ON THE APPEARANCE OF THE FERROMAGNETIC SHORT-RANGE COUPLING IN THE NEW ANTIFERROMAGNETIC SEMICONDUCTOR $CuCr_{1.6}Sb_{0.4}S_4$

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9.7 cm

It turns out that the compound under study has antiferromagnetic long-range ordering with the Néel temperature equal to about 40 K. One observes also high positive Curie-Weiss paramagnetic temperature Θ_{C-W} equal to 230 K. This value points to the appearance of the strong ferromagnetic short-range coupling. One can also observe on the magnetization curves a hysteresis which appears in the region of magnetic fields up to 3 Tesla. In spite of the existence of Cu ions in the tetrahedral positions a semiconductive character of this compound seems to be connected with the blockade of the double exchange magnetic interaction, the latter effect being caused by Sb ions in the octahedral positions.

13.4 cm

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