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1/f Flux Noise in SQUIDs and Josephson Junction Qubits[1] DAVID CARDAMONE, CLARE YU , University of California, Irvine — 1/f flux noise represents an important, universal source of noise and decoherence in Josephson junction devices, one which must be overcome if their promise of a scalable, reliable mesoscopic qubit is to be achieved. Recent experiments at millikelvin temperatures (S. Sendelbach et al., Phys. Rev. Lett. 100, 227006(2008)) have suggested that this noise may be due to magnetic impurities residing at the surface of the superconductor. We examine this possibility, considering various models for the spacing and interactions of the impurities, and comparing the results of our numerical Monte Carlo simulations with experiment.

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