Candice Forrester et al., *High Curie temperature $(MnSb_2Te_4)_x(Sb_2Te_3)_{1-x}$ magnetic topological insulator structures growth by molecular beam epitaxy*

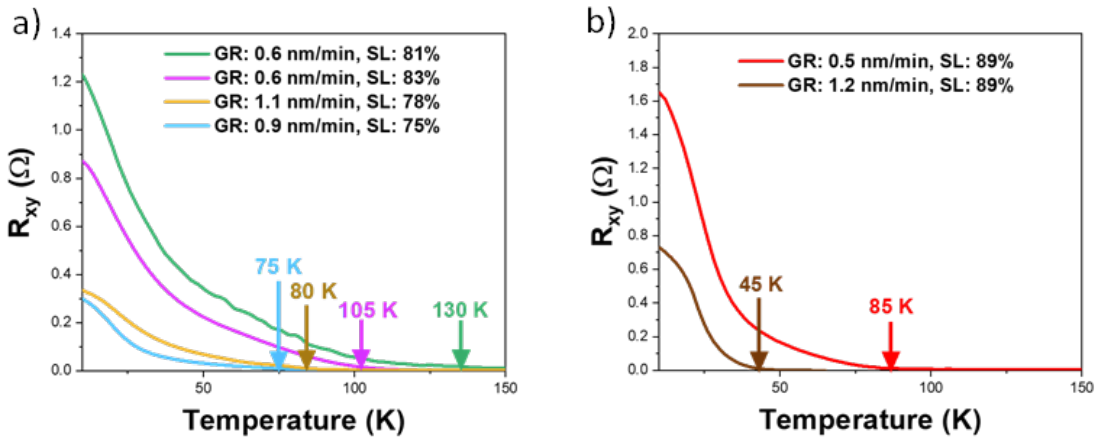

Figure 1: a) Hall resistivity as a function of temperature for samples with 75-83% SLs. Samples with a growth rate of 0.6 nm/min show Tc values of at least 105K, while samples with 0.9 -1.1 nm/min growth rates yield much lower Tc values. b) Hall resistivity as a function of temperature for samples with 89% SL. The sample with the 0.5 nm/min growth rate shows a higher Tc value of 85K, while the one with I.2 nm/min has a Tc value of only 45K.

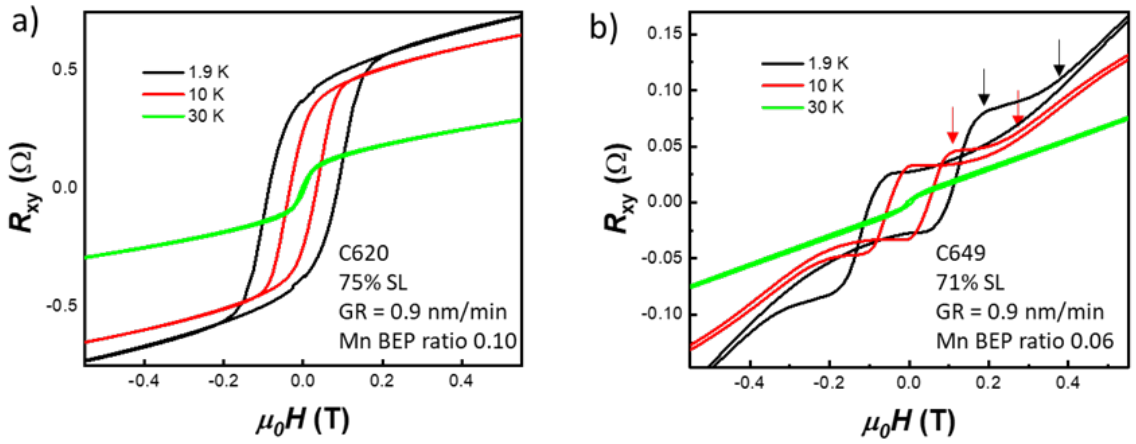

Figure 2: Comparison of Rxy as a function of applied magnetic field for two samples with similar %SL and growth rate, grown using different Mn beam equivalent pressure (BEP) ratios. a) Sample grown with a higher Mn BEP ratio shows pronounced hysteresis loops indicating ferromagnetic behavior. b) Sample grown with a lower Mn BEP ratio shows evidence of coexisting ferromagnetic and antiferromagnetic phases. The arrows indicate the fields at which ferromagnetic and antiferromagnetic transitions occur. The absence of these features at 30K is due to the measurement being above the Neel temperature (~19K).