

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

The Effects of Grinding on the Magnetic Susceptibility of $\text{UCu}_{3.95}\text{Ni}_{1.05}$ CARLOS SANCHEZ, CARMEN QUEN, EDITH SOTO, OSCAR BERNAL¹, Physics and Astronomy Department, California State University, Los Angeles, CA, G.R. STEWART, Physics Department, University of Florida, Gainesville, FL — The effects of grinding on the magnetic susceptibility of $\text{UCu}_{3.95}\text{Ni}_{1.05}$ were studied in order to understand magnetization measurements in this material. Substantial information was recovered from these experiments, which were done at temperatures ranging from 3K to 300K and magnetic fields from 500 Oe to 4.75 kOe. For instance, a new and unexpected ferromagnetic (FM) phase transition was found at about 150 K in both ingot and powder samples. Similarly the magnetic properties of the powder seem to differ slightly from the ingot's. The powder's magnetic susceptibility χ_{pwd} appears greater than the ingot's χ_{ing} at all temperatures measured, with the difference $\Delta\chi = \chi_{\text{pwd}} - \chi_{\text{ing}}$ increasing with decreasing temperature. We analyze the observed $\Delta\chi$ in terms of two potential sources: impurities added to the powder during the grinding process and the effects of sample geometries in combination with the presence of a second (FM) phase in the studied material. We discuss how the measured differences might affect the study of the physics of this non-Fermi liquid/quantum critical compound.

¹Work supported by NSF-DMR 1105380

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Date submitted: 11 Dec 2012

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