Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Transport and thermodynamic properties of cuprate superconductors: E(k) dispersion, pseudogap and isotope effects. JAMES STOREY, MacDiarmid Institute, Victoria University, JEFFERY TALLON, MacDiarmid Institute, Industrial Research Ltd and Victoria University, GRANT WILLIAMS, SURESH NARAYANASWAMY, MacDiarmid Institute, Industrial Research Ltd — We have calculated the thermoelectric power, susceptibility and entropy of Bi-2212 and Bi-2201 using the ARPES-derived energy dispersion, a model scattering rate and including a normal-state pseudogap. The doping and temperature dependence is found to closely mimic the experimentally measured data. We have used this approach to examine isotope effects and in particular note that the kink in the dispersion near E_F (including its isotope effect) can be probed through the high temperature thermoelectric power.

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Date submitted: 15 Jan 2006 Electronic form version 1.4