

Monday, July 17th

8:00 Registration +Breakfast

8:45 Welcome Remark

Session Chair: Arka Majumdar

9:00 *Optical Neural Networks at Quantum Limit*, Yoshi Yamamoto, ImPACT Program, Japan Science and Technology Agency

9:40 *The Power of Being Positive: Compressed Sensing in the Quantum World*, Ivan Deutsch, University of New Mexico

10:20 Coffee Break

11:00 *Kalman Decomposition of Quantum Linear Systems*, Guofeng Zhang, The Hong Kong Polytechnic University

11:40 Lunch (on your own)

Session Chair: Ivan Deutsch

1:30 *Control and Readout of Semiconductor Double Quantum Dot Qubits using Circuit Quantum Electrodynamics (QED)*, Andreas Wallraff, ETH Zurich

2:10 *Quantum control of ion-photon interactions in an optical cavity*, Tracy Northup, UIBK

2:50 Coffee Break

3:30 *Identification and estimation in quantum input-output systems*, Madalin Guta, University of Nottingham

4:10 *Quantum Control of Superconducting Circuits*, Liang Jiang, Yale University

Tuesday, July 18th

8:00 Registration +Breakfast

Session Chair: Michael J. Biercuk

9:00 *Controlled dynamics of superconducting qubits for quantum chemistry calculations*, Stefan Filipp, IBM

9:40 *All-optical Computational Circuits in Integrated Photonics*, Raymond G Beausoleil, HP Labs

- 10:20 Coffee Break
- 11:00 *Layout and Control for Measurement Based Quantum Computing using Topological Qubits*, Krysta Svore, Microsoft
- 11:40 Lunch (on your own)
- Session Chair: Kai-Mei Fu
- 1:00 Discussion forum: role of industry in quantum control (Moderator: Kai-Mei Fu; Group leaders: Stefan Filipp, Raymond G Beausoleil, Dave Wecker, and Michael J. Biercuk)
- 2:30 Coffee Break
- 3:00 Informal report out of the discussion forum
- 3:30 *Tomography of an Optomechanical Oscillator via Position Measurement*, Andrew Doherty, University of Sydney
- 4:10 *Quantum Noise Spectroscopy via Open-Loop Control on Qubit Sensors*, Lorenza Viola, Dartmouth College
- 5:00 Poster session with refreshments (till 6:30 pm)

Wednesday July 19th

- 8:00 Registration +Breakfast
- Session Chair: Francisco Elohim Becerra
- 9:00 *Quantum input-output networks in silicon photonics: prospects and applications*, Mohan Sarovar, Sandia Labs
- 9:40 *Quantum nanophotonics: from inverse design to applications*, Jelena Vuckovic, Stanford University
- 10:20 Coffee Break
- 11:00 Lunch (on your own)
- Session Chair: Arka Majumdar
- 1:00 Discussion forum: integrated photonics for quantum control (Moderator: Arka Majumdar; group leaders: Kai-Mei Fu, Mohan Sarovar, Jelena Vuckovic and Raymond G Beausoleil)
- 2:30 Coffee break

- 3:00 Informal report out of the discussion forum
- 3:30 *Optimized strategies for nonorthogonal state discrimination at the single-photon level*, Francisco Elohim Becerra, University of New Mexico
- 4:10 *Control of Quantum Spin Devices, feedback control laws and hidden feedback*, Sophie Schirmer, Swansea University
- 5:30-7:30 Buffet Dinner

Thursday July 20th

- 8:00 Registration +Breakfast
- Session Chair: Klemens Hammerer
- 9:00 *Parity-time symmetry and chaos transfer in optomechanics*, Jing Zhang, Tsinghua University
- 9:40 *Photonic controlled-phase gates through Rydberg blockade in optical cavities*, Etienne Brion, Laboratoire Aimé Cotton
- 10:20 Coffee Break
- 11:00 Oscillators for quantum information: the cat code, error correction, and two mode entanglement, Robert Schoelkopf, Yale University
- 11:40 *The Magic of Combining Switchable Noise with Coherent Control: Principles and Implementation in Superconducting Qubits*, Thomas Schulte-Herbrueggen, Technical University Munich
- 12:20 Lunch (on your own)
- Session Chair: Nathan Weibe
- 1:30 *Beyond Markovian approximations in open quantum systems*, Alain Sarlette, Inria
- 2:10 Echoes of Entanglement: from Quantum Metrology to Scrambling, Monika Schleier-Smith, Stanford University
- 2:40 *Quantum Control Exploiting Light-Matter Entanglement*, Klemens Hammerer, Leibniz University
- 3:20 Closing of the conference; committee (local + IPC) meets
- Talk Format:** 35 minutes presentation + 5 minutes Q&A

Discussion forum:

We will prepare questions beforehand for both discussion forum. We have 1 hour 30 minutes. So we will plan to have 5 questions, and we will divide the crowd into 4 groups. We have identified the leaders. They will get the questions beforehand and will prepare. Groups will discuss for 12 minutes and the next 6 minutes will be devoted to what they discussed. We will ask them to scribe, and will have another scribe. Based on these the moderator will provide a summary during the workshop. A longer write-up consolidating all the discussion will be included in the final conference proceedings, and will be available publicly.