Abstract Submitted
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Cross-resonance interactions between superconducting qubits with variable detuning[1] MATTHEW WARE, Syracuse University, BLAKE JOHNSON, Ratheon BBN Technologies, JAY GAMBETTA, IBM T.J. Watson Research Center, COLM RYAN, THOMAS OHKI, Ratheon BBN Technologies, JERRY CHOW, IBM T.J. Watson Research Center, B.L.T. PLOURDE, Syracuse University — The cross-resonance effect is a promising route for generating two-qubit gates in an all-microwave architecture based on superconducting qubits. Because the strength of the cross-resonance effect, and hence the speed of a two-qubit gate, depends sensitively on the detuning between the qubits and the anharmonicity of each qubit, we are performing experiments with some fixed-frequency transmon qubits and others with some tunability. By using asymmetric transmon qubits, we are able to vary this detuning over a moderate range. This allows us to study the cross-resonance effect while varying the magnetic flux to generate different qubit-qubit detunings.

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