

Seventh Canadian Workshop on Information Theory

June 3 – 6, 2001

Final Program

- An introductory reception will be held from 6:00 – 8:00 PM on Sunday, June 3, in the Fireplace Lounge of the Gage Building, 5959 Student Union Blvd., UBC. The workshop registration desk will be open at that time, as well as on Monday, June 4.
- All technical sessions will be held in Room 1005 of The Forest Sciences Centre, 2424 Main Mall, UBC.
- Refreshments during the coffee breaks and lunches will be available in the lobby of the Forest Sciences Centre.
- The Workshop Banquet will be held on Tuesday, June 5 from 6:30pm to 8:30pm at the UBC Botanical Garden, 6804 SW Marine Drive, UBC Campus. Prof. Ian Blake has graciously agreed to be the Banquet Speaker.
- The Canadian Society for Information Theory will hold its General Meeting on Tuesday, June 5 from 5:30 to 6:00pm in Room 418 of the Electrical and Computer Engineering (MacLeod) Building, 2356 Main Mall. Everyone is invited to attend.

To all presenters:

A total of twenty minutes have been allotted for each talk, including time for questions. Please ensure that your presentation does not exceed this limit. If you have not yet submitted a brief biography, please give one to your session chair prior to your session so that you can be properly introduced.

Time	Monday June 4	Tuesday June 5	Wednesday June 6
9:00 – 10:00 AM	Invited Presentation Prof. J. Hagenauer	Invited Presentation Prof. V. Tarokh	Invited Presentation Prof. S. Verdu
10:00 – 10:20 AM	Coffee Break		
10:20 – 12:00 Noon	Session 1 Turbo Codes	Session 4 Wireless Systems	Session 7 Detection
12:00 – 1:30 PM	Lunch Break		
1:30 – 3:10 PM	Session 2 Source Coding	Session 5 Wireless Systems & Signal Processing	
3:10 – 3:30 PM	Coffee Break		
3:30 – 5:10 PM	Session 3 Source Coding, Cryptography, and Shannon Theory	Session 6 Error Control Coding	
5:10 – 6:30 PM	Break		
6:30 – 8:30 PM	Workshop Banquet		

Monday, June 4

Invited Presentation

Monday morning 9:00 – 10:00 AM

Session Chair: Cyril Leung

From Analog to Digital and Back Again

Prof. Joachim Hagenauer

Session 1: Turbo Codes

Monday morning 10:20 – 12:00 Noon

Session Chair: Christian Schlegel

Stopping Rules for the Bit Error Rate Minimization in Iterative Decoding

B. Scanavino, A. Perotti, G. Montori, S. Benedetto

Matched Interleavers for Turbo Codes with Short Frames

F. Chan

Joint Iterative Turbo Decoding and Estimation of Correlated Rayleigh Fading Channel

M.L. Ammari, H.T. Huynh, P. Fortier

Combinatorial Constructions of LDPC Codes

P.S. Guinand, J. Lodge

A Fast and Stable Direct-MAP Implementation of Turbo Decoding

M. Bandsmer, T.A. Gulliver, V.K. Bhargava

Session 2: Source Coding

Monday afternoon 1:30 – 3:10 PM

Session Chair: Frank Kschischang

Near-Ellipsoidal Lattice Quantization by Generalized Voronoi Shaping

S. Ragot, M. Xie, R. Lefebvre

Yang-Kieffer Algorithms and 1-D Run-length Encoding: Compression Performance Comparison

E.-H. Yang, D.-k. He

Types-Based Data Embedding for ITU G.711

M.G. Kokes, J.D. Gibson

Error Exponents in Scalable Source Coding

E. Tuncel, K. Rose

Universal Coding for Correlated Sources with Memory

T. Uyematsu

Session 3: Source Coding, Cryptography, and Shannon Theory

Monday afternoon 3:30 – 5:10 PM

Session Chair: Paul Fortier

Graph-Entropic Characterization of Optimal Zero-Error Coding with Side Information

P. Koulgi, E. Tuncel, S. Regunathan, K. Rose

Context-Dependent Multilevel Pattern Matching for Lossless Image Compression

Y. Jia, E.-H. Yang

A New Class of Attacks on McEliece Public-Key and Related Cryptosystems

A Kh. Al Jabri

Information-Theoretically Secure Hybrid Authentication in the Key Distribution Problem

V. Korjik, M. Bakin

A Model for a Binary Burst-Noise Channel Based on a Fine Queue

L. Zhong, F. Alajaji, G. Takahara

Tuesday, June 5

Invited Presentation

Tuesday morning 9:00 – 10:00 AM

Session Chair: Ivan Fair

Transmit Diversity when the Receiver does not know the number of Transmit Antennas

Prof. Vahid Tarokh, co-authors P. Maurer, R. Calderbank

Session 4: Wireless Systems

Tuesday morning 10:20 – 12:00 Noon

Session Chair: Han Vinck

A Space-Time Coding Concept for a Multi-Element Transmitter

A. Hottinen, K. Kuchi, O. Tirkkonen

Classification of Correlated Flat Fading MIMO Channels (Multiple Access Channels)

Z. Bagley, C. Schlegel

Joint Data/Channel Estimation for Frequency Selective (Time-Varying) Multi-Path Channels with Antenna Arrays

S. Özen, M.D. Zoltowski

Finite-State Markov Modeling of Diversity Nakagami Channels

C.-D. Iskander, P.T. Mathiopoulos

A Model for Stochastic Power Control under Log-Normal Distribution

T. Heikkinen

Session 5: Wireless Systems and Signal Processing

Tuesday afternoon 1:30 – 3:10 PM

Session Chair: Jean-Yves Chouinard

Performance of MT-CDMA System with Post-Detection Diversity Reception over Rician Fading Channel

Q.M. Rahman, A.B. Sesay

Performance of an Improved MMSE Receiver for CDMA Systems in Rayleigh Fading

D.G. Martin, C. Leung

A Theoretical Characterization of the Multipath Wireless Communications Channel

J. Boyer, D. Falconer, H. Yanikomeroglu

Performance Analysis of Destination Multiplexing for Wireless LANs

Y. Zhuang, E. Casas

Polyphase Realization of VSB Filter Bands for Spectrally Efficient Transmitter Multiplexers and Receiver Demultiplexers using Spectral Factorization

M. Sablatash, J. Lodge

Session 6: Error Control Coding

Tuesday afternoon 3:30 – 5:10 PM

Session Chair: Fady Alajaji

On Some Properties of the Bit Decoding Algorithms

A. Abedi, P. Chaudhari, A.K. Khandani

Array Codes with Error Detection for Efficient Storage Systems

A. Kh. Al Jabri, A. Al Shahrani

On Equivalent Convolutional Encoders

A.E. Geyer, A.J.H. Vinck

Delay-Constrained Capacity and Optimal Block Codes

X.-Y. Hu

Convolutional Codes on Trees and Cayley Graphs

S.A. Miri, F.R. Kschischang

Wednesday, June 6

Invited Presentation

Wednesday morning 9:00 – 10:00 AM

Session Chair: Ivan Fair

Efficient Use of Bandwidth in the Wideband Regime

Prof. Sergio Verdu

Session 7: Detection

Wednesday morning 10:20 – 12:00 Noon

Session Chair: Samir Kallel

Iterative Multiuser Decoding of Narrowband Signals in Fading Channels

H. Schöneich, J.-Y. Chouinard, M. Moher

Joint Source and Channel Coding Based Rate Detection Scheme for Variable-Rate Data Transmission

G. Yang, S. Kallel

Effect of Imperfect Channel Estimation on the Performance of Multituser Detectors over Multipath Rayleigh Fading Channel

Z. Mao, V.K. Bhargava

Large System Convergence Analysis of Blind and Training-Based Stochastic Steepest Descent Adaptive CDMA Detectors

T.J. Lim, Y. Gong

Innovations-Based Blind Sequence Detection for Wireless Channels

S. Sen, S. Pasupathy

Concluding Remarks

Workshop Co-Chairs