Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Antiferromagnetic superconducting state in the electron-doped cuprates? TANMOY DAS, ROBERT S. MARKIEWICZ, ARUN BANSIL, Northeastern University — Recent angle-resolved photoemission (ARPES) studies of the electron-doped cuprate $Nd_{2-x}Ce_xCuO_4$ (NCCO)[1] have been interpreted in terms of a uniform antiferromagnetic (AF) metal, with doping into the upper magnetic band and gap collapse close to optimal doping[2]. An open question is whether the system remains uniform in the simultaneous presence of AF and (d- wave) superconducting (SC) order. Here, we explore the properties of a *uniform* AF-SC model for NCCO, to ascertain to what extent we can explain anomalous features, such as the nonmonotonic angle dependence of the superconducting gap[3]. Work supported by the USDOE.

[1] N.P. Armitage, *et al.,* PRL **87**, 147003 (2002).
[2] C. Kusko, *et al.,* PRB**66**, 140513 (2002); A.-M.S. Tremblay, *et al.,* cond-mat/0511334.
[3] H. Matsui, *et al.,* PRL **95**, 017003 (2005).

Tanmoy Das
Northeastern University

Date submitted: 01 Dec 2005 Electronic form version 1.4