

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Tracking Multi-State Quantum Jumps in a Superconducting Circuit NEDA FOROUZANI, DIAN TAN, MAHDI NAGHILOO, KATER MURCH, Washington University, St. Louis — Quantum measurements are known to be crucial for quantum error-correction and state initialization. Continuous measurements can be used for state tracking and real-time quantum feedback. If the measurements are strong, the state dynamics are described by quantum jumps between states. Using continuous measurements, we track the quantum state of a transmon circuit initially in its lowest energy state. We observe spurious jumps between five observable states of the circuit and use a Bayesian update formalism to estimate state occupation probabilities as well as transition rates over time. Our analysis reveals switching between different quantum jump statistics. Resolving the energy distribution of spurious jumps will help characterize this decoherence process.

Neda Forouzani
Washington University, St. Louis

Date submitted: 03 Nov 2015

Electronic form version 1.4