Sunday, June 28, 09:00-12:30

Tutorial T1 (101)
Recovering the Unseen: Old and New
Emmanuel J. Candes, California Institute of Technology

Tutorial T2 (102)
Fountain Codes
Amin Shokrollahi, EPFL

Sunday, June 28, 14:00-17:30

Tutorial T3 (101)
Writing on a Clean Slate: New Models and Algorithms for the Internet and for Data Centers
Balaji Prabhakar, Stanford University

Tutorial T4 (102)
Interference Management: An Information Theoretic View
David Tse, UC Berkeley

Sunday, June 28, 18:00 ~

Welcome Reception (104~105)

Monday, June 29, 08:30-09:30

Plenary 1 (Auditorium/ 301)
Randomized Dimensionality Reduction: A New Framework for Signal Processing and Communications
Richard Baraniuk, Rice University

Monday, June 29, 09:50-11:10

MA1-1: Finite Precision Compressive Sensing

Bit Precision Analysis for Compressed Sensing
Ehsan Ardestanizadeh, Mahdi Cheraghchi, Amin Shokrollahi

Optimal Quantization of Random Measurements in Compressed Sensing
John Sun, Vivek Goyal

A Comparative Study of Quantized Compressive Sensing Schemes
Wei Dai, Hoa Pham, Olgica Milenkovic

Number of Measurements in Sparse Signal Recovery
Sibi Bhaskaran, Stephen Hanly, Paul Tune
MA1-2: Relay Channel: Capacity and Bounds I

Outer Bounds for User Cooperation
Ravi Tandon, Sennur Ulukus

A New Capacity Upper Bound for “Relay-with-Delay” Channels
Amir Salimi, Mohammad Reza Aref, Mahtab Mirmohseni

Approximate Capacity of a Class of Gaussian Relay-Interference Networks
Soheil Mohajee, Suhas Diggav, David Tse

Deterministic Relay Networks with State Information
Sung-Hoon Lim, Young-Han Kim, Sae-Young Chung

MA1-3: Multiple Descriptions

The Rate Transfer Argument in Two-Stage Scenarios: When Does It Matter?
Ertem Tuncel

Gaussian Multiple Description Coding with Individual and Central Distortion Constraints
Jun Chen

Consolidating Achievable Regions of Multiple Descriptions
Lei Zhao, Paul Cuff, Haim Permuter

Binary Erasure Multiple Descriptions: Worst-Case Distortion
Ebad Ahmed, Aaron Wagner

MA1-4: Combinatorial Properties of LDPC Codes I

Weight Distributions of Multi-Edge Type LDPC Codes
Kenta Kasai, Tomoharu Awano, David Declercq, Charly Poulliat, Kohichi Sakaniwa

Binary Weight Distribution of Non-Binary LDPC Codes
Iryna Andriyanova, Vishwambhar Rathi, Jean-Pierre Tillich

On the Number of Minimum Weight Codewords of SFA-LDPC Codes
Yuichi Kaji

On the Fundamental System of Cycles in the Bipartite Graphs of LDPC Code Ensembles
Igal Sason

MA1-5: Space-Time Coding I

Low Complexity Distributed STBCs with Unitary Relay Matrices for any Number of Relays
G. Susinder Rajan, B. Sundar Rajan

Codes over M2 (F2) and Applications to Golden Space-Time Coded Modulation
Frederique Oggier, Patrick Sole, Jean-Claude Belfiore
A Novel Construction of Complex Orthogonal Designs with Maximal Rate and Low-PAPR
Smarajit Das, B. Sundar Rajan

Linear Receiver Based High-Rate Space-Time Block Codes
Wei Zhang, Jinhong Yuan

Mon 09:50-11:10

MA1-6: Network Coding and Capacity I

A Generalized Cut-Set Bound
Amin Gohari, Venkat Anantharam

Analog Network Coding Mappings in Gaussian Multiple-Access Relay Channels
Sha Yao, Mikael Skoglund

Compressed Network Coding Vectors
Mahdi Jafaristavoshi, Lorenzo Keller, Christina Fragouli, Katerina Argyraki

Algebraic Network Coding: A New Perspective
Dinesh Kumar K R, Andrew Thangaraj

Mon 09:50-11:10

MA1-7: Sequences and Correlation I

Systematic Constructions of Zero-Correlation Zone Sequences
Ching-Wei Chen, Yen-Cheng Liu, Yu Ted Su

New Sequence Families with Zero or Low Correlation Zone via Interleaving Techniques
Honggang Hu, Guang Gong

Design of Low Correlation Zone Sequence Sets of Period kN
Jin-Ho Chung, Kyeongcheol Yang

Constructions of Families with Unequal Auto- and Cross-Correlation Constraints
Jose Ortiz-Ubarri, Oscar Moreno

Mon 09:50-11:10

MA1-8: Information Measures

On Truth, Belief, and Experience
Flemming Topsøe

Concavity of Entropy under Thinning
Yaming Yu, Oliver Johnson

Tsallis Differential Entropy and Divergences Derived from the Generalized Shannon-Khinchin Axioms
Hiroki Suyari, Makoto Tsukada

On the Interplay between Shannon's Information Measures and Reliability Criteria
Siu-Wai Ho

Monday, June 29, 11:30-12:50
MA2-1: Compressive Sensing and Applications

Linear Compressive Networks
Naveen Goela, Michael Gastpar

Sparsity-Embracing Multiuser Detection for CDMA Systems with Low Activity Factor
Hao Zhu, Georgios B. Giannakis

A Sparsity Detection Framework for On-Off Random Access Channels
Sundeep Rangan, Alyson Fletcher, Vivek Goyal

Performance Bounds on Compressed Sensing with Poisson Noise
Rebecca Willett, Maxim Raginsky

Mon 11:30-12:50

MA2-2: Relay Channel: Capacity and Bounds II

Achievable Rates and Capacity for Gaussian Relay Channels with Correlated Noises
Jinhua Jiang, Andrea Goldsmith, Shuguang Cui

Capacity of Relay Channels with ISI and Colored Gaussian Noise
Chiranjib Choudhuri, Urbashi Mitra

The Capacity Region of the Parallel Partially Cooperative Relay Broadcast Channel with Unmatched Degraded Subchannels
Reza Khosravi-Farsani, Mahtab Mirmohseni, Bahareh Akhbari, Hamed Firoozi, Mohammad Reza Aref

A New Achievable Rate for the Gaussian Parallel Relay Channel
Saeed Changiz Rezaei, Shahab Oveis Gharan, Amir K. Khandani

Mon 11:30-12:50

MA2-3: Lossless Compression

Efficient Implementation of the Generalized Tunstall Code Generation Algorithm
Michael Baer

Malleable Coding with Edit-Distance Cost
Lav Varshney, Julius Kusuma, Vivek Goyal

Two Recursive Versions of the Shannon Code
Mohammadali Khosrovijard, Hamed Narimani, T. Aaron Gulliver

Merge Source Coding
Bruno Avila, Eduardo Laber

Mon 11:30-12:50

MA2-4: Combinatorial Properties of LDPC Codes II

Lower Bounds on the Graphical Complexity of Finite-Length LDPC Codes
Igal Sason

Linear Programming Bounds on the Degree Distributions of LDPC Code Ensembles
Igal Sason

Absdet-Pseudo-Codewords and Perm-Pseudo-Codewords: Definitions and Properties
Roxana Smarandache, Pascal Vontobel
On the Probabilistic Computation of the Stopping Redundancy of LDPC Codes
Masanori Hirotomo, Yoshiho Konishi, Masakatu Morii

Mon 11:30-12:50 208A

**MA2-5: ARQ**

On the Existence of Proper Codes for Error Detection
*Torleiv Kløve*

A Novel Bit-Level DS Combining Scheme for MIMO Systems with HARQ
*Jinhuan Xia, Tiejun Lv*

Outage Efficient Strategies for Network MIMO with Partial CSIT
*Mari Kobayashi, Merouane Debbah, Jean-Claude Belfiore*

MIMO ARQ Systems with Multi-Level Feedback
*Khoa Nguyen, Lars K. Rasmussen, Albert Guillen i Fabregas, Nick Letzepis*

Mon 11:30-12:50 208B

**MA2-6: Network Coding and Capacity II**

Network Computing Capacity for the Reverse Butterfly Network
*Rathinakumar Appuswamy, Massimo Franceschetti, Nikhil Karamchandani, Ken Zeger*

Network Coding Capacity: A Functional Dependence Bound
*Satyajitsinh Thakor, Alex Grant, Terence Chan*

A Lower Bound on the Capacity of Wireless Erasure Networks with Random Node Locations
*Rayyan Jaber, Jeffrey Andrews*

On the Capacity of Non-Coherent Network Coding
*Mahdi Jafarisiavoshani, Soheil Mohajer, Christina Fragouli, Suhas Diggavi*

Mon 11:30-12:50 209

**MA2-7: Sequences and Correlation II**

New Quaternary Sequences with Ideal Autocorrelation Constructed From Binary Sequences with Ideal Autocorrelation
*Ji-Woong Jang, Young-Sik Kim, Sang-Hyo Kim, Jong-Seon No*

New Contruction of Quaternary Sequences with Ideal Autocorrelation from Legendre Sequences
*Young-Sik Kim, Ji-Woong Jang, Sang-Hyo Kim, Jong-Seon No*

New Quaternary Sequences with Optimal Autocorrelation
*Young-Sik Kim, Ji-Woong Jang, Sang-Hyo Kim, Jong-Seon No*

Computing the Biases of Parity-Check Relations
*Anne Canteaut, Maria Naya-Plasencia*

Mon 11:30-12:50 210

**MA2-8: Information Inequalities**

The Entropy Power of a Sum Is Fractionally Superadditive
*Mokshay Madiman, Farhad Ghassemi*

A Vector Generalization of Costa Entropy-Power Inequality and Applications
Ruoheng Liu, Tie Liu, H. Vincent Poor, Shlomo Shamai

Bounds on the Mutual Informations of the Binary Sums of Bernoulli Random Variables
Payam Pakzad, Venkat Anantharam, Amin Shokrollahi

Entropy Bounds for a Markov Random Subfield
Matt Reyes, David Neuhoff

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Monday, June 29, 12:50-14:40

Panel Discussion and Meeting (Students only/105)

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Monday, June 29, 14:40-16:00

Mon 14:40-16:00

MP1-1: Matrix Completion and Compressive Sensing

Efficient and Guaranteed Rank Minimization by Atomic Decomposition
Kiryung Lee, Yoram Bresler

A Channel Coding Perspective of Recommendation Systems
Onkar Dabeer, Bikash Dey, S.T. Aditya

Matrix Completion from a Few Entries
Raghunandan Keshavan, Sewoong Oh, Andrea Montanari

Sparse Linear Representation
Young-Han Kim, Halyun Jeong

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Mon 14:40-16:00

MP1-2: Bi-Directional Relaying

On the DMT of Bidirectional Relaying with Limited Feedback
Tung Kim, H. Vincent Poor

The Multi-Way Relay Channel
Deniz Gunduz, Aylin Yener, Andrea Goldsmith, H. Vincent Poor

Power Allocation Strategies and Lattice Based Coding Schemes for Bi-Directional Relaying
Makesh Pravin Wilson, Krishna Narayanan

A Class of Bi-Directional Multi-Relay Protocols
Sang Kim, Natasha Devroye, Vahid Tarokh

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Mon 14:40-16:00

MP1-3: Source Coding

On the Statistical Physics of Directed Polymers in a Random Medium and Their Relation to Tree Codes
Neri Merhav

Fundamental Limits of Almost Lossless Analog Compression
Yihong Wu, Sergio Verdu
Compression of Graphical Structures  
Yongwook Choi, Wojciech Szpankowski

Minimum Expected Length of Fixed-to-Variable Lossless Compression of Memoryless Sources  
Wojciech Szpankowski, Sergio Verdu

MON 14:40-16:00  203B

MP1-4: LDPC Decoding I

Decreasing Error Floor in LDPC Codes by Parity-Check Matrix Extensions  
Omer Fainzilber, Eran Sharon, Simon Litsyn

Analysis of Error Floors of LDPC Codes under LP Decoding over the BSC  
Shashi Kiran Chilappagari, Bane Vasic, Mikhail Stepanov, Michael Chertkov

On LP Decoding of Nonbinary Expander Codes  
Vitaly Skachek

An LP Decoding Algorithm Based on Primal Path-Following Interior Point Method  
Tadashi Wadayama

MON 14:40-16:00  208A

MP1-5: Feedback in Wireless Communication

Some Observations on Limited Feedback for Multiaccess Channels  
Anand Sarwate, Michael Gastpar

Throughput of Precoded Broadcast Transmission with Noisy Feedback  
Alon Shalev Housfater, Teng Joon Lim

Eigen-Beamforming with Delayed Feedback and Channel Prediction  
Tr Ramya, Srikrishna Bhashyam

Limited Feedback for Multi-Carrier Beamforming: A Rate-Distortion Approach  
Mingguang Xu, Dongning Guo, Mike Honig

MON 14:40-16:00  208B

MP1-6: Network Coding and Decoding

Valuable Messages and Random Outputs of Channels in Linear Network Coding  
Ning Cai

Separate Network Coding for Private and Common Messages from One Source to Two Sinks  
Kunihiro Harada, Hirosuke Yamamoto

Decoding Network Codes by Message Passing  
Daniel Salmond, Alex Grant, Ian Grivell, Terence Chan

Multishot Codes for Network Coding: Bounds and a Multilevel Construction  
Roberto Nóbrega, Bartolomeu Uchoa-Filho

MON 14:40-16:00  209

MP1-7: Sequences and Applications
New QAM Golay Complementary Pairs with Unequal Sequence Power  
Ying Li, Yen-Wen Huang

Z-Connectable Complete Complementary Codes and Its Application in CDMA Systems  
Chenggao Han, Takeshi Hashimoto

Grouped Complementary Codes for Multicarrier CDMA Systems  
Zhenyu Zhang, Fanxin Zeng, Wei Chen, Zhiyong Shi

Optimal Variable-Weight Optical Orthogonal Codes via Cyclic Difference Families  
Dianhua Wu, Pingzhi Fan, HengChao Li, Udaya Parampalli

Mon 14:40-16:00

MP1-8: Estimation I

Convergence Rate on a Nonparametric Estimator for the Conditional Mean  
Dong Sik Kim

Recursive Filtering and Smoothing for Gaussian Reciprocal Processes with Continuous Indices  
Divyanshu Vats, Jose Moura

Mutual Information Approximation via Maximum Likelihood Estimation of Density Ratio  
Taiji Suzuki, Masashi Sugiyama, Toshiyuki Tanaka

Histogram-Based Estimation for the Divergence Revisited  
Jorge Silva, Shrikanth Narayanan

Monday, June 29, 16:20-18:00

Mon 16:20-18:00

MP2-1: Sparse Recovery I

$\ell_2/\ell_1$-Optimization and Its Strong Thresholds in Approximately Block-Sparse Compressed Sensing  
Mihailo Stojnic

Explicit Thresholds for Approximately Sparse Compressed Sensing via $\ell_1$-Optimization  
Mihailo Stojnic

Weighted $\ell_1$ Minimization for Sparse Recovery with Prior Information  
Amin Khajehnejad, Weiyu Xu, Amir Avestimehr, Babak Hassibi

Modified-CS: Modifying Compressive Sensing for Problems with Partially Known Support  
Namrata Vaswani, Wei Lu

On Sharp Performance Bounds for Robust Sparse Signal Recoveries  
Weiyu Xu, Babak Hassibi

Mon 16:20-18:00

MP2-2: Decode-Forward Relaying

A Simple Scheme for Delay-Tolerant Decode-and-Forward Based Cooperative Communication  
Manav Bhatnagar, Are Hjørungnes, Merouane Debbah

Decode and Forward Relays: Full Diversity with Randomized Distributed Space-Time Coding  
David Gregoratti, Xavier Mestre
Signal Combining for Relay Transmission with Rateless Codes
Azad Rawanschid, Lutz Lampe, Johannes Huber

On the Diversity Analysis of Decode-and-Forward Protocol with Multiple Antennas
Xianglan Jin, Dong-Sup Jin, Jong-Seon No, Dong-Joon Shin

Simultaneous Partial and Backward Decoding Approach for Two-Level Relay Networks
Leila Ghabeli, Mohammad Reza Aref

Mon 16:20-18:00
203A

MP2-3: Random-Process Compression
Distortion-Rate Tradeoff of a Source Uniformly Distributed over the Composite PF (N) and the Composite Stiefel Manifolds
Rajesh Krishnamachari, Mahesh Varanasi

Stochastic Stability of Adaptive Quantizers for Markov Sources
Serdar Yuksel

Arithmetic Encoding of Markov Random Fields
Matt Reyes, David Neuhoff

Length of Minimal Forbidden Words on a Stationary Ergodic Source
Takahiro Ota, Hiroyoshi Morita

Coding Theorem for General Stationary Memoryless Channel Based on Hash Property
Jun Muramatsu, Shigeki Miyake

Mon 16:20-18:00
203B

MP2-4: Analysis of LDPC Codes I
Reconstruction of Convolutional Codes from Noisy Observation
Maxime Cote, Nicolas Sendrier

Short Quasi-Cyclic LDPC Codes from Convolutional Codes
Irina Bocharova, Boris Kudryashov, Roman Satyukov, Stephan Stiglmayr

Decoding of MDP Convolutional Codes over the Erasure Channel
Virtudes Tomás, Joachim Rosenthal, Roxana Smarandache

Trapping Set Analysis of Protograph-Based LDPC Convolutional Codes
David Mitchell, Ali Pusane, Daniel Costello

Exact Erasure Channel Density Evolution for Protograph-Based Generalized LDPC Codes
Michael Lentmaier, Marcos Tavares, Gerhard Fettweis

Mon 16:20-18:00
208A

MP2-5: Wireless Channels
Delay-Optimal Distributed Power and Transmission Threshold Control for S-ALOHA Network with FSMC Fading Channels
Huang Huang, Vincent Lau

Average Capacity Analysis of Continuous-Time Frequency-Selective Rayleigh Fading Channels with Correlated Scattering Using Majorization
Eduard Jorswieck, Martin Mittelbach
Full Diversity Blind Signal Designs for Unique Identification of Frequency Selective Channels
Jian-Kang Zhang

Capacity-Achieving Codes for Channels with Memory and Maximum-Likelihood Decoding
Jung Hyun Bae, Achilleas Anastasopoulos

Online Maximizing Weighted Throughput in a Fading Channel
Fei Li, Zhi Zhang

Mon 16:20-18:00  208B

MP2-6: Cognitive Radio and Capacity

A Cognitive Network with Clustered Decoding
Amos Lapidoth, Nathan Levy, Shlomo Shamai, Michele Wigger

On the Capacity of Multi-User Cognitive Radio Networks
Amin Jafarian, Sriram Vishwanath

On the Capacity of Partially Cognitive Radios
Goochul Chung, Sriram Sridharan, Sriram Vishwanath, Chan Soo Hwang

An Improved Achievable Rate Region for Causal Cognitive Radio
Seyed Hossein Seyednehdi, Jinhua Jiang, Yan Xin, Xiaodong Wang

Capture Analysis in Wireless Radio Systems with Multi-Packet Reception Capabilities
Andrea Zanella, Michele Zorzi, Ramesh Rao

Mon 16:20-18:00  209

MP2-7: Sequences and Complexity

An Algorithm for Computing Bidirectional Minimal Polynomials for Multisequences
Liping Wang

A Differential Equation Method to Derive the Formulas of the T-Complexity and the LZ-Complexity
Kenji Hamano, Hirosuke Yamamoto

A k-Cube Graph Construction for Mappings from Binary Vectors to Permutations
Khmaies Ouahada, Hendrik Ferreira

Structural Complexity of Random Binary Trees
En-hui Yang, John Kieffer, Wojciech Szpankowski

Fast Enumeration of Run-Length-Limited Words
Yulia Medvedeva, Boris Ryabko

Mon 16:20-18:00  210

MP2-8: Detection

Bayesian Quickest Change Process Detection
Vasanthan Raghavan, Venugopal Veeravalli

Least Favorable Distributions for Robust Quickest Change Detection
Jayakrishnan Umnikrishnan, Venugopal Veeravalli, Sean Meyn

A Sequential Procedure for Simultaneous Detection and State Estimation of Markov Signals
Emanuele Grossi, Marco Lops, Vasileios Maroulas
On MIMO Detection under Non-Gaussian Target Scattering: The Power-Limited Case
Augusto Aubry, Marco Lops, Antonia Tulino, Luca Venturino

Conditional Dependence in Distributed Detection: How Far Can We Go?
Hao Chen, Pramod Varshney, Biao Chen

Tuesday, June 30, 08:30-09:30

Plenary 2 (Auditorium/301)
It's Easier to Approximate
David Tse, University of California at Berkeley

Tuesday, June 30, 09:50-11:10

Tue 09:50-11:10 101

TA1-1: Sparse Recovery II

Compressed Sensing over Finite Fields
Stark Draper, Sheida Malekpour

Sublinear Compressive Sensing Reconstruction via Belief Propagation Decoding
Hoa Pham, Wei Dai, Olgica Milenkovic

Support Recovery in Compressed Sensing: An Estimation Theoretic Approach
Amin Karbasi, Ali Hormati, Soheil Mohajer, Martin Vetterli

Conditions for Recovery of Sparse Signals Correlated by Local Transforms
Ivana Tosic, Pascal Frossard

Tue 09:50-11:10 102

TA1-2: Cooperation I

Iterative Decoding for Superposition Modulation-Based Cooperative Transmission
Tao Yang, Jinhong Yuan

Rate-Maximizing Mappings for Memoryless Relaying
Syed Ali Abbas Zaidi, Majid Nasiri Khormuji, Sha Yao, Mikael Skoglund

Reliable Source Transmission over Relay Networks with Side Information
Milad Sefidgaran, Bahareh Akhbari, Yalda Mohsenzadeh, Mohammad Reza Aref

Diversity Analysis of Irregular Fractional Cooperation
Andrew Eckford, Josephine Chu, Raviraj Adve

Tue 09:50-11:10 203A

TA1-3: Universal Compression

Universal Coding for Distributions over Co-Trees
Henrik Petersen, Flemming Topsøe

Finiteness of Redundancy, Regret, Shtarkov Sums, and Jeffreys Integrals in Exponential Families
**Peter Harremoës, Peter Grünwald**

Reducing the Space Complexity of a Bayes Coding Algorithm Using an Expanded Context Tree  
*Toshiyasu Matsushima*

Unrestricted BIC Context Tree Estimation for Not Necessarily Finite Memory Processes  
*Zsolt Talata, Tyrone Duncan*

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**Tue 09:50-11:10**  

**203B**

**TA1-4: Lattice Codes**

Tail Behavior of Sphere-Decoding Complexity in Random Lattices  
*Dominik Seethaler, Joakim Jalden, Christoph Studer, Helmut Boelcskei*

Single-Gaussian Messages and Noise Thresholds for Decoding Low-Density Lattice Codes  
*Brian Kurkoski, Kazuhiko Yamaguchi, Kingo Kobayashi*

Power-Constrained Communications Using LDLC Lattices  
*Brian Kurkoski, Justin Dauwels, Hans-Andrea Loeliger*

Efficient Parametric Decoder of Low Density Lattice Codes  
*Yair Yona, Meir Feder*

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**Tue 09:50-11:10**  

**208A**

**TA1-5: Channel Estimation**

Blind Per-State Detection of DPSK over Correlated Fading Channels  
*Alan Barbieri*

On Channel Estimation in Fast Fading Mobile Coded MIMO OFDM  
*Daniel Liu, Michael Fitz, Urbashi Mitra*

Practical Signaling with Vanishing Pilot-Energy for Large Noncoherent Block-Fading MIMO Channels  
*Keigo Takeuchi, Ralf Mueller, Mikko Vehkaperä, Toshiyuki Tanaka*

A Systematic Space-Time Code Design and Its Maximum-Likelihood Decoding for Combined Channel Estimation and Error Correction  
*Chia-Lung Wu, Mikael Skoglund, Chen Po-Ning, Yunghsiang Han*

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**Tue 09:50-11:10**  

**208B**

**TA1-6: Network Wireless Communication**

Impact of CSIT on the Tradeoff of Diversity and Spatial Multiplexing in MIMO Channels  
*Xiaojuan Zhang, Yi Gong*

A G-Estimator of the MIMO Channel Ergodic Capacity  
*Pascal Vallet, Philippe Loubaton*

A Distributed Differential Space-Time Coding Scheme for Two-Way Wireless Relay Networks  
*Zoran Utkovski, Gilbert Yammine, Juergen Lindner*

A New Scaling Law on Throughput and Delay Performance of Wireless Mobile Relay Networks over Parallel Fading Channels  
*Rui Wang, Vincent Lau*
TA1-7: Quantum Codes

Quantum Error Correction via Codes over GF (2)
Arijit Chowdhury, B. Sundar Rajan

A Polynomial-Time Construction of Self-Orthogonal Codes and Applications to Quantum Error Correction
Mitsuru Hamada

Quantum LDPC Codes with Positive Rate and Minimum Distance Proportional to n^{1/2}
Gilles Zemor, Jean-Pierre Tillich

New Decoding Algorithms for a Class of Subsystem Codes and Generalized Shor Codes
Pradeep Sarvepalli, Andreas Klappenecker, Martin Roetteler

Tue 09:50-11:10

TA1-8: Estimation II

Mismatched Estimation and Relative Entropy
Sergio Verdu

Relative Entropy and Score Function: New Information--Estimation Relationships through Arbitrary Additive Perturbation
Dongning Guo

Directed Information and Causal Estimation in Continuous Time
Young-Han Kim, Haim Permuter, Tsachy Weissman

On Concentration for Denoiser-Loss Estimators
Erik Ordentlich, Krishnamurthy Viswanathan, Marcelo Weinberger

Tuesday, June 30, 11:30-12:50

Tue 11:30-12:50

TA2-1: Network Operations

Distributed Large Scale Network Utility Maximization
Danny Bickson, Yoav Tock, Argyris Zymnis, Stephen Boyd, Danny Dolev

The Delay Region for P2P File Transfer
Yunnan Wu, Y. Charlie Hu, Jin Li, Philip Chou

Broadcast Delay of Epidemic Routing in Intermittently Connected Networks
Philippe Jacquet, Bernard Mans, Georgios Rodolakis

Delay with Network Coding and Feedback
Eleni Drinea, Christina Fragouli, Lorenzo Keller

Tue 11:30-12:50

TA2-2: Cooperation II

On Cooperative Downlink Transmission with Frequency Reuse
Majid Nasiri Khormuji, Mikael Skoglund

Distortion Exponents for Decode-and-Forward Multi-Relay Cooperative Networks
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<td>TA2-3: Slepian-Wolf</td>
<td>Asynchronous Slepian-Wolf Code Design</td>
<td>Zhibin Sun, Chao Tian, Jun Chen, Kon Max Wong</td>
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<td>Improved Slepian-Wolf Exponents via Witsenhausen’s Rate</td>
<td>Benjamin Kelly, Aaron Wagner</td>
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<td>Slepian-Wolf Coding over Cooperative Networks</td>
<td>Mohammad Hossein Yassae, Mohammad Reza Aref</td>
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<td>Distributed Source Coding without Slepian-Wolf Compression</td>
<td>Yang Yang, Zixiang Xiong</td>
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<td>TA2-4: Turbo Codes</td>
<td>New Reduced State Space BCJR Algorithms for the ISI Channel</td>
<td>John Anderson, Adnan Prlja, Fredrik Rusek</td>
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<td>Analog Turbo Codes: A Chaotic Construction</td>
<td>Kai Xie, Peiyu Tan, Tiffany Jing Li, Ng Boon Chong</td>
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<td>Iterative Decoding on Multiple Tanner Graphs Using Random Edge Local Complementation</td>
<td>Joakim Knudsen, Constanza Riera, Lars Eirik Danielsen, Matthew Parker, Eirik Rosnes</td>
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<td>Robust Initial LLRs for Iterative Decoders in Presence of Non-Gaussian Noise</td>
<td>Arun Ayyar, Michael Lentmaier, Giridhar Krishnamurthy, Gerhard Fettweis</td>
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<td>TA2-5: Space-Time Coding II</td>
<td>Time Domain Interference Cancellation for Alamouti Coded Cooperative OFDM Systems with Insufficient CP</td>
<td>Zhefeng Li, Xiang-Gen Xia</td>
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<td>Some Properties of Alamouti-Like MISO Codes</td>
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<td>Quadrature Partial Response Signaling Based on Alamouti Code</td>
<td>Kyoung-Young Song, Jae-Dong Yang, Xianglan Jin, Jong-Seon No, Habong Chung</td>
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<td>Novel Rotated Quasi-Orthogonal Space-Time Block Codes with the Fixed Nearest Neighbor Number</td>
<td>Jian-Kang Zhang, An-Zhong Wong</td>
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<td>Tue 11:30-12:50</td>
<td>208B</td>
<td>TA2-6: Applications of LDPC Codes</td>
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</table>
Adaptive Turbo Equalizer with Stopping Rule Based on LDPC Codes
Myungkyu Lee, Kyeongcheol Yang

Demultiplexer Design for Multi-Edge Type LDPC Coded Modulation
Jing Lei, Wen Gao

Disjoint LDPC Coding for Gaussian Broadcast Channels
Mahdi Ramezani, Masoud Ardakani

Factor Graph Approach to Distributed Facility Location in Large-Scale Networks
Hung Ngo, Sungyoung Lee

Tue 11:30-12:50
209

TA2-7: Quantum Codes and Systems
The Capacity of Quantum Channels with Side Information at the Transmitter
Frederic Dupuis

Generalized Concatenation for Quantum Codes
Markus Grassl, Peter Shor, Bei Zeng

Engineering Fault Tolerance for Realistic Quantum Systems via the Full Error Dynamics of Quantum Codes
Vaneet Aggarwal, Robert Calderbank, Gerald Gilbert, Yaakov Weinstein

Receiver Design to Harness Quantum Illumination Advantage
Saikat Guha

Tue 11:30-12:50
210

TA2-8: Hypothesis Testing
Vector Gaussian Hypothesis Testing and Lossy One-Helper Problem
Md Saifur Rahman, Aaron Wagner

The Role of MVU Estimator and CRB in Binary Composite Hypothesis Tests

Transformation Effects on Invariant Property of Invariant Hypothesis Tests and UMPI Detector
Ali Ghobadzadeh, Ali A. Tadaion, Mohammad Reza Taban

On Arbitrarily Varying Markov Source Coding and Hypothesis LAO Testing by Non-Informed Statistician
Naira Grigoryan, Evgueni Haroutunian

Tuesday, June 30, 12:50-14:40

Awards Luncheon (103~105)

Tuesday, June 30, 14:40-16:00

Tue 14:40-16:00
101

TP1-1: Errors and Erasures
Protection against Link Errors and Failures Using Network Coding in Overlay Networks
Shizheng Li, Aditya Ramamoorthy

Design of Efficient Robust Network Codes for Multicast Connections
Graham Booker, Alex Sprintson

On Noncoherent Correction of Network Errors and Erasures with Random Locations
Svitlana Vyetrenko, Tracey Ho, Elona Erez

Rate Regions for Coherent and Noncoherent Multisource Network Error Correction
Svitlana Vyetrenko, Tracey Ho, Michelle Effros, Joerg Kliwer, Elona Erez

Tue 14:40-16:00

TP1-2: Scheduling in Relay Networks

Optimal Schedules for the D-Node Half Duplex Phase Fading MRC
Lawrence Ong, Sarah Johnson, Mehul Motani

Application of Joint Source-Relay Scheduling to Cooperative Multiple Access Channels
Zhiguo Ding

Soft-Decision-and-Forward Protocol for Cooperative Communication Networks Based on Alamouti Code
Jae-Dong Yang, Kyoung-Young Song, Jong-Seon No, Dong-Joon Shin

Analysis of Uncoordinated Opportunistic Two-Hop Wireless Ad Hoc Systems
Radha Krishna Ganti, Martin Haenggi

Tue 14:40-16:00

TP1-3: Coding with Side Information

Efficient On-line Schemes for Encoding Individual Sequences with Side Information at the Decoder
Avraham Reani, Neri Merhav

Source Coding with a Side Information `Vending Machine' at the Decoder
Tsachy Weissman, Haim Permuter

Lossy Source Coding with Gaussian or Erased Side-Information
Etienne Perron, Suhas Diggavi, Emre Telatar

Two Lossy Source Coding Problems with Causal Side-Information
Roy Timo, Badri Narayanan Vellambi Ravisankar

Tue 14:40-16:00

TP1-4: Constrained Coding I

Improved Lower Bounds on Capacities of Symmetric 2-Dimensional Constraints Using Rayleigh Quotients
Erez Louidor, Brian Marcus

Approximate Enumerative Coding for 2-D Constraints through Ratios of Matrix Products
Erik Ordentlich, Ron Roth

Extending Models for Two-Dimensional Constraints
Soren Forchhammer

Concave Programming Upper Bounds on the Capacity of 2-D Constraints
Ido Tal, Ron Roth
TP1-5: Coded Modulation

Protection Matching: A New Scheduling Rule for Improved Design of BICM-ID Systems
Jian-Jia Weng, Chung-Hsuan Wang

Quantization for Soft-Output Demodulators in Bit-Interleaved Coded Modulation Systems
Clemens Novak, Peter Fertil, Gerald Matz

Error Probability of BICM in Fading Channels: Uniform Interleaving Analysis
Alfonso Martinez, Albert Guillen i Fabregas

Analysis of 1-Bit Output Noncoherent Fading Channels in the Low SNR Regime
Amine Mezghani, Josef Nossek

TP1-6: Precoding I

On Optimal Precoding in Linear Vector Gaussian Channels with Arbitrary Input Distribution
Miquel Payaro, Daniel Palomar

Message Passing in Distributed Wireless Networks
Vaneet Aggarwal, Youjian (Eugene) Liu, Ashutosh Sabharwal

On the Ergodic Capacity and Precoder Design of Flat Fading MIMO Systems Equipped with MMSE Receivers
Cedric Artigue, Philippe Loubaton

On the Selection of Semi-Orthogonal Users for Zero-Forcing Beamforming
Alessandro Tomasoni, Giuseppe Caire, Marco Ferrari, Sandro Bellini

TP1-7: Cryptographic Algorithms

Authentication and Secrecy Codes for Equiprobable Source Probability Distributions
Michael Huber

On Improving Security of GPT Cryptosystems
Bahram Honary, Ernst Gabidulin, Haitham Rashwan

Another Look at Weak Feedback Polynomials in the Nonlinear Combiner
Martin Hell, Lennart Brynielsson

Extended Windmill Polynomials
Cedric Lauradoux

TP1-8: Maximum Likelihood

Small-Sample Distribution Estimation over Sticky Channels
Farzad Farnoud, Olgica Milenkovic, Narayana Prasad Santhanam

The Maximum Likelihood Probability of Skewed Patterns
Shengjun Pan, Alon Orlitsky

The Maximum Likelihood Probability of Unique-Singleton, Ternary, and Length-7 Patterns
A Large-Deviation Analysis for the Maximum Likelihood Learning of Tree Structures
Vincent Tan, Animashree Anandkumar, Lang Tong, Alan Willsky

Tuesday, June 30, 16:20-18:00

**TP2-1: Network Coding and Security**

The Quadratic Gaussian CEO Problem with Byzantine Agents
*Oliver Kosut, Lang Tong*

Existence and Construction of Capacity-Achieving Network Codes for Distributed Storage
*Yunnan Wu*

A General Security Condition for Multi-Source Linear Network Coding
*Zhixue Zhang, Raymond W. Yeung*

An Algebraic Watchdog for Wireless Network Coding
*MinJi Kim, Muriel Medard, Joao Barros, Ralf Koetter*

Byzantine Attacks against Network Coding in Peer to Peer Distributed Storage
*Luisa Lima, Joao Barros, Ralf Koetter*

**TP2-2: Impact of Channel State Information**

Compress-and-Forward Strategy for the Relay Channel with Non-Causal State Information
*Bahareh Akhbari, Mahtab Mirmohseni, Mohammad Reza Aref*

Cooperative Relay-Broadcast Channels with Causal Channel State Information
*Reza Khosravi-Farsani, Bahareh Akhbari, Mahtab Mirmohseni, Mohammad Reza Aref*

On the Simultaneous Relay Channel with Informed Receivers
*Arash Behboodi, Pablo Piantanida*

Functional Forwarding of Channel State Information
*Jiening Zhan, Michael Gastpar*

Secrecy Throughput of MANETs with Malicious Nodes
*Yingbin Liang, H. Vincent Poor, Lei Ying*

**TP2-3: Distributed Source Coding**

An Outer Bound for Side-Information Scalable Source Coding with Partially Cooperating Decoders
*Shraga Bross, Tsachy Weissman*

Cascade Multiterminal Source Coding
*Paul Cuff, Han-I Su, Abbas El Gamal*

High-Resolution Predictive Wyner-Ziv Coding of Gaussian Sources
*Xuechen Chen, Ertem Tuncel*

The Gray-Wyner Network with a Limited-Rate Helper to the Encoder and Decoders
Lei Zhao, Haim Permuter
Closed Forms of the Achievable Rate Region for Wyner's Source Coding Systems
Tetsunao Matsuta, Tomohiko Uyematsu, Ryutaroh Matsumoto

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**TP2-4: Coding for Storage**

Universal Rewriting in Constrained Memories
*Anxiao Andrew Jiang, Michael Langberg, Moshe Schwartz, Jehoshua Bruck*

On the Lifetime of Multilevel Memories
*Luis Lastras-Montaño, Michele Franceschini, Thomas Mittelholzer, John Karidis, Mark Wegman*

Storage Coding for Wear Leveling in Flash Memories
*Anxiao Andrew Jiang, Robert Mateescu, Eitan Yaakobi, Jehoshua Bruck, Paul Siegel, Alexander Vardy, Jack Wolf*

On the Capacity of Bounded Rank Modulation for Flash Memories
*Zhiying Wang, Anxiao Andrew Jiang, Jehoshua Bruck*

A Nearly Optimal Construction of Flash Codes
*Hessam Mahdavifar, Paul Siegel, Alexander Vardy, Jack Wolf, Eitan Yaakobi*

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**TP2-5: List Decoding**

New Asymptotic Bounds on the Size of List Codes on Euclidean Sphere
*Vladimir Blinovsky, Simon Litsyn*

Multiplicity Assignments for Algebraic Soft-Decoding of Reed-Solomon Codes Using the Method of Types
*Hirakendu Das, Alexander Vardy*

On Error Correction with Feedback under List Decoding
*Ofer Shayevitz*

Noisy Feedback Schemes and Rate>Error Tradeoffs from Stochastic Approximation
*Utsaw Kumar, J. Nicholas Laneman, Vijay Gupta*

LR-Aided MMSE Lattice Decoding Is DMT Optimal for All Approximately Universal Codes
*Joakim Jalden, Petros Elia*

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**TP2-6: Precoding II**

Design of Close to Optimal Euclidean Distance MIMO-Precoders
*Fredrik Rusek, Dzevdan Kapetanovic*

Optimal Natural Encoding Scheme for Discrete Multiplicative Degraded Broadcast Channels
*Bike Xie, Richard Wesel*

On Convergence Constrained Precoder Design for Iterative Frequency Domain MIMO Detector
*Juha Karjalainen, Antti Tolli, Tadashi Matsumoto, Markku Juntti*

On the Compound MIMO Broadcast Channels with Confidential Messages
*Mari Kobayashi, Shlomo Shamai, Yingbin Liang, Merouane Debbah*

Perfect Secrecy, Perfect Omniscience, and Steiner Tree Packing
TP2-7: Cryptographic Protocols

Efficient Oblivious Transfer from Algebraic Signaling over the Gaussian Channel  
Motohiko Isaka

Strongly Secure Privacy Amplification Cannot Be Obtained by Encoder of Slepian-Wolf Code  
Shun Watanabe, Tsuki Saitou, Ryutaroh Matsumoto, Tomohiko Uyematsu

Bootstrapped Oblivious Transfer and Secure Two-Party Function Computation  
Ye Wang, Prakash Ishwar

A Coding Theorem for Cheating-Detectable (2, 2)-Threshold Blockwise Secret Sharing Schemes  
Mitsugu Iwamoto, Hirosuke Yamamoto, Hiroki Koga

Optimal Secure Message Transmission by Public Discussion  
Hongsong Shi, Shaoquan Jiang, Rei Safavi-Naini, Mohammed Ashraful Tuhin

TP2-8: Statistical Learning

Minimum Description Length for Clustering with Exemplars  
Po-Hsiang Lai, Joseph A. O'Sullivan, Robert Pless

Deformed Statistics Formulation of the Information Bottleneck Method  
Ravi Venkatesan, Angelo Plastino

Achievability Results for Statistical Learning under Communication Constraints  
Maxim Raginsky

Structured Variational Methods for Distributed Inference: Convergence Analysis and Performance-Complexity Tradeoff  
Yanbing Zhang, Huaiyu Dai

Sequential Probability Assignment via Online Convex Programming Using Exponential Families  
Maxim Raginsky, Roummel Marcia, Jorge Silva, Rebecca Willett

Wednesday, July 1, 08:30-09:30

Plenary 3 (Auditorium/ 301)  
Facets of Entropy  
Raymond W. Yeung, The Chinese University of Hong Kong

Wednesday, July 1, 09:30-11:10

Recent Results Poster Session (Lobby, 3rd Fl., The Outside of Auditorium/301)

Wednesday, July 1, 09:50-10:50
**WA1-3: Lossless Distributed Source Coding**

On Networks with Side Information  
*Asaf Cohen, Amir Avestimehr, Michelle Effros*

On Feedback in Network Source Coding  
*Mayank Bakshi, Michelle Effros*

Feasible Alphabets for Communicating the Sum of Sources over a Network  
*Brijesh Rai, Bikash Dey*

**WA1-4: Sequential Methods**

Searching for High-Rate Convolutional Codes via Binary Syndrome Trellises  
*Florian Hug, Irina Bocharova, Rolf Johannesson, Boris Kudryashov*

Performance Evaluation of Viterbi Decoders by Multicanonical Monte Carlo Simulations  
*Marco Secondini, Dario Fertonani, Giulio Colavolpe, Enrico Forestieri*

Design and Construction of Protocol Sequences: Shift Invariance and User Irrepressibility  
*Kenneth Shum, Wing Wong, Chi Wan Sung, Chung Shue Chen*

**WA1-6: Frequency Domain Communication**

Cooperation in the MAC Channel Using Frequency Division Multiplexing  
*Momin Uppal, Anders Host-Madsen, Zixiang Xiong*

On Cyclic Frequency Diversity for Single-Carrier Packet Retransmissions  
*Abdel-Nasser Assimi, Charly Poulliat, Inbar Fijalkow*

A New Approach to Improve Multiplexing Gain in Decentralized Networks via Frequency Hopping and Repetition Coding  
*Kamyar Moshksar, Amir K. Khandani*

**WA1-7: Algebraic Methods I**

An Algebraic Tool for Obtaining Conditional Non-Vanishing Determinants  
*Camilla Hollanti, Hsiao-feng Lu, Roope Vehkalahti*

On Extended Forney-Kovalev GMD Decoding  
*Vladimir Sidorenko, Anas Chaaban, Christian Senger, Martin Bossert*

Modified Euclidean Algorithms for Decoding Reed-Solomon Codes  
*Dilip Sarwate, Zhiyuan Yan*

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**Wednesday, July 1, 11:10-12:50**
WA2-1: Queuing and Delays

Delay-Optimal Power Control and Performance Analysis in SDMA System with Limited Buffer Size via Stochastic Decomposition
Steven Ruan, Vincent Lau

On the Delay of Network Coding over Line Networks
Theodoros Dikaliotis, Alex Dimakis, Tracey Ho, Michelle Effros

Improved Delay Estimates for a Queueing Model for Random Linear Coding for Unicast
Mohammad Ravanbakhsh, Angela Isabel Barbero Diez, Øyvind Ytrehus

A Fundamental Characterization of Stability in Broadcast Queueing Systems
Chan Zhou, Gerhard Wunder

Random Linear Network Coding for Time-Division Duplexing: Queueing Analysis
Daniel Lucani, Muriel Medard, Milica Stojanovic

Wed 11:10-12:50

WA2-2: Cooperative Diversity-Multiplexing Tradeoff

Diversity-Multiplexing Tradeoff for the MIMO Static Half-Duplex Relay
Olivier Leveque, Christophe Vignat, Melda Yuksel

Secure Diversity-Multiplexing Tradeoffs in MIMO Relay Channels
Kiran Gowda, Tony Q. S. Quek, Hyundong Shin

Cooperative Multiplexing in the Multiple Antenna Half Duplex Relay Channel
Vinayak Nagpal, Sameer Pawar, David Tse, Borivoje Nikolic

Diversity-Multiplexing Tradeoff of the Dynamic Decode and Forward Protocol on a MIMO Half-Duplex Relay Channel
Sanjay Karmakar, Mahesh Varanasi

The MIMO Wireless Switch: Relaying Can Increase the Multiplexing Gain
Hassan Ghozlan, Yahya Mohasseb, Hesham El Gamal, Gerhard Kramer

Wed 11:10-12:50

WA2-3: Lossy Distributed Source Coding

Distributed Lossy Averaging
Han-I Su, Abbas El Gamal

Code Design for Quadratic Gaussian Multiterminal Source Coding: The Symmetric Case
Yifu Zhang, Yang Yang, Zixiang Xiong

On the Minimum Sum Rate of Gaussian Multiterminal Source Coding: New Proofs
Jia Wang, Jun Chen, Xiaolin Wu

Approximating the Rate-Distortion Region of the Distributed Source Coding for Three Jointly Gaussian Tree-Structured Sources
Mohammad Ali Maddah-Ali, David Tse

Two-Way Source Coding with a Common Helper
Haim Permuter, Yossif Steinberg, Tsachy Weissman

Wed 11:10-12:50
**WA2-4: Channel Polarization**

A Class of Transformations that Polarize Binary-Input Memoryless Channels  
*Satish Babu Korada, Eren Sasoglu*

Polar Codes: Characterization of Exponent, Bounds, and Constructions  
*Satish Babu Korada, Eren Sasoglu, Ruediger Urbanke*

Performance of Polar Codes for Channel and Source Coding  
*Nadine Hussami, Satish Babu Korada, Ruediger Urbanke*

On the Rate of Channel Polarization  
*Erdal Arikan, Emre Telatar*

Performance and Construction of Polar Codes on Symmetric Binary-Input Memoryless Channels  
*Ryuhei Mori, Toshiyuki Tanaka*

---

**WA2-5: Channels with Feedback**

Noisy Feedback Improves the BSC Reliability Function  
*Marat Burnashev, Hirosuke Yamamoto*

Feedback Communication over Individual Channels  
*Yuval Lomnitz, Meir Feder*

Power Adaptive Feedback Communication over an Additive Individual Noise Sequence Channel  
*Yuval Lomnitz, Meir Feder*

Upper Bounds to Error Probability with Feedback  
*Baris Nakiboglu, Lizhong Zheng*

A Stochastic Control Approach to ’Posterior Matching’-Style Feedback Communication Schemes  
*Todd Coleman*

---

**WA2-6: Wireless Systems**

Infinite-Layer Codes for Single-User Slowly Fading Channels  
*Vahid Pourahmadi, Abolfazl Motahari, Amir K. Khandani*

Structured Superposition for Backhaul Constrained Cellular Uplink  
*Bobak Nazer, Amichai Sanderovich, Michael Gastpar, Shlomo Shamai*

On Destructive Superposition of Shaping Pulses in Band-Limited Linear Modulation Systems  
*Makoto Tanahashi, Hideki Ochiai*

Analysis of PAPR Reduction Performance of SLM Schemes with Correlated Phase Vectors  
*Seok-Joong Heo, Hyun-Seung Joo, Jong-Seon No, Daewoon Lim, Dong-Joon Shin*

Coded Modulation with a Constraint on the Minimum Channel Symbol Duration  
*Anil Mengi, Han Vinck*

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**WA2-7: Constrained Coding II**
Enumerative Maximum-Transition-Run Codes
*Thomas Mittelholzer*

Simple Balanced Codes that Approach Capacity
*Kees Immink, Jos Weber*

Insertion Rate and Optimization of Redundancy of Constrained Systems with Unconstrained Positions
*Hiroshi Kamabe*

Efficient Balancing of q-ary Sequences with Parallel Decoding
*Theo Swart, Jos Weber*

The Zeta Function of a Periodic-Finite-Type Shift
*Akiko Manada, Navin Kashyap*

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**Wed 11:10-12:50**

**WA2-8: Applications**

Influence in a Large Society: Interplay Between Information Dynamics and Network Structure
*Lara Dolecek, Devavrat Shah*

On Application of Nonparametric Regression Estimation to Options Pricing
*Michael Kohler, Adam Krzyzak, Harro Walk*

Information Transfer by Energy-Efficient Neurons
*Toby Berger, William Levy*

Spiking Neuron Channel
*Shiro Ikeda, Jonathan Manton*

Coding Stimulus Information with Cooperative Neural Populations
*Karim Oweiss, Mehdi Aghagolzadeh, Seif Eldawlatly*

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**Wednesday, July 1, 13:00-14:00**

Panel: “Women in Information Theory: A perspective from the Industry” (101)

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**Thursday, July 2, 08:30-09:30**

**Shannon Lecture (Auditorium/ 301)**
Optimal Estimation
*Jorma Rissanen, Professor Emeritus, Technical University of Tampere*

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**Thursday, July 2, 09:50-11:10**

**RA1-1: DMT and Feedback in the Interference Channel**

Diversity-Multiplexing Tradeoff of the Two-User Interference Channel
*Adnan Raja, Pramod Viswanath*
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<td>RA1-2: Multihop Wireless Networks</td>
<td>Monotonic Convergence of Distributed Interference Pricing in Wireless Networks</td>
<td>Changxin Shi, Randall Berry, Michael Honig</td>
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<td>Opportunistic Scheduling in Large-Scale Wireless Networks</td>
<td>Mehdi Ansari Sadrahadi, Alireza Bayesteh, Eytan Modiano</td>
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<td></td>
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<td>On An Information Theoretic Approach to Model Anonymous MANET Communications</td>
<td>Dijiang Huang</td>
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<td>Analysis of Multiple-Unicast Throughput in Finite-Buffer Delay-Tolerant Networks</td>
<td>Ramanan Subramanian, Faramarz Fekri</td>
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<td>RA1-3: Channel Coding</td>
<td>On Fidelity per Unit Cost</td>
<td>Marius Kleiner, Bixio Rimoldi</td>
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<td>Coding Along Hermite Polynomials for Gaussian Noise Channels</td>
<td>Emmanuel Abbe, Lzhong Zheng</td>
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<td>Lower Bounds on the Information Rate of Intersymbol Interference Channels Based on the Ungerboeck Observation Model</td>
<td>Fredrik Rusek, Dario Fertonani</td>
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<td>Concavity of Mutual Information Rate for Input-Restricted Finite-State Memoryless Channels at High SNR</td>
<td>Guangyue Han, Brian Marcus</td>
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<td>Thu 09:50-11:10</td>
<td>RA1-4: LDPC Decoding II</td>
<td>On the Convergence of Iterative Belief Propagation</td>
<td>Axel Heim, Ulrich Sorger</td>
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<td>Analysis of LDPC Decoding Schedules</td>
<td>Eran Sharon, Noam Presman, Simon Litsyn</td>
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<td>Fixing Convergence of Gaussian Belief Propagation</td>
<td>Jason Johnson, Danny Bickson, Danny Dolev</td>
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RA1-5: Wireless Precoding

Selective Mapping for Channel Inversion Precoding in Multiple-Antenna Broadcast Systems  

Linear Precoded Cooperative Transmission Protocol for Wireless Broadcast Channels  
Chee Yen (Bruce) Leow, Zhiguo Ding, Kin Leung

Noisy Feedback Linear Precoding: A Bayesian Cramer-Rao Bound  
Alon Shalev Housfater, Teng Joon Lim

MISO Broadcast Channel with User-Cooperation and Limited Feedback  
Hyukjoon Kwon, John Cioffi

RA1-6: Capacity of Multiple Access Channels

The Capacity Region of the Symbol-Asynchronous Gaussian Multiple-Access Channel with Orthogonal Signaling  
Hon Fah Chong, Mehul Motani

New Bounds on the Maximal Error Exponent for Multiple-Access Channels  
Ali Nazari, Sandeep Pradhan, Achilleas Anastasopoulos

The Error Exponent and Cutoff Rate of the Exclusive-Or Multiple-Access Channels  
Jinho Kim, Wayne Stark

Sum Capacity of Multi-Source Linear Finite-Field Relay Networks with Fading  
Sang-Woon Jeon, Sae-Young Chung

RA1-7: Algebraic Error Correcting Codes I

Cyclic Codes over Ring F_2+vF_2  
Minjia Shi, Shixin Zhu, Yu Wang

Triple-Error-Correcting BCH-Like Codes  
Tor Helleseth, Carl Bracken

On the Weight Distribution of Some Cyclic Code  
Jinquan Luo, Yuansheng Tang, Hongyu Wang

Negacyclic MDS Codes over GR (2α, m)  
Shixin Zhu, Xiaoshan Kai, Ping Li

RA1-8: Stochastic Processes

An Impossibility Result for Process Discrimination  
Danil Ryabko

Deinterleaving Markov Processes via Penalized ML  
Gadiel Seroussi, Wojciech Szpankowski, Marcelo Weinberger

On the Distribution of Indefinite Quadratic Forms in Gaussian Random Variables  
Tareq Al-Naffouri, Babak Hassibi
Factorization of Joint Probability Mass Functions into Parity Check Interactions
Muhammet Bayramoglu, Ali Yilmaz

Thursday, July 2, 11:30-12:50

RA2-1: Interference Alignment

Achieving Linear Scaling with Interference Alignment
Ayfer Ozgur, David Tse

Interference Alignment with Limited Feedback
Jatin Thukral, Helmut Boelcskei

Relay-Aided Interference Alignment for the Quasi-Static X Channel
Behzad Nourani, Abolfazl Motahari, Amir K. Khandani

Ergodic Interference Alignment
Bobak Nazer, Michael Gastpar, Syed Jafar, Sriram Vishwanath

RA2-2: Heterogeneous Wireless Networks

Generalized Results of Transmission Capacities for Overlaid Wireless Networks
Changchuan Yin, Tie Liu, Shuguang Cui

To Code or Not to Code: Rate Optimality in Node-Capacitated Networks
Ziyu Shao, Sidharth Jaggi, Shuo-Yen Robert Li

Coding Improves the Throughput-Delay Trade-off in Mobile Wireless Networks
Zhenning Kong, Edmund Yeh, Emina Soljanin

Cooperation above the Physical Layer: the Case of a Simple Network
Beiyu Rong, Anthony Ephremides

RA2-3: Capacity Bounds

Capacity of Channels with Action-Dependent States
Tsachy Weissman

Capacity and Error Exponent Analysis of Multilevel Coding with Multistage Decoding
Amir Ingber, Meir Feder

Simple Channel Coding Bounds
Ligong Wang, Roger Colbeck, Renato Renner

On the Heat Channel and Its Capacity
Edwin Hammerich

RA2-4: Analysis of LDPC Codes II

Stopping Set Analysis of Repeat Multiple-Accumulate Codes
Trapping Set Enumerators for Repeat Multiple Accumulate Code Ensembles
Christian Koller, Alexandre Graell i Amat, Joerg Kliewer, Daniel Costello

On Unequal Error Protection of Finite-Length LDPC Codes over BECs: A Scaling Approach
Amir Djahanshahi, Paul Siegel, Laurence Milstein

Generating Functional Analysis of LDGM Channel Coding with Many Short Loops
Kazushi Mimura, A. Coolen

Thu 11:30-12:50 208A

RA2-5: Wireless Capacities

Latent Capacity Region: A Case Study on Symmetric Broadcast with Common Messages
Chao Tian

Capacity Regions of Two New Classes of 2-Receiver Broadcast Channels
Chandra Nair

On 3-Receiver Broadcast Channels with 2-Degraded Message Sets
Chandra Nair, Zizhou Vincent Wang

3-Receiver Broadcast Channels with Common and Confidential Messages
Yeow-Khiang Chia, Abbas El Gamal

Thu 11:30-12:50 208B

RA2-6: Coding for Multiple Access Channels

Coset Codes for Compound Multiple Access Channels with Common Information
Hideki Yagi, H. Vincent Poor

Coding for Two-User Gaussian MAC with PSK and PAM Signal Sets
J. Harshan, B. Sundar Rajan

Diversity-Multiplexing Tradeoff-Optimal Code Constructions for Symmetric MIMO Multiple Access Channels
Hsiao-feng Lu, Camilla Hollanti

On Multiple Access Random Medium Access Control
Tao Cui, Tracey Ho

Thu 11:30-12:50 209

RA2-7: Quantum Channels and Systems

Information Rate Loss from Radiation Decoherence
Alfonso Martinez

Efficient Reconciliation Protocol for Discrete-Variable Quantum Key Distribution
David Elkouss, Anthony Leverrier, Roamin Alleaume, Joseph Jean Boutros

Optimal Axis Compensation in Quantum Key Distribution Protocols over Unital Channels
Shun Watanabe, Ryutaroh Matsumoto, Tomohiko Uyematsu

Entanglement Transmission Capacity of Compound Channels
Igor Bjelakovic, Holger Boche, Janis Noetzel
### RA2-8: Statistics

Fisher Information Determinant and Stochastic Complexity for Markov Models  
*Jun'ichi Takeuchi*

A Criterion for the Compound Poisson Distribution to Be Maximum Entropy  
*Oliver Johnson, Ioannis Kontoyiannis, Mokshay Madiman*

Embedding Maximum Entropy Models in Algebraic Varieties by Grobner Bases Methods  
*Ambedkar Dukkipati*

Maximum Likelihood Time-of-Arrival Estimation of Optical Pulses via Photon-Counting Photodetectors  
*Bruce Moision, Baris Erkmen*

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### Thursday, July 2, 12:50-14:40

**Round Table Research Discussion (Students only/105)**

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### Thursday, July 2, 14:40-16:00

**RP1-1: Degrees of Freedom for the Interference Channel**

On the Degrees of Freedom of the 3-User Gaussian Interference Channel: the Symmetric Case  
*Abolfazl Motahari, Shahab Oveis Gharan, Amir K. Khandani*

On the Degrees-of-Freedom of the K-User Gaussian Interference Channel  
*Raul Etkin, Erik Ordentlich*

Capacity of a Class of Symmetric SIMO Gaussian Interference Channels within $O(1)$  
*Tiangao Gou, Syed Jafar*

Interference Alignment and the Generalized Degrees of Freedom of the X Channel  
*Chiachi Huang, Viveck Cadambe, Syed Jafar*

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**RP1-2: Wiretap Channels**

Invertible Extractors and Wiretap Protocols  
*Mahdi Cheraghchi, Frédéric Didier, Amin Shokrollahi*

Tandem Coding and Cryptography on Wiretap Channels: EXIT Chart Analysis  
*Willie Harrison, Steven McLaughlin*

Wiretap Channel Type II with an Active Eavesdropper  
*Vaneeet Aggarwal, Lifeng Lai, Robert Calderbank, H. Vincent Poor*

The Shannon Cipher System with a Guessing Wiretapper: General Sources  
*Manjesh Hanawal, Rajesh Sundaresan*

---
RP1-3: The Gelfand-Pinsker Channel

The Gelfand-Pinsker Channel: Strong Converse and Upper Bound for the Reliability Function
Himanshu Tyagi, Prakash Narayan

Strong Converse for Gel'fand-Pinsker Channel
Pierre Moulin

On the Rate-Limited Gelfand-Pinsker Problem
Ravi Tandon, Sennur Ulukus

Capacity of Compound State-Dependent Channels with States Known at the Transmitter
Pablo Piantanida, Shlomo Shamai

Thu 14:40-16:00 203B

RP1-4: LDPC Code Design

Variable Length Lossy Coding Using an LDPC Code
Junya Honda, Hirosuke Yamamoto

Efficient LDPC Codes over GF (q) for Lossy Data Compression
Farbod Kayhan, Alfredo Braunstein, Riccardo Zecchina

On a Class of Doubly-Generalized LDPC Codes with Single Parity-Check Variable Nodes
Enrico Paolini, Mark Flanagan, Marco Chiani, Marc Fossorier

Design of Multi-Edge Type Bilayer-Expurgated LDPC Codes
Marwan Azmi, Jinhong Yuan

Thu 14:40-16:00 208A

RP1-5: Space-Time Coding III

Low-Complexity Near-ML Decoding of Large Non-Orthogonal STBCs Using Reactive Tabu Search
Nagaraja Srinidhi, Saif Mohammed, A. Chockalingam, B. Sundar Rajan

Low-Complexity Near-MAP Decoding of Large Non-Orthogonal STBCs Using PDA
Saif Mohammed, A. Chockalingam, B. Sundar Rajan

Belief Propagation Based Decoding of Large Non-Orthogonal STBCs
Suneel Madhekar, Pritam Som, A. Chockalingam, B. Sundar Rajan

High-Rate, 2-Group ML-Decodable STBCs for 2m Transmit Antennas
Pavan Koteswar, B. Sundar Rajan

Thu 14:40-16:00 208B

RP1-6: Bi-Directional Communications

Coding for the Bidirectional Broadcast Channel with Random States Known at the Encoder
Tobias Oechtering, Mikael Skoglund

Approximate Capacity Region of the Two-Pair Bidirectional Gaussian Relay Network
Aydin Sezgin, Amin Khajehnejad, Amir Avestimehr, Babak Hassibi

Interference Channel Aided by an Infrastructure Relay
Onur Sahin, Osvaldo Simeone, Elza Erkip
Amplify-and-Forward Two-Way Relay Channels: Error Exponents
Hien Ngo, Tony Q. S. Quek, Hyundong Shin

Thu 14:40-16:00

**RP1-7: Spherical Codes**

Spherical Codes on Torus Layers
*Cristiano Torezzan, Sueli Costa, Vinay Vaishampayan*

On Concentric Spherical Codes and Permutation Codes with Multiple Initial Codewords
*Ha Nguyen, Vivek Goyal, Lav Varshney*

The Expected Complexity of Sphere Decoding Algorithm in Spatial Correlated MIMO Channels
*Lan Xing, Wei Ji-bo*

Generalization of Plotkin Bound to Multiple Packing
*Vladimir Blinovsky*

Thu 14:40-16:00

**RP1-8: Algorithms and Circuits**

An Iterative Algorithm for Trust and Reputation Management
*Erman Ayday, Hanseung Lee, Faramarz Fekri*

Entropy of the Induced Transformations Associated with the Interval Algorithm
*Hiroshi Fujisaki*

On the Expressibility of Stochastic Switching Circuits
*Hongchao Zhou, Jehoshua Bruck*

The Robustness of Stochastic Switching Networks
*Po-Ling Loh, Jehoshua Bruck, Hongchao Zhou*

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**Thursday, July 2, 16:20-18:00**

Thu 16:20-18:00

**RP2-1: Interference Cooperation and Secrecy**

Interference Management through Cooperation
*Vinod Prabhakaran, Pramod Viswanath*

Opportunistic Interference Management
*Nilesh Khude, Vinod Prabhakaran, Pramod Viswanath*

Capacity Bounds of Half-Duplex Gaussian Cooperative Interference Channel
*Yong Peng, Dinesh Rajan*

The Gaussian Many-to-One Interference Channel with Confidential Messages
*He Xiang, Aylin Yener*

On the Secrecy Rate of Interference Networks Using Structured Codes
*Shweta Agarwal, Sriram Vishwanath*

Thu 16:20-18:00
RP2-2: Network Resilience

Secure Communication with a Byzantine Relay
He Xiang, Aylin Yener

A Soft Decision Helper Data Algorithm for SRAM PUFs
Roel Maes, Pim Tayls, Ingrid Verbauwhede

Robust Key Agreement Schemes
Terence Chan, Ning Cai, Alex Grant

Caching in Wireless Networks
Urs Niesen, Devavrat Shah, Gregory Wornell

Secure Coding over Networks
Jin Xu, Biao Chen

Thu 16:20-18:00 203A

RP2-3: Source-Channel Coding

Communicating the Sum of Sources in a 3-Sources/3-Terminals Network
Michael Langberg, Aditya Ramamoorthy

Joint Source-Channel Coding at the Application Layer for Parallel Gaussian Sources
Ozgun Bursalioglu, Maria Fresia, Giuseppe Caire, H. Vincent Poor

Optimized Concatenated LDPC Codes for Joint Source-Channel Coding
Maria Fresia, Fernando Perez-Cruz, H. Vincent Poor

Joint Source-Channel Coding via Statistical Mechanics: Thermal Equilibrium between the Source and the Channel
Neri Merhav

A Computation Approach to the Minimum Total Rate Problem of Causal Video Coding
En-hui Yang, Lin Zheng, Zhen Zhang, Da-ke He

Thu 16:20-18:00 203B

RP2-4: LDPC Decoding III

Adaptive Decoding of LDPC Codes with Binary Messages
Ingmar Land, Gottfried Lechner, Lars K. Rasmussen

Multi-Stage Decoding of LDPC Codes
Yige Wang, Jonathan Yedidia, Stark Draper

Two-Bit Message Passing Decoders for LDPC Codes over the Binary Symmetric Channel
Lucile Sassatelli, Shashi Kiran Chilappagari, Bane Vasic, David Declercq

LDPC Decoding and Code Design on Extrinsic Trees
Eric Psota, Lance Perez

Candidate Bit Based Bit-Flipping Decoding Algorithm for Low-Density Parity-Check Codes
Guiqiang Dong, Yanan Li, Ningde Xie, Tong Zhang, Huaping Liu

Thu 16:20-18:00 208A

RP2-5: Channel Variations

Coded Modulation with Mismatched Power Control over Block-Fading Channels
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Saddle-Point Solution of the Fingerprinting Capacity Game under the Marking Assumption
Yen-Wei Huang, Pierre Moulin
Two-Level Fingerprinting Codes
N. Prasanth Anthapadmanabhan, Alexander Barg

Thursday, July 2, 18:30 ~

Conference Banquet (103~105)

Friday, July 3, 08:30-09:30

Plenary 4 (Auditorium/ 301)
Combinatorial Reasoning in Information Theory
Noga Alon, Tel Aviv University

Friday, July 3, 09:50-11:10

FA1-1: Interference and System Performance
Optimal Spectrum Management in Multiuser Interference Channels
Yue Zhao, Gregory Pottie
A Novel Graph-Based Soft Interference Cancellation Algorithm for FDM-CPM Satellite Systems
Amina Piemontese, Giulio Colavolpe
Reducing Repair Traffic for Erasure Coding-Based Storage via Interference Alignment
Yunnan Wu, Alex Dimakis
Resource Management in Interference Channels with Asynchronous Users
Kamyar Moshksar, Amir K. Khandani

FA1-2: Generation and Cost of Secrecy
Secret Key Agreement Using Asymmetry in Channel State Knowledge
Ashish Khisti, Suhas Diggavi, Gregory Wornell
Secure Communication in the Low-SNR Regime: A Characterization of the Energy-Secrecy Tradeoff
Mustafa Cenk Gursoy
Minimum Energy per Bit for Secret Key Acquisition over Multipath Wireless Channels
Tzu-Han Chou, Akbar Sayeed, Stark Draper
On Secrecy Capacity per Unit Cost
Mustafa El-Halabi, Tie Liu, Costas Georgiades

Fri 09:50-11:10

FA1-3: Network Information Theory

Information-Theoretic Bounds for Multiround Function Computation in Collocated Networks
_Nan Ma, Prakash Ishwar, Piyush Gupta_

Identification over Multiple Databases
_Deniz Gunduz, Ertem Tuncel, Andrea Goldsmith, H. Vincent Poor_

A Strong Converse for a Collection of Network Source Coding Problems
_Weihsin Gu, Michelle Effros_

Relaying Simultaneous Multicasts via Structured Codes
_Deniz Gunduz, Osvaldo Simeone, Andrea Goldsmith, H. Vincent Poor, Shlomo Shamai_

Fri 09:50-11:10

FA1-4: Rateless Codes

Analysis of the Second Moment of the LT Decoder
_Ghid Maatouk, Amin Shokrollahi_

Quasi-Systematic Doped LT Codes
_Xiaojun Yuan, Li Ping_

Raptor Packets: A Packet-Centric Approach to Distributed Raptor Code Design
_Dejan Vukobratovic, Cedomir Stefanovic, Milos Stojakovic, Vladimir Stankovic_

Concatenated Fountain Codes
_Zheng Wang, Jie Luo_

Fri 09:50-11:10

FA1-5: Feedback in Wireless Communication II

Upper Bounds on the Capacities of Non-Controllable Finite-State Channels Using Dynamic Programming Methods
_Xiujie Huang, Aleksandar Kavcic, Xiao Ma, Danilo Mandic_

On the Impact of Quantized Channel Feedback in Guaranteeing Secrecy with Artificial Noise
_Ya-Lan Liang, Yung-Shun Wang, Tsung-Hui Chang, Yao-Win Peter Hong, Chong-Yung Chi_

A New Sum-Rate Outer Bound for Gaussian Interference Channels with Generalized Feedback
_Shuang Yang, Daniela Tuninetti_

Channel State Feedback over the MIMO-MAC
_K. Raj Kumar, Giuseppe Caire_

Fri 09:50-11:10

FA1-6: Multiple-Access Channels

Delay Minimization in Multiple Access Channels
_Jing Yang, Sennur Ulukus_

A New Achievable Rate Region for the Discrete Memoryless Multiple-Access Channel with Feedback
_Ramji Venkataramanan, Sandeep Pradhan_
Multiaccess Channels with State Known to One Encoder: Another Case of Degraded Message Sets
Abdellatif Zaidi, Shiva Prasad Kotagiri, J. Nicholas Laneman, Luc Vandendorpe

On Capacity Computation for the Two-User Binary Multiple-Access Channel
Jörg Bühler, Gerhard Wunder

Fri 09:50-11:10

FA1-7: Algebraic Error-Correcting Codes II

Cross Twisted Xate Pairing with Barreto-Naehrig Curve for Multi-Pairing Technique
Yumi Sakemi, Yasuyuki Nogami, Hidehiro Kato, Yoshitaka Morikawa

Elliptic Curves with a Pre-Determined Embedding Degree
Shoujirou Hirasawa, Atsuko Miyaji

Construction of Cubic Self-Dual Codes
Sunghyu Han, Jon-Lark Kim, Heisook Lee, Yoonjin Lee

Self-Dual Codes Using the Building-up Construction
Yoonjin Lee, Jon-Lark Kim

Fri 09:50-11:10

FA1-8: Statistics II

Connectivity Results for Random Key Graphs
Osman Yagan, Armand Makowski

Decentralized Two-Sided Sequential Tests for a Normal Mean
Yan Wang, Yajun Mei

Estimation of the Distribution of Randomly Deployed Wireless Sensors
Babar Khan, Merouane Debbah, Øyvind Ryan, Tareq Al-Naffouri

A Note on BSD Codes Constructed from T-Codes
Ulrich Speidel

Friday, July 3, 11:30-12:50

Fri 11:30-12:50

FA2-1: Interference and Capacity

Bounds and Capacity Results for the Cognitive Z-Interference Channel
Nan Liu, Ivana Maric, Andrea Goldsmith, Shlomo Shamai

A New Achievable Rate Region for the Discrete Memoryless X Channel
Onur Ozan Koyluoglu, Mohammad Shahmohammadi, Hesham El Gamal

Rank-Constrained Separable Semidefinite Programming for Optimal Beamforming Design
Yongwei Huang, Daniel Palomar

Performance Analysis of RVQ-Based Limited Feedback Beamforming Codebooks
Vasanthan Raghavan, Michael Honig, Venugopal Veeravalli

Fri 11:30-12:50
FA2-2: Physical Layer Security

Wireless Physical-Layer Security: The Case of Colluding Eavesdroppers
Pedro Pinto, Joao Barros, Moe Win

Secrecy Generation for Multiple Input Multiple Output Channel Models
Imre Csiszar, Prakash Narayan

Channel Scrambling for Secrecy
Matthieu Bloch

Secure Communication Using an Untrusted Relay via Sources and Channels
Nebojsa Milosavljevic, Michael Gastpar, Kannan Ramchandran

Fri 11:30-12:50 203A

FA2-3: Broadcast Channels

Evaluation of Marton's Inner Bound for the General Broadcast Channel
Amin Gohari, Venkat Anantharam

On the Tightness of Marton's Regions for Semi-Additive Broadcast Channels
Eli Haim, Ram Zamir

Gaussian Broadcast Channels with Receiver Message Side Information
Jae Won Yoo, Tie Liu, Feng Xue

Approximate Characterizations for the Gaussian Broadcasting Distortion Region
Chao Tian, Suhas Diggavi, Shlomo Shamai

Fri 11:30-12:50 203B

FA2-4: Analysis of LDPC Codes III

On the Number of Errors Correctable with Codes on Graphs
Alexander Barg, Arya Mazumdar

Decoding Algorithms for Binary Raptor Codes over Nonbinary Channels
Harm Cronie, Bertrand Ndzana Ndzana, Amin Shokrollahi

LT Codes Decoding: Design and Analysis
Feng Lu, Chuan Heng Foh, Jianfei Cai, Liang-Tien Chia

Finite-Length Analysis of Irregular Expurgated LDPC Codes under Finite Number of Iterations
Ryuhei Mori, Toshiyuki Tanaka, Kenta Kasai, Kohichi Sakaniwa

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FA2-5: Wireless Broadcast

On Gaussian MIMO BC-MAC Duality with Multiple Transmit Covariance Constraints
Lan Zhang, Rui Zhang, Ying-Chang Liang, Yan Xin, H. Vincent Poor

Error Exponents of Optimum Decoding for the Degraded Broadcast Channel Using Moments of Type Class Enumerators
Yonatan Kaspi, Neri Merhav

On Multiple-Input Multiple-Output Gaussian Channels with Arbitrary Inputs Subject to Jamming
Miguel Rodrigues

Time-Division Multiplexing for Green Broadcasting
Pulkit Grover, Anant Sahai

Fri 11:30-12:50  208B

**FA2-6: Cognitive Radio Systems**

Mixed Anti-Jamming Strategies in Fixed-Rate Wireless Systems over Fast Fading Channels
George Amariucai, Shuangqing Wei

Optimal Threshold Adaptation with Radio Environment Map for Cognitive Radio Networks
Dae-Young Seol, Hyoungh-Jin Lim, Gi-Hong Im

Dirty Paper Coding for the MIMO Cognitive Radio Channel with Imperfect CSIT
Chinmay Vaze, Mahesh Varanasi

Optimal Design of Learning Based MIMO Cognitive Radio Systems
Feifei Gao, Rui Zhang, Ying-Chang Liang, Xiaodong Wang

Fri 11:30-12:50  209

**FA2-7: Codes and Applications I**

Distance-Increasing Mappings from Binary Vectors to Constant Composition Vectors
Hsin-Lung Wu, Jen-Chun Chang

An Optimal Result for Codes Identifying Sets of Words
Svante Janson, Tero Laihonen

Novel Bounds on the Capacity of Binary Channels with Deletions and Substitutions
Dario Fertonani, Tolga Duman

A Subsequence-Histogram Method for Generic Vocabulary Recognition over Deletion Channels
Majid Fozunbal

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**FA2-8: Wireless Network Coding**

Design of Network Codes for Multiple-User Multiple-Relay Wireless Networks
Ming Xiao, Mikael Skoglund

On the Energy Benefit of Network Coding for Wireless Multiple Unicast
Jasper Goseling, Ryutaroh Matsumoto, Tomohiko Uyematsu, Jos Weber

Capacity Analysis of Two-User Opportunistic Scheduling for Wireless Network Coding
Poramate Tarasak, Ubolthip Sethakaset, Sumei Sun

Adaptive Network Coded Retransmission Scheme for Wireless Multicast
Sameh Sorour, Shahrokh Valaee

Friday, July 3, 14:40-16:00

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**FP1-1: Gaussian Interference Channels**
New Sum-Rate Upper Bound for the Two-User Gaussian Interference Channel
Raul Etkin

On the Totally Asynchronous Interference Channel with Single-User Receivers
Eduard Calvo, Javier Fonollosa, Josep Vidal

On the Separability of Parallel Gaussian Interference Channels
Sang Won Choi, Sae-Young Chung

Noisy-Interference Sum-Rate Capacity of Parallel Gaussian Interference Channels
Xiaohu Shang, Biao Chen, Gerhard Kramer, H. Vincent Poor

Fri 14:40-16:00

FP1-2: Wireless Security

An MMSE Approach to the Secrecy Capacity of the MIMO Gaussian Wiretap Channel
Ronit Bustin, Shlomo Shamai, H. Vincent Poor, Ruoheng Liu

Information Secrecy from Multiple Eavesdroppers in Orthogonal Relay Channels
Vaneet Aggarwal, Lalitha Sankar, Robert Calderbank, H. Vincent Poor

Secrecy Capacity Region of the Gaussian Multi-Receiver Wiretap Channel
Ersen Ekrem, Sennur Ulukus

On the Delay Limited Secrecy Capacity of Fading Channels
Karim Khalil, Moustafa Youssef, Onur Ozan Kaycuoglu, Hesham El Gamal

Fri 14:40-16:00

FP1-3: Multiuser Information Theory

On the Sum Capacity of a Class of Cyclically Symmetric Deterministic Interference Channels
Bernd Bandemer, Gonzalo Vazquez-Vilar, Abbas El Gamal

Multicasting in Large Random Wireless Networks: Bounds on the Minimum Energy per Bit
Aman Jain, Sanjeev Kulkarni, Sergio Verdu

Average Entropy Functions
Qi Chen, Chen He, Lingge Jiang, Qing-Chuan Wang

The Capacity Region of a Class of Deterministic Z Channels
Viveck Cadambe, Syed Jafar, Sriram Vishwanath

Fri 14:40-16:00

FP1-4: Analysis of LDPC Codes IV

Capacity Achieving Codes from Randomness Conductors
Mahdi Cheraghchi

Waterfall Region Performance of Punctured LDPC Codes over the Binary Erasure Channel
Iryna Andriyanova, Ruediger Urbanke

Analytical Solution of Covariance Evolution for Regular LDPC Codes
Takayuki Nozaki, Kenta Kasai, Kohichi Sakaniwa

Decay of Correlations in Low Density Parity Check Codes: Low Noise Regime
FP1-5: Optimization of Wireless Systems

Achievable Throughput of Multi-Mode Multiuser MIMO with Imperfect CSI Constraints
Jun Zhang, Marios Kountouris, Jeffrey Andrews, Robert Heath

MIMO Broadcast Channel Optimization under General Linear Constraints
Hoon Huh, Haralabos Papadopoulos, Giuseppe Caire

Maximizing Sum Rate and Minimizing MSE on Multiuser Downlink: Optimality, Fast Algorithms and Equivalence via Max-Min SIR
Chee Wei Tan, Mung Chiang, R. Srikant

Achievable Rate and Optimal Physical Layer Rate Allocation in Interference-Free Wireless Networks
Tao Cui, Tracey Ho, Joerg Kliewer

FP1-6: Network Detection

Iterative Spectrum Shaping with Opportunistic Multiuser Detection
Rui Zhang, John Cioffi

Optimized Rate Allocation for State Estimation over Noisy Channels
Lei Bao, Mikael Skoglund, Carlo Fischione, Karl-Henrik Johansson

Iterative Channel and Data Estimation: Framework and Analysis via Replica Method
Mikko Vehkaperä, Keigo Takeuchi, Ralf Mueller, Toshiyuki Tanaka

Optimal Code Length for Bursty Sources with Deadlines
Raghava Swamy, Tara Javidi

FP1-7: Combinatorial Codes

On Linear Balancing Sets
Arya Mazumdar, Ron Roth, Pascal Vontobel

Optimal, Systematic q-ary Codes Correcting All Asymmetric Errors of Limited Magnitude
Bella Bose, Noha Elarief

On Systematic Variable Length Unordered Codes
Laura Pezza, Luca Tallini, Bella Bose

Decoding Frequency Permutation Arrays under Infinite Norm
Min-Zheng Shieh, Shi-Chun Tsai

FP1-8: Security

Differential Privacy with Compression
Shuheng Zhou, Katrina Ligett, Larry Wasserman

Binary Causal-Adversary Channels
Michael Langberg, Sidharth Jaggi, Bikash Dey
Information Embedding with Reversible Stegotext
Orna Sumszyk, Yossef Steinberg
Using Kolmogorov Complexity for Understanding Some Limitations on Steganography
Boris Ryabko, Daniil Ryabko

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