MONASH University

Optical communications expert recognised

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A prominent telecommunications researcher from Monash University has been honoured by the world's leading communications society.

Professor Jean Armstrong from the Department of Electrical and Computer Systems Engineering has been awarded the 2014 IEEE Communications Society Best Tutorial Paper Award for her paper *OFDM for Optical Communications*.

Professor Jean Armstrong

Professor Armstrong said that although few people have heard of OFDM (orthogonal frequency-division multiplexing) everyone would have used it.

"OFDM is the modulation technique used in digital television, digital radio, WiFi and ADSL because it supports very high data rates," Professor Armstrong said.

"I had been doing research on this technique for wireless systems for many years and then, in 2005, I realised it could be adapted to apply to optical communications."

Optical OFDM has been applied in systems ranging from transoceanic optical fibres to short-range optical wireless communications.

“I hope receiving this award helps to overcome some of the stereotypes of successful engineers and demonstrates that Australian women can be world-leading researchers and inventors,” Professor Armstrong said.

Professor Armstrong will receive her award today at the IEEE International Communications Conference in Sydney. It is the first time the conference has been held in Australia.

The prize-winning paper has already been referenced in almost 600 papers by authors from more than 30 countries.

“Because I had already published over 50 papers on OFDM for radio applications, I had a wide knowledge of the field. So I was able to write a paper that clearly explained the topic and accurately predicted future research challenges for optical OFDM,” Professor Armstrong said.

Over the last 16 years Professor Armstrong has invented many important OFDM techniques for both optical and wireless applications, many of which have been patented.

Her current research is on the new topics of visible light communications and visible light positioning. The LEDs that are already providing the next generation of energy-efficient lighting can also be used as high data rate transmitters and this opens up exciting opportunities.

“Soon your internet connection may be coming from your nearest light bulb,” Professor Armstrong said.

When Professor Armstrong began her career, very few women were working as engineers, and when she was appointed as a lecturer she was the only woman at that level in a university engineering department in Australia. She has been both a pioneer in the field and a strong supporter of other women in engineering. Recognition of her contribution includes induction into the Victorian Honour Roll of Women and an Institution of Engineers Australia Engineering 2000 award.