Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Gate-tuned two-channel Kondo screening in Graphene: Universal scaling of the nonlinear conductance[1] CHUNG-HOU CHUNG, Department of Electrophysics, National Chiao-Tung University and Physics Division, National Center for Theoretical Sciences, HsinChu, Taiwan, R.O.C., TSUNG-HAN LEE, KENNETH YI-JIEH ZHANG, Department of Electrophysics, National Chiao-Tung University, HsinChu, Taiwan, R.O.C., STEFAN KIRCHNER, Max-Planck-Institut fuer Physik komplexer Systeme and Max-Planck-Institut fuer chemische Physik Stoffe, Dresden, Germany — We study the nonlinear conductance through magnetic adatoms on Graphene. In particular, we address the finite-temperature crossover from a quantum critical to the two-channel Kondo regime expected to occur in doped Graphene. Based on the non-crossing approximation, We calculate both the linear and nonlinear conductance within the two-lead single-impurity Anderson model where the conduction electron density of states vanishes in a power-law fashion $\propto |\omega - \mu_F|^r$ with $r = 1$ near the Fermi energy, appropriately for Graphene. For given gate voltage, we study the universal crossover from a 2-channel Kondo (2CK) phase to a un-screened local momemt (LM) phase. We extract universal scaling functions governing charge transport through the adatom and discuss our results in the context of a recent scanning tunneling spectroscopy (STM) experiment on Co-doped Graphene.

[1]We acknowledge the support from the NSC grants No.98-2112-M-009-010-MY3, No.101-2628- M-009-001-MY3, the MOE-ATU program, the CTS of NCTU, the NCTS of Taiwan, R.O.C. (C.H.C.), and DFG research unit 960 under "Quantum Phase Transitions".

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Date submitted: 25 Nov 2012 Electronic form version 1.4