



## JOINT TECHNICAL PROGRAM 2009

### Electrical and Electronic Engineering

A program of general interest talks and visits, and a chance to network with people in your industry

(last updated 18 December 2008)

- 17 February  
Host Engineers Australia  
**\*\*VISIT (to RAAF Base Edinburgh) AP-3C Tactical Common Data Link**  
*WGCDR Adrian Carswell (Chief Engineer) RAAF MPSP0*  
The RAAF Maritime Patrol Systems Program Office for the AP-3C Orion sponsored and managed the rapid design and installation of a real-time tactical common data link capability for AP-3C aircraft deployed to the Middle East Area of Operations. This presentation will cover the techniques used to design & deliver the TCDL in rapid fashion and examples of the real time product, visual scenes, and the identification of hostile or suspicious activities.  
RSVP: Norma Cowan at Engineers Australia; mail to: [ncowan@engineersaustralia.org.au](mailto:ncowan@engineersaustralia.org.au) before COB 13 Feb 09. Photo ID required for entry.
- 17 March  
Host IET  
**\*\*VISIT (FROM 18:00 PM) Power Supply to Oxiana Prominent Hill Mine, No 1 ANZAC Highway**  
*Len Schoots (Project Director) and Kellie Caimanos (Senior Project Engineer)*  
ETSA recently completed the provision of the 132kV power supply to the Oxiana (now OZ Minerals) Prominent Hill Mine site located approximately 650km from Adelaide. This project highlighted numerous challenges in the delivery of a major infrastructure project in a remote location.  
NOTE: 17:30 PM for light tea with an anticipated 18:00 PM start. Limited parking.  
RSVP to Leanne Walker on 8292 0241.
- 21 April  
Host IEEE  
**Counter – IED – Improvised Explosive Devices**  
*Angus Massie, Defence Science and Technology Organisation*  
The improvised explosive device (IED) has become the weapon of choice in the asymmetric warfare, and has been responsible for most of the casualties suffered ADF and coalition forces in Iraq and Afghanistan. The resulting international effort to develop methods to combat the IED threat has resulted in what is arguably the most adaptive war since WW2. In this talk, the history of IEDs will be discussed as well as some aspects of the evolving electronic warfare battle.
- 19 May  
Host IET  
**T-rays for Biosensors**  
*Prof. Derek Abbott, Director of the Centre for Biomedical Engineering, University of Adelaide*  
T-rays are a frequency on the electromagnetic spectrum between infrared and microwaves and lie in the 0.1-1 THz. Until recently, this was called the "terahertz gap" as it was inaccessible in the lab. Now with advanced laser techniques, producing T-rays in the lab has become commonplace. We will discuss, in particular, the applicability of T-rays for biosensing and its benefit to the field of biomedicine.
- 16 June  
Host IET  
**Wind turbine technology (Joint Meeting with the Mechanical JTP)**  
*David Millar, Garrad Hassan, Garrad Hassan & Partners Ltd*  
Garrod Hassan provides engineering services to owners of wind turbines. This seminar will describe their operational experience for various types of wind turbines and maintenance management matters.
- 21 July  
Host Engineers Australia  
**Tungkillo Switchyard Project**  
*Hamish McCarter, (Snr Mgr Engineering) ElectraNet*  
The \$29.4 million Tungkillo Switchyard project was ElectraNet's single largest project for the past 15 years. The Project involved the construction of a new switching yard in the Adelaide Hills about 40 kms east of Adelaide where the Taillem Bend to Para 275kV line crosses the Robertson to Cherry Gardens 275 kV line. The resultant switchyard - one of the largest by capacity on the State - was delivered On Schedule & On Budget.
- 18 August  
Host TSA  
**Australian Military Satellite Communication (MILSATCOM) - Today and Tomorrow**  
*Peter Kerr, Defence Science and Technology Organisation*  
The ADF recently signed an MoU with the US Government to partner on Wideband MILSATCOM. This presentation provides an overview of current Australian military satellite communications and highlights what the Wideband Global SATCOM (WGS) system will bring to the ADF. It will also cover DSTO R&D that is addressing future SATCOM challenges.
- 15 September  
Host IEEE  
**Future Trends in Laser Based Aircraft Countermeasures Against Infrared Guided Missiles**  
*Dr. David Lancaster, Defence Science and Technology Organisation*  
This talk will give a review of the infrared missile threat to aircraft, traditional flare based countermeasures, advanced laser based countermeasures, and discuss the implications on countermeasure development of recent developments in high power laser technology.
- 20 October  
Host Engineers Australia (EESA)  
**Adelaide's Desalination Plant Project**  
*John Ringham, SA Water*  
SA Water is contracting to install a desalination plant at Port Stanvac in 2010 for the purpose of augmenting the water supply for Adelaide. This talk will describe the development and implementation of this project.
- 27 October  
Host IEEE  
**STUDENT PAPERS NIGHT**  
Students from our three universities present their final year projects whilst competing in the IET Australia Technical Papers Presentation Prize Competition. IEEE Student Subject prizes will also be presented at this meeting.
- 17 November  
Host TSA  
**Challenges in Computational Electromagnetics: Virtual Prototyping on your Laptop**  
*A/Prof. Christophe Fumeaux, School of Electrical & Electronic Engineering, University of Adelaide*  
Electromagnetic (EM) simulation tools have revolutionized the development cycle of electronic devices. Highly complex EM problems can be optimized today on a laptop computer, with reasonable chances of successful first-pass design. This talk will review current developments of EM simulations and present illustrative examples of challenging antenna problems.
- CPD Points : It is recommended that attendance at each of these presentations be counted as one CPD point under *Engineers Australia* guidelines**

Please watch the host's website for changes to the above. (Website details are overleaf.)

**Venue:** Chapman Hall, Engineering House, 11 Bagot Street, North Adelaide (except visits).

**Dates:** Meetings are generally held on the third Tuesday of each month.

**Time:** Light refreshments commence at 5:30 PM and the meeting at 6:15PM (except site visits).

**\*\* Bookings for site visits must be made by emailing to the address and contact included in the above description of the visit. Numbers for visits are normally limited so book early - preference will be given to, EA, IEEE, IET and TSA members. Confirmation and visit details will be emailed to those attending prior to the event.**

**ALL VISITORS ARE WELCOME!**



**THE INSTITUTION OF ENGINEERING AND TECHNOLOGY (IET)** is an international organisation with over 130,000 members throughout the world who have joined together to promote the advancement of electrical and electronic science and engineering. It concerns itself with management, design, science, education and the many fields of technology related to the profession. Following the merger with the Institution of Manufacturing Engineers, the IET is particularly well placed to serve the manufacturing industry and the professional engineers who work in it. One of the functions of the IET is that of a learned society and as such it publishes material on a wide range of related fields. The IET hosts a suite of virtual Professional Networks that link engineers and scientists with a common interest and circumvent many of the issues involved with time and distance. The SA & NT Local Network hosts an active Younger Members section. All members 30 years of age and under are encouraged to be actively involved. Additional details are available on the IET's local web page home page (see below). Local contact details: Mr Ashley Keep, Honorary Secretary, The IET SA & NT Local Network, PO Box 992, Kensington Gardens, SA 5068

Email: [honsec.sa&nt@theiet.org](mailto:honsec.sa&nt@theiet.org)

Website: <http://sant.theiet.org.au/>



The **TELECOMMUNICATION SOCIETY OF AUSTRALIA (TSA)** is Australia's national society for the people and organisations involved or interested in telecommunications and related industries. The Society's objective is to advance the level of knowledge and understanding in the Australian telecommunications industry of the issues, trends, developments and new directions in telecommunications and related areas. The TSA presents free lectures/briefings to members and publishes the Telecommunication Journal of Australia (issued free to members). The Society also plays a major role in collecting, preserving and exhibiting artefacts from Australia's telecommunications history. Individuals and organisations involved or interested in telecommunications and related industries are welcome to join the TSA. The TSA is now part of the Australian Computer Society (ACS) <http://www.acs.org.au> as a National SIG under the the ACS Telecommunications Board chaired by Professor Reg Coutts.

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Website: <http://www.tsa.org.au>



**ENGINEERS AUSTRALIA** is the national professional body for engineers, technologists and associates and with over 80,000 members is the country's largest and most diverse engineering association. Engineers Australia promotes the science and practice of engineering and represents public policy in engineering. Engineers Australia assists members to achieve their personal and professional goals by providing an extensive range of benefits, facilities and services at all stages of their careers, through graduate development programs, publications, presentations, workshops, site visits, technical presentations and career services. Engineers Australia defines the critical competencies required by professional engineers and engineering technologists in Australia, determines whether individual practitioners have demonstrated their capacity to deliver engineering services at these levels and administers the national engineering registers. Engineers Australia also accredits the courses of study offered by tertiary education providers and facilitates reciprocal membership of overseas institutions. For more information call: Norma Cowan, Technical Program Officer, Engineers Australia, South Australia Division 11 Bagot St, North Adelaide SA 5006 on Phone: (08) 8267 7070, by Fax: (08) 8239 0932 or Email: [ncowan@engineersaustralia.org.au](mailto:ncowan@engineersaustralia.org.au) Website: [www.engineersaustralia.org.au](http://www.engineersaustralia.org.au)



The **INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)** has over 360,000 members in about 175 countries worldwide, with nearly 40% of the membership outside the USA. IEEE's technical activity is managed under the TAB (Technical Advisory Board) by 37 Societies and 4 Technical Councils, all of which have world coverage, and geographically under the RAB (Regional Activities Board) in 10 regions. Region 10, which includes Australia, is the last region formed, covers the Asia-Pacific, about half of the world's population, and has been the fastest growing IEEE region in recent years. All Australian states except Tasmania and the Northern Territory have at least one section (Queensland has two), and these sections form the IEEE Australia Council. The IEEE South Australia Section has about 450 active members, with 5 technical society chapters, a GOLD affinity group and 3 Student Branches. The Section has staged a number of major international conferences in Adelaide and elsewhere including ICASSP 94, APMC 2000, RADAR 2003 and ASCC 2004. For further information contact: The Secretary, IEEE SA Section, PO Box 53, Elizabeth SA 5112.

Website: [http://ewh.ieee.org/r10/s\\_australia/](http://ewh.ieee.org/r10/s_australia/)