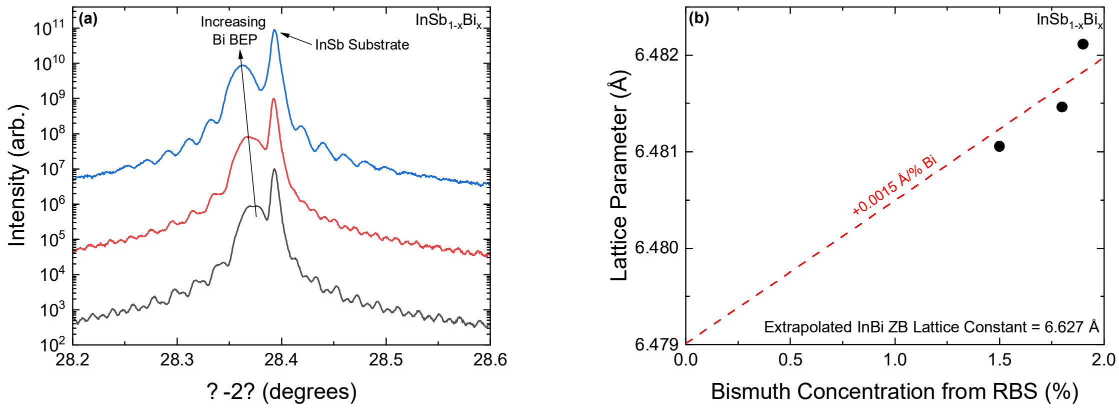

Fig. 1 (a) Coupled XRD ω-2θ scans about the (004) peak of InSb of three $InSb_{1-x}Bi_x$ films demonstrating a shift to greater angles with increasing bismuth beam equivalent pressure (BEP). **(b)** The effective strained mismatch between the $InSb_{1-x}Bi_x$ layer peaks and the InSb substrate was converted to a lattice parameter. The lattice parameter increased as a function of total bismuth concentration, as measured by RBS, enabling linear extrapolation of the lattice parameter of InBi yielding a value of 6.627 Å.

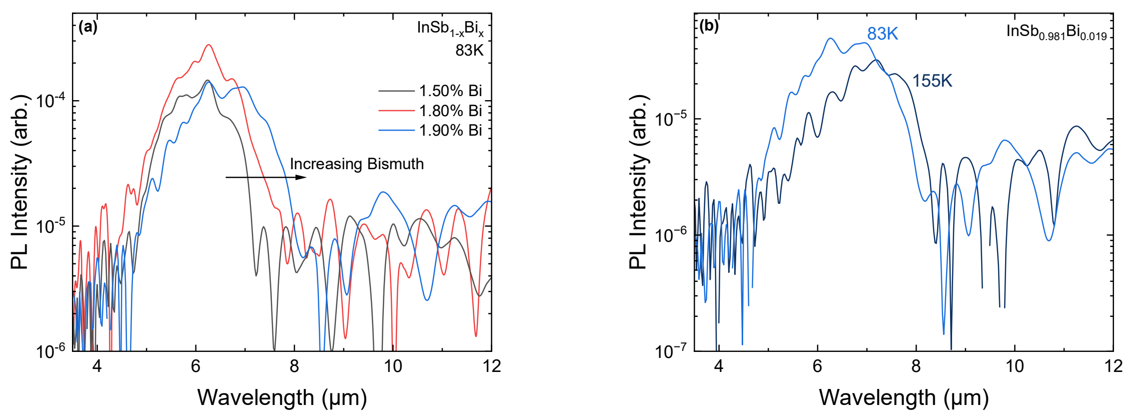

Fig. 2 (a) PL spectra measured at 83 K for the $InSb_{1-x}Bi_x$ films demonstrating wavelength extension with increasing bismuth concentration as expected due to the bismuth-induced bandgap reduction. **(b)** PL spectra for the film with the highest bismuth content exhibiting increasing wavelength extension with increasing temperature consistent with an optical interband transition as expected for a III-V alloy.

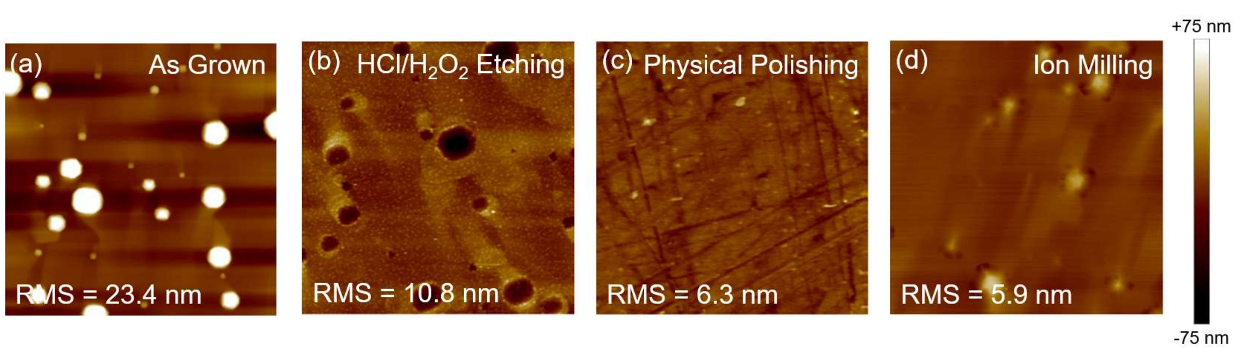

Fig. 3 5 µm × 5 µm atomic force microscopy scans of **(a)** InSb with large bismuth droplets as grown; as well as individual pieces of the same sample after **(b)** 3 cycles of HCl/H_2O_2 digital etching leaving pits remaining where the droplets had been **(c)** physical polishing showing scratches left behind and **(d)** ion milling with remnants of droplets still present on the surface.