Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Effect of a Coulombic dot-lead coupling on the dynamics of a quantum dot[1] FLORIAN ELSTE, DAVID R. REICHMAN, ANDREW J. MILLIS, Columbia University — We investigate the effect of a Coulombic coupling on the dynamics of a quantum dot coupled to leads. Two cases are studied: a dot coupled to a Luttinger liquid and a dot coupled to a three-dimensional metallic lead. The leading divergences arising from the long-ranged Coulomb interaction are found to cancel, resulting in a slow decay of electronic correlations, controlled by subleading divergences. Explicit results are given for the short-time dynamics.

[1]AJM acknowledges support from NSF-DMR-0705847 and FE from the Deutsche Forschungsgemeinschaft.

Florian Elste
Columbia University

Date submitted: 20 Nov 2009 Electronic form version 1.4