Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Supercurrent Spectroscopy of Andreev States ÇAĞLAR GIRIT, CEA-Saclay, LANDRY BRETHEAU, Ecole Normale Superieure, CRISTIAN URBINA, DANIEL ESTEVE, HUGUES POTHIER, CEA-Saclay — We measure the excitation spectrum of a superconducting atomic contact. In addition to the usual continuum above the superconducting gap, the single particle excitation spectrum contains discrete, spin-degenerate Andreev levels inside the gap. Quasiparticle excitations are induced by a broadband on-chip microwave source and detected by measuring changes in the supercurrent flowing through the atomic contact. Since microwave photons excite quasiparticles in pairs, two types of transitions are observed: Andreev transitions, which consists of putting two quasiparticles in an Andreev level, and transitions to odd states with a single quasiparticle in an Andreev level and the other one in the continuum.

Caglar Girit
CEA-Saclay

Date submitted: 14 Nov 2013 Electronic form version 1.4