Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Ferromagnetism in Graphene Stacks DAGIM TILAHUN, ALLAN MACDONALD, The University of Texas at Austin — Because the density of states at the Fermi level of neutral graphene layers is proportional to external magnetic field, the ground state in strong fields is expected to have a broken symmetry - most likely ferromagnetism. In systems with stacked graphene layers this tendency competes with inter-layer hopping which favors paramagnetic ground states or perhaps other types of broken symmetries. We present a criterion for the stablility of the ferromagnetic state and discuss its application to single-layer graphene, to weakly coupled epitaxial graphene layers on SiC or other substrates, and to bulk graphite. We use the Slonczewksi-Weiss-McClure model to explain why the dominant inter-layer hopping process in Bernal (AB) stacked graphite does not compete with ferromagnetism.

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Date submitted: 21 Nov 2008 Electronic form version 1.4