The IEEE South Australia Section Committee invites you and your partner to the Annual Dinner and Lecture:

**The Future of Computing**

Professor Michelle Simmons  
ARC Laureate Fellow and  
Director of the Centre of Quantum Computation & Communication Technology

Venue: The Balcony Restaurant  
Strathmore Hotel, North Terrace, Adelaide

**Three Course Dinner and Drinks**  
RSVP: Remove the slip below and return completed to IEEE SA Section by 28th September 2016

Dress Code: Neat Casual

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**2016 Annual Lecture and Dinner**

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<tr>
<th>Sign up for</th>
<th>Price</th>
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<tr>
<td>IEEE Member</td>
<td>$70</td>
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<td>Member’s partner. Name:</td>
<td>$70</td>
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<tr>
<td>Non-member</td>
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<td>Non-member’s partner. Name:</td>
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<td>IEEE Student Member</td>
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<td>Student member’s partner. Name:</td>
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Total: __________

All prices include GST.

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Method of payment

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Name: __________________

Address: __________________

Phone/Email: __________________

Special dietary requirements: __________________

EFT*

Account name: IEEE-SA section  
BSB #: 06 5122  
Account #: 0090 7594

Credit Card #: __________________

Exp. date: __________________

Signature: __________________

Credit Card payments will incur a 2.5% surcharge.
Down-scaling has been the leading paradigm of the semiconductor industry since the invention of the first transistor in 1947. However miniaturization will soon reach the ultimate limit, set by the discreteness of matter, leading to intensified research in alternative approaches for creating logic devices. This talk will discuss the development of a radical new technology for creating atomic-scale devices which is opening a new frontier of research in electronics globally. We will introduce single atom transistors where we can measure both the charge and spin of individual dopants with unique capabilities in controlling the quantum world. To this end, we will discuss how we are now demonstrating atom by atom the best way to build a quantum computer – a new type of computer that exploits the laws of physics at very small dimensions in order to provide an exponential speed up in computational processing power.

Biography

Professor Simmons is an Australian Research Council Laureate Fellow & Director of the Centre of Excellence for Quantum Computation and Communication Technology. She has pioneered unique technologies internationally to build electronic devices in silicon at the atomic scale, including the world’s smallest transistor, the narrowest conducting wires and the first transistor where a single atom controls its operation. This work opens up the prospect of developing a silicon-based quantum computer: a powerful new form of computing with the potential to transform information processing. Professor Simmons is one of a handful of researchers in Australia to have twice received a Federation Fellowship and now a Laureate Fellowship, the Australian Research Council’s most prestigious award of this kind. She has won both the Pawsey Medal (2006) and Lyle Medal (2015) from the Australian Academy of Science for outstanding research in physics and was, upon her appointment, one of the youngest fellows of this Academy. She was named Scientist of the Year by the New South Wales Government in 2012 and in 2014 became one of only a few Australians inducted into the American Academy of Arts and Sciences. As a recent Fellow of ATSE, she was awarded the 2015 CSIRO Eureka Prize for Leadership in Science and in 2016 was awarded the Foresight Institute Feynman Prize in Nanotechnology for her work in ‘the new field of atomic-electronics, which she created’. She is Editor-in-Chief of Nature Quantum Information.