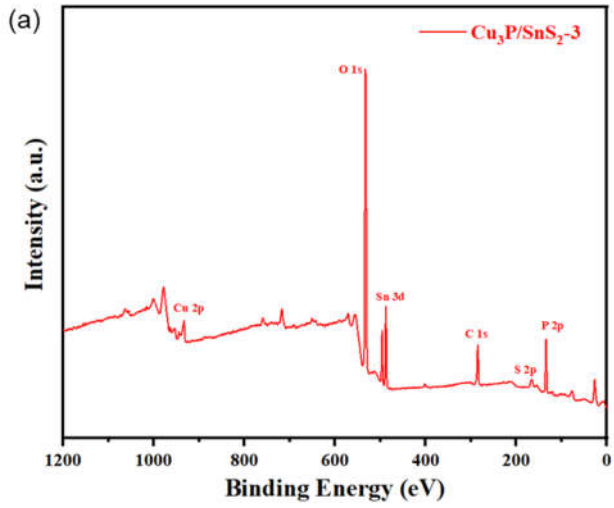


Figure S1 XPS full spectrum of Cu_3P/SnS_2-3.

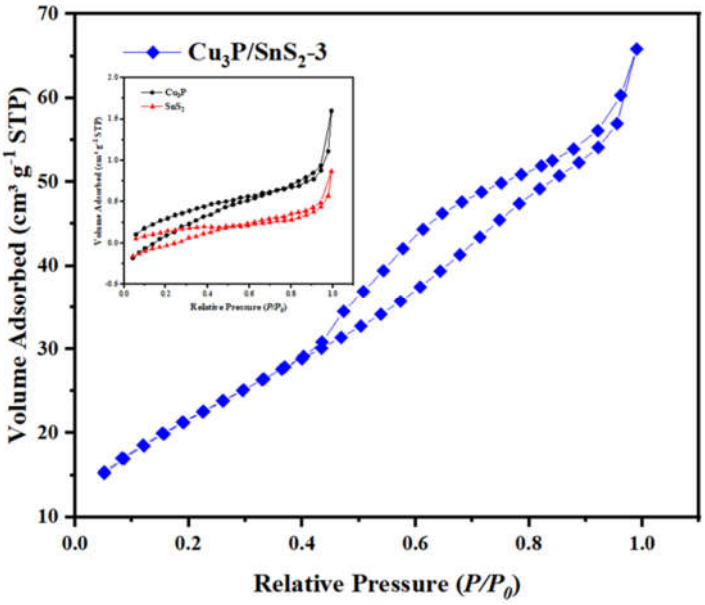


Figure S2 N_2 adsorption-desorption curves of Cu_3P, SnS_2 and Cu_3P/SnS_2-3.

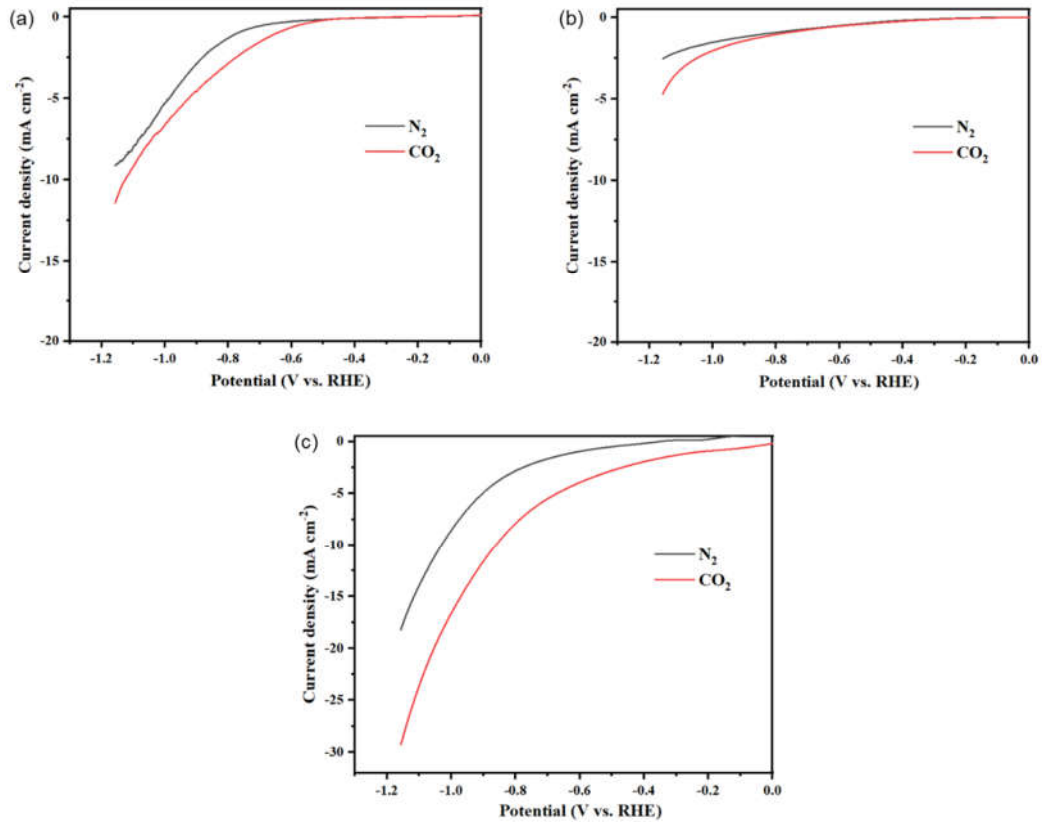


Figure S3 (a-c) Current densities of Cu_3P, SnS_2 and Cu_3P/SnS_2-3 composites in N_2 and CO_2 atmospheres.

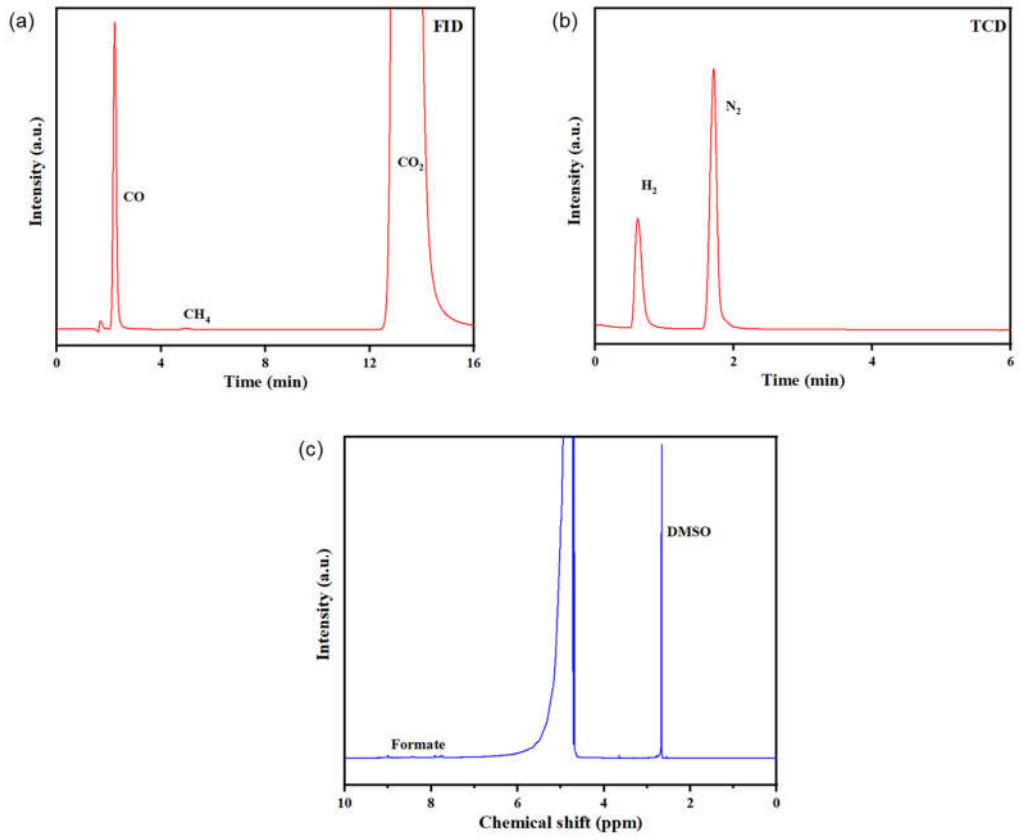


Figure S4 (a, b) GC chromatogram of Cu_3P/SnS_2-3; (c) Hydrogen NMR spectra.

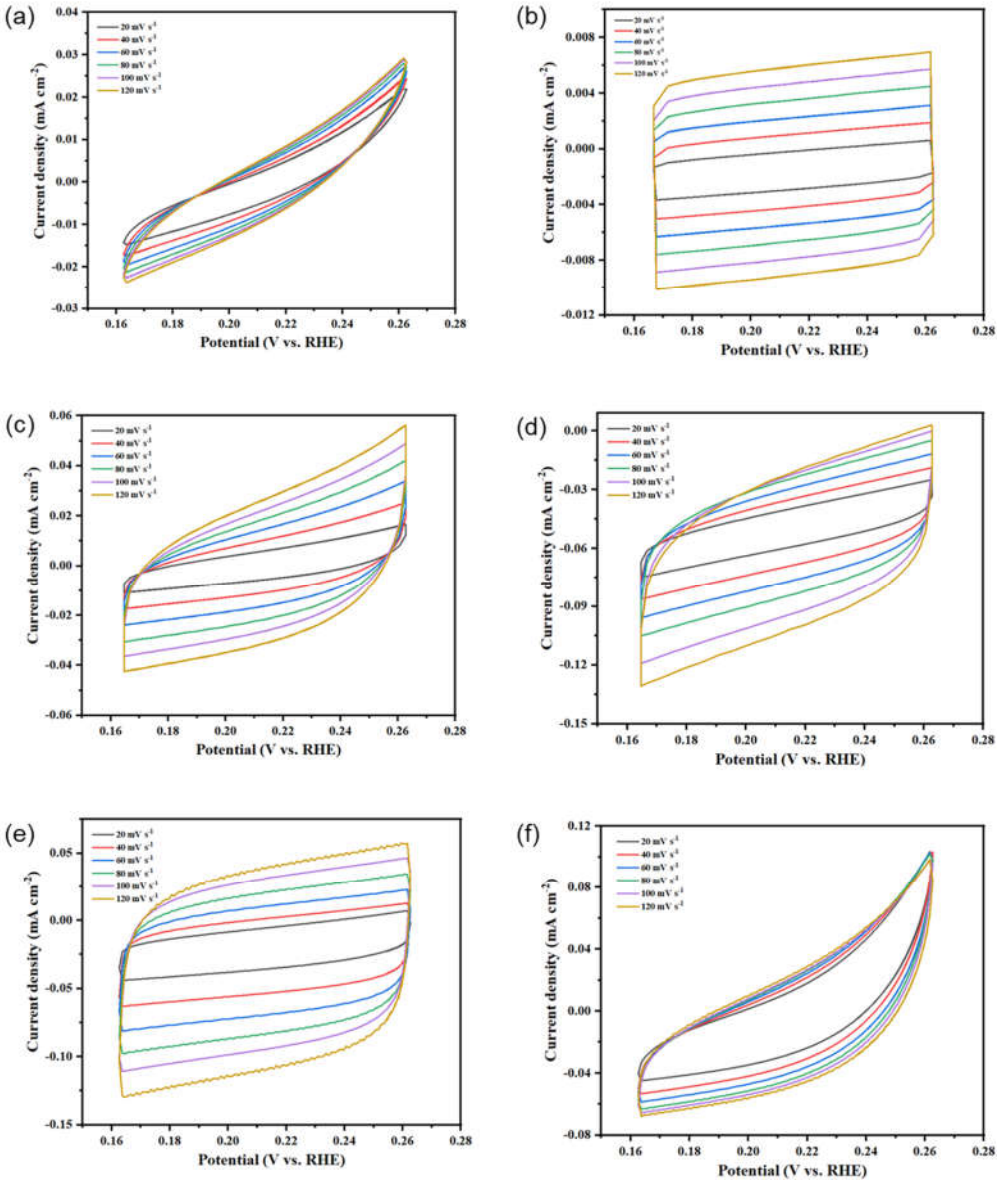


Figure S5 Cyclic voltammetry curves of (a)Cu_3P, (b)SnS_2, (c)Cu_3P/SnS_2-1, (d)Cu_3P/SnS_2-2, (e)Cu_3P/SnS_2-3, (f)Cu_3P/SnS_2-4 in 0.1M $KHCO_3$ electrolyte at different scanning speeds.