



Institute of
mathematics
& its applications

6TH IMA CONFERENCE ON MATHEMATICS IN DEFENCE AND SECURITY

CONFERENCE PROGRAMME

30 - 31 MARCH
ONLINE EVENT VIA ZOOM

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mathematics
an Open Access Journal by MDPI



PROGRAMME - 30 MARCH

11:00 Conference Chair - Welcome, Housekeeping, Logistics

11:15 Marc Widdowson - Invited Talk - The Emerging Discipline of Theoretical History

11:45 Poster Pitches

12:00 Break/Virtual Poster Session and Networking

13:00 Emilien Valat - Tomographic Non-Destructive Testing of Manufactured Components using Bimodal Convolutional Deep Belief Network for Sinogram Enhancement

13:20 Paul Ledger - Object Classification in Metal Detection using Spectral MPT Data

13:40 Break

13:50 David Sadler - Detection of Fleeting Radio Signals in a Congested Spectrum

14:10 Lu Gan - Multi-channel self-reset analog-to-digital converters for high dynamic range sensing

14:30 Break

14:40 Robin Dee - The Unit Re-balancing Problem

15:00 Richard Lane - Predicting the descent into extremism and terrorism

15:20 Break

15:30 Stephen Coulson - SEIR and Seers: Mathematics and Decision Making

15:50 Peter Grindrod CBE - MOTHS: Mathematics of Online Threats and Harms

16:10 Conference Chair - Closing Remarks and Thanks

PROGRAMME - 31 MARCH

11:00	Conference Chair - Welcome, Housekeeping, Logistics
11:15	Phillippa Spencer OBE - Invited Talk - "I need a significant sample size" – Impact with Maths and Stats
11:45	Dr Sophie Carr - Invited Talk - Patterns and searches with Bayes.
12:15	Break/Virtual Poster Session and Networking
13:35	Emma Bowley - Mathematics in the Electromagnetic Environment
13:55	Break
14:05	Gabriele Incorvaia - A deep learning approach for through-the-wall radar target tracking in 3D
14:25	Kieran Quaine - Modelling and Efficient FEM for Thermo-Mechanical Problems in High Explosives
14:45	Break
14:55	Yuri Vershinin - A Multiple-Sensor System Based on the Square-Root Decentralized Kalman Filter
15:15	David Torkington - Mathematical Modelling of Shear Bands and Applications to the Safe Handling of High Explosives
15:35	Break
15:45	Dr Ned Allen - Keynote Talk - "The Quantum Revolution is Spawning Innovations in Mathematics, Offering New Capabilities for Defence and Security."
16:30	Conference Chair - Closing Remarks and Thanks

POSTER SESSION

Sian Jenkins - Biosurveillance and data fusion for early outbreak detection and classification

Bakhtiyor Yokubov - Secure blockchain-based system for IoT devices implementing post-quantum cryptography

POSTER SESSION