

Abstract Submitted
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Interplay between Disorder and Quantum and Thermal Fluctuations in Ferromagnetic Alloys – New Systems¹ G.R. STEWART, J.S. KIM, University of Florida, M.B. SILVA NETO, ITP, University of Stuttgart, A.H. CASTRO NETO, Boston University — Previously¹ we addressed the effects of disorder on the ferromagnetic ordering temperature, T_C , in $UCu_2Si_{2-x}Ge_x$. In that work the measured non-monotonic variation of T_C with disorder (as measured by the resistivity) could be explained within a model² of localized spins interacting with an electronic bath. This model predicts that, in some cases, T_C can be *enhanced* by the interplay between quantum and thermal fluctuations with disorder. We have extended this work in other ferromagnetic alloys, with both significantly larger as well as similar variations of T_C with doping compared to the <10 % variation of T_C observed in $UCu_2Si_{2-x}Ge_x$. Resistivity, magnetic susceptibility, and specific heat will be presented, along with a comparison to the theory². ¹M. B. Silva Neto, A. H. Castro Neto, D. Mixson, J. S. Kim, and G. R. Stewart, Phys. Rev. Lett. **91**, 257206 (2003). ²M. B. Silva Neto and A. H. Castro Neto, Europhys. Lett. **62**, 890 (2003).

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