

Abstract Submitted  
for the OSF16 Meeting of  
The American Physical Society

**Dynamic properties of the Kondo state: proposal for an investigation of the linear response**<sup>1</sup> IAN GULLETT, SARAH BAKER, DMITRII KRUGLOV, University of Cincinnati, MICHAEL MELLOCH, Purdue University, ANDREI KOGAN, University of Cincinnati — Electronic correlations give rise to unusual properties of matter that range from superconductivity to exotic magnetic states. Kondo spins are examples of quantum systems whose properties are dominated by the correlation effects and can be studied in Single-Electron transistors (SETs) where the spin confinement can be tuned electrically. We have recently shown [1] that transport through SETs becomes non-adiabatic when the spin confinement potential is modulated with frequencies  $\hbar\omega$  comparable to the Kondo temperature, typically 10-20 GHz in our SETs. Here, we present a method for a direct observation of the *reactive component* of the Kondo-induced current in SETs. This measurement is expected to provide a more direct comparison of transport data to predictions for the full linear response of SETs in the Kondo regime than the previous measurements of the time-averaged conductance of Kondo states subjected to microwave radiation. We will present a detailed analysis of the new detection technique and compare the method to earlier experiments on Kondo dynamics via transport and light scattering measurements. [1] Bryan Hemingway, Stephen Herbert, Michael Melloch and Andrei Kogan, Dynamic response of a spin-1/2 Kondo singlet PRB **90**, 125151, 2014.

<sup>1</sup>DMR-1206784

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Date submitted: 12 Sep 2016

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