# UNUSUAL TRANSPORT PROPERTIES OF USbTe FERROMAGNET

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9.7 cm

UXY uranium compounds, (X = P, As, Sb, Bi; Y = S, Se, Te) crystallize into layered, tetragonal structures and order ferromagnetically below $T_C \approx 40 \div 120$K. Two members of this family - UPS and UAsSe - revealed the low temperature ($T< 0.5T_C$) upturn in the electrical resistivity $\rho$(T) and a peak of the thermoelectric power S(T) at the Kondo temperature $T_K \approx 20 \div 50$K. Those features have been ascribed to a nonmagnetic Kondo effect. Expecting that such a type of the Kondo effect is related to similar atomic radii of X and Y components, we have grown USbTe crystals and determined their $\rho$(T), S(T), the heat capacity for the first time. Advanced X-ray and magnetic examinations have been performed as well. The crystals show $T_C$ = 122.5 K, $\gamma$ =47 mJmol$^{-1}$K$^{-2}$ and strongly anisotropic transport properties; $\rho$(300) [S(300)] is equal to 715 $\mu\Omega$cm [$-21.1\mu$VK$^{-1}$] and 180 $\mu\Omega$cm [+13.0 $\mu$VK$^{-1}$] along c- and a-axis, respectively. $\rho$(T) curve for USbTe at $T< T_C$ shows an unusual convex shape accompanied by a peak in S(T), but without a clear sign of the Kondo scattering. A possible explanation of such behavior is discussed.

13.4 cm

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