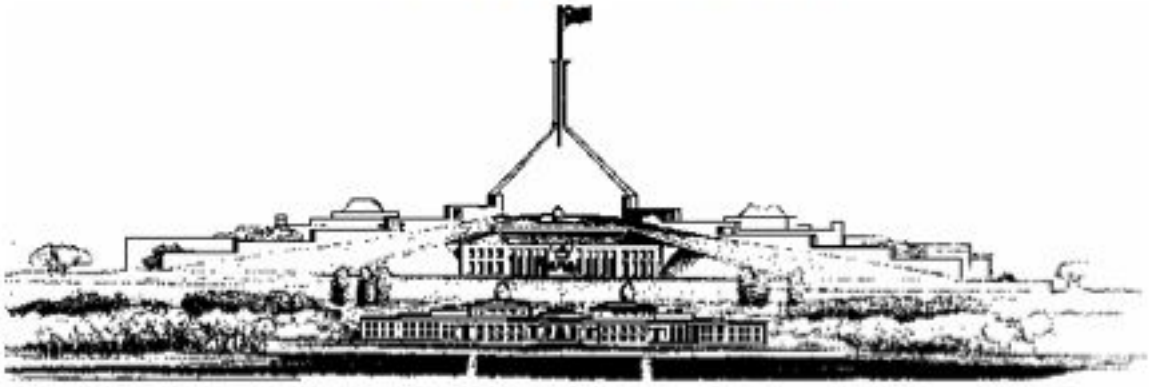
COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY DEBATES



HOUSE OF REPRESENTATIVES

Federation Chamber

CONSTITUENCY STATEMENTS

Centre for Quantum Computation and Communication Technology

SPEECH

Monday, 21 November 2016

BY AUTHORITY OF THE HOUSE OF REPRESENTATIVES

SPEECH

Date	Monday, 21 November 2016	**Source**	House
Page	3766	**Proof**	No
Questioner		**Responder**	
Speaker	Thistlethwaite, Matt, MP	**Question No.**	

Mr THISTLETHWAITE (Kingsford Smith) (10:48): Computer chips are becoming smaller and smaller, but the amount of information that they are storing is becoming larger and larger. People working with computer chips at the cutting edge these days are now working with chips so small that they cannot be seen by the human eye. They are at the atomic scale, storing much more information than conventional computer chips, and will be much faster than today's computing and computer chips. Welcome to the world of quantum computing, computing which will be able to store much more complex information in a much smaller bit, which will revolutionise the way we do things throughout the world. These computers will be able to solve many of the world's challenges that are well beyond the reach of today's fastest supercomputers.

Internationally, Australian researchers are involved in a race, a race to develop the world's first workable quantum computer, so powerful that in the long term it is expected to exceed the combined power of all of the world's computers at the moment in certain applications. I am very proud to report that the current leaders in this race are Australian researchers. I am even more proud to report that they are based in the community that I have the privilege of representing in this parliament, at the University of New South Wales, at the Centre for Quantum Computation & Communication Technology, a centre of excellence, led by Professor Michelle Simmons.

A team of 180 researchers from many different universities are achieving remarkable gains. Some of their achievements include the world's first single-atom transistor; the world's first qubit based on the spin of a single electron on a single phosphorus atom embedded in silicon; and the world's first quantum logic gate in silicon. UNSW houses a unique Atomic Fabrication Facility and nanofabrication facilities, with the goal of this facility being to develop a scalable quantum computer prototype using scanning microscopy and scanning electron microscopy.

Last week, I was fortunate to visit this wonderful facility and had the privilege of meeting with Professor Simmons and some of her team. I spoke to some of the young scientists that are working there from the United States, from Norway and from other parts of the world. I said, 'Why are you working here?' Their explanation was simple. They want to work with Michelle Simmons, and they want to work at the University of New South Wales because we are leading the world when it comes to research into quantum computing. Their silicon approach is revolutionising the way we develop quantum computers. When we talk about innovation and science and research, its cutting edge is happening at UNSW. I thank them for the tour, and I look forward to working with Michelle and her team to realise this journey.