

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Quantum phase transition in 1T-TiSe<sub>2</sub> studied with high pressure x-ray scattering**<sup>1</sup> Y.I. JOE, J.P. REED, J.C.T. LEE, X. CHEN, S.L. COOPER, S. YUAN, W. TURNER, P. ABBAMONTE, University of Illinois, K.D. FINKELSTEIN, Cornell High Energy Synchrotron Source — The dichalcogenides exhibit a close competition between charge density wave (CDW) and superconducting (SC) orders. This competition resembles that between ordered stripes and superconductivity in High T<sub>c</sub> superconductors. In particular, the CDW in 1T-TiSe<sub>2</sub> has been shown to be suppressed, and SC stabilized, by intercalation of Cu. Raman studies have shown that the CDW order is also suppressed by hydrostatic pressure. Here, we present a detailed study of the suppression of the CDW in 1T-TiSe<sub>2</sub> with high-pressure x-ray scattering. We found that pressure drives the system to a quantum critical point at P<sub>c</sub> ~ 4GPa. The transition was found to be sharp along the temperature axis, but broadened along the pressure axis, suggesting the quantum phase transition is more sensitive to disorder than the classical one.

<sup>1</sup>Supported by DOE grant #DE-FG02-07ER46453.

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Date submitted: 28 Nov 2009

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