

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Characterization of flux-driven Josephson parametric amplifiers¹

A. BAUST, E.P. MENZEL, T. NIEMCZYK, E. HOFFMANN, M. HAEBERLEIN, F. DEPPE, A. MARX, R. GROSS, Walther-Meissner-Institut and TU Muenchen, Garching, Germany, E. SOLANO, Universidad del Pais Vasco and IKERBASQUE Foundation, Bilbao, Spain, K. INOMATA, RIKEN, Wako, Japan, T. YAMAMOTO, Y. NAKAMURA, NEC, Tsukuba and RIKEN, Wako, Japan — Phase sensitive linear amplifiers receive increasing interest for applications in the field of circuit QED as they allow for the amplification of one signal quadrature without, in principle, adding noise. The flux-driven Josephson parametric amplifier characterized in this work is formed by a SQUID- terminated transmission line resonator with resonant frequency that can be varied by applying an ac magnetic flux signal through the SQUID. We have characterized two Josephson parametric amplifiers with different design parameters with respect to the center frequency and quality factor of the resonator, phase-dependent and phase-independent gains, as well as compression points and bandwidths.

¹This work is supported by SFB 631, NIM, Basque Government IT4720-10, Spanish MICINN FIS2009-12773-C02-01, and EU project SOLID.

Alexander Baust
Walther-Meissner-Institut and TU Muenchen, Garching, Germany

Date submitted: 27 Dec 2010

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