Keynote 1 — Hugh Griffiths
Hindley Rooms, 08:50am - 09:40am, Tue 10 Sept. 2013

Where Has All the Spectrum Gone?
Hugh Griffiths, University College London, UK

Keynote 2 — Wu Jian-qi
Hindley Rooms, 09:40am - 10:30am, Tue 10 Sept. 2013

Some Issues in the Development of Metric Surveillance Radar
Jian-qi Wu, Jin Xu, ECRIEE, China

Keynote 3 — Ali Khenchaf
Hindley Rooms, 08:50am - 09:40am, Wed 11 Sept. 2013

Sea Clutter and Radar Complex Targets
Ali Khenchaf, Lab-STICC, France

Keynote 4 — Peter May
Hindley Rooms, 09:40am - 10:30am, Wed 11 Sept. 2013

The Use of Advanced Radar in the Bureau of Meteorology
Peter May¹, Alain Protat¹, Alan Seed¹, Susan Rennie¹, Xingbao Wang¹, Claire Cass², Aoife Murphy²
¹CAWCR, Australia; ²Bureau of Meteorology, Australia

Keynote 5 — Rob Evans
Hindley Rooms, 08:40am - 09:30am, Thu 12 Sept. 2013

Consumer Radar: Technology and Limitations
R.J. Evans¹, P.M. Farrell², G. Felic¹, Hoa Thai Duong², Hoang Viet Le², J. Li², M. Li², Bill Moran³, M. Morelande², E. Skafidas¹
¹NICTA, Australia; ²University of Melbourne, Australia; ³Defence Science Research Institute, Australia

Keynote 6 — Paul Ferraro
Hindley Rooms, 09:30am - 10:20am, Thu 12 Sept. 2013

Global Collaboration as a Source of Innovation: Case Study of Affordable Phased Arrays and Dense Radar Networks
Paul Ferraro, Raytheon Company, USA
**Tu-1: Radar Imaging I**
*
**Hindley Rooms 1 & 2, 10:50am - 12:30pm, Tue 10 Sept. 2013**  
*Chairs: Marco Martorella and Mark Preiss*

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<tbody>
<tr>
<td>27</td>
<td>10:50</td>
<td>Initial Polarimetric Results from the Ingara Bistatic SAR Experiment</td>
<td>Alvin S. Goh, Mark Preiss, Nick J.S. Stacy, DSTO, Australia</td>
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<tr>
<td>33</td>
<td>11:10</td>
<td>Feasibility of Resolution-Enhanced Burst-Mode Interferometry in Bistatic SAR</td>
<td>Virginie Kubica, Xavier Neyt, Royal Military Academy, Belgium</td>
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<tr>
<td>39</td>
<td>11:30</td>
<td>Bistatic Ground-Based Passive SAR Imaging Using TerraSAR-X as an Illuminator of Opportunity</td>
<td>Piotr Krysik, Łukasz Maslikowski, Piotr Samczynski, Anna Kurowska, Warsaw University of Technology, Poland</td>
</tr>
</tbody>
</table>
| 43   | 11:50 | Space-Doppler Processing for Multichannel ISAR Imaging of Non-Cooperative Targets Embedded in Strong Clutter | Alessio Bacci¹, Douglas A. Gray², Marco Martorella¹, Fabrizio Berizzi¹  
¹Università di Pisa, Italy; ²University of Adelaide, Australia |
| 48   | 12:10 | A Study of Performances of Multipath Height Estimation Algorithm for Marine Target Imaging | Jerome Habonneau¹, Jean-Marc Le Caillec², Ali Khenchaf², Laurent Mandridake¹  
¹Cassidian, France; ²Lab-STICC, France |

---

**Tu-2: Phenomenology and Propagation**
*
**Hindley Room 3, 10:50am - 12:30pm, Tue 10 Sept. 2013**  
*Chairs: Ali Kenchaf and Hedley Hansen*

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</table>
| 54   | 10:50 | A Kirchhoff Integral Approach to Radar Propagation Over a Rough Sea | Christopher J. Coleman¹, Paul E. Berry²  
¹University of Adelaide, Australia; ²DSTO, Australia |
| 57   | 11:00 | Near-Earth RF Propagation — Path Loss and Variation with Weather | Ashley Larsson, Andrew Piotrowski, Timothy Giles, Darryn Smart, DSTO, Australia |
| 64   | 11:30 | Wind Farm Interferences in Passive Coherent Location | Janusz S. Kulpa, Marcin K. Bączyk, Anna Kurowska, Stanislaw Rzewuski, Warsaw University of Technology, Poland |
| 75   | 12:10 | Classification of Wave Breaking Mechanisms from Their Polarimetric Radar Signatures | J.T. Morris, S.J. Anderson, DSTO, Australia |
### Tu-3: Radar Imaging II

**Hindley Rooms 1 & 2, 01:30pm – 03:10pm, Tue 10 Sept. 2013**

**Chairs: Fabrizio Berizzi and Alvin Goh**

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| 81   | 01:30pm | CURACAO: SAR/GMTI Compact Radar Cube Concept  
Rémi Baqué, Philippe Dreuillet, Bernard Vaizan, ONERA, France |
| 85   | 01:50pm | The ONERA Airborne Multi-Frequency SAR Imaging Systems  
Olivier Ruault du Plessis, Philippe Dreuillet, ONERA, France |
| 91   | 02:10pm | Time-Reversal Approach for Buried Point Scatterer Detection Using a Low Frequency SAR  
Robert Kędziewarski¹, Jean-Marc Le Caillec¹, Witold Czarnecki², Mateusz Pasternak²  
¹Télécom Bretagne, France; ²Military University of Technology, Poland |
| 97   | 02:30pm | FPGA Implementation of Back Projection Algorithm for Radar Imaging  
Nieves Crasto¹, T. Kishore Kumar¹, D. Anuradha², Paramita Barua², Sirisha Nemani²  
¹NIT Warangal, India; ²DRDO, India |
| 101  | 02:50pm | Development and Potential of Real-Time FPGA Frequency-Based SAR Image Processing for Short-Range FMCW Applications  
M. Pfitzner, F. Cholewa, P. Pirsch, H. Blume, Leibniz Universität Hannover, Germany |

### Tu-4: HF Radar

**Hindley Room 3, 01:30pm – 03:10pm, Tue 10 Sept. 2013**

**Chairs: Joe Fabrizio and Stuart Anderson**

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| 106  | 01:30pm | Over-the-Horizon Radar Continuous-Wave Interference Suppression Using Harmonic Least-Squares Fitting  
David A. Holdsworth, DSTO, Australia |
| 112  | 01:50pm | Initial Investigation of a Novel Passive HF Radar Technique Using Available DRM and Data Signals  
M.J. Underhill, Underhill Research Limited, UK |
| 118  | 02:10pm | Operational Requirements for Oceanographic Ground-Wave HF Radars: Experiences from the Australian Coastal Ocean Radar Network  
Daniel Atwater, Alessandra Mantovanelli, Arnstein Prytz, Sven Rehder, Lucy Wyatt, James Cook University, Australia |
| 122  | 02:30pm | Omnistatic High Frequency Surface Wave Radar: Architecture and Applications  
Peter Marrone, Rob Dobson & Associates, Australia |
| 128  | 02:50pm | High-Resolution Wide Area Remote Sensing for HF Radar Track Registration  
M.D.E. Turley, R.S. Gardiner-Garden, David A. Holdsworth, DSTO, Australia |
Tu-5: Waveform Design

Hindley Rooms 1 & 2, 03:50pm – 05:30pm, Tue 10 Sept. 2013
Chairs: Stephen Howard and Simon Watts

Page 134
Tu-5–1
03:50pm

Quest for a Simultaneous SAR/GMTI Waveform
Mark E. Davis, medavis consulting, USA

Page 140
Tu-5–2
04:10pm

Bandwidth Extrapolation of LFM Signals for Narrowband Radar Systems
Van Khanh Nguyen, M.D.E. Turley, DSTO, Australia

Performance Analysis of a PAPR-Constrained Waveform Designed for Optimal Target Detection
Satyabrata Sen, Oak Ridge National Laboratory, USA

Page 152
Tu-5–4
04:50pm

Application of Reed-Müller Coded Complementary Waveforms to Target Tracking
Sofia Savorova1, Stephen Howard2, Bill Moran1
1University of Melbourne, Australia; 2DSTO, Australia

Page 157
Tu-5–5
05:10pm

Signal Waveforms and Range/Angle Coupling in Coherent Colocated MIMO Radar
Olivier Rabaste1, Laurent Savvy1, Mathieu Cattenoz1, Jean-Paul Guyvarch2
1ONERA, France; 2Thales Air Systems, France

P1: Poster Session 1

Pre-function area, 03:50pm – 05:30pm, Tue 10 Sept. 2013

Page 163
P1–1

Application of the Sparse Decomposition to Micromotion Target Detection Embedded in Sea Clutter
Xiaolong Chen, Yong Chai, Fuqing Cai, Jian Guan, NAAU, China

Page 167
P1–2

Transmit/Receive Module for L-Band Phased Array Synthetic Aperture Radar with Polarisation Control
Thomas Cooney1, Torsten Lehmann1, Kevin Parkinson1, Robert Middleton1, Charles D. Hall2
1University of New South Wales, Australia; 2Astrium Limited, UK

Page 173
P1–3

Decametric Measurements of the ISS Using an Experimental HF Line-of-Sight Radar
G.J. Frazer, D.H. Meehan, G.M. Warne, DSTO, Australia

Page 179
P1–4

Comparative Study of Microstrip Patch Antenna Feed Network
Behnam Jamali1, Tony Cook2
1University of Adelaide, Australia; 2DSTO, Australia

Page 184
P1–5

MIMO Radar Developments at Teledyne Australia
I. Dennis Longstaff, Halappa Ashoka, Troy Kilpatrick, Teledyne Defence Australia, Australia

Page 188
P1–6

Transmit Beampattern Synthesis and Performance Analysis for Collocated MIMO Radar
Yunfo Liu, Zheng Liu, Rong Xie, Qin Liu, Xuzi Wu, Xidian University, China

Semi-Random Measurement Matrix for Compressed Sensing
Zhen Tan, Junfeng Wang, Xingzhao Liu, Shanghai Jiao Tong University, China
# Poster Session 1 continued…

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<td>Covariance Matrix Transforming Based Moving Jammers Suppression Method</td>
<td>Jingwei Xu, Yanhong Xu, Guisheng Liao, Shengqi Zhu, Zijing Zhang, Xidian University, China</td>
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<td>202</td>
<td>Microwave Radar Imaging of Rotating Blades</td>
<td>Hai-Tan Tran, Rocco Melino, Paul E. Berry, Desmond Yau, DSTO, Australia</td>
</tr>
<tr>
<td></td>
<td>Random Hopped-Frequency Waveform Design and Processing</td>
<td>Dehua Zhao, Zhineng Mao, Yinheng Wei, Harbin Institute of Technology, China</td>
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</tbody>
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## We-1: Passive Radar I

### Hindley Rooms 1 & 2, 10:50am - 12:30pm, Wed 11 Sept. 2013

**Chairs:** Heiner Kuschel and Hugh Griffiths

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<td>213</td>
<td>Approaching 80 Years of Passive Radar</td>
<td>H. Kuschel, Fraunhofer FHR, Germany</td>
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</table>
| 224  | Performance Improvements Using the Separated Reference Configuration for a Multi-Static FM Broadcast Band Radar System | Craig Tong\(^1\), Michael Inggs\(^1\), Francois Maasdorp\(^2\)  
\(^1\)University of Cape Town, South Africa; \(^2\)CSIR, South Africa |
| 230  | Multistatic Passive Radar Based on WIFI — Results of the Experiment   | Stanisław Rzewuski, Maciej Wielgo, Krzysztof Kulpa, Mateusz Malanowski, Janusz S. Kulpa, Warsaw University of Technology, Poland |
| 235  | Forward Scatter Radar Mode for Passive Coherent Location Systems     | M. Gashinova\(^1\), L. Daniel\(^1\), E. Hoare\(^1\), K. Kabakchiev\(^1\), M. Cherniakov\(^1\), V. Sizov\(^2\)  
\(^1\)University of Birmingham, UK; \(^2\)MIET, Russia |

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## We-2: Clutter

### Hindley Room 3, 10:50am - 12:30pm, Wed 11 Sept. 2013

**Chairs:** Simon Watts and Luke Rosenberg

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| 240  | A Review of High Grazing Angle Sea-Clutter                            | Simon Watts\(^1\), Luke Rosenberg\(^2\)  
\(^1\)Thales UK, UK; \(^2\)DSTO, Australia |
| 246  | Cornish-Fisher Technique for Estimating Detection Probabilities for Compound Clutter Distributions | Josef A. Zuk, DSTO, Australia |
| 252  | Optimal Non-Coherent Detection in K-Distributed Clutter Environment  | Yunhan Dong, DSTO, Australia                      |
| 258  | Simulation of Correlated Pareto Distributed Sea Clutter               | Stephen Bocquet, DSTO, Australia                  |
| 262  | Clutter Identification for Weather Radars: CPA, TDBZ and Wavelet Comparisons | Si T.N. Nguyen\(^1\), Ruiting Yang\(^1\), Douglas A. Gray\(^1\), Peter May\(^2\)  
\(^1\)University of Adelaide, Australia; \(^2\)CAWCR, Australia |

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*Not Available*
We-3: Passive Radar II

Hindley Rooms 1 & 2, 01:30pm - 03:10pm, Wed 11 Sept. 2013

Chairs: Chris Baker and Mike Cherniakov

- **A Narrow Band Imaging Technique for Passive Radar**
  - J.L. Garry¹, Christopher J. Baker¹, Graeme E. Smith¹, Robert Ewing²
  - ¹Ohio State University, USA; ²AFRL, USA

- **GPS Bistatic Radar Using Phased-Array Technique for Aircraft Detection**
  - Chow Yiu Pui, Matthew Trinkle, University of Adelaide, Australia

- **The Effects of DVB-T SFN Data on Passive Radar Signal Processing**
  - Dario Petri¹, Christian Moscardini¹, Michele Conti¹, Amerigo Capria¹, James Palmer², Stephen Searle³
  - ¹CNIT, Italy; ²DSTO, Australia; ³University of Melbourne, Australia

- **Passive Radar Processing with Quantised Signals**
  - Stephen Searle¹, James Palmer²
  - ¹University of Melbourne, Australia; ²DSTO, Australia

- **Commensal Radar: Range-Doppler Processing Using a Recursive DFT**
  - Michael Inggs, Andrew van der Byl, Craig Tong, University of Cape Town, South Africa

We-4: Special Applications

Hindley Room 3, 01:30pm - 03:10pm, Wed 11 Sept. 2013

Chairs: Peter May and David Crisp

- **Signal Processing for ZLC-Configuration Insect-Monitoring Radars: Yields and Sample Biases**
  - V.A. Drake, UNSW Canberra, Australia

- **Target State Estimation Using RCS Characteristics for 26GHz Short-Range Vehicular Radar**
  - Isamu Matsunami, Nakamura Ryohei, Akihiro Kajiwara, University of Kitakyushu, Japan

- **Weather and Bushfire Observation Using Low Cost X-Band Phased Array Radars**
  - Robert A. Palumbo¹, Waddah A. Al-Ashwal², Bradley Ferguson¹, Christopher McCarroll¹, David J. McLaughlin¹
  - ¹Raytheon Company, USA; ²University of Adelaide, Australia

- **Rainfall Studies Using Co-Located VHF and UHF Wind Profiling Radars**
  - Bronwyn Dolman, Iain Reid, ATRAD Pty. Ltd., Australia

- **A Ship Detection System for RADARSAT-2 Dual-Pol Multi-Look Imagery Implemented in the ADSS**
  - David James Crisp, DSTO, Australia
### We-5: Mathematical Techniques

**Hindley Rooms 1 & 2, 03:50pm – 05:30pm, Wed 11 Sept. 2013**
**Chairs: Linda Davis and Mark E. Davis**

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| 324   | 03:50pm | The Effects of Covariance Matrix Mismatch on Adaptive CFAR Performance  
Simon Watts, Thales UK, UK |
| 330   | 04:10pm | Detection and Characterization of MIMO Radar Signals  
Stephen Howard¹, Songsri Sirianunpiboon¹, Douglas Cochran²  
¹DSTO, Australia; ²Arizona State University, USA |
| 335   | 04:30pm | Radar Target Identification: Estimating the Start of the Late Time Resonant Response  
Chad Hargrave¹, I. Vaughan L. Clarkson², Amin Abbosh², Nick Shuley²  
¹CSIRO, Australia; ²University of Queensland, Australia |
| 341   | 04:50pm | A Transform Space Filtered, Wide Frequency-Range Implementation of the Parabolic Equation Method  
Steve J. Salamon¹, H.J. Hansen², Derek Abbott¹  
¹University of Adelaide, Australia; ²DSTO, Australia |
| 346   | 05:10pm | Radon-Fractional Fourier Transform and its Application to Radar Maneuvering Target Detection  
Xiaolong Chen, Fuqing Cai, Yu Cong, Jian Guan, NAAU, China |

### P2: Poster Session 2

**Pre-function area, 03:50pm – 05:30pm, Wed 11 Sept. 2013**

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| 351   | 03:50pm | Combination of Empirical/Asymptotic Models to Characterize Sea Clutter at Intermediate Angles  
Anthony Fiche¹, Ali Khenchaf¹, Christian Cochin², Yvonick Hurtaud²  
¹Lab-STICC, France; ²DGA, France |
| 356   | 04:10pm | W-Band Maritime Target Classification Using High Resolution Range Profiles  
Tomasz Jasinski¹, Irina Antipov¹, Sildomar T. Monteiro², Graham Brooker²  
¹DSTO, Australia; ²University of Sydney, Australia |
| 362   | 04:30pm | Sidelobe Suppression and Super Resolution for MIMO Imaging Radar  
Troy Kilpatrick¹, I. Dennis Longstaff¹, I. Vaughan L. Clarkson²  
¹Teledyne Defence Australia, Australia; ²University of Queensland, Australia |
| 368   | 04:50pm | Analysis of First-Order Sea Clutter Spectrum Characteristics for HF Sky-Surface Wave Radar  
Yajun Li, Yinsheng Wei, Harbin Institute of Technology, China |
| 374   | 05:10pm | Clutter Property Analysis and Clutter Suppression for HyperSonic Airborne Radar  
Zheng Liu, Yi Chen, Rong Xie, Lei Zhang, Xidian University, China |
| 380   | 05:30pm | Marginal Sample Discriminant Embedding for SAR Automatic Target Recognition  
Xian Liu, Yulin Huang, Jifang Pei, Jianyu Yang, UESTC, China |
| 385   | 05:40pm | Automatic Robust Adaptive Beamforming via Ridge Regression Using $l_1$-Norm Approximation  
Mei Dong, Qiaozhen Zheng, Hongtao Su, Xidian University, China |
Robust Performance Prediction Modelling for Compound Distributions with Temporal Correlation

Luke Rosenberg, Stephen Bocquet, DSTO, Australia

A Background Extraction Technique for Polarimetric RCS Measurement

Xiaojian Xu, Shuangssuo Sun, Beihang University, China

Development of a Passive Retrodirective Van Atta Array Reflector at X-Band

Kin Shing Bobby Yau, DSTO, Australia

Analysis of the Limit to Superresolution in Real Aperture Scanning Radar

Yin Zhang, Yulin Huang, Jianyu Yang, UESTC, China

Analysis of the Azimuth Resolution of Bistatic SAR

Bo Zhao, Xueru Bai, Feng Zhou, Zijing Zhang, Zheng Bao, Xidian University, China

Th-1 : Radar Systems I
Hindley Rooms 1 & 2, 10:40am – 12:20pm, Thu 12 Sept. 2013  Chairs: Andrew Shaw and Robert Palumbo (to be confirmed)

Dual Axis Multi-Beam Radars
Annemieke Tonnaer, Thales Netherlands B.V., The Netherlands

A Compact, Universal and Cost-Efficient Antenna Setup for mmW-Radar Applications
Christian Zech¹, Axel Hülsmann¹, Michael Schlechtweg¹, Leopold Georgi², Heiko Gulan³, Oliver Ambacher¹
¹Fraunhofer IAF, Germany; ²Fraunhofer IZM, Germany; ³KIT, Germany

Improved Impedance Matching for SuperDARN TTFD Antennas
E. Custovic, D. Elton, J. Whittington, J. Devlin, A. Console, B. McDonald, H. Nguyen, La Trobe University, Australia

Phase-Tilt Weather Radar: Calibration and Preliminary Results
Robert A. Palumbo¹, Eric Knapp¹, Ken Wood², David J. McLaughlin¹, Christopher McCarroll², Stephen J. Frasier¹
¹University of Massachusetts Amherst, USA; ²Raytheon Company, USA

High Power Coherent-on-Receive Radar for Marine Surveillance
Graeme E. Smith¹, N. Majurec¹, A. O’Brien¹, J. Pozderac¹, Christopher J. Baker¹, J.T. Johnson¹, D.R. Lyzena², O. Nwoagu², D.B. Trizna³, D. Rudolf³, G. Schueller³
¹Ohio State University, USA; ²University of Michigan, USA; ³Imaging Science Research Inc., USA; ⁴Sapphire Computers Inc., USA; ⁵KnS Logic LLC, USA
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<td>10:40am</td>
<td>Low-Angle Target Detection with Interference in a Multipath Environment</td>
<td>Paul E. Berry, Daniel P. Finch, DSTO, Australia</td>
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<tr>
<td>11:00am</td>
<td>H-PMHT with a Poisson Measurement Model</td>
<td>Han X. Vu, Samuel J. Davey, Sanjeev Arulampalam, Fiona K. Fletcher,</td>
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<td></td>
<td></td>
<td>Cheng-Chew Lim</td>
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<td>1DSTO, Australia; 2University of Adelaide, Australia</td>
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<tr>
<td>11:20am</td>
<td>Track-Before-Detect on Quantised Intensity Maps</td>
<td>Brian Cheung, Samuel J. Davey, DSTO, Australia</td>
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<tr>
<td>11:40am</td>
<td>First Results of Maritime MTI with PAMIR Multichannel Data</td>
<td>Valeria Gracheva, Delphine Cerutti-Maori, Fraunhofer FHR, Germany</td>
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<tr>
<td>12:00pm</td>
<td>Dauphin: A New Statistical Signal Processing Language</td>
<td>Ross Kyprianou, Bill Moran, Peter Schachte</td>
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<td>1DSTO, Australia; 2University of Melbourne, Australia</td>
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<tr>
<td>01:20pm</td>
<td>First Results on Bistatic MTI Activity at Fraunhofer FHR</td>
<td>Diego Cristallini, Fraunhofer FHR, Germany</td>
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<tr>
<td>01:40pm</td>
<td>Experimental RCS Acquisition System: Using Software Defined Radio to Build a Classification Dataset</td>
<td>Sylvain Azarian, Jonathan Pisane, Marc Lesturgie, Supélec, France</td>
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<tr>
<td>02:00pm</td>
<td>A Virtual Target Radar System for Small Arms Fire Training</td>
<td>Clive M. Alabaster, Evan J. Hughes, Daniel Flores-Tapia</td>
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<tr>
<td></td>
<td></td>
<td>1White Horse Radar Limited, UK; 2University of Manitoba, Canada</td>
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<td>02:20pm</td>
<td>Hardware Efficient Digital Channeliser Designs for Radar Intercept Applications</td>
<td>Joy Li, Stephen D. Elton, Simon P. Herfurth, Peter Q.C. Ly, DSTO, Australia</td>
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<tr>
<td>01:20pm</td>
<td>Preliminary Analysis of Monostatic and Bistatic Doppler Signature of Small Maritime Target</td>
<td>Waddah A. Al-Ashwal, Hugh Griffiths</td>
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<td></td>
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<td>1University of Adelaide, Australia; 2University College London, UK</td>
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<tr>
<td>01:40pm</td>
<td>Manifold Learning Methods for Wide-Angle SAR ATR</td>
<td>Emre Ertin, Ohio State University, USA</td>
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<tr>
<td>02:00pm</td>
<td>On Variability in High Resolution Range Profiles</td>
<td>S.H. Doo, Graeme E. Smith, Christopher J. Baker, Ohio State University, USA</td>
</tr>
<tr>
<td>02:20pm</td>
<td>Noise Robust Radar HRR Target Recognition Based on Bayesian Sparse Learning</td>
<td>Lan Du, Penghui Wang, Lei Zhang, Hongwei Liu, Danlei Xu, Xidian University, China</td>
</tr>
<tr>
<td></td>
<td>Feature Extraction of Target in Wideband Bistatic Radar</td>
<td>Jianhua Yang, Feng Zhao, Xiaofeng Ai, Yongzhen Li, Shunping Xiao, NUDT, China</td>
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### Th-5: Cross-Fertilisation/Radar Marketplace

**Hindley Rooms 1 & 2, 03:30pm – 05:10pm, Thu 12 Sept. 2013**  
**Chairs: Kim Brown and Andy Stove**

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<tr>
<td>520</td>
<td>03:30pm</td>
<td>Echoic Flow for Radar Target Interception</td>
<td>Graeme E. Smith¹, Christopher J. Baker¹, Gang Li²</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>¹Ohio State University, USA; ²Tsinghua University, China</td>
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<tr>
<td>526</td>
<td>03:50pm</td>
<td>Computationally Fast AOA Estimation Using Sparse Large Aperture Arrays for Electronic Surveillance</td>
<td>Peter Q.C. Ly¹, Stephen D. Elton¹, Joy Li¹, Douglas A. Gray²</td>
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<td></td>
<td></td>
<td>¹DSTO, Australia; ²University of Adelaide, Australia</td>
</tr>
<tr>
<td>532</td>
<td>04:10pm</td>
<td>New Approach to Spectrum and Emitter Simulation: For the Evaluation of Radar and Electronic Warfare Systems</td>
<td>John S. Hansen, Greg Jue, Agilent Technologies, USA</td>
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<tr>
<td>537</td>
<td>04:30pm</td>
<td>A 6GHz Digital Receiver Using COTS Prototyping Boards</td>
<td>Nicholas Tsakiris, Pev Hall, Simon P. Herfurth, Pat Tan, Kim Brown, DSTO, Australia</td>
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<td>542</td>
<td>04:50pm</td>
<td>Radar Considered as a Fine Art</td>
<td>A.G. Stove, Thales UK, UK</td>
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### Th-6: Modelling and Simulation

**Hindley Room 3, 03:30pm – 05:10pm, Thu 12 Sept. 2013**  
**Chairs: Brett Haywood and Bevan Bates**

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<th>Page</th>
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<td>548</td>
<td>03:30pm</td>
<td>A Hybrid Method for Generating Correlated Gamma Sequences for Sea-Clutter Simulation</td>
<td>Yunhan Dong, Luke Rosenberg, Graham V. Weinberg, DSTO, Australia</td>
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<td>554</td>
<td>03:50pm</td>
<td>Digital RF Processing System for Hardware-in-the-Loop Simulation</td>
<td>Sanka Piyaratna, Ninh Duong, Joel Carr, David Bird, Stephen Kennedy, Andrew Udina, Patrick Jenkinson, DSTO, Australia</td>
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<td>560</td>
<td>04:10pm</td>
<td>Application of a New Sea Clutter Doppler Model</td>
<td>M.A. Ritchie¹, A.G. Stove², Simon Watts², K. Woodbridge¹, Hugh Griffiths¹</td>
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<td>¹University College London, UK; ²Thales UK, UK</td>
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<td>566</td>
<td>04:30pm</td>
<td>Simulation of Rotating Radar Antenna Impact on Adjacent Direction Finding Array</td>
<td>Reuben Shar, Thales Australia, Australia</td>
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<td>572</td>
<td>04:50pm</td>
<td>Verification of a SAR Processor by Arbitrary Generation of Simulated Beat Signal</td>
<td>Lukasz Maslikowski, Mateusz Malanowski, Piotr Krysik, Damian Gromek, Warsaw University of Technology, Poland</td>
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<td>Phase Difference Estimation Based on Orthogonal Signals for Distributed Coherent Aperture Radar</td>
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