

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Thermal Expansion Measurements of the Antiferromagnetic Transition in Na_xCoO_2 Single Crystals ($x=0.75$ and 0.80)¹ C. A. M. DOS SANTOS, Departamento de Engenharia de Materiais - FAENQUIL and Montana State University, J. J. NEUMEIER, R. K. BOLLINGER, Montana State University, Y.-K. YU, NIH National Center for Biotechnology Information, R. JIN, D. MANDRUS, Oak Ridge National Laboratory — Thermal expansion, heat capacity and magnetic susceptibility measurements of Na_xCoO_2 ($x=0.75$ and 0.80) single crystals are reported. The results show second-order antiferromagnetic transition near $T_N = 22$ K. The high-resolution thermal expansion measurements, performed with a fused quartz dilatometer cell in both basal plane and *c*-axis directions, reveal strong anisotropy that is attributed to the hexagonal structure. Above and below T_N , the thermal expansion coefficients and specific heat measurements exhibit λ -like peaks which are similar to those reported for other antiferromagnetic compounds. Analysis of the critical behavior for both samples will be discussed.

¹Research supported by the Brazilian agency CAPES (Grant 0466/05-0) and NSF (DMR 0504769).

John Neumeier
Montana State University

Date submitted: 30 Nov 2005

Electronic form version 1.4