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Current - Flux characteristics of a hysteretic asymmetric dc SQUID qubit HANHEE PAIK, J. MATTHEWS, S.K. DUTTA, H. XU, R.C. RAMOS, T.A. PALOMAKI, R.M. LEWIS, J.R. ANDERSON, C.J. LOBB, F.C. WELLSTOOD, Center for Superconductivity Research, Department of Physics, University of Maryland, College Park — We present data and simulations of the behavior of a superconducting qubit, the asymmetric hysteretic dc SQUID or inductively isolated Josephson jucntion. Measurements of the current-flux (I-Φ) characteristics were taken on an Al/AlO_x/Al dc SQUID at 100 mK and compared to analytical and numerical simulations. The SQUID has one junction with twice the critical current of the other junction, and one arm of a relatively large inductance, compared to the other arm of the SQUID. With this configuration, which was first proposed by Martinis *et al.*[1], the larger junction acts as an inductively isolated qubit, while the smaller junction acts as a detector. From the I-Φ curve, we extract the SQUID parameters and reveals how well isolated the qubit is from its leads. This work is supported by the Department of Defense, NSF and the Center for Superconductivity Research. [1] Martinis *et al.* Phys. Rev Lett. **89** 117901 (2002)

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