Specific features in electrical- and magnetic resistivity of $RFe_{11}Ti$ single crystals and their hydrides

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9.7 cm

The temperature dependences of the electrical resistivity (ρ) of $RFe_{11}TiH_x$ (R = Y, Dy, Er; x = 0, 1) has been investigated. They exhibit metallic character. Hydrogenation leads to decrease of electrical resistivity. Magnetic resistivity and its anomalies in the vicinity of spin-reorientation transitions (SRT) in single crystals of $RFe_{11}Ti$ (R = Dy and Er) are investigated in the temperature range 4.2-130 K and in magnetic fields up to 8 T. The $ErFe_{11}Ti$ shows an SRT at T = 50 K from the c axis to a non-collinear magnetic structure at low temperatures which result in sharp increase of $\rho(H)$ at low magnetic fields. Also, anomalous increases of magnetization (first-order magnetization process) and $\rho(T)$ are obtained for $DyFe_{11}Ti$ when a field of about 1-2 T is applied along [001] axis at a temperature in the range 4.2-130 K.

13.4 cm

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