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**Analysis of Random Telegraph Signals from Vertical “Enhancement Mode” Quantum Dot Devices** MARK GYURE, GEOFFREY SIMMS, RICHARD ROSS, EDWARD CROKE, HRL Laboratories, LLC — Clear signatures of single electron tunneling in vertical “enhancement mode” semiconductor quantum dot devices have recently been observed. These devices hold great promise for future scalability of semiconductor-based quantum information processing because they require only a single gate electrode to create the quantum dot. In this talk, we present a detailed analysis of the random telegraph signals observed in these devices as various  $N$  to  $N+1$  electron transitions are swept through by varying the gate voltage and magnetic field. This analysis allows us to extract a variety of information about the transitions and further supports our conclusion that electrons are tunneling between the gate-induced quantum dot and the readout channel below. Results of self-consistent Schrodinger-Poisson simulations of these devices are presented that also support this interpretation of the experimental results.

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