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Forty-Seventh Asilomar Conference on Signals, Systems and Computers

Final Program

November 3–6, 2013
Asilomar Hotel and
Conference Grounds

Technical Co-sponsor

IEEE
Signal Processing Society ®

FORTY-SEVENTH ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS & COMPUTERS

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CONFERENCE COMMITTEE

Welcome from the General Chairman

Prof. Robert W. Heath
University of Texas at Austin

Welcome to the 47th Asilomar Conference on Signals, Systems, and Computers! I am thrilled that you are joining me at this incredible conference. I have a long history with Asilomar. I published my first paper at Asilomar in 1996, incidentally the second paper I had ever published. I have attended Asilomar most of the past 15 years, with the notable exception of when my son was born in November 2007 (a reasonable exception I think). Every year I look forward the same experiences: carrying around that thick blue abstract book in the cool morning mist, getting lost while looking for that elusive conference room (after so many years!), and wondering what surprise will be found in the dining hall for lunch. Of course, what keeps me coming back are the hot-off-the-presses technical results. Returning to Asilomar is like a high school reunion. I enjoy reconnecting with old friends and making new friends as well. I hope you find something that makes Asilomar special for you.

The technical program was expertly crafted by the Technical Program Chair Phil Schniter and his team of Technical Area Chairs: Matt McKay, Dan Bliss, Milica Stojanovic, Marco Duarte, Biao Chen, Rebecca Willett, Andreas Gerstlauer, James Fowler, and Gerald Matz. I would like to thank Phil and his team for assembling a high quality program with 445 accepted papers and 182 invited papers.

The student paper contest this year was chaired by D. Richard Brown III and received a total of 144 submissions out of which eight were chosen for final presentation. The student finalists will present poster presentations to the judges Sunday afternoon and anyone else who would like to attend. The awards for the top three papers will be made at the plenary session.

This year's plenary talk will be given by Dr. Thomas L. Marzetta, Bell Laboratories, Alcatel-Lucent. I am pleased to have someone from industry sharing his insights on signal processing for wireless communication. Tom will talk about his ground breaking work on large-scale antenna systems. He presented the first paper on this topic at Asilomar in 2006. Since that time, the area of large-scale antenna wireless (also known as massive MIMO) has exploded, including invited sessions at past Asilomar conferences, special issues in journals, and hundreds of published papers. I am looking forward to seeing what can be accomplished with many antennas.

I am thrilled to have served as this year's General Chair. I hope that you enjoy this year's Asilomar conference and that you discover everything that Asilomar has to offer.

Robert W. Heath Jr.
The University of Texas at Austin, June 2013

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2013 Asilomar Conference Session Schedule

Sunday Afternoon, November 3, 2013

3:00–7:00 PM Registration — Merrill Hall
4:00–6:30 PM Student Paper Contest — Heather
7:00–9:00 PM Welcoming Dessert Reception — Merrill Hall

Monday Morning, November 4, 2013

7:30–9:00 AM Breakfast – Crocker Dining Hall
8:00 AM–6:00 PM Registration
8:15–9:45 AM MA1a — Conference Welcome and Plenary Session — Chapel
9:45–10:15 AM Coffee Social

10:15–11:55 AM MORNING SESSIONS
MA1b Full-Duplex MIMO Communications I
MA2b Stochastic Optimization in Control and Wireless Communications
MA3b Applications of Signal Processing in Financial Engineering
MA4b Networking with Physical Layer Security
MA5b Wireless Healthcare
MA6b Underwater Acoustic Communication and Localization
MA7b Approximate Computing
MA8b1 Biological Image Analysis (Poster)
MA8b2 Network Optimization (Poster)
MA8b3 Adaptive and Robust Methods (Poster)
MA8b4 Compressive Sensing (Poster)

12:00–1:00 PM Lunch – Crocker Dining Hall

Monday Afternoon, November 4, 2013

1:30–5:10 PM AFTERNOON SESSIONS
MP1a Massive MIMO
MP1b Distributed Coherent MIMO
MP2a Wireless Security
MP2b Energy Harvesting and Transfer
MP3a Blind Source Separation and Deconvolution
MP3b Distributed Signal Processing and Learning
MP4a Network Optimization and Control
MP4b Network Coding and Compression
MP5a Extracting Information from Electrophysiology Data
MP5b Optimization in (Bio)Medical Imaging
MP6a Smart Grid Signal Processing
MP6b Statistical Signal Processing
MP7a Recent Progress in Computer Arithmetic
MP7b 3D Content Processing
MP8a1 Distributed Signal Processing (Poster)
MP8a2 Wireless Sensor Networks (Poster)
MP8a3 Array Signal Processing (Poster)
MP8a4 Speech, Audio, Image, and Video Processing (Poster)
MP8a5 Hardware Implementation (Poster)

Monday Evening, November 4, 2013

6:00–9:30 PM Conference Cocktail/Social — Merrill Hall
The Cocktail/Social takes the place of Monday's dinner. No charge for conference attendees and a guest.

2013 Asilomar Conference Session Schedule
(continued)

Tuesday Morning, November 5, 2013

7:30–9:00 AM Breakfast — Crocker Dining Hall
8:00 AM–5:00 PM Registration

8:15–11:55 PM MORNING SESSIONS
TA1a MIMO Communications
TA1b Implementation Aspects for Full-Duplex and Large-Scale MIMO Wireless Systems
TA2a Stochastic Geometry and Random Networks
TA2b Random Matrices and Applications
TA3a Active Sensing and Learning
TA3b Optimization in Signal Processing
TA4a Cooperation Techniques for Wireless Networks
TA4b Body Area Nanonetworks
TA5a Signal Processing in MEG and EEG
TA5b Quantitative Image Analysis
TA6a Geospatial Image Processing
TA6b Control and Signal Processing for Information Fusion
TA7a Heterogenenous and Reconfigurable Computing
TA7b High Efficiency Video Coding
TA8a1 Radar and Sonar Signal Processing (Poster)
TA8a2 Communication Systems I (Poster)
TA8a3 Machine Learning and Statistical Signal Processing (Poster)
TA8a4 Machine Learning for Biological Signals (Poster)
TA8b1 Communications Systems II (Poster)
TA8b2 Computer Arithmetic (Poster)
TA8b3 MIMO Systems (Poster)
TA8b4 Adaptive Learning and Information Theory (Poster)

12:00–1:00 PM Lunch – Crocker Dining Hall

Tuesday Afternoon, November 5, 2013

1:30–5:35 PM AFTERNOON SESSIONS
TP1a Advanced MIMO Networking
TP1b Full-Duplex MIMO Communications II
TP2a Multimedia Quality Assessment
TP2b PHY Performance Abstraction Techniques
TP3a New Geometric Models for Processing in Big-Data World
TP3b Low-Dimensional Signal Models
TP4a Power Networks
TP4b Location-Aware Networking
TP5a Analysis of Complex Biological Systems and Omics Data I
TP5b Analysis of Complex Biological Systems and Omics Data II
TP6a MIMO Radar
TP6b Target Tracking I
TP7a Algorithm/Architecture Co-design
TP7b Machine Learning and Statistical Signal Processing
TP8a1 Spectrum Sensing and Sharing (Poster)
TP8a2 Relays in Communications (Poster)
TP8a3 Cellular and Heterogeneous Networks (Poster)
TP8a4 Adaptive Filtering (Poster)
TP8b1 Electrophysiology and Brain Imaging (Poster)
TP8b2 Multiuser MIMO Systems (Poster)
TP8b3 Design Automation (Poster)

Tuesday Evening Open Evening — Enjoy the Monterey Peninsula

2013 Asilomar Conference Session Schedule
(continued)

Wednesday Morning, November 6, 2013

7:30–9:00 AM Breakfast — Crocker Dining Hall
8:00 AM–12:00 PM Registration — Copyright forms must be turned in before the registration closes at 12:00 noon.

8:15–11:55 AM MORNING SESSIONS
WA1a MIMO Interference Management
WA1b MIMO Processing
WA2a OFDM
WA2b Advances in Coding and Decoding
WA3a Adaptive Filtering
WA3b Detection
WA4a Relaying and Cooperation
WA5a Image Analysis and Processing
WA5b Target Tracking II
WA6a Multi-Sensor Signal Processing
WA6b Direction of Arrival Estimation
WA7a Communication System Design
WA7b Energy- and Reliability-Aware Design

12:00–1:00 PM Lunch — Meal tickets may be purchased at registration desk. This meal is not included in the registration.

Student Paper Contest

Heather - Sunday, November 3, 2013, 4:00–6:30 PM

Track A
"Delay-Optimal Streaming Codes under Source-Channel Rate Mismatch"
Pratik Patil, Ahmed Badr, Ashish Khisti, Wai-Tian Tan

Track C
"Throughput Improvements for Cellular Systems with Device-to-Device Communications"
PhuongBang Nguyen, Bhaskar Rao

Track D
"Recovering Graph-Structured Activations using Adaptive Compressive Measurements"
Akshay Krishnamuthy, James Sharpnack, Aarti Singh

Track E
"Adaptive Non-myopic Quantizer Design for Target Tracking in Wireless Sensor Networks"
Sijia Liu, Engin Masazade, Xiaojing Shen, Pramod K. Varshney

Track F
"Parallel and Distributed Sparse Optimization"
Zhimin Peng, Ming Yan, Wotao Yin

Track G
"FPGA Implementation of a Message-Passing OFDM Receiver for Impulsive Noise Channels"
Karl Nieman, Marcel Nassar, Jing Lin, Brian Evans

Track H
"On the Effectiveness of Natural Videos in Masking Dynamic DCT Noise"
Jeremy Evert, Damon Chandler

2013 Asilomar Conference Session Schedule

Coffee breaks will be at 9:55 AM and 3:10 PM. (except Monday morning when refreshments will be served outside Merrill Hall from 9:45–10:15 AM)

Monday, November 4, 2013

CONFERENCE WELCOME AND PLENARY SESSION 8:15–9:45 AM

1. Welcome from the General Chairperson

Prof. Robert Heath
University of Texas at Austin

2. Session MA1a Distinguished Lecture for the 2013 Asilomar Conference

Large-Scale Antenna Systems: The Future of Wireless

Thomas L. Marzetta
Bell Labs, Alcatel-Lucent

Abstract
Large-Scale Antenna Systems (LSAS) - also called "Massive MIMO", "Large-Scale MIMO", or "Hyper-MIMO" - feature multi-user MIMO transmission of data, unprecedented numbers of service-antennas with a high ratio of service-antennas to terminals, and channel-state information derived from up-link pilots and time-division duplex (TDD) reciprocity. The scale of LSAS confers immense advantages over existing wireless schemes: huge spectral-efficiency, cheap single-antenna terminals, the replacement of expensive ultra-linear power amplifiers with many low-power low-precision units, simple but near-optimal multiplexing pre-coding and decoding, freedom from the "rich scattering environment" assumption, and effective power control based on slow-fading only. There is no obvious evolutionary path from LTE to LSAS and wireless standards committees are often resistant to radical innovations. For this reason the best initial opportunities for the commercial introduction of LSAS may be dedicated systems for communication tasks that have heretofore been considered impossible or impractical for wireless. A dedicated LSAS would use specially-designed hardware with no back-compatibility requirements, and it could operate in unlicensed spectrum which would minimize issues of standards. LSAS is likely to be very "green" compared with existing wireless technology in terms of the number of bits delivered per Joule expended.

Biography
Thomas L. Marzetta was born in Washington, D.C. He received the PhD in electrical engineering from the Massachusetts Institute of Technology in 1978. His dissertation extended, to two dimensions, the three-way equivalence of autocorrelation sequences, minimum-phase prediction error filters, and reflection coefficient sequences. He worked for Schlumberger-Doll Research (1978 - 1987) to modernize geophysical signal processing for petroleum exploration. He headed a group at Nichols Research Corporation (1987 - 1995) which improved automatic target recognition, radar signal processing, and video motion detection. He joined Bell Laboratories in 1995 (formerly part of AT&T, then Lucent Technologies, now Alcatel-Lucent). Within the former Mathematical Sciences Research Center he was director of the Communications and Statistical Sciences Department. He specializes in multiple-antenna wireless, with a particular emphasis on the acquisition and exploitation of channel-state information. He is the originator of Large-Scale Antenna Systems which can provide huge improvements in wireless spectral-efficiency and energy-efficiency over 4G technologies. Dr. Marzetta was a member of the IEEE Signal Processing Society Technical Committee on Multidimensional Signal Processing, a member of the Sensor Array and Multichannel Technical Committee, an associate editor for the IEEE Transactions on Signal Processing, an associate editor for the IEEE Transactions on Image Processing, and a guest associate editor for the IEEE Transactions on Information Theory Special Issue on Signal Processing Techniques for Space-Time Coded Transmissions (Oct. 2002), for the IEEE Transactions on Information Theory Special Issue on Space-Time Transmission, Reception, Coding, and Signal Design (Oct. 2003), and for the IEEE JSAC Special Issue on Large-Scale Multiple Antenna Wireless Systems (Feb. 2013). He is currently the lead guest editor for the JCN Special Issue on Massive MIMO (Aug. 2013). Dr. Marzetta was the recipient of the 1981 ASSP Paper Award from the IEEE Signal Processing Society. He was elected a Fellow of the IEEE in Jan. 2003.

Program of the
2013 Asilomar Conference on
Signals, Systems, and Computers

Technical Program Chairman
Prof. Phil Schniter
The Ohio State University

Session MA1b Full-Duplex MIMO Communications I

Chair: *Risto Wichman, Aalto University*

MA1b-1 Advanced Self-Interference Cancellation and Multiantenna Techniques for Full-Duplex Radios — 10:15 AM
Dani Korpi, Tampere University of Technology, Finland; Sathya Venkatasubramanian, Taneli Riihonen, Aalto University, Finland; Lauri Anttila, Tampere University of Technology, Finland; Sergei Tretyakov, Aalto University, Finland; Mikko Valkama, Tampere University of Technology, Finland; Risto Wichman, Aalto University, Finland

MA1b-2 Effects of Channel Estimation Errors on Cochannel Full-Duplex MIMO Relays Using Adaptive Transmit Spatial Mitigation — 10:40 AM
Daniel Bliss, Yu Rong, Arizona State University, United States

MA1b-3 New Results in Multiuser Full-Duplex — 11:05 AM
Ashutosh Sabharwal, Rice University, United States

MA1b-4 Transmit Antenna-Switched Receive Diversity for Bi-directional Beamforming in Two-Way Communications — 11:30 AM
Dongkyu Kim, Yonsei University, Republic of Korea; Hyungsik Ju, National University of Singapore, Singapore; Seokjung Kim, Haesoon Lee, Daesik Hong, Yonsei University, Republic of Korea

Session MA2b Stochastic Optimization in Control and Wireless Communications

Chair: *Vincent Lau, Hong Kong University of Science and Technology (HKUST)*

MA2b-1 Enhancing the Delay Performance of Dynamic Backpressure Algorithms — 10:15 AM
Ying Cui, Edmund Yeh, Northeastern University, United States

MA2b-2 A Study of Estimation and Communication Tradeoff Using an Event-Based Approach — 10:40 AM
Ling Shi, Hong Kong University of Science and Technology, China

MA2b-3 Event-Triggered Anytime Control with Random Processor Availability and Dropouts — 11:05 AM
Wann-Jiun Ma, University of Notre Dame, United States; Daniel Quevedo, University of Newcastle, Australia; Vijay Gupta, University of Notre Dame, United States; Serdar Yuksel, Queen's University, Canada

MA2b-4 Convergence of Mixed Timescales Cross-Layer Stochastic Optimization — 11:30 AM
Junting Chen, Vincent Lau, Hong Kong University of Science and Technology, Hong Kong SAR of China

Session MA3b Applications of Signal Processing in Financial Engineering

Chair: *Daniel Palomar, Hong Kong University of Science and Technology (HKUST)*

MA3b-1 ARCH Modeling in the Presence of Missing Data — 10:15 AM
Pascal Bondon, CNRS, France

MA3b-2 Modeling Transaction-Level Asset Prices by Point Processes — 10:40 AM
Alexander Aue, University of California, Davis, United States; Lajos Horvath, University of Utah, United States; Clifford Hurvich, Philippe Soulier, New York University, United States

MA3b-3 Structured Regularization for Large Vector Autoregression — 11:05 AM
William B. Nicholson, David S. Matteson, Jacob Bien, Cornell University, United States

MA3b-4 Robust Order Execution Under Box Uncertainty Sets — 11:30 AM
Yiyong Feng, Daniel Palomar, Hong Kong University of Science and Technology, Hong Kong SAR of China; Francisco Rubio, Genetic Finance Limited, Hong Kong SAR of China

Session MA4b Networking with Physical Layer Security

Chair: *Emre Koksal, The Ohio State University*

MA4b-1 Creating Erasure Channels for Wireless Network Secrecy — 10:15 AM
Panagiotis Kostopoulos, Marios Gkatzianas, Christina Fragouli, Katerina Argyraki, Suhas Diggavi, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

MA4b-2 Guessing a Password over a Wireless Channel: On the Effect of Noise Non-uniformity — 10:40 AM
Flavio Calmon, Muriel Médard, Massachusetts Institute of Technology, United States; Mark Christiansen, Ken Duffy, National University of Ireland, Maynooth, Ireland

MA4b-3 Key Generation under Active Attacks — 11:05 AM
Heng Zhou, Worcester Polytechnic Institute, United States; Lauren Hui, Air Force Research Laboratory, United States; Lifeng Lai, Worcester Polytechnic Institute, United States

MA4b-4 Basic Limits of RF-Fingerprint Based Authentication — 11:30 AM
Onur Gungor, C. Emre Koksal, Hesham El Gamal, The Ohio State University, United States

Session MA5b Wireless Healthcare

Chair: *Yuejie Chi, The Ohio State University*

MA5b-1 A Unified Framework for Energy Efficient Physical Activity Tracking — 10:15 AM
Daphney-Stavroula Zois, Urbashi Mitra, University of Southern California, United States

MA5b-2 Practical Energy Expenditure Estimation for Human Daily Activity Using Mobile Phones — 10:40 AM
Mi Zhang, Harshvardhan Vathsangam, Alexander Sawchuk, Gaurav S. Sukhatme, University of Southern California, United States

MA5b-3 Compressed Sensing for Energy-Efficient Wireless Telemonitoring: Challenges and Opportunities — 11:05 AM
Zhilin Zhang, Samsung R&D Institute America-Dallas, United States; Bhaskar D. Rao, Tzyy-Ping Jung, University of California, San Diego, United States

MA5b-4 Contactless Sensing of Physiological Signals Using Wideband RF Probes — 11:30 AM
Ju Gao, Emre Ertin, The Ohio State University, United States; Santosh Kumar, University of Memphis, United States; Mustafa al'Absi, University of Minnesota, United States

Session MA6b Underwater Acoustic Communication and Localization

Co-Chairs: *Shengli Zhou, University of Connecticut and Geert Leus, TU Delft*

MA6b-1 Effective Intercarrier Interference Reduction Techniques for OFDM Underwater Acoustic Communications — 10:15 AM
Miaowen Wen, Xiang Cheng, Peking University, China; Xilin Cheng, Liuqing Yang, Colorado State University, United States; Bingli Jiao, Peking University, China

MA6b-2 DMC-MAC: Dynamic Multi-Channel MAC in Underwater Acoustic Networks. — 10:40 AM
Hamid Ramezani, Geert Leus, Technical University of Delft, Netherlands

MA6b-3 Target Localization and Tracking in a Random Access Sensor Network — 11:05 AM
Kivanc Kerse, Fatemeh Fazel, Milica Stojanovic, Northeastern University, United States

MA6b-4 Field Test Results of an On-Demand Collaborative Underwater Localization Protocol — 11:30 AM
Kaleel Mahmood, Patrick Lazar, Tausif Shaikh, Johanna Thomas, Shengli Zhou, University of Connecticut, United States

Session MA7b Approximate Computing

Chair: *Alberto Nannarelli, Technical University of Denmark*

MA7b-1 Exploiting Inherent Application Resilience Through Approximate Computing — 10:15 AM
Vinay Chippa, Swagath Venkataramani, Purdue University, United States; Srimat Chakradhar, NEC Laboratories America, Inc., United States; Kauhik Roy, Ananad Raghunathan, Purdue University, United States

MA7b-2 Computing with Parsimonious Resource Budgets: An Evaluation of Inexact Design Approaches — 10:40 AM
Avinash Lingamneni, Rice University, United States; Christian Enz, Centre Suisse d'Electronique et de Microtechnique, Switzerland; Krishna Palem, Rice University, United States; Christian Piguet, Centre Suisse d'Electronique et de Microtechnique, Switzerland

MA7b-3 On Robustifying Applications by Casting Them as Markov Chain Algorithms — 11:05 AM
Biplab Deka, University of Illinois at Urbana-Champaign, United States; Alex Birklykke, University of Aalborg / University of Illinois at Urbana-Champaign, United States; Henry Duwe, University of Illinois at Urbana-Champaign, United States; Vikash Mansighka, Massachusetts Institute of Technology, United States; Rakesh Kumar, University of Illinois at Urbana-Champaign, United States

MA7b-4 On Approximate Arithmetic — 11:30 AM
Milos D. Ercegovac, University of California, Los Angeles, United States

Session MA8b1 Biological Image Analysis

Chair: *Sally Wood, Santa Clara University*

10:15 AM–11:55 AM

MA8b1-1 An Automated Algorithm for the Quantification of hCG Level in Novel Fabric-Based Home Pregnancy Test Kits
Manasa K, Manasa Priya K V S N L, Sadhana Reddy Sadu, Sumohana Channappayya, Sivaramakrishna Vanjari, Indian Institute of Technology Hyderabad, India; Dhananjaya Dendukuri, Swathy Sridharan, Tripurari Choudhary, Paridhi Bhandari, Achira Labs, India

MA8b1-2 Waveform Processing for Protein Multi-Alignment by Mapping Locational, Structural and Functional Attributes
Alexander Maurer, Brian O'Donnell, Antonia Papandreou-Suppappola, Arizona State University, United States

MA8b1-3 3D Medical Image Denoising Using 3D Block Matching and Low-Rank Matrix Completion
Aminmohammad Roozgard, Nafise Barzigar, Pramode Verma, Samuel Cheng, University of Oklahoma, United States

MA8b1-4 Automated Denoising and Segmentation of Optical Coherence Tomography Images
Sohini Roychowdhury, Dara D. Koozekanani, Keshab K. Parhi, University of Minnesota, United States

MA8b1-5 Fourier Descriptor Based Diagnosis of Vocal-Fold Partial Asymmetry from High Speed Image Sequences
Jasmin Gonzalez, Sally Wood, Yuling Yan, Santa Clara University, United States

MA8b1-6 Prostate Cancer Detection and Gleason Grading of Histological Images using Shearlet Transform
Hadi Rezaeilouyeh, Mohammad H. Mahoor, University of Denver, United States; Francisco La Rosa, University of Colorado, United States; Jun Jason Zhang, University of Denver, United States

Session MA8b2 Network Optimization

Chair: *Bhaskar Rao, University of California, San Diego*

10:15 AM–11:55 AM

MA8b2-1 Cooperative AF Wireless Relay Strategy under Relay Power Constraint
Kanghee Lee, Hyuck M. Kwon, Edwin M. Sawan, Wichita State University, United States; Hyuncheol Park, Korea Advanced Institute of Science and Technology, Republic of Korea

MA8b2-2 SNR-Based Channel Pairing Design in Multichannel TDBC-Based, Two-Way Relaying
Mingchun Chang, Min Dong, University of Ontario Institute of Technology, Canada

MA8b2-3 An Exhaustive Message Splitting Scheme for Partial Decode-Forward in a Three-Relay Network
Yao Tang, McGill University, Canada; Mai Vu, Tufts University, United States

MA8b2-4 Convergence Analysis of Mixed Timescale Cross-Layer Stochastic Optimization
Junting Chen, Vincent Lau, Hong Kong University of Science and Technology, Hong Kong SAR of China

MA8b2-5 On Achievable Degrees of Freedom of 3-User MIMO Interference Channels
Lu Yang, Wei Zhang, University of New South Wales, Australia

MA8b2-6 Grassmannian Delay-Tolerant Limited Feedback for Interference Alignment
Zhinan Xu, Thomas Zemen, Telecommunications Research Center Vienna (FTW), Austria

MA8b2-7 Minimum Cost Caching-Aided Multicast under Arbitrary Demand
Jaime Llorca, Antonia Tulino, Bell Labs, Alcatel-Lucent, United States

MA8b2-8 Distributed Node-Weighted Connected Dominating Set Problems
Sattar Vakili, Qing Zhao, University of California, Davis, United States

Session MA8b3 Adaptive and Robust Methods

Chair: *Benoit Champagne, McGill University*

10:15 AM–11:55 AM

MA8b3-1 Low-Complexity Variable Forgetting Factor Constant Modulus RLS-based Algorithm for Blind Adaptive Beamforming
Boya Qin, Yunlong Cai, Zhejiang University, China; Benoit Champagne, McGill University, Canada; Minjian Zhao, Zhejiang University, China

MA8b3-2 Parameter Bounds Under Misspecified Models
Christ Richmond, Larry Horowitz, MIT Lincoln Laboratory, United States

MA8b3-3 High Resolution Doppler and Delay Estimation
Benjamin Friedlander, University of California, Santa Cruz, United States

MA8b3-4 Enhanced Edge Kernel Estimation for Robust Positioning
Davide Macagnano, Giuseppe Destino, University of Oulu, Finland

MA8b3-5 QR-TLS ESPRIT for Source Localization and Frequency Estimations
Nizar Tayem, Muhammad Omer, Prince Mohammad Bin fahd University, Saudi Arabia

MA8b3-6 Parallel TSQR-TLS and QR-TLS factorization for Joint Time Delay and Frequency Estimation
Nizar Tayem, Muhammad Omer, Syed Raza, Mohammad Lakkis, Prince Mohammad Bin fahd University, Saudi Arabia

MA8b3-7 Analyzing the FD-MIMO Sparse Imaging under Carrier Frequency Offsets From the Perspective of Point Spread Function
Li Ding, Changchang Liu, Weidong Chen, University of Science and Technology of China, China

MA8b3-8 A Generalized Framework for Development of Partially-Updated Signal and Parameter Estimation Algorithms Based on Subspace Optimization Constraints
Brian Agee, B3 Advanced Communication Systems, United States

Session MA8b4 Compressive Sensing

Chair: *Laura Balzano, University of Michigan*

10:15 AM–11:55 AM

MA8b4-1 Model-Based Compressive Harmonic-Aware Matching Pursuit: An Evaluation
Bashar Ahmad, University of Cambridge, United Kingdom; Wei Dai, Cong Ling, Imperial College London, United Kingdom

MA8b4-2 An Adaptive Compressive Sensing with Side Information
William Guicquero, CEA-Leti: Laboratoire d'électronique des technologies de l'information, France; Pierre Vandergheynst, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; Antoine Dupret, CEA-Leti: Laboratoire d'électronique des technologies de l'information, France

MA8b4-3 Multi-Capture High Dynamic Range Compressive Imaging
William Guicquero, CEA-Leti: Laboratoire d'électronique des technologies de l'information, France; Pierre Vandergheynst, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; Antoine Dupret, CEA-Leti: Laboratoire d'électronique des technologies de l'information, France

MA8b4-4 Bayesian Compressed Sensing with Unknown Measurement Noise Level
Thomas L. Hansen, Peter B. Jørgensen, Niels L. Pedersen, Carles Navarro Manchón, Bernard H. Fleury, Aalborg University, Denmark

MA8b4-5 Power Spectrum Blind Sampling Using Minimum Mean Square Error and Weighted Least Squares
Bamrung Tausiesakul, Nuria González Prelcic, University of Vigo, Spain

MA8b4-6 Mixing Space-Time Derivatives for Video Compressive Sensing
Yi Yang, Hayden Schaeffer, University of California, Los Angeles, United States; Wotao Yin, Rice University, United States; Stanley Osher, Level Set Systems, United States

MA8b4-7 Compressive Measurement Designs for Estimating Structured Signals in Structured Clutter: A Bayesian Experimental Design Approach
Swayambhoo Jain, Akshay Soni, Jarvis Haupt, University of Minnesota, Twin Cities, United States

Session MP1a Massive MIMO

Chair: *Erik Larsson, Linkoping University*

MP1a-1 Spectral Efficiency of the Multipair Two-Way Relay Channel with Massive Arrays 1:30 PM
Hien Quoc Ngo, Erik G. Larsson, Linköping University, Sweden

MP1a-2 How Bad is FDD for Large-Scale Antenna Systems? 1:55 PM
Thomas L. Marzetta, Bell Labs, Alcatel-Lucent, United States

MP1a-3 Massive MIMO Channels - Measurements and Models 2:20 PM
Xiang Gao, Fredrik Tufvesson, Ove Edfors, Lund University, Sweden

MP1a-4 A Low-Complexity Linear Precoding and Power Allocation Scheme for Downlink Massive MIMO 2:45 PM
Shahram Zarei, Wolfgang Gerstacker, Robert Schober, University of Erlangen-Nuernberg, Germany

Session MP1b Distributed Coherent MIMO

Chair: *Adam Margetts, MIT Lincoln Laboratory*

MP1b-1 Optimal Training and Data Power Allocation for Distributed Transmit Beamforming 3:30 PM
Adam R. Margetts, Rebekah Bartlett, Eric G. Torkildson, Shawn Kraut, Massachusetts Institute of Technology, United States

MP1b-2 Distributed MIMO Channel Prediction 3:55 PM
Patrick Bidigare, BBN Technologies, United States; D. Richard Brown III, Worcester Polytechnic Institute, United States; Shawn Kraut, MIT Lincoln Laboratory, United States; Upamanyu Madhow, University of California, Santa Barbara, United States

MP1b-3 Outage Probability Analysis of Distributed Reception with Hard Decision Exchanges 4:20 PM
Rui Wang, D. Richard Brown III, Min Ni, Worcester Polytechnic Institute, United States; Upamanyu Madhow, University of California, Santa Barbara, United States; Patrick Bidigare, BBN Technologies, United States

MP1b-4 Receive Spatial Coding for Distributed Diversity 4:45 PM
David Love, Purdue University, United States; Patrick Bidigare, BBN Technologies, United States

Session MP2a Wireless Security

Chair: *Giuseppe Abreu, Jacobs University*

MP2a-1 Secure Degrees of Freedom Region of Interference Channels with Confidential Messages 1:30 PM
Jianwei Xie, Sennur Ulukus, University of Maryland, United States

MP2a-2 The Effect of Channel Spatial Correlation on Physical Layer Security in Multi-antenna Scenarios 1:55 PM
Gianni Pasolini, University of Bologna, Italy; Stefano Severi, Giuseppe Abreu, Jacobs University, Germany; Davide Dardari, University of Bologna, Italy

MP2a-3 Random Puncturing for Secrecy 2:20 PM
João Almeida, João Barros, Faculdade de Engenharia da Universidade do Porto, Portugal

MP2a-4 Interference Engineering for Heterogeneous Wireless Networks with Secrecy 2:45 PM
Alberto Rabbachin, Massachusetts Institute of Technology, United States; Andrea Conti, ENDIF, Universita' di Ferrara, Italy; Jemin Lee, Moe Win, Massachusetts Institute of Technology, United States

Session MP2b Energy Harvesting and Transfer

Chair: *Kaibin Huang, Hong Kong Polytechnic University*

MP2b-1 Energy Harvesting Communications with Hybrid Energy Storage and Processing Energy Costs 3:30 PM
Omur Ozel, Khurram Shahzad, Sennur Ulukus, University of Maryland, United States

MP2b-2 Multi-Pair and Multi-Way Communications Using Energy Harvesting Nodes 3:55 PM
Aylin Yener, Burak Varan, Pennslyvania State University, United States

MP2b-3 Wireless Info-Power Transfer: Theory and Practice 4:20 PM
Pulkit Grover, Carnegie Mellon University, United States

MP2b-4 Simultaneous Information-and-Power Transfer over Broadband Channels 4:45 PM
Kaibin Huang, Hong Kong Polytechnic University, Hong Kong SAR of China; Erik G. Larsson, Linköping University, Hong Kong SAR of China

Session MP3a Blind Source Separation and Deconvolution

Chair: *Justin Romberg, Georgia Institute of Technology*

MP3a-1 Recovery of Decision Factors from Incomplete Rankings 1:30 PM
Laura Balzano, University of Michigan, United States

MP3a-2 Blind Deconvolution with Subspace Constraints 1:55 PM
Ali Ahmed, Justin Romberg, Georgia Institute of Technology, United States

MP3a-3 Nonlinear Basis Pursuit 2:20 PM
Henrik Ohlsson, Allen Yang, Roy Dong, Shankar Sastry, University of California, Berkeley, United States

MP3a-4 The Sample Complexity of Independent Component Analysis 2:45 PM
Santosh Vempala, Ying Xiao, Georgia Institute of Technology, United States

Session MP3b Distributed Signal Processing and Learning

Chair: *Alejandro Ribeiro, University of Pennsylvania*

MP3b-1 Optimal Solutions to Distributed Finite Horizon Stochastic Team Problems 3:30 PM
Ceyhun Eksin, Pooya Molavi, Ali Jadbabaie, Alejandro Ribeiro, University of Pennsylvania, United States

MP3b-2 Distributed Kalman Filtering and Network Tracking Capacity 3:55 PM
Subhro Das, Jose M. F. Moura, Carnegie Mellon University, United States

MP3b-3 Distributed Underwater Acoustic Source Localization and Tracking 4:20 PM
Jun Ye Yu, Deniz Ustebay, McGill University, Canada; Stephane Blouin, Defence Research and Development Canada, Canada; Michael Rabbat, McGill University, Canada

MP3b-4 Distributed Sparse Canonical Correlation Analysis in Clustering Sensor Data 4:45 PM
Jia Chen, Ioannis Schizas, University of Texas at Arlington, United States

Session MP4a Network Optimization and Control

Co-Chairs: *Chih-Ping Li, MIT and Eytan Modiano, MIT*

MP4a-1 Energy Trading in the Smart Grid: From End-User's Perspective 1:30 PM
Shengbo Chen, Ness Shroff, Prasun Sinha, The Ohio State University, United States

MP4a-2 Bayesian Congestion Control over a Markovian Network Bandwidth Process 1:55 PM
Parisa Mansourifard, Bhaskar Krishnamachari, University of Southern California, United States; Tara Javidi, University of california, San Diego, United States

MP4a-3 Exploring the Tradeoff between Waiting Time and Service Cost in Non-Asymptotic Operating Regimes 2:20 PM
Bin Li, Atilla Eryilmaz, The Ohio State University, United States

MP4a-4 Pricing and Bandwidth Optimization in Heterogeneous Wireless Networks 2:45 PM
Cheng Chen, Randall Berry, Michael Honig, Vijay Subramanian, Northwestern University, United States

Session MP4b Network Coding and Compression

Chair: *Daniel Lucani, University of Aalborg*

MP4b-1 Constructions of Fractional Repetition Codes from Combinatorial Designs 3:30 PM
Oktay Olmez, Aditya Ramamoorthy, Iowa State University, United States

MP4b-2 Network Coded Storage with Multi-Resolution Codes 3:55 PM
Ulric Ferner, Tong Wang, Muriel Médard, Massachusetts Institute of Technology, United States

MP4b-3 Lattice Interference Alignment: State-of-the-Art and Challenges 4:20 PM
Vasilis Ntranos, University of Southern California, United States; Viveck Cadambe, Massachusetts Institute of Technology / Boston University, United States; Bobak Nazer, Boston University, United States; Giuseppe Caire, University of Southern California, United States

MP4b-4 Bounds and Algorithms for Pliable Index Coding 4:45 PM
Siddhartha Brahma, Christina Fragouli, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Session MP5a Extracting Information from Electrophysiology Data

Chair: *Christopher Rozell, Georgia Institute of Technology*

MP5a-1 Sparse Nonnegative Deconvolution of Compressive Calcium Imaging Data 1:30 PM
Eftychios A. Pnevmatikakis, Shyam S. Chandramouli, Liam Paninski, Columbia University, United States

MP5a-2 Schizophrenia Classification with Single-Trial MEG during Language Processing 1:55 PM
Tingting Xu, University of Minnesota, United States; Massoud Stephane, Oregon Health & Science University, United States; Keshab K. Parhi, University of Minnesota, United States

MP5a-3 Modeling Neural Population Data 2:20 PM
Urs Koster, Bruno Olshausen, University of California, Berkeley, United States; Charles Gray, Montana State University Bozeman, United States

MP5a-4 A Neuron as a Signal Processing Device 2:45 PM
Tao Hu, Janelia Farm, HHMI, United States; Alex Genkin, AVG Consulting, United States; Dmitri Chklovskii, Janelia Farm, HHMI, United States

Session MP5b Optimization in (Bio)Medical Imaging

Chair: *Roummel Marcia, University of California, Merced*

MP5b-1 Parallel and Distributed Sparse Optimization 3:30 PM
Zhimin Peng, Ming Yan, Wotao Yin, University of California, Los Angeles, United States

MP5b-2 Nonconvex Compressive Sensing for X-ray CT: An Algorithm Comparison 3:55 PM
Rick Chartrand, Los Alamos National Laboratory, United States; Emil Y. Sidky, Xiaochuan Pan, University of Chicago, United States

MP5b-3 Computing Optimal Low-Rank Matrix Inverse Approximations for Image Processing 4:20 PM
Julianne Chung, Matthias Chung, Virginia Tech, United States

MP5b-4 Accurate and Fast Optimization for a Parameterized Diffuse Optical Tomography Problem 4:45 PM
Eric de Sturler, Virginia Tech, United States; Misha Kilmer, Tufts University, United States; Christopher Beattie, Saifon Chaturantabut, Serkan Gugercin, Virginia Tech, United States

Session MP6a Smart Grid Signal Processing

Chair: *Rick Blum, Lehigh University*

MP6a-1 Optimal Distributed Generation Placement in Smart Microgrids via Semidefinite Relaxation 1:30 PM
Emiliano Dall'Anese, Georgios B. Giannakis, University of Minnesota, United States

MP6a-2 Clustering Consumption in Queues: A Scalable Model for Electric Vehicle Scheduling 1:55 PM
Mahnoosh Alizadeh, University of California, Davis, United States; George Kesidis, Pennsylvania State University, United States; Anna Scaglione, University of California, Davis, United States

MP6a-3 Forecasting Real-time Locational Marginal Price: A State Space Approach 2:20 PM
Yuting Ji, Jinsub Kim, Lang Tong, Cornell University, United States

MP6a-4 Optimal Design of Sensor Networks for Enhanced Ocean Wave Energy Conversion 2:45 PM
Rick S. Blum, Basel Alnajjab, Lehigh University, United States

Session MP6b Statistical Signal Processing

Chair: *Pramod Varshney, Syracuse University*

MP6b-1 Estimation with Correlated Additive Noise: Does Dependency Always Imply Redundancy? 3:30 PM
Fangrong Peng, Biao Chen, Syracuse University, United States

MP6b-2 Expected Likelihood Approach for Low Sample Support Covariance Matrix Estimation in Angular Central Gaussian Distributions 3:55 PM
Olivier Besson, University of Toulouse-ISAE, France; Yuri Abramovich, W R Systems, Ltd., United States

MP6b-3 Compressive Recovery of 2-D Off-Grid Frequencies 4:20 PM
Yuejie Chi, The Ohio State University, United States; Yuxin Chen, Stanford University, United States

MP6b-4 Efficient Approximation of Structured Covariance under Joint Toeplitz and Rank Constraints 4:45 PM
Bosung Kang, Vishal Monga, Pennsylvania State University, United States; Muralidhar Rangaswamy, Air Force Research Laboratory, United States

Session MP7a Recent Progress in Computer Arithmetic

Chair: *Milos Ergecovac, University of California, Los Angeles*

MP7a-1 Automated Circuit Elaboration from Incomplete Architectural Description 1:30 PM
Andrew Becker, David Novo Bruna, Paolo Ienne, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

MP7a-2 Avoiding Double Roundings in Scaled Newton-Raphson Division 1:55 PM
Jean-Michel Muller, CNRS/ENSL/INRIA/UCBL, France

MP7a-3 Implementation of a High Speed Multiplier Using Carry Lookahead Adders 2:20 PM
Wesley Chu, Ali Unwala, Pohan Wu, Earl Swartzlander, University of Texas at Austin, United States

MP7a-4 Exhaustive Testing of Fused Multiply-Add RTL 2:45 PM
Neil Burgess, David Lutz, ARM Inc., United States

Session MP7b 3D Content Processing

Chair: *Béatrice Pesquet-Popescu, Telecom ParisTech*

MP7b-1 A Distributed Video Coding System for Mmulti-view Video Plus Depth — 3:30 PM
Giovanni Petrazzuoli, Institut Mines-Telecom, Telecom-ParisTech, France; Thomas Maugey, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; Marco Cagnazzo, Béatrice Pesquet-Popescu, Institut Mines-Telecom, Telecom-ParisTech, France

MP7b-2 Compact, Low-Power 3D Imaging of Simple Planar Scenes Using Parametric Signal Processing — 3:55 PM
Jonathan Mei, Andrea Colaco, Ahmed Kirmani, Vivek Goyal, Massachusetts Institute of Technology, United States

MP7b-3 Graph-Based Coding for Interactive Multi-view Navigation — 4:20 PM
Thomas Maugey, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; Antonio Ortega, University of Southern California, United States; Pascal Frossard, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

MP7b-4 A Compression Method for Computer Generated Phase-shifting Holograms of Virtual 3D Objects — 4:45 PM
Yafei Xing, Béatrice Pesquet-Popescu, Frédéric Dufaux, TELECOM ParisTech, France

Session MP8a1 Distributed Signal Processing

Chair: *Weiyu Xu, University of Iowa*

1:30 PM–3:10 PM

MP8a1-1 Scaled Canonical Coordinates for Compression and Transmission of Noisy Sensor Measurements
Yuan Wang, Haonan Wang, Louis Scharf, Colorado State University, United States

MP8a1-2 Joint Recovery Algorithms Using Difference of Innovations for Distributed Compressed Sensing
Diego Valsesia, Giulio Coluccia, Enrico Magli, Politecnico di Torino, Italy

MP8a1-3 Distributed Correlated Data Gathering in Wireless Sensor Networks via Compressed Sensing
Markus Leinonen, Marian Codreanu, Markku Juntti, University of Oulu, Finland

MP8a1-4 Distributed Object Tracking Based on Cubature Kalman Filter
Venkata Pathuri Bhuvana, Melanie Schranz, Mario Huemer, Bernhard Rinner, Alpen-Adria Universität Klagenfurt, Austria

MP8a1-5 Distributed Location Detection in Wireless Sensor Networks
Xue Zhang, Cihan Tepedelenlioglu, Mahesh Banavar, Andreas Spanias, Arizona State University, United States

MP8a1-6 Max-Consensus using the Soft Maximum
Sai Zhang, Cihan Tepedelenlioglu, Mahesh Banavar, Andreas Spanias, Arizona State University, United States

MP8a1-7 Diffusion LMS Algorithm with Multi-Combination for Distributed Estimation over Networks
Jun-Taek Kong, Jae-Woo Lee, Woo-Jin Song, Pohang University of Science and Technology, Republic of Korea

MP8a1-8 Exploiting Temporal and Spatial Correlation in Wireless Sensor Networks
Daniel Parker, Milica Stojanovic, Northeastern University, United States; Christopher Yu, Draper Laboratory, United States

Session MP8a2 Wireless Sensor Networks

Chair: *Bernhard Etzlinger, Johannes Kepler University, Austria*

1:30 PM–3:10 PM

MP8a2-1 A Low-Complexity Particle-Based Belief Propagation Algorithm for Cooperative Simultaneous Localization and Synchronization
Florian Meyer, Vienna University of Technology, Austria; Bernhard Etzlinger, Johannes Kepler University, Austria; Franz Hlawatsch, Vienna University of Technology, Austria; Andreas Springer, Johannes Kepler University, Austria

MP8a2-2 Effects of Approximate Representation in Belief Propagation for Inference in Wireless Sensor Networks
Yao Li, Lara Dolecek, University of California, Los Angeles, United States

MP8a2-3 Collaborative Beamforming from Tethered Multirotor Aerial Vehicle Wireless Sensor Network
Tan Ngo, Murali Tummala, John McEachen, Naval Postgraduate School, United States

MP8a2-4 Localization of Acoustic Beacons Using Iterative Null Beamforming over Ad-Hoc Wireless Sensor Networks
Vatsal Sharan, Sudhir Kumar, Rajesh Hegde, Indian Institute Of Technology Kanpur, India

MP8a2-5 Limited-Feedback-Based Channel-Aware Power Allocation for Linear Distributed Estimation
Mohammad Fanaei, Matthew C. Valenti, Natalia A. Schmid, West Virginia University, United States

Session MP8a3 Array Signal Processing

Chair: *D. Richard Brown III, Worcester Polytechnic Institute*

1:30 PM–3:10 PM

MP8a3-1 A Unified Detection Framework for Distributed Active and Passive RF Sensing
Daniel Hack, Lee Patton, Matrix Research, United States; Braham Himed, Air Force Research Laboratory, United States

MP8a3-2 Identifiability Analysis of Local Oscillator Phase Self-Calibration Based on Hybrid Cramer-Rao Bound in MIMO Radar
Peilin Sun, Jun Tang, Shuang Wan, Ning Zhang, Tsinghua University, China

MP8a3-3 Analysis of a Channel Model for Multipath-Assisted Indoor Localization Using UWB Signals
Erik Leitinger, Markus Fröhle, Paul Meissner, Klaus Witrisal, Graz University of Technology, Austria

MP8a3-4 Simultaneous Target and Multipath Positioning via Multi-Hypothesis Single-Cluster PHD Filtering
Li Li, Jeff Krolik, Duke University, United States

MP8a3-5 Analysis of a Purina Fractal Beamformer
Philippos Karagiannakis, Stephan Weiss, University of Strathclyde, United Kingdom

MP8a3-6 Algebraic Confidence in Positioning Problems
Jani Saloranta, Davide Macagnano, University of Oulu, Finland; Giuseppe Abreu, Jacobs University, Germany

MP8a3-7 Root-MSE Geolocation Performance Using Angle-of-Arrival Measurements from a Moving Sensor System
Neda Adib, Scott Douglas, Southern Methodist University, United States

MP8a3-8 GPS AOA Selection Algorithm for Multiple GPS Signals
Suk-seung Hwang, Goo-Rak Kwon, Jae-young Pyun, Chosun University, Republic of Korea

Session MP8a4 Speech, Audio, Image, and Video Processing

Chair: *James Fowler, Mississippi State University*

1:30 PM–3:10 PM

MP8a4-1 Multi Channel Reverberant Speech Enhancement using LP Residual Cepstrum
Karan Nathwani, Harish Padaki, Rajesh M. Hegde, Indian Institute of Technology Kanpur, India

MP8a4-2 Phase Estimation for Signal Reconstruction in Dual-Channel Speech Enhancement
Pejman Mowlaee, Graz University of Technology, Austria; Jalal Taghia, Ruhr University Bochum, Germany

MP8a4-3 Multipitch Estimation and Instrument Recognition by Exemplar-Based Sparse Representation
Ikuo Degawa, Kei Sato, Masaaki Ikehara, Keio University, Japan

MP8a4-4 Data Fusion of IR and Marine Radar Data
Golrokh Mirzaei, Mohsin M. Jamali, University of Toledo, United States; Peter V. Gorsevski, Joseph Firazado, Verner P. Bingman, Bowling Green State University, United States

MP8a4-5 Multimodal Aerial Image Registration Using Spatial Structure
Myra Nam, Rhonda Phillips, MIT Lincoln Laboratory, United States

MP8a4-6 Separating Temperature, Emissivity and Downwelling Radiance in Thermal Infrared Pure-Pixel Hyperspectral Images
Jake Gunther, Todd K. Moon, Matt Stites, Utah State University, United States; Gus Williams, Brigham Young University, United States

MP8a4-7 User-Controlled Adaptive Video Streaming Framework for Healthcare Applications
Krupa Pranesh, Yusuf Ozturk, San Diego State University, United States

MP8a4-8 Low-Complexity Video Compression and Compressive Sensing
Salman Asif, Felix Fernandes, Samsung Research America, United States; Justin Romberg, Georgia Institute of Technology, United States

Session MP8a5 Hardware Implementation

Chair: *Ahmed Eltawil, University of California, Irvine*

1:30 PM–3:10 PM

MP8a5-1 An Adaptive Power Amplifier and Control Subsytem for use in Space-Based Software Defined Radio Applications
Nehemya Cohen, James Whitney, II, Dontae Ryan, Michel Reece, Morgan State University, United States

MP8a5-2 Compressive Sensing Spectrum Analysis for Space Autonomous Radio Receivers
Gian Carlo Cardarilli, Marco Re, Ilir Shuli, University of Rome Tor Vergata, Italy; Lorenzo Simone, Thales Alenia Space, Italy

MP8a5-3 Analog-to-Information Converter Leveraging Diode Harmonics
Erica Daly, Jennifer Bernhard, University of Illinois at Urbana-Champaign, United States

MP8a5-4 Performance and Complexity Comparison of Near-Optimal MIMO Decoders
Mohamed A. El-Aziz, Cairo University / Varkon Semiconductors, Egypt; Karim Seddik, Ayman Alezabi, American University in Cairo, Egypt; Mohamed Nafie, Cairo University / Varkon Semiconductors, Egypt

MP8a5-5 Locally-Connected Viterbi Decoder Architectures and their VLSI Implementation for LDPC and Convolutional Codes
Ahmed Refaey Hussein, University of Western Ontario, Canada; Sebastien Roy, Université de Sherbrooke, Canada; Isabelle Laroche, Benoit Gosselin, Université Laval, Canada

MP8a5-6 On the Tail-Biting Convolutional Code Decoder for the LTE and LTE-A Standards
Mohamed Omar, Cairo University / Varkon Semiconductors, Egypt; Ahmed El-Mahmoudy, Varkon Semiconductors, Egypt; Karim Seddik, Ayman Elezabi, American University in Cairo, Egypt

MP8a5-7 A Hardware Efficient Technique for Linear Convolution of Finite Length Sequences
Soumak Mookherjee, Linda DeBrunner, Victor DeBrunner, Florida State University, United States

MP8a5-8 Novel Architectures for Squares, and Sums of Squares, of Cross-correlations of Bipolar Sequences with Applications to CDMA
Ayman Elezabi, American University in Cairo, Egypt

Session TA1a MIMO Communications

Chair: *Joe Liberti, Applied Communication Sciences*

TA1a-1 Bandwidth-Limited Cluster Networks for Distributed MIMO 8:15 AM
Joseph Liberti, John Koshy, Applied Communication Sciences, United States

TA1a-2 Experimental Results of MIMO Enabled Tactical Mesh Networks 8:40 AM
Babak Daneshrad, Silvus Technologies / University of California, Los Angeles, United States

TA1a-3 Achieving Multiple Degrees of Freedom in Long-Range mm-Wave MIMO Channels Using Randomly Distributed Relays 9:05 AM
Andrew Irish, Francois Quitin, Upamanyu Madhow, University of California, Santa Barbara, United States

TA1a-4 Experiment Results of Iterative Block-Based Decision Feedback Equalizer with Spatial Diversity in Underwater Acoustic Channels 9:30 AM
Xiang Zou, James Ritcey, Daniel Rouseff, University of Washington, United States

Session TA1b Implementation Aspects for Full-Duplex and Large-Scale MIMO Wireless Systems

Chair: *Christoph Studer, Rice University*

TA1b-1 An Analog Baseband Approach for Designing Full-Duplex Radios 10:15 AM
Brett Kaufman, Rice University, United States; Jorma Lilleberg, Renesas Mobile, Finland; Behnaam Aazhang, Rice University, United States

TA1b-2 Characterizing Self-Interference in True Full-Duplex Radio Links 10:40 AM
Alexios Balatsoukas-Stimming, Pavle Belanovic, Andreas Burg, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

TA1b-3 Implementation of FD-MIMO in LTE 11:05 AM
Yang Li, Yan Xin, Mian Dong, Gary Xu, Jianzhong (Charlie) Zhang, Samsung R&D Institute America-Dallas, United States; Younsun Kim, Juho Lee, Samsung Electronics, Co., Ltd., Republic of Korea

TA1b-4 Achievable Rates of ZF Receivers in Large MU-MIMO Systems with Phase Noise Impairments 11:30 AM
Antonios Pitarokoilis, Linköping University, Sweden; Saif Mohammed, Indian Institute of Technology Delhi, India; Erik G. Larsson, Linköping University, Sweden

Session TA2a Stochastic Geometry and Random Networks

Chair: *Xiangyun Zhou, Australian National University*

TA2a-1 On Decoding the kth Strongest User in Poisson Networks with Arbitrary Fading Distribution 8:15 AM
Xinchen Zhang, Martin Haenggi, University of Notre Dame, United States

TA2a-2 A Unified Approach to SINR-Based Performance Metrics with Application to D2D and Carrier Aggregation 8:40 AM
Xingqin Lin, Jeffrey Andrews, University of Texas at Austin, United States

TA2a-3 Secrecy Transmission Capacity of Random Networks 9:05 AM
Satyanarayana Vuppala, Giuseppe Abreu, Jacobs University, Germany

TA2a-4 Coverage by Pairwise Base Station Cooperation under Adaptive Geometric Policies 9:30 AM
Francois Baccelli, University of Texas at Austin, United States; Anastasios Giovanidis, INRIA, France

Session TA2b Random Matrices and Applications

Chair: *Romain Couillet, Supelec*

TA2b-1 Decentralized Eigenvalue Algorithms in Wireless Sensor Networks with Limited Energy Supply 10:15 AM
Jafar Mohammadi, Federico Penna, Slawomir Stanczak, Fraunhofer Heirinch Hertz Institute, Germany

TA2b-2 Analysis of Blind Pilot Decontamination 10:40 AM
Ralf Müller, University of Erlangen-Nuremberg, Germany; Laura Cottatellucci, Institute Eurecom, France; Mikko Vehkaperä, Aalto University, Finland

TA2b-3 Ocean Bottom Sensing using Random Matrix Models for Ocean Noise 11:05 AM
Ravi Menon, Peter Gerstoft, William Hodgkiss, University of California, San Diego, United States

TA2b-4 Degrees of Freedom in Line-of-Sight MIMO Systems 11:30 AM
Marc Desgroseilliers, Olivier Lévêque, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; Emmanuel Preissmann, Universite de Lausanne, Switzerland

Session TA3a Active Sensing and Learning

Chair: *Jarvis Haupt, University of Minnesota*

TA3a-1 Quick Search for Rare Events through Sequential Group Sampling 8:15 AM
Ali Tajer, Wayne State University, United States; H. Vincent Poor, Princeton University, United States

TA3a-2 A Game Theoretic Approach to Adaptive Compressive Imaging 8:40 AM
Amit Ashok, James Huang, Mark Neifeld, University of Arizona, United States

TA3a-3 On the Query Complexity of the Best-Arm Problem 9:05 AM
Matthew Malloy, Kevin Jamieson, Robert Nowak, Sebastien Bubek, University of Wisconsin, United States

TA3a-4 Recovering Graph-Structured Activations using Adaptive Compressive Measurements 9:30 AM
Akshay Krishnamuthy, James Sharpnack, Aarti Singh, Carnegie Mellon University, United States

Session TA3b Optimization in Signal Processing

Chair: *Wotao Yin, Rice University*

TA3b-1 Limited Memory Quasi-Newton Methods for Sparse Optimization 10:15 AM
Roummel Marcia, University of California, Merced, United States

TA3b-2 New Algorithms for Verifying the Null Space Conditions in Compressed Sensing 10:40 AM
Myung Cho, Weiyu Xu, University of Iowa, United States

TA3b-3 Sparse Dictionary Recovery with Noise 11:05 AM
John Wright, Columbia University, United States

TA3b-4 Sparse Recovery over Continuous Dictionaries: Just Discretize 11:30 AM
Gongguo Tang, Badri Narayan Bhaskar, Benjamin Recht, University of Wisconsin-Madison, United States

Session TA4a Cooperation Techniques for Wireless Networks

Co-Chairs: *Michele Zorzi, University of Padova and Leonardo Badia, University of Padova*

TA4a-1 Analysis and Management of Heterogeneous User Mobility in Large-Scale Downlink Systems 8:15 AM
Axel Müller, Supélec, France; Emil Björnson, KTH Royal Institute of Technology, Sweden; Romain Couillet, Mérouane Debbah, Supélec, France

TA4a-2 Energy Efficiency Optimization in Relay-Assisted Multi-User MIMO Systems 8:40 AM
Alessio Zappone, Pan Cao, Eduard Jorswieck, Dresden University of Technology, Germany

TA4a-3 Performance Evaluation of Coded Meshed Networks 9:05 AM
Morten V. Pedersen, Daniel E. Lucani, Frank H. P. Fitzek, Aalborg University, Denmark

TA4a-4 MAC Design for Full-Duplex Relaying 9:30 AM
Sanjay Goyal, Polytechnic Institute of New York University, United States; Ozgur Gurbuz, Sabanci University, United States; Elza Erkip, Shivendra Panwar, Polytechnic Institute of New York University, United States

Session TA4b Body Area Nanonetworks

Chair: *Josep Miquel Jornet, University at Buffalo, The State University of New York*

TA4b-1 A Molecular Communication Framework for Targeted Drug Delivery Systems 10:15 AM
Youssef Chahibi, Massimiliano Pierobon, Georgia Institute of Technology, United States; Sang Ok Song, Samsung Electronics, Co., Ltd., Republic of Korea

TA4b-2 Error Control for Calcium Signaling Based Molecular Communications 10:40 AM
Michael Barros, Brendan Jennings, Telecomunication Software and Systems Group, Ireland; Sasitharan Balasubramaniam, Tampere University of Technology, Finland

TA4b-3 Nanoscale Magneto-Inductive Communication 11:05 AM
Deniz Kilinc, Ozgur B. Akan, Koç University, Turkey

TA4b-4 Opto-Ultrasonic Communications in Wireless Body Area Nanonetworks 11:30 AM
G. Enrico Santagati, Tommaso Melodia, State University of New York at Buffalo, United States

Session TA5a Signal Processing in MEG and EEG

Chair: *Barry Van Veen, University of Wisconsin-Madison*

TA5a-1 Hierarchical Probabilistic Models for M/EEG Imaging 8:15 AM
Srikantan Nagarajan, University of California, San Francisco, United States

TA5a-2 EEG Source Imaging and Connectivity Analysis in Epilepsy Patients 8:40 AM
Yunfeng Lu, University of Minnesota, United States; Gregory Worrell, Mayo Clinic, United States; Bin He, University of Minnesota, United States

TA5a-3 Causality in Variance in Electrophysiological Data Using the GARCH Model 9:05 AM
Syed Ashrafulla, University of Southern California, United States; John C Mosher, Cleveland Clinic, United States; Richard M Leahy, University of Southern California, United States

TA5a-4 Sparse Multivariate Autoregressive Models with Exogenous Inputs for Modeling Intracerebral Responses to Direct Electrical Stimulation of the Human Brain 9:30 AM
Jui-Yang Chang, University of Wisconsin, United States; Andrea Pigorini, Francesca Seregni, Marcello Massimini, University of Milan, Italy; Lino Nobili, Niguarda Hospital, Italy; Barry Van Veen, University of Wisconsin, United States

Session TA5b Quantitative Image Analysis

Chair: *Jean-Christophe Olivo-Marin, INSTITUT PASTEUR – CNRS*

TA5b-1 A Temporal Superresolution Method Applied to Low-Light Cardiac Fluorescence Microscopy 10:15 AM
Kevin Chan, University of California, Santa Barbara, United States; Le A. Trinh, University of Southern California, United States; Michael Liebling, University of California, Santa Barbara, United States

TA5b-2 Neuron Tracing from Confocal Stacks Using Automated Seed Selection 10:40 AM
Suvadip Mukherjee, Barry Condron, Scott Acton, University of Virginia, United States

TA5b-3 Quantitative Tissue Characterization in Fluorescence Microscopy 11:05 AM
Jenna Mueller, Albert Oh, Duke University, United States; J. Quincy Brown, Tulane, United States; Nimmi Ramanujam, Rebecca Willett, Duke University, United States

TA5b-4 Analysis of Spatial Clustering with Robust Statistics 11:30 AM
Thibault Lagache, Institut Pasteur, France; Gabriel Lang, AgroParisTech, France; Nathalie Sauvonnet, Jean-Christophe Olivo-Marin, Institut Pasteur, France

Session TA6a Geospatial Image Processing

Chair: *Saurabh Prasad, University of Houston*

TA6a-1 Sparsity and Structure in Hyperspectral Imaging: Sensing, Reconstruction, and Target Detection 8:15 AM
Rebecca Willett, Duke University, United States; Mark Davenport, Georgia Institute of Technology, United States; Marco Duarte, University of Massachusetts Amherst, United States; Richard Baraniuk, Rice University, United States

TA6a-2 Sparse Representations for Classification of High Dimensional Multi-sensor Geospatial Data 8:40 AM
Saurabh Prasad, Minshan Cui, University of Houston, United States

TA6a-3 Adaptive Compressive Sensing for Wide Area Surveillance and Imaging 9:05 AM
Abhijit Mahalanobis, Lockheed Martin, MFC, United States

TA6a-4 Context-based Unmixing and Detection Using Co-registered Hyperspectral and LiDAR Sensors 9:30 AM
Paul Gader, Taylor Glenn, University of Florida, United States

Session TA6b Control and Signal Processing for Information Fusion

Chair: *Prakash Ishwar, Boston University*

TA6b-1 Adaptive Non-myopic Quantizer Design for Target Tracking in Wireless Sensor Networks 10:15 AM
Sijia Liu, Syracuse University, United States; Engin Masazade, Yeditepe University, Turkey; Xiaojing Shen, Sichuan University, China; Pramod K. Varshney, Syracuse University, United States

TA6b-2 Are Global Sufficient Statistics Always Sufficient: The Impact of Quantization on Decentralized Data Reduction 10:40 AM
Shengyu Zhu, Ge Xu, Biao Chen, Syracuse University, United States

TA6b-3 Controlled Sensing for Sequential Multihypothesis Testing with Non-Uniform Sensing Cost 11:05 AM
Sirin Nitinawarat, University of Illinois, United States; Venugopal V. Veeravalli, University of Illinois at Urbana-Champaign, United States

TA6b-4 Dynamic Topic Discovery through Sequential Projections 11:30 AM
Weicong Ding, Mohammad Rohban, Prakash Ishwar, Venkatesh Saligrama, Boston University, United States

Session TA7a Heterogenenous and Reconfigurable Computing

Chair: *Joe Cavallaro, Rice University*

TA7a-1 Heterogeneous Processors for Exascale Systems 8:15 AM
Michael Schulte, AMD, United States

TA7a-2 Autocoded Dataflow Synthesis for Heterogeneous Embedded Targets 8:40 AM
Mohmammd Hosseinabady, John McAllister, Queen's University Belfast, United Kingdom

TA7a-3 Efficient Reconfiguration Methods to Enable Rapid Deployment of Runtime Reconfigurable Systems 9:05 AM
Roman Lysecky, Nathan Sandoval, Sean Whitsitt, Casey Mackin, Jonathan Sprinkle, University of Arizona, United States

TA7a-4 Multimode Turbo Decoder on GPU 9:30 AM
Michael Wu, Guohui Wang, Bei Yin, Christoph Studer, Joseph R. Cavallaro, Rice University, United States

Session TA7b High Efficiency Video Coding

Chair: *Marios Pattichis, University of New Mexico*

TA7b-1 On the Use of SSIM in HEVC 10:15 AM
Tiesong Zhao, Zhou Wang, University of Waterloo, Canada

TA7b-2 A Layer-Adaptive Approach to Screen Content Coding for HEVC Application Range Extensions 10:40 AM
Chun-Chi Chen, Hung-Cheng Jhu, Tsui-Shan Chang, Wen-Hsiao Peng, National Chiao Tung University, Taiwan

TA7b-3 Dynamically Reconfigurable Architecture System for Time-Varying Image Constraints (DRASTIC) for HEVC Intra Encoding 11:05 AM
Yuebing Jiang, Gangadharan Esakki, Marios Pattichis, University of New Mexico, United States

TA7b-4 High Efficiency Video Coding (HEVC) for Reproducible Medical Ultrasound Video Diagnosis 11:30 AM
Andreas Panayides, Imperial College London, United Kingdom; Marios Pattichis, University of New Mexico, United States; Constantinos Pattichis, University of Cyprus, Cyprus

Session TA8a1 Radar and Sonar Signal Processing

Chair: *Pu Wang, Schlumberger-Doll Research Center*

8:15 AM–9:55 AM

TA8a1-1 A Novel Target Motion Compensation Method for Randomized Stepped Frequency ISAR
Peng Song, Huadong Meng, Tianyao Huang, Yimin Liu, Tsinghua University, China

TA8a1-2 SAR Imaging Using Sparse ML Approaches
George-Othon Glentis, University of Peloponnese, Greece; Kexin Zhao, University of Florida, United States; Andreas Jakobsson, Lund University, Sweden; Habti Abeida, University of Taif, Saudi Arabia; Jian Li, University of Florida, United States

TA8a1-3 Direction Estimation Using Compressive Sampling Array Processing with Reconfigurable Antennas
Erica Daly, Kurt Schab, Jennifer Bernhard, University of Illinois at Urbana-Champaign, United States

TA8a1-4 Radar Modeling and Validation of Human Gaits Using Joint Motion Capture and Radar Data Collections
Ryan Hersey, Georgia Tech Research Institute, United States; David Bowden, Dustin Bruening, Lamar Westbrook, Air Force Research Laboratory, United States

TA8a1-5 On the Effect of Reconfigurable Antenna Radiation Patterns on Outdoor Channel Characteristics
Hassan El-Sallabi, Mohamed Abdallah, Texas A&M University at Qatar, Qatar; Jean-Francois Chamberland, Texas A&M University, United States; Khalid Qaraqe, Texas A&M University at Qatar, Qatar

TA8a1-6 Target Detection and Classification Against Non-stationary Interference Using Dynamic Time-Frequency Localization
Ananya Sen Gupta, University of Iowa, United States; Ivars Kirsteins, Naval Undersea Warfare Center, United States

TA8a1-7 Passive Radar Detection Using Multiple Transmitters
Stephen Howard, Songsri Sirianunpiboon, Defence Science and Technology Organisation, Australia

TA8a1-8 Optimal Beam Pattern Design For Very Large Sensor Arrays With Sparse Sampling
Yenming Lai, Radu Balan, University of Maryland, United States; Heiko Claussen, Justinian Rosca, Siemens Corporation, United States

Session TA8a2 Communication Systems I

Chair: *Ralf Muller, University of Erlangen-Nuremberg*

8:15 AM–9:55 AM

TA8a2-1 Low Latency T-EMS Decoder for NB-LDPC Codes
Erbao Li, David Declercq, ETIS ENSEA/univ. Cergy-Pontoise/CNRS, France; Kiran Gunnam, Nvidia Corporation, United States; Francisco Garcia, Jesus Omar, Javier Valls, Universidad Politecnica de Valencia, Spain

TA8a2-2 On Polarization for the Linear Operator Channel
Cesar Brito, Joerg Kliewer, New Mexico State University, United States

TA8a2-3 Quickness of the Instantaneous Frequency Based Classifier Distinguishing BFSK from QAM and PSK Modulations
Mohammad Bari, Miloš Doroslovacki, George Washington University, United States

TA8a2-4 Coalition Formation for Uplink Device to Device Coordination with Cooperation Costs
Srinivas Yerramalli, Rahul Jain, Urbashi Mitra, University of Southern California, United States

TA8a2-5 A Probabilistic Framework for Global Navigation Satellite System Signal Timing Assurance
Kyle Wesson, Brian Evans, Todd Humphreys, University of Texas at Austin, United States

TA8a2-6 Channel-Optimized Vector Quantization with Mutual Information as Fidelity Criterion
Andreas Winkelbauer, Gerald Matz, Vienna University of Technology, Austria; Andreas Burg, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

TA8a2-7 Exploiting Spectral Leakage for Spectrogram Frequency Super-Resolution
Ray Maleh, Frank Boyle, L-3 Communications Mission Integration, United States

TA8a2-8 Constraint-Based Adaptive OFDM Transmission with Signaling-Assisted Modulation Classification
Lars Häring, Christian Kisters, University Duisburg-Essen, Germany

TA8a2-9 Analysis of Min-Sum based Decoders Implemented on Noisy Hardware
Christiane Ngassa, Valentin Savin, CEA-LETI, MINATEC campus, France; David Declercq, ETIS ENSEA/univ. Cergy-Pontoise/CNRS, France

TA8a2-10 Sum-Rate Maximization for Active Channels: Unequal Noise Power over Different Subchannels
Javad Mirzaee, Shahram ShahbazPanahi, University of Ontario Institute of Technology, Canada

Session TA8a3 Machine Learning and Statistical Signal Processing I

Chair: *Mauro Maggioni, Duke University*

8:15 AM–9:55 AM

TA8a3-1 On the Periodogram Estimator of Period from Sparse, Noisy Timing Data
Barry Quinn, Macquarie University, Australia; Vaughan Clarkson, University of Queensland, Australia; Robby McKilliam, University of South Australia, Australia

TA8a3-2 Random Matrix Theory in Pattern Classification: An Application to Error Estimation
Amin Zollanvari, Edward R. Dougherty, Texas A&M University, United States

TA8a3-3 Hierarchical Bayesian Sparse Source Separation of Hyperspectral Signals
Todd K. Moon, Jacob H. Gunther, Utah State University, United States; Candace Berrett, Gustavious P. Williams, Brigham Young University, United States

TA8a3-4 Bayes Clustering Operators for Known Random Labeled Point Processes
Lori Dalton, The Ohio State University, United States; Marco Enrique Benalcázar Palacios, Marcel Brun, Universidad Nacional de Mar del Plata, Argentina; Edward R. Dougherty, Texas A&M University, United States

TA8a3-5 A Particle-Based Search Strategy for Improved Space Situational Awareness
Tyler A. Hobson, Vaughan Clarkson, University of Queensland, Australia

TA8a3-6 Closed-Form CRLBs for CFO and Phase Estimation from Turbo-Coded Square-QAM-Modulated Signals
Achref Methenni, Faouzi Bellili, Sofiène Affès, Institut National de la Recherche Scientifique, Canada

TA8a3-7 Comparisons of Particle Swarm and CAT Swarm Optimization Algorithms for IIR Adaptive Filtering
Jinhyun So, William Jenkins, Pennsylvania State University, United States

TA8a3-8 Automated Human Behavioral Analysis Framework using Facial Feature Extraction and Machine Learning
Demiyan Smirnov, Sean Banger, Sara Davis, Rajani Muraleedharan, Ravi Ramachandran, Rowan University, United States

Session TA8a4 Machine Learning for Biological Signals

Chair: *Scott Acton, Virginia Tech*

8:15 AM–9:55 AM

TA8a4-1 Projection Operator Based Removal of Baseline Wander Noise from ECG Signals
Sakshi Agrawal, Anubha Gupta, International Institute of Information Technology-Hyderabad, India

TA8a4-2 A Multi-Scale Energy Detector For Anomaly Detection in Dynamic Graphs
Arash Golibagh Mahyari, Selin Aviyente, Michigan State University, United States

TA8a4-3 Virtual Inertial Measurements for Motion Inference in Wireless Health
Xiaoxu Wu, Hua-I Chang, Chu-Hsiang Huang, Yan Wang, Lara Dolecek, Greg Pottie, University of California, Los Angeles, United States

TA8a4-4 Shape Descriptors Based on Compressed Sensing with Application to Neuron Matching
Suvadip Mukherjee, Rituparna Sarkar, Scott Acton, University of Virginia, United States

TA8a4-5 Multi-view Network Module Detection
Yu-Teng Chang, Dimitrios Pantazis, McGovern Institute for Brain Research, Massachusetts Institute of Technology, United States

TA8a4-6 Bayesian Optimal Control of Markovian Genetic Regulatory Networks
Mohammadmahdi Rezaei Yousefi, Edward R. Dougherty, Texas A&M University, United States

Session TA8b1 Communications Systems II

Chair: *Vaughan Clarkson, University of Queensland*

10:15 AM–11:55 AM

TA8b1-1 Computing the Multiple Access Rate Region for Real-World Signals
Bruce MacLeod, MIT Lincoln Laboratory, United States

TA8b1-2 Extraction of a Weak Co-channel Interfering Communication Signal using Complex Independent Component Analysis
Matthew Hagstette, Monique Fargues, Roberto Cristi, Naval Postgraduate School, United States

TA8b1-3 Resource Allocation for Mobile Video Conferencing
Chao Yang, Scott Jordan, University of California, Irvine, United States

TA8b1-4 Multi-User Real-Time Wireless Video with Perceptual Constraints
Andrew Thornburg, Alan Bovik, Robert W. Heath, Jr., University of Texas at Austin, United States

TA8b1-5 Cross Layer Link Adaptation in Time Varying Mobile Satellite Channels with Outdated and Statistical CSIT
Alberto Rico-Alvarino, Jesus Arnau, Carlos Mosquera, University of Vigo, Spain

TA8b1-6 Cancellation of Power Amplifier Induced Nonlinear Self-Interference in Full-Duplex Transceivers
Lauri Anttila, Dani Korpi, Ville Syrjälä, Mikko Valkama, Tampere University of Technology, Finland

TA8b1-7 Self-Interference Cancellation with Nonlinear Distortion Suppression for Full-Duplex Systems
Elsayed Ahmed, Ahmed Eltawil, University of California, Irvine, United States; Ashutosh Sabharwal, Rice University, United States

TA8b1-8 A Physical Layer Framework for Interference Analysis of LTE and Wi-Fi Operating in the Same Band
Rafael C. D. Paiva, Nokia Institute of Technology, Brazil; Panayiotis Papadimitriou, Sayantan Choudhury, Nokia Research Center, Finland

Session TA8b2 Computer Arithmetic

Chair: *Earl Swartzlander, University of Texas at Austin*

10:15 AM–11:55 AM

TA8b2-1 A Partially-Adiabatic Energy-Efficient Logic Family as a Power Analysis Attack Countermeasure
Mihail Cutitaru, Lee A. Belfore, II, Old Dominion University, United States

TA8b2-2 Arithmetic with Binary-Encoded Balanced Ternary Numbers
Behrooz Parhami, Michael McKeown, University of California, Santa Barbara, United States

TA8b2-3 Design and Implementation of Radix-10 Algorithm for Cube Root with Limited Precision Primitives
Milos Ercegovac, University of California, Los Angeles, United States; Robert McIlhenny, California State University, Northridge, United States

TA8b2-4 Radix Conversion for IEEE754-2008 Mixed Radix Floating-Point Arithmetic
Olga Kupriianova, Christoph Lauter, Université Pierre et Marie Curie Paris 6, France; Jean-Michel Muller, Centre National de Recherche Scientifique - Ecole Normale Supérieure de Lyon, France

TA8b2-5 Logarithmic Arithmetic as an Alternative to Floating-Point: A Review
Manik Chugh, Behrooz Parhami, University of California, Santa Barbara, United States

TA8b2-6 Comparison of Parallelized Radix-2 and Radix-4 Scalable Montgomery Multipliers
Andrew Carter, Paula Ning, William Koven, David Harris, Michael Braly, Nathan Jones, Julien Massas, Alexandra Simoni, Harvey Mudd College, United States

TA8b2-7 Implementation of a 64-Bit Jackson Adder
Andrew Carter, Tynan McAuley, William Koven, Paula Ning, David Harris, Harvey Mudd College, United States

TA8b2-8 Fast modulo 2n-1 and 2n+1 Adder Using Carry-Chain on FPGA
Laurent-Stephane Didier, Université de Toulon, France; Luc Jaulmes, Ecole Polytechnique, France

Session TA8b3 MIMO Systems

Chair: *D. Richard Brown III, Worcester Polytechnic Institute*

10:15 AM–11:55 AM

TA8b3-1 Some Fundamental Limits on Synchronization in Massive MIMO
Hei Victor Cheng, Erik G. Larsson, Linköping University, Sweden

TA8b3-2 Massive MIMO with Clustered Pilot Contamination Precoding
Mahmood Mazrouei-Sebdani, Witold Krzymien, University of Alberta / Telecommunications Research Laboratories, Canada

TA8b3-3 Second-Order Analysis of the Joint SINR Distribution in Rayleigh Multiple Access and Broadcast channels
Adrien Pelletier, Romain Couillet, Supélec, France; Jamal Najim, Université Paris-Est, France

TA8b3-4 Power-Throughput Tradeoff in MIMO Heterogeneous Networks
Shashika Manosha Kapuruhamy Badalge, Satya Joshi, Marian Codreanu, Nandana Rajatheva, Matti Latva-aho, Centre for Wireless Communications, Finland

TA8b3-5 Decentralized Joint Beamforming and Scheduling for Weighted Sum Rate Maximization
Jarkko Kaleva, Antti Tölli, Markku Juntti, University of Oulu, Finland

TA8b3-6 Performance Comparison of ZF-DPC to Block Diagonalization for Quantized Feedback
Joydeep Acharya, Long Gao, Sudhanshu Gaur, Hitachi America Ltd, United States

TA8b3-7 Iterative MMSE-DFE Equalizer for the High Data Rates HF Waveforms in the HF Channel
Mahmoud Elgenedy, VarkonSemiconductors, Egypt; Essam Sourour, Alexandria University, Egypt

TA8b3-8 Worst-Case Weighted Sum-Rate Maximization for MISO Downlink Systems with Imperfect Channel Knowledge
Uditha Wijewardhana, Satya Joshi, Marian Codreanu, Matti Latva-aho, Centre for Wireless Communications, Finland

TA8b3-9 Splitting Source Power for a Multicarrier Relay System with Direct Link
Yiming Ma, Yingbo Hua, University of California, Riverside, United States

TA8b3-10 Channel Estimation Using Time-Shifted Pilot Sequences in Non-Cooperative Cellular TDD Networks with Large Antenna Arrays.
José Luis Lagunas-Morales, Sébastien Roy, University of Sherbrooke, Canada

TA8b3-11 Blind Separation for Precoding-Based Blind Channel Estimation for MIMO-OFDM Systems
Song Noh, Michael D. Zoltowski, Purdue University, United States

TA8b3-12 On the Jamming Power Allocation and Signal Design in DF Relay Networks
Xiangyun Zhou, Min Qiu, Australian National University, Australia; Shih-Chun Lin, National Taiwan University of Science and Technology, Taiwan; Y.-W. Peter Hong, National Tsing Hua University, Taiwan

TA8b3-13 Soft-Input Soft-Output Linear Programming Decoding for Spread Spectrum Underwater Acoustic Communications
Erica Daly, University of Illinois at Urbana-Champaign, United States

Session TA8b4 Adaptive Learning and Information Theory

Chair: *Ric Romero, Naval Postgraduate School*

10:15 AM–11:55 AM

TA8b4-1 Information Theoretic Upper Bounds on the Number of Distinguishable Classes
C. M. Keller, M. Ho, P. Basu, MIT Lincoln Laboratory, United States; G. H. Whipple, Laboratory for Telecommunications Sciences, United States

TA8b4-2 Direct Learning Adaptation of Power Amplifier Predistortion Based on Wirtinger Calculus
Navid Lashkarian, Jun Shi, Marcellus Forbes, Broadcom, United States

TA8b4-3 Adaptive Signal Classification of Satellite-Based Recordings of Radiofrequency (RF) Transients Using Learned Dictionaries
Daniela Moody, David Smith, Tess Light, David Suszcynsky, Los Alamos National Laboratory, United States

TA8b4-4 Reduced-Complexity Binary Search for Doppler Estimation in GNSS Receivers
Baharak Soltanian, Tampere University of Technology, United States; Murat Demirtas, University of California, Irvine, United States; Moncef Gabbouj, Tampere University of Technology, Finland

TA8b4-5 Adaptive Learning of Immunosignaturing Features for Multi-Disease Pathologies
Anna Malin, Narayan Kovvali, Antonia Papandreou-Suppappola, Brian O'Donnell, Stephen Johnston, Phillip Stafford, Arizona State University, United States

TA8b4-6 Hirschman Uncertainty with the Discrete Fractional Fourier Transform
Kirandeep Ghuman, Victor DeBrunner, Florida State University, United States

Session TP1a Advanced MIMO Networking

Chair: *Sidhhartan Govindasamy, Olin College*

TP1a-1 Asymptotic Spectral Efficiency of Limited-Rank MIMO Transmissions in Wireless Networks with Nodes at Correlated Locations 1:30 PM
Siddhartan Govindasamy, F. W. Olin College of Engineering, United States; Daniel Bliss, Arizona State University, United States

TP1a-2 Impact of Spatial Correlation and Distributed Antennas for Massive MIMO systems 1:55 PM
Kien Truong, MIMO Wireless Inc., United States; Robert W. Heath, Jr., University of Texas at Austin, United States

TP1a-3 Impact of Training on Multiple-Antenna Communications in Wireless Ad Hoc Networks 2:20 PM
Yueping Wu, Raymond Louie, Matthew McKay, Hong Kong University of Science and Technology, Hong Kong SAR of China

TP1a-4 Area Spectral and Energy Efficiency in Multi-antenna Cognitive Underlay Networks 2:45 PM
Syed Ali Raza Zaidi, Mounir Ghogho, Desmond C. McLernon, University of Leeds, United Kingdom; Ananthram Swami, US Army Research Laboratory, United States

Session TP1b Full-Duplex MIMO Communications II

Chair: *Yingbo Hau, University of California, Riverside*

TP1b-1 Diversity-Multiplexing Tradeoff Analysis of MIMO Relay Networks with Full-Duplex Relays 3:30 PM
Qiang Xue, University of Oulu, Finland; Anna Pantelidou, Renesas Mobile Europe, Finland; Behnaam Aazhang, Rice University, United States

TP1b-2 Ergodic Mutual Information of Full-Duplex MIMO Radios with Residual Self-Interference 3:55 PM
Ali Cagatay Cirik, University of California, Riverside, United States; Yue Rong, Curtin University, Australia; Yingbo Hua, University of California, Riverside, United States

TP1b-3 Full-Duplex in Large-Scale Wireless Systems 4:20 PM
Bei Yin, Michael Wu, Christoph Studer, Joseph R. Cavallaro, Rice University, United States

TP1b-4 Full-Duplex Communication via Adaptive Nulling 4:45 PM
Scott Johnston, Paul Fiore, Massachusetts Institute of Technology, United States

TP1b-5 Weighted-Sum-Rate Maximization for Bi-directional Full-Duplex MIMO Systems 5:10 PM
Ali Cagatay Cirik, University of California, Riverside, United States; Rui Wang, Shanghai Jiao Tong University, China; Yingbo Hua, University of California, Riverside, United States

Session TP2a Multimedia Quality Assessment

Chair: *Patrick Le Callet, IRCCyN/Université de Nantes*

TP2a-1 On the Effectiveness of Natural Videos in Masking Dynamic DCT Noise 1:30 PM
Jeremy Evert, Damon Chandler, Oklahoma State University, United States

TP2a-2 Investigating Electrophysiology for Measuring Emotions Triggered by Audio Stimuli 1:55 PM
Filippo Mazza, IRCCyN, France; Matthieu Perreira Da Silva, Patrick Le Callet, IRCCyN/University of Nantes, France

TP2a-3 Perceptual Evaluation of Image Denoising Algorithms 2:20 PM
Kai Zeng, Zhou Wang, University of Waterloo, Canada

TP2a-4 Coding of 3D Videos based on Visual Discomfort 2:45 PM
Dogancan Temel, Ghassan AlRegib, Georgia Institute of Technology, United States

Session TP2b PHY Performance Abstraction Techniques

Chair: *Carlos Mosquera, University of Vigo*

TP2b-1 Stochastic Dynamic Models in PHY Abstraction 3:30 PM
Francesc Rey, Josep Sala-Alvarez, Technical University of Catalonia, Spain

TP2b-2 On Scalability, Robustness and Accuracy of Physical Layer Abstraction for Large-Scale System Level Evaluations of LTE networks 3:55 PM
Florian Kaltenberger, Imran Latif, Raymond Knopp, Eurecom, France

TP2b-3 Link Adaptation in MIMO-OFDM with Practical Impairments 4:20 PM
Alberto Rico-Alvarino, University of Vigo, Spain; Robert W. Heath, Jr., University of Texas at Austin, United States

TP2b-4 Digital Pre-distortion of Radio Frequency Front-end Impairments in the Design of Spectrally Agile Multicarrier Transmission 4:45 PM
Zhu Fu, Alexander Wyglinski, Worcester Polytechnic Institute, United States

TP2b-5 System-Level Interfaces and Performance Evaluation Methodology for 5G Physical Layer Based on Non-orthogonal Waveforms 5:10 PM
Gerhard Wunder, Martin Kasparick, Fraunhofer Heinrich Hertz Institute, Germany; Stephan ten Brink, Frank Schaich, Thorsten Wild, Bell Labs, Alcatel-Lucent, Germany; Ivan Gaspar, Nicola Michailow, Gerhard Fettweis, Technische Universität Dresden, Germany; Nicolas Cassiau, Commissariat à l'énergie atomique et aux énergies alternatives, France; Marcin Dryjanski, Slawomir Pietrzyk, IS-Wireless, Poland; Bertalan Eged, National Instruments, Hungary

Session TP3a New Geometric Models for Processing in Big-Data World

Chair: *Waheed Bajwa, Rutgers University*

TP3a-1 Robust Subspace Clustering 1:30 PM
Mahdi Soltanolkotabi, Emmanuel Candes, Stanford University, United States

TP3a-2 Geometric Estimation of Probability Measures in High-Dimensions 1:55 PM
Mauro Maggioni, Duke University, United States

TP3a-3 Change-point Detection for High-Dimensional Data 2:20 PM
Yao Xie, Rebecca Willett, Duke University, United States

TP3a-4 Image Analysis with Transformation-Invariant Group Sparsity 2:45 PM
Alhussein Fawzi, Pascal Frossard, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Session TP3b Low-Dimensional Signal Models

Chair: *John Wright, Columbia University*

TP3b-1 Nearest Subspace Classification with Missing Data 3:30 PM
Yuejie Chi, The Ohio State University, United States

TP3b-2 Reflections on Sampling-Filters for Compressive Sensing and Finite-Innovations-Rate Models 3:55 PM
P. P Vaidyanathan, California Institute of Technology, United States

TP3b-3 Identifiability Bounds for Bilinear Inverse Problems 4:20 PM
Sunav Choudhary, Urbashi Mitra, University of Southern California, United States

TP3b-4 Load Forecasting via Low Rank and Sparse Matrix Factorization 4:45 PM
Seung-Jun Kim, Georgios B. Giannakis, University of Minnesota, United States

TP3b-5 Semi-Blind Source Separation via Sparse Representations and Online Dictionary Learning 5:10 PM
Sirisha Rambhatla, Jarvis Haupt, University of Minnesota, United States

Session TP4a Power Networks

Chair: *Edmund Yeh, Northeastern University*

TP4a-1 Convex Relaxation for Optimal Power Flow Problem: Mesh Networks 1:30 PM
Ramtin Madani, Columbia University, United States; Somayeh Sojoudi, California Institute of Technology, United States; Javad Lavaei, Columbia University, United States

TP4a-2 Nonstationary Demand-Side Management 1:55 PM
Yuanzhang Xiao, Mihaela van der Schaar, University of California, Los Angeles, United States

TP4a-3 Framing Attack on State Estimation 2:20 PM
Jinsub Kim, Lang Tong, Robert J. Thomas, Cornell University, United States

TP4a-4 Power System Dynamics as Primal-Dual Algorithm for Optimal Load Control 2:45 PM
Changhong Zhao, California Institute of Technology, United States; Ufuk Topcu, University of Pennsylvania, United States; Lina Li, Steven Low, California Institute of Technology, United States

Session TP4b Location-Aware Networking

Chair: *Henk Wymeersch, Chalmers University*

TP4b-1 Robust Link Scheduling with Channel Estimation and Location Information 3:30 PM
Srikar Muppirisetty, Rocco Di Taranto, Henk Wymeersch, Chalmers University of Technology, Sweden

TP4b-2 Simultaneous Routing and Power Allocation using Location Information 3:55 PM
Rocco Di Taranto, Henk Wymeersch, Chalmers University of Technology, Sweden

TP4b-3 Location Aware Training Scheme for D2D Networks 4:20 PM
Daoud Burghal, Andreas F. Molisch, University of Southern California, United States

TP4b-4 Cooperative High-Accuracy Localization Algorithms for Improved Road Workers' Safety 4:45 PM
Sankalp Dayal, Khanh H. Huynh, Adam Mortazavi, University of California, Santa Barbara, United States; Ramez L. Gerges, California Department of Transportation, United States; John J. Shynk, University of California, Santa Barbara, United States

TP4b-5 Real-Time Energy Storage Management with Renewable Energy of Arbitrary Generation Dynamics 5:10 PM
Tianyi Li, Min Dong, University of Ontario Institute of Technology, Canada

Session TP5a Analysis of Complex Biological Systems and Omics Data I

Chair: *Byung-Jun Yoon, Texas A&M University*

TP5a-1 Predicting Responsiveness of Ovarian Cancer Patients to Platinum Chemotherapy Using Differentially Weighted Lone Star Algorithm 1:30 PM
Eren Ahsen, Burook Misganaw, Nitin Singh, Mathukumalli Vidyasagar, University of Texas at Dallas, United States; Michael White, University of Texas Southwestern Medical Center, United States

TP5a-2 Classifier Risk Analysis under Bayesian Uncertainty Models 1:55 PM
Lori Dalton, The Ohio State University, United States

TP5a-3 Reconstruction of Novel Transcription Factor Regulons through Inference of their Binding Sites 2:20 PM
Abdulkadir Elmas, Xiaodong Wang, Columbia University, United States; Michael Samoilov, University of California, United States

TP5a-4 Sample-Based Prior Construction Using Biological Pathway Knowledge 2:45 PM
Mohammad Shahrokh Esfahani, Edward R. Dougherty, Texas A&M University, United States

Session TP5b Analysis of Complex Biological Systems and Omics Data II

Chair: *Byung-Jun Yoon, Texas A&M University*

TP5b-1 Characterizing Functions in Uncertain Signaling Network Topologies 3:30 PM
Haitham Gabr, Tamer Kahveci, University of Florida, United States

TP5b-2 Statistical Validation of Parametric Approximations to the Chemical Master Equation 3:55 PM
Garrett Jenkinson, John Goutsias, The Johns Hopkins University, United States

TP5b-3 Objective-Based Experimental Design for Optimal Reduction of Model Uncertainty 4:20 PM
Byung-Jun Yoon, Texas A&M University, United States

TP5b-4 A Message-Passing Algorithm for Haplotype Assembly 4:45 PM
Zrinka Puljiz, Haris Vikalo, University of Texas at Austin, United States

Session TP6a MIMO Radar

Co-Chairs: *Jian Li, University of Florida and Dan Bliss, Arizona State University*

TP6a-1 Ziv-Zaikai Bound for Target Location and Velocity Estimation using Noncoherent MIMO Radar 1:30 PM
Vlad Chiriac, New Jersey Institute of Technology, United States; Qian He, University of Electronic Science and Technology of China, China; Alexanda Haimovich, New Jersey Institute of Technology, United States; Rick Blum, University of Electronic Science and Technology of China, United States

TP6a-2 Parametric Moving Target Detection with MIMO Radar in Non-Homogeneous Environments 1:55 PM
Pu Wang, Hongbin Li, Stevens Institute of Technology, United States; Braham Himed, Air Force Research Laboratory / RYMD, United States

TP6a-3 The MIMO radar MIRA-CLE Ka 2:20 PM
Jens Klare, Fraunhofer FHR, Germany

TP6a-4 Joint Estimation of Non-Coherent Returns for MIMO Radar 2:45 PM
William Rowe, Ode Ojowu, University of Florida, United States; Petre Stoica, Uppsala University, Sweden; Jian Li, University of Florida, United States

Session TP6b Target Tracking I

Chair: *Peter Willett, University of Connecticut*

TP6b-1 Track State Augmentation for Feature-Aided Active Sonar Tracking 3:30 PM
Evan Hanusa, David Krout, University of Washington, United States

TP6b-2 Hypothesis Structure in Enhanced Multiple-Hypothesis Tracking 3:55 PM
Stefano Coraluppi, Craig Carthel, Compunetix Inc., United States

TP6b-3 The Spline Probability Hypothesis Density Filter for Maneuvering Target Tracking 4:20 PM
Rajiv Sithravel, Xin Chen, Thia Kirubarajan, McMaster University, Canada; Mike McDonald, Defence Research and Development Canada, Canada

TP6b-4 Performance Analysis of the Converted Range Rate and Position Linear Kalman Filter 4:45 PM
Steven Bordonaro, Naval Undersea Research Center, United States; Peter Willett, Yaakov Bar-Shalom, University of Connecticut , United States

TP6b-5 MAP-PF Multitarget Tracking with Propagation Modeling Uncertainties 5:10 PM
Kristine Bell, Robert Zarnich, Metron, United States

Session TP7a Algorithm/Architecture Co-design

Chair: *Gunar Schirner, Northeastern University*

TP7a-1 Using Stream Rewriting for Mapping and Scheduling Data Flow Graphs onto Many-Core Architectures 1:30 PM
Christian Haubelt, Lars Middendorf, Christian Zebelein, University of Rostock, Germany

TP7a-2 A System-Level Design Approach for Dynamic Resource Coordination and Energy Optimization in Sensor Network Platforms 1:55 PM
Inkeun Cho, Chung-Ching Shen, University of Maryland at College Park, United States; Jonathan McGee, Laboratory for Physical Sciences, United States; Shuvra Bhattacharyya, University of Maryland at College Park, United States

TP7a-3 Architecture/Algorithm Codesign in Molecular Dynamics Processors 2:20 PM
Martin Herbordt, Boston University, United States; Md. Ashfaquzzaman Khan, Intel, United States

TP7a-4 Flexible Function-Level Acceleration of Embedded Vision Applications using the Pipelined Vision Processor 2:45 PM
Robert Bushey, Analog Devices Inc., United States

Session TP7b Machine Learning and Statistical Signal Processing II

Chair: *Yao Xie, Georgia Institute of Technology*

TP7b-1 Forward/Back State and Model Parameter Estimation for Continuum-State Hidden Markov Models (CHMM) with Dirichlet State Distributions 3:30 PM
Todd K. Moon, Jacob H Gunther, Utah State University, United States

TP7b-2 Low-Rank Kernel Learning for Electricity Market Inference 3:55 PM
Vassilis Kekatos, Yu Zhang, Georgios B. Giannakis, University of Minnesota, United States

TP7b-3 Hierarchical Clustering Methods and Algorithms for Asymmetric Networks 4:20 PM
Gunnar Carlsson, Stanford University, United States; Facundo Mémoli, University of Adelaide, Australia; Alejandro Ribeiro, Santiago Segarra, University of Pennsylvania, United States

TP7b-4 Maximum Likelihood SNR Estimation over Time-Varying Flat-Fading SIMO Channels 4:45 PM
Faouzi Bellili, Rabii Meftahi, Sofiène Affes, Institut National de la Recherche Scientifique, Canada

TP7b-5 Achieving Complete Learning in Multi-Armed Bandit Problems 5:10 PM
Sattar Vakili, Qing Zhao, University of California, Davis, United States

Session TP8a1 Spectrum Sensing and Sharing

Chair: *Geert Leus, Delft University of Technology (TU Delft)*

1:30 PM–3:10 PM

TP8a1-1 Cognitive Coexistence: A Throughput Study of MUD-Enhanced Opportunistic Spectrum Access
Rachel Learned, Scott Johnston, Massachusetts Institute of Technology, United States

TP8a1-2 Throughput Maximization in Multichannel Cognitive Radio Systems with Delay Constraints
Ahmed Ewaisha, Cihan Tepedelenlioglu, Arizona State University, United States

TP8a1-3 Joint Random Beam and Spectrum Selection for Spectrum Selection with Partial Channel State Information
Mohamed Abdallah, Mostafa Sayed, Texas A&M University at Qatar, Qatar; Mohamed-Slim Alouini, King Abdullah University of Science and Technology, Saudi Arabia; Khalid Qaraqe, Texas A&M University at Qatar, Qatar

TP8a1-5 Signal Detection for Dynamic Spectrum Access
Jim Schroeder, Dave Chester, Jerry Sonnenberg, Bryan Hehn, Steve Andrews, Nick Van Stralen, Ihsan Akbar, Harris Corporation, United States

TP8a1-6 Multi-Bit Cooperative Spectrum Sensing Strategy in Closed Form
Xiaoyuan Fan, Dongliang Duan, University of Wyoming, United States; Liuqing Yang, Colorado State University, United States

TP8a1-7 Identifying Statistical Mimicry Attacks in Distributed Spectrum Sensing
Mihir Laghate, Chu-Hsiang Huang, Chung-Kai Yu, Lara Dolecek, Danijela Cabric, University of California, Los Angeles, United States

TP8a1-8 An Amplify and Forward Scheme for Cognitive Radios
Francesco Verde, University Federico II of Naples, Italy; Anna Scaglione, University of California, Davis, United States; Donatella Darsena, Parthenope University of Naples, Italy; Giacinto Gelli, University Federico II of Naples, Italy

TP8a1-9 Non-Compressive Wideband Spectrum Sensing with Sub-Nyquist Sampling Rates
Mustafa Al-Ani, University of Westminster, United Kingdom; Bashar Ahmad, University of Cambridge, United Kingdom; Andrzej Tarczynski, University of Westminster, United Kingdom

TP8a1-10 Opportunistic Transmitter Selection for Selfless Overlay Cognitive Radios
Mohammad Shaqfeh, Texas A&M University at Qatar, Qatar; Ammar Zafar, King Abdullah University of Science and Technology, Saudi Arabia; Hussein Alnuweiri, Texas A&M University at Qatar, Qatar; Mohamed-Slim Alouini, King Abdullah University of Science and Technology, Saudi Arabia

TP8a1-11 A Game Theoretic Power Control Framework for Spectrum Sharing in Competitive Environments
Raghed El-Bardan, Swastik Brahma, Pramod K. Varshney, Syracuse University, United States

TP8a1-12 Cognitive Radio Transmission Strategies for Primary Erasure Channels
Ahmed ElSamadony, Mohammed Nafie, Ahmed Sultan, Nile University, Egypt

Session TP8a2 Relays in Communications

Chair: *Cihan Tepedelenlioglu, Arizona State University*

1:30 PM–3:10 PM

TP8a2-1 Optimized Receiver Design for Decode-and-Forward Relays using Hierarchical Modulation
Tu Nguyen, Pamela Cosman, Laurence Milstein, University of California, San Diego, United States

TP8a2-2 Optimal Linear-combining Receiver for Decode-and-Forward Relays using Superposition Coding
Tu Nguyen, Laurence Milstein, University of California, San Diego, United States

TP8a2-3 Alternate Relaying and the Degrees of Freedom of One-Way Cellular Relay Networks
Aya Salah, Amr El-Keyi, Mohammed Nafie, Nile University, Egypt

TP8a2-4 Distributed AF Beamforming Relay Networks under Transmit Power Constraint
Kanghee Lee, Hyuck M. Kwon, Edwin M. Sawan, Wichita State University, United States; Hyuncheol Park, Korea Advanced Institute of Science and Technology, Republic of Korea

TP8a2-5 Joint Transmit Design and Node Selection for One-Way and Two-Way Untrusted Relay Channels
Jing Huang, A. Lee Swindlehurst, University of California, Irvine, United States

TP8a2-6 Wireless Physical Layer Security Enhancement with Buffer-Aided Relaying
Jing Huang, A. Lee Swindlehurst, University of California, Irvine, United States

TP8a2-7 Training Slot Allocation for Mitigating Estimation Error Propagation in a Two-Hop Relaying System
Qian Gao, Gang Chen, Yingbo Hua, University of California, Riverside, United States

TP8a2-8 Transmit Outage Pre-equalization for Amplify-and-Forward Relay Channels
Fernando Sanchez, Gerald Matz, Vienna University of Technology, Austria

Session TP8a3 Cellular and Heterogeneous Networks

Chair: *Sundeep Rangan, NYU Poly*

1:30 PM–3:10 PM

TP8a3-1 Downlink Coverage Analysis of N-Tier Heterogeneous Cellular Networks Based on Clustered Stochastic Geometry
Chunlin Chen, Robert Elliott, Witold Krzymien, University of Alberta / Telecommunications Research Laboratories, Canada

TP8a3-2 System-Level Performance of the MIMO-OFDM Downlink with Dense Small Cell Overlays
Thomas Wirth, Bernd Hofeld, Fraunhofer Heinrich Hertz Institute, Germany

TP8a3-3 Adaptive HARQ and Scheduling for Video over LTE
Avi Rapaport, Weimin Liu, Liangping Ma, Gregory S. Sternberg, Ariela J. Zeira, Anantharaman Balasubramanian, InterDigital, United States

TP8a3-4 Novel Partial Feedback Schemes and Their Evaluation in an OFDMA System with CDF Based Scheduling
Anh Nguyen, University of California, San Diego, United States; Yichao Huang, Qualcomm Technologies, Inc., United States; Bhaskar Rao, University of California, San Diego, United States

TP8a3-5 Opportunistic Third-Party Backhaul for Cellular Wireless Networks
Russell Ford, Changkyu Kim, Sundeep Rangan, Polytechnic Institute of New York University, United States

TP8a3-6 Proactive User Association in Small Cell Networks via Collaborative Filtering
Francesco Pantisano, Mehdi Bennis, Centre for Wireless Communications, Finland; Walid Saad, University of Miami, United States; Stefan Valentin, Bell Labs, Alcatel-Lucent, Germany; Mérouane Debbah, Supelec, France; Alessio Zappone, Technische Universität Dresden, Germany

TP8a3-7 Interference Analysis of Multi-hop Cellular Networks
Yeashfi Hasan, R. Michael Buehrer, Virginia Polytechnic Institute and State University, United States

Session TP8a4 Adaptive Filtering

Chair: *Gongguo Tang, University of Wisconsin Madison*

1:30 PM–3:10 PM

TP8a4-1 A Gradient-Controlled Improved Proportionate Multi-Delay Filter
Jie Yang, Texas Instruments, United States; Sobelman Gerald, University of Minnesota, United States

TP8a4-2 Complex Proportionate-Type Affine Projection Algorithms
Kevin Wagner, Naval Research Laboratory, United States; Miloš Doroslovacki, George Washington University, United States

TP8a4-3 Radar Waveform Design in Active Communications Channel
Kevin Shepherd, Ric Romero, Naval Postgraduate School, United States

TP8a4-4 The Leaky Least Mean Mixed Norm Algorithm
Mohammed Abdul Nasar, Azzedine Zerguine, King Fahd University of Petroleum & Minerals, Saudi Arabia

TP8a4-5 A New Variable Step-Size Zero-Point Attracting Projection Algorithm
Jianming Liu, Steven Grant, Missouri University of Science and Technology, United States

TP8a4-6 Reliable and Low Power Least Squares Lattice Filtering
Chandrasekhar Radhakrishnan, Andrew Singer, University of Illinois at Urbana-Champaign, United States

Session TP8b1 Electrophysiology and Brain Imaging

Chair: *Behnaam Aazhang, Rice University*

3:30 PM–5:10 PM

TP8b1-1 Joint Compression of Neural Action Potentials and Local Field Potentials
Sebastian Schmale, Benjamin Knoop, Janpeter Hoeffmann, Dagmar Peters-Drolshagen, Steffen Paul, University of Bremen, Germany

TP8b1-2 Reducing the Effect of Correlated Brain Sources in MEG Using a Linearly Constrained Spatial Filter Based on Minimum Norm
Jose Alfonso Sanchez De Lucio, David M. Halliday, University of York, United Kingdom

TP8b1-3 Online Bayesian Change Point Detection Algorithms for Segmentation of Epileptic Activity
Rakesh Malladi, Behnaam Aazhang, Rice Unviersity, United States; Giridhar P Kalamangalam, University of Texas Health Science Center, United States

TP8b1-4 Spiking Neural Networks based on LIF with Latency: Simulation and Synchronization Effects
Gian Carlo Cardarilli, Alessandro Cristini, Marco Re, Mario Salerno, Gianluca Susi, University of Rome Tor Vergata, Italy

TP8b1-5 Time-Frequency Analysis of Brain Electrical Signals for Behaviour Recognition in Patients with Parkinson's Disease
Huaiguang Jiang, Jun Jason Zhang, University of Denver, United States; Adam Hebb, Colorado Neurological Institute, United States; Mohammad Mahoor, University of Denver, United States

TP8b1-6 Modified Hodgkin–Huxley Model using Fractional Differential Equation
Harsh Wardhan, Anubha Gupta, Shubhajit Roy Chowdhury, International Institute of Information Technology-Hyderabad, India

TP8b1-7 A Measure of Connectivity in the Presence of Crosstalk
Sergul Aydore, Syed Ashrafulla, Anand Joshi, Richard Leahy, University of Southern California, United States

Session TP8b2 Multiuser MIMO Systems

Chair: *Thomas Svantesson, ArrayComm*

3:30 PM–5:10 PM

TP8b2-1 Multi-User MIMO Scheduling in the Fourth Generation Cellular Uplink
Narayan Prasad, Honghai Zhang, NEC Laboratories America, Inc., United States; Hao Zhu, University of Minnesota, United States; Sampath Rangarajan, NEC Laboratories America, Inc., United States

TP8b2-2 Optimal DoF Region of the Two-User MISO-BC with General Alternating CSIT
Jinyuan Chen, Petros Elia, Eurecom, France

TP8b2-3 Exploiting Spatial Spectrum Holes in Multiuser MIMO systems
Feeby Salib, Karim Seddik, American University in Cairo, Egypt

TP8b2-4 Achievable Degrees of Freedom of Three-Cell MIMO Cellular Networks Using Subspace Alignment Chains
Gokul Sridharan, Wei Yu, University of Toronto, Canada

TP8b2-5 Interference Alignment for MISO Broadcast Channels under Jamming attacks
SaiDhiraj Amuru, Ravi Tandon, R. Michael Buehrer, T. Charles Clancy, Virginia Tech, United States

TP8b2-6 Performance Study of MRC and IRC Weights In LTE/LTE-A Systems With Interference Management
Thomas Svantesson, ArrayComm, United States

TP8b2-7 MIMO Broadcast Channels with Partial CSIT and Application to Location based CSIT
Habib Chabbi, Yohan Lejosne, Dirk Slock, Eurecom, France; Yuan-Wu Yi, Orange Labs, France

TP8b2-8 A System-Level Study on Multi-User MIMO Transmission for Ultra Dense FDD Networks
Lars Thiele, Martin Kurras, Kai Börner, Fraunhofer Institute, Germany

TP8b2-9 Diversity-Multiplexing Tradeoff of MIMO Linear Precoding
Ahmed Mehana, Samsung Electronics, Co., Ltd., United States; Aria Nosratinia, University of Texas at Dallas, United States

Session TP8b3 Design Automation

Chair: *Christian Haubelt, University of Rostock*

3:30 PM–5:10 PM

TP8b3-1 MPMAP: A High Level Synthesis and Mapping Tool for MPSoCs
Amr Hussien, Ahmed Eltawil, University of California, Irvine, United States; Rahul Amin, Jim Martin, Clemson University, United States

TP8b3-2 Software Tool for FPGA Based MIMO Radar Applications
Amin Jarrah, Mohsin M. Jamali, University of Toledo, United States

TP8b3-3 Multi-Clock Domain Optimization for Reconfigurable Architectures in High-Level Dataflow Applications
Simone Casale Brunet, Endri Bezati, Claudio Alberti, Marco Mattavelli, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; Edoardo Amaldi, Politecnico di Milano, Italy; Jörn Janneck, Lund University, Sweden

TP8b3-4 Actor Classification using Actor Machines
Gustav Cedersjö, Jörn Janneck, Lund University, Sweden

TP8b3-5 Systems Design Space Exploration by Serial Dataflow Program Executions
Simone Casale Brunet, Marco Mattavelli, Claudio Alberti, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland; Jorn Janneck, Lund University, Sweden

TP8b3-6 Porting an MPEG-HEVC Decoder to a Low-Power Many-Core Platform
Damien de Saint-Jorre, Claudio Alberti, Marco Mattavelli, Simone Casale Brunet, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

TP8b3-7 Real-time Radar Signal Processing on Massively Parallel Processor Arrays
Zain Ul-Abdin, Halmstad University, Sweden; Anders Åhlander, Saab AB, Sweden; Bertil Svensson, Halmstad University, Sweden

TP8b3-8 Algorithm and Architecture Co-design of Mixture of Gaussian (MoG) Background Subtraction for Embedded Vision
Hamed Tabkhi, Northeastern University, United States; Robert Bushey, Analog Devices Inc., United States; Gunar Schirner, Northeastern University, United States

Session WA1a MIMO Interference Management

Chair: *Rachel Learned, MIT Lincoln Laboratory*

WA1a-1 Degrees of Freedom for the Constant MIMO Interference Channel with CoMP Transmission 8:15 AM
Craig Wilson, Venugopal V. Veeravalli, University of Illinois at Urbana-Champaign, United States

WA1a-2 Dynamic Interference Management 8:40 AM
Aly El Gamal, Venugopal V. Veeravalli, University of Illinois at Urbana-Champaign, United States

WA1a-3 A MUD/Rate Selection Tool for Cognitive Radios in Packet Based Asynchronous Gaussian Multiple Access Channels 9:05 AM
Prabahan Basu, Rachel Learned, MIT Lincoln Laboratory, United States

WA1a-4 Precoder Design for Fractional Interference Alignment 9:30 AM
Hari Ram Balakrishnan, Giridhar K, Indian Institute of Technology Madras, India

Session WA1b MIMO Processing

Chair: *David Love, Purdue University*

WA1b-1 MMSE Receive Filtering for Precoded MIMO Systems 10:15 AM
Ahmed Mehana, Samsung Electronics, Co., Ltd., United States; Aria Nosratinia, University of Texas at Dallas, United States

WA1b-2 Multiuser Hybrid Precoding for Millimeter Wave Cellular Systems 10:40 AM
Ahmed Alkhateeb, Omar El Ayach, Robert W. Heath, Jr., University of Texas at Austin, United States

WA1b-3 Linear Precoding for MIMO with LDPC Coding and Reduced Receiver Complexity 11:05 AM
Thomas Ketseoglou, California State University, Pomona, United States; Ender Ayanoglu, University of California, Irvine, United States

WA1b-4 Optimal Pilot Beam Pattern Design for Massive MIMO Systems 11:30 AM
Song Noh, Michael D. Zoltowski, Purdue University, United States; Youngchul Sung, Korea Advanced Institute of Science and Technology, Republic of Korea; David J. Love, Purdue University, United States

Session WA2a OFDM

Chair: *Marko Kocic, MIT Lincoln Laboratory*

WA2a-1 MIMO-OFDM Outage Channel Capacity With Practical Imperfect CSI 8:15 AM
Marko Kocic, MIT Lincoln Laboratory, United States; Nicholas Chang, Applied Communication Sciences, United States; David Romero, Matthew Ferreira, MIT Lincoln Laboratory, United States

WA2a-2 Biased Estimation of Symbol Timing Offset in OFDM Systems 8:40 AM
Rohan Ramlall, University of California, Irvine, United States

WA2a-3 A Factor-Graph Approach to Joint OFDM Channel Estimation and Decoding in Impulsive Noise Channels 9:05 AM
Marcel Nassar, University of Texas at Austin, United States; Philip Schniter, The Ohio State University, United States; Brian Evans, University of Texas at Austin, United States

WA2a-4 Widely Linear Data Estimation for Unique Word OFDM 9:30 AM
Mario Huemer, Alexander Onic, Christian Hofbauer, Stefan Trampitsch, Alpen-Adria-Universität Klagenfurt, Austria

Session WA2b Advances in Coding and Decoding

Chair: *Ashish Khisti, University of Toronto*

WA2b-1 Efficiently Encodable Non-Binary Generalized LDPC Codes — 10:15 AM
Nicholas Chang, Applied Communication Sciences, United States; Marko Kocic, MIT Lincoln Laboratory, United States

WA2b-2 Practical Non-Binary Rateless Codes for Wireless Channels — 10:40 AM
David Romero, Massachusetts Institute of Technology, United States; Nicholas Chang, Applied Communication Sciences, United States; Adam Margetts, Massachusetts Institute of Technology, United States

WA2b-3 On the Optimality of Polar Codes for the Deterministic Wiretap Channel — 11:05 AM
Ali Fakoorian, A. Lee Swindlehurst, University of California, Irvine, United States

WA2b-4 Delay-Optimal Streaming Codes under Source-Channel Rate Mismatch — 11:30 AM
Pratik Patil, Ahmed Badr, Ashish Khisti, University of Toronto, Canada; Wai-Tian Tan, Hewlett-Packard Labs, United States

Session WA3a Adaptive Filtering

Chair: *Ric Romero, Naval Postgraduate School*

WA3a-1 A Gradient-Controlled Proportionate Technique for Acoustic Echo Cancellation — 8:15 AM
Jie Yang, Texas Instruments, United States; Gerald Sobelman, University of Minnesota, United States

WA3a-2 Interference Identification in Cellular Networks via Adaptive Projected Subgradient Methods — 8:40 AM
Konstantin Oltmann, Renato L. G. Cavalcante, Slawomir Stanczak, Martin Kasparick, Fraunhofer Heirinch Hertz Institute, Germany

WA3a-3 A Reconsideration of Improved PNLMS Algorithm From Metric Combining Viewpoint — 9:05 AM
Osamu Toda, Masahiro Yukawa, Keio University, Japan

WA3a-4 Detection Performance of Matched Transmit Waveform for Moving Extended Targets — 9:30 AM
Ric Romero, Naval Postgraduate School, United States

Session WA3b Detection

Chair: *Wei Zhang, University of New South Wales*

WA3b-1 Asynchronous Signal Detection in Frequency-Selective Non-Gaussian Channels — 10:15 AM
SaiDhiraj Amuru, Daniel Jakubisin, R. Michael Buehrer, Virginia Tech, United States; Claudio da Silva, Samsung Electronics, Co., Ltd., United States

WA3b-2 An Information Theoretic Characterization of the Channel Shortening Receiver — 10:40 AM
Fredrik Rusek, Lund University / Huawei, Sweden; Ove Edfors, Lund University, Sweden

WA3b-3 Iterative MMSE-SIC Receiver with Low-Complexity Soft Symbol and Residual Interference Estimations — 11:05 AM
Guosen Yue, Sampath Rangarajan, NEC Laboratories America, Inc., United States

WA3b-4 New Results in the Analysis of Decision-Feedback Equalizers — 11:30 AM
Ahmed Mehana, Samsung Electronics, Co., Ltd., United States; Aria Nosratinia, University of Texas at Dallas, United States

Session WA4a Relaying and Cooperation

Chair: *Hieu Do, KTH Royal Institute of Technology*

WA4a-1 Two-Way Amplify-and-Forward Relay Strategies under Relay Power Constraint — 8:15 AM
Kanghee Lee, Hyuck M. Kwon, Edwin M. Sawan, Wichita State University, United States; Hyuncheol Park, Korea Advanced Institute of Science and Technology, Republic of Korea

WA4a-2 Gaussian Interfering Relay Channels — 8:40 AM
Hieu T. Do, Tobias J. Oechtering, Mikael Skoglund, KTH Royal Institute of Technology, Sweden; Mai Vu, Tufts University, United States

WA4a-3 Throughput Improvements for Cellular Systems with Device-to-Device Communications — 9:05 AM
PhuongBang Nguyen, Bhaskar Rao, University of California, San Diego, United States

WA4a-4 Cooperative Simultaneous Localization and Synchronization: A Distributed Hybrid Message Passing Algorithm — 9:30 AM
Bernhard Etzlinger, Johannes Kepler University, Austria; Florian Meyer, Vienna University of Technology, Austria; Andreas Springer, Johannes Kepler University, Austria; Franz Hlawatsch, Vienna University of Technology, Austria; Henk Wymeersch, Chalmers University of Technology, Sweden

Session WA5a Image Analysis and Processing

Chair: *Marios Pattichis, University of New Mexico*

WA5a-1 Multiscale AM-FM Image Reconstructions Based on Elastic Net Regression and Gabor Filterbanks — 8:15 AM
Ioannis Constantinou, University of Cyprus, Cyprus; Marios Pattichis, University of New Mexico, United States; Constantinos Pattichis, University of Cyprus, Cyprus

WA5a-2 Colorization Based on Piecewise Autoregressive Model — 8:40 AM
Yasuhiro Nakajima, Takashi Ueno, Taichi Yoshida, Masaaki Ikehara, Keio University, Japan

WA5a-3 Image Denoising by Adaptive Directional Lifting-Based Discrete Wavelet Transform and Quantization 9:05 AM
Naoki Furuhashi, Azusa Oota, Taichi Yoshida, Masaaki Ikehara, Keio University, Japan

WA5a-4 Introducing Diversity to Normalized Cross Correlation for Dense Image Registration 9:30 AM
Nafise Barzigar, Aminmohammad Roozgard, Pramode Verma, Samuel Cheng, University of Oklahoma, United States

Session WA5b Target Tracking II

Chair: *Peter Willett, University of Connecticut*

WA5b-1 Posterior Distribution Preprocessing for Passive DTV Radar Tracking: Simulated and Real Data 10:15 AM
Evan Hanusa, Laura Vertatschitsch, David Krout, University of Washington, United States

WA5b-2 Depth-Based Passive Tracking of Submerged Sources in the Deep Ocean Using a Vertical Line Array 10:40 AM
Lisa Zurk, Jordan Shibley, Portland State University, United States

WA5b-3 Generalized Linear Minimum Mean-Square Error Estimation with Application to Space-Object Tracking 11:05 AM
Yu Liu, X. Rong Li, Huimin Chen, University of New Orleans, United States

WA5b-4 Feature-Aided Initiation and Tracking via Tree Search 11:30 AM
Hossein Roufarshbaf, Jill Nelson, George Mason University, United States

Session WA6a Multi-Sensor Signal Processing

Chair: *Shawn Kraut, MIT Lincoln Laboratory*

WA6a-1 Why Does Direct-MUSIC on Sparse-Arrays Work? 8:15 AM
P. P Vaidyanathan, Piya Pal, California Institute of Technology, United States

WA6a-2 Asymptotically Optimal Truncated Hypothesis Test for a Large Sensor Network Described by a Multivariate Gaussian Distribution 8:40 AM
Jiangfan Zhang, Rick Blum, Lehigh University, United States

WA6a-3 A Joint Localization and Synchronization Technique Using Time of Arrival at Multiple Antenna Receivers 9:05 AM
Siamak Yousefi, Xiao-Wen Chang, Benoit Champagne, McGill University, Canada

WA6a-4 Reducing the Fractional Rank of Interference with Space-Time-Frequency Adaptive Beamforming 9:30 AM
Shawn Kraut, Adam Margetts, MIT Lincoln Laboratory, United States; Daniel Bliss, Arizona State University, United States

Session WA6b Direction of Arrival Estimation

Chair: *Mark Fowler, SUNY Binghamton*

WA6b-1 A Self-Calibration Technique for Direction Estimation with Diversely Polarized Arrays 10:15 AM
Benjamin Friedlander, University of California, Santa Cruz, United States

WA6b-2 Cramer-Rao Performance Bounds for Simultaneous Target and Multipath Positioning 10:40 AM
Li Li, Jeff Krolik, Duke University, United States

WA6b-3 Copy Correlation Direction-of-Arrival Estimation Performance with a Stochastic Weight Vector 11:05 AM
Christ Richmond, Keith Forsythe, MIT Lincoln Laboratory, United States; Christopher Flynn, Stevens Institute of Technology, United States

WA6b-4 Locating Closely Spaced Coherent Emitters Using TDOA Techniques 11:30 AM
Jack Reale, Lauren Huie, Air Force Research Laboratory, United States; Mark Fowler, State University of New York at Binghamton, United States

Session WA7a Communication System Design

Chair: *Jorn Janneck, Lund University*

WA7a-1 Implementation of Selective Packet Destruction on Wireless Open-Access Research Platform 8:15 AM
Stephen Hughes, Bosheng Zhou, Roger Woods, Alan Marshall, Queen's University Belfast, United Kingdom

WA7a-2 Efficient Error-Aware Power Management for Memory Dominated OFDM Systems 8:40 AM
Muhammad S. Khairy, Ahmed M. Eltawil, Fadi J. Kurdahi, University of California, Irvine, United States; Amin Khajeh, Intel labs, United States

WA7a-3 FPGA Implementation of a Message-Passing OFDM Receiver for Impulsive Noise Channels 9:05 AM
Karl Nieman, Marcel Nassar, Jing Lin, Brian Evans, University of Texas at Austin, United States

WA7a-4 Mobile Transmitter Digital Predistortion: Feasibility Analysis, Algorithms and Design Exploration 9:30 AM

Mahmoud Abdelaziz, Tampere University of Technology, Finland; Amanullah Ghazi, University of Oulu, Finland; Lauri Anttila, Tampere University of Technology, Finland; Jani Boutellier, University of Oulu, Finland; Toni Lähteensuo, Tampere University of Technology, Finland; Xiaojia Lu, University of Oulu, Finland; Joseph R. Cavallaro, Rice University, United States; Shuvra Bhattacharyya, University of Maryland, United States; Markku Juntti, University of Oulu, Finland; Mikko Valkama, Tampere University of Technology, Finland

Session WA7b Energy- and Reliability-Aware Design

Chair: *Neil Burgess, ARM*

WA7b-1 Low-Energy Architectures for Support Vector Machine Computation 10:15 AM

Manohar Ayinala, Keshab K. Parhi, University of Minnesota, United States

WA7b-2 Truncated Multipliers through Power-Gating for Degrading Precision Arithmetic 10:40 AM

Pietro Albicocco, Gian Carlo Cardarilli, Univ Roma Tor Vergata, Italy; Alberto Nannarelli, Technical University of Denmark, Denmark; Massimo Petricca, Politecnico di Torino, Italy; Marco Re, Univ Roma Tor Vergata, Italy

WA7b-3 A Logarithmic Approach to Energy-Efficient GPU Arithmetic for Mobile Devices 11:05 AM

Miguel Lastras, Behrooz Parhami, University of California, Santa Barbara, United States

WA7b-4 On Separable Error Detection for Addition 11:30 AM

Michael Sullivan, Earl Swartzlander, University of Texas at Austin, United States

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Tajer, Ali	TA3a-1
Tan, Wai-Tian	WA2b-4
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Tang, Gongguo	TA3b-4
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Tang, Yao	MA8b2-3
Tarczynski, Andrzej	TP8a1-9
Tausiesakul, Bamrung	MA8b4-5
Tayem, Nizar	MA8b3-5
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Temel, Dogancan	TP2a-4
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Tepedelenlioglu, Cihan	MP8a1-6
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Thiele, Lars	TP8b2-8
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Thomas, Robert J.	TP4a-3
Thornburg, Andrew	TA8b1-4
Toda, Osamu	WA3a-3
Tölli, Antti	TA8b3-5
Tong, Lang	MP6a-3
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Topcu, Ufuk	TP4a-4
Torkildson, Eric G.	MP1b-1
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Tretyakov, Sergei	MA1b-1
Trinh, Le A.	TA5b-1
Truong, Kien	TP1a-2
Tufvesson, Fredrik	MP1a-3
Tulino, Antonia	MA8b2-7
Tummala, Murali	MP8a2-3
Ueno, Takashi	WA5a-2
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Unwala, Ali	MP7a-3
Ustebay, Deniz	MP3b-3
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Vaidyanathan, P. P.	WA6a-1
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Vakili, Sattar	TP7b-5
Valenti, Matthew C.	MP8a2-5
Valentin, Stefan	TP8a3-6
Valkama, Mikko	MA1b-1
Valkama, Mikko	TA8b1-6
Valkama, Mikko	WA7a-4
Valls, Javier	TA8a2-1
Valsesia, Diego	MP8a1-2
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Van Stralen, Nick	TP8a1-5
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Vanjari, Sivaramakrishna	MA8b1-1
Varan, Burak	MP2b-2
Varshney, Pramod K.	TA6b-1
Varshney, Pramod K.	TP8a1-11
Vathsangam, Harshvardhan	MA5b-2
Veeravalli, Venugopal V.	TA6b-3
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Veeravalli, Venugopal V.	WA1a-2
Vehkaperä, Mikko	TA2b-2
Vempala, Santosh	MP3a-4
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Venkatasubramanian, Sathya	MA1b-1
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Wang, Guohui	TA7a-4
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Wang, Zhou	TP2a-3
Wardhan, Harsh	TP8b1-6
Weiss, Stephan	MP8a3-5
Wen, Miaowen	MA6b-1
Wesson, Kyle	TA8a2-5
Westbrook, Lamar	TA8a1-4
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White, Michael	TP5a-1
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Wu, Michael	TA7a-4
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Wu, Xiaoxu	TA8a4-3
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Xu, Tingting	MP5a-2
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Yang, Allen	MP3a-3
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Yang, Yi	MA8b4-6
Yeh, Edmund	MA2b-1
Yener, Aylin	MP2b-2
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Yin, Wotao	MP5b-1
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Zappone, Alessio	TP8a3-6
Zarei, Shahram	MP1a-4
Zarnich, Robert	TP6b-5
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Zemen, Thomas	MA8b2-6
Zeng, Kai	TP2a-3
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Zhao, Qing	MA8b2-8
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Zoltowski, Michael D.	WA1b-4
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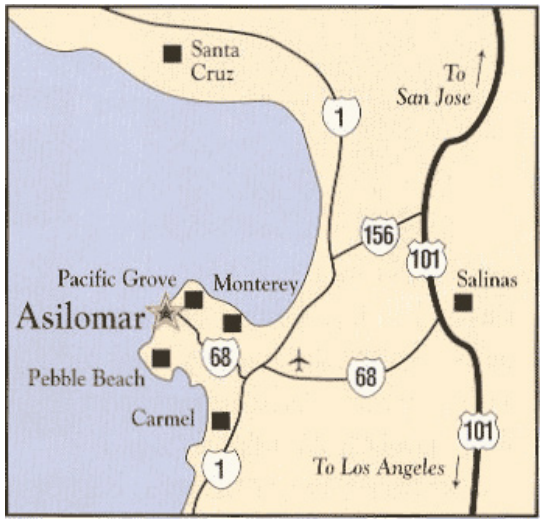
Santa Cruz
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