

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Effect of Temperature, Pressure and Precursor flux ratios on InSb Thin film Growth: Morphology and Properties SAMUEL MENSAB, ALEXANDER VOGEL, JOERG WITTEMANN, JOHANNES DE BOOR, VOLKER SCMHIDT, Max-Planck Institute of Microstructure Physics — We have investigated the growth of InSb thin films on InAs and GaAs substrates by Chemical Beam Epitaxy (CBE). Raman spectroscopy measurements show that the optical properties of the grown layers is not greatly affected even when varying the growth conditions over a wide range (varying the V/III flux ratio between 1 and 10, growth temperature between 390-480°C). The lattice mismatch between the layers and substrates, results in regions of no growth during the deposition of InSb layers. To circumvent this problem, the growth process is preceded by a 10 mins exposure of the substrates to TMIIn. This step eliminates the regions of no growth. Our results show that at constant pressure, the growth rate decreases with increasing temperature and with increasing V/III flux ratio. A much slower response was observed for increasing antimony partial pressure. The lattice mismatch between the layer and substrate give rise to stacking fault and twins. A decrease in particle size from 34.89 to 9.95nm was observed for increasing flux ratio and an increase from 11.31 to 32.68nm for increasing temperature. Evidence of Raman spectroscopy results confirms the crystalline nature of the deposited films. Details of our results will be presented at the meeting.

Samuel Mensah
Max-Planck Institute of Microstructure Physics

Date submitted: 28 Nov 2010

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