ANOMALOUS HALL EFFECT IN MAGNETIC KONDO-LATTICE $CeAl_2$

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9.7 cm

A wide temperature range (1.8-300K) Hall coefficient (R_H) measurements have been carried out in magnetic fields up to 8T on a high quality polycrystalline samples of a magnetic Kondo-lattice $CeAl_2$. The investigation of angle and field dependencies of the Hall coefficient and magnetoresistance in paramagnetic and modulated antiferromagnetic phases of $CeAl_2$ allows to deduce a very complicated Hall effect consisting of normal and several anomalous contributions (spin- fluctuation and magnetic components). Among them the anomalous positive component of R_H (spin-fluctuation contribution) demonstrates a broad maximum around T≈4K which is depressed dramatically (by a factor of 3) in magnetic field H≈8T. The anomalous magnetic components of the Hall coefficient R_H^m are characterized by a narrow maximum at T=T_N≈3.85K and a non-monotonous behavior of R_H^m in a magnetic field below 4T which likely may be attributed to the AFM-domains reorientation process at liquid helium temperatures.

13.4 cm

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