

SSPD2017 Wednesday 6th December

8:30 Registration and Refreshments

9:00 Welcome and Opening

Jonathon Chambers, Newcastle University

9:10 Plenary Keynote:

Dual Function Systems: Radar as Signal of Opportunity for Wireless Communications

Moeness Amin, Villanova University.

Session 1: Radar – Chair, Jonathon Chambers, Newcastle University

10:10 1.0 Invited Speaker: Passive Radar – from Inception to Maturity

Hugh Griffiths, University College London.

10:40 1.1 Novel Approach for Ballistic Targets Classification from HRRP frame

Adriano Rosario Persico¹, Christos V. Ilioudis¹, Carmine Clemente¹, John J Soraghan¹, ¹University of Strathclyde.

11:05 Refreshments

11:30 1.2 A Cognitive Stepped Frequency Strategy for HRRP Estimation

Luca Pallotta¹, Vincenzo Carotenuto², Augusto Aubry², Antonio De Maio², Salvatore Iommelli³, ¹CNIT c/o udr University of “Naples Federico II”, ²University of Naples “Federico II”, ³Ente di Formazione Professionale Maxwell.

11:55 1.3 Optimality Criteria for Adaptive Waveform Design in MIMO Radar Systems

Steven Herbert¹, James R Hopgood¹, Bernard Mulgrew¹, ¹University of Edinburgh.

12:20 1.4 Time-Frequency Analysis of Millimeter-Wave Radar Micro-Doppler Data from Small UAVs

Samiur Rahman¹, Duncan Robertson¹, ¹University of St Andrews.

12:45 Lunch

Session 2: Poster Session and Refreshments

13:15 Posters - Numbers 1-17

Session 3: Signal Processing Challenges – Military User Perspective - Chair, Jordi Barr, Dstl

14:40 MOD Speakers and Panel Discussion

15:40 Refreshments

Session 4: Detection and Classification – Chair, Yvan Petillot, Heriot-Watt University

16:00 4.1 Maximum Discrimination Approach for Classification of Nearly Identical Signatures

Darren Emge¹, Steven Kay², US Army, ¹Edgewood Chemical Biological Center, ²University of Rhode Island.

16:25 4.2 Correlation Based Classification of Complex PRI Modulation Types

Fotios Katsilieris¹, Sabine Apfeld², Alexander Charlish², ¹Airbus Defence and Space, ²Fraunhofer FKIE.

Session 5: Underwater Signal Processing - Chair, Yvan Petillot, Heriot-Watt University

16:50 5.1 Co-prime Arrays with Reduced Sensors (CARS) for Direction-of-Arrival Estimation

Mingyang Chen¹, Lu Gan², Wenwu Wang¹, ¹University of Surrey, ²Brunel University.

17:15 5.2 Identification of Broadband Source-Array Responses from Sensor Second Order Statistics

Stephan Weiss¹, Nick Goddard², Samuel D. Somasundaram³, Ian Proudler⁴, Patrick A Naylor⁵,
¹University of Strathclyde, ²Dstl, ³Thales UK, ⁴Loughborough University, ⁵Imperial College London.

17:40 Close and End of Day 1

19:30 Wine Reception and Meal

SSPD2017 Thursday 7th December

8:30 Registration and Refreshments

9:00 Welcome to day 2

Mike Davies, University of Edinburgh

9:10 Plenary Keynote: Information Generator: Keeping the Lights on

Paul Kealey, Ministry of Defence

Session 6: Sensor Networks – Chair, Mike Davies, University of Edinburgh

10:10 6.0 Invited Speaker: Distributed Sensor Networks - Current Projects and Research Perspectives

Wolfgang Koch, Fraunhofer FKIE.

10:40 6.1 Location Based Distributed Spectral Clustering for Wireless Sensor Networks

Gowtham Muniraju¹, Sai Zhang¹, Cihan Tepedelenlioglu¹, Mahesh Banavar², Andreas Spanias¹, Cesar Vargas-Rosales³, Rafaela Villalpando³, ¹Arizona State University, ²Clarkson University, ³Tecnologico de Monterrey.

11:05 6.2 Node Sampling by Partitioning on Graphs via Convex Optimization

Cristian Rusu¹, John Thompson¹, ¹University of Edinburgh.

11:30 Refreshments

Session 7: Signal Processing Challenges – Industrial User Perspective - Chair, Paul Thomas, Dstl

12:00 Industrial Speakers and Panel Discussion

13:00 Lunch

Session 8: Poster Session

13:30 Posters Numbers 18-35

Session 6 cont.: Sensor Networks – Chair, Carmine Clemente, University of Strathclyde

15:00 6.3 Spectrum Alerting System Based on Software Defined Radio and Raspberry Pi

David C Ball¹, Nitin Naik¹, Paul Jenkins¹, ¹Ministry of Defence.

15:25 6.4 Non-cooperative target localisation using rank based EDM approach

Hebatallah Shoukry¹, Mathini Sellathurai¹, Pat Chambers¹, John Thompson², Satyanarayana Vuppala³, ¹Heriot-Watt University, ²University of Edinburgh, ³University of Luxemburg.

15:50 Close

Poster Session -

Wednesday 6th December at 13:15 - 14:40

P01 Remote identification of electrical devices using dynamic time warping

Richard O Lane, QinetiQ.

P02 GRECO Based Fast Prediction of 3D Radar Images for Complex Targets

Ningbo Gong¹, Xiaojian Xu¹, ¹Beihang University.

P03 Estimation of the Number of Sources in Measured Speech Mixtures with Collapsed Gibbs Sampling

Yang Sun¹, Yang Xian¹, Pengming Feng¹, Jonathon Chambers¹, Syed Mohsen Naqvi¹, ¹Newcastle University.

P04 Online IVA with Adaptive Learning for Speech Separation using Various Source Priors

Suleiman Erateb¹, Syed Mohsen Naqvi², Jonathon Chambers², ¹Loughborough University, ²Newcastle University.

P05 Support Vector Machine for Network Intrusion and Cyber-Attack Detection

Kinan Ghanem¹, Francisco Javier Aparicio Navarro², Konstantinos Kyriakopoulos¹, Sangarapillai Lambotharan¹, Jonathon Chambers², ¹Loughborough University, ²Newcastle University.

P06 Polynomial Root-MUSIC Algorithm for Efficient Broadband Direction Of Arrival Estimation

William Coventry¹, Carmine Clemente¹, John J Soraghan¹, ¹University of Strathclyde.

P07 Divide-and-Conquer Sequential Matrix Diagonalisation for Parahermitian Matrices

Fraser K Coutts¹, Jamie Corr¹, Keith Thompson¹, Ian Proudler², Stephan Weiss¹, ¹University of Strathclyde, ²Loughborough University.

P08 Impact of Fast-Converging PEVD Algorithms on Broadband AoA Estimation

Fraser K Coutts¹, Keith Thompson¹, Stephan Weiss¹, Ian Proudler², ¹University of Strathclyde, ²Loughborough University.

P09 Outage Probability of SIR Based SC Macro-diversity Reception in Gamma Shadowed Rayleigh Multipath Fading Environment

Caslav Stefanovic¹, Mihajlo Stefanović², Stefan Panić^{1,2}, Srdjan Jovkovic³, ¹University of Pristina, ²University of Nis, ³College of Applied Technical Sciences.

P10 Optimal Band Selection of Multispectral Sensors for Wildfire Detection

Xiaojian Xu¹, Xiaoyu He¹, ¹Beihang University.

P11 Quality of Service Resource Management for Search Strategy Design in Electronic Support
Sabine Apfeld¹, Alexander Charlish¹, Wolfgang Koch^{1,2}, ¹Fraunhofer FKIE, ²University of Bonn.

P12 Exact Blur Measure Outperforms Conventional Learned Features for Depth Finding
Akbar Saadat, Railway, Iran.

P13 Refined Attitude Estimation of Ships in Photographs via Matching Images Rendered from 3D Models
Xiaojian Xu¹, Hongxiang Wang¹, ¹Beihang University.

P14 Multi-modal Automatic Target Recognition for Anti-ship Missiles with Imaging Infrared Capabilities
Odysseas Kechagias-Stamatis¹, Nabil Aouf¹, David Nam¹, ¹Cranfield University.

P15 3D Automatic Target Recognition for UAV Platforms
Odysseas Kechagias-Stamatis¹, Nabil Aouf¹, David Nam¹, ¹Cranfield University.

P16 Implementation of a Flexible Frequency-Invariant Broadband Beamformer Based on Fourier Properties
Stephan Weiss¹, Mark Hadley², Jon Wilcox², ¹University of Strathclyde, ²Kaon Limited.

P17 Optimal Power Allocation in Zero-Forcing Assisted PMSVD-based Optical MIMO Systems
Andreas Ahrens¹, André Sandmann¹, Ekaterina Auer¹, Steffen Lochmann¹, ¹Hochschule Wismar.

Poster Session -

Thursday 7th December at 13:30 - 15:00

P18 Human Motion Detection and Classification using Ambient WiFi Signals

Christian Siebert¹, Mei Leng², Sirajudeen Gulam Razul², Chong Meng Samson See¹, Guohua Wang¹,
¹Temasek Laboratories at Nanyang Technological University, ²Nanyang Technological University.

P19 Short Codes and Entanglement-based Quantum Key Distribution via Satellite

Xiaoyu Ai¹, Robert Malaney¹, Soon Xin Ng², Lajos Hanzo², ¹University of New South Wales, ²University of Southampton.

P20 Occlusion Handling in Radar for Detection of Wires and Pylons

Alon Slapak¹, Shai Segal, ¹RodRadar & Slapak, ²RodRadar.

P21 Joint Radar Waveform and Bank of Filter Design for Wind Farm Clutter Mitigation

Domenico Gaglione¹, Augusto Aubry², Carmine Clemente³, Antonio De Maio⁴, John J Soraghan³, Alfonso Farina⁵, ¹NATO STO Centre for Maritime and Research Centre, ²Universita degli studi di Napoli, ³University of Strathclyde, ⁴University of Naples Federico II, ⁵Leonardo.

P22 Minimum constrained adaptive monopulse estimation

Hirofumi Fukushima¹, Ryuhei Takahashi¹, Nobuhiro Suzuki¹, ¹Mitsubishi Electric Corporation.

P23 Exploitation of Deterministic Signals for Passive Single-Channel Detection

Nasyitah Ghazalli¹, Alessio Balleri¹, Fabiola Colone², ¹Cranfield University, ²University of Rome "La Sapienza".

P24 Simulations of Repeat Jamming Against Anti-Ship Missile Seekers Which Use Doppler Beam Sharpening Modes

Gareth Frazer¹, Alessio Balleri¹, Suresh George Jacob², ¹Cranfield University, ²Dstl.

P25 Multiple Mode Multi-Target Tracking in high noise environment using Radar measurements

Naima Amrouche¹, Ali Khenchaf¹, Daoud Berkani², ¹ENSTA Bretagne, ²National Polytechnic School of Algiers.

P26 A Two-Stage Detector for Operation in Outlier-Dense Scenarios

Sudan Han¹, Huang Xiaotao¹, Antonio De Maio², Luca Pallotta³, Salvatore Iommelli⁴, ¹National University of Defense Technology, ²University of Naples "Federico II", ³CNIT c/o udr University of Naples "Federico II", ⁴Ente di Formazione Professionale Maxwell.

P27 DOA Estimation using Multiple Antenna Arrays

Guohua Wang¹, Sirajudeen Gulam Razul², Chong Meng Samson See³, ¹Temasek Laboratories at Nanyang Technological University, ²Nanyang Technological University, ³DSO National Laboratories, Singapore.

P28 Stepped-Frequency SAR Imaging via Polar Format Algorithm

Pavel Makarov¹, Mustafa Arici², ¹University of Kyrenia, ²Near East University.

P29 Robust Raman Spectral Decomposition with Wavenumber Shifts Parametric Modelling

Mehrdad Yaghoobi, University of Edinburgh.

P30 Second-order Statistics for Threat Assessment with the PHD Filter

Alexey Narykov¹, Emmanuel D. Delande¹, Daniel Clark¹, Paul Thomas², Yvan Petillot¹, ¹Heriot-Watt University, ²Dstl.

P31 Robust Cooperative Navigation for AUVs using the Student's t Distribution

Qian Li¹, Syed Mohsen Naqvi², Jeff Neasham², Jonathon Chambers², ¹Harbin Institute of Technology, ²Newcastle University.

P32 Enhanced GM-PHD Filter Using CNN-Based Weight Penalization for Multi-Target Tracking

Zeyu Fu¹, Syed Mohsen Naqvi¹, Jonathon Chambers¹, ¹Newcastle University.

P33 Simulation of Bistatic Scattering Characteristics for Multilayered Dielectric Targets

Xiaojian Xu¹, Huimin Feng¹, ¹Beihang University.

P34 On Phase Measurement in FMCW Radar Systems

Kashif Siddiq¹, Mervyn Hobden², Robert J Watson¹, Stephen Pennock¹, Steve Martins², ¹University of Bath, ²NavTech Radar Ltd.

P35 Enhancing long-range Automatic Target Recognition using spatial context

Iain Rodger¹, Rachael Abbott², Barry Connor¹, Neil Robertson², Queen's University Belfast, ¹Thales UK.