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Effect of Magnetic Field on the Induced Magnetic Moment System Pr_3In. VICTOR FANELLI, University of California Irvine , ANDREW CHRISTIANSON, Oak Ridge National Laboratory, MARCELO JAIME, MPA-NHMFL, LANL, JOE THOMPSON, MPA-CMTP, LANL, CRISTIAN BATISTA, T-11, LANL, JON LAWRENCE, University of California Irvine — Pr_3In is a singlet-triplet system similar to the classic induced moment system Pr_3Tl, with identical crystal structure. Both materials order magnetically at similar temperatures (T_C=11.6 K for Pr_3Tl and T_N=11.4 K for Pr_3In). The magnetic order is antiferromagnetic (AF) in Pr_3In as opposed to ferromagnetic in Pr_3Tl. The exchange interaction between Pr sites causes admixture of the crystal field triplet excited state into the singlet ground state, resulting in induced moment magnetic order below T_N. Application of a magnetic field can change the energies of the singlet and triplet in such a manner as to alter the admixture. We have measured magnetization, magnetoresistance, specific heat and magneto-caloric effect in the range 0 to 15 T. We observed a phase transition below 11 K and at magnetic field of order 1.9 T. At present, whether this is a spin rearrangement or a spin polarized phase remains an open question. It would be surprising for the 1.9 T transition to be to a spin polarized state, given that T_N is around 11.4 K. In addition, at high fields, we observe a strong reduction of the specific heat as the AF interactions are suppressed and the system reverts to a crystal-field-only behavior.

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