

Premier's Research Fellow advancing radio astronomy research

Premier's Research Fellow in Radio Astronomy Professor Steven Tingay is advancing radio astronomy research in Western Australia to assist Australia's bid to host the Square Kilometre Array (SKA) project.

With his expertise in designing radio telescopes and complex software systems for processing radio astronomy data, Professor Tingay is passionate about contributing to the national and international efforts to design and characterise the SKA.

"I am currently Project Manager of the Murchison Widefield Array (MWA), a pathfinder telescope that is being built at the Murchison Radioastronomy Observatory alongside the CSIRO Australian SKA Pathfinder (ASKAP)," he said.

"I am also running a facility at Curtin University of Technology that combines data from all major radio telescopes in Australia using high speed optical fibre networks into a single continent-sized telescope, for the study of galaxies and stars in fine detail. This work brought together a national collaboration of resources from Curtin, CSIRO, AARNet and iVEC.

"This is partly a technical demonstration for the SKA, since the SKA will need to achieve this task over thousands of telescopes and distances of 3000 km."

As Deputy Director of the International Centre for Radio Astronomy Research, Professor Tingay hopes to contribute to building a critical mass of astronomy researchers in WA.

"This new community of researchers will play a lead role in the utilisation of the SKA pathfinder telescopes such as the MWA and ASKAP and will mesh with future large SKA developments in Western Australia, as recently announced in the Federal budget," he said.

Professor Tingay is also devising science programs to be undertaken on the ASKAP, developing Curtin's undergraduate program in astronomy and astrophysics as well as coordinating outreach programs as part of the 2009 International Year of Astronomy.

"All of these programs are important as they expose students and young people to the wonders of astronomy and astrophysics, potentially leading to an uptake of careers in science,



Premier's Research Fellow Professor Steven Tingay.

engineering and IT, as well as engage WA industries to take advantage of possible opportunities arising through the SKA project."

The Premier's Research Fellowship Program, administered by the Department of Commerce, seeks to attract outstanding national and international researchers to WA to conduct scientific research that is internationally competitive and of specific benefit to the State.

WA student's research assists oil and gas industry

University student Cassandra Currie has made the most of her opportunity to undertake paid work experience working alongside skilled professionals as part of the Science and Innovation Studentship Awards.

As one of the recipients of last year's awards administered by the Department of Commerce, Cassandra was awarded a \$7000 scholarship to conduct a scientific project with a Western Australian company for ten weeks.

Cassandra, a physics student from Curtin University of Technology, worked with RPS MetOcean to analyse the North West Cape shelf slope currents by investigating the response of the water column to tropical cyclone conditions.

"This project involved looking at what current strengths were generated, how they differed in speed and direction through the water column, how water depth and coastal constraints or bathymetry influenced these currents,

and the length of time the currents persisted," she said.

"This research is useful in the exploration of oil and gas in the North West Shelf and near the North West Cape, as any understanding of the currents at depth can contribute to safe exploration of these resources.

"The results of the research I undertook will supplement the existing knowledge base and can be used to validate numerical models that predict ocean conditions. This will provide more accurate information to the oil and gas industry."

Cassandra said the work experience provided her with an opportunity to further enhance the skills she developed at university.

"I was also able to learn more about ocean currents, the development and movement of tropical cyclones, how to use industry specific systems and



Cassandra Currie with an acoustic current meter designed and built by RPS MetOcean.

programs as well as using different analysis methods and interpreting results.

Cassandra hopes to pursue a career in research, in particular physical oceanography. She has enrolled at Curtin University of Technology to complete an Honours degree in Physics, with future plans to undertake a PhD.

RPS MetOcean is a leading consultancy providing oceanographic and meteorological services in support of coastal and ocean engineering and environmental protection.