

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Dependence of Superconducting Transition Temperature on Uniaxial Pressure in CeCoIn₅¹ SCOOTER JOHNSON, RENA ZIEVE, UC Davis, JASON COOLEY, Los Alamos National Laboratory — We apply uniaxial pressure up to 4 kbar along the *c*-axis of single crystal samples of CeCoIn₅ and measure how the transition temperature to the superconducting state changes. We mount the sample within an ac susceptibility coil and apply pressure through a helium bellows cell mounted on a dilution refrigerator. We find that pressure shifts the transition to lower temperatures at a rate of 22.5 mK per kbar. Our observation follows the general correlation between transition temperatures and lattice constants among 115 materials, where lower T_c 's typically correspond to smaller *c/a* ratios. Pressure has the additional effect of broadening the transition well beyond what we expect from macroscopic pressure inhomogeneity. We are extending this work to measurements of CeCoIn₅ under *a*-axis pressure.

¹Supported by NSF through DMR-0454869

Scooter Johnson
UC Davis

Date submitted: 21 Nov 2008

Electronic form version 1.4