CSIRO to help provide 'live' video of Mars mission

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CSIRO ICT Center researcher, Dr John Bunton. Credit: CSIRO

When the Americans eventually send a manned mission to Mars, the whole world will be able to watch 'live' television coverage of the event courtesy of CSIRO know-how.

The US space agency NASA has announced that CSIRO research scientist, Dr John Bunton, is to receive a NASA Space Act Board Award for research into the development of a novel 'beamformer' capable of providing a live video link from Mars.

A senior member of the CSIRO ICT Centre Wireless Technology laboratory, Dr Bunton developed a design for the 'Deep Space Array Based Network Beamformer'. The award will be formally presented at the US Jet Propulsion Laboratory (JPL) in Pasadena, California, on 28

October.

He said NASA required a live video link from Mars for its planned future manned mission, however the current Deep Space Network does not have enough 'sensitivity' for the task, even with its 70m antenna.

"One solution is to employ a large antenna array, possibly with 400, 12m antennas, but this solution requires data from all antennas to be added together in a very precise manner," Dr Bunton said.

Dr Bunton subsequently suggested an alternative – a novel frequency domain beamformer architecture.

In Dr Bunton's design, the video signal data is divided into narrow channels and transported to beamformer boards. Each board sums the narrow channel data from all 400 antennas. This data can then be reconstructed back into a broadband signal.

A prototype system based on the frequency domain beamformer has been built at the JPL and shown to work on signals from NASA's Cassini spacecraft mission to Saturn.

Dr Bunton's research is also important to the Australian Square Kilometre Array Pathfinder project and has other potential applications in space communications and earth sensing.

The CSIRO ICT Centre is home to one of the world's leading wireless technology laboratories whose recent achievements include developing the world's first six Gigabits per second wireless link.

Source: CSIRO Australia

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