> | |
| On Physical Carrier Sensing for Cognitive Radio Networks..... | 802 |
| <i>Eric Wong, Rene Cruz</i> | |
| Data Mining and Coordination to Avoid Interference in Wireless Networks..... | 808 |
| <i>Gustavo de Veciana, Balaji Rengarajan</i> | |
| Bandwidth Optimized Wireless Distributed Streaming from Multiple Terminals..... | 816 |
| <i>Chadi Khirallah, Vladimir Stankovic, Lina Stankovic, Yang Yang, Zixiang Xiong</i> | |
| Approximation Algorithms for the Restricted Steiner Tree Problem..... | 821 |
| <i>Ariel Orda, Alex Sprintson</i> | |
| Resource Allocation from the Perspective of Channel Coding..... | 829 |
| <i>Samuel Cheng, Vladimir Stankovic, Lina Stankovic</i> | |
| Fair Rate Allocations for Multiuser OFDM-SDMA Networks..... | 833 |
| <i>Narayan Prasad, Kai Li, Seung-Jun Kim, Xiaodong Wang</i> | |
| Convergence of the Min-Sum Algorithm for Convex Optimization..... | 840 |
| <i>Ciamac Cyrus Moallemi, Benjamin Van Roy</i> | |
| The Secrecy Capacity of the 2x2 MIMO Wiretap Channel..... | 848 |
| <i>Frederique Oggier, Babak Hassibi</i> | |
| Secrecy Sum-Rates for the Multiple-Access Wire-Tap Channel with Ergodic Block Fading..... | 856 |
| <i>Ender Tekin, Aylin Yener</i> | |
| Secrecy Capacity of the Wiretap Channel with Noisy Feedback..... | 864 |
| <i>Lifeng Lai, Hesham El Gamal, H. Vincent Poor</i> | |
| An Automated System for Visual Biometrics..... | 869 |
| <i>Derek Shiell, Louis Terry, Petar Aleksic, Aggelos Katsaggelos</i> | |
| An Interior-Point Method for Large Scale Network Utility Maximization..... | 877 |
| <i>Argyrios Zymnis, Nikolaos Trichakis, Stephen Boyd, Dan O' Neill</i> | |
| The Price of Anarchy in a Network Pricing Game..... | 882 |
| <i>John Musacchio, Shuang Wu</i> | |
| Oblivious Equilibrium for General Stochastic Games with Many Players..... | 892 |
| <i>Vineet Abhishek, Sachin Adlakha, Ramesh Johari, Gabriel Weintraub</i> | |
| Analysis of Bipartite Graph Codes on the Binary Erasure Channel..... | 897 |
| <i>Arya Mazumdar</i> | |
| Design of Delay Tolerant Space-Time Codes with Minimum Delay Length..... | 905 |
| <i>Mehdi Torbatian, Mohamed Oussama Damen</i> | |

| | |
|---|------|
| LT Codes from an Arranged Encoder Matrix and Degree Distribution Design with Dense Rows | 913 |
| <i>Ki-Moon Lee, Radha Hayder, Ho-Young Cheong, Shirish Karande</i> | |
| A Fast-Decodable, Quasi-Orthogonal Space-Time Block Code for 4x2 MIMO | 921 |
| <i>Ezio Biglieri, Yi Hong, Emanuele Viterbo</i> | |
| Coding to Reduce Delay on a Permutation Channel | 927 |
| <i>John MacLaren Walsh, Steven Weber</i> | |
| Characterizing Decoding Robustness under Parametric Channel Uncertainty | 935 |
| <i>Jay Wierer, Waheed U. Bajwa, Nigel Boston, Robert Nowak</i> | |
| Fundamental Constraints on Multicast Capacity Regions | 940 |
| <i>Leonard Gropop, David Tse</i> | |
| Network Coding Capacity Region of Line Networks with Node and Edge Constraints | 949 |
| <i>Sadegh Tabatabaei, Serap. A Savari, Gerhard Kramer</i> | |
| On the Capacity of a Code Division Multiple Access System | 959 |
| <i>Satish Babu Korada, Nicolas Macris</i> | |
| Network Coding Capacity of Random Wireless Networks under a Signal-To-Interference-And-Noise Model | 967 |
| <i>Zhenning Kong, Salah A Aly, Emina Soljanin, Edmund Yeh, Andreas Klappenecker</i> | |
| Optimal PHY and MAC Protocols for Power-Limited Ad-Hoc Networks | 975 |
| <i>Bozidar Radunovic, Jean-Yves Le Boudec, Raymond Knopp</i> | |
| On Wireless Scheduling with Partial Channel-State Information | 983 |
| <i>Aditya Gopalan, Constantine Caramanis, Sanjay Shakkottai</i> | |
| Near-Optimal Sleep Scheduling of a Rechargeable Sensor under Temporal Correlations | 991 |
| <i>Neeraj Jaggi, Koushik Kar</i> | |
| Least-Cost Opportunistic Routing | 994 |
| <i>Henri Dubois-Ferriere, Matthias Grossglauser, Martin Vetterli</i> | |
| Energy-Efficient Decentralized Routing with Localized Cooperation Suitable for Fast Fading | 1002 |
| <i>Ritesh Madan, Neelesh Mehta, Andreas Molisch, Jinyun Zhang</i> | |
| Utility Optimization Based on MSE for Parallel Broadcast Channels: The Square Root Law | 1009 |
| <i>Gerhard Wunder, Ingmar Blau, Thomas Michel</i> | |
| An Optimal Stopping Approach to ARQ Protocols with Variable Success Probabilities Per Retransmission | 1015 |
| <i>Anastasios Giovanidis, Gerhard Wunder, Holger Boche</i> | |
| Fractional Power Control for Decentralized Wireless Networks | 1023 |
| <i>Nihar Jindal, Steven Weber, Jeffrey Andrews</i> | |
| Authentication Over Noisy Channels | 1030 |
| <i>Lifeng Lai, Hesham El Gamal, H. Vincent Poor</i> | |
| Practical Information-Theoretic Commitment | 1035 |
| <i>Mathieu Bloch, Joao Barros, Steven W. McLaughlin</i> | |
| Short Concatenated Fingerprinting Codes for Multimedia Data | 1040 |
| <i>Hideki Yagi, Toshiyasu Matsushima, Hirasawa Shigeichi</i> | |

| | |
|---|------|
| Fingerprinting with Minimum Distance Decoding | 1046 |
| <i>Mohammad Shahmohammadi, Shih-Chun Lin, Hesham El Gamal</i> | |
| Secret Key Generation for Correlated Gaussian Sources | 1054 |
| <i>Sirin Nitinawarat</i> | |
| Continuum Equilibria for Routing in Dense Ad-Hoc Networks | 1059 |
| <i>Eitan Altman, Merouane Debbah, Alonso Silva, Pierre Bernhard</i> | |
| Stability-Throughput Analysis in a Multi-Hop Ad Hoc Networks with Weighted Fair Queueing | 1066 |
| <i>Ralph El Khoury, Rachid Elazouzi</i> | |
| Exponentially Stable Nonlinear Systems Have Polynomial Lyapunov Functions on Bounded Regions | 1074 |
| <i>Matthew M. Peet</i> | |
| Coding under Observation Constraints | 1082 |
| <i>Manish Bhardwaj, Anantha Chandrakasan</i> | |
| Lattice Coding Increases Multicast Rates for Gaussian Multiple-Access Networks | 1089 |
| <i>Bobak Nazer, Michael Gastpar</i> | |
| New Results on the Minimum Distance of Repeat Multiple Accumulate Codes | 1097 |
| <i>Joerg Kliewer, Kamil S. Zigangirov, Daniel J. Costello Jr.</i> | |
| Information Lattices and Subgroup Lattices: Isomorphisms and Approximations | 1103 |
| <i>Hua Li, Edwin Chong</i> | |
| The Performance of BICM with a Single Feedback for the AWGN Channel | 1111 |
| <i>Sundeeep Venkatraman, Oliver Collins</i> | |
| On Outage Behavior of Wideband Slow-Fading Channels | 1119 |
| <i>Wenyi Zhang, Urbashi Mitra</i> | |
| Capacity of Linear Two-Hop Mesh Networks with Rate Splitting, Decode-And-Forward Relaying and Cooperation | 1127 |
| <i>Oswaldo Simeone, Oren Somekh, Bar-Ness Yeheskel, H. Vincent Poor, Shlomo Shamai</i> | |
| Rate Region Frontiers for n-user Interference Channel with Interference as Noise | 1135 |
| <i>Mohamad Charafeddine, Aydin Sezgin, Arogyaswami Paulraj</i> | |
| Can 100 Speakers Talk for 30 Minutes Each in One Room within One Hour and with Zero Interference to Each Other's Audience? | 1141 |
| <i>Viveck Cadambe, Syed Jafar</i> | |
| Capacity Bounds for Alternating Two-Path Relay Channels | 1149 |
| <i>Woohyuk Chang, Sae-Young Chung, Yong H. Lee</i> | |
| The Capacity of Vehicular Ad Hoc Networks | 1156 |
| <i>Hossein Pishro-Nik, Aura Ganz, Daiheng Ni</i> | |
| Achievable Rates and Optimal Resource Allocation for Imperfectly-Known Relay Channels | 1164 |
| <i>Junwei Zhang, Mustafa Cenk Gursoy</i> | |
| Wireless Ad Hoc Networks with Tunable Topology | 1170 |
| <i>Milan Bradonjic, Joseph Kong</i> | |
| Throughput Scaling in Random Wireless Networks: A Non-Hierarchical Multipath Routing Strategy | 1178 |
| <i>Awlok Josan, Mingyan Liu, David Neuhoff, Sandeep Pradhan</i> | |
| Opportunistic Relaying in Wireless Networks | 1185 |
| <i>Shengshan Cui, Alexander Haimovich</i> | |

| | |
|---|------|
| Throughput-Lifetime Tradeoffs in Multihop Wireless Networks under a Realistic Interference Model | 1193 |
| <i>Jun Luo, Aravind Iyer, Catherine Rosenberg</i> | |
| A Vector Gaussian Cooperative Relaying Network | 1201 |
| <i>Muryong Kim, Sae-Young Chung</i> | |
| Linear Detection Via Belief Propagation | 1207 |
| <i>Danny Bickson, Ori Shental, Paul Siegel, Jack Wolf, Danny Dolev</i> | |
| Message Passing and Distributed Statistical Inference | 1214 |
| <i>Venkat Chandrasekaran, Jason Johnson, O. Patrick Kreidl, Dmitry Malioutov, Sujay Sanghavi, Alan Willsky</i> | |
| Sensing Capacity and Compressed Sensing: Bounds & Algorithms | 1218 |
| <i>Manqi Zhao, Shuchin Aeron, Venkatesh Saligrama</i> | |
| Gossip Along the Way: Order-Optimal Consensus Through Randomized Path Averaging | 1226 |
| <i>Florence Benezit, Alexandros Dimakis, Patrick Thiran, Martin Vetterli</i> | |
| Detection of Gauss Markov Random Fields under Routing Energy Constraint | 1234 |
| <i>Animashree Anandkumar, Lang Tong, Ananthram Swami</i> | |
| Fast Gossip through Markov Chain Lifting | 1239 |
| <i>Kyomin Jung, Devavrat Shah, Jinwoo Shin</i> | |
| Convergence Rates of Min-Cost Subgraph Algorithms for Multicast in Coded Networks | 1247 |
| <i>Fang Zhao, Muriel Medard, Desmond S. Lun, Asuman Ozdaglar</i> | |
| Detailed Network Measurements Using Sparse Graph Counters: The Theory | 1252 |
| <i>Yi Lu, Andrea Montanari, Balaji Prabhakar</i> | |
| Distributed Queue Length Based Algorithms for Optimal End-To-End Throughput Allocation and Stability in Multi-Hop Random Access Networks | 1260 |
| <i>Jiaping Liu, Alexander Stolyar</i> | |
| Phase Synchrony Measures for the Study of Functional Brain Networks | 1268 |
| <i>Selin Aviyente, Westley Evans</i> | |
| Cerebellar Implementation of Gainscheduled Feedback Control | 1276 |
| <i>Steve Massaquoi</i> | |
| Sequence Reconstruction: There and Back Again | 1286 |
| <i>Andrew McGregor</i> | |
| Author Index | |