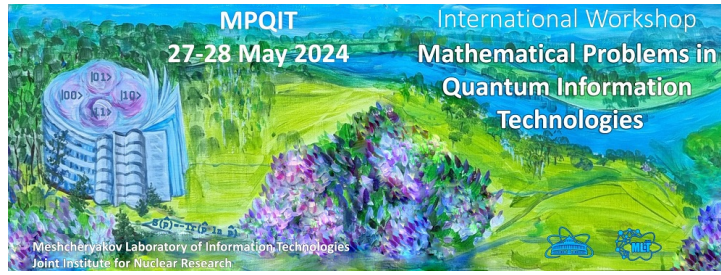


Mathematical Problems in Quantum Information Technologies



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Testing the operation of the QAOA algorithm on the quantum testbed of the HybriLIT platform

Tuesday, 28 May 2024 09:50 (20 minutes)

A simulation of the operation of the quantum approximation optimization algorithm (QAOA) on the Cirq quantum computing simulator installed on the HybriLIT quantum polygon platform has been carried out. The problem of finding the state with the lowest energy in the Ising model with a longitudinal magnetic field for two- and three-dimensional lattices of various sizes was solved. Optimization of the parameters of the variational ansatz was carried out using both gradient and gradient-free methods. The optimization results derived by various methods were compared for a number of parameters. In the course of the work, quantum circuits with a register of up to 30 qubits were investigated.

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