



The Knowledge Network

The Institution of *Engineering and Technology*
Seminar on

Electromagnetic Propagation in Structures and Buildings

Thursday, 4 December 2008

The IET, Savoy Place, London, UK

KEY BENEFITS

- Hear about and expand your knowledge of this new area
- Be updated on the latest technology solutions and capabilities available
- Discuss and debate key challenges and opportunities facing the industry with researchers, engineers and technical managers

PRESENTING COMPANIES INCLUDE

**Electro Conductive Concrete
Limited, UK**

ERA Technology Ltd, UK

QinetiQ, UK

National Physical Laboratory, UK

**The University of Auckland,
New Zealand**

Sponsored by



QinetiQ

Register at www.theiet.org/prop-build

INTRODUCTION

Electromagnetic fields produced by radar and mobile communications systems surrounding and propagating within structures containing people and sensitive electronic equipment, along with the hazard of lightning present some unique challenges. Control measures must be taken to ensure the safe and continued operation of building installations and control systems imbedded in structures.

The modelling of propagation of these signals into and around a construction can provide a solution to some of these problems.

New legislation (Directive 2004/40/EC) is arising which requires proof that workers are not exposed to EM field level and the rapid growth in the use of Wi-Fi in shared buildings creates questions of security and performance.

This seminar will provide some technological answers to a range of key issues covering the challenges of modelling complete buildings for electromagnetic behaviour and the technologies which are available to control it.

TOPICS WILL INCLUDE

- Radiation hazards
- Antenna installed performance
- Propagation
- EMC
- Wi-Fi performance
- The built environment
- Mobile platforms

ORGANISED BY

This seminar is organised by the Institution of Engineering and Technology Electromagnetics Technical and Professional Network (TPN).
www.theiet.org/pn

The IET is the largest professional engineering society in Europe and the second largest of its type in the world, with over 150,000 members worldwide.

The IET serves engineers and technologists working in an increasingly interdisciplinary, global and inclusive profession - providing technical and professional networks, events, journals and qualification to benefit today's technology industry.

WHO SHOULD ATTEND?

THIS SEMINAR IS PERFECT FOR:

- Systems Engineers
- Mechanical and Electrical Engineers
- Design Engineers
- R&D Directors
- Academics
- Researchers
- Students

**Register on or before
Thursday, 23 October
2008 to receive a
discount on your
delegate fee.**

SPONSORSHIP AND EXHIBITION OPPORTUNITIES

There are a variety of sponsorship packages available for this seminar. To discuss raising your profile at the event please contact Ahmed Ahmed, Sponsorship Executive on +44 (0) 1438 765 591 or at aahmed@theiet.org

CONDITIONS OF BOOKING

Form should be received no later than Thursday, 27 November 2008. All participants registering less than one week before the date of the event are advised to bring a copy of their registration form with them.

CANCELLATION

In the event of cancellation and provided that written notice is received seven days prior to the event, a refund of 50% of the total fee will be made. If no notice of cancellation is received, no refund can be made. The Institution of Engineering and Technology reserves the right to cancel any event. In this case, the full fee will be refunded unless a mutually convenient transfer can be arranged. Details of event changes or cancellations are available by phoning +44 (0)1438 765 657.

NAME SUBSTITUTIONS

Name substitutions are accepted at any time by fax or email. Fax: +44 (0)1438 765 659 Email: eventscs1@theiet.org

SUPPORTING ORGANISATIONS

Members of supporting organisations who can provide evidence of their affiliation will be admitted at members' rates.

DELEGATES WITH SPECIAL NEEDS

The Institution of Engineering and Technology aims to offer fully accessible events to all its delegates. Please help us to accommodate any individual needs that you may have by attaching a note to the registration form. We will contact you to discuss this as necessary.

EVENT PROGRAMME

09.00 Registration and Refreshments

09.25 Chairman's Welcome

Ian MacDiarmid, *Head of Electromagnetics*, BAE SYSTEMS (Military Air Solutions), UK

Session 1 – Overview

09.30 Mind the Gap - An Overview of Drivers Solutions and Challenges for Electromagnetics in the Built Environment

Richard Hoad, *Principal Consultant*, QinetiQ, UK

10.00 EMC in Commercial Buildings

Tony Maddocks, *EMC Consultant*, ERA Technology Ltd, UK

10.30 Refreshments

Session 2 – Communications Environment

11.00 Experimental & Modelling Work on Radiowave Propagation inside Office Environments, Work & Results

Dr. Ir. Luk R. Arnaut, *Lead Scientist in Wireless Communications*, National Physical Laboratory, UK

11.30 Electromagnetic Propagation in Structures and Buildings: Research in the Radio Systems Group, Department of Electrical & Computer Engineering, The University of Auckland, New Zealand

Dr Michael J. Neve, *Senior Lecturer and Director of Graduate Studies*, The University of Auckland, New Zealand

12.00 Wireless Networks in Vehicles

J F Dawson, *Senior Lecturer in Electronics* University of York, UK

12.30 Lunch

Session 3 – Non Communications Environment

13.30 The Threat Posed by Lightning

George McDowell, *Head of Power Systems Engineering Consultancy Services*, ERA Technology Ltd, UK

14.00 Predicting the Impact of Wind Turbines on Radar RF Performance

Chris New, *QinetiQ*, UK

14.30 Influence of Dielectric Materials on In-Vehicle Electromagnetic Fields

Dr. Alistair Ruddle, *Computational Electromagnetics Consultant*, Motor Industry Research Association (MIRA), UK

15.00 Refreshments

Session 4 – Materials

15.30 A Hybrid Model for Radio Wave Propagation in Smart Buildings at Long Wavelengths

Tony Brown, Dr M Yang, University of Manchester, UK

16.00 Frequency Selective Surfaces for Long Wavelength Use in Buildings

John Batchelor, J-B. Robertson, B. Sanz-Izquierdo, I. Ekpo, and E. A. Parker, University of Kent, UK

16.30 Electro Conductive Concrete and its Advantages and How it can Help Solve certain Electromagnetic Interference Problems

Speaker TBC, Electro Conductive Concrete Limited, UK

17.00 Close of Event



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5 Easy Ways to Register

- 1 Online:**
www.theiet.org/prop-build
- 2 Fax:**
+44 (0) 1438 765 659
- 3 Phone:**
+44 (0) 1438 765 657
- 4 Email:**
eventscs1@theiet.org
- 5 Post:** Finance Dept,
The Institution of
Engineering and Technology,
PO Box 96, Stevenage,
Herts SG1 2SD, UK

REGISTRATION FORM

DATA PROTECTION

The information that you provide to the IET will be used to ensure we provide you with products and services that best meet your needs. This may include the promotion of specific IET products and services by post and/or electronic means. By providing us with your email address and/or mobile telephone number you agree that we may contact you by electronic means. You can change this preference at any time by visiting www.theiet.org/my
If you consent to your details being passed on to the event sponsor(s) please tick here

Delegate Details (for ease, attach your business card) – Please photocopy form for multiple bookings

(Mr/Mrs/Ms/Miss/Dr) Family Name First name
 Business E-mail Tel
 Fax Job Title

Company Details

Name of Company
 Department Address
 City Postcode Country
 Nature of Company/ Business
 Institution Membership Number (if applicable) Dietary or other requirements
 Member? Yes No I heard about this event by: Flyer in post Email Advert (Institution Publication) Advert (other) The IET Website Other

PRICES AND PAYMENT INFORMATION

	£	p
EARLY BIRD REGISTRATION (on or before 23 October 2008)		
Member	£245.00 (+ £42.88 VAT = £287.88)	
Non-Member	£295.00 (+ £51.63 VAT = £346.63)	
Member (Student/Retired)*	£105.00 (+ £18.38 VAT = £123.38)	
STANDARD REGISTRATION (after 23 October 2008)		
Member	£295.00 (+ £51.63 VAT = £346.63)	
Non-Member	£345.00 (+ £60.38 VAT = £405.38)	
Member (Student/Retired)*	£105.00 (+ £18.38 VAT = £123.38)	
Total Remittance		

Payment must accompany this registration form.
 Registration will only be confirmed on receipt of the full payment.
 Payment via purchase order is not accepted.

Enclosed is a cheque made payable to "IET" and crossed.
 Payment by bank transfer (BACS): For information on how to pay by bank transfer call Customer Services on +44 (0) 1438 765 657

Credit card

Valid from __/__/__ Expiry __/__/__ Issue No.

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 Credit card billing address Postcode
 Signature Date

*** PLEASE NOTE THAT ALL STUDENTS MUST HAVE THEIR APPLICATIONS ENDORSED BY THEIR PROFESSOR OR HEAD OF DEPARTMENT**
 Registration fees include attendance at the sessions, a copy of the digest, morning and afternoon refreshments and lunch. **Payments not received before the event may result in entry being denied.**

BANK TRANSFERS
 Bank Transfers (BACS) can be made to Barclays Bank Plc, UK Bank, 1 Churchill Place, London E14 5HP. Account No: 50480606 Sort code: 20-65-82. IBAN GB53 BARC 2065 8250 4806 06.
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