

# SQuInT 2026 program

## Wednesday 10/14 Welcome

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| 5:00 - 7:00pm | Early Conference Check-In |
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## Thursday 10/15 Program

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| 7:30am - 8:20am                           | Breakfast, Registration & Conference Check-in                                                                                   |
| 8:20am - 8:30am                           | Opening Remarks                                                                                                                 |
| SESSION 1: Neutral-atom quantum computing |                                                                                                                                 |
| 8:30am-9:15am                             | (invited) Bluvstein (Caltech, Oratomic)                                                                                         |
| 9:15am-9:45am                             | Turflinger (Atom Computing)<br>Quantum error correction to arbitrary depth in a neutral-atom-based quantum computer             |
| 9:45am - 10:15am                          | Break                                                                                                                           |
| SESSION 2: Quantum optics                 |                                                                                                                                 |
| 10:15am-11:00am                           | (invited) Asenjo Garcia (Columbia)                                                                                              |
| 11:00am-11:30am                           | Holland (JILA)<br>Experiments with universal matter-wave gates for programmable quantum inertial sensing                        |
| 11:30am-12:00pm                           | Maliakal (Caltech)<br>Optimized Quantum States for Sensing in the Presence of Loss and Phase Noise                              |
| 12:00pm - 1:30pm                          | Lunch Buffet                                                                                                                    |
| SESSION 3: Computer science               |                                                                                                                                 |
| 1:30pm-2:15pm                             | (invited) Niu (University of California, Santa Barbara)                                                                         |
| 2:15pm-2:45pm                             | Zhao (Sandia)<br>Fermionic Insights into Measurement-Based Quantum Computation: Circle Graph States Are Not Universal Resources |
| 2:45pm - 3:15pm                           | Break                                                                                                                           |
| SESSION 4: Superconducting qubits         |                                                                                                                                 |

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| 3:15pm-4:00pm                    | (invited) Levenson-Falk (University of Southern California)                                                                                     |
| 4:00pm-4:30pm                    | Eastin (Northrop Grumman)<br>Dual-Rail Cluster-State Quantum Architecture                                                                       |
| 4:30pm-5:00pm                    | Chernikova (University of Colorado Boulder)<br>Developing a comprehensive high-throughput superconducting qubit characterization infrastructure |
| <b>SESSION 5: Poster Session</b> |                                                                                                                                                 |
| 5:00pm-7:00pm                    | Poster Session and Reception (with Cash Bar)                                                                                                    |

## Friday 10/16 Program

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| 7:30am - 8:30am                                           | Breakfast                                                                                                                 |
| <b>SESSION 6: Quantum simulation</b>                      |                                                                                                                           |
| 8:30am-9:15am                                             | (invited) Childs (University of Maryland)                                                                                 |
| 9:15am-9:45am                                             | Sornborger (Los Alamos)<br>First-Quantized Simulation with Low Spacetime Overhead:<br>Nuclear Dynamics on High-Rate Codes |
| 9:45am - 10:15am                                          | Break                                                                                                                     |
| <b>SESSION 7: Developments of ion traps</b>               |                                                                                                                           |
| 10:15am-11:00am                                           | (invited) Senko (University of Waterloo)                                                                                  |
| 11:00am-11:30am                                           | Harraz (Duke)<br>Scalable Implementation of Trapped ion Digital-Analog<br>Quantum Computer for Grover's Oracle            |
| 11:30am-12:00pm                                           | Allcock (IonQ)<br>A quantum-charge-coupled-device trapped-ion quantum<br>computer utilizing all-electronic control        |
| 12:00pm - 1:30pm                                          | Lunch Buffet                                                                                                              |
| <b>SESSION 8a: Squeezing and control in AMO platforms</b> |                                                                                                                           |
| 1:30pm-2:00pm                                             | McGarrigle (Sandia)<br>Fast spin-dependent squeezing for N-qubit entangling trapped-<br>ion gates                         |
| 2:00pm-2:30pm                                             | Bhardwaj (Arizona State)                                                                                                  |

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|                                                                | Enhancing the phase sensitivity of a Mach-Zehnder interferometer beyond the Heisenberg limit through dynamic squeezing     |
| 2:30pm-3:00pm                                                  | Pannier-Günther (University of New Mexico)<br>Quantum optimal control of the Dicke manifold in dipolar Rydberg atom arrays |
| 3:00pm -3:30pm                                                 | Randles (Sandia)<br>Ghost unitaries for loss-resilient photonic resource-state generation                                  |
| <b>SESSION 8b: Quantum algorithms and classical simulation</b> |                                                                                                                            |
| 1:30pm-2:00pm                                                  | Seibert (University of New Mexico)<br>Correlation is magic in electronic structure Hamiltonians                            |
| 2:00pm-2:30pm                                                  | Jones (Infleqtion)<br>Quantum-Inspired Many-Body Simulation of Triplet Exciton Dynamics in Molecular Crystals              |
| 2:30pm-3:00pm                                                  | LaRose (Michigan State)<br>Efficient classical simulation of large-scale unitary cluster Jastrow circuits                  |
| 3:00pm -3:30pm                                                 | Surti (University of California, Davis)<br>Efficient simulation of logical magic state preparation protocols               |
| <b>SESSION 8c: Benchmarking</b>                                |                                                                                                                            |
| 1:30pm-2:00pm                                                  | Geller (NIST Boulder)<br>Measuring fidelities and leakage in the presence of preparation and measurement errors            |
| 2:00pm-2:30pm                                                  | Widzowski Maupin (Sandia)<br>Benchmarking the road to quantum utility with QUOPS                                           |
| 2:30pm-3:00pm                                                  | Gabay (IonQ)<br>Scalable Characterization of Quantum Noise Beyond the Stationary Markovian Model                           |
| 3:00pm -3:30pm                                                 | Raza (University of New Mexico)<br>Benchmarking quantum simulation at scale                                                |
| 3:30pm -4:00pm                                                 | Break                                                                                                                      |
| <b>SESSION 9a: Quantum error correction</b>                    |                                                                                                                            |
| 4:00pm-4:30pm                                                  | Koh (Harvard)<br>Phantom codes: Entangling logical qubits without physical operations                                      |
| 4:30pm-5:00pm                                                  | Chien (Sandia)                                                                                                             |

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|                                                            | A flexible framework for high-threshold single-shot error correction                                                                         |
| 5:00pm-5:30pm                                              | Wu (University of Southern California)<br>Single-Block Universality in Hypercube Codes with Postselected Fault Tolerance                     |
| 5:30pm-6:00pm                                              | Zheng (Yale)<br>Magic Gate Teleportation: Structure, Useful Resource States, and Simpler Feedforward                                         |
| <b>SESSION 9b: Entanglement and quantum optics</b>         |                                                                                                                                              |
| 4:00pm-4:30pm                                              | Zang (Chicago)<br>Enhancing Entanglement Purification with Shared Randomness                                                                 |
| 4:30pm-5:00pm                                              | Chang (Georgia Tech)<br>Entanglement Percolation Routing in LEO Satellite-based Quantum Networks                                             |
| 5:00pm-5:30pm                                              | Wang (Maryland)<br>Entanglement advantage in sensing power-law spatiotemporal noise correlations                                             |
| 5:30pm-6:00pm                                              | Jiao (Toronto)<br>What is the cross-phase shift due to a photon that is prepared continuous wave and is then localized in time by detection? |
| <b>SESSION 9c: Frontiers of quantum information theory</b> |                                                                                                                                              |
| 4:00pm-4:30pm                                              | Riberi (University of New Mexico)<br>Infinitesimal Kraus Gauge Bounds for Quantum Metrology in Open Systems                                  |
| 4:30pm-5:00pm                                              | Tate (Los Alamos)<br>Finding Optimal Distributions Via Quantum Computing                                                                     |
| 5:00pm-5:30pm                                              | He (Cornell)<br>Canonical quantization of neurons                                                                                            |
| 5:30pm-6:00pm                                              | Alhejji (University of New Mexico)<br>Constraints on recovering quantum information after erasure                                            |
| 6:10pm - 7:00pm                                            | Steering Committee Meeting                                                                                                                   |
| 7:00pm - 9:00pm                                            | Banquet                                                                                                                                      |

## Saturday 10/17 Program

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| 7:30am - 8:30am | Breakfast |
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## SESSION 10: Engineering solid states

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| 8:30am-9:15am    | (invited) Ladd (HRL)                                                                         |
| 9:15am-9:45am    | Kazi (Princeton)<br>Momentum-resolved quantum noise spectroscopy of a cuprate superconductor |
| 9:45am - 10:15am | Break                                                                                        |

## SESSION 11: Learning and characterization

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| 10:15am-11:00am  | (invited) Huang (Caltech, Oratomic)                                         |
| 11:00am-11:30am  | Wysocki (Sandia)<br>Probing logical qubit dynamics with gate set tomography |
| 11:30am-12:00pm  | Friedman (NIST Boulder)<br>The Open Quantum Challenge                       |
| 12:00pm - 1:30pm | Lunch Buffet                                                                |

## SESSION 12: Resource estimation for quantum computation

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| 1:30pm-2:15pm   | (invited) Kothari (Google)                                           |
| 2:15pm-2:45pm   | Chang (Los Alamos)<br>Cost of classically simulable quantum dynamics |
| 2:45pm - 3:15pm | Break                                                                |

## SESSION 13: Utility of real quantum hardware

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| 3:15pm-3:45pm   | Aziz (Rutgers)<br>Order from chaos with adaptive circuits on quantum hardware                                                                |
| 3:45pm-4:15pm   | Corbett (University of New Mexico)<br>Explicitly correlated ground states with a feedback-free variational hybrid algorithm                  |
| 4:15pm-4:45pm   | Pelofske (Los Alamos)<br>Magnetic Hysteresis Experiments Performed on Quantum Annealers                                                      |
| 4:45pm-5:15pm   | Froland (University of Washington)<br>Realizing Error Suppression in Partially Fault-Tolerant Quantum Simulations with IBM Quantum Computers |
| 5:15pm - 5:30pm | Break                                                                                                                                        |

## SESSION 14: Ion-trap quantum computing

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| 5:30pm-6:30pm | (invited) Ransford (Quantinuum) |
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