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**Dispersive microwave readout of a silicon double quantum dot**[1] ANDREW SCHMIDT, EDWARD HENRY, U.C. Berkeley, QNL, M.G. HOUSE, UCLA, Y.T. WANG, C.C. LO, H. LI, L. GREENMAN, U.C. Berkeley, H. PAN, M. XIAO, UCLA, K.B. WHALEY, U.C. Berkeley, H.W. JIANG, UCLA, E. YABLONOVITCH, J. BOKOR, U.C. Berkeley, I. SIDDIQI, U.C. Berkeley, QNL — Microwave resonators coupled to quantum systems have been used for fast dispersive measurement in several different architectures in solid state and atomic physics. The electronic states of a semiconductor quantum dot represent a promising candidate for quantum information processing. Our work is geared toward developing a fast, non-demolition readout of a semiconductor qubit as realized in silicon by coupling to a superconducting resonant circuit. We report progress on a novel design of a lateral double quantum dot with a unique accumulation gate that allows for control of the spatial location of the 2DEG on the device, allowing the lossy 2DEG to be decoupled from the resonator.

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