Abstract Submitted
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Measurement of the phase non-reciprocity of the Josephson parametric converter[1] BALEEGH ABDO, KATRINA SLIWA, ARCHANA KAMAL, FLAVIUS SCHACKERT, MICHAEL HATRIDGE, LUIGI FRUNZIO, MICHEL DEVORET, Applied Physics - Yale University — Non-reciprocal devices such as circulators and isolators play a pivotal role in many microwave experiments on quantum superconducting circuits. However, non-reciprocity in these devices is achieved using ferrites and permanent magnets which are not suitable for on chip integration. We have built a symmetric two port device by pairing two Josephson parametric converters (JPCs) working in pure conversion mode, each of which is driven with an independent pump tone. We observed a non-reciprocal phase shift between the two ports, which depends on the phase difference between the two pumps. The present noiseless system constitutes an important step towards the implementation of a noiseless gyrator, the main building block of an on-chip circulator for back-action free quantum measurement.

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