Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Effect of Chemical Pressure on the Charge Density Wave Transition in Rare-earth Tritellurides $R\mathbf{Te}_3$[1] N. RU, Dept. of Applied Physics, Geballe Lab. for Adv. Materials, Stanford University, G. Y. MARGULIS, Dept. of Physics, Geballe Lab. for Adv. Materials, Stanford University, K. Y. SHIN, Dept. of Applied Physics, Geballe Lab. for Adv. Materials, Stanford University, M. F. TONEY, Stanford Synchrotron Radiation Laboratory, Stanford Linear Accelerator Center, I. R. FISHER, Dept. of Applied Physics, Geballe Lab. for Adv. Materials, Stanford University — The charge density wave transition is investigated in the bilayer family of rare earth tritelluride $R\mathrm{Te}_3$ compounds (R = Sm, Gd, Tb, Dy, Ho, Er, Tm) via high resolution x-ray diffraction and electrical resistivity. The transition temperature T_{CDW} increases monotonically with increasing lattice parameter by an extraordinarily large amount, from 244(3) K for TmTe_3 to 416(3) K for SmTe_3. It is suggested that this behavior, and the observation of a secondary transition for the heaviest members of the series, is intimately linked to the effect of chemical pressure on the degree of bilayer splitting of the Fermi surface.

[1]This work is supported by the Department of Energy, Office of Basic Energy Sciences under contract DE-AC02-76SF00515.

N. Ru
Dept. of Applied Physics, Geballe Lab. for Adv. Materials,
Stanford University

Date submitted: 26 Nov 2006 Electronic form version 1.4