MAR05-2004-006600

Abstract for an Invited Paper
for the MAR05 Meeting of
the American Physical Society

ARPES studies on NaxCoO2

HONG DING, Boston College

We report systematic angle-resolved photoemission studies on Na_xCoO_2 single crystals for a wide range of Na concentrations. We observe a large Fermi surface centered at the Γ point, which satisfies Luttinger theorem. However, the small Fermi surface pockets predicted by band theory near the K points are not observed. Instead, "sinking islands" with the binding energy of $100 - 200$ meV are observed. In addition, we observe a strong "kink" in the band dispersion at ~ 70 meV binding energy, with weak dependence on momentum, doping, and temperature, suggesting a strong coupling between electrons and a collective mode, possibly an oxygen phonon mode.