

Silicon Quantum Electronics Workshop Program, 13-15th November, 2018, Sydney, Australia

Day 1 – Tuesday 13th November 2018

Time	Event	Comment
7.30-8.30am	<i>Registration</i>	
8.30-8.45am	Welcome	Official Opening NSW Chief Scientist and Engineer
8.45-10.25am	Session 1: Two Qubit Gates	Chair - Arne Laucht
8.45-9.05am	Xiao Xue	Gate fidelities and noise correlations in a two-qubit Si/SiGe quantum dot device
9.05-9.25am	Sam Gorman	A two-qubit gate between phosphorus donor electrons in silicon
9.25-9.45am	Wister Huang	Fidelity benchmarks for two qubit gates in silicon
9.45-10.05am	Mateusz Madzik	Ion implanted ³¹ P donor devices for 2-qubit logic gates
10.05-10.25am	Muhammad Usman	Towards high-fidelity CNOT gate based on phosphorus qubits in silicon
10.25-11am	<i>Morning Tea</i>	Workshop photo on balcony
11am-12.40pm	Session 2: RF measurements	Chair – Matt House
11-11.20am	Prasanna Pakkiam	Time-resolved single-shot single-gate RF spin readout
11.20-11.40am	Bas Hensen	Gate-based single-shot readout of spins in silicon
11.40-12pm	Alessandro Crippa	Dispersive readout of a spin qubit by gate reflectometry
12-12.20pm	Miguel Gonzalez	Gate-based readout: Rules for optimal performance
12.20-12.40pm	Tristan Meunier	Gate-Based high-fidelity spin readout in a CMOS device
12.40-1.30pm	<i>Lunch</i>	
1.30-2.30pm	Session 3: Cavity-Spin Coupling	Chair – Jarryd Pla
1.30-1.50pm	Hans Huebl	Spin dynamics in strongly coupled spin-photon hybrids
1.50-2.10pm	Michael Stern	Towards coupling a superconducting circuit with a single spin
2.10-2.30pm	Jose Abadillo-Uriel	Exploring the sweet spot regime of singlet-triplet qubits coupled to a microwave resonator
2.30-2.45pm	<i>Set up posters</i>	
2.45-5pm	<i>Welcome drinks</i>	<i>Posters</i>

Day 2 – Wednesday 14th November 2018

Time	Event	Comment
8.30-10.10am	Session 4: Donor Qubits I	Chair – Joris Keizer
8.30-8.50am	Richard Silver	Robust fabrication and measurement of atomically precise, single electron transistors
8.50-9.10am	Tatiana Pavlova	STM chlorine resist lithography on Si(100)-2x1 surface for the fabrication of donor-based atomic scale devices
9.10-9.30am	James Owen	Improving HDL dopant placement precision
9.30-9.50am	Simon Cooil	In-situ patterning of ultra-sharp dopant profiles in silicon
9.50-10.10am	Justin Wells	The electronic band structure of delta doped silicon
10.10-10.40am	<i>Morning Tea</i>	
10.40am-12.20pm	Session 5: CMOS Devices	Chair – Jeanette Roberts
10.40-11am	Simon Schaal	A CMOS dynamic random access architecture for radio-frequency readout of quantum devices
11-11.20am	Gertjan Eenink	Hot silicon MOS spin qubits
11.20-11.40am	Stephen Lyon	Low disorder Metal-Oxide-Silicon double quantum dots
11.40-12pm	Sophie Rochette	Quantum dots in ultra-thin body and buried oxide 28 nm FD-SOI
12-12.20pm	Alejandro Márquez Seco	Single-atom nanoMOSFETs in silicon
12.20-1.30pm	<i>Lunch</i>	<i>SQEW International Program Committee Meeting – venue tbc</i>
1.30-2.50pm	Session 6: Theory	Chair - Brandur Thorgeirsson
1.30-1.50pm	Xuedong Hu	Decoherence of a donor-dot flip-flop qubit in Si
1.50-2.10pm	Maximilian Russ	Quadrupolar exchange-only (QUEX) spin qubit
2.10-2.30pm	Charles Hill	Architecture for a 2D surface code quantum computer based on exchange-coupled donor qubits in silicon
2.30-2.50pm	Garnett Bryant	Quantum simulations with dopant-based arrays: extracting quantum and many-body information

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Day 2 (continued) – Wednesday 14th November 2018

Time	Event	Comment
2.50-3.20pm	<i>Afternoon Tea</i>	
3.20-4.40pm	Session 7: Singlet-Triplet Qubits	Chair - Lars Schreiber
3.20-3.40pm	Chloe Bureau-Oxton	Analyzing the fidelity of a singlet-triplet spin-orbit qubit in silicon using gate set tomography
3.40-4pm	MengKe Feng	Coherent transfer of singlet-triplet qubit states in an architecture of triple quantum dots
4-4.20pm	Aaron Jones	Spin-blockade spectroscopy of Si/SiGe quantum dots
4.20-4.40pm	Toby Jacobson	For better or for worse: spin-orbit coupling and its physical manifestations in Si quantum dot qubits
4.45pm	Close	Walk to Star Casino wharf
6pm	<i>Workshop dinner</i>	<i>Cruise departs at 6.15pm sharp from Star Casino Wharf</i>
9pm		<i>Cruise returns to Star Casino Wharf</i>

Day 3 – Thursday 15th November 2018

Time	Event	Comment
8.30-10.10am	Session 8: Hole Qubits	Chair – Georgios Katsaros
8.30-8.50am	Fei Gao	Controllable growth of Ge/Si(001) wires for hole qubits
8.50-9.10am	Florian Froning	Hole spins in quantum dots in Ge/Si nanowires
9.10-9.30am	Nico Hendrickx	Electrically driven spin rotations, Pauli spin blockade and supercurrent discretization in germanium quantum devices
9.30-9.50am	Josip Kukucka	A hole spin qubit in a Ge hut-wire double quantum dot
9.50-10.10am	Scott Liles	Spin and orbital structure of holes in a silicon metal-oxide-semiconductor quantum dot
10.10-10.40am	<i>Morning Tea</i>	
10.40am-12.20pm	Session 9: Donor Qubits II	Chair – María José Calderón
10.40-11am	Benoit Voisin	Visualizing valley interference to engineer robust donor qubit coupling in silicon
11-11.20am	Viktoria Eless	Experimental determination of the radius of ground state in isotopically pure silicon
11.20-11.40am	Dimitrie Culcer	Donor clusters: ground state, exchange and future prospects
11.40-12pm	Neil Curson	Optical response of a dilute Si:P delta-layer near an interface
12-12.20pm	Melvin Jakob	High precision deterministic ion implantation for large scale arrays of single donor qubits in silicon
12.20-1.30pm	<i>Lunch</i>	
1.30-2.50pm	Session 10: Scale-Up Advances	Chair – Cody Jones
1.30-1.50pm	Dennis Nielinger	SQuBiC1: An integrated control chip for semiconductor spin qubits
1.50-2.10pm	Nicole Thomas	Bringing advanced semiconductor process technology to Si spin qubit research
2.10-2.30pm	Andy Mounce	Image analysis, automation, and machine learning techniques applied to MOS quantum dot tune-Up
2.30-2.50pm	Harald Homulle	QuRO: a compact read-out interface for spin qubits operating at deep-cryogenic temperatures
2.50-3.10pm	Justyna Zwolak	Vector-supported learning and auto-tuning of devices in quantum dot experiments
3.10-3.40pm	<i>Afternoon Tea</i>	
3.40-4.40pm	Session 11: New Techniques	Chair – Cassandra Chua
3.40-4pm	Lars Schreiber	Spin relaxation and dephasing in a 28SiGe QD with nanomagnet
4-4.20pm	Yuanxing Xu	A Si/SiGe based quantum dot with floating gates for scalability
4.20-4.40pm	Brandur Thorgrimsson	Silicon, superconductivity, stability, and the search for gateability
4.40-4.50pm	Close	<ul style="list-style-type: none"> Workshop ends Announcement of 2019 Silicon Workshop Dr María José Calderón (Madrid – Spain)
<i>The Sydney organising committee thanks you for your attendance and wishes you all safe travel home.</i>		