

Abstract Submitted
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Design and Implementation of Multi-Qubit 3D Quantum Integrated Circuits ANDREW BESTWICK, Rigetti Computing, ALEXANDER PAGEORGE, Rigetti Computing, MATT REAGOR, Rigetti Computing, CHAD RIGETTI, chad@rigetti.com, RIGETTI COMPUTING TEAM — We present a superconducting integrated quantum circuit architecture that enables the high-fidelity measurement and control of multi-qubit devices. Superconducting through-silicon vias and 3D isolation caps allow for scalable circuits without tradeoffs in signal integrity, forming a platform for the implementation of a wide range of on-chip functionality. When combined with efficient, robust signal delivery and instrumentation, this approach can be scaled for sophisticated quantum information applications.

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