

Abstract Submitted
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Observation of Magnetic Field-Tuned Quantum Phase Transition in Intermetallic CeAg_2Ge_2 DEEPAK SINGH, National Institute of Standard and Technology, ARUMUGAM THAMIZHAVEL, Tata Institute of Fundamental Research, SUNG CHANG, JEFFREY LYNN, National Institute of Standard and Technology — Quantum phase transition arises either due to the competition between Kondo screening and long range RKKY-type interaction or, the spin density wave (SDW) instability of the Fermi surface at the quantum critical point. We have performed neutron scattering measurements on single crystal CeAg_2Ge_2 and observed the SDW-type quantum phase transition with magnetic field as tuning parameter. CeAg_2Ge_2 crystallizes in a ThCr_2Si_2 -type tetragonal crystal structure and undergoes an antiferromagnetic transition at $T_N = 4.6$ K. Detail measurements of Q-vectors associated with long-range order and the numerical modeling of the data revealed the propagation of amplitude modulated spin density wave in this compound. With magnetic field as tuning parameter, the variation of magnetic ordering moment across 2 T field was clearly observed. Experimental data of CeAg_2Ge_2 will be discussed along with other Ce-based rare earth heavy fermion compounds which exhibit quantum criticality at low temperature.

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