

8th IMA Conference on Mathematics in Defence and Security Mathematics for Decision Support

Programme

Wednesday, 15th October 2025

The Catalyst
3, Helix, Science Square,
Newcastle upon Tyne, NE4 5TG, UK



INSTITUTE OF
**MATHEMATICS &
ITS APPLICATIONS**

08:45 – 09:30	Registration with tea & coffee
09:30 – 09:40	Welcome, housekeeping, introduction – <i>Mike Thain & Nikki Perree, Dstl</i>
	Session Chairs: Mike Thain & Nikki Perree
09:40 – 10:10	Keynote 1 Which data do we analyse further to inform where to look for MH370? <i>Prof. Simon Maskell, University of Liverpool</i>
10:10 – 10:30	Regularised Volumetric SAR <i>Dr Joshua Hellier, University of Manchester</i>
10:30 – 10:50	Application of multi-target tracking and fusion algorithms in a live sensor network <i>Mr Luke Storey, University of Edinburgh</i>
10:50 – 11:10	Tea & coffee break
11:10 – 11:30	Practical Sensor Management for Defence <i>Miss Nikki Perree, Dstl</i>
	Session Chair: John Thompson
11:30 – 12:00	Keynote 2 Counter AI for space systems <i>Dr Victoria Nockles, Alan Turing Institute</i>
12:00 – 12:20	Discrete Event Simulation modelling in support of data-based decision making <i>Dr Andrew Pearson (presenting) & Ryan Griffin, CDS Defence & Security</i>
12:20 – 12:40	Poster session lightning talks – 3 minutes per poster
12:40 – 13:40	Lunch with poster session
13:40 – 14:00	Uncertainty Analysis in Experimental Vibration Datasets <i>Mr Oscar Carter, QinetiQ</i>
	Session Chair: James Hopgood
14:00 – 14:30	Keynote 3 The Importance of Operational Context <i>Dr Phillippa Payne, BAE Systems</i>

14:30 – 14:50	Power and Mobility Optimisation in a Multi-Agent Electronic Warfare Game <i>Miss Rachel Shaw, University of Southampton</i>
14:50 – 15:10	Tea & coffee break
15:10 – 15:30	Uncertainty Quantification of a computationally expensive model used in defence <i>Dr Edmund Ryan, Atomic Weapons Establishment</i>
15:30 – 15:50	Optimising Defence Coverage with Genetic Algorithms <i>Semonte Mansur</i>
	Session Chair: John Thompson
15:50 – 16:10	IMA President Elect <i>Dr Heather Tewkesbury, Smith Institute</i>
16:10 – 16:30	Summary of the day
16:30	Conference Close

Poster Session 12:40 – 13:40	
Jack Carmichael	An Adaptive Anti-GNSS Spoofing Framework for Autonomous Maritime UAV Surveillance Operations
Allan Player	Outplace: Interactive Games for Complex EME Optimisation
Iain High, University of Edinburgh	Wideband Automatic Modulation Classification with Open Set Recognition
James Hollingdale	RF Localisation in Infrastructure-limited Environments through Machine Learning
Nikki Perree, Dstl	Sensor Management in Stone Soup
Christian Pollitt, The University of Liverpool, Centre for Doctoral Training in Distributed Algorithms	Bayesian Learning of Trajectory Behaviour with a Stochastic Generative Model