

Antennas for Next-Generation Radio Telescopes



ENGINEERS
AUSTRALIA

Joint Electrical Institutions Sydney - Engineers Australia, IEEE, IET

DATE & TIME

Thursday, April 28, 2016
5:30 pm for 6:00 pm start

VENUE

Engineers Australia
Harricks Auditorium
Ground Floor, 8 Thomas Street,
Chatswood NSW 2067

COST

EA, IET, IEEE Members –
Complimentary
Students – Complimentary
Non-members - \$30

CPD

Eligible for 1.5 Continuing
Professional Development hours.

RSVP

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HOSTED BY

Joint Electrical Institutions Sydney



**Presentation by Dr Stuart Hay,
Research Team Leader – Electromagnetics,
Data61 CSIRO.**

The presentation will discuss recent developments in antennas for use in next-generation telescopes for radio astronomy. A highlight is wideband phased array antennas, with elements spaced by less than half the minimum wavelength, closely integrated with very low-noise amplifiers and followed by extensive digital processing. Sometimes referred to as 'radio cameras', such arrays allow complete sampling of wide fields of view over wide frequency bands. This has significant potential for fast and sensitive surveys and provides opportunity for discovery of transient phenomena. The technology is being developed for use in the Australian Square Kilometer Array Pathfinder, a next-generation telescope under construction on a radio-quiet site in Western Australia. The talk will introduce the principles of dense phased arrays, discuss their advantages and outline recent developments in their analysis and design at CSIRO.



Prototype phased array feed for the Australian Square Kilometre Pathfinder.

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SPEAKER BIOGRAPHY

Stuart G. Hay received the B.E and Ph.D. in Electrical Engineering from the University of Queensland in 1985 and 1994 respectively. From 1986 to 1989 and since 1994 he has been with Australia's CSIRO where he is currently a Principal Research Scientist. He has various interests in Electromagnetics and Antennas with publications on shaped reflectors, wide field-of-view multibeam and beam-scanning antennas and connected arrays. Stuart served as Associate Editor of the IEEE Transactions on Antennas and Propagation from 2008-2013. He was a guest Editor of a special issue of this journal, on Antennas for Next Generation Radio Telescopes. Since 2009 Stuart has been Chair of the Technical Program Committee of the Australian Symposium on Antennas.



For further information contact: Peter Henderson

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