

Abstract Submitted
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Random Quantum Circuits with Varying Topologies and Gate Sets ANTHONY POLLORENO, NICHOLAS RUBIN, ROBERT SMITH, WILLIAM ZENG, Rigetti Quantum Computing — We build on recent results using sampling from the output of random unitary matrices as a metric for quantum supremacy. We first investigate the relationship between the choice of gate set and the circuit depth required to converge to the Porter-Thomas distribution. In particular, we note that convergence is possible using iSWAP gates in place of CZ gates. Next we explore the effects of varying qubit connectivity on the convergence behavior of random circuits. We address the feasibility of these schemes with near-term superconducting qubit hardware.

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