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**Single-atom trajectories of intermittent fluorescence with quantum jumps** PATRICK COLES, ROBERT GRIFFITHS, Department of Physics, Carnegie Mellon University — Understanding the trajectories of single quantum systems is a modern theoretical challenge, given that experiments are no longer restricted to ensemble-averaged dynamics. Here, we present a model for a single 3-level atom driven resonantly on two transitions, resulting in intermittent fluorescence from one transition. The consistent histories formalism provides insight into the intermittent "shelving" process and predicts the distribution of dark periods for a given trajectory. We further predict quantum interference that leads to oscillations in the quantum-jump probability and discuss the possibility of observing these oscillations experimentally.

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