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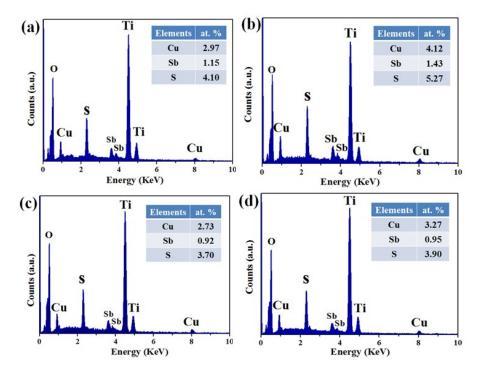


Fig. S1 X-Ray Energy Dispersive Spectrometer (EDS) spectra and elemental composition of Cu₃SbS₄ film prepared by various precursor ratio of 2:1, 2.3:1, 2.5:1 and 3:1.

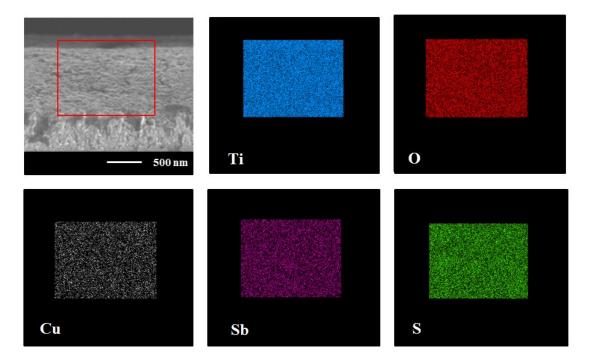


Fig. S2 X-Ray Energy Dispersive Spectrometer (EDS) mapping images of cross sectional Cu_3SbS_4 film prepared as a precursor ratio of 2.5:1 and heat treatment in H_2S at $300^{\circ}C$.

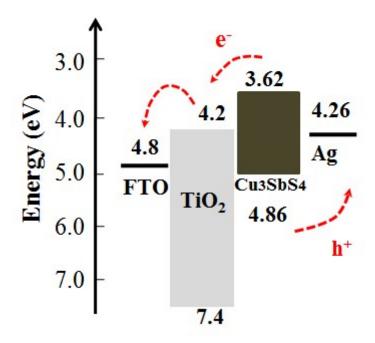


Fig. S3 The band alignment diagrams of TiO_2/Cu_3SbS_4 film