## Abstract Submitted for the MAR07 Meeting of The American Physical Society

Complete d-Band Dispersion Relation in Sodium Cobaltates DONG QIAN, L. WRAY, D. HSIEH, L. VICIU, R.J. CAVA, Princeton University, J.L. LUO, D. WU, N.L. WANG, Institute of Physics, Chinese Academy of Sciences, M.Z. HASAN, Princeton University — We utilize fine-tuned polarization selection coupled with excitation-energy variation of photoelectron signal to image the complete d-band dispersion relation in sodium cobaltates. A hybridization gap anticrossing is observed along the Brillouin zone corner and the full quasiparticle band is found to emerge as a many-body entity lacking a pure orbital polarization. At low dopings, the quasiparticle bandwidth (Fermion scale, many- body EF  $\sim 0.25$  eV) is found to be smaller than most known oxide metals. The low-lying density of states is found to be in agreement with bulk-sensitive thermodynamic measurements for nonmagnetic dopings where the 2D Luttinger theorem is also observed to be satisfied.

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