MAR17-2016-001460

Abstract for an Invited Paper for the MAR17 Meeting of the American Physical Society

Challenges ahead in implementing digital quantum algorithms

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Superconducting qubits are starting to demonstrate quantum algorithms consisting of up to a thousand gates, a size that can be considered as a precursor to future large-scale algorithms. These demonstrations highlight the need for improvements in hardware, specifically in control, fidelity, and coherence. I will discuss the present limitations and the challenges ahead in improving quantum hardware to enable larger algorithms.