

## AUSTRALIA

International Director: Joe Fabrizio

Summary of the events for Queensland Chapter over last 12 months:

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Lecture 12 May 2015

Dr John Norgard of NASA

Space Exploration: EMI/EMC Problems/Solutions NASA ~ Past/Present/Future Missions "Orion" Mars/Moon Dr John presented a talk about space exploration and presented an overview of NASA's past/present/future missions, with an emphasis on EMI problems and EMC solutions. The past mission of NASA was to design and build the Space Shuttle (SS), which was used to build the International Space Station (ISS). The present mission of NASA is to support the ISS with new equipment, supplies, and crew changes. The future mission of NASA is to design/analyze a new blunt-body re-entry vehicle to replace the decommissioned SS for a crew exploration vehicle to operate past the orbit of the ISS, and to eventually fly to the Moon and Mars.

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Lecture 17 Dec 2014

Dr Garry A. Einicke of CSIRO

The Application of Frequency-Weighting to Improve Filtering and Smoothing Performance Pioneering research on the perception of sounds at different frequencies was conducted by Fletcher and Munson in the 1930s. Their work led to a standard way of weighting measured sound levels within investigations of industrial noise and hearing loss. Frequency weightings have since been used within filter and controller designs to manage performance within bands of interest. This paper introduces iterative frequency weighted filtering and smoothing procedures. It is assumed that filter and smoother estimation errors are generated by a first-order moving-average (AR1) system. This AR1 system is identified and used to apply a frequency weighting function within the design of minimum-variance filters and smoothers. It is shown under prescribed conditions that the described solutions result in nonincreasing error variances. An example is described which demonstrates improved mean-square-error performance.

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26 - 28 Feb 2014

International IEEE Workshop on Asia-Pacific Satellite Navigation And Positioning Co-sponsored by Dr Garry Einicke

EVENT:

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The Aerospace and Electronic Systems Chapter in the Queensland Section of the IEEE invites you to participate in the International IEEE Workshop on Asia-Pacific Satellite Navigation And Positioning.

VENUE:

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CSIRO, Queensland Centre for Advanced Technologies, Pullenvale, Queensland, Australia WORKSHOP

OBJECTIVES:

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Increasing global fuel costs pressure resource, agricultural and transport industries to achieve better energy efficiencies and reduce carbon emissions. Navigation, positioning and automation technologies can provide the desired the efficiency gains. In the past however, satellite navigation equipment has exhibited poor performance within canyons, alongside buildings, hills, foliage and other obstructions. The recent deployment of Beidou navigation satellites and accompanying technology has led to unprecedented improvements in accuracy and availability. The objective of the workshop is to foster collaborative linkages between industry users, service providers and Beidou R&D teams. It will focus on: update on the state-of-the-art; typical performance; accessing technology; industries' requirements; emerging applications; and, future developments

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Summary of the events for Joint C&AES South Australia Chapter over last 12 months:

C&AES chapter had 4 technical meeting, 2 Excom meetings, and 2 OTHR workshop meetings.

#### Technical Meetings

11 May 2015 - Engineering Passive and Active Metamaterial-inspired Electrically Small Radiating Systems, Prof RW Ziolkowski

18 May 2015 - Progress and Challenges in Microwave Imaging and Microwave Induced Thermoacoustic Tomography, Prof QH Liu

11 December 2014 - The development of 5G wireless systems and associated digital beam-forming techniques in Korea

6 November 2015 - Electromagnetic Interference Attenuation Test of the Space Shuttle Orbiter Discovery using the Air Force Research Laboratory Mobile Diagnostic Laboratory by BM Kent

#### Other Meetings

1 May 2015 & 24 July 2015 Excom meetings

27 May 2015 & 28 July 2015 Over-Horizon radar workshop Committee Meeting