

## Spin Canada 2018 Program

Hotel Arts, Calgary

Room: Spectrum 1-3

Thursday, July 19

|   |           |  |
|---|-----------|--|
|   | 7:45-8:30 | Breakfast  |
|   | 8:30      | Welcome  |
| Session Chair:<br>Sebastien Francoeur   | 8:40      | <i>A photonic link for donor spin qubits in silicon (10 min)</i><br>Stephanie Simmons, Simon Fraser University   |
|   | 8:52      | <i>Characterization of the Si:Se+ spin/photon interface (10 min)</i><br>Adam DeAbreu, Simon Fraser University  |
|   | 9:04      | <i>High resolution spectroscopy of deep centres in silicon(10 min)</i><br>Camille Chartrand, Simon Fraser University   |
|   | 9:16      | <i>Mid-IR Silicon Photonics (10 min)</i><br>Timothy Richards, Simon Fraser University  |
|   | 9:28      | <i>Silicon Photonic Circuits for Quantum Information Processing (20 min)</i><br>Jeff Young, University of British Columbia                                       |
|   | 9:52      | <i>NSERC Partnership Grants in Support of Industry-Academic Research Collaborations (5 min)</i><br>John Jackson, NSERC   |
|   | 9:57      | Break  |
|   | 10:22     | <i>Towards room-temperature coherent spin-photon interfaces (10 min)</i><br>Stephen Wein, University of Calgary  |
|   | 10:34     | <i>Quantum repeaters with single rare-earth ions at telecommunication wavelengths (10 min)</i><br>Faezeh Kimiaee Asadi, University of Calgary                    |
| Session Chair:<br>Michel Pioro-Ladriere | 10:58     | <i>Coherent manipulation of spin-optomechanical devices (20 min)</i><br>Paul Barclay and David Lake, University of Calgary                                       |
|   | 11:10     | <i>Spin-based sensing of nanomagnetic circuits (10 min)</i><br>Lilian Childress, McGill University   |
|   | 11:22     | <i>A Microscopic Fabry-Perot Cavity for Quantum Optics with Defects in Diamond (10 min)</i><br>Erika Janitz, McGill University                                   |
|   | 11:34     | <i>Spin-photon interfaces based on isoelectronic quantum defects (20 min)</i><br>Sebastien Francoeur and Anne-Laurence Phaneuf-L'Heureux, Polytechnique Montréal |
|   | 12:00     | Lunch  |
| Session Chair:<br>Bill Coish            | 13:30     | <i>Rare-earth ion doped materials for quantum memory and transduction (20 min)</i><br>Daniel Oblak, University of Calgary  |
|   | 13:54     | <i>Holes in GaAs 2DHGs for Spin Qubits (20 min)</i><br>Andrew Sachrajda or Sergei Studenikin, National Research Council  |
|   | 14:18     | <i>On-demand entangled photon source (20 min)</i><br>Michael Reimer, Institute for Quantum Computing   |
|   | 14:42     | Break  |
|   | 15:15     | <i>Industry connections/technology development discussion</i><br>Discussion leaders: Jeff Young, Dan Deptuck, Stef Simmons                                       |
|   | 16:30     | Poster session   |
|   | 19:00     | Dinner   |

## Friday, July 20

7:45-8:30 Breakfast

8:30 *Ultrafast measurement and control of spins in semiconductors (20 min)*  
Kimberley Hall, Dalhousie University

8:54 *Entanglement distribution using semiconductor spin qubits (20 min)*  
Louis Gaudreau and Jason Phoenix, National Research Council

9:18 *Valley-spin polarization in transition metal dichalcogenides (10 min)*  
Marek Korkusinski, National Research Council

9:30 *Engineering spin-orbit coupling in semiconductors using micro-magnets: a case study of Majorana bound states in two-dimensional electron gas (10 min)*  
Michel Pioro-Ladrière, University of Sherbrooke

9:42 *Smarter operating system for quantum dot qubits (10 min)*  
Azfar Badaroudine, University of Sherbrooke

9:54 Break

10:24 *A network architecture for silicon quantum computing (10 min)*  
Jonathan Baugh, Institute for Quantum Computing

10:36 *Silicon MOSFET quantum dots with a simplified metal-gate geometry (10 min)*  
Eduardo Barrera, Institute for Quantum Computing

10:48 *Spin-qubits theory at McGill (20 min)*  
Bill Coish, McGill University

11:12 *Numerical Coherent Averaging of Spin Hamiltonians with Applications in Nanoscale Magnetic Resonance (10 min)*  
Holger Haas, Institute for Quantum Computing

11:24 *Implementing a microstrip SQUID amplifier for an rf-QPC readout*  
Jan Kycia, University of Waterloo

11:36 Workshop prep

11:50 Lunch

13:00 Workshop - collaborative projects

14:15 Break

14:30 Workshop - training opportunities

15:45 Wrap-up

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