

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Engineering Signal Integrity in Multi-qubit Devices: Part I

WILLIAM O'BRIEN, ANDREW BESTWICK, MEHRNOOSH VAHIDPOUR, JON TYLER WHYLAND, JOEL ANGELES, DIEGO SCARABELLI, MARIUS VILLIERS, MICHAEL CURTIS, ANTHONY POLLORENO, MICHAEL SELVANAYAGAM, ALEXANDER PAPAGEORGE, NICKOLAS RUBIN, CHAD RIGETTI, Rigetti Quantum Computing — Cross-talk between qubits can lead to coherence errors, which are particularly difficult to correct in a quantum algorithm. To mitigate noise channels, we have developed a superconducting circuit architecture that partitions devices into shielded compartments with well-defined boundaries. These structures are designed to isolate each component of the circuit. We describe the design and process flow for fabricating robust superconducting boundaries. We present preliminary results on our success in attenuating unwanted cross-talk, while enabling the desired coupling among components.

William O'Brien
Rigetti Quantum Computing

Date submitted: 14 Nov 2016

Electronic form version 1.4