

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Correlation Effects and Magnetism in Na_xCoO_2 MENG GAO, SEN ZHOU, HONG DING, ZIQIANG WANG, Boston College — Correlation effects are known to be important for the electronic structure and the Fermi surface topology of Na_xCoO_2 [ref to prl of Zhou et al.]. Here we study magnetic properties of Na_xCoO_2 based on the multi-orbital Hubbard model for the cobalt t_{2g} electrons in weak and strong coupling limits using Hartree-Fock and Gutzwiller approximations. Both commensurate and incommensurate magnetic order is considered. We present the phase diagram in the parameter space of local Coulomb repulsion and Hund's rule coupling for different sodium doping concentrations. The interplay between the correlation effects and Fermi surface nesting on the magnetic properties will be discussed.

Meng Gao
Boston College

Date submitted: 30 Nov 2005

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