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High pressure magnetotransport properties of single crystals and thin films of the diluted magnetic semiconductor $Sb_{2-x}V_xTe_3$[1] P. C. QUAYLE, J. S. DYCK, Department of Physics, John Carroll University, Y.-J. CHIEN, Z. ZHOU, C. UHER, Department of Physics, University of Michigan, P. LOSTAK, Faculty of Chemical Technology, University of Pardubice, Czech Republic — Bulk, single crystals of the narrow band gap semiconductor $Sb_{2-x}V_xTe_3$ doped with x = 0.03 display a ferromagnetic transition at 22 K. Both carrier concentration and Curie temperature have been shown to be strongly affected by pressure in these crystals, thus high pressure experiments allow a way to study the magnetic interactions in these materials. Recently, by employing molecular beam epitaxy (MBE) thin film growth, the vanadium concentration in $Sb_{2-x}V_xTe_3$ was increased by an order of magnitude, resulting in Curie temperatures of 104K and 177K for x = 0.15 and 0.35, respectively. Here, we present the temperature dependent magnetotransport properties of both single crystal and MBE thin film samples for pressures up to 1.5 GPa. Trends with pressure will be discussed in light of RKKY-type models for the ferromagnetic interaction.

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