

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Coulomb Blockade of Shot Noise DENIS VION, CARLES ALTIMIRAS, OLIVIER PARLAVECCHIO, PHILIPPE JOYEZ, PATRICE ROCHE, DANIEL ESTEVE, FABIEN PORTIER, Service de Physique de l'Etat Condense, IRAMIS, CEA-Saclay, 91190 Gif sur Yvette, France — We observe the suppression of the finite frequency shot-noise produced by a voltage biased tunnel junction due to its interaction with a single electromagnetic mode of high impedance. The junction is embedded in a superconducting $\lambda/4$ resonator containing a dense SQUID array yielding a resonator characteristic impedance in the kOhm range and a resonant frequency tunable in the 4-6 GHz range. Such high impedance gives rise to a sizeable Coulomb blockade on the tunnel junction (about 30% reduction in the differential conductance) and allows an efficient measurement of the spectral density of the current fluctuations at the resonator frequency. The observed blockade of shot-noise is found in agreement with an extension of the dynamical Coulomb blockade theory.

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Date submitted: 12 Nov 2013

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