

**IEEE  
SAM  
2022**



**The Twelfth IEEE Sensor Array and  
Multichannel Signal Processing Workshop**

<https://attend.ieee.org/sam-2022/>

**June 20-23, 2022 – Trondheim, Norway**



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KOMMUNE**





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# Welcome Message

On behalf of the organizing committee, we welcome you to the twelfth IEEE Sensor Array and Multichannel Signal Processing (SAM) Workshop in Trondheim, Norway. After a long period of virtual scientific meetings, it is particularly exciting that we could finally meet in person and organize SAM 2022 as a physical event.

The SAM Workshop is an important IEEE Signal Processing Society event that provides a fruitful forum for nurturing scientific and industrial networking and exchanging innovative ideas within sensor array, multichannel signal processing, sensors, and wireless communication networks. This year, the workshop features six plenary talks by leading researchers in the field and four tutorials as well as poster sessions covering roughly 100 high-quality research papers.

We are delighted to bring SAM to Norway for the first time and, in particular, Trondheim. Trondheim is a vibrant city with a small-town heart bustling with youth and fresh ideas, a thriving tech community with innovative start-up incubators and co-working spaces, primarily owing to being the home of NTNU, the largest university in Norway. Founded by the Vikings in 997, it was the first capital of Norway and still has a relevant place in Norwegian history, with several museums and historical places. Trondheim is also surrounded by breathtaking nature, ranging from the fjord to the mountains. In addition, Nidaros Cathedral is one of the main pilgrimage sites in North Europe - we can all enjoy a concert here before the conference dinner.

We wish to thank everyone who has contributed to making SAM 2022 a success, including the organizing committee, the technical chairs, the technical program committee, special session organizers, plenary and tutorial speakers, and, especially the contributing authors. Last but not least, a big thanks to our sponsors, in particular, the Research Council of Norway, DNV, Nordic Semiconductor, and SINTEF.

*Pierluigi Salvo Rossi and Stefan Werner*



# Organizing Committee

## General Chairs

Pierluigi Salvo Rossi, NTNU, Norway

Stefan Werner, NTNU, Norway

## Technical Chairs

Subhrakanti Dey, National University of Ireland, Ireland

Yih-Fang Huang, University of Notre Dame, US

## Special-Session Chairs

Domenico Ciuonzo, University of Naples “Federico II”, Italy

Elena Simona Lohan, Tampere University, Finland

## Tutorial Chairs

Mats Bengtsson, KTH, Sweden

Tirza Routtenberg, Ben-Gurion University, Israel

## Finance Chair

Geir Øien, NTNU, Norway

## Publicity Chair

Petar Popovski, Aalborg University, Denmark

## Publication Chair

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## Registration Chair

Yuan-Pei Lin, NYCU, Taiwan

## Local-Arrangement Chairs

Kimmo Kansanen, NTNU, Norway

Milica Orlandić, NTNU, Norway



The Research Council  
of Norway

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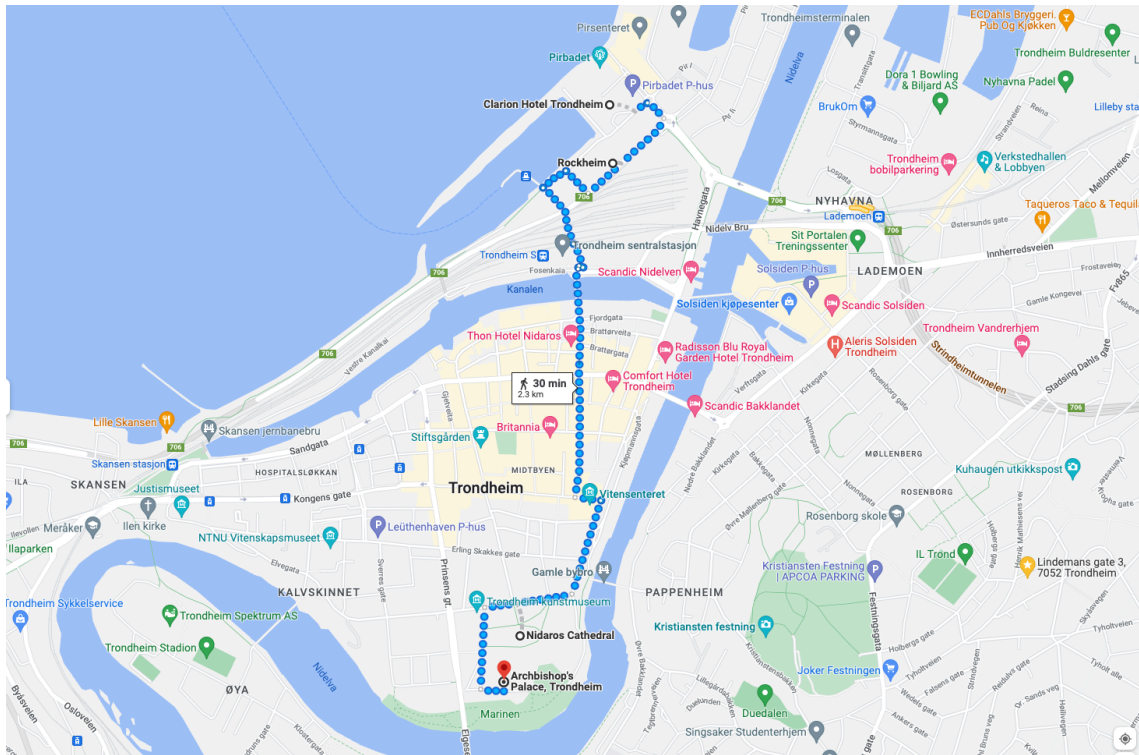


# Program Schedule

| Monday<br>20.06 |                            | Tuesday<br>21.06 |                             | Wednesday<br>22.06         | Thursday<br>23.06           |
|-----------------|----------------------------|------------------|-----------------------------|----------------------------|-----------------------------|
| 09:00-10:20     | <b>Tutorials 2 &amp; 4</b> | 09:00-10:00      | <b>Plenary 1</b>            | <b>Plenary 3</b>           | <b>Plenary 5</b>            |
| 10:20-10:40     | <i>Break</i>               | 10:00-10:20      | <i>Break</i>                | <i>Break</i>               | <i>Break</i>                |
| 10:40-12:00     | <b>Tutorials 2 &amp; 4</b> | 10:20-12:00      | <b>RS1.I</b><br>(4 papers)  | <b>RS4</b><br>(4 papers)   | <b>SPL</b><br>(2 papers)    |
|                 |                            |                  | <b>RS3</b><br>(4 papers)    | <b>SS6</b><br>(4 papers)   | <b>SS3</b><br>(6 papers)    |
|                 |                            |                  | <b>SS2</b><br>(4 papers)    | <b>SS7</b><br>(4 papers)   | <b>SS12</b><br>(4 papers)   |
|                 |                            |                  | <b>SS5</b><br>(5 papers)    | <b>SS9</b><br>(5 papers)   | <b>SS13</b><br>(5 papers)   |
| 12:00-13:30     | <i>Lunch</i>               | 12:00-13:30      | <i>Lunch</i>                | <i>Lunch</i>               | <i>Lunch</i>                |
| 13:30-14:50     | <b>Tutorials 1 &amp; 6</b> | 13:30-14:30      | <b>Plenary 2</b>            | <b>Plenary 4</b>           | <b>Plenary 6</b>            |
| 14:50-15:10     | <i>Break</i>               | 14:30-14:50      | <i>Break</i>                | <i>Break</i>               | <i>Break</i>                |
| 15:10-16:30     | <b>Tutorials 1 &amp; 6</b> | 14:50-16:30      | <b>RS1.II</b><br>(4 papers) | <b>RS7</b><br>(4 papers)   | <b>RS5</b><br>(4 papers)    |
|                 |                            |                  | <b>RS2</b><br>(5 papers)    | <b>SS8.I</b><br>(4 papers) | <b>RS6</b><br>(3 papers)    |
|                 |                            |                  | <b>SS1</b><br>(6 papers)    | <b>SS14</b><br>(7 papers)  | <b>RS8</b><br>(4 papers)    |
|                 |                            |                  |                             |                            | <b>SS8.II</b><br>(5 papers) |
|                 |                            |                  |                             |                            |                             |
|                 |                            |                  |                             |                            |                             |
| 19:00-__:       | <i>Welcome Ceremony</i>    | 19:00-19:30      |                             | <b>Concert</b>             |                             |
|                 |                            | 20:00-__:        |                             | <b>Social Dinner</b>       |                             |



# Locations



Tutorials, Plenary Talks, Regular Sessions, Special Sessions at  
**Clarion Hotel & Congress Trondheim, Brattørkaia 1, 7010 Trondheim**

Welcome Ceremony at  
**Rockheim, Brattørkaia 14, 7010 Trondheim**

Concert at  
**Nidaros Cathedral, Kongsgårdsgata 2, 7013 Trondheim**

Social Dinner and Best Student Paper Award at  
**Archbishop's Palace, Kongsgårdsgata 1B, 7013 Trondheim**



## Tutorials

### **T1 – Introduction to Automotive Radars**

Igal Bilik, Ben-Gurion University of the Negev, Israel

### **T2 – Multi-User MIMO Communications: towards Multi-Antenna Spectrum Sharing and Coexistence**

Dirk Slock, EURECOM, France

### **T4 – Distributed Joint Radar-Communications**

Kumar Vijay Mishra, U.S. Army Research Laboratory

M. R. Bhavani Shankar, University of Luxembourg

### **T6 – Beyond Massive MIMO in 6G wireless systems: A signal processing perspective**

Stefano Buzzi, University of Cassino and Southern Latium, Italy, and CNIT, Italy

Carmen D'Andrea, University of Cassino and Southern Latium, Italy, and CNIT, Italy

Giovanni Interdonato, University of Cassino and Southern Latium, Italy, and CNIT, Italy

## Plenaries

### **P1 – Signal Processing, Waveform Optimization and Reinforcement Learning for Integrated Sensing and Communication Systems**

Visa Koivunen, Aalto University, Finland

### **P2 – Future 3-Dimension Communications: Array Processing for Integrated Satellite-Terrestrial Communications**

Ana Pérez-Neira, CTTC, Spain

### **P3 – The Twin Transition and how to address the challenge of data volume inflation**

Morten Dalsmo, SINTEF Digital, Norway

### **P4 – Ensuring Trust in the Digital Age**

Frank Børre Pedersen, DNV, Norway

### **P5 – Dual-Function Radar Communication Systems**

Athina Petropulu, Rutgers University, US

### **P6 – Gridless Channel Estimation for Hybrid MIMO OFDM Systems in the Millimeter Wave Band via R-D Unitary Tensor-ESPRIT in DFT Beamspace**

Martin Haardt, Ilmenau University of Technology, Germany



## Regular Session 1 – Localization – Part I

1570795724

DoA Estimation Performance of UCAs with Reduced Number of Sensors using Phase-Mode Transformation and Small Sample Support

*Guilherme F Murrel Liali; José Antonio Apolinário Jr.; Marcello Campos; Antonio L. L. Ramos*

1570795850

One-bit DOA Estimation Using Robust Sparse Covariance Fitting in Non-uniform Noise

*Mingyang Chen; Qiang Li; Lei Huang*

1570796054

Closed-form Two-dimensional DOA and Polarization Joint Estimation Using Parallel Non-Collocated Sparse COLD Array

*Yaxing Yue; Zongyu Zhang; Chengwei Zhou; Fangyuan Xing; Zhiguo Shi*

1570795803

Decentralized Online Direction-of-Arrival Estimation and Tracking

*Yufan Fan; Cemil Emre Ardic; Minh Trinh-Hoang; Marius Pesavento*

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## Regular Session 1 – Localization – Part II

1570796194

A 3D Indoor Localization Approach Based on Spherical Wave-front and Channel Spatial Geometry

*Yuan Liu; Linlong Wu; Mohammad Alae-Kerahroodi; Bhavani Shankar Mysore R*

1570795774

Bias Reduced Semidefinite Relaxation Method for AOA Object Localization in 3-D

*Peng Xiang; Gang Wang; Dominic K. C. Ho*

1570794138

Non-Coherent Source Localization with Distributed Sensor Arrays

*Zhengyu Wan; Wei Liu; Peter Willett*

1570795782

Exact Solution for Elliptic Localization with Imperfect Clock Synchronization

*Yudong Xiao; Gang Wang; Dominic K. C. Ho*

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## Regular Session 2 – Radar

1570795040

Counterfactual Regret Minimization for Anti-jamming Game of Frequency Agile Radar

*Huayue Li; Zhaowei Han; Wenqiang Pu; Liangqi Liu; Kang Li; Bo Jiu*

1570796125

Over-The-Air Identification of Coupled Nonlinear Distortion in a MIMO Radar

*Carl Kylin; Thomas Eriksson; Anders Silander; Tomas McKelvey*

1570796140

Dual-Function Radar-Communication System Aided by Intelligent Reflecting Surfaces

*Yikai Li; Athina Petropoulou*

1570796068

Robust DOD and DOA Estimation for Bistatic MIMO Radar in Unknown Mutual Coupling and Non-Uniform Noise

*Wen-gen Tang; Hong Jiang; Qi Zhang*

1570787180

Statistical Analyses of Measured Forward-looking Sonar Echo Data in a Shallow Water Environment

*Jiajun Shen; Fulvio Gini; Maria S. Greco; Tian Zhou*

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## Regular Session 3 – Reconfigurable Intelligent Surfaces

1570795753

Optimal Active Elements Selection in RIS-Assisted Edge Networks for Improved QoS

*Shraddha Tripathi; Om Jee Pandey; Linga Reddy Cenkeramaddi; Rajesh M Hegde*

1570796137

Reflection Design Methods for Reconfigurable Intelligent Surfaces-Aided Dynamic TDD Systems

*Gerald Nwalozie; Khaled Ardah; Martin Haardt*

1570796130

Sparse Channel Estimation for IRS-Aided Systems Exploiting 2-D Sparse Arrays

*Mirza Asif Haider; Md. Waqeeb Chowdhury; Yimin D. Zhang*

1570796121

Wireless Inference Gets Smarter: RIS-assisted Channel-Aware MIMO Decision Fusion

*Nishanth Mudkey; Domenico Ciuonzo; Alessio Zappone; Pierluigi Salvo Rossi*

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## Regular Session 4 – Data-Driven Methods

1570795153

Deep Learning Based Non-Synchronous Sequential Measurement for Speech Localization

*Guitong Chen; Long Chen; Weize Sun; Lei Huang*

1570796128

Neural Network approach to iterative optimization of compressive measurement matrix in Massive MIMO System

*Saidur Pavel; Yimin D. Zhang*

1570796144

A Generative Cramér-Rao Bound on Frequency Estimation with Learned Measurement Distribution

*Hai Victor Habi; Hagit Messer; Yoram Bresler*

1570795499

Learning Minimum Variance Unbiased Estimators

*Tzvi Diskin; Yonina C. Eldar; Ami Wiesel*

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## Regular Session 5 – Signal Processing Methods

1570795379

Symmetric Tensor Canonical Polyadic Decomposition Via Probabilistic Inference

*Xinyun Hua; Siyuan Li; Lei Cheng*

1570796143

Stochastic first-order methods over distributed data

*Muhammad Ibrahim Qureshi; Usman Khan*

1570792562

A Joint Particle Filter for Quaternion-Valued  $\alpha$ -Stable Signals via the Characteristic Function

*Sayed Pouria Talebi; Stefan Werner; Xia Yili; Clive Cheong Took; Danilo Mandic*

1570796047

Enhanced Computation of the Coupled Block-Term Decomposition in Multilinear Rank Terms

*Ildar Safiullin; Liana Khamidullina; Alexey Korobkov; Martin Haardt*

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## Regular Session 6 – Detection

1570795917

Distributed Correlation Detection in Streaming Graph Signal

*Xuandi Sun; Haiyan Wang; Xiaohong Shen; Fei Hua*

1570796127

Detection of False Data Injection Attacks in Unobservable Power Systems by Laplacian Regularization

*Lital Dabush; Tirza Routtenberg*

1570798758

Comparison of Different Classifiers for Early Meal Detection Using Abdominal Sounds

*Muhammad Asaad Cheema; Salman Siddiqui; Pierluigi Salvo Rossi*

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## Regular Session 7 – Communications and Networks

1570792226

Projection-Based Spatial Sampling with Virtual Sensors for Robust Adaptive Beamforming

*Saeed Mohammadzadeh; Osman Kukrer*

1570795899

Power and Beamforming Control with Generalized Nash Game for Energy-Aware mmWave Networks

*Wenbo Wang; Amir Leshem*

1570794944

Performance Analysis of PRLS-based Time-Varying Sparse System Identification

*Yu Wang; Zhen Qin; Jun Tao; Le Yang*

1570800599

GSP based subsampling of IoT sensor networks

*Anna Sabatini; Luca Vollero*

1570788002

Passive Angle-Doppler Profile Estimation for Narrowband Digitally Modulated Wireless Signals

*Antonios Argyriou*

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## Regular Session 8 – Signal Recovery

1570795923

A High SIR Low-overhead Implementation of Single-channel Speech Source Separation

*Lawrence Nwaogo; Jerker Björkqvist*

1570794395

Blind Source Separation with Non-Coplanar Interferometric Data

*Rémi Carloni Gertosio; Jerome Bobin*

1570788926

Joint Source Enumeration and Direction Finding without Eigendecomposition for Satellite Navigation Receiver

*Tian Yao Long; Lei Huang; Qiang Li*

1570791420

Sparse Signal Recovery Using a Binary Program

*Muhammed Rahman; Shahrokh Valaee*

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## Special Session 1 – Advances in Distributed Beamforming

Organizers:

Kumar Vijay Mishra, United States Army Research Laboratory, US

Brian M. Sadler, United States Army Research Laboratory, US

1570801430

UAV-Based Urban Monitoring using On-Board 802.11ad Radar

*Shobha Ram; Kumar Vijay Mishra*

1570788748

Dynamic TDD Enabled Distributed Antenna Array Massive MIMO System

*Anubhab Chowdhury; Chandra R Murthy; Ribhu Chopra*

1570800422

Robustness of Distributed Multi-User Beamforming: An Experimental Evaluation

*Rahman Doost-Mohammady; Mehdi Zafari; Ashutosh Sabharwal*

1570800818

Distributed Beamforming for Joint Radar-Communications

*Jiawei Liu; Kumar Vijay Mishra; Mohammad Saquib*

1570797650

Distributed Transmit Beamforming: Analyzing the Maximum Communication Range

*Samer Hanna; Danijela Cabric*

1570800132

Sparsity enforcing with Toeplitz matrix reconstruction method for mmWave UL channel estimation with one-bit ADCs

*Majdoddin Esfandiari; Sergiy A. Vorobyov; Robert Heath*

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## Special Session 2 – Sensing Principles and Signal Processing to Aid Climate-Change Mitigation Solutions

Organizers:

Yessica Arellano, SINTEF Energy Research, Norway

Sigurd Weidemann Løvseth, SINTEF Energy Research, Norway

1570799525

Gas quality measurement of gas mixtures containing hydrogen with ultrasonic flow meters - experiences, challenges and perspectives

*Falk Ullmann*

1570795436



Flow meter performance under CO<sub>2</sub> gaseous conditions  
*Dennis Van Putten; Mohammed Al Saleem; Robert Kruithof*

1570800371

Imaging measurement technologies for CCS

*Yessica Arellano; Stian Husevik Stavland; Elvia Chavez Panduro; Børge Hamre; Bjørn Tore Hjertaker*

1570796089

Decision Fusion for Carbon Dioxide Release Detection from Pressure Relief Devices

*Gianluca Tabella; Yuri Di Martino; Domenico Ciunzo; Nicola Paltrinieri; Xiaodong Wang; Pierluigi Salvo Rossi*

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### Special Session 3 – Advances in Radar Signal Classification, Detection, and Estimation in Complex Scenarios

Organizers:

Danilo Orlando, Niccolò Cusano University, Italy  
Jun Liu, University of Science and Technology of China, China  
Lan Lan, Xidian University, China

1570799356

Adaptive Multi-Target Detection with FDA-MIMO Radar

*Jingjing Zhu; Shengqi Zhu; Lan Lan; Jingwei Xu*

1570800447

Compound Interference Suppression with Bistatic FDA-MIMO Radar

*Wenhao Sun; Lan Lan; Guisheng Liao; Jiawei Qi*

1570800460

Mainlobe Deceptive Jammer Suppression with OFDM-LFM-MIMO Radar based on BSS

*Jie Gao; Shengqi Zhu; Lan Lan; Ximin Li*

1570801825

Target Range and Velocity CRLBs for Colocated MIMO Radar in CES Disturbance

*Neda Rojhani; Maria S. Greco; Fulvio Gini*

1570795866

Subspace-Based Detection and Localization in Distributed MIMO Radars

*Yangming Lai; Luca Venturino; Emanuele Grossi; Wei Yi*

1570799873

A NN-based Approach to ICM Estimation and Adaptive Target Detection

*Pia Addabbo; Rosa Altilio; Dario Benvenuti; Goffredo Foglia; Danilo Orlando*

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## Special Session 5 – Automotive Radar Array Processing

Organizers:

Igal Bilik, Ben Gurion University of the Negev, Israel  
Joseph Tabrikian, Ben Gurion University of the Negev, Israel

1570800812

Misspecified Cramér-Rao Bound for Multipath Model in MIMO Radar

*Moshe Levy-Israel; Igal Bilik; Joseph Tabrikian*

1570800811

Range Estimation in Frequency-Selective Propagation Environment for Terahertz Automotive Radar

*Igal Bilik; Joseph Tabrikian*

1570799439

Phased Array With Improved Beamforming Capability via Use of Double Phase Shifters

*Zhaoyi Xu; Athina Petropulu*

1570800602

Vibrational Radar Backscatter Communication using Resonant Transponding Surfaces

*Jessica Centers; Jeffrey L Krolik*

1570798723

Total Variation Compressive Sensing for Extended Targets in MIMO Radar

*Ignacio Roldan; Francesco Fioranelli; Alexander Yarovoy*

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## Special Session 6 – Intelligent Signal Processing for Green Internet of Things (G-IoT)

Organizers:

Arne Lie, SINTEF Digital, Norway  
Ashish Rauniyar, SINTEF Digital, Norway  
Bengt Holter, SINTEF Digital, Norway

1570799891

COROID: A Crowdsourcing-based Companion Drones to Tackle Current and Future Pandemics

*Ashish Rauniyar; Desta Haileselassie Hagos; Debesh Jha; Jan Erik Håkegård*

1570800933

Video Analytics in Elite Soccer: A Distributed Computing Perspective

*Debesh Jha; Ashish Rauniyar; Håvard Johansen; Dag Johansen; Michael Alexander Riegler; Pål Halvorsen; Ulas Bagci*

1570798740



NEMO: Internet of Things based Real-time Noise and Emissions MONitoring System for Smart Cities

*Ashish Rauniyar; Truls Berge; Jan Erik Håkegård*

1570799444

Interference Mitigation in RIS-assisted 6G Systems for Indoor Industrial IoT Networks

*Naila Rubab; Shah Zeb; Aamir Mahmood; Syed Ali Hassan; Muhammad Ikram Ashraf; Mikael Gidlund*

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### Special Session 7 – Integrated Sensing and Communication (ISAC)

Organizers:

Abdelhamid Salem, University College London, UK

Christos Masouros, University College London, UK

Stefano Buzzi, Università degli studi di Cassino e del Lazio Meridionale, Italy

1570797345

Dual-Function Radar-Communication Systems with Constant-Modulus and Similarity Constraints

*Christos G. Tsinos; Aakash Arora; Symeon Chatzinotas; Björn Ottersten*

1570799375

Simultaneous Communication and Tracking in Arbitrary Trajectories via Beam-Space Processing

*Fernando Pedraza; Saeid Khalili Dehkordi; Mari Kobayashi; Giuseppe Caire*

1570800403

MIMO Ambiguity Function Enhancement for Integrated OFDM Communications and Sensing

*Sahan Damith Liyanaarachchi; Taneli Riihonen*

1570784199

Federated Channel Learning for Intelligent Reflecting Surfaces with Fewer Pilot Signals

*Ahmet M Elbir; Sinem Coleri; Kumar Vijay Mishra*

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### Special Session 8 – Reconfigurable Intelligent Surfaces for Signal Processing and Communications – Part I

Organizers:

Alessio Zappone, University of Cassino and Southern Lazio, Italy

Lee Swindlehurst, University of California Irvine, US

1570798530

Joint Beamforming Design for Sub-Connected Active Reconfigurable Intelligent Surface

*Qi Zhu; Ming Li; Yang Liu; Qian Liu*



1570799424

How Should IRSs Scale to Harden Multi-Antenna Channels?

Ali Bereyhi; Saba Asaad; Chongjun Ouyang; Ralf R. Müller; Rafael F. Schaefer; H. Vincent Poor

1570798880

Active Reconfigurable MIMO Communications: Capacity Maximization Pattern Design

Haonan Wang; Ang Li; Ya-Feng Liu; Qibo Qin; Lingyang Song; Yonghui Li

1570800220

Sacrificing CSI for a Greater Good: RIS-enabled Opportunistic Rate Splitting

Kevin Weinberger; Aydin Sezgin

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### Special Session 8 – Reconfigurable Intelligent Surfaces for Signal Processing and Communications – Part II

Organizers:

Alessio Zappone, University of Cassino and Southern Lazio, Italy

Lee Swindlehurst, University of California Irvine, US

1570797826

Legitimate against Illegitimate IRSs on MISO Wiretap Channels

Sepehr Rezvani; Pin-Hsun Lin; Martin Le; Eduard A Jorswieck

1570800282

Near-Field Hierarchical Beam Management for RIS-Enabled Millimeter Wave Multi-Antenna Systems

George C. Alexandropoulos; Vahid Jamali; Robert Schober; H. Vincent Poor

1570799398

Joint Optimization of Reconfigurable Intelligent Surfaces and Dynamic Metasurface Antennas for Massive MIMO Communications

Xuewen Qian; Marco Di Renzo; Vincenzo Sciancalepore; Xavier Costa-Perez

1570800399

IRS-Aided Wideband Dual-Function Radar-Communications with Quantized Phase-Shifts

Tong Wei; Linlong Wu; Kumar Vijay Mishra; Bhavani Shankar Mysore R

1570799824

Exploiting Array Geometry for Reduced-Subspace Channel Estimation in RIS-Aided Communications

Özlem Tuğfe Demir; Emil Björnson; Luca Sanguinetti

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## Special Session 9 – Signal Processing for IRS-Assisted Millimeter Wave Communications

Organizers:

Jun Fang, University of Electronic Science and Technology of China, China

Hongbin Li, Stevens Institute of Technology, US

1570794388

Joint Location and Channel Error Optimization for Beamforming Design for Multi-RIS Assisted MIMO System

*Zhen Chen; Jie Tang; Xiaoyu Du; Xiu Yin Zhang; Qingqing Wu; Kai-Kit Wong*

1570798971

Two-Timescale Beamforming for IRS-Assisted Millimeter Wave Systems: A Deep Unrolling-Based Stochastic Optimization Approach

*Peilan Wang; Jun Fang; Zhuoran Wu; Hongbin Li*

1570799474

Channel Estimation for Intelligent Reflecting Surface Assisted MmWave Systems Using Analog Feedback

*Sucheol Kim; Hyeongtaek Lee; Jihoon Cha; Junil Choi*

1570796957

Beamforming Design for Intelligent Reflecting Surface Aided Full-Duplex Relay Systems

*Zijian Chen; Ming-Min Zhao; Kaidi Xu; Yunlong Cai; Minjian Zhao*

1570799984

Bayesian User Tracking for Reconfigurable Intelligent Surface Aided mmWave MIMO System

*Boyu Teng; Xiaojun Yuan; Rui Wang; Shi Jin*

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## Special Session 12 – Signal Processing in Wireless Sensor and Robot Networks

Organizers:

Sheng Xu, Chinese Academy of Sciences, China

Linlong Wu, University of Luxembourg, Luxembourg

Lei Huang, Shenzhen University, China

1570799168

Optimal Angular Sensor Separation for DRSS Localization

*Jun Li; Kutluyıl Doğançay; Hatem Hmam*

1570799252

Integrated Trajectory Optimization and Cubature Kalman Filter for UAV-Based Target Tracking with Unknown Initial Position

*Sheng Xu; Linlong Wu; Bhavani Shankar Mysore R; Prabhu Babu*



1570800555

Sparse Array Beamformer Design via ADMM

*Huiping Huang; Hing Cheung So; Abdelhak M Zoubir*

1570792098

Gradient-Descent Adaptive Filtering Using Gradient Adaptive Step-Size

*Sayed Pouria Talebi; Hossein Darvishi; Stefan Werner; Pierluigi Salvo Rossi*

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### Special Session 13 – Wireless RF Sensing

Organizers:

Pu (Perry) Wang, Mitsubishi Electric Research Laboratories (MERL), US  
Maximilian Arnold, Nokia Bell Labs, Germany

1570799516

Gait Variability Analysis with Multi-Channel FMCW Radar for Fall Risk Assessment

*Mohammad Mahbubur Rahman; Dario Martelli; Sevgi Gurbuz*

1570799555

Cross-modal Learning of Graph Representations using Radar Point Cloud for Long-Range Gesture Recognition

*Souvik Hazra; Hao Feng; Gamze Kiprit; Michael Stephan; Lorenzo Servadei; Avik Santra; Robert Wille; Robert Weigel*

1570798725

Fundamental Investigation of Wi-Fi Beamforming Report Properties on Wireless Sensing

*Sorachi Kato; Takuma Matsukawa; Tomoki Murakami; Takuya Fujihashi; Takashi Watanabe; Shunsuke Saruwatari*

1570800620

Joint Initial Access and Localization in Millimeter Wave Vehicular Networks: a Hybrid Model/Data Driven Approach

*Yun Chen; Joan Palacios; Nuria González-Prelcic; Takayuki Shimizu; Hongsheng Lu*

1570800719

AutoQML: Automated Quantum Machine Learning for Wi-Fi Integrated Sensing and Communications

*Toshiaki Koike-Akino; Pu Wang; Ye Wang*

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### Special Session 14 – Advanced Signal Processing Methods in Automotive Radar Sensing for Autonomous Vehicles

Organizers:

Shunqiao Sun, The University of Alabama, US  
Yimin D. Zhang, Temple University, US



1570796073

IRS-Aided Radar: Enhanced Target Parameter Estimation via Intelligent Reflecting Surfaces

*Zahra Esmaeilbeig; Kumar Vijay Mishra; Mojtaba Soltanalian*

1570800383

SpectraNet: A High Resolution Imaging Radar Deep Neural Network for Autonomous Vehicles

*Ruxin Zheng; Shunqiao Sun; David Scharff; Teresa Wu*

1570799059

Unsupervised deep interference mitigation for automotive radar

*Chenming Jiang; Bin Yang; Zhibo Zhou*

1570797980

Guaranteed Deep Learning for Reliable Radar Signal Processing

*Shahin Khobahi; Ali Mostajeran; Mohammad Emadi; Pu Wang; Mojtaba Soltanalian*

1570800652

Marker-based Localization for Automated Parking Using Automotive Radar Point Cloud

*Hongyu Chen; Yuwei Cheng; Yimin Liu*

1570800754

A Deep Reinforcement Learning Approach for Integrated Automotive Radar Sensing and Communication

*Lifan Xu; Ruxin Zheng; Shunqiao Sun*

1570800655

Spatial-Domain Interference Mitigation for Slow-Time MIMO-FMCW Automotive Radar

*Pu Wang; Sian Jin; Petros T. Boufounos; Philip Orlik; Ryuhei Takahashi; Sumit Roy*

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### Signal Processing Letters Papers

1570794460

Partially Linear Bayesian Estimation Using Mixed-Resolution Data

*Tirza Routtenberg; Itai Berman*

1570797558

Clutter Edges Detection Algorithms for Structured Clutter Covariance Matrices

*Tianqi Wang; Da Xu; Chengpeng Hao; Pia Addabbo; Danilo Orlando*

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