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Charge dynamics in a single electron trap JULIE WYATT, Yale University, ROBERT SCHOELKOPF, Yale University — We report on measurements made using a radio frequency single electron transistor (RF-SET) capacitively coupled to a small metallic island to study the dynamics of single tunneling events. A circuit consisting of two small metallic islands and two tunnel junctions provides an architecture with which to tune the tunneling rates of single electrons up to the micro-second time scale. Thermal and cotunneling (quantum tunneling) events as well as the cross-over between the two regimes can be studied with this system. Characterization of devices will be shown including stability diagrams and the dependence of tunneling rates on bias conditions.

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