

About Defence Technology Centres (DTCs)

Defence Technology Centres (DTCs) are virtual centres of excellence in broad technology areas. Participants see a return on their investment in science and technology through exploitation in future defence equipment and wider civilian applications. The strategic aim of DTCs is to provide more rapid pull-through of low technology maturity level research into the MoD's defence equipment programme. The Defence Technology Centre initiative is an exemplar for research collaboration between Government, UK Defence, Small-Medium Sized Enterprises and Universities. Both the SEAS & EMRS DTCs will deploy up to £30 million of MoD research funds over a six year period.

Industry provides MoD with a matching contribution in-kind - knowledge of their internally funded research.

Each DTC is tasked with achieving the following generic outcomes:

- Generate knowledge, via research, appropriate to future UK Defence needs in the relevant domains.
- Enable earliest exploitation of knowledge generated for the benefit of UK Defence
- Enable the knowledge generated to be used by MoD for internal UK government purposes
- Enable knowledge generated in the civil sector to be used within the DTC
- Enable the knowledge generated by the DTC to be exploited for the benefit of the civil sector

About the EMRS DTC Research Programme:

The EMRS DTC research programme has been created to address the following science and technology outcomes within Electro-Magnetic Remote Sensing:

- day and night, all weather capability
- long range operation
- rapid, large area search capability
- detection of low signature targets
- detection of camouflaged / concealed targets
- affordable, robust systems for military platforms
- covert operation
- multi-function / ID capability

The research programme is organised into four research themes: RF Systems, Electro- Optic Systems, Transduction Devices and Materials and Transducer Embedded Processing. For more information, see the EMRS DTC web site: www.emrsdttc.com

About the SEAS DTC Research Programme:

The SEAS DTC research programme has been created to address the following science and technology outcomes within Autonomous Systems:

- high mission benefit which for information gathering includes discrimination between objects of interest and potential interference
- potential for meeting different mission needs (e.g. to be an information network node)
- increased ability to act without human intervention in a wider range of circumstances
- discrimination between objects of interest and potential interference
- improved speed and endurance
- reduced need for mission-control based communications
- moderately high survivability e.g. suitably low probability of detection in line with the application
- reduced logistics burden
- reduced system whole life costs and increased ease of upgrade
- safe operation (in particular when operating in conjunction with manned vehicles)
- increased public acceptability
- reduced operator workload and training needs e.g. ease of deployment, operation & recovery
- reduced need for mission-control based communications/improved management of communications (e.g. in reduced bandwidth)
- low total system whole life costs and ease of up-grade e.g.: technology insertion, robustness to component/sub-system obsolescence, and high fuel efficiency

The research programme is organised into six research themes: Algorithms & Architectures, Mission Planning & Decision Making, Sensor Exploitation, Communications & Control, Propulsion, Power Generation and Energy Management and, Systems Engineering Research. For more information, see the SEAS DTC web site: www.seasdtc.com

The Joint SEAS-EMRS DTC Technical Conferences:

The SEAS and EMRS DTCs are holding unclassified technical conferences at which the work of the both DTCs will be disseminated. The technical conferences will be held at the Edinburgh International Conference Centre (EICC) on 7th-8th July 2009 and will run in parallel, sharing common ticketing and organisation. The event is being sponsored by Scottish Enterprise.

A joint Exhibition will be held on both days of the conferences in the Cromdale Hall (Level -2). There will also be poster displays in the Cromdale Hall, showing research output from projects not disseminated via technical papers. Delegates will be able to move freely between conference sessions of the two conferences, choosing from approximately 80 technical papers, thus building their own programme from a mix of technical papers, posters and exhibits.

On the evening of Tuesday 7th July 2009 a networking reception will be held for all delegates in the Cromdale Hall of the EICC. The networking reception is being sponsored by BAE SYSTEMS. This will afford all delegates the opportunity to network with the broad community of interest that the DTCs have brought together. Following the networking reception there will be a conference dinner, available as a costed option, which will be held at "The Signet Library". Early booking is recommended for those delegates who want to attend the conference dinner, which is available in delegate packages "A" & "C" - see opposite. The conference dinner is being sponsored by SELEX Galileo. Delegate lunches on both days are being sponsored by the Aerospace and Defence KTN. Tea and Coffee breaks on day 1 are being sponsored by Roke Manor Research and day 2 by MBDA.

Who Should Attend?

The joint SEAS & and EMRS DTC Technical Conference should be attended by:

- potential exploiters of DTC funded research
- potential providers of research to the DTC programmes
- members of the broad military and civil community of interest, including its underlying key technologies, systems and sub-systems

The cycle of project completion and initiation means that research funds will become available through out the DTCs' respective calls for proposals this Autumn. These conferences will provide potential bidders with an opportunity to review the current programmes and discuss ideas for further research with both DTC management teams and scientists.

Registration and Booking Information:

Conference bookings are being organised on behalf of both DTCs by the EICC. The EICC team will take your registration, booking and payment. This can be made on line via the conference web site: www.emrsdttc.com/conferences/2009/conferences.htm with our booking agents:

Rachel Donald
Joint EMRS/SEAS DTC Conference 2009
EICC

The Exchange tel: +44 (0) 131 519 4100
Edinburgh EH3 8EE fax: +44 (0) 131 300 3030
Scotland e-mail: emrsdttc@eicc.co.uk

Payment can be made by credit card. Please note that we can only accept bookings accompanied with payment.

Conference Fee:

The DTCs have created a number of delegate package types to allow us to meet individual delegate needs. Details of these packages and early booking discounts are below:

Package Type All prices Inc VAT	27th March '09	8th May '09	19th June '09
A	£435.00	£460.00	£490.00
B	£345.00	£375.00	£405.00
C	£205.00	£230.00	£260.00
D	£115.00	£115.00	£115.00
E	£90.00	£90.00	£90.00

Package "A": Full Package; Attend both SEAS & EMRS DTC Conferences, Exhibition, Product Demonstrations, Networking Reception, Conference Dinner and both Conference Proceedings.

Package "B": Attend both conferences, Exhibition, Product Demonstrations, Networking Reception and receive two Conference Proceedings (SEAS & EMRS) but not attend the Conference Dinner.

Package "C": Attend the Exhibition & Product Demonstrations only plus the Networking Reception and Conference Dinner.

Package "D": Attend the Exhibition & Product Demonstrations only and the Networking Reception but not attend the Conference Dinner.

Package "E": Partner's ticket for the formal conference dinner at The Signet Library.

Planning Your Trip

A comprehensive set of online resources, including information on accommodation, travel, map and visitor attractions is available at: www.emrsdttc.com/conference/2009/conferences.html

For information on planning a holiday in Scotland see:

Visit Scotland: www.visitscotland.com
Edinburgh & Lothians Tourist Board: www.edinburgh.org
Telephone helpline: +44(0) 845 225 5121
e-mail: info@visitscotland.com

Conference Location:

The conference will be held at the Edinburgh International Conference Centre (EICC) which is located in the centre of Edinburgh. The main entrance of the EICC is on Morrison Street, served by a convenient drop-off point for cars, coaches and taxis. The EICC is just a short walk from Princes Street, Edinburgh Castle and the Royal Mile.

There are several car parks close to the centre. The centre is also within walking distance of Haymarket train station. For further information on the venue, including a map see: www.eicc.co.uk

EMRS DTC

Electro-Magnetic Remote Sensing (EMRS) Defence Technology Centre (DTC)

6th Annual Technical Conference & Exhibition

Sponsored by:



Edinburgh
International
Conference
Centre

Tuesday 7th
& Wednesday 8th July
2009

A joint technical
conference with
the SEAS DTC



RF Systems, Embedded Processing,
Devices & Materials

Sidlaw Auditorium (Level +3)

Session Chairmen
Tony Kinghorn (Selex Galileo), Paul Robertson (Selex Galileo), Iain Anderson & David Bruce (DSTL)

EO Systems, Embedded Processing,
Devices & Materials

Fintry Auditorium (Level +3)

Session Chairmen
Robert Lamb (Selex Galileo), Stephen McGeoch (Thales), Bryan Rickett (Roke Manor Research), Richard Hollins (DSTL) & David Gleed (DSTL)

Orientation Guide

Day 1 – Tuesday 7th July 2009

8:00	Registration in Strathblane Hall (Level 0) and Coffee in the Cromdale Hall (Level -2) – Sponsored by Roke Manor Research
9:10	Welcome to all delegates in the Pentland Auditorium (Level +3) Mr. John Griffin (Chairman EMRS DTC) & Mr. Simon Jewel (Chairman SEAS DTC)
9:15	Plenary Lecture in the Pentland Auditorium (Level +3) Dr. Chris Mace (MOD Director General Science & Technology - Operations)
9:45	Overview of the SEAS DTC in the Pentland Auditorium (Level +3) Prof. Bill Bardo (Technical Director, SEAS DTC)
10:00	Overview of the EMRS DTC in the Pentland Auditorium (Level +3) Prof. Keith Lewis (Research Director, EMRS DTC)
10:15	Coffee / Tea, Exhibition & Poster Displays in the Cromdale Hall (Level -2) – Sponsored by Roke Manor Research
11:00	Overview of RF Systems Theme Mr. Tony Kinghorn (Selex Galileo)
11:10	Forward Scattering Micro Radar efficiency analysis for different landscapes Dr. M. Cherniakov (University of Birmingham)
11:35	SARTOM Mr. A. Marino, (German Aerospace Centre DLR), Mr. M. Nannini (University of Edinburgh), Mr. N. Walker (eOsphere Ltd)
12:00	UAV Collision Avoidance Radar – Build and Test Mr. Tony Hall (Teledyne Defence Australia)
12:25	Lunch, Exhibition & Poster Displays in the Cromdale Hall (Level -2) – Sponsored by UK Aerospace & Defence KTN
14:00	Overview of the Transduction Devices & Materials Research Theme Mr. Paul Robertson (Selex Galileo)
14:10	GaN X-band power transistors: A UK foundry compatible process Dr. D.J. Wallis (QinetiQ Plc)
14:35	Optimisation of AlGaIn/GaN HFETs Using Field Plate and Gate Recess Technologies Dr. K. Boon Lee (Sheffield University)
15:00	Recent developments in high power CVD diamond MESFET technology Dr. R. Balmer (Element Six Ltd)
15:25	Keynote Lecture in Sidlaw Auditorium (Level +3) UK Defence Technology Plan - Sensors Dr. Alistair Jolly (MOD SIT)
16:00	Networking Reception, Exhibition & Poster Displays in the Cromdale Hall (Level -2) – Sponsored by BAE Systems

Day 1 – Tuesday 7th July 2009

8:00	Registration in Strathblane Hall (Level 0) and Coffee in the Cromdale Hall (Level -2) – Sponsored by Roke Manor Research
9:10	Welcome to all delegates in the Pentland Auditorium (Level +3) Mr. John Griffin (Chairman EMRS DTC) & Mr. Simon Jewel (Chairman SEAS DTC)
9:15	Plenary Lecture in the Pentland Auditorium (Level +3) Dr. Chris Mace (MOD Director General Science & Technology - Operations)
9:45	Overview of the SEAS DTC in the Pentland Auditorium (Level +3) Prof. Bill Bardo (Technical Director, SEAS DTC)
10:00	Overview of the EMRS DTC in the Pentland Auditorium (Level +3) Prof. Keith Lewis (Research Director, EMRS DTC)
10:15	Coffee / Tea, Exhibition & Poster Displays in the Cromdale Hall (Level -2) – Sponsored by Roke Manor Research
11:00	Overview of EO Systems Theme Prof. Robert Lamb (Selex Galileo)
11:10	Multispectral-Polarimetric Sensing for Detection of Difficult Targets Mrs. W.A. Hubbard (BAE SYSTEMS ATC)
11:35	Multispectral QWIP camera developments Mr. J. F. Parsons (Thales Land & Joint Systems Ltd)
12:00	Lucky sub-frame selection using phase diversity Mr. S.C. Woods (QinetiQ Plc)
12:25	Lunch, Exhibition & Poster Displays in the Cromdale Hall (Level -2) – Sponsored by UK Aerospace & Defence KTN
14:00	Overview of TEP Theme Mr. Bryan Rickett (Roke Manor Research Ltd)
14:10	Temporal resolution enhancement from motion - application to airborne imagery Dr. M.P. Rollason (QinetiQ Plc)
14:35	Novel View Synthesis for Change Detection Dr. A.M. Buchanan (2d3 Advanced Imaging Group)
15:00	Building Aerial Mosaics II: Metadata, Feature Matching, Loop Closure Dr. E. Turkbeyler (Roke Manor Research Ltd)
15:25	Keynote Lecture in Sidlaw Auditorium (Level +3) UK Defence Technology Plan - Sensors Dr. Alistair Jolly (MOD SIT)
16:00	Networking Reception, Exhibition & Poster Displays in the Cromdale Hall (Level -2) – Sponsored by BAE Systems

Day 2 – Wednesday 8th July 2009

8:00	Registration in Strathblane Hall (Level 0) and Coffee in the Cromdale Hall (Level -2) – Sponsored by MBDA UK
9:15	InSb Based Technology for Integrated Passive Millimetre Wave Focal Plane Arrays Prof. T. Ashley (QinetiQ Plc)
9:40	A Longer Range Body Scanner Mr. Tony Hall (Teledyne Defence Australia)
10:05	3D mapping of Buildings with SAPPHIRE Dr. Ir. F.M.A. Smits (TNO Defence, Security and Safety)
10:30	Coffee / Tea, Exhibition & Poster Displays in the Cromdale Hall (Level -2) – Sponsored by MBDA UK
11:15	Passive Bistatic Imaging using Galileo transmitter Mr. R. Zuo (University of Birmingham)
11:40	Multi-scan spatio-temporal discrimination for small target detection in clutter Dr. W.N. Dawber (QinetiQ Plc)
12:05	Fabrication of a Multi-Octave Phased Array Aperture Mr. W.M.A. Qureshi (BAE SYSTEMS ATC)
12:30	Lunch, Exhibition & Poster Displays in the Cromdale Hall (Level -2) – Sponsored by UK Aerospace & Defence KTN
13:30	Keynote Lecture in the Fintry Auditorium (Level +3) Capability Visions Introducing the The MOD Counter Terrorism Science & Technology Centre Mr. Paul Robinson (MOD DTIC – AIR) Mr. Sean Ralph (MOD)
14:30	High Speed Sampling Downconverters for Radar and EW Applications Mr. C.R. Pescod (BAE ATC) Dr. K. Elgaid / Dr. I. McGregor (University of Glasgow)
14:55	Novel Miniature Reconfigurable Filters for adaptive Ultra Wideband Radar and EW Systems MR. B. F. Dunne (INEX - Newcastle University)
15:20	Wideband transmit/receive Modules for Phased Array Antennas Mr R. Mayo & Mr S.W. Grave (Phasor Solutions Ltd)
15:45	Development Methodology for Highly-Efficient & Ultra-Broadband Remote Sensing Applications Mr. D. FitzPatrick (Cardiff University)

Day 2 – Wednesday 8th July 2009

8:00	Registration in Strathblane Hall (Level 0) and Coffee in the Cromdale Hall (Level -2) – Sponsored by MBDA UK
9:15	Development of LWIR photodiodes based on InAs/GaSb Type II strained layer superlattices Mr. S.D. Das (Sheffield University)
9:40	Detector for LWIR Hyperspectral Imagers Mr. D.J. Lees (QinetiQ Plc)
10:05	High gain InAs avalanche photodiodes Mr. A.R. Marshall (University of Sheffield)
10:30	Coffee / Tea, Exhibition & Poster Displays in the Cromdale Hall (Level -2) – Sponsored by MBDA UK
11:15	Integrated 2-axis MEMS scanners for optical applications Mr. J.G. Brown (University of Strathclyde)
11:40	Atmospherically Independent Material Identification Dr. J. Rogers (Waterfall Solutions Ltd)
12:05	Detection and Abundance Estimation of Material Classes from Airborne LWIR Hyperspectral Data Mr. L. Richards (QinetiQ Plc)
12:30	Lunch, Exhibition & Poster Displays in the Cromdale Hall (Level -2) – Sponsored by UK Aerospace & Defence KTN
13:30	Keynote Lecture in the Fintry Auditorium (Level +3) Capability Visions Introducing the The MOD Counter Terrorism Science & Technology Centre Mr. Paul Robinson (MOD DTIC – AIR) Mr. Sean Ralph (MOD)
14:30	Acoustic imaging using multi-beam laser radar Dr. D.C. Jones (QinetiQ Plc)
14:55	Novel Wavefront Coding Algorithms Dr.M. Bernhardt (Waterfall Solutions Ltd)
15:20	Algorithms for Visual Change Detection Mr. C. Stennett (Roke Manor Research Ltd)
15:45	Fast Design Metric Estimation for FPGA-Centric Embedded Systems Dr. J. McAllister (Queens University Belfast)

