Supplementary Information

Hydrazine solution processed Sb_2S_3, Sb_2Se_3 and $Sb_2(S_{1-x}Se_x)_3$ film: molecular precursor identification, film fabrication and band gap tuning

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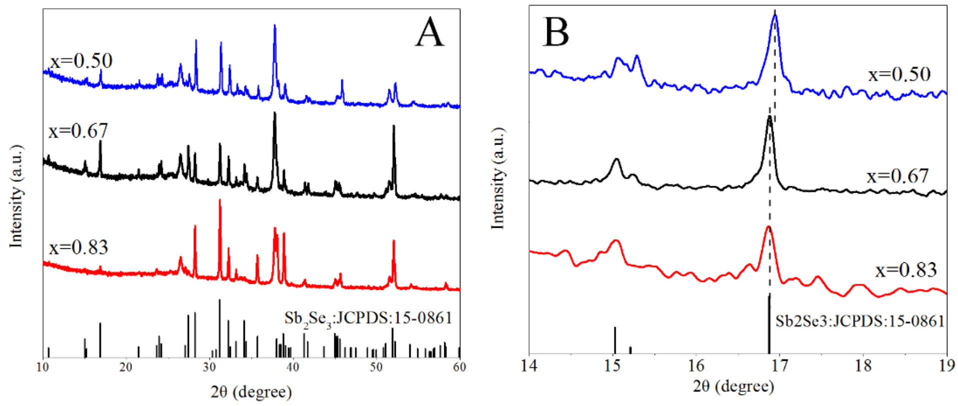

Figure S1 | A) From bottom to top, XRD patterns of the $Sb_2(S_{1-x}Se_x)_3$ ($0\leqslant x\leqslant 1$) alloy films with their with their Se concentration in the precursor solutions indicated; B) (020) and (120) XRD peaks of the same films as in panel A.

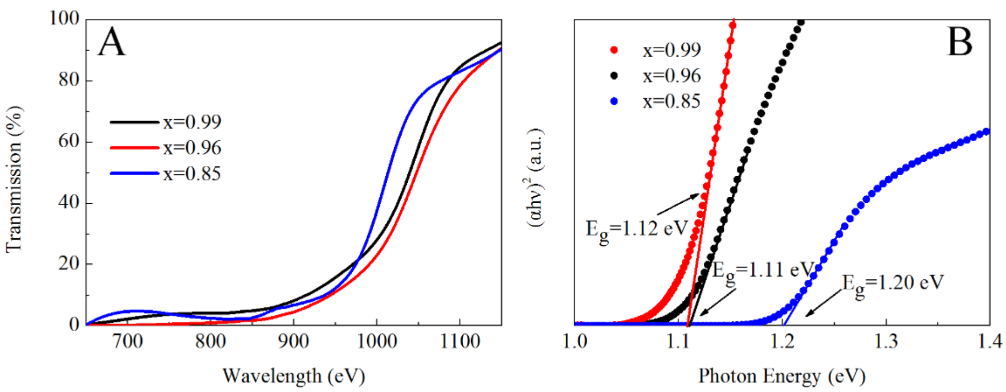

Figure S2 | A) UV-vis-NIR transmission spectra of $Sb_2(S_{1-x}Se_x)_3$ ($0\leqslant x\leqslant 1$) alloy films marked with their selenium concentration x of 0.99, 0.96, and 0.85, respectively. All of the samples were annealed at 300 ℃ for 8 min. B) Pots of $(\alpha h\nu)^2$ vs the photon energy ($h\nu$) reveal the band-gaps of $Sb_2(S_{1-x}Se_x)_3$ ($0 \leqslant x \leqslant 1$) alloy films as 1.12, 1.11, and 1.10 eV for x = 0.99, 0.96, and 0.85, respectively;