Non-Fermi vs. Inhomogeneous-Fermi Liquid behaviour in UCu$_4$Ni in the context of the Kondo Disorder Model$^1$ ARIANA VALDEZ$^2$, OSCAR BERNAL, Department of Physics and Astronomy, California State University, Los Angeles, CA 90032, G.R. STEWART, J.S. KIM, Department of Physics, University of Florida, Gainsville FL 32611 — UCu$_4$Ni is a site-disordered material with diverging thermodynamic and anomalous transport properties. Local nuclear magnetic resonance (NMR) experiments in combination with bulk magnetic susceptibility measurements performed on the same samples indicate that the low-temperature divergence of $\chi$ might be due in part to the presence of paramagnetic impurities. In this contribution, we describe the magnetization in terms of a Kondo disorder model and extract a set of parameters of the distribution of Kondo temperatures, which indicate that the low temperature side of the distribution does not have sufficient area to accommodate a non-Fermi liquid divergence. We use the same parameters to subsequently calculate the specific heat $C$ and to extrapolate to low temperatures, which allows us to compare with the known divergence of the magnetic contribution to $C/T$ below 10 K. We discuss to what extent the physics of this material is that of a non-Fermi liquid as opposed to an inhomogeneous Fermi fluid.

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