

Supplementary Information

Enhanced visible light photoelectrocatalytic activity over $\text{Cu}_x\text{Zn}_{1-x}$

InS@TiO_2 nanotube array hetero-structure

Zhi Wu, Cheng Gong, Jiangdong Yu, Lan Sun,* Wang Xiao and Changjian Lin*

State Key Laboratory for Physical Chemistry of Solid Surfaces, Department of Chemistry, College of Chemistry and Chemical Engineering, Xiamen University, Xiamen 361005, China

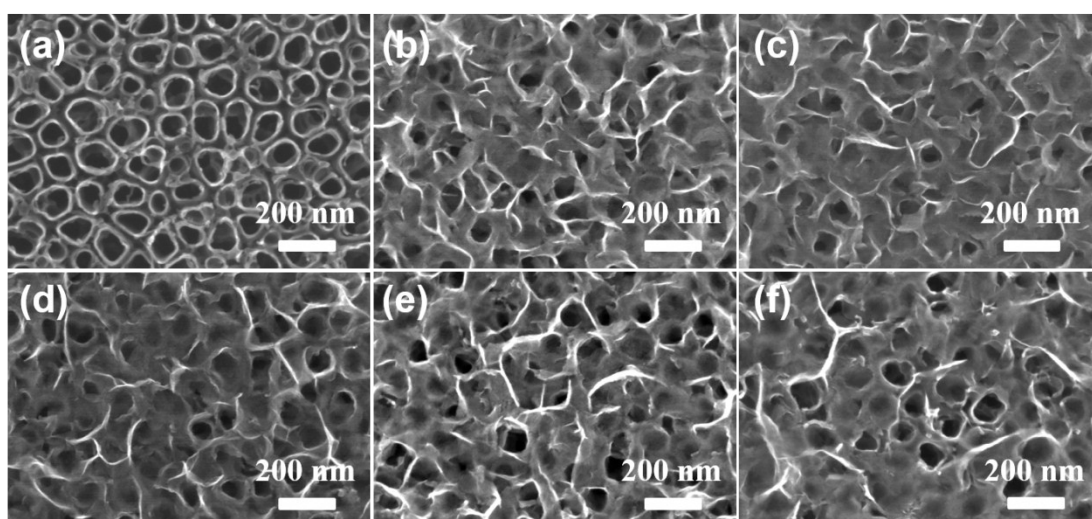


Figure S1 SEM images of (a) TNTAs, (b) CZIST-0, (c) CZIST-1/12, (d) CZIST-1/8, (e) CZIST-1/4, (f) CZIST-1/2.

*Corresponding author. Tel.: +86 592 2184655; fax: +86 592 2186657.

E-mail address: cjlin@xmu.edu.cn (C. J. Lin) and sunlan@xmu.edu.cn (L. Sun)

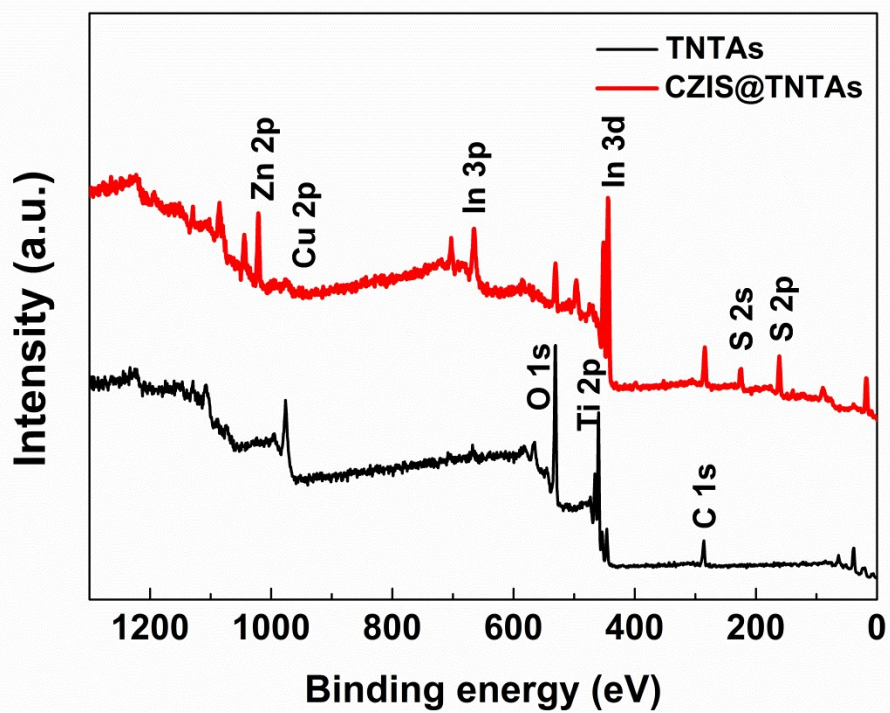


Figure S2 Survey XPS spectra of TNTAs and CZIS@TNTAs.

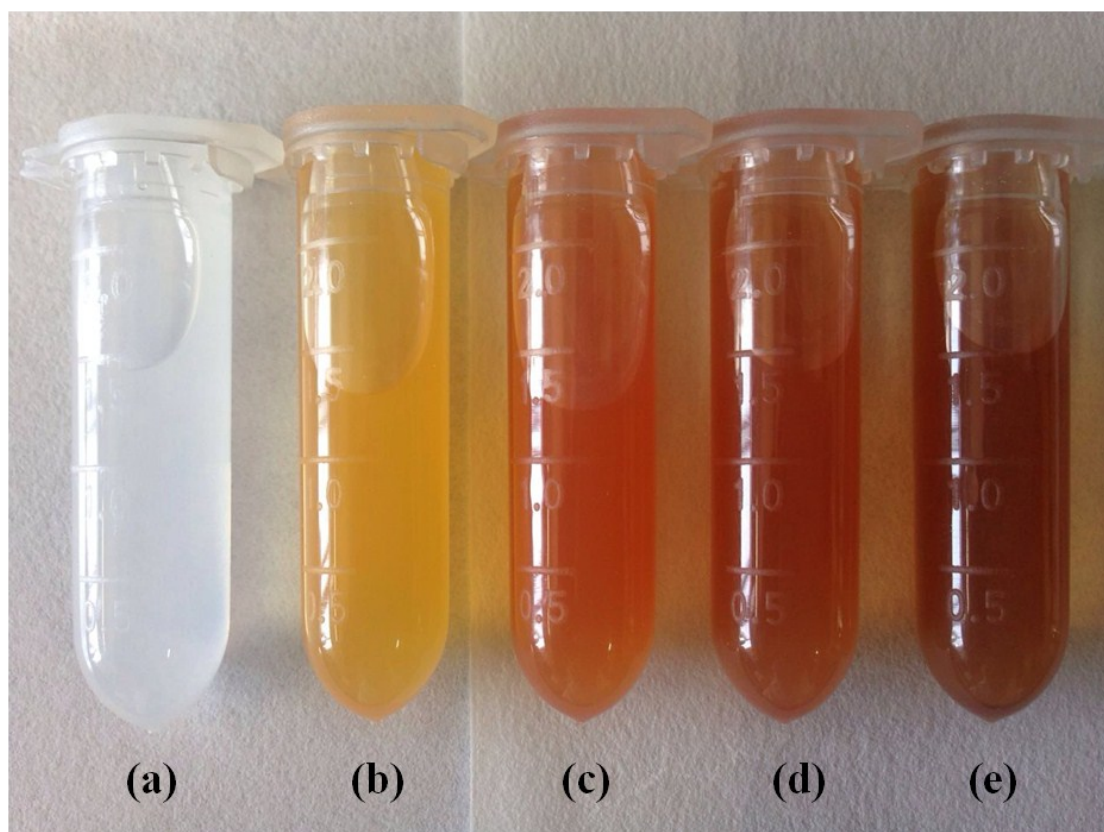


Figure S3 The digital photograph of triethylene glycol solution of different heterosystems before solvothermal reaction: (a) CZIST-0, (b) CZIST-1/12, (c) CZIST-1/8, (d) CZIST-1/4, (e) CZIST-1/2.

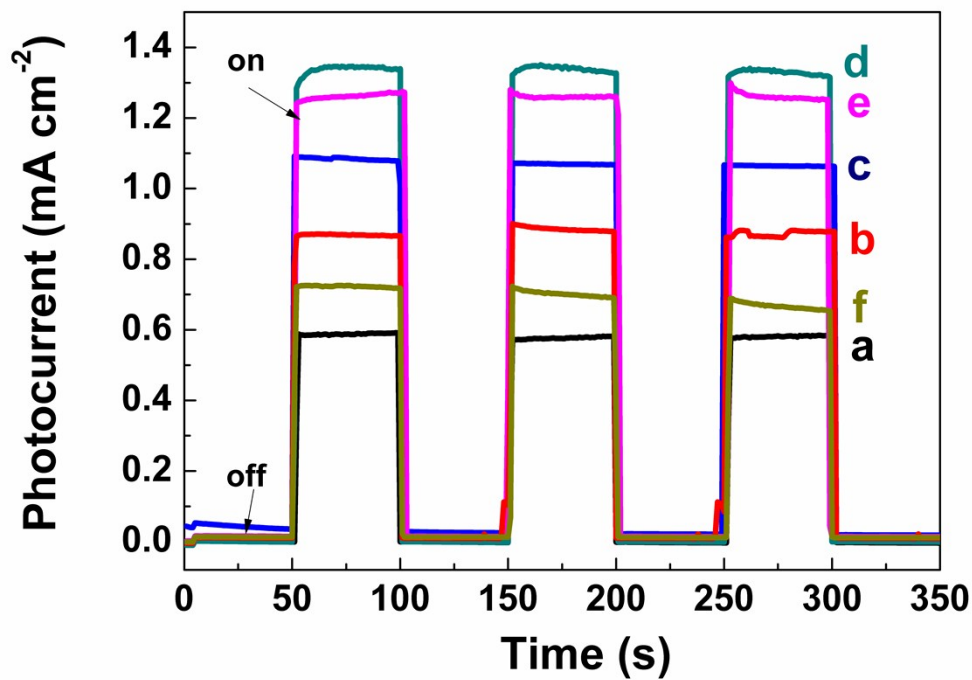


Figure S4 Photocurrent responses of TNTAs (line a) and CZIS@TNTAs with different mole ratio of Cu and Zn from 0 to 1/2 (line b to f) in a mixing solution of 0.5 M Na₂SO₃ and 0.5 M Na₂S in a photoelectrochemical (PEC) cell at a 0 V bias vs. Ag/AgCl electrode with a pulse of 50 s under intermittent Xe lamp irradiation.

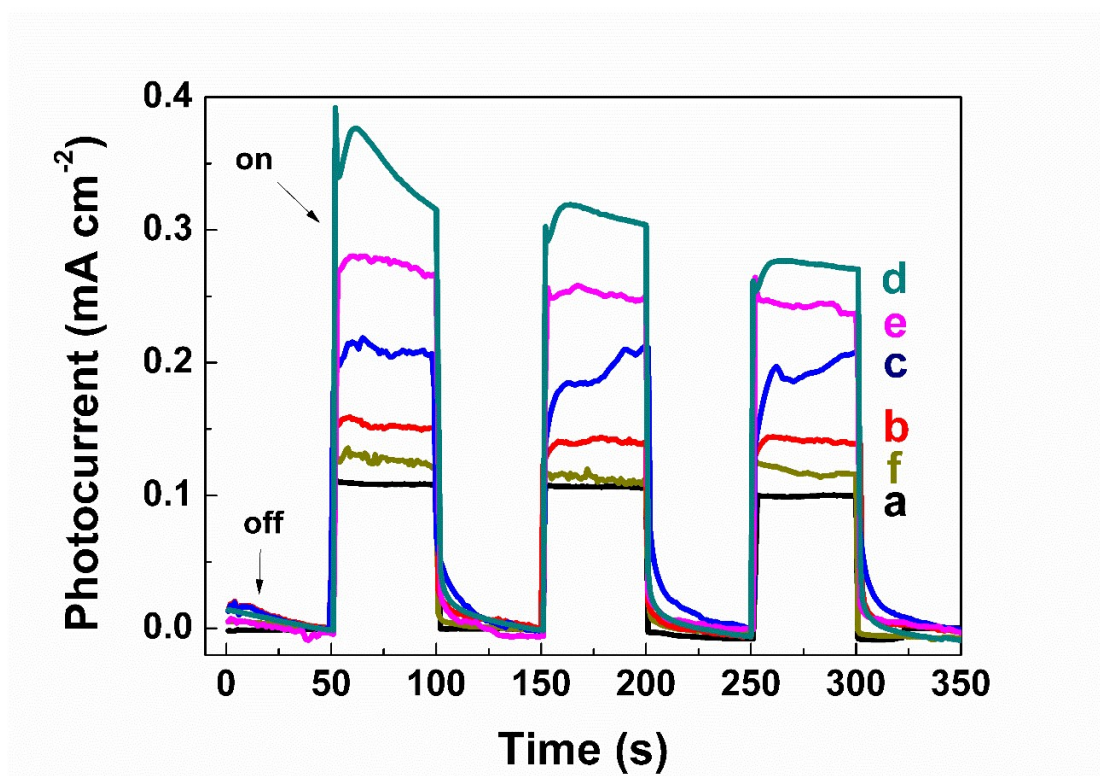


Figure S5 Photocurrent responses of TNTAs (line a) and CZIS with different mole ratio of Cu and Zn from 0 to 1/2 (line b to f) in a mixing solution of 0.5 M Na₂SO₃ and 0.5 M Na₂S in a photoelectrochemical (PEC) cell at a 0 V bias vs. Ag/AgCl electrode with a pulse of 50 s under visible light irradiation.