QCE'23 "Advanced Simulations of Quantum Computations" Workshop Program

Sunday Sep 17, 2023 (PDT times):

10:00 AM - 10:30 AM: Thomas Ayral, Atos Quantum R&D Program, Atos SE, France: TBA

10:30 AM - 11:00 AM: Ang Li, Pacific Northwest National Laboratory, USA: *NWQSim: Scalable simulation of quantum systems on heterogeneous supercomputers*.

11:00 AM - 11:30 AM: Salvatore Mandrà (virtual), Quantum Artificial Intelligence Lab, NASA Ames, USA: *Improved simulations of random quantum circuits.*

1:00 PM - 1:30 PM: Henry Liu, University of Chicago, USA: *Classical simulation of the boson sampling quantum supremacy experiments*.

1:30 PM - 2:00 PM: Jeffrey Marshall, NASA Ames Research Center, USA: *Simulation of quantum optics*.

2:00 PM - 2:30 PM: Stefanos Kourtis (virtual), University of Sherbrooke, Canada: *Finite-rate sparse quantum codes aplenty*.

3:00 PM - 3:30 PM: Danylo Lykov, Argonne National Laboratory, USA: *Change of basis to improve density matrix simulations*.

3:30 PM - 4:00 PM: Yue Sun, JPMorgan Chase, USA: *Fast simulation of high-depth QAOA*.

4:00 PM - 4:30 PM: Teague Tomesh, Infleqtion, USA: *Quantum contextuality and GPU-enabled simulations of contextual machine learning*.

Monday Sep 18, 2023 (PDT times):

10:00 AM - 10:30 AM: Aleksander Wennersteen, PASQAL, France: *Pulse-level simulation of Rydberg atom based quantum processors*.

10:30 AM - 11:00 AM: Pedro Lopes, QuEra, USA: *Bloqade - efficient emulation and easy operation of neutral-atom quantum computers*.

11:00 AM - 11:30 AM: Korbinian Kottmann (virtual), Xanadu, Canada: Differentiable pulse programming in PennyLane.

1:00 PM - 1:30 PM: James Allen, University of Illinois Urbana-Champaign, USA: *Simulating neutral atom quantum systems with tensor network states*.

1:30 PM - 2:00 PM: Benjamin Villalonga, Google AI Quantum, USA: *What is the classical computational cost of today's largest scale quantum computations*?

2:00 PM - 2:30 PM: Miles Stoudenmire (virtual), Flatiron Institute, USA: TBA

3:00 PM - 3:30 PM: Dmitry Lyakh, NVIDIA, USA: *cuQuantum SDK: A high-performance library for accelerating quantum science*.

3:30 PM - 4:30 PM: Discussion: *Open challenges in classical simulations of quantum computations*.