

Challenges and benefits of building the Square Kilometre Array telescope



ENGINEERS
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Joint Electrical Institutions Sydney - Engineers Australia, IEEE, IET

DATE & TIME

Thursday, July 23, 2015
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 – Free
Students – Free
Non-members - \$30

CPD

Eligible for 1.5 Continuing
Professional Development hours.

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ENGINEERS
AUSTRALIA
Sydney Division



IEEE



The Knowledge Network

Presentation by Carol Wilson, Research Consultant CSIRO



Since the 1930's, radioastronomy has given us a new way to explore the universe and Australia has played a major role in the development of this science. Over the decades, increasingly powerful radiotelescopes have led to amazing scientific discoveries as well as practical technology spinoffs. Now Australia is part of an international project to develop a next generation telescope, the Square Kilometre Array (SKA), which will be built jointly in Australia and South Africa.

Intended to provide two orders of magnitude increase in sensitivity and resolution compared to existing instruments, and composed of thousands of receiving units, the SKA presents significant technical challenges in antennas, electronics, data transfer and storage, computing, power generation and distribution, civil engineering and project management. This talk will provide a short history of radioastronomy, outline the science goals and design plan for SKA, describe the technical challenges in building such a complicated instrument, and discuss the potential benefits to Australia from the project. It will also explore the challenges of maintaining a large radio quiet site.



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SPEAKER BIOGRAPHY

Carol Wilson, BSEE, MSEE

Carol Wilson studied Electrical Engineering at Virginia Tech in the USA, specialising in radio propagation and attaining a Masters of Science degree. Since 1990 she has worked at CSIRO on a range of radio system projects. In 2007, Carol joined the group developing the Australian proposal for the SKA telescope and is responsible for technical issues in maintaining the radio quietness of the WA astronomy site. For the international SKA project, Carol developed methods for defining buffer zones around transport and population centres and for predicting interference at specific telescope locations. Carol is very active in the International Telecommunication Union Radiocommunication Study Group 3 on radiowave propagation. She is Chairman of ITU-R Working Party 3M (prediction of propagation for fixed links, satellite systems and interference prediction) and Vice-Chairman of Study Group 3. Carol has represented Australia at ITU World Radiocommunication Conferences which develop international agreements on the use of radiofrequency spectrum and is active in ITU-R Study Group 7 on radioastronomy spectrum requirements.

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