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

Compressibility measurements using a circuit QED architecture MATTHIEU DESJARDINS, Laboratoire Pierre Aigrain, Ecole Normale Suprieure-PSL Research University, JEREMIE VIENNOT, JILA and Department of Physics, University of Colorado, Boulder, Colorado, 80309, USA, MATTHIEU DARTI-AILH, LAURE BRUHAT, Laboratoire Pierre Aigrain, Ecole Normale Suprieure-PSL Research University, MATTHIEU DELBECQ, Center for Emergent Matter Science, RIKEN, 147 Main Bldg., 2-1 Hirosawa, Wako-shi, Saitama, 351-0198 Japan, MINCHUL LEE, Department of Applied Physics, College of Applied Science, Kyung Hee University, 1732 Deogyeong-daero, Giheung-gu, Yongin-si, Gyeonggi-do, 446-701, Re, MAHN-SOO CHOI, Department of Physics, Korea University, 145 Anamro, Seoul 02841, South Korea, AUDREY COTTET, TAKIS KONTOS, Laboratoire Pierre Aigrain, Ecole Normale Suprieure-PSL Research University — Quantum dots exhibit a wide variety of many body phenomena. A circuit QED architecture could also be instrumental for understanding them because it allows one to directly probe the compressibility of an electronic system. One of the most paradigmatic phenomenon is the Kondo effect which is at the heart of many electron correlation effects. We will show that a circuit QED architecture has allowed us to observe the decoupling of spin and charge excitations in a Kondo system. The Kondo resonance, visible in the conductance of the quantum dot, is 'transparent' to the microwave cavity photons. This reveals the freezing of charge dynamics. Our setup could be generalized to other types of mesoscopic circuits with many-body correlations and used to perform quantum simulation of fermion-boson systems.

> Matthieu Desjardins Lab., Pierre Aigrain, Ecole Normale Suprieure-PSL Research Univ

Date submitted: 20 Nov 2016

Electronic form version 1.4