MAR17-2016-020242

Abstract for an Invited Paper
for the MAR17 Meeting of
the American Physical Society

**Information and energy transfer via fluorescence in superconducting circuits**

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Light emitted via fluorescence is associated with matter decaying in energy. This light can be viewed both as an energy carrier and as a probe that carries information about the state of its emitter. When this information is lost, the fragile quantum properties of the emitter are destroyed, resulting in decoherence. This talk will present a series of experiments that probe and use the information and the energy conveyed by fluorescence in a superconducting circuit. On the information side, we have realized an experiment that reconstructs the diffusive quantum trajectories of a superconducting qubit based on the heterodyne measurement of its fluorescence field. Going a step further, we have used that information to stabilize any state of the qubit by feedback. On the energy side, we were able to demonstrate directly how the emitted power by a qubit depends on its quantum state, hereby giving a textbook demonstration of the difference between spontaneous and stimulated emission. In the same lines, I will also present a new kind of router that is able to transfer power between two ports, and whose transfer direction depends solely on the phase of a quantum superposition.