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Thermoelectric power and Hall effect in U_2Rh_2In

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Due to an enhancement in the electronic specific heat coefficient, the uranium intermetallic U_2Rh_2In has been considered as a spin fluctuator [1]. Moreover, this compound locates in the magnetic instability border [2] and exhibits a large magnetoresistance at 5 K and 8 T [3]. In this contribution we investigate temperature dependence of thermoelectric power S and Hall coefficient $R_H(T, 7T)$ of a polycrystalline sample of U_2Rh_2In . At room temperature S is $13 \mu V/K$ and decreases linearly with decreasing temperature down to 100 K. At 10 K S shows a negative peak of $-30 \mu V/K$. The $R_H(T)$ data show a maximum at 50 K and T^2 dependence below 10 K. At 2 K, R_H amounts to $6.06 \times 10^{27} m^3/C$, which in an one-band model corresponds to the charge carrier density of 0.65 h/f.u. Combining the Hall data with the specific heat ones, we have estimated electron effective mass m^* to be about $60 m_0$ at 2 K.

The Hall effect data were collected with a PPMS installed at MPI-CPfS Dresden.

[1] V. Sechovsky, L. Havela, Ch. 1, in: K.H.J. Buschow (Ed.), Handbook of Magnetic Materials, Elsevier, Amsterdam, 1998.

[2] V.H. Tran, Z. Żolnierek, A.J. Zaleski, H. Noël, Solid State Commun. 101 (1997) 709.

[3] P. de V. du Plessis, A.M. Strydom, V.H. Tran, Solid State Commun. 112 (1999) 391.

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