Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Doping (x)- and pressure-dependence of the CDW state in Cu_xTiSe_2 using inelastic light scattering[1] HARINI BARATH, MINJUNG KIM, S.L. COOPER, Dept. of Physics and Frederick Seitz Materials Research Laboratory, University of Illinois at Urbana-Champaign, Urbana, Illinois 61801, EMILIA MOROSAN, R.J. CAVA, Department of Chemistry, Princeton University, Princeton, NJ 08540, USA — $TiSe_2$ has long been known to form a rather simple commensurate charge-density-wave (CDW) below $T_{CDW} \sim 200$K. Interest in this material has grown recently, however, with the discovery that Cu intercalation between the TiSe2 layers [1] suppresses the CDW transition, and at intermediate compositions ($x \geq 0.04$ in Cu_xTiSe_2), gives rise to a superconducting state. Consequently, Cu_xTiSe_2 is a particularly interesting system in which to investigate the competition between CDW and superconducting correlations. In this talk, we discuss our inelastic light scattering studies of the effects of chemical tuning on the CDW state in Cu_xTiSe_2, which we compare to pressure-dependent studies of the CDW state in $TiSe_2$. By monitoring both the CDW amplitude modes and phonons with chemical substitution and pressure, we are able to sensitively study the different routes to CDW melting in this interesting system. [1]. E. Morosan et al., *Nature Physics* **2,** 544 (2006).

[1]Work supported by the Dept. of Energy under grant No. DEFG02-91ER45439.

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Date submitted: 28 Nov 2006 Electronic form version 1.4