Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Low temperature magnetism in $Sb_{2-x}V_xTe_3$ thin film grown on sapphire substrate by MBE ZHENHUA ZHOU, YI-JIUNN CHIEN, CTIRAD UHER, Department of Physics, University of Michigan, Ann Arbor, MI 48109 — Ferromagnetic semiconductors containing transition ions have received considerable attention since they are promising materials for spintronics application. However, their Curie temperatures need to be increased in order to be useful. In this work, good quality ferromagnetic semiconductor $Sb_{2-x}V_xT_3$ thin films have been grown on sapphire (0001) substrate by non-equilibrium MBE technique. The change from diamagnetism to ferromagnetism with the increasing concentration of V in the Sb_2Te_3 matrix has been studied via temperature dependent magnetic susceptibility and magnetotransport measurements. The solubility limit of V in the Sb_2Te_3 thin films has been studied by X-ray diffraction and EPMA (Electron Probe Microanalysis). The anisotropic dependence of the magnetization in $Sb_{2-x}V_xT_3$ thin films has been studied. The underlining physical mechanism that leads to the long-range magnetic order in $Sb_{2-x}V_xT_3$ will be discussed.

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Date submitted: 06 Dec 2004 Electronic form version 1.4