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Simple quantum trajectories for transmon measurement with moderate bandwidth ALEXANDER N. KOROTKOV, University of California, Riverside — So far, most experiments on the continuous quantum measurement of superconducting qubits in a circuit QED setup have been well described by the Quantum Bayesian formalism, which assumes the "bad cavity limit": the resonator bandwidth is assumed to be much larger than the measurement-induced dephasing. However, in some experiments this assumption is not applicable, and then the Quantum Bayesian formalism should be extended. We discuss a relatively simple generalization to the case of arbitrary resonator bandwidth, which can be applied when there is no significant qubit evolution due to Rabi oscillations. We also discuss how to include Rabi oscillations and energy relaxation into the simulation of quantum trajectories.

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