

2006 IEEE Information Theory Workshop Program



October 22 - 26, 2006, Chengdu, China



2006 IEEE Information Theory Workshop
Chengdu California Garden Hotel, CIECC, Chengdu, China, October 22 – 26, 2006,
<http://sist.swjtu.edu.cn/imc/itw06/>

Technical Program

	Sunday Oct 22	Monday Oct 23	Tuesday Oct 24	Wednesday Oct 25	Thursday Oct 26	Weekend Oct 27
8:15-9:00		Opening Remarks, 25 mins (8:15-8:40) Plenary talk (I): 'A Unified Approach to Multiterminal Source Coding' by Richard E. Blahut	Plenary talk (II): 'Analog Iterative Decoders: Myth or Reality?' by Sergio Benedetto	Plenary talk (III): 'Doubly-Generalized Low-Density Parity-Check Codes' by Marc P.C. Fossorier	Plenary talk (IV): 'Separation for Source, Channel and Network Coding' by Ralf Koetter	Optional excursion to Jiu Zhai Gou, Emei Mountain, etc.
9:00-10:15		Invited session: Iterative Decoding and Detection Techniques (9:25-10:15)	Invited session: Quantum-Theoretical Aspects of Coding	Invited session: Network Coding	AD HOC-1 Source Coding-1	
10:15-10:35		Tea Break				
10:35-12:15		Iterative Decoding Information Theory	LDPC/Turbo Codes-1 Space-time Coding-2	FEC Coding Detection Techniques	AD HOC-2 Source Coding-2	
12:15-13:00		Lunch				
13:30-14:45		Invited session: Error Control Codes	Invited session: Space-Time Codes, Multi-user, and MIMO Systems	Invited session: Data Compression	Guided Tour to Sanxingdui Wonder (Ancient City) and Giant Panda Base (Panda Breeding Area)	
14:45-16:05	Registration	Codes for Erasure Channels MIMO Detection	LDPC/Turbo Codes-2 Code&Communications	Cooperative Coding Fading Channels		
16:05-16:25		Tea Break, Posters Session				
16:25-18:05		Algebraic Codes Space-time Coding-1	Coding Analysis& Design Multiple Access	Network Coding Data Compression		
Evening	Reception			Banquet		

Notes:

1. Program consists of 4 plenary talks (45 minutes each) + 17 Invited Session (plenary, 25 minutes each) + 89 oral presentations (parallel sessions, 20 minutes each) + 45 posters (half day).
2. There are 3 poster sessions arranged during 3 afternoon tea breaks and onwards (16:05-18:05pm), each session has about 15 posters (total **15+15+15=45**).
3. **All optional tours start on Friday, October 27, 2006.** For example, for Jiuzhai Gou and Huanglong National Park tour (No.2), it will start on Friday morning, October 27, 2006, and will return to Chengdu on October 29, 2006 (at approximately 6:00pm, but will be finalized later).
4. On spot Registration starts at 14:45 pm on Sunday (October 22) and at 7:30am on Monday (October 23).

Sunday, Oct.22, 2006(Registration Day)

14:45PM-18:05PM, The Hotel Lobby of California Garden Hotel
The conference on site registration.

18:45-20:05, Flower Garden Sichuan Restaurant (4F, Main Tower Lift)

Reception Dinner—by ITW06 Conference Organization Committee

Monday, Oct.23, 2006(1st Day)

(1 plenary talk+ 5 invited talks+ 27 oral presentations + 15 posters)

07:30AM-12:00AM, The Lobby of Meeting Hall (Conference Site), Conference Information Desk

The conference on site registration.

08:15-08:40, Qingyang Hall (8F)

Opening Remarks –ITW06 Conference Organization Committee, chair: **Pingzhi Fan** (Southwest Jiaotong University, [China](#)),

08:40-09:25, Qingyang Hall (8F)

Plenary Talk –chair: **Shu Lin** (University of California, Davis, [USA](#))

A Unified Approach to Multiterminal Source Coding by **Richard Blahut** (University of Illinois, Urbana-Champaign, [USA](#))

09:25-10:15, Qingyang Hall (8F)

Invited Session 1: Iterative Decoding and Detection Techniques. Chair: **Marc Fossorier**, University of Hawaii, USA

09:25-09:50 **Non-binary adaptive LDPC codes for frequency selective channels: code construction and iterative decoding**, **Joseph Boutros**(Ecole Nationale Supérieure des Télécommunications, [France](#)), **Alaa Ghaith**(Ecole Nationale Supérieure des Télécommunications, [France](#)), **Yi Yuan-Wu**(France Télécommunications R&D, [France](#)), paper presented by **Gilles Zemor** (Bordeaux University, [France](#)) on behalf of the authors.

09:50-10:15 **Adaptive Increment Redundancy Coding and Decoding Schemes using Feedback Information**, **Toshiyasu Matsushima**(Waseda University,[Japan](#))

10:15-10:35 Tea break

10:35-12:15, Qingyang Hall (8F)

Parallel Session 1: Iterative Decoding. Chair: **Marc Fossorier** (University of Hawaii, USA)

10:35-10:55 **Asymptotic Mean-Square Optimality of Belief Propagation for Sparse Linear Systems**, **Dongning Guo** (Northwestern University, USA), **Chih-Chun Wang** (Purdue University, USA).

10:55-11:15 **Improved Iterative Decoding with Analysis for Generalized Low-Density Codes**, **He Zheng** (Southwest Electronics & Telecom Technology Research Institute, China.), **Huaying Zhou** (Southwest Electronics & Telecom Technology Research Institute, China.), **Hanying Hu** (Information Engineering University, China.)

11:15-11:35 **Deriving the Normalized Min-Sum Algorithm from Cooperative Optimization**, **Xiaofei Huang** (Tsinghua University, China.)

11:35-11:55 **Soft-decision Decoding of Block Codes using the k Shortest Paths Algorithm**, **Ismail Shakeel**, **Alex Grant**, (University of South Australia, Australia.)

11:55-12:15 **LDPC Codes based on Berlekamp-Justesen Codes with Large Stopping Distances**, **Xin Ge**, **Shutao Xia** (Tsinghua University, China.)

10:35-12:15, Jinjiang Hall (8F)

Parallel Session 2: Information Theory. Chair: **Zhongxing Ye** (Shanghai Jiaotong University, China)

10:35-10:55 **Outage Performance of Correlated MIMO Optimum Combining Systems with and without Co-channel Interference**, **Dian-Wu Yue** (Dalian Maritime University, China.), **Q.T.Zhang** (City University of Hong Kong, China.)

10:55-11:15 **Exceptionality of the Variational Distance**, **Mohammadali Khosravifard** (Isfahan University of Technology, Iran.), **Dariush Fooladivanda** (Isfahan University of Technology, Iran), **T. Aaron Gulliver** (University of Victoria, Canada.)

11:15-11:35 **Capacity of Optical Transmission with Attenuation and Amplification**, **Xiaoyu Chen**, **Li-zhen Jiang**, **Liang Han** (China Institute of Metrology, China.)

11:35-11:55 **Intrinsic Capacity of Random Scattered Spatial Communication**, **Leif W. Hanlen**, **Roy C. Timo** (National ICT Australia and Australian National University, Australia.)

12:15-13:00, Shunxing Vension Restaurant (4F, Main Tower Lift)

Lunch

13:30-14:45, Qingyang Hall (8F)

Invited Session 2: Error Control Codes. Chair: **Torleiv Klove** (University of Bergen, Norway)

13:30-13:50 **A Grassmannian Packing Based on the Nordstrom-Robinson Code**, Vaneet Aggarwal (Princeton University, [USA](#)), **Alexei Ashikhmin** (Bell Laboratories, [USA](#)), **A. Robert Calderbank** (Princeton University, [USA](#)), presented by **Alexei Ashikhmin**.

13:50-14:10 **An Introduction to Tensor Product Codes and Applications to Digital Storage Systems**, **Jack Keil Wolf** (University of California, San Diego, [USA](#))

14:10-14:30 **Constructing Self-Dual Codes Using An Automorphism Group**, **Radinka Yorgova** (University of Bergen, [Norway](#))

[14:45-16:05, Qingyang Hall \(8F\)](#)

Parallel Session 1: Codes for Erasure Channels. Chair: **Torleiv Klove** (University of Bergen, [Norway](#))

14:45-15:05 **A Fountain Code Approach towards Priority Encoding Transmission**, **Mohammad Nekoui**, Nazy Ranjesh, Farshad Lahouti (University Of Tehran, [Iran](#))

15:05-15:25 **Raptor Codes with Fast Hard Decision Decoding Algorithms**, **Soheil Mohajer**, Amin Shokrollahi (EPFL, [Switzerland](#).)

15:25-15:45 **Efficiency of Precode-Only Raptor codes and Turbo-Fountain Codes**, **Alberto Tarable**, **Sergio Benedetto** (Politecnico di Torino, [Italy](#).)

15:45-16:05 **Fountain Codes and Applications to Reliable Wireless Broadcast System**, **Yuanyuan Ma** (Shandong University, [China](#).), **Dongfeng Yuan** (Southeast University, [China](#).), **Haixia Zhang** (Shandong University, [China](#).)

[14:45-16:05, Jinjiang Hall \(8F\)](#)

Parallel Session 2: MIMO Detection. Chair: **Jinhong Yuan** (The University of New South Wales, [Australia](#))

14:45-15:05 **A Novel Near Maximum Likelihood Detection Scheme for Wireless MIMO Systems**, **Jiming Chen** (University of Electronic Science and Technology of China, [China](#).), **Wai Ho Mow** (Hong Kong Univ. of Science and Technology, [China](#).), **Shaoqian Li** (University of Electronic Science and Technology of China, [China](#).)

15:05-15:25 **A Graph-Based Iterative Gaussian Detector for Frequency-Selective MIMO Channels**, **Tianbin Wo**, Justus Christian Fricke, Peter Adam Hoeher (University of Kiel, [Germany](#).)

15:25-15:45 **Detection Switching in An Iterative Receiver of MIMO-BICM Systems**, **Tao Yang** (University of New South Wales, [Australia](#).), **Jinhong Yuan** (University of New South Wales, [Australia](#).), **Zhenning Shi** (National ICT Australia, [Australia](#).), **Mark C. Reed** (National ICT Australia, [Australia](#).)

15:45-16:05 **A New Modified Gaussian Approximation Detector for Space-Time Bit-Interleaved Coded Modulation Schemes**, **Ying Li**, Xudong Guo, Xinmei Wang (Xidian University, [China](#).)

16:05-16:25 Tea break

16:25-18:05, Qingyang Hall (8F)

Parallel Session 1: Algebraic Codes. Chair: **Shiyi Shen** (Nankai University, [China](#))

16:25-16:45 **Dissections and Constant Weight Codes**, **Vinay A. Vaishampayan** and **N. J. A. Sloane**(AT&T Labs-Research, Shannon Laboratory, [USA](#).)

16:45-17:05 **Type II code over $F_2+uF^2+u^2F_2$** , **Jianfa Qian**, Lina Zhang, and Zhixiang Yin(Anhui University of Science and Technology, [China](#).)

17:05-17:25 **On Decoding Failure Probabilities for Linear Block Codes on the Binary Erasure Channel**, **Jos H. Weber**(Delft University of Technology, [Netherlands](#)), **Khaled A.S. Abdel-Ghaffar**(University of California at Davis, [USA](#).)

17:25-17:45 **Equivalence between the BCH Bound and the Schaub* Bound for Cyclic Codes**, **Junru Zheng**(Kyushu Kyoritsu University, [Japan](#)) , **Takayasu Kaida**(Kinki University, [Japan](#))

17:45-18:05 **Syndrome Coding for the Wiretap Channel Revisited**, **Gerard Cohen**(Ecole Nationale Supérieure des Télécommunications and CNRS, [France](#).), **Gilles Zemor**(Bordeaux University, [France](#).)

16:25-18:05, Place: Jinjiang Hall (8F)

Parallel Session 2: Space-time Coding-1. Chair: **Liang Zhou** (University of Electronic Science and Technology of China, [China](#))

16:25-16:45 **Space-Time Coding with Feedback**, **Haiquan Wang**, **En-hui Yang**(University of Waterloo, [Canada](#).)

16:45-17:05 **Full-Diversity Finite-Constellation 4 x 4 Differential STBC Based on Finite Quaternion Groups**, **Andrei D. Radulescu**, **Robert A. Calderbank**, **Stuart C. Schwartz** (Princeton University, [USA](#).)

17:05-17:25 **Multigroup-Decodable STBCs from Clifford Algebras**, **Sanjay Karmakar**, **B.Sundar Rajan**(Indian Institute of Science, Bangalore, [India](#).)

17:25-17:45 **Performance Analysis of Orthogonal Space-Time Block Codes Over Shadowed Rician Fading Channels**, **Guozhen Zang**, **Guangxia Li**(Institute of Communications Engineering, [China](#).)

17:45-18:05 **On Reduced Complexity Decoding Algorithms for STBC-MTCM in Fast Fading Channels**, **Daniel N. Liu**, **Michael P. Fitz**(University of California, Los Angeles, [USA](#).)

16:25-18:05 Posters Session

1. **An Upper and a Lower Bound on the Probability of an Undetected Error for Binary Expansions of Generalized Reed-Solomon Codes**, **Toshihisa Nishijima** (Hosei University, [Japan](#).)

2. **On the Efficient Codewords Counting Algorithm and the Weight Distributions of the Binary QDC Codes**, C. Tjhai, M. Tomlinson, R. Horan, M. Ahmed and M. Ambroze (University of Plymouth, [UK.](#))
3. **Fixed-Slope Universal Lossy Coding for Individual Sequences**, Shigeaki Kuzuoka and Tomohiko Uyematsu (Tokyo Institute of Technology, [Japan.](#))
4. **Improved and Smoothed Upper Bounds on the Redundancy of the Optimal Fix-Free Code**, M. Khosravifard, R. Rashtchi (Isfahan University of Technology, [Iran.](#))
5. **Bidirectional Viterbi Decoding using the Levenshtein Distance Metric for Deletion Channels**, Ling Cheng and Hendrik C. Ferreira, Theo G.Swart (University of Johannesburg, [South Africa.](#))
6. **Construction of Optimal Edit Metric Codes**, Sheridan Houghten (Brock University, [Canada.](#)), Dan Ashlock (University of Guelph, [Canada.](#)), Jessie Lenarz (Concordia College, [Canada.](#))
7. **Decoder Error Probability of MRD Codes**, Maximilien-Gadouleau and Zhiyuan Yan (Lehigh University, [USA.](#))
8. **Improvement of Shuffled Iterative Decoding**, Zhao Chuan-gang, Yuan jin-sheng, Lin Xue-hong, Lin jia-ru (Beijing University of Posts and Telecommunications, [China.](#))
9. **Error Floor and Decoding with Message Scaling for Accumulator-Based and LDPC Codes**, Motohiko Isaka (Kwansei Gakuin University, [Japan.](#))
10. **Non-Coherent LDPC Decoding on Graphs**, Ansgar Scherb, Karl-Dirk Kammeyer (University of Bremen, [Germany.](#))
11. **Application of the Low Density Parity-Check Codes in the MBC System**, Rong Sun (Xidian University, [China.](#)), Jingwei LIU (Xidian University, [China.](#)), Arika Fukuda (Shizuoka University, [China.](#)), Kaiji Mukumoto (Shizuoka University, [China.](#)), Xinmei Wang (Xidian University, [China.](#))
12. **Fast Weighted Bit-Flipping Decoding of Finite-Geometry LDPC Codes**, Xiaofu Wu, Ming Jiang, Chunming Zhao, Xiaohu You (Southeast University, [China.](#))
13. **Comparison of Concatenated RS Coding with HD to SD LDPC Coding for the Rayleigh Fading Channel**, J. Cai, M. Tomlinson, C. Tjhai, M. Ambroze, and M. Ahmed (University of Plymouth, [UK.](#))
14. **Novel SNR Estimation for Turbo Decoding over Rayleigh Fading Channels**, Hongyu Zhao (Southwest Jiaotong University, [China.](#)), Pingzhi Fan (Southwest Jiaotong University, [China.](#)), P. Takis Mathiopoulos (National Observatory of Athens, [Greece.](#))
15. **Stopping Set Distributions of Some Linear Codes**, Shu-Tao Xia (Tsinghua University, [China.](#)), Fang-Wei Fu (National University of Singapore, [China.](#))

Tuesday, Oct. 24, 2006(2nd Day)

(1 plenary talk+6 invited talks+ 28 oral presentations + 15 posters)

07:30AM-12:00AM, The Lobby of Meeting Hall (Conference Site), Conference Information Desk.

The conference on site registration.

08:15-09:00, Qingyang Hall (8F)

Plenary Talk –Chair: **Pingzhi Fan** (Southwest Jiaotong University, China)

Analog Iterative Decoders: Myth or Reality? by **Sergio Benedetto** (Politecnico di Torino, Italy)

09:00-10:15, Qingyang Hall (8F)

Invited Session 1: Quantum-Theoretical Aspects of Coding. Chair: **Alexei Ashikhmin** (Bell Laboratories, USA)

09:00-09:25 **Convolutional and Block Quantum Error-Correcting Codes**, **Markus Grassl** (Universität Karlsruhe, Germany)

09:25-09:50 **Conjugate Codes for Secure and Reliable Information Transmission**, **Mitsuru Hamada** (Tamagawa University Research Institute, Japan)

09:50-10:15 **Random and Not-So-Random Codes for Quantum Channels**, **Andreas Winter** (University of Bristol, UK)

10:15-10:35 Tea break

10:35-12:15, Qingyang Hall (8F)

Parallel Session 1: LDPC/Turbo Codes-1. Chair: **Gilles Zemor** (Bordeaux University, France)

10:35-10:55 **Non-binary Hybrid LDPC Codes: Structure, Decoding and Optimization**, **Lucile Sassatelli, David Declercq** (ETIS ENSEA/UCP/CNRS, France.)

10:55-11:15 **A Euclidean Geometry Based Algebraic Construction Technique for Girth-8 Gallager LDPC Codes**, **Mark F. Flanagan**, John Craddock, Colm P. Fewer and Stephen J. Redmond (University College Dublin, Ireland.)

11:15-11:35 **Error Exponents of Low-Density Parity-Check Codes on the Binary Erasure Channel**, **Thierry Mora** (Universite Paris-Sud and Rockefeller University, France.), **Olivier Rivoire** (The Rockefeller University, USA)

11:35-11:55 **Code Annealing and the Suppressing Effect of the Cyclically Lifted LDPC Code Ensemble**, **Chih-Chun Wang** (Purdue University, USA.)

11:55-12:15 **Can Punctured Rate-1/2 Turbo Codes Achieve a Lower Error Floor than their Rate-1/3 Parent Codes?** **Ioannis Chatzigeorgiou** (University of Cambridge, UK), **Miguel R. D. Rodrigues** (University of Cambridge, UK), **Ian J. Wassell** (University of Cambridge, UK), **Rolando Carrasco** (University of Newcastle upon Tyne, UK.)

[10:35-12:15, Jinjiang Hall \(8F\)](#)

Parallel Session 2: Space-time Coding-2. Chair: **Xiang-Gen Xia** (University of Delaware Newark, USA)

10:35-10:55 **Gallager Bounds for Space-Time Codes in Quasi-Static Fading Channels,**

Cong Ling (King's College London, UK.)

10:55-11:15 **On the Optimality of the Golden Code,** **Frederique Oggier** (California Institute of Technology, USA.)

11:15-11:35 **Code Design for Combined Space Time Trellis Codes and Beamforming on Slow Fading Channels,** **Yonghui Li**, Branka Vucetic (University of Sydney, Australia.)

11:35-11:55 **A Dual-Lattice View of V-BLAST Detection,** **Cong Ling** (King's College, UK.), **Lu Gan** (University of Liverpool, UK.), **Wai Ho Mow** (Hong Kong University of Science and Technology, China.)

11:55-12:15 **Differential Turbo Bell-Lab Layered Space-Time Architectures,** **Lingyang Song**, **Alister Burr** (University of York, UK.)

[12:15-13:00, Shunxing Vension Restaurant \(4F, Main Tower Lift\)](#)

Lunch

[13:30-14:45, Qingyang Hall \(8F\)](#)

Invited Session 2: Space-time codes, multi-user and MIMO systems. Chair: **David Tse** (University of California, Berkeley, USA)

13:30-13:55 **The Gaussian Many-Help-One Distributed Source Coding Problem,** **Saurabha Tavildar** (University of Illinois, Urbana-Champaign, USA), **Pramod Viswanath** (University of Illinois, Urbana-Champaign, USA), Aaron B. Wagner (Cornell University, USA), presented by **Pramod Viswanath.**

13:55-14:20 **Gaussian Interference Channel Capacity to Within One Bit: the Symmetric Case,** Raul Etkin (University of California, Berkeley, USA), **David N. C. Tse** (University of California, Berkeley, USA), **Hua Wang** (University of Illinois, Urbana-Champaign, USA), presented by **David N. C. Tse.**

14:20-14:25 **New Recursive Space-Time Trellis Codes from General Differential Encoding,** **Shengli Fu** (University of North Texas, Denton, USA), **Haiquan Wang** (University of Waterloo, Canada), **Xiang-Gen Xia** (University of Delaware, Newark, USA), presented by **Xiang-Gen Xia.**

[14:45-16:05, Qingyang Hall \(8F\)](#)

Parallel Session 1: LDPC/Turbo Codes-2. Chair: **Baoming Bai** (Xidian University, China)

14:45-15:05 **Fast Min-Sum Algorithms for Decoding of LDPC over GF(q),** **Xiaofei Huang**, **Suquan Ding**, Zhixing Yang, Youshou Wu (Tsinghua University, China.)

15:05-15:25 **A Reduced-Complexity Decoding Algorithm for Turbo Codes with Odd-Even Interleavers**, Xiao Ma, **Xiuni Wang**, Lin Zhang (Sun Yat-sen University, [China](#).)

15:25-15:45 **High-Speed Adaptive Turbo Decoding Algorithm and Its Implementation**, **Min Hyuk Kim**, **Jin Hee Jeong**, **Ji Won Jung** (Korea Maritime University, [Korea](#).)

15:45-16:05 **Minimum Pseudo-Codewords of LDPC Codes**, **Shu-Tao Xia** (Tsinghua University, [China](#)), **Fang-Wei Fu** (National University of Singapore, [China](#).)

[14:45-16:05, Jinjiang Hall \(8F\)](#)

Parallel Session 2: Coding and Communications. Chair: **Wai Ho Mow** (Hong Kong University of Science & Technology, Hong Kong S.A.R., [China](#))

14:45-15:05 **New Upper and Lower Bounds on Exponentially Weighted Average Length of Optimal Binary Prefix Codes**, Yen-Yi Lee, **Jay Cheng**, **Tien-Ke Huang** (National Tsing Hua University, [China](#).)

15:05-15:25 **Interleaved Construction of Binary Sequences with Optimal Autocorrelation Magnitude**, Nam Yul Yu, **Guang Gong** (University of Waterloo, [Canada](#).)

15:25-15:45 **Binary Permutation Sequences as Subsets of Levenshtein Codes and Higher Order Spectral Nulls Codes**, **Khmaies Ouahada**, Theo G. Swart and Hendrik C. Ferreira (University of Johannesburg, [South Africa](#))

15:45-16:05 **Optimal interleaving schemes for 2-D arrays**, **Solomon W. Golomb** (University of Southern California, [USA](#).), **Robert Mena** (California State University, [USA](#).), **Wen-Qing Xu** (California State University, [USA](#).)

[16:05-16:25](#) Tea break

[16:25-18:05, Qingyang Hall \(8F\)](#)

Parallel Session 1: Coding Analysis and Design. Chair: **Chi-chao Chao** (National Tsing Hua University, [China](#).)

16:25-16:45 **The Expected Value for the Probability of An Undetected Error**, **Patrick Perry** (Hawaii Pacific University, [USA](#).) **Marc Fossorier** (University of Hawaii, [USA](#).)

16:45-17:05 **On the Bhattacharyya Rate for BISOM Channels and Its Code Threshold**, **Ruoheng Liu**, Predrag Spasojevic (Rutgers University, [USA](#).)

17:05-17:25 **A Generalization of the Parallel Error Correcting Codes**, **Hideki Yagi**, Toshiyasu Matsushima, **Shigeichi Hirasawa** (Waseda University, [Japan](#).)

17:25-17:45 **Constructing Optimal Low Rate Convolutional Codes**, **Dawei Huang** (Bell Labs Research China, [China](#).)

17:45-18:05 **Some New Results on Recursive Convolutional Codes and Their Applications**, **Qingchun Chen** (Southwest Jiaotong University, [China](#).), **Wai Ho Mow** (Hong Kong University of Science and Technology, [China](#).), **Pingzhi Fan** (Southwest Jiaotong University, [China](#).)

16:25-18:05, Jinjiang Hall (8F)

Parallel Session 2: Multiple Access. Chair: **Pramod Viswanath** (University of Illinois, Urbana-Champaign, [USA](#))

16:25-16:45 **Cooperative Multiple Access Systems Using Superposition Modulation**, **Zhiguo Ding**, **T. Ratnarajah**, Colin Cowan (Queen's University of Belfast, [UK](#).)

16:45-17:05 **Interleave-Division Multiple-Access Based Broadband Wireless Networks**, **Qian Huang**, **King-Tim Ko**, **Li Ping**, **Peng Wang**, **Sammy Chan** (City University of Hong Kong, [China](#).)

17:05-17:25 **Optimal Rate-Diversity-Delay Tradeoff in ARQ Block-Fading Channels**, **Allen Chuang** (University of Sydney, [Australia](#)), **Albert Guillen i Fabregas** (University of South Australia, [Australia](#)), **Lars K. Rasmussen** (University of South Australia, [Australia](#)), **Iain B. Collings** (CSIRO, [Australia](#))

17:25-17:45 **Iterative Differential Unitary Space-Frequency Decoding for Multiband-OFDM UWB Communication Systems**, **Xiufeng Jin**, Guangguo Bi, Haiyong Xiao (Southeast University, [China](#).)

17:45-18:05 **Performance of OFDM Systems with Residual Carrier Frequency Offset over Time-varying Rayleigh Channels**, Guangfa Dai, Hongwen Tang, **Shaoping Chen** (South-Central University for Nationalities, [China](#).)

16:25-18:05 Posters Session

1. **Single-Scan Min-Sum Algorithms for Fast Decoding of LDPC Codes**, Xiaofei Huang (Tsinghua University, [China](#).)
2. **An Efficient Iterative Synchronization Scheme for LDPC-Coded DS-SS Systems Using two Samples per Chip**, Liu An and Luo Wu (Peking University, [China](#).)
3. **CAZAC sequence and its application in LTE random access**, Yang Wen, Wei Huang, Zhongpei Zhang (University of Electronic Science and Technology of China, [China](#).)
4. **A New Class of Sequences with Zero Correlation Zone Based on Interleaved Perfect Sequences**, Zhengchun Zhou, Xiaohu Tang (Southwest Jiaotong University, [China](#).)
5. **A Parallel Iterative Acquisition Algorithm for Multiple PN Codes**, Zhisong Bie, Kai Niu, Weiling Wu (Beijing University of Posts and Telecommunications, [China](#).)
6. **Performance of Very Efficient Wireless Frequency Usage System Using Kronecker Product with Rows of DFT**, Naoki Suehiro (University of Tsukuba, [Japan](#)), Rongzhen Jin (University of Tsukuba, [Japan](#).), Chenggao Han (University of Electro-Communications, [Japan](#).), Takeshi Hashimoto (University of Electro-Communications, [Japan](#).)
7. **Power Allocation for Practically Coded Multi-User Systems over Broadcast Channels**, Peng Wang (City University of Hong Kong, [China](#).), Qi Chen (The First Research Institute of

- Telecommunication Technology, [China.](#)), **Li Ping** (City University of Hong Kong, [China.](#)), **Lihai Liu**(City University of Hong Kong, [China.](#))
8. **Robust Turbo Equalizer Schemes Against SNR Mismatch**, **Li Qiang**(University of Electronic Science and Technology of China, [China.](#)), **Wai Ho Mow**(Hongkong University of Science and Technology, [China.](#)), **Shaoqian Li**(University of Electronic Science and Technology of China, [China.](#))
 9. **Particle Filtering for Tracking Time-Varying Dispersion Channels in OFDM Systems**, **Wen Qin, Qicong Peng**(University of Electronic Science and Technology of China, [China.](#))
 10. **Adaptive TF-domain Spread MC-CDMA System in Frequency-Selective Rayleigh Fading Channels**, **Li Hao, Pingzhi Fan**(Southwest Jiaotong University, [China.](#))
 11. **An Efficient Signal Reception Algorithm for Multicarrier DS CDMA**, **Feng Yang, Jian Yang, and Hongsheng Xi** (University of Science and Technology of China, [China.](#))
 12. **A Simple Semipublic Hiding Scheme Applied for IP Trace Back in Noisy Networking Channel**, **Jia Hou**(Soochow University, [China.](#)), **Moon Ho Lee**(Chonbuk National University, [Korea.](#)) , **Jin Gyun Chung**(Chonbuk National University, [Korea.](#))
 13. **Blind Orthogonal Multiuser Detector**, **Liang Han, Xiaoyu Chen**,(China Insitute of Metrology, [China.](#))
 14. **A Kind of Online Support Vector Machine for Blind Multi-user Detection**, **Lijun Lu, Hong Peng**, (Xihua University, [China.](#))
 15. **Adaptive Probabilities of Crossover and Mutation in Genetic Algorithms Based on Cloud Model**, **Chao-hua Dai**(Southwest Jiaotong University,[China.](#)), **Yun-fang Zhu**(Ej_mei Branch,Southwest Jiaotong University, [China.](#)), **Wei-rong Chen** (Southwest Jiaotong University, [China.](#))

Wednesday, Oct. 25, 2006(3rd Day)

(1 plenary talk+ 6 invited talks+ 25 oral presentations + 15 posters)

08:15-09:00, Gingko Hall (8F)

Plenary Talk – Chair: **Ping Li** (City University of Hong Kong, [China](#))

Doubly-Generalized Low-Density Parity-Check Codes by **Marc Fossorier** (University of Hawaii, USA.)

09:00-10:15, Place: Gingko Hall (8F)

Invited Session 1: Network Coding. Chair: **Emina Soljanin** (Bell Laboratories, USA)

09:00-09:25 **On the Queuing Delay of a Multicast Erasure Channel**, **Brooke Shrader, Anthony Ephremides** (University of Maryland, College Park, USA), presented by **Anthony Ephremides**.

09:25-09:50 **Heuristic algorithms for small field multicast encoding**, **Angela I. Barbero** (University of Valladolid, [Spain](#)), **Oyvind Ytrehus** (University of Bergen, [Norway](#)), presented by **Oyvind Ytrehus**

09:50-10:15 **Network Error Correction Coding in Packetized Networks**, **Zhen Zhang** (University of Southern California, [USA](#))

[10:15-10:35](#) Tea break

[10:35-12:15, Gingko Hall \(8F\)](#)

Parallel Session 1: FEC Coding. Chair: **Xiao Ma** (Sun Yat-Sen University, [China](#))

10:35-10:55 **LDPC-based Secure Wireless Communication with Imperfect Knowledge of the Eavesdropper's Channel**, **Matthieu Bloch** (GT-CNRS, [France](#), Georgia Institute of Technology, [USA](#)), **Joao Barros** (Universidade do Porto, [Portugal.](#)), **Miguel R. D. Rodrigues** (University of Cambridge, [UK](#)), **Steven W. McLaughlin** (GT-CNRS, [France](#) and Georgia Institute of Technology, [USA](#))

10:55-11:15 **On the Performance of Lossless Joint Source-Channel Coding Based on Linear Codes**, **Shengtian Yang**, **Peiliang Qiu** (Zhejiang University, [China.](#))

11:15-11:35 **On the Alignment Space and Its Applications**, **Shi-Yi Shen** (Nankai University, [China.](#)), **Kui Wang** (Nankai University, [China.](#)), **Gang Hu** (Nankai University, [China.](#)), **Shu-Tao Xia** (Tsinghua University, [China.](#))

11:35-11:55 **Large Proper Codes For Error Detection**, **Irina Naydenova**, **Torleiv Kløve** (University of Bergen, [Norway.](#))

11:55-12:15 **Combining Sphere Decoding with M-Algorithm**, **Jianping Zheng**, **Baoming Bai**, **Xinmei Wang** (Xidian University, [China.](#))

[10:35-12:15, Jinjiang Hall \(8F\)](#)

Parallel Session2: Detection Techniques. Chair: **Shaoqian Li** (University of Electronic Science and Technology, [China](#))

10:35-10:55 **Joint Error Correction and PAPR Reduction of OFDM Signals**, **Ismail Shakeel**, **Alex Grant** (University of South Australia, [Australia.](#))

10:55-11:15 **A Blind SNR Estimator Based on Iterative Subspace Tracking Algorithm for Digital Modulated Signals**, **Dan Sui**, **Lindong Ge**, **Qing Wang**, **Hui Zhang** (Zhengzhou Information Science and Technology Institute, [China.](#))

11:15-11:35 **Outsourcing the Complexity of Detection in MIMO Channels**, **Rodrigo de Miguel** (Norwegian University of Science and Technology, [Norway.](#)), **Ori Shental** (Tel Aviv University, [Israel.](#)), **Ralf R. Müller** (Norwegian University of Science and Technology, [Norway.](#)), **Ido Kanter** (Bar-Ilan University, [Israel.](#))

11:35-11:55 **Turbo Equalization For Space-Time Block Coded FWA Systems**, **Pei Xiao**(University of Newcastle, [UK.](#)), **Rolando Carrasco**(University of Newcastle, [UK.](#)), **Ian Wassell**(University of Cambridge, [UK.](#))

11:55-12:15 **EXIT Chart Analysis of Space-Time Turbo Equalizer**, **Pei Xiao**(University of Newcastle, [UK](#)), **Rolando Carrasco**(University of Newcastle, [UK](#)), **Ian Wassell**(University of Cambridge, [UK](#))

[12:15-13:00, Shunxing Vension Restaurant \(4F, Main Tower Lift\)](#)

Lunch

[13:30-14:45, Ginkgo Hall \(8F\)](#)

Invited Session 2: Data Compression. Chair: **Zhen Zhang** (University of Southern California, [USA](#))

13:30-13:55 **Combined Source Coding and Watermarking**, **En-hui Yang**, **Wei Sun**(University of Waterloo, [Canada](#)), presented by **En-hui Yang**

13:55-14:20 **The Redundancy of Multi-resolution Coding for Successively Refinable Sources**, **Jun Yang**(Philips Research North America, [USA](#)), **Zhen Zhang** (University of Southern California, [USA](#)), presented by **Zhen Zhang**.

14:20-14:25 **On the Relationship between Redundancy and Decoding Error in Slepian-Wolf Coding**, **Da-ke He** (IBM T.J.Watson Research Center, [USA](#)), **Luis A. Lastras-Montano**(IBM T.J.Watson Research Center, [USA](#)), **En-hui Yang**(University of Waterloo, [Canada](#)), presented by **Da-ke He**.

[14:45-16:05, Ginkgo Hall \(8F\)](#)

Parallel Session 1: Cooperative Coding. Chair: **Zixiang Xiong** (Texas A&M University, [USA](#))

14:45-15:05 **Stability Region of an Efficient Bidirectional Regenerative Half-duplex Relaying Protocol**, **Tobias J. Oechtering**, **Holger Boche**(Technical University of Berlin, [Germany](#).)

15:05-15:25 **A Non-Orthogonal Distributed Space-Time Coded Protocol, Part I: Signal Model and Design Criteria**, **Susinder Rajan** , **B.Sundar Rajan**(Indian Institute of Science, Bangalore, [India](#).)

15:25-15:45 **Effects of Noisy Side Information at the Decoder in Dirty-paper and Dirty-tape Coding**, **Matteo Mazzotti**(University of Bologna, [India](#).), **Zixiang Xiong** (Texas A&M University, [USA](#).)

[14:45-16:05, Jinjiang Hall \(8F\)](#)

Parallel Session 2: Fading Channels. Chair: **P. Takis Mathiopoulos** (ISARS, National Observatory of Athens, [Greece](#))

14:45-15:05 **Performance Evaluation of Spatial Multiplexing Systems over finite scattering channel**, Li Zhang(University of Leeds, [UK.](#)), [Alister Burr](#)(University of York, [UK.](#)), Michal Darnell (University of Leeds, [UK.](#)), [Lingyang Song](#) (University of York, [UK.](#))

15:05-15:25 **Spatial Correlation based Degrees of Freedom of Multipath**, [Lei Qiu](#), Rodney A. Kennedy (The Australian National University, [Australia.](#))

15:25-15:45 **A New Reuse Partitioning Scheme for Distributed Antenna Cellular Systems**, [Liguo Yang](#), Xinglin Wang, Zheng Li, Weiling Wu(Beijing University of Posts and Telecommunications, [China.](#))

16:05-16:25 Tea break

16:25-18:05, Gingko Hall (8F)

Parallel Session 1: Network Coding. Chair: [Ning Cai](#) (Xidian University, [China](#))

16:25-16:45 **On Separation for Multiple Access Networks**, [Siddharth Ray](#)(Massachusetts Institute of Technology, [USA.](#)), [Muriel Medard](#)(Massachusetts Institute of Technology, [USA.](#)), [Michelle Effros](#) (California Institute of Technology, [USA.](#)), [Ralf Koetter](#)(University of Illinois at Urbana-Champaign, [USA.](#))

16:45-17:05 **On the Synchronization of Physical Layer Network Coding**, [Shengli Zhang](#), [Soung-Chang Liew](#) , [Patrick P.LAM](#) (The Chinese University of Hong Kong, [China.](#))

17:05-17:25 **Variable-Rate Linear Network Coding**, [Silas L. Fong](#), [Raymond W. Yeung](#) (The Chinese University of Hong Kong, [China.](#))

17:25-17:45 **On the Relation between Linear Dispersion and Generic Network Code**, [Pui-Wing Kwok](#), [Raymond W. Yeung](#)(The Chinese University of Hong Kong, [China.](#))

17:45-18:05 **Optimal Multicast with Erasure Correction Coding**, Nima Sarshar, [Xiaolin Wu](#), [Zhe Wang](#)(McMaster University, [Canada.](#))

16:25-18:05, Jinjiang Hall (8F)

Parallel Session 2: Data Compression. Chair: [Xiaolin Wu](#) (McMaster University, [Canada.](#))

16:25-16:45 **Self-Synchronization Strings in Huffman Equivalent Codes**, [Lei Cao](#) (University of Mississippi, [USA.](#))

16:45-17:05 **Detecting the Same Text in Different Languages**, [Kostadin Koroutchev](#), [Manuel Cebrian](#)(Universidad Autonoma de Madrid, [Spain.](#))

17:05-17:25 **On Error Rate in Hypothesis Testing based on Universal Compression Algorithms**, [A.K. Gopalan](#)(Tejas Networks Pvt Ltd. [India](#)), [R.K. Bansal](#)(Indian Institute of Technology Kanpur, [India.](#))

17:25-17:45 **A Calculation of the Heegard-Berger Rate-distortion Function for a Binary Source**, [Chao Tian](#), [Suhas N. Diggavi](#) (EPFL, [Switzerland.](#))

16:25-18:05 Poster Session

1. **The Signal Subspace Decomposition Method for Extracting Harmonic Signal**, Dengwei Wang, Yinghua Lu (Beijing University of Posts and Telecommunications, [China.](#))
2. **Pilot Frequency Nulling based Channel Estimation for Multiple QR-Decompositions with Transposed Channel Matrix SDM/OFDM**, Chang-Jun Ahn and Makoto Taromaru (ATR, Wave engineering laboratories, [Japan.](#))
3. **Estimation of FWA MIMO Channels**, Pei Xiao (University of Newcastle, [UK.](#)), Rolando Carrasco (University of Newcastle, [UK.](#)), Ian Wassell (University of Cambridge, [UK.](#))
4. **A New Detection Scheme for Differential Unitary Space-Time Modulation**, Zhengfeng Du, Xiqi Gao (Southeast University, [China.](#))
5. **Improved Length Term Calculation and MMSE Extension for LISS MIMO Detection**, Ernesto Zimmermann, Gerhard Fettweis (Vodafone Chair at TU Dresden, [Germany.](#))
6. **Design and Description of A 600bps Speech Coder based on Melpe**, Feng Zou, Ying Guo, Xinfu Chen, Yan Liu, (Air Force Engineering University, [China.](#))
7. **Wavelet Support Vector Machine With Universal Approximation and its Application**, Wenhui Chen (Northwestern Polytechnical University, [China.](#)), Wanzhao Cui (Xi'an Institute of Space Radio Technology, [China.](#)) and Changchun Zhu (Xi'an Jiaotong University, [China.](#))
8. **Joint Source/Channel Coding for JPEG2000 Codestream Transmission over Fading Channels**, Rongke Liu, Xiaolin Zhang (Beijing University of Aeronautics & Astronautics, [China.](#))
9. **Analysis of the Iterative Joint Source-Channel Decoding based on LDPC Codes and HMMs**, Rongke Liu, Jie Gao, Xiaolin Zhang (Beijing University of Aeronautics & Astronautics, [China.](#))
10. **Encoding Algorithms for 2Dimensional Weak Run-Length-Limited Constraints**, Hiroshi Kamabe (Gifu University, [Japan.](#))
11. **A Non-orthogonal Distributed Space-Time Coded Protocol, Part-II: Code Construction and DM-G Tradeoff**, G.Susinder Rajan, B.Sundar Rajan (Indian Institute of Science, Bangalore, [India.](#))
12. **Fast Antenna Subset Selection Algorithm for MIMO Wireless Systems**, Guwei Zhang (Shandong University, [China.](#)), Lan Tian (Shandong University, [China.](#)), Lan Peng (Xidian University, [China.](#))
13. **A Bivariate Polynomials Key Management Scheme Based on ID in WSNs**, Yang Zou, Wenbiao Jin, Qin Li (ChongQing University of Posts and Telecommunications, [China.](#))
14. **Cooperative Coding Using Parallel Concatenated LDPC Codes**, Hong Wen, Liang Zhou, Zhongpei Zhang (University of Electronic Science and Technology of China, [China.](#))
15. **Calculation of the channel capacity of optical phase damping channel with iteration**, Xiao-yu Chen, Liang Han, Gui-quan Liu (China Institute of Metrology, [China.](#))

[18:45-20:05, California Banquet Hall \(5F, Hotel VIP Tower Lift\)](#)

Banquet

Thursday, Oct. 26, 2006(4th Day)
(1 plenary talk+ 9 oral presentations)

[08:15-09:00, Qingyang Hall \(8F\)](#)

Plenary Talk – Chair: **Raymond Yeung** (The Chinese University of Hong Kong, [China](#))

Separation for Source, Channel and Network Coding by **Ralf Koetter** (University of Illinois, Urbana-Champaign, [USA](#))

[09:00-10:15, Qingyang Hall \(8F\)](#)

Parallel Session 1: AD HOC-1. Chair: **Slawomir Stanczak** (Fraunhofer German-Sino Lab for Mobile Communications, [Germany](#))

09:00-09:20 **Robust Resource Allocation**, **Martin Schubert**(Fraunhofer German-Sino Lab for Mobile Communication MCI,[Germany](#)), **Holger Boche** (Fraunhofer German-Sino Lab for Mobile Communication MCI, Fraunhofer Institute for Telecommunications , Heinrich-Hertz-institut HHI, Technical University of Berlin, [Germany](#)).

09:20-09:40 **On the Existence and Uniqueness of Proportionally Fair Power Allocation**, **Slawomir Stanczak** (Fraunhofer German-Sino Lab for Mobile Communications,[Germany](#)), **Holger Boche**(Technical University of Berlin, [Germany](#)).

[09:00-10:15, Jinjiang Hall \(8F\)](#)

Parallel Session 2: Source Coding-1. Chair: **En-hui Yang** (University of Waterloo, [Canada](#))

09:00-09:20 **Multiuser Successive Refinement and Multiple Description Coding**, **Chao Tian**(EPFL, [Switzerland](#)), **Jun Chen**(IBM T. J. Watson Research Center , [USA](#)), **Suhas N. Diggavi** (EPFL, [Switzerland](#)).

09:20-09:40 **On Joint Compression and Information Embedding When Watermarks and Covertexts Are Correlated**, **Wei Sun**, **En-hui Yang** (University of Waterloo, [Canada](#).)

09:40-10:00 **An Enhanced Covering Lemma for Multiterminal Source Coding**, **Shengtian Yang**, **Peiliang Qiu**(Zhejiang University, [China](#).)

[10:15-10:35 Tea break](#)

[10:35-12:15, Qingyang Hall \(8F\)](#)

Parallel Session 1: AD HOC-2. Chair: **Slawomir Stanczak** (Fraunhofer German-Sino Lab for Mobile Communications, [Germany](#))

10:35-10:55 **Power Allocation and Resource Assignment in the View of Blocking and Antiblocking Polyhedra**, Marcin Wiczanowski(Berlin University of Technology, [Germany.](#)),
Holger Boche (Fraunhofer German-Sino Lab for Mobile Communications (MCI), [Germany.](#)),
Slawomir Stanczak (Fraunhofer German-Sino Lab for Mobile Communications (MCI), [Germany.](#))

10:55-11:15 **A Framework for Determining Realistic Capacity Bounds for Distributed Antenna Systems**, **Patrick Marsch**, **Shahid Khattak**, **Gerhard Fettweis**(Technische Universität Dresden, [Germany.](#))

[10:35-12:15, Jinjiang Hall \(8F\)](#)

Parallel Session 2: Source Coding-2. Chair: **En-hui Yang** (University of Waterloo, [Canada](#))

10:35-10:55 **Index Assignment Optimization for Joint Source-Channel MAP Decoding**,
Xiaohan Wang, **Xiaolin Wu** (McMaster University, [Canada.](#))

10:55-11:15 **Adaptive JSCC using Trellis Quantization based on Punctured Ring Convolutional Codes**, **Zihuai Lin** (Aalborg University, [Denmark](#)), **Tor Aulin**(Chalmers University of Technology, [Sweden](#)).

[12:15-13:00, Shunxing Vension Restaurant \(4F, Main Tower Lift\)](#)

Lunch

[13:30-18:00](#) **Tour(Panda Base etc)**

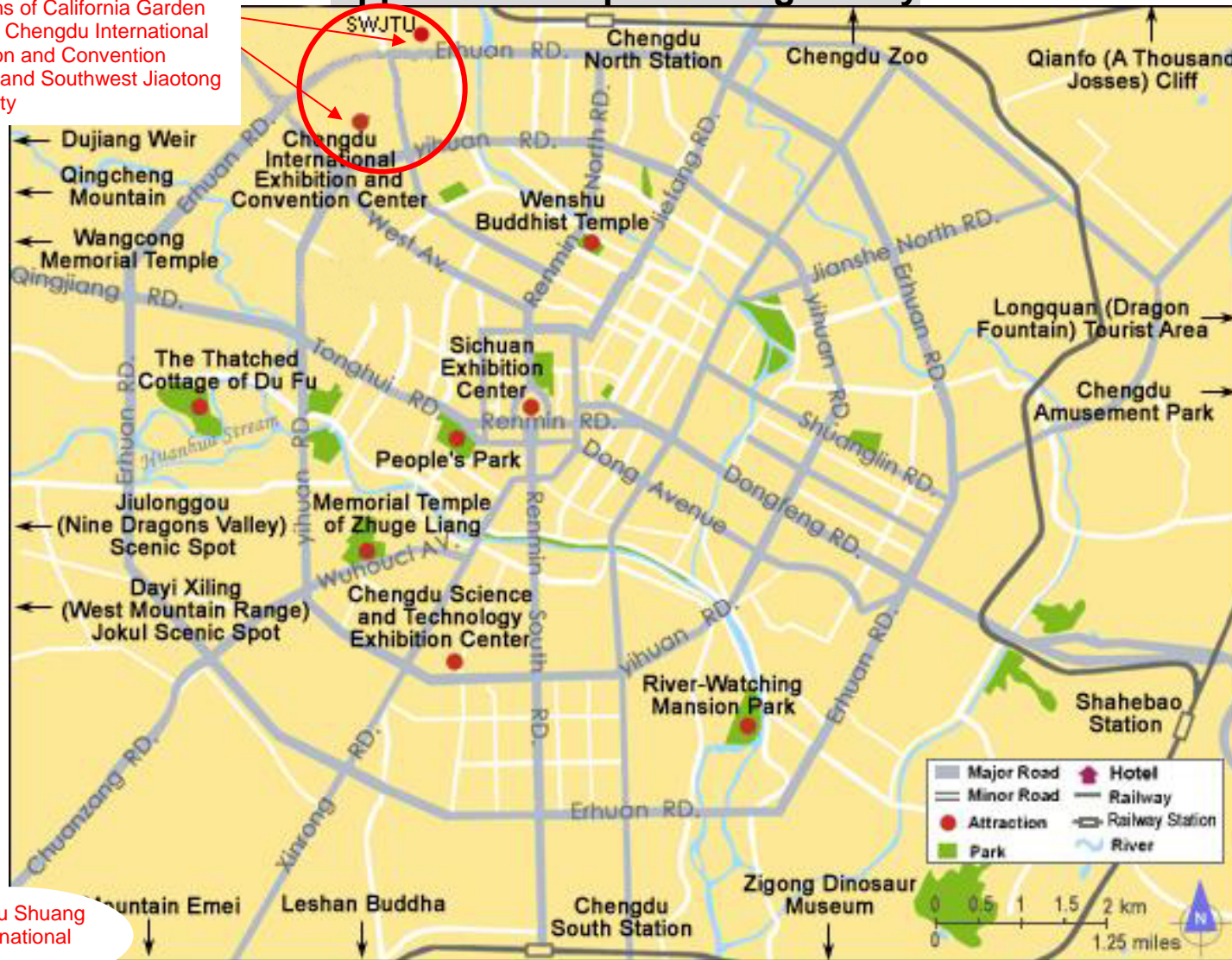
End of the Workshop

Appendix 1: Map of China



Appendix 2: Map of Chengdu City

Locations of California Garden Hotel (or Chengdu International Exhibition and Convention Center) and Southwest Jiaotong University



Chengdu Shuang Liu International Airport

Appendix 3: The Layout of the 8th Floor of California Garden Hotel



Important Conference Information

Conference Venue: Meeting Hall in the 8th floor of Hotel VIP Tower, The California Garden Hotel(加州花园酒店•贵宾楼 8层)

Registration and Information:

Oct. 22, 14:45pm-18:05pm, Hotel Lobby Hall

Oct. 23, 07:30am-12:15am, Conference Information Desk (Lobby of Meeting Hall)

Oct. 24-26, 08:00am-18:15pm, Conference Information Desk (Lobby of Meeting Hall)

Lunches will be served at the Shunxing Vension Restaurant inside the California Garden Hotel(4F, Main Tower Lift)(顺兴山珍堂, 加州花园酒店•主楼 4层).

Reception is to be served in Flower Garden Sichuan Restaurant inside the California Garden Hotel (main tower lift, 4F).(香满园川菜馆, 加州花园酒店•主楼 4层)

Conference Banquet is to be served in California Banquet Hall inside the Carlifornia Garden Hotel (Hotel VIP tower lift, 5F)(加州宴会厅, 加州花园酒店•贵宾楼 5层)

All Lunches, Reception and Banquet tickets for registered participants are in the registration bags. Extra tickets could be purchased at the registration site or at the conference information desk.

Emails: Participants may use computers to check their emails on the conference site.

Taxi: Taxis are available at the front entry of the hotel lobby.



Sponsored by
IEEE Information Theory Society

Supported by
Southwest Jiaotong University (SWJTU)
University of Electronic Science and Technology of China (UESTC)
National Natural Science Foundation of China (NSFC)
US National Science Foundation (US NSF)
IEEE Vehicular Technology Chapter, Beijing Section
Qualcomm
Seagate Technology