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Quantum critical behaviour of heavy Fermion CeNi₂Ge₂¹ BILAL ZOGHBI, Kent State University, ALMUT SCHROEDER, Kent State University, COLLIN BROHOLMS, Johns Hopkins University — Neutron scattering data of CeNi₂Ge₂ collected at SPINS at NIST will be presented to characterize the magnetic correlations and dynamics close to an antiferromagnetic quantum critical point (AF QCP). The dynamical susceptibility $\chi''(q,E)$ has been measured in a temperature range $0.1\text{K} < T < 30\text{K}$. While the q -independent fluctuations remain unchanged for $T < 30\text{K}$, the enhanced susceptibility $\Delta\chi''$ close to the wavevector $q=(0.5,0.5,0)$, shows a relaxation rate following the absolute temperature kBT down to 5K but then remains finite towards the lowest $T = 0.1\text{K}$. The Lorentzian linewidth is reduced to about 0.4meV , a factor of ten smaller than the rate observed in the q -independent spectrum. The energy, q , and T dependence of $\Delta\chi''$ shows characteristics of the fluctuations expected close to an AF QCP in 3 dimensions, stating that CeNi₂Ge₂ lies beside the AF QCP.

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Bilal Zoghbi
Kent State University

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