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Implementation of the Wide Band Josephson Parametric Amplifier in ORGAN Q

The Wide-Band Josephson Parametric Amplifier (JPA) by Raytheon BBN is used in the characterisation experiment for its implementation in the ORGAN Q experiment. The JPA was set in a 3-wave mixing configuration: a DC current source provided a tunable resonant frequency while a pump modulator was used to provide parametric amplification of an input signal. Results show that input frequency ranges of 6.1 GHz to 6.75 GHz can give up to 25 dB of gain with 60 MHz of maximum instantaneous bandwidth. Up to 700 MHz of bandwidth can be used if the tuning parameters are re-adjusted while performing the input frequency sweep.

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