Supplementary Information

Cu_2ZnSnS_4 Thin Films: Spin Coating Synthesis and Photoelectrochemistry

Jing Wang, Peng Zhang, Xuefeng Song, and Lian Gao**

State Key Laboratory for Metallic Matrix Composite Materials,

School of Materials Science and Engineering,

Shanghai Jiao Tong University, Shanghai, 200240, China.

*E-mail address: liangao@mail.sic.ac.cn (L. Gao); pengzhang2010@sjtu.edu.cn (P. Zhang)

Tel: +86-12-52412718. Fax: +86-21-52413122

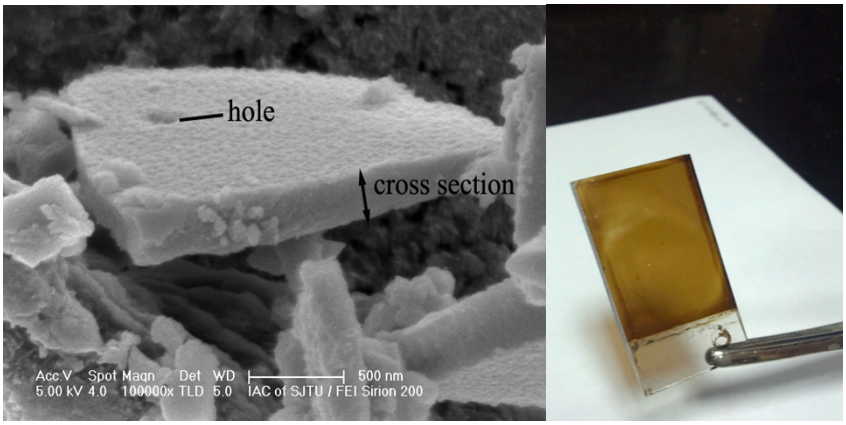

Fig. S1 Cross-sectional SEM image and optical picture of the CZTS thin film. The thicknesses of the sample is 300-400 nm. The observed chip is the one flipped off from FTO substrate.

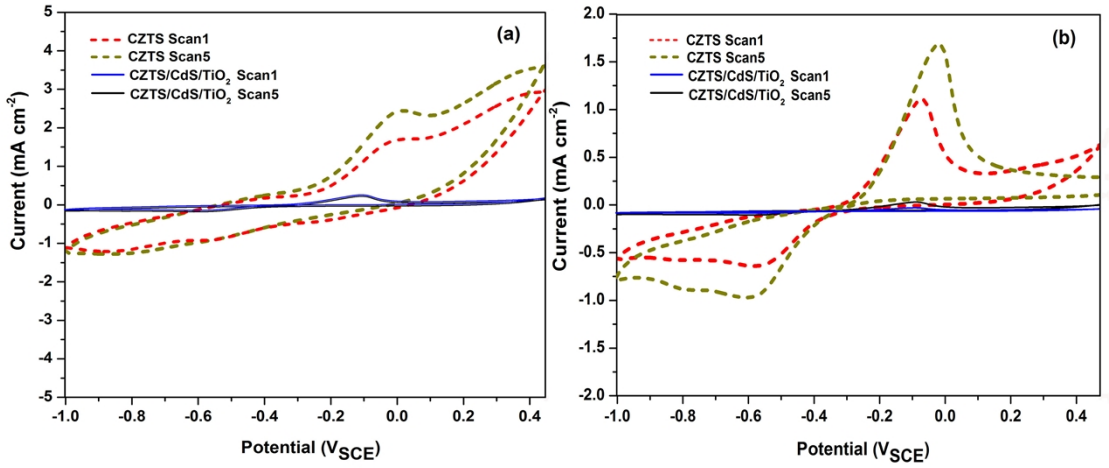

Fig. S2 Cyclic voltammograms under dark (a) and light (b) conditions of the bared and protected CZTS thin films in a conventional three electrode configuration. Scan1, scan one time; Scan 5, scan 5 times repeatedly. The potential was swept at 0.05 V s^{-1} toward negative potential. Electrolyte, 0.2 mol L^{-1} Na_2SO_4 aqueous solution; reference electrode, SCE; counter electrode, Pt wire.

Fig. S3 Optical images of unprotected (left) and CdS/TiO_2 coated (right) samples after cyclic voltammograms.