CP-07-02

Design and optimization of fault-tolerant quantum computing

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Abstract

While fault-tolerant quantum computing (FTQC) is considered the most promising way to achieve reliable quantum computing, it demands the integration of high-fidelity physical qubits and the complicated design of logic units. To steadily reduce the difficulties, we need a concrete baseline evaluation and optimization methods based on it. In this talk, I present a framework for evaluating critical components of FTQC. Then, I will explain recent our results to optimize the performance of FTQC.