

Quantum computing and nuclear theory

CFNS, Stony Brook, Wednesday, Feb. 12, 2025

9:00-9:30, Sophia Economou, "Non-Variational ADAPT algorithm for quantum simulations"

9:30-9:45, Erik Gustafson, "Surrogate Constructed Scalable Circuits ADAPT-VQE"

9:45-10:00, Karunya Shirali, "To break, or not to break: translation symmetry in adaptive quantum simulations of the lattice Schwinger model"

10:00-10:15, Yanzhu Chen, "Logical magic state preparation with the aid of non-Abelian topological order"

10:15-10:30: break

10:30-11:00: Dima Kharzeev, "Entanglement as a probe of hadronization"

11:00-11:15, David Frenklakh, "Quantum simulation of entanglement and hadronization in jet production: lessons from the massive Schwinger model"

11:15-11:30: Dean Lee, "State preparation for quantum many-body systems"

11:30-12:30: Lunch

12:30-1:00: Henry Lamm, "Qudit Gate Decomposition Dependence for Lattice Gauge Theories"

1:00-1:15: Judah Unmuth-Yockey, "Fermion determinants on a quantum computer"

1:15-1:30: Yuta Kikuchi: "Lindblad engineering for quantum Gibbs state preparation under the eigenstate thermalization hypothesis"

1:30-1:45: break

1:45-2:15: Raju Venugopalan, "Entanglement entropy of color flux tubes"

2:15-2:30: Robert Edwards, "Toward coherent quantum computation of scattering amplitudes with a measurement-based photonic quantum processor"

2:30-2:45: Raghav Govind Jha: "KC for QC on a QC: Krylov complexity for quantum chaos on a quantum computer"

2:45-3:00: break

3:00-3:30: Norm Tubman, "Classical Pre-optimization Approach for ADAPT-VQE"

3:30-3:45: Kyle Sherbert, "The role of reference states in pulse-level VQEs"

3:45-4:00: Bharath Sambasivan, "Thermal state preparation of the SYK model using a variational quantum algorithm"

4:00-4:15: break

4:15-4:30: Ananda Roy, "Universal Quantum Circuits for Quantum Field Theories"

4:30-4:45: David Rogerson: "Quantum Circuit Optimization using Differentiable Programming of Tensor Network States"

4:45-5:00: Neill Warrington: "A lattice field theory of superconducting quantum circuits"

5:00-6:00: Discussion, nuclear theory and a renewal of C2QA

7:30: dinner, Inca, Sound Beach, <https://www.incasperuvianliny.com/>