

Abstract Submitted
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Thermodynamic signature for the phase transition at the pseudogap temperature in underdoped YBCO (6.56) VICTOR FANELLI, National High Magnetic Field Laboratory, Los Alamos National Laboratory, SCOTT RIGGS, ARKADY SHEKHTER, National High Magnetic Field Laboratory, Florida State University, YOKO SUZUKI, JONATHAN BETTS, ALBERT MIGLIORI, National High Magnetic Field Laboratory, Los Alamos National Laboratory, GREG BOEBINGER, National High Magnetic Field Laboratory, Florida State University, BRAD RAMSHAW, RUIXING LIANG, WALTER HARDY, DOUG BONN, Department of Physics and Astronomy, University of British Columbia — The physics of the pseudogap, and its connection to the strange metal phase remain poorly understood. The outstanding problem is whether the apparent crossover between these two regimes is a thermodynamic phase boundary. We performed high precision resonant ultrasound spectroscopy measurement on de-twinned monocrystals of underdoped YBCO (6.56) in a broad temperature range up to 300 K. We find a compelling thermodynamic signature for the phase transition at the pseudogap temperature $T = 270$ K.

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