

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Magnetic and Transport Study of Single Crystal $\text{SrRu}_{1-x}\text{Cr}_x\text{O}_3$ with Increased Curie Temperature G. CAO, V. DURAIRAJ, E. ELHAMI, X.N. LIN, S. CHIKARA, Department of Physics and Astronomy, University of Kentucky, Lexington, KY40506, USA — We report results of a structural, magnetic and transport study of single crystal $\text{SrRu}_{1-x}\text{Cr}_x\text{O}_3$ ($0 \leq x < 0.15$), i.e., Cr doped SrRuO_3 . Unlike other impurity doping (such as Ca, Mn, Fe), the Cr doping systematically enhances the Curie temperature from $T_c=165$ K for $x=0$ to $T_c=190$ K for $x=0.13$. In the meantime, the Cr doping also significantly increases the saturation moment from 1.1 for $x=0$ to as large as 1.5 Bohr magneton/Ru for $x>0$. The system stays itinerant for the entire doping range with resistivity showing the Fisher-Langer behavior at T_c . Magnetic anisotropy and negative magnetoresistance are also observed. All results will be presented and discussed along with comparisons with other related systems.

Vinobalan Durairaj
Department of Physics and Astronomy
University of Kentucky, Lexington, KY40506, USA

Date submitted: 02 Dec 2004

Electronic form version 1.4