2019 APQC Schedule

Wednesday, September 25th

Low-level performance – QCVV, errors, noise

7:00am-8:45am	Breakfast and registration
8:45am-9:00am	Welcome and Workshop Overview
9:00-10:00am	**Marko Cetina** (U. Maryland), *Large, Individually-addressable Ion-based Quantum Information Processor: Performance*
10:00-10:15am	Coffee break
10:15-10:45am	**Scott Glancy** (NIST-Boulder), "*The Tomography of Quantum Gate Teleportation Between Separated Zones of a Trapped-Ion Processor*"
10:45-11:15am	**Jimmy Chen** (Google), "*Cross-entropy benchmarking for characterization and benchmarking of 2-qubit gates*"
11:15-11:45am	**Arnaud Carignan-Dugas** (IQC), "*A polar decomposition for quantum channels (with application to bounding error propagation in quantum circuits)*"
11:45am-1pm	Working lunch (perspective talks by **Charlie Tahan**, LPS and **Brad Blakestad**, IARPA)
1:00pm-2:00pm	**Joseph Emerson** (Quantum Benchmark), *Efficient characterization and suppression of errors for scalable quantum computation*
2:00pm-2:30pm	Coffee break
2:30pm-3:00pm	**Ryan Bennink** (ORNL), "*Quantum Process Identification: A Method for Characterizing non-Markovian Quantum Dynamics*"
3:00pm-3:30pm	**Luke Govia** (BBN), "*Efficient Ansatz for Quantum Process Tomography*"
3:30pm-4:00pm	**Robin Harper** (Sydney), "*Efficient learning of quantum noise*"
4:00pm-4:15pm	Coffee break
4:15pm-5:15pm	**Steve Flammia** (U. Sydney), *Scalable estimation of noise in quantum devices*
5:15pm-6:00pm	Poster setup
6:00pm - 7:30pm	Dinner, including "Dinner with an expert" groups
7:30pm - 9pm	Poster session

Thursday, September 26th
High-level performance – applications/benchmarks

7:00-8:30am	Breakfast
8:30-9:30am	**Adriaan Rol** (TU-Delft), *"Metrics for Fault Tolerance, an experimentalist's approach"*
9:30-10:00am	**Thomas O'Brien** (Leiden), *"Protecting quantum entanglement from qubit errors and leakage via repetitive parity measurements"*
10:00-10:15am:	Coffee break
10:15-10:45am	**Megan Lilly** (Tennessee/ORNL), *"Experimentally Characterizing Quantum Processors Using Modeling and Simulation"*
10:45-11:15am	**Ryan Shaffer** (Berkeley), *"Experimentally-motivated benchmarking protocols for analog quantum simulators"*
11:15am-12:15pm	**Zhihui Wang** (NASA), *"Toward algorithmically relevant assessment of quantum processors"*
12:15-1:30pm	Working lunch (perspective talk by **Barbara Goldstein**, NIST)
1:30pm-2:30pm	**Yipeng Huang** (Princeton), *"Probabilistic Inference and Statistical Tests for Correct Quantum Programs"*
2:30pm-3:00pm	Coffee break
3:00pm-3:30pm	**Swamit Tannu** (Georgia Tech), *"Compilation Techniques to Fight Biased and Correlated Errors on NISQ machines"*
3:30pm-4:00pm	**Tameem Albash** (UNM), *"Lessons from Quantum Annealing"*
4:00pm-4:15pm	Coffee break
4:15pm-5:45pm	**Panel Argument**: *Quantum computer performance for near-term applications — what matters, how do we measure it, and what are the outstanding open questions and challenges?*
5:45pm-6:00pm	Wrap-up and postmortem evaluation
6:00pm - 7:30pm	Dinner, including "Dinner with an expert" groups

Friday, September 27th
High-low connection, supremacy, & architecture effects

7:00-8:30am	Breakfast
8:30-9:30am	**Kevin Young** (Sandia QPL), "*Emergent errors in NISQ devices*"
9:30-10:00am	**Shai Machnes** (Saarland), "*How are we planning to fully calibrate and characterize a 100 qubit superconducting QPU over the weekend*"
10:00-10:15am	Coffee break
10:15-10:45am	**Adam Winick** (IQC), "*Algorithmic cancellation of crosstalk*"
10:45-11:15am	**Anastasiia Butko** (LBNL), "*Understanding Quantum Control Processor Capabilities and Limitations through Circuit Characterization*"
11:15am-12:15pm	**David McKay** (IBM), "*Characterization tools for NISQ systems*"
12:15-1:30pm	Working lunch (perspective talk by Claire Cramer, DOE)
1:30pm-2:30pm	**Sergio Boixo** (Google), "*Cross entropy benchmarking and quantum supremacy*"
2:30pm-2:45pm	Coffee break
2:45pm-3:15pm	**Ronald Sadlier** (UT/ORNL), "*Characterization for Near-optimal Routing of Noisy Quantum States*"
3:15pm-3:45pm	**Cathy McGeoch** (D-Wave), "*Many Flavors of Quantum Performance*"
3:45pm-4:00pm	Coffee break
4:00pm-5:00pm	**Panel argument**: *QC performance for error correction and logical-qubit applications — what matters, how do we measure it, and what are the outstanding open questions and challenges?*