



Breakthroughs and New Concepts in Radar: from bistatic to MIMO configurations

Prof. Marc Lesturgie
ONERA, Supelec, France

Conference Centre
Technology Park Adelaide
Mawson Lakes SA

How to register

Please fill out the registration form overleaf if you wish to register for 1 or 2 courses and/or a field trip to the HFSW Radar site.

Presenter:

Professor Marc Lesturgie

ONERA, Supelec,
France



Marc Lesturgie graduated from ENSAE (1985), and obtained a Master's degree in Electronics & Microwaves from University of Toulouse in 1986. In 2005 he obtained a Research Directorship Habilitation from University of Paris VI.

He joined the French Aerospace Lab (ONERA) in 1985 and worked in a wide range of low frequency and new radar concepts, covering bistatic and multistatic configurations. From 1996 to 2000, he is the head of "New radar concepts" team in ONERA.

In 2008 Marc Lesturgie is Deputy Director at the Electromagnetics and Radar Department of ONERA. Since 2006, he is also the Director of SONDRRA, a joint laboratory established by Supelec, ONERA, National University of Singapore and Defence Science and Technology Agency of Singapore. Today his research interests cover the applications of new radar configurations to air, ground and maritime surveillance radar. He is author and co-author of over 40 journal and conference papers, several patents and over 40 technical reports. He also gives lectures regularly on radar topics in overseas universities.

Course Fees

- AU\$ 1122 (register by 1 May 2008)
- AU\$ 1320 (register by 25 Aug 2008)

20% discount will be given if registered for 2 courses during Radar Week

Student scholarships available, please enquire.

About

Breakthroughs and New Concepts in Radar

For the last ten years the radar community is facing new requirements in civilian and military radar surveillance and is actively studying new radar techniques and architectures to improve the quality of detection, terrain imaging, target tracking, as well as the classification and identification of non cooperative targets.

This two-day course provides an introduction to advanced and new concepts of radar, with emphasis on low frequency radar, bistatic/multistatic configurations, new waveform design and MIMO. For each module, a basic introduction will be given before moving on to more advanced topics.

Target Audience

The course is suitable for engineers, scientists and researchers involved in the design and study of new configurations. It is also suitable for engineers who are interested in getting a prospective vision of the new generation of radar sensors and architectures. A basic knowledge of radar systems will be helpful.

Brief Course Outline

Radar fundamentals: short introduction to conventional radar systems, including the coverage and resolution aspects; limitations at low altitude; introduction to new configurations.

Low frequency radar: interest for low frequency radar; radar cross section and propagation effects; counter stealth and low altitude / over the horizon capabilities; phased-array antenna and digital beam-forming; digital radar and related architectures.

Airborne low frequency detection and imaging: foliage penetration capabilities for SAR and GMTI; military and civilian applications; design, signal processing and RFI issues; STAP/GMTI performance at low frequency; performance modelling.

Bistatic radar fundamentals: definition and interest of bistatic vs. monostatic; power budget and detection performance; deployment concept; processing and synchronization issues; examples of bistatic radar: bistatic barrier, forwarding scattering radar (FSR), shadow detection.

Passive radar: overview of the passive coherent location (PCL) concept; review of the opportunistic emitters useful for radar detection; ground-based and airborne applications; introduction to performance modelling of passive radar.

Bistatic SAR and GMTI: technical and operational benefits of bistatic vs monostatic; signal processing issues in image formation and STAP (space time adaptive processing); example of experimental results.

MIMO radar: introduction to space coding; synthetic impulse and aperture radar (SIAR); digital beam-forming of emitted signals; presentation and discussion on the different MIMO configurations; high resolution techniques; applications to air and maritime surveillance; application to air to ground detection; interferometric and SAR applications.

Registration Form and Tax Invoice* ABN 62 102 206 173

*Upon completion of this form, including the relevant payment, this form will become a Tax Invoice.

Please register me for **Breakthroughs and New Concepts in Radar on 10-11 September 2008**.

PLEASE PRINT

Date: _____

Title: _____ First Name: _____ Surname: _____

Position: _____ Organisation/Division: _____

Postal Address: _____

Telephone No: _____ Facsimile No: _____ Email: _____

Dietary preference: _____

Course Fees: Early bird fee: AU\$1122 (incl. GST)
(Register before **May 1st, 2008**.) Full fee: AU\$1320 (incl. GST)
(Register before **Aug 25th, 2008**.)

Please also register me for:

One of the following Radar Week courses on 8-9 September 2008:

- Surveillance Radar Systems
 Signal Analysis Techniques: Time, Frequency, and Spatial Algorithms

Total fees for 2 courses: AU\$1795 (incl. GST)
(with 20% discount) (Before **May 1st, 2008**.) AU\$2112 (incl. GST)
(Before **Aug 25th, 2008**.)

- Radar Week Dinner (7:30pm, 9 September 2008)**. Cost: AU\$ 120 (incl. GST)
 Field trip to the HFSW Radar site (12 September 2008). Cost AU\$ 220 (incl. GST)

Total Amount: AU\$ _____

Method of Payment (please tick below):

- Cheque (payable to National ICT Australia Ltd)
Forward the cheque and a copy of THIS registration form to:
Anne-Marie Eliseo, Industry Education Manager, NICTA, SPRI Bld, Mawson Lakes Boulevard, Mawson Lakes SA 5095, Australia.

Credit Card: Credit Card No.: _____ Expiry Date: _____

Visa Master Card Name on card: _____

Amount: AU\$ _____ Signature: _____ Tick if receipt required

Email address of card holder: _____

- Electronic Funds Transfer
Please advise by email to **Annette Van Bramer**
annette.vanbramer@nicta.com.au
when payment is made

BANK	Commonwealth Bank of Australia
ACCOUNT NAME	National ICT Australia Limited
BSB	062 900
ACCOUNT NUMBER	1032 4576
REFERENCE NUMBER	RW0908

FAX the form to +61 – 8 – 8302 3115 or EMAIL it to industryeducation@nicta.com.au

Enquiries: Anne-Marie Eliseo, Industry Education Manager, ph: +61 8 8302 3928, email: industryeducation@nicta.com.au.

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