## Abstract Submitted for the MAR17 Meeting of The American Physical Society

Resonance fluorescence readout of a superconducting qubit NATHANAEL COTTET, Ecole Normale Superieure, YEN-HSIANG LIN, LONG NGUYEN, NICHOLAS GRABON, VLADIMIR MANUCHARYAN, University of Maryland - Joint Quantum Institute — In many atomic or color centers physics experiments the state of a (typically long-lived) qubit is measured by exciting a transition to a (typically short-lived) higher energy level and collecting the fluoresced photons. We adapted this scheme to the measurement of a qubit transition of a multi-level fluxonium artificial atom embedded in a waveguide. In this scheme the qubit transition must be tuned below the waveguide's cutoff while the readout transition must stay in the pass-band. We discuss how the proposed scheme can offer a measurement rate comparable to the ones obtained in conventional dispersive circuit QED experiments and present initial experimental results.

Nathanael Cottet Ecole Normale Superieure

Date submitted: 10 Nov 2016 Electronic form version 1.4