

## **ADVANCE PROGRAM**

# **2001 INTERNATIONAL SYMPOSIUM ON INFORMATION THEORY**

Omni Shoreham Hotel  
Washington, D.C.  
June 24 – June 29, 2001

### **General Co-Chairs**

Thomas Fuja and Prakash Narayan

### **Technical Program Co-Chairs**

Neri Merhav and Shlomo Shamai

### **Finance**

Roger Hammons

### **Publications**

Sanjeev Khudanpur (Chair)

Arnab Das

William Byrne

### **Publicity**

Geoffrey C. Orsak

### **Registration**

Mustafa Eroz

### **Local Arrangements**

Adrian Papamarcou (Chair)

Jerome Gansman

Damianos Karakos

Haralabos Papadopoulos

## **Technical Program Committee**

Neri Merhav (Co-Chair)

Shlomo Shamai (Co-Chair)

Yair Be'ery

Ian Blake

Giuseppe Caire

Philip Chou

Daniel Costello

Imre Csiszár

Amir Dembo

Dariusz Divsalar

Yariv Ephraim

Elza Erkip

Tuvi Etzion

Meir Feder

Lorenzo Finesso

David Forney

Bruce Hajek

Steven Hanly

Alexander Holevo

Amos Lapidoth

Simon Litsyn

Armand Makowski

Ueli Maurer

Vincent Poor

Bixio Rimoldi

Ron Roth

Serap Savari

Paul Siegel

Emina Soljanin

Yossef Steinberg

Emre Telatar

David Tse

Rudy Urbanke

Santosh Venkatesh

Sergio Verdú

Bin Yu

Ram Zamir

Zhen Zhang

Jacob Ziv

## **Recent Results**

Fady Alajaji and Tamas Linder

## **GENERAL INFORMATION**

### **Place and Date**

The 2001 International Symposium on Information Theory (ISIT2001) will be held at the Omni Shoreham Hotel, Washington, D.C., from June 24 through June 29, 2001.

### **Shannon Lecture**

#### **Thursday, June 28, 8:30 AM**

Jack K. Wolf, 2001 C. E. Shannon Award Winner, *A Comedy of Errors*

### **Invited Plenary Speakers**

#### **Monday, June 25, 8:30 AM**

Robert J. McEliece, *The Effectiveness of Turbo-like Codes on Non-standard Channel Models*

#### **Tuesday, June 26, 8:30 AM**

Michael O. Rabin, *Information Theoretic Everlasting Encryption*

#### **Wednesday, June 27, 8:30 AM**

Benjamin Weiss, *The Happy Marriage of Information and Ergodic Theory*

#### **Friday, June 29, 8:30 AM**

Frederick Jelinek, *Aspects of the Statistical Approach to Speech Recognition*

## **Technical Program**

The technical program will, as usual, cover interesting and important recent advances across all subfields of Information Theory. For ISIT2001, all technical talks will be limited to 20 minutes. On Tuesday evening, there will be an opportunity to present recent results. See the Symposium web-site for details.

## **Personal Invitation**

If you require a personal invitation to attend the Symposium, please contact Prof. Prakash Narayan (e-mail: prakash@glue.umd.edu).

## **Travel Grants**

A limited number of travel grants for young researchers will be available. Application instructions can be found at the Symposium web-site.

## **Language**

The official Symposium language is English. All presentations will be in English, and no translation service will be available.

## **Symposium Web-site**

[www.seas.smu.edu/ISIT2001](http://www.seas.smu.edu/ISIT2001)

## **Travel**

The Symposium site (Omni Shoreham Hotel) is located in the Woodley Park neighborhood, in the Connecticut Avenue corridor of Washington, DC. The hotel is approximately 2.5 miles (4 km) north of the White House and 0.5 mile (0.8 km) south of the main entrance of the National Zoo.

**By Air:** The hotel is accessible from all three airports serving the Washington metropolitan area:

*Ronald Reagan National Airport (DCA)* – This is the closest airport to both downtown Washington and the Symposium hotel. Arriving passengers can take Metrorail (Metro) from the airport (next to the passenger terminals) to the Woodley Park-National Zoo station, which is within an easy walk of the Omni Shoreham. The one-way fare is \$1.10-\$1.75 and the trip duration is 26 minutes with a train change at Gallery Place. Alternatively, the one-way taxi fare to Woodley Park is \$15-\$20. The airport web-site is [www.metwashairports.com](http://www.metwashairports.com).

*Washington Dulles International Airport (IAD)* – Washington's international gateway airport. The Washington Flyer Bus offers frequent service (every half hour on weekdays and every hour during the weekend) to downtown Washington, and to hotels including the Omni Shoreham. The trip duration is approximately one hour and the one-

way fare is approximately \$16. Other transportation options include limousine service (e.g. SuperShuttle, requiring advance reservation) which costs approximately \$25 one-way, and taxi, which costs approximately \$50-\$60 one-way (trip duration approximately 40 minutes). For details on ground transportation, consult the airport web-site: [www.metwashairports.com](http://www.metwashairports.com).

*Baltimore/Washington International Airport (BWI)* – This airport also offers international routes. Transfers to the hotel are by SuperShuttle (see the BWI airport web-site for advance reservations), limousine, or rail (commuter or AMTRAK train to Union Station in Washington, then Metro to Woodley Park). For further information, please consult the BWI airport web-site: [www.bwiairport.com](http://www.bwiairport.com).

**By Rail:** Union Station is the main rail station in Washington. Woodley Park is a 15 minute Metro ride from Union Station on the Red Line.

**By Automobile:** Directions will be posted at the Symposium web-site.

## **Getting Around in Washington**

The Omni Shoreham Hotel is a few minutes away from the Woodley Park-National Zoo Metro station (Red Line). The Washington DC Metro system provides fast, clean and safe transportation to most points of

interest in the city, and there are frequent bus connections to neighborhoods such as Georgetown and Adams Morgan. For detailed information on public transportation in Washington, please consult the transit authority web-site: [www.wmata.com](http://www.wmata.com). Taxi fares are also quite reasonable. Driving in the city is not recommended since there is no free parking for visitors and rush hour traffic can be very slow.

The Connecticut Avenue corridor and the National Mall (museums, monuments, the White House, the Capitol) areas are generally safe for visitors, as are the night entertainment districts of Georgetown and Dupont Circle. The Woodley Park area, where the hotel is located, offers a nice selection of restaurants, as does the popular adjoining neighborhood of Adams Morgan. Visitors walking to and around Adams Morgan are advised to keep to the main thoroughfares and be reasonably cautious. If you are planning to visit other parts of Washington and have concerns about safety, please inquire at the registration desk or hotel concierge.

## **Things to Do in and Around Washington**

There is an abundance of sights and activities in the Washington area. Museums, architectural/historical landmarks and the headquarters of national (U.S.) organizations are among

the most popular attractions, for the majority of which admission is free. A local guide for ISIT participants will be available shortly on the Symposium web-site. For additional information, please refer to one of the following web-sites:

- [www.washington.org](http://www.washington.org)
- [www.digitalcity.com/washington/visitorsguide](http://www.digitalcity.com/washington/visitorsguide)
- [www.yahoo.com/Regional/U\\_S\\_States/Washington\\_D\\_C\\_](http://www.yahoo.com/Regional/U_S_States/Washington_D_C_)

Within an hour's radius of Washington are the historical towns of Alexandria and Annapolis, George Washington's mansion in Mount Vernon, and the city of Baltimore with its popular harbor and aquarium.

## **Weather and Clothing**

June weather in Washington is typically hot, with daytime temperatures averaging 85F (30C) and nighttime temperatures averaging 68F (20C). Atmospheric conditions are generally humid, and showers and/or thunderstorms are quite common. Comfortably warm and sunny days are always a possibility, as are cooler, rainy ones. Interior spaces (including vehicles) are generally air-conditioned.

Casual summer attire should be adequate for most daytime activities and evening occasions. A raincoat and an umbrella may also be needed.

## **Hotel Accommodation**

The main Symposium hotel is the Omni Shoreham. A limited number of rooms have been blocked for Symposium participants. Participants are urged to reserve their room by filling out the Hotel Reservation Form, available at the Symposium web-site.

## **Alternative Accommodations**

Participants interested in staying at hotels other than the Omni Shoreham can find detailed listings and recommendations on the Web (the URL's listed under "Things to do in and around Washington" above are good gateways). For safety and convenience, participants are strongly advised to consider hotels that are located either close to Woodley Park (i.e., a short walk or bus ride away), or else very close to a Metro Red Line stop. If you are unfamiliar with Washington, please inquire with your travel agent or else consult the Ride Guide on [www.wmata.com](http://www.wmata.com) to see whether a hotel satisfies the above criteria.

The following hotels offer significantly lower rates than the Omni Shoreham and are located close to Red Line stations:

*Connecticut Avenue Days Inn.* 4400 Connecticut Avenue N.W., Washington, DC. Red Line station: Van Ness-UDC (4 minutes to Woodley Park)

*Ramada Inn Rockville.* 1775 Rockville Pike, Rockville, MD. Red Line Station: Twinbrook (20 minutes to Woodley Park)

*Days Inn Silver Spring.* 8040 13th Street, Silver Spring, MD. Red Line Station: Silver Spring (25 minutes to Woodley Park)

*Ramada Limited Silver Spring.* 7990 Georgia Ave., Silver Spring, MD. Red Line Station: Same as Days Inn above

For rates and reservations at these hotels, please consult the respective web-sites: [www.daysinn.com](http://www.daysinn.com) and [www.ramada.com](http://www.ramada.com)

For the availability of dormitory-style accommodations within reasonable commuting distance from the Symposium hotel, please check the Symposium web-site.

## **Registration**

Registration information and forms are available at the Symposium web-site. The deadline for advance registration is May 1, 2001.

The registration desk, located in the Symposium hotel, will be open for on-site registration in the afternoon on Sunday, June 24, and from 9AM to 6PM for the rest of the week.

## **Registration Fee**

The regular registration fee includes admittance to all sessions, Symposium proceedings, ticket to the opening reception, ticket to the awards luncheon, ticket to the banquet, and ticket to the final reception. Online registration is available. Please check the Symposium web-site for additional details.

## **Payment**

Payment should be remitted in US Dollars. Bank, currency and transfer charges should be paid for by the registrant. The option to pay by credit card (Visa, Master Card, American Express and Diners Club only) is also available.

## **Cancellations**

Please check the Symposium web-site for the cancellation policy.

## **Social Program**

### **Sunday, June 24, 6PM to 8PM**

Opening reception (Omni Shoreham)

### **Tuesday, June 26, 1PM to 2:15PM**

Awards luncheon (Omni Shoreham)

### **Wednesday, June 27, 1PM**

Bus transportation to the Mall for sightseeing (Departing from the Omni Shoreham)

**Thursday, June 28, 6:45PM to 10PM**  
Banquet (Omni Shoreham)

**Friday, June 29, 1PM to 2:30PM**  
Final reception (Omni Shoreham)

### **Companions' Program**

**Tuesday, June 26**  
Day trip (details will be posted at the  
Symposium web-site).

**Thursday, June 28**  
Day trip (details will be posted at the  
Symposium web-site).

## **TECHNICAL PROGRAM**

**Monday, 9:40 - 11:00**

### **Low Density Parity Check Codes I**

On the Complexity of Reliable Communication on the Binary Erasure Channel (532)

*Aamod Khandekar and Robert McEliece*

On a Class of Finite Geometry Low Density Parity Check Codes (002)

*Shu Lin, Heng Tang and Yu Kou*

Bounds on the Performance of Belief Propagation Decoding (063)

*David Burshtein and Gadi Miller*

Constructions of Regular and Irregular LDPC Codes using Ramanujan Graphs and Ideas from Margulis (432)

*Joachim Rosenthal and Pascal O. Vontobel*

### **Watermarking & Information Hiding Systems**

The Capacity of the Vector Gaussian Watermarking Game (296)

*Aaron Cohen and Amos Lapidoth*

On Authentication With Distortion Constraints (297)

*Emin Martinian, Brian Chen, and Gregory Wornell*

On the Watermarking Game of the Random Coding Error Exponent with Large Deviations Distortion Constraints (374)

*Anelia Somekh-Baruch and Neri Merhav*

## **Multuser Detection I**

Decision Directed Algorithms for Multuser Detection (007)

*George Moustakides*

The Application of Semidefinite Programming for the Detection in CDMA (160)

*Peng Hui Tan, Lars K. Rasmussen and Tor. M. Aulin*

Performance of Subspace-based Multuser Detection (215)

*A. Host-Madsen and Xiaodong Wang*

Fast Optimal and Suboptimal Any-time Algorithms for CWMA Multuser Detection based on Branch and Bound (225)

*Jie Luo, Krishna Pattipati, Peter Willett and Georgiy Levchuk*

## **Structure of Codes I**

On the Svanstrom Bound for Ternary Constant Weight Codes (017)

*Fang-Wei Fu, Torleiv Klove, Yuan Luo, Victor K. Wei*

On Computation of the Automorphism Group of a Linear Code (389)

*Nicolas Sendrier and Gintaras Skersys*

The Multicovering Radii of the Even Weight Codes (183)

*Andrew Mertz*

A Family of Self-dual codes which behave in many respects like random linear codes of rate  $\frac{1}{2}$ (186)

*G. Olocco and J.P. Tillich*

## **Hypothesis Testing & Classification I**

A competitive Neyman-Pearson approach to universal hypothesis testing with applications (044)

*Levitan Evgeny and Neri Merhav*

Asymptotic Efficiency of Two-Stage Group Testing (161)

*Toby Berger and Vladimir Levenshtein*

Minimum Complexity Sequential Multihypothesis Detection: Theory and Reduced-Complexity Decoding (218)

*Cenk Kose, Shuangqing Wei and Dennis L. Goeckel*

Matrix CUSUM: A Recursive Multihypothesis Change Detection Algorithm (386)

*Taragay Oskiper and H. Vincent Poor*

## **Information Measures I**

Vajda's Tight Lower Bound and Refinements of Pinsker's Inequality (240)

*Alexei Fedotov, Peter Harremoës and  
Flemming Topsøe*

Divergence Minimization under Prior  
Inequality Constraints (245)

*I. Csiszar, M. Ispany, Gy. Michaletzky,  
T. Rudas and G. Tusnady*

Information about Information (268)

*Serap Savari and Peter Winkler*

On asymptotic equivalence of  
information-theoretic divergences (557)

*Igor Vajda*

**Monday, 11:20 - 12:40**

**Iterative Decoding I**

Turbo decoding of reed solomon codes  
through binary decomposition and self  
concatemation (127)

*Cathy Y. Liu and Shu Lin*

Iterative Decoding of Codes Over  
Complex Numbers (154)

*Juergen Haering and Han Vinck*

Convergence and Errors in Turbo-  
Decoding (228)

*Andrew Reid, Aaron Gulliver and  
Desmond Taylor*

An Additive Version of the SISO  
Algorithm for the Dual Code (522)

*Guido Montorsi and Sergio Benedetto*

## **Rate-Distortion Theory I**

Causal Coding of Stationary Sources with High Resolution (118)

*Tamas Linder and Ram Zamir*

On the Structure of Entropy-Constrained Scalar Quantizers (281)

*Tamas Linder and Andras Gyorgy*

Optimal Permutation Codes for Uniform Sources (314)

*Vivek K Goyal, Serap A. Savari and Wei Wang*

Additive Successive Refinement (291)

*Ertem Tuncel and Kenneth Rose*

## **Iterative Multiuser Detection**

Turbo Multiuser Detection with Unknown Interferers (408)

*Daryl Reynolds and Xiaodong Wang*

A Novel Iterative Multiuser Detector for Complex Modulation Schemes (011)

*Alexander Lampe, Robert Schober and Wolfgang Gerstacker*

Improved Iterative Parallel Interference Cancellation (343)

*Slavica Marinkovic, Branka Vucetic and Jamie Evans*

On the Convergence of Linear Parallel Interference Cancellation (348)

*Mehul Motani and D. R. Brown*

## **Structure of Codes II**

DFT Domain Characterization of Quasicyclic Codes (054)

*Bikash Kumar Dey and B.Sundar Rajan*

Quasicyclic Dyadic Codes in Walsh-Hadamard Transform Domain (074)

*B. Sundar Rajan and Moon Ho Lee*

Bounds on the Covering Radius of Linear Codes in Terms of Distance and Dual Distance (262)

*A. Barg, A.Ashikhmin and M. Bandstra*

On Non-Minimal codewords in the binary Reed-Muller Code (351)

*Yuri Borissov, Nickolay Manev and Svetla Nikova*

## **Hypothesis Testing & Classification II**

Performance Limits of Hypothesis Testing from Vector-Quantized Data (424)

*Riten Gupta and Alfred O. Hero*

Low Complexity (Turbo) Classifiers in high Dimensional Feature Spaces (433)

*Elizabeth Tapia and Jose Carlos Gonzalez Cristobal*

A Statistical Approach to Set-Membership Identification (466)

*Shirish Nagaraj and Yih-Fang Huang*

## **Information Measures II**

Information Diagrams: Entropy, Index of Coincidence and Probability of Error (103)

*Flemming Topsoe and Peter Harremoës*

On orthogonal factorization of positive functions (145)

*Ho-leung Chan and Raymond W. Yeung*

Estimating the Entropy of Discrete Distributions (319)

*Andra's Antos and Ioannis Kontoyiannis*

Poisson's Law and Information Theory (381)

*Peter Harremoës*

## **Monday, 2:30 - 3:50**

### **Low Density Parity Check Codes II**

Linear time decodable, capacity achieving binary codes with exponentially falling error probability (260)

*A. Barg and G. Zemor*

Capacity-Achieving Sequences for the Erasure Channel (066)

*Peter Oswald and Amin Shokrollahi*

Distance Distributions in Ensembles of Low-Density Parity-Check Codes (258)

*S. Litsyn and V. Shevelev*

Weight Distributions: How Deviant Can You Be? (359)

*Changyan Di, Rudiger Urbanke and Tom Richardson*

## **MIMO Shannon Theory I**

The Number of Degrees of Freedom in Non-Coherent Block Fading Multi-Antenna Channel (032)

*Lizhong Zheng and David N.C. Tse*

Convex-Programming Bounds on the Capacity of Flat-Fading Channels (152)

*Amos Lapidoth and Stefan M. Moser*

On the Capacity of Multi-antenna Gaussian Channels (210)

*Nicolae Chiurtu, Bixio Rimoldi and Emre Telatar*

Vector MAC Capacity Region with Covariance Feedback (470)

*Syed Ali Jafar and Andrea Goldsmith*

## **Fading Channels**

Throughput Performance of an incremental redundancy ARQ scheme in the block-fading Gaussian Collision channel (513)

*Guiseppe Caire and Carl Fredrik Leanderson*

Sum of Gamma Variates and Performance of Wireless Communication Systems over Nakagami Fading Channels (190)

*Mohamed-Slim Alouini, Ali Abdi and Mostafa Kaveh*

Min-Capacity of a Multiple-Antenna Wireless Channel in a Static Rician Fading Environment (377)

*Mahesh Godavarti, Alfred O. Hero and Thomas L. Marzetta*

Communication over Fading Channels with Finite Buffer constraints – Single User and Multiple Access Cases (449)

*Randall A. Berry*

## **Weights in Codes I**

A lower bound for the weight hierarchy of product codes (089)

*Hans Georg Schaathun and Wolfgang Willems*

Weight Location Vectors of Linear Block Codes (253)

*Kyeongcheol Yang and Jaeyoel Kim*

Matrix Characterisation of Generalized Hamming Weights (345)

*G. Viswanath and B.Sundar Rajan*

On the generalized Hamming weight enumerators and coset weight distributions of even isodual codes (430)

*Olgica Milenkovic*

## **Constrained Systems I**

Enumerations and Asymptotics of Some Uniform Nonlinear Binary Arrays (206)

*Tsutomu Kawabata*

The Capacity of Some Hexagonal (d,k) Constraints (288)

*Zsolt Kukorelly and Kenneth Zeger*

Periodic Finite-Type Shift Spaces (452)

*Bruce E. Moision and Paul H. Siegel*

A coding theorem of runlength limited channels (455)

*Peter Vamos*

## **Sequences I**

Several classes of optimal binary cyclic self-complementary codes (310)

*Cunsheng Ding and Chaoping Xing*

Upper Bound on the Periodic Autocorrelation of Unified Complex Hadamard Transforms Sequences (326)

*Lin Zinan, Rahardja Susanto, and Ser Wee*

Spectral Analysis of High Order Correlation Immune Functions (439)

*Yuriy Tarannikov and Denis Kirienko*

## **Monday, 4:10 - 5:30**

### **Iterative Decoding for Channels with Memory**

Threshold for Regular LDPC Codes over PR Channels (212)

*Steven W McLaughlin and Andrew Thangaraj*

Convergence analysis for Turbo-equalization (411)

*Aline Roumy, Alex J. Grant, Inbar Fijalkow, Paul D. Alexander and Didier Pirez*

Decoding of Low-Density Parity Check Codes over Finite-State Binary Markov Channels (318)

*Javier Garcia-Frias*

Thresholds for Iterative Equalization of Partial Response Channels Using Density Evolution (382)

*J. Li, K.R. Narayanan and C.N.Georghiades and E. Kurtas*

Evolution of Prior Information in SISO Equalization (453)

*Jill Nelson, Ralf Koetter and Andrew Singer*

## **MIMO Shannon Theory II**

On Optimality of Beamforming for Multiple Antenna Systems with Imperfect Feedback (450)

*Syed Ali Jafar and Andrea Goldsmith*

Iterative Waterfilling for Vector Multiple Access Channels (164)

*Wei Yu, Wonjong Rhee, John Cioffi and Stephen Boyd*

Capacity of a Mobile Multiple-Antenna Wireless Link with Isotropically Random Rician Fading (376)

*Mahesh Godavarti, Thomas Marzetta and Shlomo Shamai*

Cutoff rate analysis of MIMO wireless systems Area of the paper: Communication Systems (497)  
*Sriram Mudulodu, Harish Viswanathan and Arogyaswami Paulraj*

## **Performance of Space-Time Codes**

Performance Limits of Fading ISI channel and Space-Time Coding Design Criteria (301)  
*Youjian Liu, Michael P. Fitz and Oscar Y. Takeshita*

A Class of 2 by 2 Unitary Signal Constellations for Differential Space-Time Modulation (298)  
*Xue-Bin Liang and Xiang-Gen Xia*

Performance Bounds for Space-Time Trellis Codes (336)  
*Andrej Stefanov and Tolga M. Duman*

Code Analysis and Design for Quasi-Static Fading Channels (435)  
*Scott L. Miller and Hicham Bouzekri*

## **Decoding Techniques**

Step-by-step decoding of compound-error-correcting codes (073)  
*Shojiro Sakata*

Upper Bounds on the List-Decoding Radius of Reed-Solomon Codes (098)  
*Gitit Ruckenstein and Ron M. Roth*

Decoding Binary R(2,5) by Hand and by Machine (105)

*Vera Pless, Jon-Lark Kim and Philippe Gaborit*

A Maximum Likelihood Polynomial Time Syndrome Decoder to Correct Linearly Independent Errors (306)

*Gavin Horn and Richard M. Karp*

Maximum-Likelihood Detection of Block Coded CDMA using the A\* Algorithm (354)

*Peter S.A Németh, Lars K. Rasmussen and Tor M. Aulin*

## **Estimation**

On possibility of error-free filtering under nonstationary distortions (069)

*M. S. Pinsker and V.V. Prelov*

The Effect of Redundancy on Measurement (078)

*Oliver Collins and Vasudev Nambakam*

Estimation of Multipath Time-Varying Channel Parameters Using Chirp Signals (349)

*Sergio Barbarossa Ananthram Swami*

Second-order Blind MIMO Channel Identification Based on Correlative Coding: Asymptotic Performance Analysis (362)

*Joao Xavier and Victor Barroso*

Nonlinear function learning using optimal radial basis function networks (507)

*Adam Krzyzak*

## **Sequences II**

Fibonacci and Galois Mode Feedback with Carry Shift Registers (123)

*Andrew Klapper and Mark Goresky*

QPSK sequences over F4 (185)

*John J. Komo and Laurie L. Joiner*

p-ary d-Form Sequences with Ideal Autocorrelation Property (193)

*Jong-Seon No*

Binary Arrays with Zero Correlation Zone (366)

*X.H. Tang, P.Z. Fan, D.B. Li and N. Suehiro*

## **Tuesday, 9:40 - 11:00**

### **Analysis of Turbo Codes**

On The Decoding Structure of Multiple Turbo Codes (390)

*Junsheng Han and Oscar Y. Takeshita*

Convergence-based Analysis and Design of Turbo Codes (445)

*H. El Gamal and A. R. Hammons*

Improving turbo-like codes using iterative decoder analysis (524)

*Dariussh Divsalar, Samuel Dolinar and Fabrizio Pollara*

Performance-Complexity Tradeoffs for Turbo and Turbo-like Codes (535)

*Sam Dolinar, Dariussh Divsalar, Aaron Kiely and Fabrizio Pollara*

## **Multiterminal Information Theory I**

Network information flow: multiple sources (147)

*Lihua Song and Raymond W. Yeung*

Genie-aided Outer Bounds on the Capacity of Interference Channels (170)

*Gerhard Kramer*

An algebraic approach to network coding and robust networks (223)

*Ralf Koetter and Muriel Medard*

## **Space-Time Codes I**

Random Space-Time Codes with Iterative Decoders for BLAST Architectures (001)

*Mathini Sellathurai and Simon Haykin*

Combined Turbo Coding and Unitary Space Time Modulation (133)

*Israfil Bahceci and Tolga M. Duman*

Computing the performance of unitary space-time group constellations from their character table (083)

*Amin Shokrollahi*

A note on double antenna diagonal space-time codes (084)

*Amin Shokrollahi*

## **Weights in Codes II**

Weight hierarchies of extremal non-chain ternary codes of dimension 4 (015)

*Wende Chen and Torleiv Klove*

On Gilbert-Varshamov type bounds for  $\mathbb{Z}_{2k}$ -linear codes (077)

*Christian Thommesen and Bo Hove*

Estimates of the distance distribution of codes and designs (276)

*Alexander Barg, Alexei Ashikhmin and S. Litsyn*

## **Protocols and Scheduling**

On the optimal throughput of some wireless systems (119)

*Daniela Tuninetti and Giuseppe Caire*

Performance Analysis of Frequency-Hop Packet Radio Networks with Adaptive Retransmission Backoff (234)

*Yu-Sun Liu*

The Effects of Multiple Routing on the End-to-End Average Distortion (364)

*Kamran Sayrafian-Pour, Mehdi Alasti, Anthony Ephremides and Nariman Farvardin*

Practical Interactive Communication  
Protocols (531)

*Krishnamurthy Viswanathan and Alon  
Orlitsky*

## **Cryptography I**

Universal Homophonic Coding (087)

*Andrei Fionov*

Cover-Free Families and Superimposed  
Codes: Constructions, Bounds and  
Applications to Cryptography and  
Group Testing (275)

*Arkadii D'yachkov, Vladimir Lebedev,  
Pavel Vilenkin and Sergei Yekhanin*

On some efficient constructions of  
frameproof codes (040)

*Gerard Cohen and Sylvia Encheva*

On Employment of Different Weight  
Parity-Checks for the Fast Correlation  
Attack (494)

*Miodrag Mihaljevic and Hideki Imai*

## **Tuesday, 11:20 - 12:40**

### **Product Codes**

A Lower Bound on the Greedy Weights  
of Product Codes and Projective  
Multisets (124)

*Hans Georg Schaathun*

Iterative Decoding of Product Block  
codes based on the Least Mean Square  
Error Criterion (256)

*Ofer Amrani, Yair Be'ery and Lior Khhermosh*

A Class of Linear-Complexity, Soft-Decodable, High-Rate, "Good" Codes: Construction, Properties and Performance (383)

*J. Li, K.R. Narayanan and C.N.Georghiadis*

Multi-dimensional parity check codes for bursty channels (417)

*Tan F. Wong and John M. Shea*

## **Shannon Theory-Capacity**

On the Poor-Verdu Conjecture for the Reliability Function of Channels with Memory (021)

*F. Alajaji, Z. Rached and P.-N. Chen*

Lattice decoding can achieve  $1/2 \log(1 + \text{SNR})$  on the AWGN Channel (117)

*Uri Erez and Ram Zamir*

Channel Coding with Feedback (339)

*Sekhar Tatikonda and Sanjoy Mitter*

Capacity of the Binomial Channel, or Minimax Redundancy for Memoryless Sources (471)

*Christos Komninakis, Richard D. Wesel and Lieven Vandenberghe*

## **Optimal CDMA System**

Colored Additive Noise and Capacity of CDMA (358)

*Pramod Viswanath and Venkat Anantharam*

Optimal Joint Signal Design and Power Control for CDMA with Decision-Feedback Receivers Subject to Asymmetric Quality-of-Service Constraints (266)  
*Tommy Guess*

Constrained Slowest Ascent Detectors for Multiuser CDMA Systems (473)  
*Predrag Spasojevic and Aylin Yener*

## **Bounds on Code Performance I**

A simple upper bound on the decoding bit error probability for very noisy channels (166)  
*Marc Handlery, Per Ståhl, Rolf Johannesson and James L. Massey*

Exact Analysis of Bit Error Probability for 4-State Soft Decision Viterbi Decoding (404)  
*Hideki Yoshikawa, Ikuo Oka and Chikato Fujiwara*

On relation between code spectrum and decoding error probability (070)  
*M.V. Burnashev*

On Gallager-type Bounds for the mismatched Decoding Regime with Application to Turbo Codes (443)  
*Igal Sason and Shlomo Shamai*

## **Synchronization**

Detection of Aperiodically Embedded Synchronization Patterns (046)

*Arkady Kopansky and Maja Bystrom*

Polynomial Ambiguity Resistant Precoders (PARP) for Multiple Antenna Systems: Blind Identifiability and Characterization (099)

*Xiang-Gen Xia, Weifeng Su and Hui Liu*

Error Floor Assessment of Digital Phase Detectors with Carrier Phase Tracking: A Large Deviations Approach (528)

*Francisco Alberto Sena da Silva and Jose Manuel Nunes Leitao*

## **Cryptography II**

A new, fast block cipher design: COS ciphers (110)

*Eric Filiol and Djessy Vianne*

Armoring password-based protocol using zero-knowledge with secret coin tossing (252)

*DaeHun Nyang*

Correlation Attacks on Stream Ciphers over  $GF(2^n)$  (342)

*Fredrik Jönsson and Thomas Johansson*

**Tuesday, 2:30 - 3:50**

**Turbo Code Design I**

Turbo Codes with Recursive Nonsystematic Quick-Look-In Constituent Codes (134)  
*Peter C. Massey and Daniel J. Costello, Jr*

Irregular Turbo Codes and Unequal Error Protection (163)  
*Axel Huebner, Juergen Freudenberger, Ralph Jordan and Martin Bossert*

Improved Performance of Error Detection in Turbo Decoding by Incorporating A Short CRC with the Mean-Sign-Change Criterion (412)  
*Fengqin Zhai and Ivan J. Fair*

Improving the Performance of Turbo Codes through Concatenation with Rectangular Parity Check Codes (434)  
*John M. Shea*

Multifold Turbo Codes (506)  
*Cagri Tanriover, Bahram Honary and Shu Lin*

**Multiterminal Information Theory II**

Inner and outer bounds on the identification capacity region of the degraded broadcast channel (251)  
*Igal Bilik and Yossef Steinberg*

On Achievable Rates in a Gaussian Broadcast Channel with Multiple Transmit Antennas (282)

*Giuseppe Caire and Shlomo Shamai*

Bounds on the Achievable Region for Certain Multiple Description Coding Problems (423)

*Raman Venkataramani, Gerhard Kramer, Vivek K Goyal and Jelena Kovacevic*

Pricing Resources for Utility Maximization in the Context of Capacity Region Per Unit Cost (488)

*Nan Feng, Siun-Chuon Mau and Narayan B. Mandayam*

### **Space-Time Codes III**

Full Diversity PSK Space-Time Codes (329)

*Andrew Guidi, Alex Grant and Steven Pietrobon*

Space-Time Block Codes in Multipath CDMA Systems (426)

*Jifeng Geng, Urbashi Mitra and Michael P. Fitz*

Algebraic Space-Time Codes for Block Fading Channels (447)

*Hesham El Gamal and A. Roger Hammons, Jr.*

Performance of Space-Time Coding on Fading Channels (516)

*Jinhong Yuan, Branka Vucetic, Zhuo Chen, and Welly Firmanto*

## **Bounds on Code Performance II**

On the Undetected Error Probability for Binary Codes (016)

*Fang-Wei Fu, Torleiv Klove and Victor K. Wei*

Exponent of the Probability of list - of - L decoding error at low rates (037)

*Vladimir M. Blinovsky*

Improved Bounds on Convolutional Code Performance (289)

*Gun Akkor and Erdal Arıkan*

## **Communication Networks**

Sensor Placement in Distributed Sensor Networks using a Coding Theory Framework (047)

*Krishnendu Chakrabarty and S. S. Iyengar*

Time Division is Better than Frequency Division for Periodic Internet Broadcasting (104)

*Kevin Foltz and Jehoshua Bruck*

Towards an Information Theory of Large Networks: An Achievable Rate Region (178)

*Piyush Gupta and P. R. Kumar*

## **Cryptography III**

Another Attack on A5/1 (368)

*Patrik Ekdahl and Thomas Johansson*

On digital fingerprinting codes (372)  
*Alexander Barg, G. R. Blakley and G. Kabatiansky*

On the Statistics of Imbalance (398)  
*James L. Massey*

## **Tuesday, 4:10 - 5:30**

### **Coded Modulation**

Random Coding Exponent Based Design of Coded Modulation for Multiple-Symbol Differential Detection (008)

*Lutz H.J. Lampe and Robert F.H. Fischer*

On Receiver-Front Ends in Multilevel Codes with Reliability-Based Decoding Algorithm (334)

*Motohiko Isaka and Hideki Imai*

Bandwidth Efficient Modulation Based on Algebraic Low Density Parity Check Codes (397)

*Deepak Sridhara and Thomas E. Fuja*

Rate  $1/(l+1)$  Convolutional Encoders over Rings with Maximal Free Branch Distance (409)

*Wei-Hsin Gu and Chung-Chin Lu*

### **Rate-Distortion Theory II**

On Limited-Delay Lossy Coding of Individual Sequences (049)

*Neri Merhav and Tsachy Weissman*

Sphere-covering and measure concentration as source coding theorems (101)  
*Ioannis Kontoyiannis*

Rate Distortion Bounds via Threshold-based Classification (457)  
*Claudio Weidmann*

On the Successive Refinement of Information for a Ternary Source with Balanced Distortion (492)  
*V.N.Koshelev, E.C. van der Meulen and R.V.Koshelev*

A Variable Rate Source-Coding Theorem for Unstable Scalar Markov Processes (370)  
*Anant Sahai*

## **Multuser Detection II**

Performance Analysis for Coded Multuser CDMA Systems with Optimum Joint Multuser Detection/Decoding (203)  
*Jianqiu Zhang*

A Blind Delay Estimation Algorithm for Long-Code DS/CDMA Systems (283)  
*Stefano Buzzi, Marco Lops and H. Vincent Poor*

On the Distance Distribution of CDMA Multuser Signal Set (308)  
*H.F. Francis Lu and P. Vijay Kumar*

Comparison of Reduced Rank Detection Schemes for CDMA System (427)

## **Algebraic Codes**

Binary Cyclic codes which are  $Z_4$ -cyclic codes (082)

*Jacques Wolfmann*

New Good Hermitian Self-Dual Codes over  $GF(4)$  (106)

*Jon-Lark Kim*

On the dimension of SSRS codes (341)

*Sheetal Kumar Mehta and B. Sundar Rajan*

Decoding of Reed-Solomon Codes for Burst Correction (566)

*Victor Krachkovsky*

## **Vector Quantization**

An Efficient Vector Quantization Algorithm (356)

*Laurence Wolfe*

Predictive Vector Quantizer Design by Deterministic Annealing (385)

*Hosam Khalil and Kenneth Rose*

Optimal Rate Allocation for Shape-Gain Gaussian Quantizers (388)

*Jon Hamkins and Kenneth Zeger*

Quantization of Color Spaces by Fibonacci Lattices (428)

*A. Mojsilovic and E. Soljanin*

On the Potential Optimality of the Weaire-Phelan Partition (484)

*Navin Kashyap and David L. Neuhoff*

## **Signal Processing I**

Second ordersampling with optimal phase shift for band-pass signals (039)

*Honggang Lee and Qiao Wang*

Identifiability of Harmonic Parameterization in N Dimensions (131)

*Nikos Sidiropoulos*

Nonlinear Stochastic Models and New Parameters of Computer Speech Recognition (242)

*Yubo Ge, Xinyan Xie and Lingnan Ge*

Information Theory of Multirate Systems (325)

*O. Jahromi, R. Kwong and B. Francis*

## **Wednesday, 9:40 - 11:00**

### **Iterative Decoding II**

Near Optimum Universal Belief Propagation Based Decoding of LDPC Codes and Extension to Turbo Decoding (086)

*Jinghu Chen and Marc P. C. Fossorier*

Analysis of the Asymptotic Iterative Decoding Performance of Turbo Codes (157)

*Michael Lentmaier, Dmitri Truhachev and Kamil Sh. Zigangirov*

Mathematical Analysis of Iterative Decoding of LDPC Convolutional Codes (167)

*Dmitri Truhachev, Michael Lentmaier and Kamil Sh. Zigangirov*

On the Formation of Extrinsic Information in Turbo Decoding (263)

*Leigh A. Johnston, Vikram Krishnamurthy and Linda M. Davis*

### **Rate-Distortion Theory III**

Improved Bounds for the Rate Loss of Multi-Resolution Source Codes (309)

*Hanying Feng and Michelle Effros*

New Results on the Analysis of Noise-Shaping of Sigma-Delta Modulators (429)

*Ajay K Gupta and Oliver Collins*

On the Refinement of the Binary Symmetric Markov Source (454)

*Luis Lastras and Toby Berger*

Redundancy in Non-Orthogonal Transforms (547)

*Pascal Frossard and Pierre Vandergheynst*

### **Space-Time Codes II**

Maximal Symbolwise Diversity in Non-Orthogonal Space-time block codes (162)

*Olav Tirkkonen*

New measure of coding gain for space-time trellis codes (239)

*Young Seok Jung and Jae Hong Lee*

Coded space-time differential modulations for Rayleigh fading channels (394)

*S. Siwamogsatham and M. P. Fitz*

Fully Diverse Multiple-Antenna Signal Constellations and Fixed-Point-Free Lie groups (438)

*B. Hassibi and M. Khorrami*

## **Special Classes of Codes I**

Self-Complementary Balanced Codes and Quasi-Symmetric Designs (020)

*Fang-Wei Fu and Victor K.-W. Wei*

Ordered orthogonal arrays of strength 4 and 5 from double-error-correcting BCH codes (075)

*T. Helleseth, T. Klove and V. Levenshtein*

Coding for informed decoders (168)

*M. van Dijk, S. Baggen and L. Tolhuizen*

Multicovering Bounds from Supercodes (121)

*Andrew Klapper*

## **Communication Network Performance**

On the Exponential Decay Rate of the Tail of a Queue Length Distribution (115)

*Kenji Nakagawa*

Minimum Cross Entropy Control in  
Stochastic Switching Systems (295)

*Alexandru Murgu*

Short Protocol Sequences for the  
Collision Channel Without Feedback  
(391)

*Valdemar C. da Rocha, Jr.*

## **Signal Processing II**

Reduced-complexity estimation for  
Poisson processes modulated by nearly  
completely decomposable Markov  
chains (332)

*Vikram Krishnamurthy and Subhrakanti  
Dey*

Constrained Cramer-Rao Bounds on  
Source Separation (420)

*Brian M. Sadler and Richard J. Kozick*

Uncertainty Relations Associated with  
Motion Analysis (540)

*Jean-Pierre Leduc*

Hartley Number-Theoretic Transforms  
(299)

*Ricardo M Campello de Souza, Helio M.  
de Oliveira, Luciana B. Espinola Palma  
and Marcia Mahon Campello de Souza*

**Wednesday, 11:20 - 12:40**

**Turbo Code Design II**

Very Low Rate Turbo-Hadamard Codes (337)

*Li Ping, W.K. Leung and K.Y. Wu*

On Interleaver Design for Serial Concatenated Convolutional Codes (396)

*Ralph Jordan, Stefan Höst and Rolf Johannesson*

Diversity Combining Techniques for Bandwidth Efficient Turbo ARQ Systems (461)

*Adrish Banerjee, Daniel J. Costello Jr. and Thomas E. Fuja*

Design of interleavers for CDMA systems (517)

*A. Tarable, G. Montorsi and S. Benedetto*

**Lossless Source Coding I**

On the Minimum Description Length Principle for Switching Sources (192)

*Gil I. Shamir and Daniel J. Costello, Jr*

Output Distributions of the Lossless Encoders with Side Information (068)

*Jun Muramatsu, Takafumi Mukouchi and Hiroki Koga*

A Coding Theorem on the Fixed-Length Homophonic Coding for a General Source (091)

*Hiroki Koga*

Improving Gallager's Upper Bound on Huffman Codes Redundancy (469)

*Jia-Pei Shen and John Gill*

## **Aspects of Space-Time Codes**

Space-frequency codes for broadband fading channels (013)

*Helmut Bolcskei and Arogyaswami Paulraj*

Improving Orthogonal Space-Time Block Codes by Utilizing Quantized Feedback Information (173)

*George Jongren and Mikael Skoglund*

A Deterministic ML Algorithm for Blind Joint Data and Channel Estimation with Multiple Antennas (196)

*Serdar Ozen and Michael D. Zoltowski*

Simple EM Based Channel Estimation and Data Detection Using Estimation in the Preceding Frame in Space-Time Coded Signals (328)

*Ryoko Matsuo, Tomoaki Ohtsuki, and Iwao Sasase*

## **Codes on Graphs**

Construction of Codes Based on Finite Generalized Quadrangles for Iterative Decoding (442)

*Pascal O. Vontobel and R. Michael Tanner*

On Factor Graphs and the Fourier Transform (512)

*Yongyi Mao and Frank R. Kschischang*

A Class of m-Ary Asymmetric Symbol Error Correcting Codes Constructed by Graph Coloring (243)

*Haruhiko Kaneko and Eiji*

Spectral Graphs for Quasi-Cyclic LDPC Codes (338)

*R. Michael Tanner*

### **Timing Channels**

On the Information about Message Arrival Times Required for In-Order Decoding (227)

*Anand S. Bedekar*

Entropy and the Timing Capacity of Queues (460)

*Balaji Prabhakar and Robert Gallager*

Communicating using Phantoms: Covert Channels in the Internet (498)

*Sergio D. Servetto and Martin Vetterli*

### **Information Measures III**

The Entropy is Supermodular on the Majorization Lattice (175)

*Ferdinando Cicalese and Ugo Vaccaro*

A class of non-Shannon-type information inequalities and their applications (146)

*Raymond W. Yeung and Zhen Zhang*

Set Reconciliation with Nearly Optimal  
Communication Complexity (188)

*Yaron Minsky, Ari Trachtenberg and  
Richard Zippel*

**Thursday, 9:40 – 11:00**

### **Applications of Iterative Decoding**

Iterative Reliability Based Decoding of  
Low Density Parity Check Codes (135)

*Marc Fossorier*

Performance bounds on soft-in, soft-out  
stack decoding (213)

*Steven W McLaughlin and Ravi  
Sivasankaran*

Code Doping for Triggering Iterative  
Decoding Convergence (459)

*Stephan ten Brink*

An Iterative Algorithm for Calculating  
Posterior Probability and Model  
Representation (527)

*Toshiyasu Matshushima, Shigeichi  
Hirasawa and Tomoko K. Matsushima*

### **Joint Source-Channel Coding I**

An Optimal MMSE-Estimator for  
Source Codec Parameters Using Intra-  
Frame and Inter-Frame Correlation  
(031)

*Stefan Heinen*

Combined Error Correcting and Compressing Codes (096)

*Thomas Wensich, Peter F. Swaszek and Augustus K. Uht*

Robust vector quantization for channels with Memory (107)

*Wen-Whei Chang and Heng-Iang Hsu*

On the Performance of Multiple Description Codes over Bit Error Channels (500)

*Helge Coward, Raymond Knopp and Sergio D. Servetto*

## **Space-Time Codes IV**

Design of unitary space-time codes from representations of  $SU(2)$  (085)

*Amin Shokrollahi*

Outage error probability for space-time codes over Rayleigh channels (241)

*Alexei Gorokhov*

Efficient Decoding of Space-Time Hadamard Codes using the Hadamard Transform (246)

*Paul Lusina, Martin Bossert and Ernst M. Gabidulin*

Space-Time Codes for Wireless Optical Channels (247)

*Shane M. Haas, Jeffrey H. Shapiro and Vahid Tarokh*

## **Special Classes of Codes II**

Wavelet Convolutional Codes with Bipartite Trellises (219)

*Faramarz Fekri, Steven W. McLaughlin, Russell M. Mersereau and Ronald W. Schafer*

Near-Optimal Codes on the Two-State Markovian Additive Channel (346)

*Mitsuru Hamada*

Some Periodic Time-Varying Convolutional Codes with Free Distance Achieving the Heller Bound (399)

*Q. Hu and L. C. Perez*

DNA Sequences and Quaternary Cyclic Codes (476)

*Vyacheslav V. Rykov, Anthony J. Macula, David C Torney and Paul S White*

## **Optical Channels**

Capacity and decoding rules for the Poisson arbitrarily varying channel (018)

*Shraga Bross and S. Shamai*

A New Modulation Scheme Using Asymmetric Error Correcting Code Embedded in Optical Orthogonal Code for Optical CDMA (402)

*Katsuhiko Kamakura and Iwao Sasase*

Signal Constellation Design for Optical Intensity Modulated Channels (456)

*Steve Hranilovic and Frank R. Kschischang*

## **Quantum Information Theory I**

Error exponents in quantum information theory (048)

*S. Holevo*

The Gallager functions and related quantities for quantum Gaussian channel (137)

*Masaki Sohma and Osamu Hirota*

Quantum Codes From Cyclic Codes over  $GF(4^m)$  (238)

*Steven W McLaughlin and Andrew Thangaraj*

## **Thursday, 11:20 – 12:40**

### **Soft Decision Decoding of Block Codes I**

Reduced GMD Decoding with Threshold Erasing(026)

*Khaled A.S. Abdel-Ghaffar and Jos H. Weber*

Low Complexity Two Stage Decoding of The Nordstrom Robinson Code Based on the Twisted Squaring Construction (028)

*Ian Martin and Bahram Honary*

A Class of Soft Decoding Algorithms (065)

*Vishakan Ponnampalam, Branka Vucetic and Alex Grant*

On the Evaluation of the Testing Conditions for the h-Chase Decoding (545)

*Yuansheng Tang, Toru Fujiwara and Tadao Kasami*

## **Joint Source-Channel Coding II**

Hybrid Digital-Analog Coding for Bandwidth Compression/Expansion Using VQ and Turbo Codes (172)

*Mikael Skoglund, Nam Phamdo and Fady Alajaji*

On Source/Channel Codes Of Finite Block Length (184)

*Michael Gastpar, Bixio Rimoldi and Martin Vetterli*

Channel-Adapted Scaled Vector Quantization (CASVQ) for Low Cost Approximation of COVQ on Time-Varying Channels (413)

*Norbert Goertz*

Distortion Bounds and Optimized Channel Coding Rates for Progressive Quantization (495)

*Thomas Stockhammer and Kenneth Zeger*

## **Decoding and Equalization**

Equalization with Widely Linear Filtering (250)

*Wolfgang H. Gerstacker, Robert Schober  
and Alexander Lampe*

Joint Turbo and Modulated Code  
Encoding/Decoding for ISI Channels  
(100)

*Y-J. Alan Zhang and Xiang-Gen Xia*

Hybrid equalization strategies for  
iterative equalization and decoding  
(143)

*Michael Tuechler, Ralf Koetter and  
Andrew Singer*

On hybrid factor graphs and adaptive  
equalization (543)

*Hans-Andrea Loeliger*

## **Information Storage**

Zero/Positive Capacities of Two-  
Dimensional Runlength Constrained  
Arrays (036)

*Tuvi Etzion and Kenneth G. Paterson*

New DC-free RLL codes (057)

*Kees A. Schouhamer Immink*

Single Byte Error Control Codes with  
Adjacent Double Bit Error Correcting  
Capability for Computer Memory  
Systems (144)

*Ganesan Umanesan and Eiji Fujiwara*

Use of Gray codes to identify track in  
servo (458)

*Bill Kabelac, Mario Blaum and Mantle  
Yu*

## **Constrained Systems II**

Nested Block Decodable Runlength Limited Codes (097)

*G. Ruckenstein, R. M. Roth and J. Hogan*

The Shannon Capacity of Some Well-Known Constrained Channels via a Combinatorial Formula (128)

*Bartolomeu F. Uchoa-Filho and Cecilio Pimentel*

Links Between Complexity Theory and Constrained Block Coding (189)

*L. Stockmeyer and D. S. Modha*

A New Metric for Comparing Performance of High-Order Spectral-Null Codes (410)

*Yan Xin and Ivan J. Fair*

## **Quantum Information Theory II**

Quantum Rate-Distortion Theory for IID Sources (313)

*Toby Berger and Igor Devetak*

Information-disturbance tradeoff in quantum measurement on the uniform ensemble (357)

*Howard N. Barnum*

On the Classical Capacity of a Quantum Multiple-Access Channel (534)

*Gleb V. Klimovitch*

**Thursday, 2:30 – 3:50**

**Trellis Codes**

Permutation Trellis Codes (059)

*A.J. Han Vinck and Hendrik C. Ferreira*

Signal Space Dimension Reduction for  
AWGN Channels with Application to  
CPM (061)

*Par Moqvist and Tor Aulin*

Multilevel coded modulations based on  
asymmetric constellations (493)

*H. Sawaya and J. Boutros*

**Lossless Source Coding II**

Minimum Redundancy Zero-error  
Source Coding with Side Information  
(294)

*Prashant Koulgi, Ertem Tuncel, Shankar  
Regunathan and Kenneth Rose*

Entropy and channel capacity in the  
regenerative setup with applications to  
Markov channels (333)

*Vinod Sharma and S.K. Singh*

Sufficient Conditions of Existence of  
Fix-free Codes (355)

*Yekhanin Sergey*

Lossless Source Coding for Multiple  
Access Networks (312)

*Qian Zhao and Michelle Effros*

## **Asymptotic Analysis of Multiuser Systems I**

On the Asymptotic Eigenvalue Distribution of Concatenated Vector-Valued Fading Channels (025)

*Ralf Mueller*

Average-case analysis of multiuser detectors (155)

*Toshiyuki Tanaka*

Optimum Power Control for CDMA (508)

*Shlomo Shamai (Shitz) and Sergio Verdu*

## **Tail-Biting Codes**

Precision Issues in the Implementation of BCJR Decoders (132)

*Karl Thorén, Viktor Övall and John B. Anderson*

Some Distance Properties of Tailbiting Codes (141)

*Marc Handlery, Stefan Höst, Rolf Johannesson and Victor V. Zyablov*

ML decoding of block codes on their tailbiting trellises (208)

*Priti Shankar, P.N.A.Kumar, K.Sasidharan and B.Sundar Rajan*

## **Wireless Sensor Networks**

An Insensitivity Property of Energy-Limited Wireless Networks for Session-Based Multicasting (286)

*Jeffrey E. Wieselthier, Gam D. Nguyen  
and Anthony Ephremides*

Asymptotically Optimal Empirical  
Fusion of Bit Estimates Derived from a  
Bank of Receivers (392)

*Amitabh Dixit and Geoffrey C. Orsak*

An Efficient Protocol for Realizing  
Cooperative Diversity in Wireless  
Networks (539)

*J. Nicholas Laneman and Gregory W.  
Wornell*

## **Thursday, 4:10 – 5:30**

### **Convolutional and Woven Codes**

Partially Concatenated Convolutional  
Codes (062)

*Juergen Freudenberger, Martin Bossert,  
Viktor Zyablov and Sergo Shavgulidze*

Algebraic Soft Decoding of Multilevel  
Codes with inner Convolutional Codes  
(187)

*Walter Schnug, Helmut Griesser, Georg  
Schmidt and Martin Bossert*

Turbo-like codes based on RSC code  
decomposition (265)

*Hong Sun, Didier Le Ruyet and Han Vu  
Thien*

Woven Convolutional Codes and MTR  
Codes (416)

*Hiroshi Kamabe*

Woven Convolutional Codes and Unequal Error Protection (489)

*Ralph Jordan, Martin Bossert, Stefan Höst and Viktor V. Zyablov*

## **Channels with Side Information**

The Duality Between Information Embedding and Source Coding with Side Information and Some Applications (317)

*R. J. Barron, B. Chen and G. W. Wornell*

Unified Duality of Channel Capacity and Rate Distortion with State Information (499)

*Mung Chiang and Thomas M. Cover*

Writing on Colored Paper (504)

*Arak Sutivong, Thomas M. Cover, Mung Chiang and David Julian*

Tradeoff Between Message and State Information Rates (525)

*Arak Sutivong, Thomas M. Cover and Mung Chiang*

Power Control for the Additive White Gaussian Noise Channel under Channel Estimation Errors (303)

*Thierry E. Klein and Robert G. Gallager*

## **Asymptotic Analysis of Multiuser Systems II**

A Unified Study on the MAI Gaussianity in Large CDMA Systems with MMSE Receivers (231)

*Junshan Zhang and Edwin K. P. Chong*

Large system performance bounds for MMSE detection in Asynchronous CDMA systems (448)

*Ashok Mantravadi and V. V. Veeravalli*

Asymptotic Normality of Linear Multiuser Detection Outputs (509)

*D. Gu, S. Verdu and L. K. Rasmussen*

## **Algebraic Geometric Codes**

Codes from order domains (108)

*Olav Geil*

On the Duality of Algebraic Geometric Codes with High Degree Places (304)

*Takayasu Kaida and Kyoki Imamura*

A Low Complexity Algorithm for the Construction of Algebraic Geometric Codes better than the Gilbert-Varshamov Bound (320)

*K. W. Shum, P. V. Kumar, I. Aleshnikov and H. Stichtenoth*

Implementation of a Hermitian decoder (352)

*Emanuel Popovici, Patrick Fitzpatrick, Michael O'Sullivan and Ralf Kötter*

The Projective Hypercube and Its Properties and Applications (477)

*H.L. Janwa and H.F. Mattson, Jr.*

## **OFDM**

On Performance Analysis of an Adaptive Channel Estimation Algorithm for Multicarrier Modulation Systems (176)

*Xiaowen Wang and K. J. Ray Liu*

LDPC-based Space-time Coded OFDM Systems over Correlated Fading Channels: Analysis and Receiver Design (204)

*Ben Lu, Xiaodong Wang and Krishna R. Narayanan*

Shell-Mapping-Based Power Reduction Code (207)

*Henry K. Kwok and Douglas L. Jones*

A simple encodable/decodable OFDM QPSK code with low Peak Envelope to Average Power Ratio (373)

*Vahid Tarokh and Chanvee Chong*

An analytic technique for assessing the impact of non-linearities on the error probability of OFDM signals in RoF based wireless networks (496)

*Miguel Raul Dias Rodrigues and John J. O'Reilly*

## **Friday, 9:40 – 11:00**

### **Iterative Decoding III**

Iterative Multiuser Joint Decoding: Unified Framework and Asymptotic Analysis (280)

*Joseph Boutros and Giuseppe Caire*

Convergence Analysis of Turbo-Decoding of Serially Concatenated Product Codes (094)

*Amir Krause, Assaf Sella and Yair Be'ery*

A Unified Structure of the Trellis-Based Soft-Output Decoding Algorithms for Turbo Codes (365)

*Chung-Hsuan Wang, Wei-Ting Wang and Chi-chao Chao*

On the Capacity of Low-Density Parity-Check Codes (425)

*Sae-Young Chung and G. David Forney, Jr.*

## **Universal Source Coding and Prediction I**

On the use of randomized experts in sequential strategies for loss functions with memory (129)

*Neri Merhav, Erik Ordentlich, Gadiel Seroussi, and Marcelo J. Weinberger*

Comparing the Multilevel Pattern Matching Code and the Lempel-Ziv Codes (232)

*Boris Ryabko and Joe Suzuki*

YK Data Compression Algorithms: Complexity, Implementation, and Experimental Results (273)

*En-hui Yang and Yunwei Jia*

Efficient Universal Lossless Data Compression Algorithms Based on a

Greedy Context-dependent Sequential  
Grammar Transform (277)  
*En-hui Yang and Da-ke He*

## **Space-Time Codes V**

Linear Dispersion Codes (272)  
*Babak Hassibi and Bertrand Hochwald*

Space-Time Autocoding Constellations  
with Pairwise-Independent Signals  
(350)  
*Thomas L. Marzetta, Babak Hassibi and  
Bertrand Hochwald*

Space-Time Coding for Rayleigh Fading  
Channels in CPM System (380)  
*Xiaoxia Zhang and Michael P. Fitz*

Distance Spectrum Results of Space-  
Time Trellis Coded Modulations in  
Rayleigh Fading Channels (393)  
*Defne Aktas and Michael P. Fitz*

## **Decoding of Binary Codes**

Near-optimum decoding for subcodes of  
Reed-Muller codes (285)  
*Ilya Dumer and Kirill Shabunov*

Analog MAP Decoder for (8,4) Hamming  
Code in Subthreshold CMOS (302)  
*Chris Winstead, Jie Dai, Scott Little,  
Chris Myers, Christian Schlegel, Woo Jin  
Kim and Yong-Bin Kim*

Analog Decoding of High Rate Tailbiting  
Codes Using the Dual Trellis (369)

*Matthias Moerz, Andrew Schaefer and  
Elke Offer*

**Friday, 11:20 – 12:40**

**Soft Decision Decoding of Block Codes II**

Suboptimal SISO Decoding of Systematic Binary Algebraic Block Codes (217)

*James S. K. Tee and Desmond P. Taylor*

Further Results on The Sphere Decoder (278)

*Mohamed Oussama Damen, Mohamed Salim Lemdani and Karim Abed-Meraim*

An Improved Search Algorithm for the Adaptive and Recursive MLD Algorithm (344)

*Yuichi Kaji, Hitoshi Tokushige and Tadao Kasami*

**Universal Source Coding and Prediction II**

A Novel Bit-Wise Adaptable Entropy Coding Technique (125)

*Aaron Kiely and Matthew Klimesh*

On efficiency and properties of countable prefix codes (179)

*Vladimir I. Levenshtein*

Universal coding for sources with partially ordered probabilities (235)

*Boris Ryabko and Flemming Topsoe*

Reducing Model Cost by Weighted  
Symbol Decomposition (248)

*Frans M.J. Willems and Paul A.J. Volf*

## **Space-Times Codes VI**

Design of Coded Modulation Schemes  
for Orthogonal Transmit Diversity (440)

*Mohammad Jaber Borran, Mahsa  
Memarzadeh and Behnaam Aazhang*

Design and Analysis of Pragmatic  
Space-Time Codes (533)

*Andrea Conti, Marco Chiani and Velio  
Tralli*

Multiple-Antennas and Isotropically  
Random Unitary Inputs: The Received  
Signal Density in Closed-Form (436)

*Babak Hassibi and Thomas Marzetta*

Spatial Communication Capacity based  
on Electromagnetic Wave Equations  
(406)

*Joseph Y. Hui, Chunyu Bi and Hongxia  
Sun*

## **ISI Channels**

On the minimum system distance of a  
convolutionally coded ISI channel (139)

*Takeshi Hashimoto*

Repeatable Quasi Periodic Placement of  
Known Symbols (400)

*Srihari Adireddy and Lang Tong*

Deriving Performance Bounds for ISI  
Channels using Gallager Codes (418)

*Aleksandar Kavcic, Michael  
Mitzenmacher, Brian Marcus and Bruce  
A. Wilson*