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Non-Fermi liquid properties of $Ni_{1-x}V_x$ close to the disordered ferromagnetic quantum critical point MITCH POWERS, DEKRAYAT ALMAALOL, RUIZHE WANG, SEAN PAVLAK, TED OTIENO, BRENDAN WYATT, SARA UBAID-KASSIS, ALMUT SCHROEDER, Kent State University, THOMAS VOJTA, Missouri University of Science and Technology — Resistivity and magnetization data of the d-metal alloy $Ni_{1-x}V_x$ are presented in the vicinity of the critical Vanadium concentration of $x_c \approx 11.6\%$ where the onset of long-range ferromagnetic order is suppressed to zero temperature. The resistivity (ρ) displays power laws in temperature (T) (ρ-$\rho_o \sim T^n$) with non-Fermi liquid values of n(x)<2 close to x_c. Above x_c the dependence of the magnetic susceptibility on T and magnetic field is best described by simple, non-universal, power laws with a Griffiths exponent α(x), indicating fluctuating magnetic clusters are still present in the paramagnetic phase. Below x_c similar α(x) exponents reveal clusters in the FM phase, as well. Both α(x) and n(x) vary with x and display a minimum at x_c. These exponents observed in this disordered quantum phase transition are significantly different than the critical exponents expected for a clean ferromagnet.

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