

MAR05-2004-001037

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

Cobaltates: Superconductivity in the triangular lattice tJ model

SRIRAM SHASTRY, Physics Department, UC Santa Cruz

The newly found sodium cobaltates provide a new and exciting challenge in the study of correlated matter in condensed matter physics. There appears to be a greater hope of ultimate resolution than in the case of high Temperature superconductors due to drastically smaller a Fermi temperature scale here. Electronic frustration (i.e. a dependence on the sign of electron tunneling amplitude) occurs along with spin frustration on the triangular lattice that underlies these compounds. I review some key experiments, and discuss the ongoing and evolving modeling of these systems. I discuss some theoretical results for the transport properties, particularly the Hall constant.