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Effects of Hydrostatic Pressure on the Transport and Magnetic Properties of $Sb_{2-x}Cr_xTe_3$ Thin Films[1] MATTHEW L. BOWERS, JEFFREY S. DYCK, John Carroll University, YI-YIUNN CHIEN, CTIRAD UHER, University of Michigan, Ann Arbor — Thin film samples of Molecular Beam Epitaxy grown diluted magnetic semiconductor $Sb_{2-x}Cr_xTe_3$ (x=0.15) are being studied in an effort to understand the electrical and magnetic mechanisms that cause these and other similar DMS materials to undergo a ferromagnetic transition at low temperature. By taking advantage of the fact that hydrostatic pressure alters the carrier concentration in these materials, our aim is to examine the carrier-mediated magnetic interactions in this material. Electrical resistivity and Hall effect of these films were measured as a function of temperature from 2 K – 300 K and pressure up to 1.38 GPa. We find that pressure modestly increases the carrier concentration, while decreasing the resistivity. Moreover, ferromagnetism is enhanced as evidenced by the fact that the coercive field in the anomalous Hall effect increases with pressure and the ferromagnetic transition temperature increases modestly from 50 K to 60 K. Comparisons will be made to the related compound $Sb_{1.85}V_{0.15}Te_3$.

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