

## QCE'24 "Advanced Simulations of Quantum Computations" Workshop Program

### Sunday Sep 15, 2024 (EDT time):

10:00 AM - 10:30 AM: **In-Saeng Suh**, Oak Ridge National Laboratory, USA: *Quantum Simulators on Large-Scale HPC systems*

10:30 AM - 11:00 AM: **Pradeep Niroula**, JP Morgan Chase, USA: *High-Performance Quantum Simulations towards Financial Use-Cases*

11:00 AM - 11:30 AM: **Henry Liu**, JP Morgan Chase, USA: *The Computational Power of Random Quantum Circuits in Arbitrary Geometries*

1:00 PM - 1:30 PM: **Jonathan Wurtz**, QuEra, USA: *Emulating Neutral Atoms with Bloqade and Beyond*

1:30 PM - 2:00 PM: **Stefan Krastanov**, University of Massachusetts Amherst, USA: *Composability and Multi-Formalism in Quantum Networking Simulations*

2:00 PM - 2:30 PM: **Taha Rajabzadeh**, Stanford University, USA: *A Versatile Gradient-Based Optimization Approach for Superconducting Quantum Circuits with Qubit Discovery as an Example*

3:00 PM - 3:30 PM: **Benjamin Villalonga**, Google AI Quantum, USA: *On the Weak Simulation of Shallow Quantum Circuits beyond 1D*

3:30 PM - 4:00 PM: **Salvatore Mandra**, NASA Ames Research Center, USA: *Exploring Optimization Techniques for Finding Tensor Network Contraction Paths*

4:00 PM - 4:30 PM: **Dmitry Lyakh**, NVIDIA, USA: *cuQuantum SDK: A Toolkit for Accelerating Quantum Science via High-Performance GPU Computing*

### Monday Sep 16, 2024 (EDT time):

10:00 AM - 10:30 AM: **Shashwat Kumar**, Princeton University, USA: *Superconducting Circuit Optimization Using Graph Machine Learning*

10:30 AM - 11:00 AM: **Ronan Gautier**, Alice & Bob, France: *Dynamiqs: An Open-Source Python Library for GPU-Accelerated and Differentiable Simulations of Quantum Systems*

11:00 AM - 11:30 AM: **Simon Cross**, Zurich Instruments, Switzerland: *Using the QuTIP HEOM for Non-Markovian Quantum Engineering*

1:00 PM - 1:30 PM: **Eric Ostby**, Aliro Quantum, USA: *Discrete Event Simulations of Entanglement-Based Quantum Networks*

1:30 PM - 2:00 PM: **Roland Guichard**, PASQAL, France: *Pulse-Level Simulation of Digital-Analog Neutral Atom Quantum Computers*

2:00 PM - 2:30 PM: **Kevin Young**, Sandia National Laboratory, USA: *Modeling the Effects of Time-Correlated Noise on QCVV Experiments*

3:00 PM - 3:30 PM: **Yuri Alexeev**, NVIDIA, USA: *Benchmarks for a Potential to Achieve Quantum Advantage*

3:30 PM - 4:30 PM: **Discussion**: *Open Challenges in Classical Simulations of Quantum Computations and the Quantum Advantage Boundary.*