

**FORTY-THIRD
ASILOMAR CONFERENCE ON
SIGNALS, SYSTEMS AND
COMPUTERS**

**SS&C Conf. Corp.
P.O. Box 8236
Monterey, CA 93943**



November 1 - 4, 2009
Asilomar Hotel and
Conference Grounds

Technical Co-sponsor



**FORTY-THIRD
ASILOMAR CONFERENCE ON
SIGNALS, SYSTEMS & COMPUTERS**

Organized in cooperation with

NAVAL POSTGRADUATE SCHOOL
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Welcome from the General Chairperson

Prof. Maite Brandt-Pearce, University of Virginia

I am pleased to welcome you to the 43rd Asilomar Conference on Signals, Systems and Computers, a unique and special conference with its beautiful venue, relaxed atmosphere and outstanding technical presentations. I find myself coming back, year after year, and being rejuvenated by the experience, both physically and intellectually.

Asilomar's attractions are multifaceted. The venue offers an unsurpassed view of the Pacific Ocean and an intimate camp-like ambiance. Professors, students, and industry representatives can each find sessions of interest within the very diverse topics covered, from traditional signal processing and wireless communications to more modern areas such as digital photography and MIMO radar. The longer presentation times at Asilomar stimulate a deeper technical exchange and attract a good mix of old timers like myself and new eager faces that are the future of the conference and our field

The technical committee, chaired by Jim Schroeder of Harris Corporation, has put together a first-class program composed of 158 invited papers and 236 contributed papers. These have been organized into seven parallel tracks of oral talks with simultaneous poster sessions. Jim has been the best Technical Chair I could have dreamt of, and, from what I have seen, the papers are outstanding this year.

One of the highlights of the program is the Sydney Parker Memorial Lecture to be given by a trio of eloquent speakers, Dolores M. Etter, Geoffrey Orsak, and Sally Wood, who will enlighten us on "The Infinity Project: Ten Years Later". Delores Etter holds the Texas Instruments Distinguished Chair in Engineering Education at Southern Methodist University (SMU). Geoffrey Orsak is Dean of the Lyle School of Engineering at SMU. Sally Woods is currently a Program Director at the National Science Foundation. Their humorous and energetic style is sure to entertain us as we learn about the challenges of introducing engineering into secondary school curricula, i.e., how we will soon all be surpassed by 15 year olds.

We will host a student paper contest chaired this year by John Pierre of the University of Wyoming. A set of student panelist have been selected and will present their papers in front of a panel of judges on Sunday afternoon. The best three will receive awards and accolades at the beginning of the conference plenary session.

As General Chair I extend a warm invitation for you to participate in all aspects of the Asilomar conference: the plenary talk, student paper contest, oral and poster sessions, family style meals, and the obligatory walk along the beach. Enjoy!

Maite Brandt-Pearce, University of Virginia, July 2009

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2009 Asilomar Conference Session Schedule

Sunday Afternoon, November 1, 2009

2:00 - 7:00 PM Registration – Main Lodge
5:00 - 6:30 PM Student Paper Contest – Merrill Hall
7:00 - 9:00 PM Welcoming Reception – Merrill Hall

Monday Morning, November 2, 2009

7:30 - 9:00 AM Breakfast – Crocker Dining Hall
8:00 AM - 6:00 PM Registration

8:30 AM - 12:10 PM MORNING SESSIONS

MA1a Image Retrieval
MA1b Spread Spectrum Networks
MA2a Brain Machine Interfaces I
MA2b Brain Machine Interfaces II
MA3 Adaptivity in Communications
MA4 Mathematical Signal Processing
MA5 MIMO Radar Processing and Design
MA6 Adaptive Signal Processing I
MA7 Integrated Algorithm and Architecture Implementation
MA8a1 Sensor Networks (Poster)
MA8a2 Wireless PAN and LAN (Poster)
MA8b1 Models for Signal and Image Processing (Poster)
MA8b2 Image Processing Methods for Space Applications (Poster)

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

Monday Afternoon, November 2, 2009

1:30 - 5:10 PM AFTERNOON SESSIONS

MP1a Wireless Networks
MP1b Wavelets
MP2 Multisensor Array Processing for Radar, Sonar, and Imaging
MP3 Signal and receiver design for modulation and detection with reconfigurable wireless systems
MP4 Image and Video Coding I
MP5 MIMO in Underwater Communications
MP6 Adaptive Signal Processing II
MP7a Communications and Airborne Networks
MP7b Reconfigurable Architectures and Processors
MP8a Hardware Techniques & Implementations (Poster)

Monday Evening, November 2, 2009

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 or their guest.

2009 Asilomar Conference Session Schedule

(continued)

Tuesday Morning, November 3, 2009

7:30 - 9:00 AM Breakfast – Crocker Dining Hall
8:00 AM - 5:00 PM Registration
8:15 - 9:45 AM TA1a - Conference Welcome and Plenary Session
9:45 - 10:15 AM Coffee Social

10:15 AM - 12:20 PM MORNING SESSIONS

TA1b Network Coding
TA2b Advances in Medical Imaging
TA3b Secure Communications
TA4b Image and Video Enhancement/Filtering
TA5b Image and Video Coding II
TA6b Adaptive Signal Processing III
TA7b Computer Arithmetic I
TA8b1 Communication Systems I (Poster)
TA8b2 Communication Systems II (Poster)

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

Tuesday Afternoon, November 3, 2009

1:30 - 5:35 PM AFTERNOON SESSIONS

TP1a Network Design
TP1b Relay Networks
TP2a Reading the Brain -- Decoding Perception and Cognition
TP2b Neural Signal Processing
TP3 Wideband Communications and Interference Management
TP4 Detection and Estimation II
TP5 MIMO Radar
TP6a Speech Coding
TP6b Computational Photography
TP7 Communication Processors and Accelerators
TP8a1 Array and Statistical Signal Processing I (Poster)
TP8a2 Array and Statistical Signal Processing II (Poster)
TP8a3 Adaptive Signal Processing IV (Poster)
TP8b1 MIMO Communications I (Poster)
TP8b2 MIMO Communications II (Poster)

Tuesday Evening, November 3, 2009

8:00 - 10:00 PM Bonfire at the fire pit next to Crocker Hall

2009 Asilomar Conference Session Schedule

(continued)

Wednesday Morning, November 4, 2009

- 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.
- 8:30 AM - 12:35 PM MORNING SESSIONS
- WA1 Sparse Representations and Compressive Sensing
WA2a Functional Imaging
WA2b Computer Aided Diagnosis
WA3 OFDM and MIMO for Optical Wireless
WA4 Estimation and Detection I
WA5 MIMO Communications: Network Issues and Implications
WA6a Speech Processing I
WA6b Speech Processing II
WA7 Computer Arithmetic II
WA8 Resource Allocation and Beamforming for Next Generation Wireless
- 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

Merrill Hall - Sunday, November 1, 2009

Judging starts at 5:00 PM

(Listed in paper number order)

“Compression-Aware Digital Pan/Tilt/Zoom”

Mina Makar, Aditya Mavlankar, Bernd Girod, Stanford University

“Multi-delay Block Frequency Domain Adaptive Filters with Sparse Partial Subblock Update”

Yifan Sun, Franklin W. Olin College of Engineering; Jie Chen, Keshab K. Parhi, University of Minnesota

“A Fast ACSU Architecture for Viterbi Decoder Using T-Algorithm”

Jinjin He, Huaping Liu, Oregon State University; Zhongfeng Wang, Broadcom Corporation

“Performance Analysis of Relay Channel Estimation”

Panagiota Lioliou, Mats Viberg, Chalmers University; Mikael Coldrey, Ericsson AB

“Performance Bounds for Expander-Based Compressed Sensing with Poisson Noise”

Sina Jafarpour, Princeton University; Rebecca Willett, Maxim Raginsky, Duke University; Robert Calderbank, Princeton University

“Robust Fitting of Ellipses and Spheroids”

Jieqi Yu, Sanjeev Kulkarni, H. Vincent Poor, Princeton University

“Reformulating the Least-Square Source Localization Problem with Contracted Distances”

Giuseppe Destino, Giuseppe Abreu, University of Oulu

“Multichannel Image Restoration Based on Optimization of the Structural Similarity Index”

Maja Temerinac-Ott, Hans Burkhardt, University of Freiburg

2009 Asilomar Conference Session Schedule

Coffee breaks will be at 10:10 AM and 3:10 PM, except on Tuesday morning when refreshments will be served outside Merrill Hall from 9:45-10:15 AM.

Tuesday, November 3, 2009

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

1. Welcome from the General Chairperson:

Prof. Maite Brandt-Pearce
University of Virginia

2. Student Paper Contest:

Dr. John W. Pierre
University of Wyoming

3. Session TA1a Distinguished Lecture for the 2009
Asilomar Conference

The Infinity Project: Ten Years Later

Delores M. Etter
Southern Methodist University

Geoffrey Orsak
Southern Methodist University

Sally Wood
National Science Foundation

Abstract

The Infinity Project is a leader in high-tech engineering for secondary schools. Developed in 1999, it now reaches over 400 schools in 38 states. This presentation will discuss the initial goals of the program and the challenges of introducing engineering into secondary school curricula. It will also discuss the importance of providing a full package – cutting-edge curriculum, outstanding instructional materials, hands-on design projects, low-cost high impact classroom technology, and best-in-class professional development. We include an assessment of the impact of the Infinity Project – in quantitative and qualitative terms. Finally, we present a

glimpse into the next phase of The Infinity Project, and its audience.

Biographies

Delores M. Etter holds the Texas Instruments Distinguished Chair in Engineering Education at Southern Methodist University (SMU). She is also the Director of the Caruth Institute for Engineering Education. Before coming to SMU, Dr. Etter was a faculty member in the Electrical Engineering Department at the United States Naval Academy. From 2005-2007 she was the Assistant Secretary of the Navy for Research, Development, and Acquisition. She is also a former faculty member at the University of Colorado at Boulder and the University of New Mexico, and was a Visiting Professor at Stanford University. She is a member of the National Academy of Engineering and a former member of the National Science Board.

Geoffrey Orsak is Dean of the Lyle School of Engineering at SMU. He is one of the founding members of the Infinity Project, and provided the leadership for this program over the last 10 years. He was formerly an Associate Dean of Engineering for Research at SMU, and a member of the Electrical Engineering Department. He is a former faculty member at George Mason University in Fairfax, VA.

Sally Wood is currently a Program Director in the Division of Engineering Education and Centers of the Directorate of Engineering of the National Science Foundation where she has managed the Innovations in Engineering Education, Curriculum and Infrastructure Program. She is a Professor of Electrical Engineering at Santa Clara University and has been a member of the faculty since 1985. She is a Fellow of the IEEE and has served on the board of the Electrical and Computer Engineering Department Heads Association, the Board of Governors of the IEEE Signal Processing Society and the Engineering in Medicine and Biology Society, and the NSF Committee on Equal Opportunity in Science and Engineering. Recently she received the 2009 ASEE Electrical and Computer Engineering Division Distinguished Educator Award. She is also one of the founding members of the Infinity Project.

**Program of 2009 Asilomar Conference
on
Signals, Systems, and Computers**

**Technical Program Chairman
Dr. James Schroeder
Harris Corporation GCS**

Session MA1a Image Retrieval

Chair: *Yongyi Yang, Illinois Institute of Technology*

- MA1a-1 Content Based Image Retrieval from Chest Radiography Databases 8:30 AM
Shengwen Guo, Jinshan Tang, Alcorn State University
- MA1a-2 Segmentation and Shape-based Retrieval of Neurons 8:55 AM
Scott Acton, Barry Condron, University of Virginia
- MA1a-3 Retrieval of Pneumoconiosis Images Using Multi-scale AM-FM Methods 9:20 AM
Victor Murray, Marios Pattichis, University of New Mexico; Peter Soliz, VisionQuest Biomedical, LLC
- MA1a-4 Online Learning of Relevance Feedback from Expert Readers for Mammogram Retrieval 9:45 AM
Issam El Naqa, Jung Hun Oh, Washington University School of Medicine; Yongyi Yang, Illinois Institute of Technology

Session MA1b Spread Spectrum Networks

Chair: *Wayne Stark, University of Michigan*

- MA1b-1 Tradeoff Between Spoofing and Jamming a Cognitive Radio Network 10:30 AM
Qihang Peng, Pamela C. Cosman, Laurence B. Milstein, University of California, San Diego
- MA1b-2 The Cost of Using Cooperation in a Wireless Network 10:55 AM
Leonard J. Cimini, Jr, Chien-Chung Shen, Lu Zhang, University of Delaware
- MA1b-3 Enhancing Transport Capacity with Optimum Energy Allocation for Geographic Transmissions 11:20 AM
Tathagata D. Goswami, John M. Shea, Murali Rao, Joseph Glover, University of Florida
- MA1b-4 Achievable Rates in Gaussian Parallel Cognitive Relay Networks 11:45 AM
Debdeep Chatterjee, Tan F. Wong, Ozgur Oyman, University of Florida

Session MA2a Brain Machine Interfaces I

Chair: *Justin Sanchez, U. of FLorida*

- MA2a-1 Overcoming Power/Information Tradeoffs in Neural Signal Acquisition 8:30 AM
Stephen O'Driscoll, Teresa Meng, Stanford University
- MA2a-2 Applying information theoretic measures to computation and communication in neural ensembles 8:55 AM
Jose M Carmena, Ryan T Canolty, Michael C Gastpar, University of California, Berkeley
- MA2a-3 A Brain-Machine Interface for Restoring Hand Function Following Paralysis 9:20 AM
Eric Perreault, Christian Ethier, Eric Pohlmeier, Emily Oby, Lee Miller, Northwestern University

- MA2a-4 A Co-Adaptive Actor-Critic Architecture for Brain-Machine Interfaces 9:45 AM
Justin Sanchez, Babak Mahmoudi, Jose Principe, University of Florida

Session MA2b Brain Machine Interfaces II

Chair: *Deniz Erdogmus, Northeastern U.*

- MA2b-1 Could anyone use a BCI? 10:30 AM
Brendan Allison, Will update
- MA2b-2 The Use of Local Field Potentials in Brain Computer Interfaces 10:55 AM
Nuri F. Ince, University of Minnesota; Rahul Gupta, VA Medical Center; Sami Arica, Cukurova University; Ahmed H. Tewfik, James Ashe, Giuseppe Pellizzer, University of Minnesota
- MA2b-3 Enhancing target detection using a hybrid human-computer system 11:20 AM
Kenneth Hild, Oregon Health & Science University; Santosh Mathan, Honeywell Laboratories; Misha Pavel, Oregon Health & Science University; Deniz Erdogmus, Northeastern University
- MA2b-4 In-vivo Communication using Blood Vessels as the Transport Channel 11:45 AM
Khursheed Hassan, Jeffrey Andrews, Wolfgang Frey, University of Texas at Austin

Session MA3 Adaptivity in Communications

Chair: *Robert Calderbank, Princeton University*

- MA3-1 Feedback via Message Passing in Interference Networks 8:30 AM
Vaneet Aggarwal, Princeton University; Ashutosh Sabharwal, Rice University
- MA3-2 Green Phones – An Adaptive Signal Processing Perspective 8:55 AM
Arogyaswami Paulraj, Stanford University
- MA3-3 Improved Adaptive Bit-Interleaved Coded Modulation for Mobile Radio OFDM Systems Aided by Fading Prediction 9:20 AM
Tao Jia, The MathWorks Inc.; Alexandra Duel-Hallen, North Carolina State University
- MA3-4 Interference Alignment and Related Insights into the Capacity of Wireless Networks 9:45 AM
Syed Ali Jafar, University of California, Irvine
- BREAK 10:10 AM
- MA3-5 Optimal power control and beamforming in multiuser downlink systems 10:30 AM
M. Chiang, Princeton University; R. Srikant, University of Illinois at Urbana-Champaign; Chee Wei Tan, California Institute of Technology
- MA3-6 Position Aware Adaptive Communication Systems 10:55 AM
Stephan Sand, Ralph Tanbourgi, Christian Mensing, Ronald Raulefs, German Aerospace Center (DLR)

- MA3-7 Location-aware Cognitive Sensing for Maximizing Network Capacity 11:20 AM
Peng Jia, Mai Vu, Tho Le-Ngoc, McGill University
- MA3-8 Optimized DFT-FB Transceivers over LTV Channels 11:45 AM
Chih-Hao Liu, P. P. Vaidyanathan, California Institute of Technology

Session MA4 Mathematical Signal Processing

Chair: *Tom Taylor, Arizona State University*

- MA4-1 Primal-Dual Method for Robust Spectral Estimation of Complex Valued Sequences 8:30 AM
Donald Day, Johns Hopkins University
- MA4-2 Robust Fitting of Ellipses and Spheroids 8:55 AM
Jieqi Yu, Sanjeev Kulkarni, Harold Poor, Princeton University
- MA4-3 Rank Revealing QR Algorithm Based on Toeplitz Structure for Near-field Sources 9:20 AM
Nizar Tayem, Attanayake Champike, Ayo Abatan, Miami university
- MA4-4 Unifying Spherical Harmonic and 2-D Fourier Decompositions of the Array Manifold 9:45 AM
Mário Costa, Helsinki University of Technology; Andreas Richter, Nokia Research Center; Visa Koivunen, Helsinki University of Technology
- BREAK 10:10 AM
- MA4-5 Matched detector in the presence of interference subspace uncertainty. 10:30 AM
Jean Jacques Fuchs, Université de Rennes 1
- MA4-6 Compact Storage of Correlated Data for Content Based Retrieval 10:55 AM
Atul Divekar, Okan Ersoy, Purdue University
- MA4-7 Noisy Signal Recovery via Iterative Reweighted L1-Minimization 11:20 AM
Deanna Needell, University of California, Davis
- MA4-8 Wideband Discrete Transformation of Acoustic Signals in Underwater Environments 11:45 AM
Nicolas François Josso, GIPSA-lab; Jun Zhang, Antonia Papandreou-Suppappola, Arizona State University; Cornelia Ioana, GIPSA-lab; Cedric Gervaise, ENSIETA; Yann Stephan, SHOM; Jérôme I. Mars, GIPSA-lab

Session MA5 MIMO Radar Processing and Design

Chair: *Arye Nehorai, Washington University, St. Louis*

- MA5-1 OFDM MIMO Radar for Low Grazing Angle Tracking 8:30 AM
Satyabrata Sen, Arye Nehorai, Washington University in St. Louis

- MA5-2 Performance bound for localization of a narrowband source 8:55 AM
Vlad M. Chiriac, Alexander M. Haimovich, New Jersey Institute of Technology; Stuart C. Schwartz, Princeton University
- MA5-3 On Designing Unimodular Periodic Sequence Sets with Good Correlations 9:20 AM
Hao He, Duc Vu, University of Florida; Petre Stoica, Uppsala University; Jian Li, University of Florida
- MA5-4 Sensor Scheduling with Waveform Design for Dynamic Target Tracking Using MIMO Radar 9:45 AM
Bhavana Manjunath, Jun Zhang, Antonia Papandreou-Suppappola, Darryl Morrell, Arizona State University
- BREAK 10:10 AM
- MA5-5 MIMO Field Directionality Estimation Using Orientation-Diverse Linear Arrays 10:30 AM
Granger Hickman, Jeffrey Krolak, Duke University
- MA5-6 Optimal Waveform Scheduling for Distributed Arrays 10:55 AM
Sofia Suvorova, University of Melbourne; Stephen Searle, Stephen Howard, Defence Science and Technology Organisation; Bill Moran, University of Melbourne
- MA5-7 Target Detection in MIMO Radar using Golay Complementary Sequences in the Presence of Doppler 11:20 AM
Tariq Qureshi, Michael Zoltowski, Purdue University; Robert Calderbank, Princeton University
- MA5-8 The IFIR-like active beamformer: competitor for MIMO radar? 11:45 AM
Palghat Vaidyanathan, California Institute of Technology; Ching-Chih Weng, California Institute Of Technology

Session MA6 Adaptive Signal Processing I

Chair: *Petar Djuric, SUNY Stony Brook*

- MA6-1 Diffusion LMS-Based Distributed Detection Over Adaptive Networks 8:30 AM
Federico S. Cattivelli, Ali H. Sayed, University of California, Los Angeles
- MA6-2 Improved Adaptive Filtering Schemes via Adaptive Combination 8:55 AM
Jeronimo Arenas-Garcia, Universidad Carlos III de Madrid; Luis A. Azpicueta-Ruiz, Anibal R. Figueiras-Vidal, Freidrich-Alexander University Erlangen-Nuremberg
- MA6-3 Lasso Kalman Filtering for Tracking Sparse Signals 9:20 AM
D Angelosante, S. Roumeliotis, Researcher; G. B. Giannakis, University of Minnesota
- MA6-4 On Proportionate-type NLMS Algorithms for Fast Decay of Output Error at All Times 9:45 AM
K Wagner, Researcher; Milos Doroslovacki, George Washington University

	BREAK	10:10 AM
MA6-5	Asymptotic Noise Analysis of High Dimensional Consensus <i>Usman Khan, Soumya Kar, Jose' Moura, Carnegie Mellon University</i>	10:30 AM
MA6-6	Time-space-adaptive distributed state estimation with low-rate inter-sensor communications <i>Ondrej Hlinka, Georg Kail, Franz Hlawatsch, Researcher; Petar Djuric, Stony Brook University</i>	10:55 AM
MA6-7	Set-Membership Reduced-Rank Algorithms based on Joint Iterative Optimization of Adaptive Filters <i>Patrick Clarke, Rodrigo C. de Lamare, University of York</i>	11:20 AM
MA6-8	Multi-delay Block Frequency Domain Adaptive Filters with Sparse Partial Subblock Update <i>Yifan Sun, F. W. Olin College of Engineering; Jie Chen, Keshab Parhi, University of Minnesota</i>	11:45 AM

Session MA7 Integrated Algorithm and Architecture Implementation

Chair: Roger Woods, *Queen's University, Belfast*

MA7-1	Operand Access in Regular Topology Discrete Trigonometric Transforms <i>Jarmo Takala, Lassi Nurmi, Harri Sorokin, Tampere University of Technology</i>	8:30 AM
MA7-2	Analysis of Twiddle Factor Memory Complexity of Radix-2 ⁱ Pipelined FFTs <i>Fahad Qureshi, Oscar Gustafsson, Linköping University</i>	8:55 AM
MA7-3	Compiler Driven Architecture Design Space Exploration for Embedded DSP Workloads: A Study in Software Programmability Versus Hardware Acceleration. <i>Michael Brogioli, Joseph Cavallaro, Rice University</i>	9:20 AM
MA7-4	Ultra-fine Programmable Chip-Multiprocessing for FPGA DSP <i>Matthew Millford, John McAllister, Queen's University Belfast</i>	9:45 AM
	BREAK	10:10 AM
MA7-5	A Fast ACSU Architecture for Viterbi Decoder Using T-Algorithm <i>Jinjin He, Oregon State University; Zhongfeng Wang, Broadcom Corporation; Huaping Liu, Oregon State University</i>	10:30 AM
MA7-6	Fully automated MPSoC design of a H.264 Video Decoder <i>Hristo Nikolov, Todor Stefanov, Ed Deprettere, Leiden University</i>	10:55 AM

MA7-7	Integration of Dataflow Optimization Techniques into a Software Radio Design Framework <i>George Zaki, William Plishker, University of Maryland; Tim O'shea, North Carolina State University; Nick McCarthy, LTS; Shuvra Bhattacharyya, Charles Clancy, University of Maryland; Eric Blossom, Blossom Research</i>	11:20 AM
MA7-8	FPGA Prototyping of a High Data Rate LTE Uplink Baseband Receiver <i>Guohui Wang, Bei Yin, Kiarash Amiri, Yang Sun, Joseph R. Cavallaro, Rice University</i>	11:45 AM

Session MA8a1 Sensor Networks

Chair: Myron Hattig, *Intel Corporation* 8:30 AM - 10:10 AM

MA8a1-1	A Roesser Model Based Multidimensional Systems Approach for Grid Sensor Networks <i>Buddika Sumanasena, Peter Bauer, University of Notre Dame</i>
MA8a1-2	Broadcast-based Dynamic Consensus Propagation in Wireless Sensor Networks <i>Valentin Schwarz, Gerald Novak, Gerald Matz, Vienna University of Technology</i>
MA8a1-3	Computing Geometric Mean over Multiple Access Channel: Error Analysis and Comparisons <i>Mario Goldenbaum, Slawomir Stanczak, Fraunhofer German-Sino Lab for Mobile Communications</i>
MA8a1-4	Error Resilient Distributed Estimation in Wireless Sensor Networks <i>Kiran Sampath Kumar, Hongbin Li, Stevens Institute of Technology</i>
MA8a1-5	Distributed Estimation in Sensor Networks Over Binary Symmetric Channels <i>Kiran Sampath Kumar, Hongbin Li, Stevens Institute of Technology</i>
MA8a1-6	Multi-layer architecture for location systems based on wireless sensor networks <i>Javier Rodas, Carlos J. Escudero, Universidade da Coruña</i>
MA8a1-7	An Intrusion Detection Framework for Sensor Networks Using Ant Colony <i>Rajani Muraleedharan, Osadciw Lisa, Syracuse University</i>
MA8a1-8	Cross measurement process with a ZigBee sensor network <i>Javier Rodas, Carlos J. Escudero, Universidade da Coruña</i>
MA8a1-9	Secure Self-Adaptive Framework for Distributed Smart Home Sensor Network <i>Rajani Muraleedharan, Lisa Osadciw, Syracuse University</i>
MA8a1-10	Cognitive Security Protocol for Sensor Based VANET Using Swarm Intelligence <i>Rajani Muraleedharan, Lisa Osadciw, Syracuse University</i>

Session MA8a2 Wireless PAN and LAN

Chair: *Myron Hattig, Intel Corporation* 8:30 AM - 10:10 AM

- MA8a2-1 Interference Aware Link Discovery for Device to Device Communication
Brett Kaufman, Behnaam Aazhang, Rice University; Jorma Lilleberg, Nokia
- MA8a2-2 A low-complexity location estimation scheme for indoor wireless Local area networks
Santosh Pandey, Cisco Systems; Manu Parmar, Stanford University
- MA8a2-3 Reformulating the Least-Square Source Localization Problem with Contracted Distances
Giuseppe Destino, Giuseppe Abreu, University of Oulu
- MA8a2-4 Minimum-Energy Multicast Tree in Cognitive Radio Networks
Wei Ren, Xiangyang Xiao, Qing Zhao, University of California, Davis
- MA8a2-5 Multi-band, multi-radio wireless LANs and PANs
Robert Stacey, Intel Corporation
- MA8a2-6 Augmenting Wireless LAN Technology for WiFi PAN
Emily Qi, Marc Meylemans, Myron Hattig, Intel Corporation

Session MA8b1 Models for Signal and Image Processing

Chair: *Balu Santhanam, University of New Mexico* 10:30 AM - 12:10 PM

- MA8b1-1 Dynamically Reconfigurable Computing Models for Image and Video Processing Applications
G. Alonzo Vera, Micro-RDC; Daniel Llamocca, Marios Pattichis, University of New Mexico; James Lyke, Air Force Research Laboratory
- MA8b1-2 Reconstruction of Aerial Images from Fourier Spectral Samples Using Statistical Models
Oliver Jeromin, Marios Pattichis, University of New Mexico
- MA8b1-3 Blind Signal Separation and Identification of Mixtures of Images
Felipe P. do Carmo, Joaquim T. de Assis, Vania Vieira Estrela, Alessandra M. Coelho, State University of Rio de Janeiro
- MA8b1-4 Mono-Microphone Blind Audio Source Separation Using EM-Kalman Filters and Short+Long Term AR Modeling
Antony Schutz, Siouar Bensaid, Dirk Slock, Eurecom
- MA8b1-5 A Nonlocally Weighted Soft-Constrained Natural Gradient Algorithm and Blind Separation of Reverberant Speech Mixtures
Meng Yu, Jack Xin, Yingyong Qi, Hsin-I Yang, Fan-Gang Zeng, University of California, Irvine
- MA8b1-6 Statistical Modeling of Multi-camera Images
Rajiv Soundararajan, Alan Bovik, Sriram Vishwanath, University of Texas at Austin

- MA8b1-7 On Compressed Sensing and Its Application to Speech and Audio Signals
Mads Græsbøll Christensen, Jan Østergaard, Søren Holdt Jensen, Aalborg University
- MA8b1-8 Analysis of Stress in Speech Using Adaptive Empirical Mode Decomposition
James Zhang, Nyaga Mbitiru, Peter Tay, Robert Adams, Western Carolina University
- MA8b1-9 Automated Text Content Identification for Document Processing Using a Kernel-based Support Vector Selection Approach
Steven Benveniste, Department of the Air Force; Monique Fargues, Naval Postgraduate School
- MA8b1-10 Optical Motion Tracking in Earthquake-Simulation Shake Table Testing: Preliminary Results
Paul Rodriguez, Pontifical Catholica University of Peru
- MA8b1-11 Optimal Filters for Extraction and Separation of Periodic Sources
Mads Græsbøll Christensen, Aalborg University; Andreas Jakobsson, Lund University
- MA8b1-12 Design and Implementation of a Multispectral Iris Capture System
Hau Ngo, Robert Ives, James Matey, Michael Rhoads, Debbi Choi, United States Naval Academy
- MA8b1-13 Multiple Description Spherical Quantization of Sinusoidal Parameters with Repetition Coding of the Amplitudes
Jesper Rindom Jensen, Mads Græsbøll Christensen, Aalborg University; Morten Holm Jensen, Widex A/S; Søren Holdt Jensen, Torben Larsen, Aalborg University
- MA8b1-14 Exploiting User / Tool Interactions for Content Based Search
Reid Porter, Christy Ruggiero, Don Hush, Los Alamos National Laboratory
- MA8b1-15 Image Encryption Using Discrete Parametric Cosine Transform
Yicong Zhou, Karen Panetta, Tufts University; Sos Agaian, University of Texas at San Antonio
- MA8b1-16 Combination of Kalman-Based and Cluster-Based Methods for Reconstruction of Missing Features for Noise Robust Speech Recognition
Arash Mohammadi, York University; Farshad Almasganj, Amirkabir University
- MA8b1-17 Image Encryption Algorithms Based on Generalized P-Gray Code Bit Plane Decomposition
Yicong Zhou, Karen Panetta, Tufts University; Sos Agaian, University of Texas at San Antonio

Session MA8b2 Image Processing Methods for Space Applications

Chair: *Steven Sudderth, University of New Mexico 10:30 AM - 12:10 PM*

- MA8b2-1 Parametric, Frequency-Domain Approach for Clutter Analysis and Rejection in Remote Sensing
Jeffrey Kern, Sandia National Laboratories
- MA8b2-2 Active Learning schemes for Reduced Dimensionality Hyperspectral Classification
Vikram Jayaram, Bryan Usevitch, University of Texas at El Paso
- MA8b2-3 A Dynamic Computing Platform for Space Image and Video Processing Applications
Daniel Llamocca, University of New Mexico; Alonzo Vera, Microelectronics Research Development Corporation; Marios Pattichis, University of New Mexico
- MA8b2-4 Hierarchical Dense Correspondence for Aerial Video
Mark Duchaineau, Jonathan D. Cohen, Lawrence Livermore National Laboratory
- MA8b2-5 3D Reconstruction of Large-Area Terrain from Stereoscopic Airborne Imagery
Curtis Padgett, Yang Cheng, Jet Propulsion Laboratory
- MA8b2-6 Advanced Processing for Imaging Nano-Spacecraft
Steven C. Sudderth, COSMIAC

Session MP1a Wireless Networks

Chair: *Wayne Stark, University of Michigan*

- MP1a-1 Joint Optimization of Antenna Orientation and Spectrum Allocation for Cognitive Radio Networks 1:30 PM
Wenxuan Guo, Xinming Huang, Worcester Polytechnic Institute
- MP1a-2 A Hierarchical Game Approach to Spectrum Sharing 1:55 PM
Mehdi Bennis, Centre for Wireless Communication
- MP1a-3 Distributed Estimation over Fading MACs with Multiple Antennas at the Fusion Center 2:20 PM
Anthony Smith, L-3 Communications; Mahesh Banavar, Cihan Tepedelenlioglu, Andreas Spanias, Arizona State University
- MP1a-4 Performance Analysis of Slotted ALOHA with Periodic Server Vacations for Energy-efficient Medium Access 2:45 PM
Owens Walker, Murali Tummala, John McEachen, Naval Postgraduate School

Session MP1b Wavelets

Chair: *Morteza Shahram, Stanford University*

- MP1b-1 Gain Scaling for Multirate Filter Banks 3:30 PM
Christopher M. Brislawn, Los Alamos National Laboratory

- MP1b-2 The Easy Path Wavelet Transform for Optimally Sparse Image Representation 3:55 PM
Gerlind Plonka, University of Duisburg-Essen
- MP1b-3 Sparse Data Representation by Tetrolet Transform 4:20 PM
Jens Krommweh, University Duisburg-Essen
- MP1b-4 Critically Sampled Wavelets with Composite Dilations 4:45 PM
Glenn Easley, System Planning Corporation; Demetrio Labate, University of Houston
- MP1b-5 Wavelet ridge estimation of sparse jointly modulated multivariate oscillations 5:10 PM
Jonathan Lilly, Earth and Space Research; Sofia Olhede, University College London

Session MP2 Multisensor Array Processing for Radar, Sonar, and Imaging

Chair: *Louis Sharf, Colorado State University*

- MP2-1 Spatial Correlation for Directional Sensors in Arbitrary Noise Fields 1:30 PM
Henry Cox, Hung Lai, Lockheed Martin; Kristine Bell, George Mason University
- MP2-2 Compressed Sensing for MIMO radar - Algorithms and Performance 1:55 PM
Thomas Strohmer, University of California, Davis; Benjamin Friedlander, University of California, Santa Cruz
- MP2-3 Expected Likelihood-based Detection-Estimation of Multi-Rank Signals 2:20 PM
Yuri I. Abramovich, Defence Science and Technology Organisation; Ben A. Johnson, Lockheed Martin Australia; Louis L. Scharf, Ali Pezeshki, Colorado State University; Nicholas K. Spencer, Adelaide Research and Innovation, Pty. Ltd.
- MP2-4 Basis Pursuit for Robust Passive Acoustic Beamforming 2:45 PM
Ben Shapo, Chris Kreucher, Integrity Applications Incorporated
- BREAK 3:10 PM
- MP2-5 Multi Face Radar Processing: A New Application of MIMO Radar 3:30 PM
Michael Zatman, QinetiQ North America
- MP2-6 Analysis of Circular Aperture SAR Image Formation 3:55 PM
Rajesh Sharma, Northrup Grumman
- MP2-7 Detection of Unknown Signals in Unknown, Non-Stationary Noise 4:20 PM
David Browne, MIT Lincoln Laboratory

MP2-8 Polynomial-phase estimation, phase unwrapping and the nearest lattice point problem 4:45 PM
Robby McWilliam, Vaughan Clarkson, University of Queensland; Barry Quinn, Macquarie University; Bill Moran, Melbourne University

MP2-9 Reduced-Rank STAP for MIMO Radar Based on Joint Iterative Optimization of Knowledge-Aided Adaptive Filters 5:10 PM
Rui Fa, Rodrigo C. de Lamare, Patrick Clarke, University of York

Session MP3 Signal and receiver design for modulation and detection with reconfigurable wireless systems

Chair: *Mike Zoltowski, Purdue University*

MP3-1 Spatio-Temporal Scheduling of Complementary Sequences with Application to MIMO-OFDM 1:30 PM
Chad Lau, Michael Zoltowski, Purdue University; Robert Calderbank, Princeton University

MP3-2 Trellis Coded Beamforming Vector Quantization with Fractional Bits Per Antenna 1:55 PM
Chun Kin Au-Yeung, David Love, Purdue University

MP3-3 Performance Bounds for Expander-Based Compressed Sensing with Poisson Noise 2:20 PM
Sina Jafarpour, Princeton University; Rebecca Willett, Maxim Raginsky, Duke University; Robert Calderbank, Princeton University

MP3-4 Sparsity-Aware Cooperative Cognitive Radio Sensing Using Channel Gain Maps 2:45 PM
Seung-Jun Kim, University of Minnesota; Emiliano Dall'Anese, University of Padova; Georgios B. Giannakis, University of Minnesota

BREAK 3:10 PM

MP3-5 Transmission Techniques and Channel Estimation for Spatial Interweave TDD Cognitive Radio Systems 3:30 PM
Francesco Negro, Institut Eurecom; Irfan Ghauri, Infineon Technologies France; Dirk Slock, Institut Eurecom

MP3-6 Effect of Quantization and Channel Errors on Collaborative Spectrum Sensing. 3:55 PM
Sachin Chaudhari, Visa Koivunen, Helsinki University of Technology

MP3-7 Performance Analysis in AF/DF Relay Networks with Beamforming 4:20 PM
Hyunjun Kim, Cihan Tepedelenlioglu, Arizona State University

MP3-8 Dynamic Spectral Shaping in Cognitive Radios with Quality of Service Constraints 4:45 PM
Deepak Joshi, Dimitrie Popescu, Old Dominion University; Octavia Dobre, Memorial University of Newfoundland

MP3-9 Resource Allocation for Cognitive Radio Networks with a Beamforming User Selection Strategy 5:10 PM
Bassem Zayen, Aawatif Hayar, Eurecom; Geir Oien, Norwegian University of Science and Technology

Session MP4 Image and Video Coding I

Chair: *Michael Marcellin, University of Arizona*

MP4-1 Autonomous Decision Making in Layered and Reconfigurable Video Coders 1:30 PM
Nick Mastronarde, Mihaela van der Schaar, University of California, Los Angeles

MP4-2 JPEG2000 ROI-Component Coding 1:55 PM
Joan Bartrina-Rapesta, Joan Serra-Sagrista, Francesc Auli-Llinas, Juan Munoz-Gomez, Universitat Autònoma de Barcelona

MP4-3 Perceptual Distortion Metric for JPEG2000 2:20 PM
Han Oh, Ali Bilgin, Michael Marcellin, University of Arizona

MP4-4 Video compression based on distributed source coding principles 2:45 PM
Zixiang Xiong, Texas A&M University

BREAK 3:10 PM

MP4-5 A Practical Rate Distortion Bound For Inter-Frame Video Coding 3:30 PM
Jing Hu, Cisco Systems; Jerry Gibson, University of California, Santa Barbara

MP4-6 Edge-preserving Depth-map Coding using Tree-based Wavelets 3:55 PM
Alfonso Sanchez, Godwin Shen, Antonio Ortega, University of Southern California

MP4-7 Error Resilient Video Coding for Packet Loss Channels using Bimodal Leaky Prediction 4:20 PM
Ufuk Celikcan, Ertem Tuncel, University of California, Riverside

MP4-8 Enabling Access through Real-Time Sign Language Communication over Cell Phones 4:45 PM
Jaehong Chon, University of Washington; Neva Cherniavsky, INRIA; Eve Riskin, Richard Ladner, University of Washington

Session MP5 MIMO in Underwater Communications

Chair: *Magnus Lundberg Nordenvaad, Lulea University of Technology, Sweden*

MP5-1 A study of multiplicity and diversity in MIMO underwater acoustic communications 1:30 PM
T.C. Yang, US Naval Research Laboratory

MP5-2 Training Sequence Synthesis, Channel Estimation and Symbol Detection for MIMO Underwater Acoustic Communications
Xiang Su, Jun Ling, University of Florida; Magnus Lundberg Nordenvaad, Luleå University of Technology; Hao He, Jian Li, University of Florida 1:55 PM

MP5-3 MIMO OFDM Over Underwater Acoustic Channels
Milica Stojanovic, Northeastern University 2:20 PM

MP5-4 Capacity of MIMO Systems in Shallow Water Acoustic Channels
Tolga Duman, Arizona State University; John Proakis, University of California, San Diego; Milica Stojanovic, Northeastern University; Andreja Radosevic, University of California, San Diego 2:45 PM
BREAK 3:10 PM

MP5-5 The Optimal Training Length for MIMO Frequency-Selective Channel for Time-Varying Channels
Xiang Zou, James Ritcey, University of Washington 3:30 PM

MP5-6 A New Approach for Joint Channel Estimation and Data Detection in MIMO Wireless Systems
Raquel Machado, Luis Meloni, Renato Lopes, University of Campinas (UNICAMP) 3:55 PM

MP5-7 Iterative Estimation of Sparse and Doubly-selective Multi-input Multi-output (MIMO) Channels
Jun Won Choi, Kyeongyeon Kim, Thomas Riedl, Andrew Singer, University of Illinois at Urbana-Champaign 4:20 PM

MP5-8 Space-Time Block Coding for Frequency-Selective and Time-Varying Channels
Kun Fang, Geert Leus, Delft University of Technology 4:45 PM

Session MP6 Adaptive Signal Processing II

Chair: *Steven Grant, Missouri University of Science and Technology*

MP6-1 Variable Step-Size NLMS Algorithms Designed for Echo Cancellation
Constantin Paleologu, University Politehnica of Bucharest; Jacob Benesty, University of Quebec; Steven L. Grant, University of Missouri-Rolla 1:30 PM

MP6-2 A Frequency Domain Doubletalk Detector Based On Cross-Correlation and Extension To Multi-Channel Case
Mohammad Asif Iqbal, Qualcomm, Inc.; Steven L. Grant, University of Missouri-Rolla; Jack W. Stokes, Microsoft Research 1:55 PM

MP6-3 Adaptive Filtering in the Presence of Wide-Band Doppler
Steven Grant, Missouri University of Science and Technology; James Casalegno, Raytheon 2:20 PM

MP6-4 Active Noise Control Based On Kernel Least-Mean-Square Algorithm
Hua Bao, Issa Panahi, University of Texas at Dallas 2:45 PM
BREAK 3:10 PM

MP6-5 Forgetting Factor Selection in RLS Decision-Directed Tracking of Doubly-Selective Channels
Hyosung Kim, Jitendra Tugnait, Auburn University 3:30 PM

MP6-6 Adaptive Cancellation of Acoustic Echoes During Double-Talk Based on an Information Theoretic Criteria
Jake Gunther, Todd Moon, Utah State University 3:55 PM

MP6-7 A soft-input adaptive equalizer algorithm
Todd Moon, Jacob Gunther, Utah State University 4:20 PM

MP6-8 An Exponentially Convergent Adaptive Algorithm for Time-varying IIR Filters
Geoffrey A. Williamson, Mohammad Abu-Naser, Illinois Institute of Technology; Soura Dasgupta, University of Iowa 4:45 PM

Session MP7a Communications and Airborne Networks

Chair: *Biao Chen, Syracuse University*

MP7a-1 Aircraft Free-Space MIMO Communications
Michael Gans, Air Force Research Laboratory 1:30 PM

MP7a-2 MIMO Z-Interference Channels: Capacity Under Strong and Noisy Interference
Xiaohu Shang, Princeton University; Biao Chen, Syracuse University; Gerhard Kramer, University of Southern California; H. Vincent Poor, Princeton University 1:55 PM

MP7a-3 Cognitive CDMA Channelization
Kanke Gao, Stella Batalama, Dimitris Pados, State University of New York at Buffalo; John Matyjas, Air Force Research Laboratory/RIGE 2:20 PM

MP7a-4 Cooperative OTH Communications for Airborne Networks: Advantages and Challenges
Andrea Rueetschi, University of California, Davis; Matthew Sharp, Cornell University; Anna Scaglione, University of California, Davis 2:45 PM

Session MP7b Reconfigurable Architectures and Processors

Chair: *Jose Nunez-Lopez, Bristol University*

MP7b-1 Reconfigurable Computing: Productivity and Performance
Wayne Luk, Gabriel Coutinho, David Thomas, Imperial College London 3:30 PM

MP7b-2 LE1: A configurable, multi-cluster, multi-core VLIW processor for accelerating telecom and media codes
Vassilios Chouliaras, David Stevens, Nick Glynn, Loughborough University 3:55 PM

- MP7b-3 Reconfigurable Real-time MIMO Detector on GPU 4:20 PM
Michael Wu, Yang Sun, Joseph Cavallaro, Rice University
- MP7b-4 Fast Motion Estimation Using Configurable and Extendable Processing Cores 4:45 PM
Trevor Spiteri, Jose Nunez-Yanez, George Vafiadis, University of Bristol
- MP7b-5 Low Power Cell-Based Reconfigurable Reed Solomon Processor 5:10 PM
Ahmed O. El-Rayis, Xin Zhao, Tughrul Arslan, Ahmet T. Erdogan, University of Edinburgh

Session MP8a Hardware Techniques & Implementations

Chair: *Neil Burgess, University of Bristol* 1:30 PM - 3:10 PM

- MP8a-1 An Efficient Hardware Implementation for Interpolating and Decimating Filters
Richard Benson, The MathWorks Inc.
- MP8a-2 DVS 926 CPU for Mobile Handheld Devices
Rajalingam A. Kokila B, Vel Tech Multi Tech Dr.Rangarajan Dr.Sakunthala Engineering College
- MP8a-3 Scalable Interpolation-based QRD Architecture for Subcarrier-Grouped-Ordering MIMO-OFDM System
Po-Lin Chiu, National Chiao-Tung University; Lin-Zheng Huang, Yuan-Hao Huang, National Tsing-Hua University
- MP8a-4 High Speed VLSI Architecture for General Linear Feedback Shift Register (LFSR) Structures
Chao Cheng, Marvell Semiconductor; Keshab K. Parhi, University of Minnesota
- MP8a-5 A Novel FIR Filter Implementation Using Truncated MCM Technique
Rui Guo, Lei Wang, Linda S. DeBrunner, Florida State University
- MP8a-6 Hardware Implementation of IIR Digital Filters for Programmable Devices
Ramsey Hourani, Johns Hopkins University; Christopher Doss, North Carolina A&T State University; Winser Alexander, North Carolina State University
- MP8a-7 Parallel Image Thinning Through Topological Operators On Shared Memory Parallel Machines
Ramzi Mahmoudi, Mohamed Akil, Petr Matas, ESIEE Engineering
- MP8a-8 Optimizing correctly-rounded reciprocal square roots for embedded VLIW cores
Claude-Pierre Jeannerod, INRIA; Guillaume Revy, Université de Lyon
- MP8a-9 Multiple Constant Multiplication through Residue Number System
Ilir Shuli, Massimo Petricca, Gian Carlo Cardarilli, Univ. Roma Tor Vergata; Alberto Nannarelli, Technical University of Denmark; Marco Re, Univ. Roma Tor Vergata

- MP8a-10 Techniques for Avoiding Sign-Extension in Multiple Constant Multiplication
Oscar Gustafsson, Linköping University; Kenny Johansson, Florida State University
- MP8a-11 Design of Multiplierless FIR Filters with an Adder Depth Versus Filter Order Trade-Off
Kenny Johansson, Linda DeBrunner, FAMU-FSU College of Engineering; Oscar Gustafsson, Linköping University; Victor DeBrunner, FAMU-FSU College of Engineering
- MP8a-12 A Low-Complexity Rate-Compatible LDPC Decoder
Kai Zhang, Worcester Polytechnic Institute
- MP8a-13 Hardware Implementation of Real-Time MPEG Analysis and Deblocking for Video Enhancement
Massmo Petricca, Univ. Roma Tor Vergata; Huiying Li, Soren Forchhammer, Alberto Nannarelli, Technical University of Denmark; Marco Re, Univ. Roma Tor Vergata; Jacob D. Andersen, Technical University of Denmark; Gian Carlo Cardarilli, Univ. Roma Tor Vergata
- MP8a-14 A Configurable Timing and Communications Engine for Radio Positioning with Implementations for an FPGA or an ASIC
Meredith Beveridge Lecoche, Michael A. Koets, Jennifer L. Alvarez, Larry T. McDaniel, Miles R. Darnell, Michael D. Lillywhite, Southwest Research Institute
- MP8a-15 Design and FPGA implementation of a low complexity and accurate real time 3x4 MIMO channel emulator
Omar Nasr, Babak Daneshrad, University of California, Los Angeles

Session TA1b Network Coding

Chair: *Yunnan Wu, Microsoft Research*

- TA1b-1 On Cross-Layer Optimizations for Inter-session Network Coding on Wireless Networks with Practical Constraints. 10:15 AM
Chih-Chun Wang, Purdue University
- TA1b-2 Cross-Layer Utility Maximization Subject to Stability Constraints for Multi-Channel Wireless Networks 10:40 AM
Marian Codreanu, Chathuranga Weeraddana, Matti Latva-aho, University of Oulu
- TA1b-3 On Cross-Layer Optimizations for Inter-session Network Coding on Wireless Networks with Practical Constraints 11:05 AM
Chih-Chun Wang, Purdue University; Ness B. Shroff, Abdallah Khreishah, Ohio State University
- TA1b-4 Physical Layer Network Coding with Unsynchronized Transmitters 11:30 AM
Dumezie Maduikwe, Henry Pfister, Alex Sprintson, Texas A&M University
- TA1b-5 On combining information theoretic and cryptographic approaches to network coding security against the pollution attack 11:55 AM
Aditya Khosla, Svitlana Vyetenko, Tracey Ho, California Institute of Technology

Session TA2b Advances in Medical Imaging

Chair: *George Zouridakis, U. of Houston*

- TA2b-1 Effects of Inflow Variation in a Cerebral Aneurysm - A Image-based Approach for the Analysis of CFD Simulation Data 10:15 AM
Christof Karmonik, Yi Zhang, Methodist Hospital Neurological Institute; Martin Spiegel, University of Erlangen; Thomas Redel, Ashraf Mohamed, Siemens Medical Solutions; Marc Horner, Ralf Kroeger, Robert Grossman, ANSYS, Inc.
- TA2b-2 Random Field Model for Cell Segmentation in Transmission Mode Multispectral Microscopy Images 10:40 AM
Xuqing Wu, Shishir Shah, University of Houston
- TA2b-3 Compressive Sensing Method for Improved Reconstruction of Gradient-Sparse Magnetic Resonance Images 11:05 AM
Cristiano Miosso, Ricardo von Borries, Joseph Pierluissi, University of Texas at El Paso
- TA2b-4 Generalized Pseudo-Polar Fourier Grids and Applications in Registering Ophthalmic Optical Coherence Tomography Images 11:30 AM
Nigel Chou, Joseph Izatt, Sina Farsiu, Duke University
- TA2b-5 Multichannel Image Restoration Based on Optimization of the Structural Similarity Index 11:55 AM
Maja Temerinac-Ott, Hans Burkhardt, University of Freiburg

Session TA3b Secure Communications

Chair: *John Hershey, GE Research*

- TA3b-1 The Gaussian Wiretap Channel with Noisy Public Feedback: Breaking the High-SNR Ceiling 10:15 AM
Tung Kim, H. Vincent Poor, Princeton University
- TA3b-2 Secrecy Capacity Optimization under Cooperation with Perfect Channel State Information 10:40 AM
Jiangyuan Li, Athina Petropulu, Steven Weber, Drexel University
- TA3b-3 Secrecy Capacity of Nakagami-m Fading Wireless Channels in the Presence of Multiple Eavesdroppers 11:05 AM
Md. Zahurul Islam Sarkar, Tharmalingam Ratnarajah, Mathini Sellathurai, Queen's University Belfast
- TA3b-4 Two Edge Type LDPC Codes for the Wiretap Channel 11:30 AM
Vishwambhar Rathi, Mattias Andersson, Ragnar Thobaben, Royal Institute of Technology; Jorg Kliewer, Klipsch School of Electrical and Computer Engineering; Mikael Skoglund, Royal Institute of Technology

Session TA4b Image and Video Enhancement/Filtering

Chair: *Manu Parmar, Stanford University*

- TA4b-1 Image Matting From a Physical Perspective 10:15 AM
Yuan Shen, Massachusetts Institute of Technology; Ramin Samadani, Mitchell Trott, Hewlett Packard
- TA4b-2 Compression-Aware Digital Pan/Tilt/Zoom 10:40 AM
Mina Makar, Aditya Mavlankar, Bernd Girod, Stanford University
- TA4b-3 Low-light imaging solutions for mobile devices 11:05 AM
Marius Tico, Kari Pulli, Nokia
- TA4b-4 Bias Modeling for Image Denoising 11:30 AM
Priyam Chatterjee, Peyman Milanfar, University of California, Santa Cruz
- TA4b-5 A case for denoising before demosaicking color filter array data 11:55 AM
Sung Hee Park, Hyung Suk Kim, Steven Linsel, Manu Parmar, Brian Wandell, Stanford University

Session TA5b Image and Video Coding II

Chair: *Christopher M. Brislawn, Los Alamos National Laboratory*

- TA5b-1 A Framework for Perceptual Image Analysis 10:15 AM
Lakshman Prasad, Sriram Swaminarayan, Los Alamos National Laboratory
- TA5b-2 A Motion Compensated Approach to Video Quality Assessment 10:40 AM
Anush Moorthy, Alan Bovik, University of Texas at Austin
- TA5b-3 Multiple Description Coding of Multiview Images 11:05 AM
Xiaoyu Xiu, Jie Liang, Simon Fraser University
- TA5b-4 Perceptual Video Quality Optimization in AWGN Channel Using Low Complexity Channel Code Rate Allocation 11:30 AM
Ting-Lan Lin, Pamela Cosman, University of California, San Diego
- TA5b-5 Adaptive multithreaded H.264/AVC decoding 11:55 AM
Henryk Richter, University of Rostock; Benno Stabernack, Fraunhofer Institut für Nachrichtentechnik; Erika Müller, University of Rostock

Session TA6b Adaptive Signal Processing III

Co-Chairs: *John Shynk, University of California, Santa Barbara and Suk-seung Hwang, Chosun University, Korea*

- TA6b-1 An Affine Combination of Two LMS Adaptive Filters - Statistical Analysis of an Error Power Ratio Scheme 10:15 AM
Neil Bershada, University of California, Irvine; Jose Carlos Bermudez, Federal University of Santa Catarina; Jean-Yves Tournier, IRIT-ENSEEIH

- TA6b-2 Adaptive signal processing techniques for clutter removal in radar-based navigation systems 10:40 AM
Yanfeng Liang, Harbin Engineering University; Wenwu Wang, Surrey University; Jonathon Chambers, Loughborough University
- TA6b-3 Adaptive Channel Estimation Based on the MIMO-OFDM Preamble 11:05 AM
Suk-seung Hwang, Chosun University
- TA6b-4 Tracking Behavior of Adaptive Equalizers in Filtered Multitone Communication Systems 11:30 AM
Pooyan Amini, Behrouz Farhang-Boroujeny, University of Utah
- TA6b-5 Diffusion Distributed Kalman Filtering with Adaptive Weights 11:55 AM
Federico S. Cattivelli, Ali H. Sayed, University of California, Los Angeles

Session TA7b Computer Arithmetic I

Chair: *Mike Schulte, University of Wisconsin-Madison*

- TA7b-1 Performance of a RISC System Implementing Arithmetic Data Value Speculation 10:15 AM
Daniel Kelly, Braden Phillips, Said Al-Sarawi, University of Adelaide
- TA7b-2 Simplifying the Rounding for Newton-Raphson Algorithm with Parallel Remainder Calculation 10:40 AM
Daniel Pisco Fernández, Javier Díaz Bruguera, University of Santiago de Compostela
- TA7b-3 Floating-Point Implementation of Complex Multiplication 11:05 AM
Earl E. Swartzlander, Jr., University of Texas at Austin; Hani Saleh, Intel Corporation
- TA7b-4 A Combined Decimal and Binary Floating-point Divider 11:30 AM
Sonia González-Navarro, University of Málaga; Alberto Nannarelli, Technical University of Denmark; Charles Tsen, Michael Schulte, University of Wisconsin-Madison
- TA7b-5 Design and FPGA Implementation of Radix-10 Algorithm for Square Root with Limited Precision Primitives 11:55 AM
Milos D. Ercegovic, University of California, Los Angeles; Robert McIlhenny, California State University Northridge

Session TA8b1 Communication Systems I

Chair: *Bill Moran, University of Melbourne* 10:15 AM - 11:55 AM

- TA8b1-1 EXIT Chart Analysis for the Bit-interleaved Turbo Frequency Domain Equalization under Fast Fading Environments
Chantri Polprasert, James Ritcey, University of Washington
- TA8b1-2 Supertight Algebraic Bounds on $Q(x)$
Giuseppe Abreu, University of Oulu

- TA8b1-3 Robust IEEE 802.15.4a Energy Detection Receiver Using Statistical Interference Modeling
Manuel Flury, EPFL; Ruben Merz, Deutsche Telekom Laboratories; Jean-Yves Le Boudec, EPFL
- TA8b1-4 Robustness of Joint Bayesian Frequency Offset and Channel Estimation based on Basis Expansion Models
Rami Khal, Junruo Zhang, Yuriy Zakharov, University of York
- TA8b1-5 Properties and Performance Bounds of Linear Analog Block Codes
Matthias Rüngeler, Birgit Schotsch, Peter Vary, RWTH Aachen University
- TA8b1-6 On Channel-Based User Authentication for Mobile Terminals
Jitendra Tugnait, Hyosung Kim, Auburn University
- TA8b1-7 Peak to Average Power Ratio Reduction of an OFDM Signal Using a Practical Selective Mapping Approach with Embedded Side-Information
Benjamin Lee, Douglas L. Jones, Dilip V. Sarwate, University of Illinois at Urbana-Champaign
- TA8b1-8 A Novel Uplink Receiver for GSM/EDGE Systems with Orthogonal Sub Channel Feature
Daniele Molteni, Monica Nicoli, Politecnico di Milano
- TA8b1-9 On The Suitability Of Bit Mappings To Outer Channel Codes In Iteratively-Decoded BICM
Michael Samuel, Maged Barsoum, University of California, Los Angeles; Michael Fitz, Northrup Grumman
- TA8b1-10 On Linear Processing in AWGN Channels with Feedback
Zachary Chance, David Love, Purdue University
- TA8b1-11 On the Queueing Delay of Cognitive Communications
Amine Laourine, Shiyao Chen, Lang Tong, Cornell University
- TA8b1-12 Cell Hearability Analysis in UTRAN Long Term Evolution Downlink
Alexandra Oborina, Helsinki University of Technology; Tero Henttonen, Nokia Oyj
- TA8b1-13 On the Application of BP Decoding to Convolutional and Turbo Codes.
Ahmed Refaey-Ahmed, Sebastien Roy, Paul Fortier, Laval University
- TA8b1-14 Congenial Weighting for Interference Canceller with Convolutional Code
Xueyuan Zhao, Zhengang Pan, Hong Kong Applied Science and Technology Research Institute (ASTRI); Roger S.K. Cheng, Hong Kong University of Science and Technology (HKUST); Vincent K.N. Lau, Hong Kong Applied Science and Technology Research Institute (ASTRI)

TA8b1-15 Sum Rate Increase with the Hybrid of Interference Cancellation and Busy Burst Interference Avoidance
Sinan Sinanovic, University of Edinburgh; Gunther Auer, DoCoMo Euro-Labs; Harald Haas, University of Edinburgh

TA8b1-16 Channel Estimation by Inference on Gaussian Markov Random Fields
Thomas Riedl, Jun Won Choi, Andrew Singer, University of Illinois at Urbana-Champaign

TA8b1-17 Optimal Subcarrier Power Allocation for OFDM in Peak-Power-Limited Channels
Qijia Liu, Georgia Institute of Technology; Robert J. Baxley, Georgia Tech Research Institute; G. Tong Zhou, Georgia Institute of Technology

TA8b1-18 On the Outage Performance of Relay Systems in Frequency Selective Fading Channels
Qingxiang Deng, Andrew G. Klein, Worcester Polytechnic Institute

Session TA8b2 Communication Systems II

Chair: *Bill Moran, University of Melbourne* 10:15 AM - 11:55 AM

TA8b2-1 Spline-based Spectrum Cartography for Cognitive Radios
Gonzalo Mateos, Juan-Andrés Bazerque, Georgios B. Giannakis, University of Minnesota

TA8b2-2 Optimized Differential Bluetooth Demodulator
Bo Yu, Liuqing Yang, University of Florida; Chia-Chin Chong, DoCoMo USA Labs

TA8b2-3 Jamming Mitigation Based on Coded Message-Driven Frequency Hopping
Huahui Wang, Tongtong Li, Michigan State University

TA8b2-4 Delay-Throughput Trade-off With Opportunistic Relaying in Wireless Networks
Yufeng Wang, Shengshan Cui, Alexander Haimovich, New Jersey Institute of Technology

Session TP1a Network Design

Co-Chairs: *Michael Pioro, Lund University and Zbigniew Dziong, University of Quebec*

TP1a-1 A Multi-Objective Approach for Joint Throughput and Traffic Engineering Optimization in WDM Networks 1:30 PM
Jorge Crichigno, C. Xie, Wei Shu, University of New Mexico; Min-You Wu, Shanghai Jiao Tong University; Nasir Ghani, University of New Mexico

TP1a-2 Online Impairments-aware Routing within a Path Computation Element 1:55 PM
Fernando Solano, Mateusz Zotkiewicz, Warsaw University of Technology

TP1a-3 Minimization of Label Usage in (G)MPLS Network 2:20 PM
Artur Tomaszewski, Michal Pioro, Lund University

TP1a-4 Measurement Based Routing for Service Overlay Networks 2:45 PM
Wafic Muhi-eddine, Zbigniew Dziong, University of Quebec

Session TP1b Relay Networks

Co-Chairs: *Michael Pioro, Lund University and Zbigniew Dziong, University of Quebec*

TP1b-1 Optimal Power Allocation for Orthogonal Relay Systems 3:30 PM
Fayyaz Ahmed, McMaster University

TP1b-2 Uncoded Transmission in Wireless Relay Networks Using Deterministic Modeling 3:55 PM
Nicolas Schrammar, Mikael Skoglund, Royal Institute of Technology

TP1b-3 Efficient and Accurate Localization in Multihop Networks 4:20 PM
Stefano Severi, Davide Dardari, Università di Bologna; Giuseppe Destino, Giuseppe Abreu, Oulun Yliopisto

TP1b-4 Optimal Quantization Allocation For Amplify-Weight-And-Forward Cooperative Links 4:45 PM
Harish Ganapathy, Constantine Caramanis, University of Texas at Austin

Session TP2a Reading the Brain -- Decoding Perception and Cognition

Chair: *Lucas Parra, City College CUNY*

TP2a-1 Decoding cognitive state variables from parietal and frontal cortex 1:30 PM
Bijan Pesaran, Basma Radwan, Boris Revechikis, New York University

TP2a-2 Bayesian reconstruction of perceptual experiences from human brain activity 1:55 PM
Thomas Naselaris, Ryan Prenger, Kendrick Kay, Michael Oliver, Jack Gallant, University of California, Berkeley

TP2a-3 Finding the engram: decoding episodic memory traces from signals in the hippocampus 2:20 PM
Demis Hassabis, Martin Chadwick, Nikolaus Weiskopf, Eleanor Maguire, University College London

TP2a-4 Modeling motor learning connectivity using coordinate-based meta-analysis and TMS/PET 2:45 PM
Angela Laird, Karl Li, Shalini Narayana, University of Texas Health Science Center San Antonio; Larry Price, Texas State University; Robert Laird, St. Mary's University; Peter Fox, University of Texas Health Science Center San Antonio

Session TP2b Neural Signal Processing

Chair: *Karim Oweiss, Michigan State University*

- TP2b-1 A hypergraph-based approach to identify the role of higher-order interaction between cortical neurons in stimulus coding 3:30 PM
Mehdi Aghagolzadeh, Seif Eldawlatly, Karim Oweiss, Michigan State University
- TP2b-2 Nonlinear Dynamic Modeling of Neural Population Activity for Hippocampal Prosthesis 3:55 PM
Dong Song, Rosa Chan, Vasilis Marmarelis, University of Southern California; Robert Hampson, Sam Deadwyler, Theodore Berger, Wake Forest University
- TP2b-3 Spatial Proximity based Subspace Decomposition for Movement Direction Decoding of Local Field Potentials 4:20 PM
Vijay Aditya Tadipatri, B. Vikram Gowreesunker, Ahmed Tewfik, Nuri F. Ince, James Ashe, Giuseppe Pellizzer, University of Minnesota
- TP2b-4 Bezier Control Points Image: A Novel Shape Representation Approach for Medical Imaging 4:45 PM
Dajiang Zhu, University of Georgia; Kaiming Li, Lei Guo, Northwestern Polytechnical University; Tianming Liu, University of Georgia

Session TP3 Wideband Communications and Interference Management

Chair: *Jamie Evans, University of Melbourne*

- TP3-1 A Centralized Multi-Level Water-Filling Algorithm for Dynamic Spectrum Management 1:30 PM
H. Zou, A. Chowdhery, J. M. Cioffi, Stanford University
- TP3-2 Beamforming Design for Interference Mitigation in MIMO Wireless Networks 1:55 PM
Rajiv Agarwal, Stanford University
- TP3-3 Minimum Mean Squared Error Interference Alignment 2:20 PM
David Schmidt, Technical University of Munich; Changxin Shi, Randall Berry, Michael Honig, Northwestern University; Wolfgang Utschick, Technical University of Munich
- TP3-4 Digital Post-Processing for Reducing A/D Converter Nonlinear Distortion in Wideband Radio Receivers 2:45 PM
Markus Allen, Jaakko Marttila, Mikko Valkama, Tampere University of Technology
- BREAK 3:10 PM
- TP3-5 Weighted Sum Rate Maximization on Two User Gaussian Interference Channels with Rate Splitting 3:30 PM
Maximilian Riemensberger, Ines Abdelghani, Johannes Lenz, Wolfgang Utschick, Technische Universität München

- TP3-6 Outage Rate Regions for the MISO IFC 3:55 PM
Johannes Lindblom, Eleftherios Karipidis, Erik G. Larsson, Linköping University
- TP3-7 Low Speed Compressive Sampling ADC for 60GHz UWB Communication 4:20 PM
Jia (Jasmine) Meng, University of Houston; Javad Ahmadi-Shokouh, University of Manitoba; Husheng Li, University of Tennessee; E. Joe Carlson, Zhu Han, University of Houston; Sima Noghianian, University of North Dakota; Ekram Hossain, University of Manitoba
- TP3-8 Nonlinear Spreading for Communications in Co-Band Interference Channels 4:45 PM
Robert J. Baxley, Brett T. Walkenhorst, Georgia Tech Research Institute

Session TP4 Detection and Estimation II

Chair: *David Ohm, Zeta Associates*

- TP4-1 Blind Source Separation with Low Frequency Compensation for Convolutional Mixtures 1:30 PM
Xiaoming Zhu, Keshab K. Parhi, Warren J. Warwick, University of Minnesota, Twin Cities
- TP4-2 GPS AOA Estimation Based on a Modified Despreader 1:55 PM
Suk-seung Hwang, Chosun University; John J. Shynk, University of California, Santa Barbara
- TP4-3 Polarimetric MIMO Radar With Distributed Antennas for Target Detection 2:20 PM
Sandeep Gogineni, Arye Nehorai, Washington University in St. Louis
- TP4-4 Emitter Location Via Joint 3-D Parametric Estimation 2:45 PM
David Ohm, Zeta Associates, Inc.; S. Lawrence Marple Jr., Oregon State University
- BREAK 3:10 PM
- TP4-5 A Novel Maximum Likelihood Estimator for GPS Signal Angle of Arrival 3:30 PM
Matthew Brenneeman, Yu Tong Morton, Miami University
- TP4-6 Impact of Element Positional Errors on Bearing Estimation for Undersea Bottom Mounted, Linear Sonar Arrays 3:55 PM
John Cochran, Igal Bilik, University of Massachusetts, Dartmouth
- TP4-7 Elephant Censusing via Geophone Arrays: A Visual Approach for Linear Arrays 4:20 PM
Gabriel Chandler, Ozgur Izmirli, Connecticut College; Caitlin O'Connell-Rodwell, Stanford University; Jason Wood, The Whale Museum
- TP4-8 ABF Performance Using Covariance Matrices Derived From Spatial Spectra For Large Arrays 4:45 PM
Joseph Schwarzwald, Argon ST, Inc.; Kathleen Wage, George Mason University

Session TP5 MIMO Radar

Chair: *Rick Blum, Lehigh University*

- TP5-1 On MIMO Radar Transmission Schemes for Ground Moving Target Indication 1:30 PM
Ming Xue, Duc Vu, Luzhou Xu, Jian Li, University of Florida; Petre Stoica, Uppsala University
- TP5-2 Finite-sample Optimal Joint Target Detection and Parameter Estimation by MIMO Radars 1:55 PM
Ali Tajer, Guido Jajamovich, Xiaodong Wang, George Moustakides, Columbia University
- TP5-3 Target Tracking in Widely Separated Non-coherent Multiple-Input Multiple-Output Radar Systems 2:20 PM
Ruixin Niu, Syracuse University; Rick Blum, Lehigh University; Pramod Varshney, Syracuse University; Andrew Drozd, ANDRO Computational Solutions
- TP5-4 A MIMO Radar System Approach to Target Tracking 2:45 PM
Hana Godrich, Alexander Haimovich, New Jersey Institute of Technology; Rick Blum, Lehigh University
- BREAK 3:10 PM
- TP5-5 Exploiting Correlation in MIMO radar with Angular Diversity 3:30 PM
Tuomas Aittomäki, Visa Koivunen, Helsinki University of Technology
- TP5-6 Range And Doppler Estimation In Distributed MIMO Radar 3:55 PM
Yao Yu, Athina Petropulu, Drexel University; H. Vincent Poor, Princeton University; Thomas P.-Y. Yu, Drexel University
- TP5-7 Spatial Coherence of Targets in MIMO Radar Applications 4:20 PM
Alexander M. Haimovich, New Jersey Institute of Technology; Rick S. Blum, Lehigh University
- TP5-8 Noncoherent versus Coherent MIMO Radar: Simplicity with little loss for Sufficient Numbers of Antennas 4:45 PM
Qian He, Rick S. Blum, Lehigh University

Session TP6a Speech Coding

Chair: *Marios S. Pattichis, University of New Mexico*

- TP6a-1 A Speech Packet Loss Concealment Algorithm Using Real-time Speech Quality Measurement and Redundancy Coding 1:30 PM
Jin Ah Kang, Hong Kook Kim, Gwangju Institute of Science and Technology
- TP6a-2 Analysis of Wyner-Ziv Quantizers for Packet Loss 1:55 PM
Manohar N. Murthi, Shaminda Subasingha, University of Miami

- TP6a-4 Phonetically Switched Tree Coding of speech with a G.727 Code Generator 2:45 PM
Jerry Gibson, Pravin Ramadas, University of California, Santa Barbara

- TP6a-5 Generalized Triangular Transform Coding 3:10 PM
Ching-Chih Weng, Chun-Yang Chen, P. P. Vaidyanathan, California Institute of Technology

Session TP6b Computational Photography

Chair: *Pradeep Sen, University of New Mexico*

- TP6b-1 Restoration of Images Captured with Combined Conventional and Plenoptic Camera 3:30 PM
Pradeep Sen, Viktor Chekh, UNM Advanced Graphics Lab
- TP6b-2 New Results on the Plenoptic 2.0 Camera 3:55 PM
Todor Georgiev, Adobe
- TP6b-3 Visual Summaries of Popular Landmarks from Community Photo Collections 4:20 PM
Wei-Chao Chen, Agathe Battestini, Natasha Gelfand, Vidya Setlur, Nokia Research Center
- TP6b-4 A Gradient Domain Object Editing Approach and Its Implementation on Mobile Device 4:45 PM
Yingen Xiong, Kari Pulli, Nokia Research Center

Session TP7 Communication Processors and Accelerators

Chair: *Joe Cavallaro, Rice University*

- TP7-1 Design of a Cooperative OFDM Transceiver 1:30 PM
Patrick Murphy, Christopher Hunter, Ashutosh Sabharwal, Rice University
- TP7-2 Receiver Implementation for MIMO-OFDM with AMC and Precoding 1:55 PM
Johanna Ketonen, Markku Juntti, University of Oulu
- TP7-3 Trends and Challenges in LDPC Hardware Decoders 2:20 PM
Tinoosh Mohsenin, Bevan Baas, University of California, Davis
- TP7-4 Low Error Rate LDPC Decoders 2:45 PM
Zhengya Zhang, Borivoje Nikolic, Venkat Anantharam, Martin Wainwright, Brian Richards, University of California, Berkeley
- BREAK 3:10 PM
- TP7-5 Polyphase Channelizer Performs Sample Rate Change Required for both Matched Filtering and Channel Frequency Spacing 3:30 PM
fredric harris, San Diego State University; Chris Dick, Xilinx
- TP7-6 Tunable N-Path Mismatch Shaping for Multibit Bandpass Delta-Sigma Modulators 3:55 PM
Waqas Akram, Earl Swartzlander, University of Texas at Austin

TP7-7 MIMO Accelerator: A Design Flow for a Programmable MIMO Decoder Architecture
Karim Mohammed, Mohamed Ali, Babak Daneshrad, University of California, Los Angeles 4:20 PM

TP7-8 Rapid Direct Sequence Spread Spectrum Code Synchronization using a Complex Matched Filter on an FPGA
Michael A. Koets, Michael D. Lillywhite, Larry T. McDaniel, Meredith Beveridge Lecoche, Southwest Research Institute 4:45 PM

Session TP8a1 Array and Statistical Signal Processing I

Chair: *Harry Schmitt, Raytheon Company* 1:30 PM - 3:10 PM

TP8a1-1 Greedy Sparse Signal Reconstruction From Sign Measurements
Petros Boufounos, Mitsubishi Electric Research Laboratories, Inc.

TP8a1-2 Recovering Tensor Data from Incomplete Measurement via Compressive Sampling
Jason Holloway, Carmeliza Navasca, Clarkson University

TP8a1-3 Multiband Chirp Synthesis for Frequency-Hopped FMCW Radar
Jason Yu, Jeffrey Krolik, Duke University

TP8a1-4 Simultaneous Grating Lobe and Backlobe Rejection with a Line Array of Vector Sensors
Henry Cox, Hung Lai, Lockheed Martin

Session TP8a2 Array and Statistical Signal Processing II

Chair: *Harry Schmitt, Raytheon Company* 1:30 PM - 3:10 PM

TP8a2-1 Extraction of Time-Frequency Target Features
Tobias Oesterlein, Chensong He, Jorge Quijano, Richard Campbell Jr., Lisa Zurk, Martin Siderius, Portland State University

TP8a2-2 Target Tracking via a Sampling Stack Approach
Hossein Roufarshbaf, Jill Nelson, George Mason University

TP8a2-3 A Distributed Sensor Fusion Algorithm for the Inversion of Sparse Fields
Aurora Schmidt, José M. F. Moura, Carnegie Mellon University

TP8a2-4 Distributed average consensus: Beyond the realm of linearity
Usman Khan, Soumya Kar, Jose' Moura, Carnegie Mellon University

Session TP8a3 Adaptive Signal Processing IV

Chair: *Victor DeBrunner, Florida State University* 1:30 PM - 3:10 PM

TP8a3-1 An Unbiased Explicit Adaptive Gain and Time-delay Estimation Algorithm
Bernard Levy, University of California, Davis

TP8a3-2 Convergence Analysis of a Frequency Domain Adaptive Filter with Constraints on the Output Weights
Walter Kozacky, Tokunbo Ogunfunmi, Santa Clara University

TP8a3-3 Improving Adaptive Tracking in Time-Frequency Plane Using Varying Number of Adaptive Notch Filters
Hieu Thai, Minh Ta, Victor DeBrunner, Florida State University

TP8a3-4 A new prewhitening-based adaptive filter which converges to the Wiener-solution
Øyvind Lunde Rortveit, John Håkon Husøy, University of Stavanger

TP8a3-5 Fault Tolerant Fermat Number Transform Domain Adaptive Filters Based on Modulus Replication RNS Architectures
Chandrashekar Radhakrishnan, Kenneth Jenkins, Pennsylvania State university

TP8a3-6 A Strict Stability Limit for Adaptive Gradient Type Algorithms
Robert Dallingier, Markus Rupp, Vienna University of Technology

TP8a3-7 Factor Graphs for Universal Portfolios
Andrew Bean, Andrew Singer, University of Illinois at Urbana-Champaign

TP8a3-8 Blind Adaptive Equalizer For Broadband MIMO Time Reversal STBC Based on PDF Fitting.
Adel Daas, Samir Bendoukha, Stephan Weiss, University of Strathclyde

Session TP8b1 MIMO Communications I

Chair: *Benjamin Friedlander, University of California, Santa Cruz* 3:30 PM - 5:10 PM

TP8b1-1 Optimal Detection for STBC MIMO systems in spatially correlated Rayleigh Fast Fading Channels with Imperfect Channel Estimation
Junruo Zhang, Yuriy Zakharov, Rami Khal, University of York

TP8b1-2 MIMO Receive Switched Diversity with Imperfect Channel
Cihan Tepedelenlioglu, Adarsh Bangalore Narasimhamurthy, Arizona State University

TP8b1-3 Blind MIMO Using the Golden Code
M. Rezk, B. Friedlander, University of California, Santa Cruz

- TP8b1-4 Parametric Compression of Rank-1 Analog Feedback in MIMO-OFDM
Ron Porat, Phil Orlik, Mitsubishi Electric Research Laboratories, Inc.
- TP8b1-5 A Simplified Channel Model for MIMO Communications with Polarization
Xiyu Zheng, Erik Lindskog, PureWave Networks, Inc.
- TP8b1-6 Fair User Selection for Zero-Forcing Precoding in Multi-User SIMO Systems
Nicolas Schrammar, Royal Institute of Technology; Peter A. Hoeher, University of Kiel
- TP8b1-7 On Full Diversity Equalization for Precoded Block Transmission Systems
Shakti Prasad Shenoy, Eurecom; Irfan Ghauri, Infineon Technologies France; Dirk T.M Slock, Eurecom
- TP8b1-8 Single and Multiple Antennas Alamouti Receivers for the Reception of Real-Valued Signals Corrupted by Interferences – the Alamouti-SAIC/MAIC Concept
Pascal Chevalier, Florian Dupuy, Thales-Communications
- TP8b1-9 Throughput and Capacity of MIMO WiMAX
Christian Mehlführer, Sebastian Caban, Vienna University of Technology; José Antonio García Naya, University of A Coruña; Markus Rupp, Vienna University of Technology
- TP8b1-10 Linear Precoders for Multiuser MIMO for finite constellations and a simplified receiver structure under controlled interference
Rizwan Ghaffar, Raymond Knopp, Eurecom
- TP8b1-11 Codebook-based Quantized MIMO Feedback for Closed-Loop Transmit Precoding
Man-On Pun, Ron Porat, Philip Orlik, Jinyun Zhang, Mitsubishi Electric Research Laboratories, Inc.; Toshiyuki Kuze, Mitsubishi Electric
- TP8b1-12 Optimal OSTBC sequence detection over unknown correlated fading channels
Dimitris Papailiopoulos, George Karystinos, Technical University of Crete
- TP8b1-13 Performance and Complexity Tradeoffs of Space-Time Modulation and Coding Schemes
Nicholas Chang, Adam Margetts, Andrew McKellips, MIT Lincoln Laboratory
- TP8b1-14 Reduced-Complexity LLL Algorithm for Lattice-Reduction-Aided MIMO Detection
Chun-Fu Liao, Yuan-Hao Huang, National Tsing-Hua University
- TP8b1-15 Mutual Information Bounds for MIMO Channels under Imperfect Receiver CSI
Adriano Pastore, Michael Joham, Technical University of Munich
- TP8b1-16 A Scheme for Fully Polarimetric Multi-user Detection
Songsri Sirianunpiboon, Stephen D. Howard, Defence Science and Technology Organisation; A. Robert Calderbank, Princeton University

Session TP8b2 MIMO Communications II

Chair: *Lee Swindlehurst, University of California, Irvine* 3:30 PM - 5:10 PM

- TP8b2-1 Performance of Different User Selection Algorithms for Transmit Power Minimization
Umer Salim, Dirk Slock, Eurecom
- TP8b2-2 Weighted Sum Rate Maximization in the MIMO MAC with Linear Transceivers: Algorithmic Solutions
Christian Guthy, Wolfgang Utschick, Raphael Hunger, Michael Joham, Technische Universität München
- TP8b2-3 User Selection in Multiuser MIMO Systems with Secrecy Considerations
Amitav Mukherjee, A. Lee Swindlehurst, University of California, Irvine
- TP8b2-4 Iterative Linear MMSE Transmit and Receive Strategies for Cellular MIMO Networks
Ralf Bendlin, Yih-Fang Huang, University of Notre Dame; Michel T. Ivrlac, Josef A. Nossek, Munich University of Technology
- TP8b2-5 Optimization of Computational Resource Allocation for Soft MIMO-detection Using Partial Marginalization
Mirsad Cirikic, Daniel Persson, Erik G. Larsson, Linköping University
- TP8b2-6 OFDMA Downlink Resource Allocation via ARQ Feedback
Rohit Aggarwal, Ohio State University; Mohamad Assaad, Supelec; C. Emre Koksal, Philip Schniter, Ohio State University
- TP8b2-7 Kalman Filter-based Channel Estimation for Amplify and Forward Relay Communications
Xiangyun Zhou, Tharaka Lamahewa, Parastoo Sadeghi, Australian National University
- TP8b2-8 Distributed Gain Matrix Optimization in Non-Regenerative MIMO Relay Channels
Raphael Rolny, Jörg Wagner, Celal Esli, Armin Wittneben, Swiss Federal Institute of Technology Zurich
- TP8b2-9 Spatial Loop Interference Suppression in Full-Duplex MIMO Relays
Taneli Riihonen, Stefan Werner, Risto Wichman, Helsinki University of Technology
- TP8b2-10 Spectrum Efficient Cooperative Relaying based on Outage-Multiplexing Tradeoff Analysis
Youngwook Ko, Sergiy Vorobyov, Masoud Ardakani, University of Alberta
- TP8b2-11 Power Allocation for Irregularly Modulated MIMO Signaling with Iterative Frequency Domain Detector
Juha Karjalainen, Antti Tölli, Marian Codereanu, Markku Juntti, Tad Matsumoto, University of Oulu
- TP8b2-12 The Geometry of the MIMO Broadcast Channel Rate Region Under Linear Filtering at High SNR
Raphael Hunger, Paul de Kerret, Michael Joham, Technische Universität München

- TP8b2-13 Weighted Sum Rate Maximization in the MIMO MAC with Linear Transceivers: Asymptotic Results
Raphael Hunger, Michael Joham, Christian Guthy, Wolfgang Utschick, Technische Universität München
- TP8b2-14 Performance Analysis of Relay Channel Estimation
Panagiota Lioliou, Mats Viberg, Chalmers University of Technology; Mikael Coldrey, Ericsson research
- TP8b2-15 On the Diversity-Multiplexing Tradeoff of Multiuser Amplify & Forward Multihop Networks
Joerg Wagner, Armin Wittneben, Swiss Federal Institute of Technology Zurich
- TP8b2-16 Optimal DMT of Dynamic Decode-and-Forward Protocol on a Half-Duplex Relay Channel With Arbitrary Number of Antennas at Each Node
Sanjay Karmakar, Mahesh K. Varanasi, University of Colorado at Boulder

Session WA1 Sparse Representations and Compressive Sensing

Chair: *Rebecca Willett, Duke University*

- WA1-1 Sparse Online Learning via Truncated Gradient 8:30 AM
John Langford, Lihong Li, Yahoo! Research; Tong Zhang, Rutgers University
- WA1-2 Compressive Distilled Sensing: Sparse Recovery using Adaptivity in Compressive Measurements 8:55 AM
Jarvis Haupt, University of Wisconsin; Rui Castro, Columbia University; Robert Nowak, University of Wisconsin-Madison
- WA1-3 Signal recovery from corrupted measurements 9:20 AM
Jason Laska, Mark Davenport, Richard Baraniuk, Rice University
- WA1-4 Group Testing Strategies for Recovery of Sparse Signals in Noise 9:45 AM
Mark Iwen, University of Minnesota
- BREAK 10:10 AM
- WA1-5 Computationally Efficient Sparse Bayesian Learning via Belief Propagation 10:30 AM
Xing Tan, Jian Li, University of Florida
- WA1-6 A Multi-Sensor Compressed Sensing Receiver: Performance Bounds and Simulated Results 10:55 AM
Benjamin Müller, Joel Goodman, Keith Forsythe, MIT Lincoln Laboratory; John Z. Sun, Vivek K Goyal, Massachusetts Institute of Technology
- WA1-7 Robust Sparsity Pattern Recovery 11:20 AM
Galen Reeves, Michael Gastpar, University of California, Berkeley

- WA1-8 Nyquist Folding Analog-to-Information Receiver: Autonomous Information Recovery Using Quadrature Mirror Filtering 11:45 AM
Phillip Pace, Naval Postgraduate School; Gerald Fudge, Antone Kusmanoff, L-3 Communications

Session WA2a Functional Imaging

Chair: *Vince Calhoun, U. of New Mexico*

- WA2a-1 Integration of MEG, EEG, MRI, and fMRI: Cortically constrained estimates of transient and oscillatory activity 8:30 AM
Matti S. Hämäläinen, Massachusetts General Hospital
- WA2a-2 Examining the Relationship between Brain Function and Structure on Voxel-by-Voxel-Basis 8:55 AM
Satoru Hayasaka, Wake Forest University
- WA2a-3 Electricity and Magnetism: Two views of the Brain in Action 9:20 AM
Mark Cohen, UCLA School of Medicine
- WA2a-4 MEG and fMRI for nonlinear estimation of neural activity 9:45 AM
Sergey M. Plis, Terran Lane, University of New Mexico; Michael P. Weisend, Vince D. Calhoun, MIND Research Network

Session WA2b Computer Aided Diagnosis

Chair: *Fred Ham, Florida Institute Technology*

- WA2b-1 Denoising of medical imagery using a nonseparable third-order statistical approach 10:30 AM
Samuel Kozaitis, Tim Young, Florida Institute of Technology
- WA2b-2 Transient Radiation Modeling of Short-Pulse Laser Detection of Tumors in Animal Model 10:55 AM
Gopalendu Pal, Pennsylvania State University; Amir Sajjadi, Kunal Mitra, Michael Grace, Florida Institute of Technology
- WA2b-3 Generation and Analysis of Blast Waves for Blast Trauma and Injury Research 11:20 AM
Daniel Kirk, Florida Institute of Technology
- WA2b-4 Segmentation of Airway Trees from Multislice CT using Fuzzy Logic 11:45 AM
Kok Liang Tan, Toshiyuki Tanaka, Keio University; Hidetoshi Nakamura, Tokyo Electric Power Hospital; Toru Shirahata, Hiroaki Sugiura, Keio University

Session WA3 OFDM and MIMO for Optical Wireless

Chair: *Jean Armstrong, Monash University*

- WA3-1 Fundamental limits of diversity coherent reception on atmospheric optical channels 8:30 AM
Aniceto Belmonte, Technical University of Catalonia; Joseph Kahn, Stanford University

WA3-2	Spatial Multiplexing and Diversity Techniques for Multiple Element Optical Wireless Links <i>Mohamed D.A. Mohamed, Steve Hranilovic, McMaster University</i>	8:55 AM
WA3-3	Non-pilot based synchronization for ACO-OFDM <i>Sarah Kate Wilson, Santa Clara University</i>	9:20 AM
WA3-4	Multi-Input Multi-Output (MIMO) indoor optical wireless communications <i>Dominic O'Brien, University of Oxford</i>	9:45 AM
	BREAK	10:10 AM
WA3-5	PapR Reduction for Beamforming OFDM Via Constellation-Beam Modification <i>Kuang Xu, Douglas L. Jones, University of Illinois at Urbana-Champaign</i>	10:30 AM
WA3-6	Adaptive Coding and Modulation for Hybrid FSO/RF Systems <i>Yi Tang, Maite Brandt-Pearce, Stephen Wilson, University of Virginia</i>	10:55 AM
WA3-7	Alamouti coding for indoor optical wireless communications using ACO-OFDM <i>Jean Armstrong, Monash University</i>	11:20 AM
WA3-8	Joint Power Control, Beamforming and BS Assignment for Optimal SIR Assignment <i>Yosia Hadisusanto, Volker Jungnickel, Lars Thiele, Fraunhofer German-Sino Lab for Mobile Communications</i>	11:45 AM

Session WA4 Estimation and Detection I

Chair: Neil Patwari, University of Utah

WA4-1	A Novel Autofocusing Approach for Estimating Directions-of-Arrival of Wideband Signals <i>Piya Pal, P. P. Vaidyanathan, California Institute of Technology</i>	8:30 AM
WA4-2	Spectral Estimation for Clutter Processing in Digital Radars by Dimension-Adaptive Particle Swarm Optimization (DA-PSO) <i>Lisa Osadciw, Yanjun Yan, Syracuse University</i>	8:55 AM
WA4-3	Region-of-Importance Detection Based on Fusion of Audio and Video <i>Tao Wu, Cuong Vu, Qi Cheng, Damon Chandler, Oklahoma State University</i>	9:20 AM
WA4-4	Adaptive Learning for Damage Classification in Structural Health Monitoring <i>Debejyo Chakraborty, Narayan Kovvali, Antonia Papandreou-Suppappola, Aditi Chattopadhyay, Arizona State University</i>	9:45 AM

BREAK 10:10 AM

WA4-5	Detection of Structural Defects in Pipes using Time Reversal of Guided Waves <i>Nicholas O'Donoghue, Joel Harley, José M.F. Moura, Carnegie Mellon University; Yuanwei Jin, University of Maryland Eastern Shore</i>	10:30 AM
WA4-6	Capturing Dynamics on Multiple Time Scales: A Hybrid Approach for Cluttered Electromagnetic Data <i>Norma Pawley, Kary Myers, John Galbraith, Steven Brumby, Los Alamos National Laboratory</i>	10:55 AM
WA4-7	A LBI Based Emitter Location Estimator with Platform Trajectory Optimality <i>Ran Ren, Mark L. Fowler, State University of New York at Binghamton</i>	11:20 AM
WA4-8	Multichannel Parametric Rao Test in Partially Homogeneous Environment <i>Pu Wang, Hongbin Li, Stevens Institute of Technology; Braham Himed, Air Force Research Laboratory</i>	11:45 AM

Session WA5 MIMO Communications: Network Issues and Implications

Chair: Dan Bliss, MIT Lincoln Laboratory

WA5-1	Optimal Windowing in MIMO OFDM for Network Interference Suppression <i>Andrew Copeland, Daniel Bliss, Andrew McKellips, MIT Lincoln Laboratory</i>	8:30 AM
WA5-2	A MAC/PHY Cross-Layer Approach to Enable Concurrent Transmissions in MIMO Ad-HOC Networks <i>Eren Eraslan, Babak Daneshrad, University of California, Los Angeles; Jae Kim, The Boeing Company; Injong Rhee, Sungro Yoon, North Carolina State University</i>	8:55 AM
WA5-3	Transmission Capacity of Multiple Antenna Ad-Hoc Networks without Channel State Information at the Transmitter and Interference Cancellation at the Receiver <i>Rahul Vaze, Robert Heath, University of Texas at Austin</i>	9:20 AM
WA5-4	Exploiting Multiple Antennas in Overlaid Wireless Spatial Networks <i>Marios Kountouris, Supelec; Jeffrey Andrews, University of Texas at Austin</i>	9:45 AM
	BREAK	10:10 AM
WA5-5	Spectral-Efficiency of Multi-Antenna Links in Ad-Hoc Wireless Networks with Limited TX CSI <i>Siddhant Govindasamy, F. W. Olin College of Engineering; Daniel W. Bliss, MIT Lincoln Laboratory; David H. Staelin, Massachusetts Institute of Technology</i>	10:30 AM
WA5-6	Cooperative Jamming in MIMO Ad-Hoc Networks <i>Jianqi Wang, A. Lee Swindlehurst, University of California, Irvine</i>	10:55 AM

- WA5-7 Compress-Forward Relaying With Quantized Channel State Feedback 11:20 AM
Sha Yao, Mikael Skoglund, Royal Institute of Technology
- WA5-8 Diversity-Multiplexing-Delay Tradeoff of a DDF Protocol on a Half-Duplex ARQ Relay Channel 11:45 AM
Sanjay Karmakar, Mahesh K. Varanasi, University of Colorado at Boulder

Session WA6a Speech Processing I

Chair: *Balu Santhanam, University of New Mexico*

- WA6a-1 A Blind Algorithm for Recovering Articulator Positions from Acoustics 8:30 AM
John Hogden, Los Alamos National Laboratory
- WA6a-2 The Geometry of the Articulatory Region That Produces a Speech Sound 8:55 AM
Chao Qin, Miguel Carreira-Perpinan, University of California, Merced
- WA6a-3 On a Sturm-Liouville Framework for Continuous and Discrete Frequency Modulation 9:20 AM
Balu Santhanam, University of New Mexico
- WA6a-4 Probabilistic state mapping as a model for speech production 9:45 AM
Kaustubh Kalgaonkar, Mark Clements, Georgia Institute of Technology

Session WA6b Speech Processing II

Chair: *Adele Doser, Sandia National Laboratories*

- WA6b-1 A Hybrid Approach to Adapting Acoustic and Pronunciation Models for Non-native Speech Recognition 10:30 AM
Yoo Rhee Oh, Hong Kook Kim, Gwangju Institute of Science and Technology
- WA6b-2 Time-Frequency Correlation Based Missing-Feature Reconstruction for Robust Speech Recognition in Background Noise Conditions 10:55 AM
Wooil Kim, John Hansen, University of Texas at Dallas
- WA6b-3 Support Vector Machine Based Speaker Identification Systems Using GMM Parameters 11:20 AM
Vijendra Raj Apsingekar, Phillip De Leon, New Mexico State University
- WA6b-4 Re-estimation of Linear Predictive Parameters in Sparse Linear Prediction 11:45 AM
Daniele Giacobello, Aalborg University; Manohar Murthi, University of Miami; Mads Græsbøll Christensen, Søren Holdt Jensen, Aalborg University; Marc Moonen, Katholieke Universiteit Leuven

Session WA7 Computer Arithmetic II

Chair: *Braden Phillips, University of Adelaide*

- WA7-1 Implementation of Recursive Ling Adders 8:30 AM
Neil Burgess, University of Bristol

- WA7-2 Design and Evaluation of Decimal Array Multipliers 8:55 AM
Saeid Gorgin, Ghassem Jaberipur, Shahid Beheshti University; Behrooz Parhami, University of California, Santa Barbara
- WA7-3 Accurately Rounded Truncated Multiplication for Low Power Dissipation 9:20 AM
Son Bui, James E. Stine, Oklahoma State University
- WA7-4 Unified Floating Point Multiplication of Normalized and Subnormal Numbers with Injection Rounding 9:45 AM
Dave Lutz, ARM, Inc.
- BREAK 10:10 AM

- WA7-5 Digital/Analog Arithmetic with Continuous-Valued Residues 10:30 AM
Behrooz Parhami, University of California, Santa Barbara
- WA7-6 CORDIC Instruction Set Extensions for Matrix Decompositions on Software Defined Radio Processors 10:55 AM
Murugappan Senthilvelan, Sandbridge Technologies; Mihai Sima, University of Victoria; Daniel Iancu, Sandbridge Technologies; Javier Hormigo, University of Málaga; Michael Schulte, University of Wisconsin
- WA7-7 Function Approximation based on Estimated Arithmetic Operators 11:20 AM
Arnaud Tisserand, IRISA, CNRS-Univ. Rennes
- WA7-8 Low Precision Table Based Complex Reciprocal Approximation 11:45 AM
Pouya Dormiani, Milos Ercegovac, University of California, Los Angeles; Jean-Michel Muller, Ecole Normale Supérieure de Lyon

Session WA8 Resource Allocation and Beamforming for Next Generation Wireless

Chair: *Vaughan Clarkson, University of Queensland*

- WA8-1 Cooperative Architectures: MU-MIMO Spectral Efficiency and Costs of Channel State Information 8:30 AM
Sean Ramprasad, DoCoMo USA Labs; Giuseppe Caire, University of Southern California
- WA8-2 A Dynamic Spectrum Leasing (DSL) Framework for Spectrum Sharing in Cognitive Radio Networks 8:55 AM
Sudharman Jayaweera, University of New Mexico; Carlos Mosquera, Universidad de Vigo
- WA8-3 Election Games for Resource Allocation in Heterogenous Wireless Networks 9:20 AM
Amitav Mukherjee, University of California, Irvine

WA8-4	Should One Always Connect to the Base Station With the Strongest Signal? <i>Amin Jafarian, University of Texas at Austin; Uri Erez, Tel Aviv University; Sriram Vishwanath, University of Texas at Austin</i>	9:45 AM
	BREAK	10:10 AM
WA8-5	A Message-passing Approach to Distributed Resource Allocation in Uplink DFT-Spread-OFDMA Systems <i>Kai Yang, Columbia University; Narayan Prasad, NEC Labs America; Xiaodong Wang, Columbia University</i>	10:30 AM
WA8-6	Sum-Rate Maximizing Beamforming in Multicell Systems with Limited Feedback <i>Ramya Bhagavatula, Robert Heath, University of Texas at Austin</i>	10:55 AM
WA8-7	CDF of the Spectral-Efficiency of A Simple Distributed Channel Assignment Algorithm in Spatially Distributed Wireless Networks <i>Siddhant Govindasamy, Elena Koukina, F. W. Olin College of Engineering</i>	11:20 AM
WA8-8	An EM-Based Beamforming Algorithm for WCDMA Downlink Signals <i>Sheng-Luen Wei, John J. Shynk, University of California, Santa Barbara</i>	11:45 AM

Author List

NAME	SESSION	NAME	SESSION
A, Rajalingam.....	MP8a-2	Baas, Bevan	TP7-3
Aazhang, Behnaam.....	MA8a2-1	Banavar, Mahesh.....	MP1a-3
Abatan, Ayo.....	MA4-3	Bangalore Narasimhamurthy, Adarsh..	TP8b1-2
Abdelghani, Ines	TP3-5	Bao, Hua	MP6-4
Abramovich, Yuri I.	MP2-3	Baraniuk, Richard.....	WA1-3
Abreu, Giuseppe.....	MA8a2-3	Barsoum, Maged.....	TA8b1-9
Abreu, Giuseppe.....	TA8b1-2	Bartrina-Rapesta, Joan.....	MP4-2
Abreu, Giuseppe.....	TP1b-3	Batalama, Stella	MP7a-3
Abu-Naser, Mohammad	MP6-8	Battestini, Agathe.....	TP6b-3
Acton, Scott	MA1a-2	Bauer, Peter.....	MA8a1-1
Adams, Robert	MA8b1-8	Baxley, Robert J.	TA8b1-17
Agaian, Sos.....	MA8b1-15	Baxley, Robert J.	TP3-8
Agaian, Sos.....	MA8b1-17	Bazerque, Juan-Andrés	TA8b2-1
Agarwal, Rajiv	TP3-2	Bean, Andrew.....	TP8a3-7
Aggarwal, Rohit	TP8b2-6	Bell, Kristine.....	MP2-1
Aggarwal, Vaneet	MA3-1	Belmonte, Aniceto	WA3-1
Aghagolzadeh, Mehdi.....	TP2b-1	Bendlin, Ralf.....	TP8b2-4
Ahmadi-Shokouh, Javad	TP3-7	Bendoukha, Samir.....	TP8a3-8
Ahmed, Fayyaz	TP1b-1	Benesty, Jacob	MP6-1
Aittomäki, Tuomas	TP5-5	Bennis, Mehdi	MP1a-2
Akil, Mohamed	MP8a-7	Bensaid, Siouar.....	MA8b1-4
Akram, Waqas.....	TP7-6	Benson, Richard.....	MP8a-1
Alexander, Winsor	MP8a-6	Benveniste, Steven.....	MA8b1-9
Ali, Mohamed.....	TP7-7	Berger, Theodore.....	TP2b-2
Allen, Markus.....	TP3-4	Bermudez, Jose Carlos	TA6b-1
Allison, Brendan.....	MA2b-1	Berry, Randall	TP3-3
Almasganj, Farshad.....	MA8b1-16	Bershad, Neil.....	TA6b-1
Al-Sarawi, Said.....	TA7b-1	Bhagavatula, Ramya.....	WA8-6
Alvarez, Jennifer L.....	MP8a-14	Bhattacharyya, Shuvra	MA7-7
Amini, Pooyan.....	TA6b-4	Bilgin, Ali.....	MP4-3
Amiri, Kiarash	MA7-8	Bilik, Igal	TP4-6
Anantharam, Venkat.....	TP7-4	Bliss, Daniel	WA5-1
Andersen, Jacob D.....	MP8a-13	Bliss, Daniel W.	WA5-5
Andersson, Mattias	TA3b-4	Blossom, Eric.....	MA7-7
Andrews, Jeffrey	MA2b-4	Blum, Rick	TP5-3
Andrews, Jeffrey	WA5-4	Blum, Rick	TP5-4
Angelosante, D.....	MA6-3	Blum, Rick S.	TP5-7
Apsingekar, Vijendra Raj	WA6b-3	Blum, Rick S.	TP5-8
Ardakani, Masoud	TP8b2-10	Boufounos, Petros	TP8a1-1
Arenas-Garcia, Jeronimo.....	MA6-2	Bovik, Alan	MA8b1-6
Arica, Sami.....	MA2b-2	Bovik, Alan	TA5b-2
Armstrong, Jean	WA3-7	Brandt-Pearce, Maite.....	WA3-6
Arslan, Tughrul.....	MP7b-5	Brenneman, Matthew	TP4-5
Ashe, James.....	MA2b-2	Brislawn, Christopher M.	MP1b-1
Ashe, James.....	TP2b-3	Broglioli, Michael	MA7-3
Assaad, Mohamad	TP8b2-6	Browne, David.....	MP2-7
Auer, Gunther.....	TA8b1-15	Brumby, Steven.....	WA4-6
Auli-Llinas, Francesc	MP4-2	Bui, Son	WA7-3
Au-Yeung, Chun Kin	MP3-2	Burgess, Neil.....	WA7-1
Azpicueta-Ruiz, Luis A.	MA6-2	Burkhardt, Hans.....	TA2b-5
B, Kokila.....	MP8a-2		

NAME	SESSION	NAME	SESSION	NAME	SESSION	NAME	SESSION
Caban, Sebastian	TP8b1-9	Chon, Jaehong	MP4-8	DeBrunner, Linda S.	MP8a-5	Fuchs, Jean Jacques	MA4-5
Caire, Giuseppe	WA8-1	Chong, Chia-Chin	TA8b2-2	DeBrunner, Victor	MP8a-11	Fudge, Gerald	WA1-8
Calderbank, A. Robert	TP8b1-16	Chou, Nigel	TA2b-4	DeBrunner, Victor	TP8a3-3	Galbraith, John	WA4-6
Calderbank, Robert	MA5-7	Chouliaras, Vassilios	MP7b-2	Deng, Qingxiong	TA8b1-18	Gallant, Jack	TP2a-2
Calderbank, Robert	MP3-3	Chowdhery, A.	TP3-1	Deprettere, Ed	MA7-6	Ganapathy, Harish	TP1b-4
Calderbank, Robert	MP3-1	Christensen, Mads Græsbøll	MA8b1-11	Destino, Giuseppe	MA8a2-3	Gao, Michael	MP7a-1
Calhoun, Vince D.	WA2a-4	Christensen, Mads Græsbøll	MA8b1-7	Destino, Giuseppe	TP1b-3	Gao, Kanke	MP7a-3
Campbell Jr., Richard	TP8a2-1	Christensen, Mads Græsbøll	MA8b1-13	Díaz Bruguera, Javier	TA7b-2	García Naya, José Antonio	TP8b1-9
Canolty, Ryan T.	MA2a-2	Christensen, Mads Græsbøll	WA6b-4	Dick, Chris	TP7-5	Gastpar, Michael	WA1-7
Caramanis, Constantine	TP1b-4	Cimini, Jr, Leonard J.	MA1b-2	Divekar, Atul	MA4-6	Gastpar, Michael C.	MA2a-2
Cardarilli, Gian Carlo	MP8a-9	Cioffi, J. M.	TP3-1	Djuric, Petar	MA6-6	Gelfand, Natasha	TP6b-3
Cardarilli, Gian Carlo	MP8a-13	Čirkic, Mirsad	TP8b2-5	do Carmo, Felipe P.	MA8b1-3	Georgiev, Todor	TP6b-2
Carmena, Jose M.	MA2a-2	Clancy, Charles	MA7-7	Dobre, Octavia	MP3-8	Gervaise, Cedric	MA4-8
Carreira-Perpinan, Miguel	WA6a-2	Clarke, Patrick	MA6-7	Dormiani, Pouya	WA7-8	Ghaffar, Rizwan	TP8b1-10
Casalegno, James	MP6-3	Clarke, Patrick	MP2-9	Doroslovacki, Milos	MA6-4	Ghani, Nasir	TP1a-1
Castro, Rui	WA1-2	Clarkson, Vaughan	MP2-8	Doss, Christopher	MP8a-6	Ghauri, Irfan	MP3-5
Cattivelli, Federico S.	MA6-1	Clements, Mark	WA6a-4	Drozdz, Andrew	TP5-3	Ghauri, Irfan	TP8b1-7
Cattivelli, Federico S.	TA6b-5	Cochran, John	TP4-6	Duchaineau, Mark	MA8b2-4	Giacobello, Daniele	WA6b-4
Cavallaro, Joseph	MA7-3	Codreanu, Marian	TA1b-2	Duel-Hallen, Alexandra	MA3-3	Giannakis, G. B.	MA6-3
Cavallaro, Joseph	MP7b-3	Codreanu, Marian	TP8b2-11	Duman, Tolga	MP5-4	Giannakis, Georgios B.	MP3-4
Cavallaro, Joseph R.	MA7-8	Coelho, Alessandra M.	MA8b1-3	Dupuy, Florian	TP8b1-8	Giannakis, Georgios B.	TA8b2-1
Celikcan, Ufuk	MP4-7	Cohen, Jonathan D.	MA8b2-4	Dziong, Zbigniew	TP1a-4	Gibson, Jerry	MP4-5
Chadwick, Martin	TP2a-3	Cohen, Mark	WA2a-3	Easley, Glenn	MP1b-4	Gibson, Jerry	TP6a-4
Chakraborty, Debejyo	WA4-4	Coldrey, Mikael	TP8b2-14	El Naqa, Issam	MA1a-4	Girod, Bernd	TA4b-2
Chambers, Jonathon	TA6b-2	Condron, Barry	MA1a-2	Eldawlatly, Seif	TP2b-1	Glover, Joseph	MA1b-3
Champike, Attanayake	MA4-3	Copeland, Andrew	WA5-1	El-Rayis, Ahmed O.	MP7b-5	Glynn, Nick	MP7b-2
Chan, Rosa	TP2b-2	Cosman, Pamela	TA5b-4	Eraslan, Eren	WA5-2	Godrich, Hana	TP5-4
Chance, Zachary	TA8b1-10	Cosman, Pamela C.	MA1b-1	Ercegovac, Milos	WA7-8	Gogineni, Sandeep	TP4-3
Chandler, Damon	WA4-3	Costa, Mário	MA4-4	Ercegovac, Milos D.	TA7b-5	Goldenbaum, Mario	MA8a1-3
Chandler, Gabriel	TP4-7	Coutinho, Gabriel	MP7b-1	Erdogmus, Ahmet T.	MP7b-5	González-Navarro, Sonia	TA7b-4
Chang, Nicholas	TP8b1-13	Cox, Henry	MP2-1	Erdogmus, Deniz	MA2b-3	Goodman, Joel	WA1-6
Charlson, E. Joe	TP3-7	Cox, Henry	TP8a1-4	Erez, Uri	WA8-4	Gorgin, Saeid	WA7-2
Chatterjee, Debdeep	MA1b-4	Crichigno, Jorge	TP1a-1	Ersoy, Okan	MA4-6	Goswami, Tathagata D.	MA1b-3
Chatterjee, Priyam	TA4b-4	Cui, Shengshan	TA8b2-4	Escudero, Carlos J.	MA8a1-6	Govindasamy, Siddharta	WA5-5
Chattopadhyay, Aditi	WA4-4	Daas, Adel	TP8a3-8	Escudero, Carlos J.	MA8a1-8	Govindasamy, Siddharta	WA8-7
Chaudhari, Sachin	MP3-6	Dall'Anese, Emiliano	MP3-4	Eslil, Celal	TP8b2-8	Gowreesunker, B. Vikram	TP2b-3
Chekh, Viktor	TP6b-1	Dallinger, Robert	TP8a3-6	Estrela, Vania Vieira	MA8b1-3	Goyal, Vivek K.	WA1-6
Chen, Biao	MP7a-2	Daneshrad, Babak	MP8a-15	Ethier, Christian	MA2a-3	Grace, Michael	WA2b-2
Chen, Chun-Yang	TP6a-5	Daneshrad, Babak	TP7-7	Fa, Rui	MP2-9	Grant, Steven	MP6-3
Chen, Jie	MA6-8	Daneshrad, Babak	WA5-2	Fang, Kun	MP5-8	Grant, Steven L.	MP6-2
Chen, Shiyao	TA8b1-11	Dardari, Davide	TP1b-3	Fargues, Monique	MA8b1-9	Grant, Steven L.	MP6-1
Chen, Wei-Chao	TP6b-3	Darnell, Miles R.	MP8a-14	Farhang-Boroujeny, Behrouz	TA6b-4	Grossman, Robert	TA2b-1
Cheng, Chao	MP8a-4	Dasgupta, Soura	MP6-8	Farsiu, Sina	TA2b-4	Gunther, Jacob	MP6-7
Cheng, Qi	WA4-3	Davenport, Mark	WA1-3	Figueiras-Vidal, Anibal R.	MA6-2	Gunther, Jake	MP6-6
Cheng, Roger S.K.	TA8b1-14	Day, Donald	MA4-1	Fitz, Michael	TA8b1-9	Guo, Lei	TP2b-4
Cheng, Yang	MA8b2-5	de Assis, Joaquim T.	MA8b1-3	Flury, Manuel	TA8b1-3	Guo, Rui	MP8a-5
Cherniavsky, Neva	MP4-8	de Kerret, Paul	TP8b2-12	Forchhammer, Soren	MP8a-13	Guo, Shengwen	MA1a-1
Chevalier, Pascal	TP8b1-8	de Lamare, Rodrigo C.	MA6-7	Forsythe, Keith	WA1-6	Guo, Wenxuan	MP1a-1
Chiang, M.	MA3-5	de Lamare, Rodrigo C.	MP2-9	Fortier, Paul	TA8b1-13	Gupta, Rahul	MA2b-2
Chiriach, Vlad M.	MA5-2	De Leon, Phillip	WA6b-3	Fowler, Mark L.	WA4-7	Gustafsson, Oscar	MA7-2
Chiu, Po-Lin	MP8a-3	Deadwyler, Sam	TP2b-2	Fox, Peter	TP2a-4	Gustafsson, Oscar	MP8a-10
Choi, Debbi	MA8b1-12	DeBrunner, Linda	MP8a-11	Frey, Wolfgang	MA2b-4	Gustafsson, Oscar	MP8a-11
Choi, Jun Won	MP5-7			Friedlander, B.	TP8b1-3	Guthy, Christian	TP8b2-2
Choi, Jun Won	TA8b1-16			Friedlander, Benjamin	MP2-2	Guthy, Christian	TP8b2-13

NAME	SESSION	NAME	SESSION	NAME	SESSION	NAME	SESSION
Haas, Harald.....	TA8b1-15	Husøy, John Håkon.....	TP8a3-4	Karmakar, Sanjay.....	TP8b2-16	Lai, Hung.....	TP8a1-4
Hadisusanto, Yosia.....	WA3-8	Hwang, Suk-seung.....	TA6b-3	Karmakar, Sanjay.....	WA5-8	Laird, Angela.....	TP2a-4
Haimovich, Alexander.....	TA8b2-4	Hwang, Suk-seung.....	TP4-2	Karmonik, Christof.....	TA2b-1	Laird, Robert.....	TP2a-4
Haimovich, Alexander.....	TP5-4	Iancu, Daniel.....	WA7-6	Karystinos, George.....	TP8b1-12	Lamahewa, Tharaka.....	TP8b2-7
Haimovich, Alexander M.....	MA5-2	Ince, Nuri F.....	MA2b-2	Kaufman, Brett.....	MA8a2-1	Lane, Terran.....	WA2a-4
Haimovich, Alexander M.....	TP5-7	Ince, Nuri F.....	TP2b-3	Kay, Kendrick.....	TP2a-2	Langford, John.....	WA1-1
Hämäläinen, Matti S.....	WA2a-1	Ioana, Cornel.....	MA4-8	Kelly, Daniel.....	TA7b-1	Lansel, Steven.....	TA4b-5
Hampson, Robert.....	TP2b-2	Iqbal, Mohammad Asif.....	MP6-2	Kern, Jeffrey.....	MA8b2-1	Laourine, Amine.....	TA8b1-11
Han, Zhu.....	TP3-7	Ives, Robert.....	MA8b1-12	Ketonen, Johanna.....	TP7-2	Larsen, Torben.....	MA8b1-13
Hansen, John.....	WA6b-2	Ivrlac, Michel T.....	TP8b2-4	Khal, Rami.....	TA8b1-4	Larsson, Erik G.....	TP3-6
Harley, Joel.....	WA4-5	Iwen, Mark.....	WA1-4	Khal, Rami.....	TP8b1-1	Larsson, Erik G.....	TP8b2-5
harris, fredric.....	TP7-5	Izatt, Joseph.....	TA2b-4	Khan, Usman.....	MA6-5	Laska, Jason.....	WA1-3
Hassabis, Demis.....	TP2a-3	Izmirli, Ozgur.....	TP4-7	Khan, Usman.....	TP8a2-4	Latva-aho, Matti.....	TA1b-2
Hassan, Khursheed.....	MA2b-4	Jaberipur, Ghassem.....	WA7-2	Khosla, Aditya.....	TA1b-5	Lau, Chad.....	MP3-1
Hattig, Myron.....	MA8a2-6	Jafar, Syed Ali.....	MA3-4	Khreishah, Abdallah.....	TA1b-3	Lau, Vincent K.N.....	TA8b1-14
Haupt, Jarvis.....	WA1-2	Jafarian, Amin.....	WA8-4	Kim, Hong Kook.....	TP6a-1	Le Boudec, Jean-Yves.....	TA8b1-3
Hayar, Aawatif.....	MP3-9	Jafarpour, Sina.....	MP3-3	Kim, Hong Kook.....	WA6b-1	Lecocke, Meredith Beveridge.....	MP8a-14
Hayasaka, Satoru.....	WA2a-2	Jajamovich, Guido.....	TP5-2	Kim, Hyosung.....	MP6-5	Lecocke, Meredith Beveridge.....	TP7-8
He, Chensong.....	TP8a2-1	Jakobsson, Andreas.....	MA8b1-11	Kim, Hyosung.....	TA8b1-6	Lee, Benjamin.....	TA8b1-7
He, Hao.....	MA5-3	Jayaram, Vikram.....	MA8b2-2	Kim, Hyung Suk.....	TA4b-5	Le-Ngoc, Tho.....	MA3-7
He, Hao.....	MP5-2	Jayaweera, Sudharman.....	WA8-2	Kim, Hyunjun.....	MP3-7	Lenz, Johannes.....	TP3-5
He, Jinjin.....	MA7-5	Jeanerod, Claude-Pierre.....	MP8a-8	Kim, Jae.....	WA5-2	Leus, Geert.....	MP5-8
He, Qian.....	TP5-8	Jenkins, Kenneth.....	TP8a3-5	Kim, Kyeongyeon.....	MP5-7	Levy, Bernard.....	TP8a3-1
Heath, Robert.....	WA5-3	Jensen, Jesper Rindom.....	MA8b1-13	Kim, Seung-Jun.....	MP3-4	Li, Hongbin.....	MA8a1-4
Heath, Robert.....	WA8-6	Jensen, Morten Holm.....	MA8b1-13	Kim, Tung.....	TA3b-1	Li, Hongbin.....	MA8a1-5
Henttonen, Tero.....	TA8b1-12	Jensen, Søren Holdt.....	MA8b1-7	Kim, Wooil.....	WA6b-2	Li, Hongbin.....	WA4-8
Hickman, Granger.....	MA5-5	Jensen, Søren Holdt.....	MA8b1-13	Kirk, Daniel.....	WA2b-3	Li, Huiying.....	MP8a-13
Hild, Kenneth.....	MA2b-3	Jensen, Søren Holdt.....	WA6b-4	Klein, Andrew G.....	TA8b1-18	Li, Husheng.....	TP3-7
Himed, Braham.....	WA4-8	Jeromin, Oliver.....	MA8b1-2	Kliewer, Jorg.....	TA3b-4	Li, Jian.....	MA5-3
Hlawatsch, Franz.....	MA6-6	Jia, Peng.....	MA3-7	Knopp, Raymond.....	TP8b1-10	Li, Jian.....	MP5-2
Hlinka, Ondrej.....	MA6-6	Jia, Tao.....	MA3-3	Ko, Youngwook.....	TP8b2-10	Li, Jian.....	TP5-1
Ho, Tracey.....	TA1b-5	Jin, Yuanwei.....	WA4-5	Koets, Michael A.....	MP8a-14	Li, Jian.....	WA1-5
Hoeher, Peter A.....	TP8b1-6	Joham, Michael.....	TP8b1-15	Koets, Michael A.....	TP7-8	Li, Jiangyuan.....	TA3b-2
Hogden, John.....	WA6a-1	Joham, Michael.....	TP8b2-2	Koivunen, Visa.....	MA4-4	Li, Kaiming.....	TP2b-4
Holloway, Jason.....	TP8a1-2	Joham, Michael.....	TP8b2-12	Koivunen, Visa.....	MP3-6	Li, Karl.....	TP2a-4
Honig, Michael.....	TP3-3	Joham, Michael.....	TP8b2-13	Koivunen, Visa.....	TP5-5	Li, Lihong.....	WA1-1
Hormigo, Javier.....	WA7-6	Johansson, Kenny.....	MP8a-10	Koksal, C. Emre.....	TP8b2-6	Li, Tongtong.....	TA8b2-3
Horner, Marc.....	TA2b-1	Johansson, Kenny.....	MP8a-11	Koukina, Elena.....	WA8-7	Liang, Jie.....	TA5b-3
Hossain, Ekram.....	TP3-7	Johnson, Ben A.....	MP2-3	Kountouris, Marios.....	WA5-4	Liang, Yanfeng.....	TA6b-2
Hourani, Ramsey.....	MP8a-6	Jones, Douglas L.....	TA8b1-7	Kovvali, Narayan.....	WA4-4	Liao, Chun-Fu.....	TP8b1-14
Howard, Stephen.....	MA5-6	Jones, Douglas L.....	WA3-5	Kozacky, Walter.....	TP8a3-2	Lilleberg, Jorma.....	MA8a2-1
Howard, Stephen D.....	TP8b1-16	Joshi, Deepak.....	MP3-8	Kozaitis, Samuel.....	WA2b-1	Lilly, Jonathan.....	MP1b-5
Hranilovic, Steve.....	WA3-2	Josso, Nicolas François.....	MA4-8	Kramer, Gerhard.....	MP7a-2	Lillywhite, Michael D.....	MP8a-14
Hu, Jing.....	MP4-5	Jungnickel, Volker.....	WA3-8	Kreucher, Chris.....	MP2-4	Lillywhite, Michael D.....	TP7-8
Huang, Lin-Zheng.....	MP8a-3	Juntti, Markku.....	TP7-2	Kroeger, Ralf.....	TA2b-1	Lin, Ting-Lan.....	TA5b-4
Huang, Xinming.....	MP1a-1	Juntti, Markku.....	TP8b2-11	Krolik, Jeffrey.....	MA5-5	Lindblom, Johannes.....	TP3-6
Huang, Yih-Fang.....	TP8b2-4	Kahn, Joseph.....	WA3-1	Krolik, Jeffrey.....	TP8a1-3	Krolik, Erik.....	TP8b1-5
Huang, Yuan-Hao.....	MP8a-3	Kail, Georg.....	MA6-6	Krommweh, Jens.....	MP1b-3	Ling, Jun.....	MP5-2
Huang, Yuan-Hao.....	TP8b1-14	Kalgaonkar, Kaustubh.....	WA6a-4	Kulkarni, Sanjeev.....	MA4-2	Lioliou, Panagiota.....	TP8b2-14
Hunger, Raphael.....	TP8b2-2	Kang, Jin Ah.....	TP6a-1	Kusmanoff, Antone.....	WA1-8	Lisa, Osadciv.....	MA8a1-7
Hunger, Raphael.....	TP8b2-12	Kar, Soumyya.....	MA6-5	Kuze, Toshiyuki.....	TP8b1-11	Liu, Chih-Hao.....	MA3-8
Hunger, Raphael.....	TP8b2-13	Kar, Soumyya.....	TP8a2-4	Labate, Demetrio.....	MP1b-4	Liu, Huaping.....	MA7-5
Hunter, Christopher.....	TP7-1	Karipidis, Eleftherios.....	TP3-6	Ladner, Richard.....	MP4-8	Liu, Qijia.....	TA8b1-17
Hush, Don.....	MA8b1-14	Karjalainen, Juha.....	TP8b2-11	Lai, Hung.....	MP2-1	Liu, Tianming.....	TP2b-4

NAME	SESSION	NAME	SESSION	NAME	SESSION	NAME	SESSION
Llamocca, Daniel.....	MA8b1-1	Mitra, Kunal	WA2b-2	Nossek, Josef A.....	TP8b2-4	Parmar, Manu	MA8a2-2
Llamocca, Daniel.....	MA8b2-3	Mohamed, Ashraf.....	TA2b-1	Novak, Gerald.....	MA8a1-2	Parmar, Manu	TA4b-5
Lopes, Renato.....	MP5-6	Mohamed, Mohamed D.A.....	WA3-2	Nowak, Robert.....	WA1-2	Pastore, Adriano	TP8b1-15
Love, David.....	MP3-2	Mohammadi, Arash.....	MA8b1-16	Nunez-Yanez, Jose.....	MP7b-4	Pattichis, Marios.....	MA1a-3
Love, David.....	TA8b1-10	Mohammed, Karim	TP7-7	Nurmi, Lassi.....	MA7-1	Pattichis, Marios.....	MA8b1-1
Luk, Wayne.....	MP7b-1	Mohsenin, Tinoosh	TP7-3	Oborina, Alexandra.....	TA8b1-12	Pattichis, Marios.....	MA8b1-2
Lundberg Nordenvaad, Magnus	MP5-2	Molteni, Daniele	TA8b1-8	O'Brien, Dominic.....	WA3-4	Pattichis, Marios.....	MA8b2-3
Lutz, Dave.....	WA7-4	Moon, Todd.....	MP6-6	Oby, Emily.....	MA2a-3	Paulraj, Arogyaswami	MA3-2
Lyke, James.....	MA8b1-1	Moon, Todd.....	MP6-7	O'Connell-Rodwell, Caitlin.....	TP4-7	Pavel, Misha.....	MA2b-3
Machado, Raquel.....	MP5-6	Moonen, Marc.....	WA6b-4	O'Donoghue, Nicholas	WA4-5	Pawley, Norma.....	WA4-6
Maduike, Dumezie.....	TA1b-4	Moorthy, Anush	TA5b-2	O'Driscoll, Stephen	MA2a-1	Pellizzer, Giuseppe.....	MA2b-2
Maguire, Eleanor.....	TP2a-3	Moran, Bill	MA5-6	Oesterlein, Tobias.....	TP8a2-1	Pellizzer, Giuseppe.....	TP2b-3
Mahmoudi, Babak.....	MA2a-4	Moran, Bill	MP2-8	Ogunfunmi, Tokunbo.....	TP8a3-2	Peng, Qihang.....	MA1b-1
Mahmoudi, Ramzi.....	MP8a-7	Morrell, Darryl.....	MA5-4	Oh, Han.....	MP4-3	Perreault, Eric.....	MA2a-3
Makar, Mina.....	TA4b-2	Morton, Yu Tong.....	TP4-5	Oh, Jung Hun.....	MA1a-4	Persson, Daniel.....	TP8b2-5
Manjunath, Bhavana.....	MA5-4	Mosquera, Carlos.....	WA8-2	Oh, Yoo Rhee.....	WA6b-1	Pesaran, Bijan.....	TP2a-1
Marcellin, Michael.....	MP4-3	Moura, Jose'.....	MA6-5	Ohm, David.....	TP4-4	Petricca, Massimo.....	MP8a-9
Margetts, Adam.....	TP8b1-13	Moura, Jose'.....	TP8a2-4	Oien, Geir.....	MP3-9	Petricca, Massimo.....	MP8a-13
Marmarelis, Vasilis.....	TP2b-2	Moura, José M. F.....	TP8a2-3	Olhede, Sofia.....	MP1b-5	Petropulu, Athina	TA3b-2
Marple Jr., S.Lawrence.....	TP4-4	Moura, José M.F.....	WA4-5	Oliver, Michael.....	TP2a-2	Petropulu, Athina	TP5-6
Mars, Jérôme I.....	MA4-8	Moustakides, George	TP5-2	Orlik, Phil.....	TP8b1-4	Pezeshki, Ali.....	MP2-3
Marttila, Jaakko.....	TP3-4	Muhi-eddine, Wafic.....	TP1a-4	Orlik, Philip.....	TP8b1-11	Pfister, Henry.....	TA1b-4
Mastronarde, Nick.....	MP4-1	Mukherjee, Amitav	TP8b2-3	Ortega, Antonio.....	MP4-6	Phillips, Braden.....	TA7b-1
Matas, Petr.....	MP8a-7	Mukherjee, Amitav	WA8-3	Osadciw, Lisa.....	MA8a1-10	Pierluissi, Joseph.....	TA2b-3
Mateos, Gonzalo.....	TA8b2-1	Muller, Jean-Michel.....	WA7-8	Osadciw, Lisa.....	MA8a1-9	Pioro, Michal.....	TP1a-3
Matey, James.....	MA8b1-12	Müller, Erika.....	TA5b-5	Osadciw, Lisa.....	WA4-2	Piso Fernández, Daniel.....	TA7b-2
Mathan, Santosh.....	MA2b-3	Munoz-Gomez, Juan	MP4-2	O'shea, Tim.....	MA7-7	Plis, Sergey M.....	WA2a-4
Matsumoto, Tad.....	TP8b2-11	Muraleedharan, Rajani	MA8a1-10	Østergaard, Jan.....	MA8b1-7	Plishker, William.....	MA7-7
Matyjas, John.....	MP7a-3	Muraleedharan, Rajani	MA8a1-9	Oweiss, Karim.....	TP2b-1	Plonka, Gerlind.....	MP1b-2
Matz, Gerald.....	MA8a1-2	Muraleedharan, Rajani	MA8a1-7	Oyman, Ozgur.....	MA1b-4	Pohlmeyer, Eric.....	MA2a-3
Mavlankar, Aditya.....	TA4b-2	Murphy, Patrick.....	TP7-1	Pace, Phillip.....	WA1-8	Polprasert, Chantri.....	TA8b1-1
Mbitiru, Nyaga.....	MA8b1-8	Murray, Victor.....	MA1a-3	Padgett, Curtis.....	MA8b2-5	Poor, H. Vincent.....	MP7a-2
McAllister, John.....	MA7-4	Murthi, Manohar.....	WA6b-4	Pados, Dimitris.....	MP7a-3	Poor, H. Vincent.....	TA3b-1
McCarthy, Nick.....	MA7-7	Murthi, Manohar N.....	TP6a-2	Pal, Gopalendu.....	WA2b-2	Poor, H. Vincent.....	TP5-6
McDaniel, Larry T.....	MP8a-14	Myers, Kary.....	WA4-6	Pal, Piya.....	WA4-1	Poor, Harold.....	MA4-2
McDaniel, Larry T.....	TP7-8	Nakamura, Hidetoshi.....	WA2b-4	Paleologu, Constantin	MP6-1	Popescu, Dimitrie.....	MP3-8
McEachen, John.....	MP1a-4	Nannarelli, Alberto	MP8a-9	Pan, Zhengang.....	TA8b1-14	Porat, Ron.....	TP8b1-4
McIlhenny, Robert.....	TA7b-5	Nannarelli, Alberto	MP8a-13	Panahi, Issa.....	MP6-4	Porat, Ron.....	TP8b1-11
McKellips, Andrew.....	TP8b1-13	Nannarelli, Alberto	TA7b-4	Pandey, Santosh.....	MA8a2-2	Porter, Reid.....	MA8b1-14
McKellips, Andrew.....	WA5-1	Narayana, Shalini.....	TP2a-4	Panetta, Karen.....	MA8b1-15	Prasad, Lakshman.....	TA5b-1
McKilliam, Robby.....	MP2-8	Nasalaris, Thomas.....	TP2a-2	Panetta, Karen.....	MA8b1-17	Prasad, Narayan.....	WA8-5
Mehlführer, Christian.....	TP8b1-9	Nasr, Omar.....	MP8a-15	Papailiopoulos, Dimitris.....	TP8b1-12	Prenger, Ryan.....	TP2a-2
Meloni, Luis.....	MP5-6	Navasca, Carmeliza.....	TP8a1-2	Papandreou-Suppappola, Antonia.....	MA4-8	Price, Larry.....	TP2a-4
Meng, Jia (Jasmine).....	TP3-7	Needell, Deanna.....	MA4-7	Papandreou-Suppappola, Antonia.....	MA5-4	Principe, Jose.....	MA2a-4
Meng, Teresa.....	MA2a-1	Negro, Francesco.....	MP3-5	Papandreou-Suppappola, Antonia.....	MA5-4	Proakis, John.....	MP5-4
Mensing, Christian.....	MA3-6	Nehorai, Arye.....	MA5-1	Papandreou-Suppappola, Antonia.....	WA4-4	Pulli, Kari.....	TA4b-3
Merz, Ruben.....	TA8b1-3	Nehorai, Arye.....	TP4-3	Parhami, Behrooz.....	WA7-5	Pulli, Kari.....	TP6b-4
Meylemans, Marc.....	MA8a2-6	Nelson, Jill.....	TP8a2-2	Parhami, Behrooz.....	WA7-2	Pun, Man-On.....	TP8b1-11
Milanfar, Peyman.....	TA4b-4	Ngo, Hau.....	MA8b1-12	Parhi, Keshab.....	MA6-8	Qi, Emily.....	MA8a2-6
Miller, Benjamin.....	WA1-6	Nicoli, Monica.....	TA8b1-8	Parhi, Keshab.....	MA8b1-15	Qi, Yingyong.....	MA8b1-5
Miller, Lee.....	MA2a-3	Nikolic, Borivoje.....	TP7-4	Parhi, Keshab K.....	MP8a-4	Qin, Chao.....	WA6a-2
Millford, Matthew.....	MA7-4	Nikolov, Hristo.....	MA7-6	Parhi, Keshab K.....	TP4-1	Quijano, Jorge.....	TP8a2-1
Milstein, Laurence B.....	MA1b-1	Niu, Ruixin.....	TP5-3	Park, Sung Hee.....	TA4b-5	Quinn, Barry.....	MP2-8
Miosso, Cristiano.....	TA2b-3	Noghanian, Sima.....	TP3-7			Qureshi, Fahad.....	MA7-2

NAME	SESSION	NAME	SESSION	NAME	SESSION	NAME	SESSION
Qureshi, Tariq.....	MA5-7	Sampath Kumar, Kiran	MA8a1-4	Singer, Andrew.....	TA8b1-16	Takala, Jarmo.....	MA7-1
Radhakrishnan, Chandrashekar	TP8a3-5	Sampath Kumar, Kiran	MA8a1-5	Singer, Andrew.....	TP8a3-7	Tan, Chee Wei	MA3-5
Radosevic, Andreja	MP5-4	Samuel, Michael.....	TA8b1-9	Sirianunpiboon, Songsri	TP8b1-16	Tan, Kok Liang	WA2b-4
Radwan, Basma	TP2a-1	Sanchez, Alfonso	MP4-6	Skoglund, Mikael	TA3b-4	Tan, Xing.....	WA1-5
Raginsky, Maxim.....	MP3-3	Sanchez, Justin.....	MA2a-4	Skoglund, Mikael	TP1b-2	Tanaka, Toshiyuki.....	WA2b-4
Ramadas, Pravin.....	TP6a-4	Sand, Stephan.....	MA3-6	Skoglund, Mikael	WA5-7	Tanbourgi, Ralph.....	MA3-6
Ramprashad, Sean.....	WA8-1	Santhanam, Balu	WA6a-3	Slock, Dirk	MA8b1-4	Tang, Jinshan.....	MA1a-1
Rao, Murali	MA1b-3	Sarkar, Md. Zahurul Islam.....	TA3b-3	Slock, Dirk	MP3-5	Tang, Yi.....	WA3-6
Rathi, Vishwambhar.....	TA3b-4	Sarwate, Dilip V.....	TA8b1-7	Slock, Dirk	TP8b2-1	Tay, Peter	MA8b1-8
Ratnarajah, Tharmalingam	TA3b-3	Sayed, Ali H.....	MA6-1	Slock, Dirk T.M.....	TP8b1-7	Tayem, Nizar	MA4-3
Raulefs, Ronald.....	MA3-6	Sayed, Ali H.....	TA6b-5	Smith, Anthony.....	MP1a-3	Temerinac-Ott, Maja.....	TA2b-5
Re, Marco	MP8a-9	Scaglione, Anna	MP7a-4	Solano, Fernando	TP1a-2	Tepedelenioglu, Cihan	MP1a-3
Re, Marco	MP8a-13	Scharf, Louis L.....	MP2-3	Soliz, Peter	MA1a-3	Tepedelenioglu, Cihan	MP3-7
Redel, Thomas	TA2b-1	Schmidt, Aurora.....	TP8a2-3	Song, Dong.....	TP2b-2	Tepedelenioglu, Cihan	TP8b1-2
Reeves, Galen	WA1-7	Schmidt, David.....	TP3-3	Sorokin, Harri.....	MA7-1	Tewfik, Ahmed.....	TP2b-3
Refaey-Ahmed, Ahmed	TA8b1-13	Schniter, Philip.....	TP8b2-6	Soundararajan, Rajiv	MA8b1-6	Tewfik, Ahmed H.....	MA2b-2
Ren, Ran	WA4-7	Schotsch, Birgit	TA8b1-5	Spanias, Andreas	MP1a-3	Thai, Hieu.....	TP8a3-3
Ren, Wei	MA8a2-4	Schrammar, Nicolas	TP1b-2	Spencer, Nicholas K	MP2-3	Thiele, Lars	WA3-8
Revechkis, Boris	TP2a-1	Schrammar, Nicolas	TP8b1-6	Spiegel, Martin.....	TA2b-1	Thobaben, Ragnar.....	TA3b-4
Revy, Guillaume	MP8a-8	Schulte, Michael.....	TA7b-4	Spiteri, Trevor	MP7b-4	Thomas, David	MP7b-1
Rezk, M.....	TP8b1-3	Schulte, Michael.....	WA7-6	Sprintson, Alex.....	TA1b-4	Tico, Marius	TA4b-3
Rhee, Injong.....	WA5-2	Schutz, Antony.....	MA8b1-4	Srikant, R.....	MA3-5	Tisserand, Arnaud.....	WA7-7
Rhoads, Michael	MA8b1-12	Schwartz, Stuart C.....	MA5-2	Stabernack, Benno	TA5b-5	Töllli, Antti.....	TP8b2-11
Richards, Brian	TP7-4	Schwarz, Valentin.....	MA8a1-2	Stacey, Robert.....	MA8a2-5	Tomaszewski, Artur.....	TP1a-3
Richter, Andreas.....	MA4-4	Schwarzwalder, Joseph.....	TP4-8	Staelin, David H.....	WA5-5	Tong, Lang	TA8b1-11
Richter, Henryk	TA5b-5	Searle, Stephen.....	MA5-6	Stanczak, Slawomir.....	MA8a1-3	Tourneret, Jean-Yves	TA6b-1
Riedl, Thomas	MP5-7	Sellathurai, Mathini	TA3b-3	Stefanov, Todor.....	MA7-6	Trott, Mitchell.....	TA4b-1
Riedl, Thomas	TA8b1-16	Sen, Pradeep	TP6b-1	Stephan, Yann	MA4-8	Tsen, Charles.....	TA7b-4
Riemensberger, Maximilian.....	TP3-5	Sen, Satyabrata	MA5-1	Stevens, David	MP7b-2	Tugnait, Jitendra	MP6-5
Riihonen, Taneli.....	TP8b2-9	Senthilvelan, Murugappan	WA7-6	Stine, James E.....	WA7-3	Tugnait, Jitendra	TA8b1-6
Riskin, Eve	MP4-8	Serra-Sagrista, Joan	MP4-2	Stoica, Petre.....	MA5-3	Tummala, Murali	MP1a-4
Ritcey, James.....	MP5-5	Setlur, Vidya.....	TP6b-3	Stoica, Petre.....	TP5-1	Tuncel, Ertem	MP4-7
Ritcey, James.....	TA8b1-1	Severi, Stefano.....	TP1b-3	Stojanovic, Milica.....	MP5-3	Usevitch, Bryan.....	MA8b2-2
Rodas, Javier	MA8a1-6	Shah, Shishir	TA2b-2	Stojanovic, Milica.....	MP5-4	Utschick, Wolfgang.....	TP3-5
Rodas, Javier	MA8a1-8	Shang, Xiaohu	MP7a-2	Stokes, Jack W.....	MP6-2	Utschick, Wolfgang	TP3-3
Rodriguez, Paul.....	MA8b1-10	Shapo, Ben.....	MP2-4	Strohmer, Thomas	MP2-2	Utschick, Wolfgang.....	TP8b2-2
Rolny, Raphael	TP8b2-8	Sharma, Rajesh.....	MP2-6	Su, Xiang	MP5-2	Utschick, Wolfgang.....	TP8b2-13
Rørtveit, Øyvind Lunde	TP8a3-4	Sharp, Matthew.....	MP7a-4	Subasingha, Shaminda	TP6a-2	Vafiadis, George.....	MP7b-4
Roufarshbaf, Hossein.....	TP8a2-2	Shea, John M.....	MA1b-3	Suddarth, Steven C.....	MA8b2-6	Vaidyanathan, P. P.....	MA3-8
Roumeliotis, S.....	MA6-3	Shen, Chien-Chung	MA1b-2	Sugiura, Hiroaki	WA2b-4	Vaidyanathan, P. P.....	TP6a-5
Roy, Sebastien	TA8b1-13	Shen, Godwin.....	MP4-6	Sumanasena, Buddika	MA8a1-1	Vaidyanathan, P. P.....	WA4-1
Rueetschi, Andrea.....	MP7a-4	Shen, Yuan	TA4b-1	Sun, John Z.....	WA1-6	Vaidyanathan, Palghat.....	MA5-8
Ruggiero, Christy	MA8b1-14	Shenoy, Shakti Prasad	TP8b1-7	Sun, Yang.....	MA7-8	Valkama, Mikko.....	TP3-4
Rüngeler, Matthias	TA8b1-5	Shi, Changxin.....	TP3-3	Sun, Yang.....	MP7b-3	van der Schaar, Mihaela	MP4-1
Rupp, Markus	TP8a3-6	Shirahata, Toru.....	WA2b-4	Sun, Yifan	MA6-8	Varanasi, Mahesh K.....	TP8b2-16
Rupp, Markus	TP8b1-9	Shroff, Ness B.....	TA1b-3	Suvorova, Sofia.....	MA5-6	Varanasi, Mahesh K.....	WA5-8
Sabharwal, Ashutosh	MA3-1	Shu, Wei	TP1a-1	Swaminarayan, Sriram.....	TA5b-1	Varshney, Pramod.....	TP5-3
Sabharwal, Ashutosh	TP7-1	Shuli, Ilir	MP8a-9	Swartzlander, Earl	TP7-6	Vary, Peter	TA8b1-5
Sadeghi, Parastoo	TP8b2-7	Shynk, John J.....	TP4-2	Swartzlander, Jr., Earl E.....	TA7b-3	Vaze, Rahul	WA5-3
Sajjadi, Amir.....	WA2b-2	Shynk, John J.....	WA8-8	Swindlehurst, A. Lee	TP8b2-3	Vera, Alonzo.....	MA8b2-3
Saleh, Hani.....	TA7b-3	Siderius, Martin	TP8a2-1	Swindlehurst, A. Lee	WA5-6	Vera, G. Alonzo	MA8b1-1
Salim, Umer.....	TP8b2-1	Sima, Mihai	WA7-6	Ta, Minh	TP8a3-3	Viberg, Mats.....	TP8b2-14
Samadani, Ramin.....	TA4b-1	Sinanovic, Sinan	TA8b1-15	Tadipatri, Vijay Aditya.....	TP2b-3	Vishwanath, Sriram.....	MA8b1-6
		Singer, Andrew.....	MP5-7	Tajer, Ali	TP5-2	Vishwanath, Sriram.....	WA8-4

NAME	SESSION	NAME	SESSION
von Borries, Ricardo	TA2b-3	Xiong, Zixiang	MP4-4
Vorobyov, Sergiy	TP8b2-10	Xiu, Xiaoyu	TA5b-3
Vu, Cuong	WA4-3	Xu, Kuang	WA3-5
Vu, Duc	MA5-3	Xu, Luzhou	TP5-1
Vu, Duc	TP5-1	Xue, Ming	TP5-1
Vu, Mai	MA3-7	Yan, Yanjun	WA4-2
Vyetenko, Svitlana	TA1b-5	Yang, Hsin-I	MA8b1-5
Wage, Kathleen	TP4-8	Yang, Kai	WA8-5
Wagner, Joerg	TP8b2-15	Yang, Liuqing	TA8b2-2
Wagner, Jörg	TP8b2-8	Yang, T.C.	MP5-1
Wagner, K	MA6-4	Yang, Yongyi	MA1a-4
Wainwright, Martin	TP7-4	Yao, Sha	WA5-7
Walkenhorst, Brett T.	TP3-8	Yin, Bei	MA7-8
Walker, Owens	MP1a-4	Yoon, Sungro	WA5-2
Wandell, Brian	TA4b-5	Young, Tim	WA2b-1
Wang, Chih-Chun	TA1b-1	Yu, Bo	TA8b2-2
Wang, Chih-Chun	TA1b-3	Yu, Jason	TP8a1-3
Wang, Guohui	MA7-8	Yu, Jieqi	MA4-2
Wang, Huahui	TA8b2-3	Yu, Meng	MA8b1-5
Wang, Jianqi	WA5-6	Yu, Thomas P.-Y.	TP5-6
Wang, Lei	MP8a-5	Yu, Yao	TP5-6
Wang, Pu	WA4-8	Zakharov, Yuriy	TA8b1-4
Wang, Wenwu	TA6b-2	Zakharov, Yuriy	TP8b1-1
Wang, Xiaodong	TP5-2	Zaki, George	MA7-7
Wang, Xiaodong	WA8-5	Zatman, Michael	MP2-5
Wang, Yufeng	TA8b2-4	Zayen, Bassem	MP3-9
Wang, Zhongfeng	MA7-5	Zeng, Fan-Gang	MA8b1-5
Warwick, Warren J.	TP4-1	Zhang, James	MA8b1-8
Weber, Steven	TA3b-2	Zhang, Jinyun	TP8b1-11
Weeraddana, Chathuranga	TA1b-2	Zhang, Jun	MA4-8
Wei, Sheng-Luen	WA8-8	Zhang, Jun	MA5-4
Weisend, Michael P.	WA2a-4	Zhang, Junruo	TA8b1-4
Weiskopf, Nikolaus	TP2a-3	Zhang, Junruo	TP8b1-1
Weiss, Stephan	TP8a3-8	Zhang, Kai	MP8a-12
Weng, Ching-Chih	MA5-8	Zhang, Lu	MA1b-2
Weng, Ching-Chih	TP6a-5	Zhang, Tong	WA1-1
Werner, Stefan	TP8b2-9	Zhang, Yi	TA2b-1
Wichman, Risto	TP8b2-9	Zhang, Zhengya	TP7-4
Willett, Rebecca	MP3-3	Zhao, Qing	MA8a2-4
Williamson, Geoffrey A.	MP6-8	Zhao, Xin	MP7b-5
Wilson, Sarah Kate	WA3-3	Zhao, Xueyuan	TA8b1-14
Wilson, Stephen	WA3-6	Zheng, Xiayu	TP8b1-5
Wittneben, Armin	TP8b2-8	Zhou, G. Tong	TA8b1-17
Wittneben, Armin	TP8b2-15	Zhou, Xiangyun	TP8b2-7
Wong, Tan F.	MA1b-4	Zhou, Yicong	MA8b1-15
Wood, Jason	TP4-7	Zhou, Yicong	MA8b1-17
Wu, Michael	MP7b-3	Zhu, Dajiang	TP2b-4
Wu, Min-You	TP1a-1	Zhu, Xiaoming	TP4-1
Wu, Tao	WA4-3	Zoltowski, Michael	MA5-7
Wu, Xuqing	TA2b-2	Zoltowski, Michael	MP3-1
Xiao, Xiangyang	MA8a2-4	Zotkiewicz, Mateusz	TP1a-2
Xie, C.	TP1a-1	Zou, H.	TP3-1
Xin, Jack	MA8b1-5	Zou, Xiang	MP5-5
Xiong, Yingen	TP6b-4	Zurk, Lisa	TP8a2-1

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