

**Michelle Simmons**  
**Doctor of Science**  
**Durham Cathedral, 5 July 2019**

What does Crocodile Dundee, The Seekers, Evonne Goolagong, Dawn Fraser, Cathy Freeman, and Professor Michelle Simmons have in common?

All have been named Australian of the Year, and many have inspired generations of young women. Unlike the rest, Michelle Simmons is one of our very own.

College to study Physics and Chemistry of Materials in 1985. She then moved to St Aidan's to study for her PhD in Professor Andy Brinkman's II-VI semiconductor group, where she started her career by designing and building solar cells.

A Durham PhD became a passport to the world. From here she moved to Professor Mike Pepper's group in the Cavendish Laboratory in Cambridge, to learn about the

And then she wanted an even more ambitious project to work on.

devices that had never been made before, where each atom had to be put in place to engineer a particular effect – in essence, to create electronic devices at the atomic

And so she moved to Australia, to be a founding member of the Australian Research Council Centre of Excellence for Quantum Computer Technology at the University of New South Wales.

Over the next decade, Professor Simmons pioneered a radical new technology for creating atomic-scale devices, which is now opening up the capability to control the quantum world. To this end, her research is now demonstrating, atom by atom, the

best way to build quantum integrated circuits the smallest components of a quantum computer a new type of computer that exploits the laws physics at very small dimensions in order to provide an exponentially fast speed up in processing times.

Her research has produced the first electronic devices in silicon where atoms are placed and measured with atomic precision. This ground-breaking work has opened a new frontier of research in electronics globally. It has provided a platform for redesigning conventional transistors at the atomic-scale, and for investigating

Director of the Australian Research Council Centre of Excellence for Quantum Computation & Communication Technology and is recognised internationally as a pioneer and leader in atomic electronics and quantum computing.

She has received a long list of honours and awards over the years of her illustrious career.

In 2005, she was awarded the Australian Academy of Science Pawsey Medal.

She was, upon her appointment in 2006, one of the youngest fellows elected to the Australian Academy of Science and is one of only a handful of Australians inducted into the American Academy of Arts and Sciences. In 2011, she was named Ntc TJETQ EMC A