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Latching behavior of the driven damped Jaynes-Cummings model in circuit-QED LEV BISHOP, ERAN GINOSSAR, DAVID SCHUSTER, STEVEN GIRVIN, Yale University — For superconducting circuits, typical latching behavior occurs in a quasi-classical fashion in weakly nonlinear systems, for example: the Josephson Bifurcation Amplifier. In contrast we investigate the situation where latching is provided by the strong intrinsic non-linearity of a qubit in the strong-coupling vacuum Rabi regime of circuit QED. In this context we use quantum simulations to gain access to the intermediate regime between the single photon-blockade and quasi-harmonic limits of a qubit-cavity system. We study the dynamical properties (lifetime, basin of attraction) of excited non-equilibrium states of the Jaynes-Cummings model. We expect that this scheme will be useful for qubit readout with experimental realizations of transmon qubits.

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