

Superconducting Quantum Circuits: Balancing Art & Architecture

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Abstract— Quantum computers densely encode information by entangling qubits. Some gate-based quantum algorithms promise an exponential speed up over the best-known classical algorithms. Superconducting qubits have shown a path to scalability and we review how two decades of materials and control hardware research have allowed for the demonstration of interesting quantum phenomena using entangled qubits. Preliminary results of an experiment exploring the black hole information paradox are presented.

Keywords (Index Terms) — Quantum, superconducting, transmon, qubits, architecture.

IEEE-CSC & ESAS SUPERCONDUCTIVITY NEWS FORUM (global edition), November 2019.

Selected 5 September 2019. Reference RP105; Invited presentation 4-EO-PL3 given at EUCAS, 1 - 5 September 2019, Glasgow, UK.