

Abstract Submitted
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A new implementation of a Josephson microwave circulator¹ K.M. SLIWA, M. HATRIDGE, A. NARLA, S. SHANKAR, M.H. DEVORET, Department of Applied Physics, Yale University — Circulators are essential microwave components in superconducting qubit experiments, particularly those which also use parametric amplifiers. These amplifiers typically operate in reflection, and circulators both separate input from output, and protect the qubit from dephasing due to tones reflected off the amplifier. Unfortunately, their large size and the large magnetic fields they need to operate make them impossible to integrate on chip. Here we present the theory and experimental performance of a microwave circulator based not on ferrite materials, but on the interference of non-reciprocal mixing processes present in Josephson Ring Modulators.

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