Construction of Highly Efficient $Zn_{0.4}Cd_{0.6}S$ and Cobalt Antimony Oxide Heterojunction Composites for Visible-Light-Driven Photocatalytic Hydrogen Evolution and Pollutant Degradation

Chen Chen [1,*], Xiao Zhang [2,3], Ting Cheng [2], Mingyue Wen [1], Yuan Tian [1] and Baoxuan Hou [1]

[1] School of Environmental and Chemical Engineering, Jiangsu University of Science and Technology, Zhenjiang 212100, China
[2] School of Environmental Ecology, Jiangsu City Vocational College, Nanjing 210017, China
[3] Yancheng Academy of Environmental Technology and Engineering, Nanjing University, Yancheng 224000, China
* Correspondence: chenc@just.edu.cn

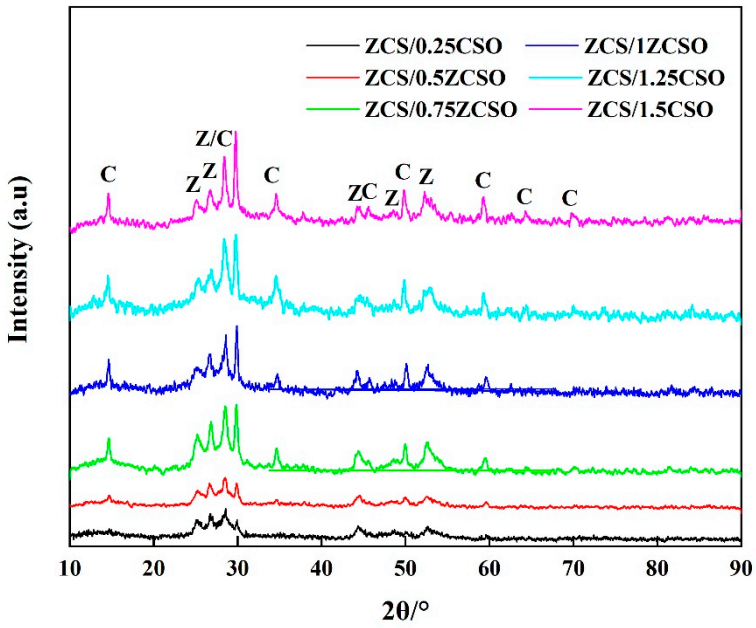

Figure S1. XRD patterns of ZCS/CSO heterojunction with different mass ratio (Z: ZCS and C: CSO).

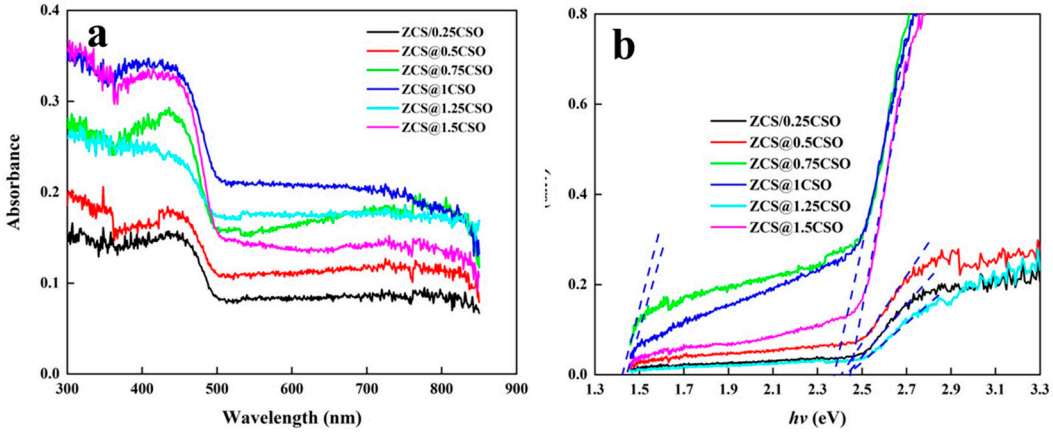

Figure S2. UV-Vis diffuse reflectance spectra for ZCS/CSO heterojunction with different mass ratio (a), and the plotting results of band gaps energy for ZCS/CSO heterojunction with different mass ratio (b).

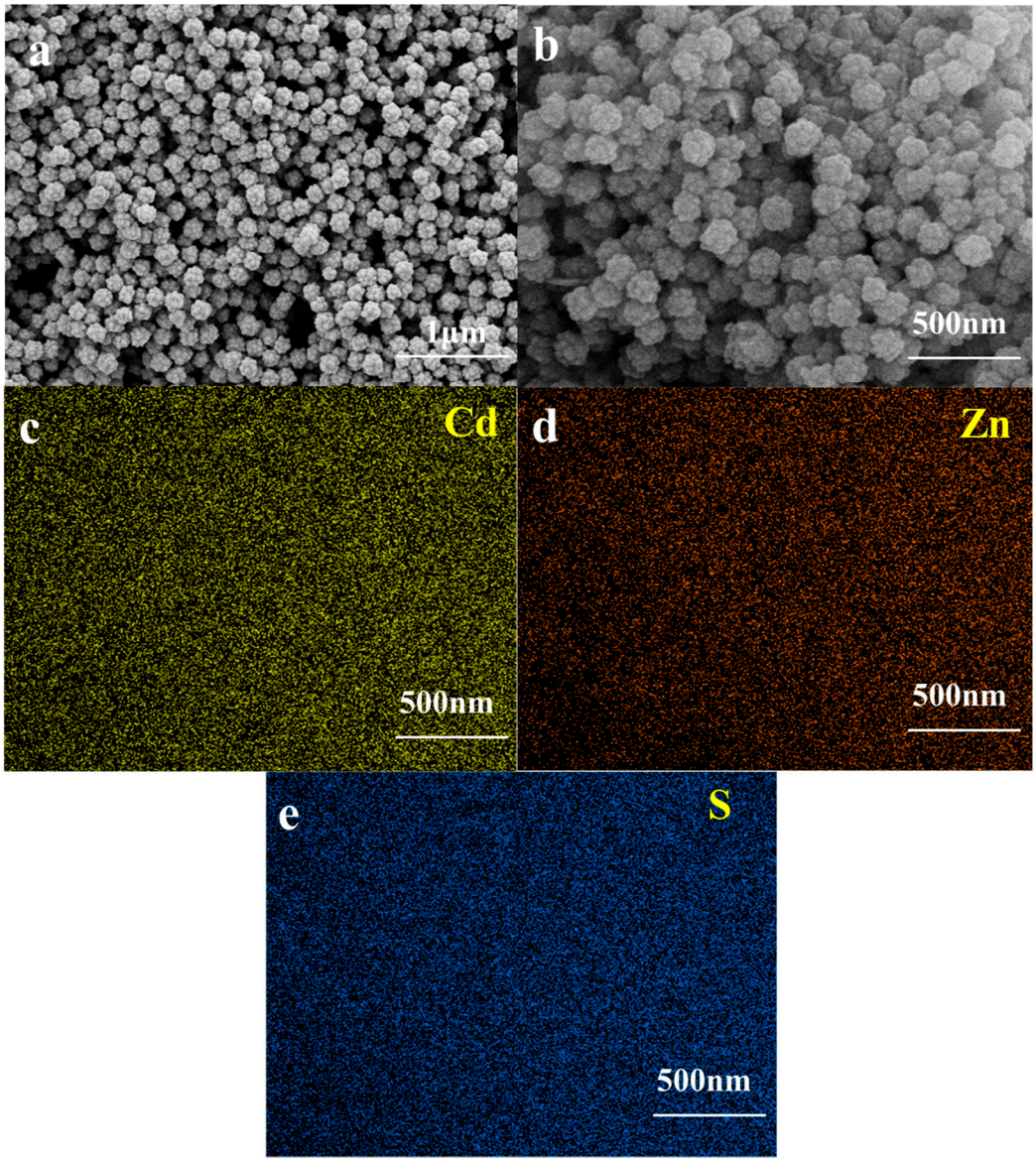

Figure S3. The SEM analysis results of ZCS (a and b) and EDS mapping results of Cd (c), Zn (d) and S (e).

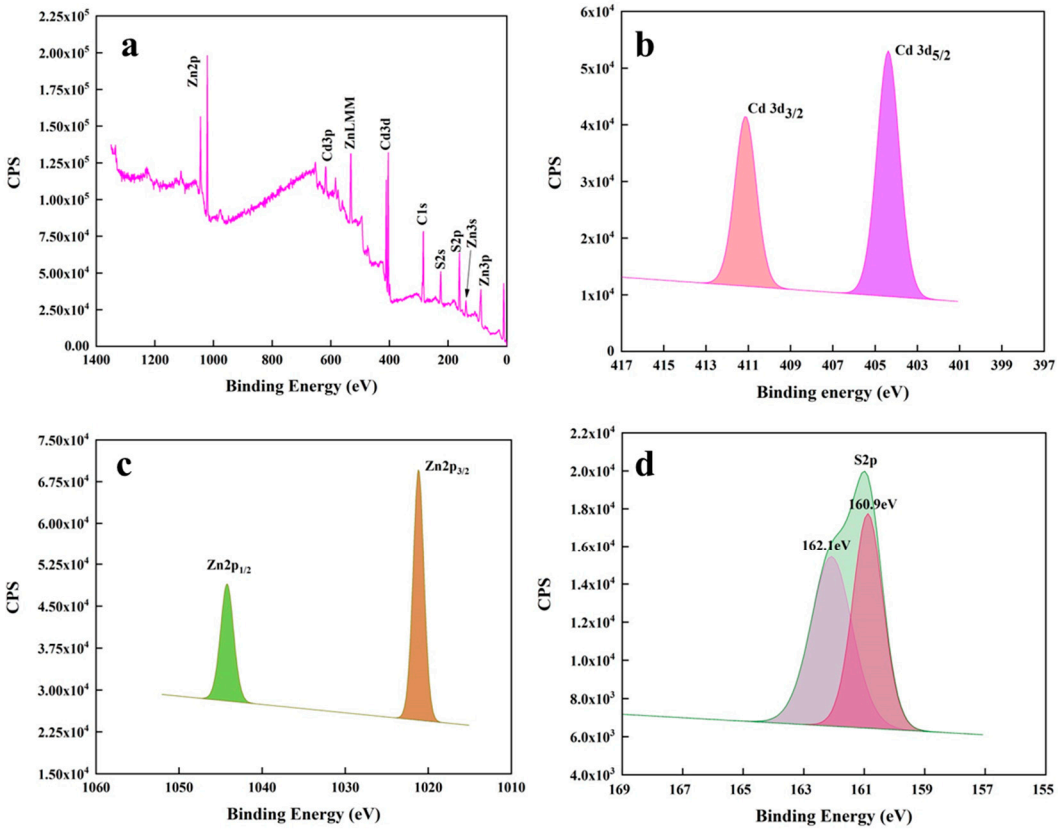

Figure S4. The wide scan XPS of ZCS (a); the high-resolution XPS spectra of Cd3d (b), Zn2p (c) and S2p (d).

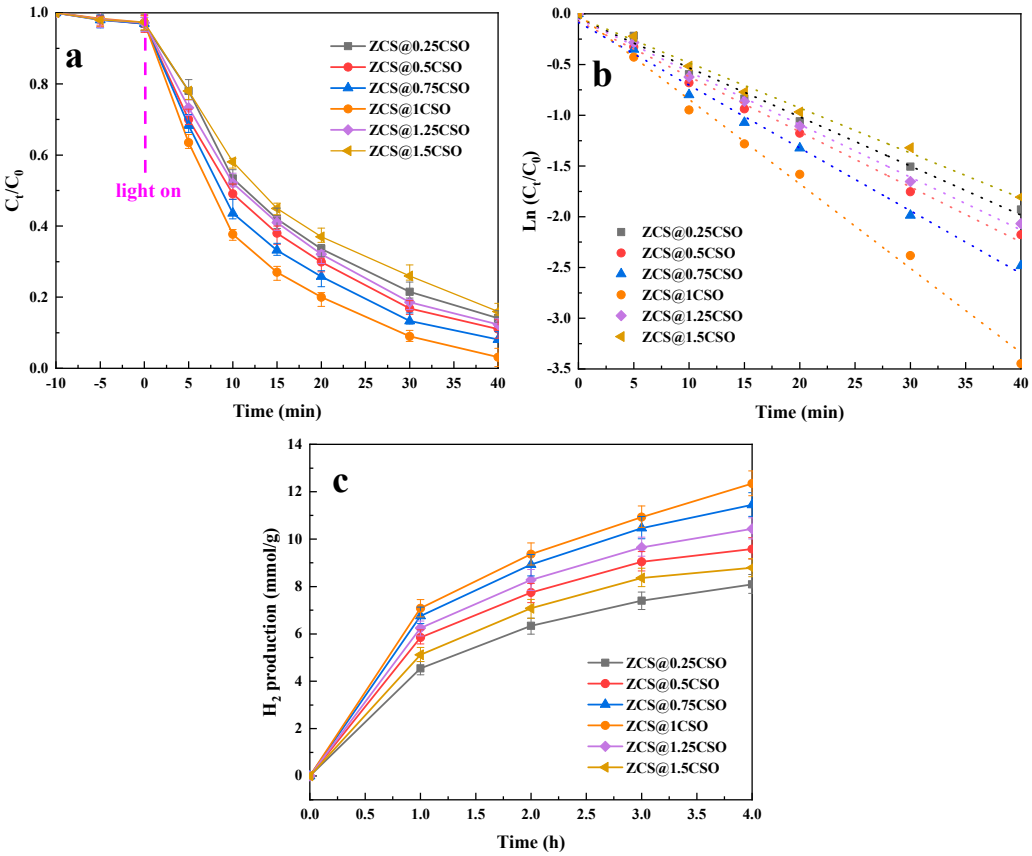

Figure S5. The MB photocatalytic degradation process (a), kinetic analysis (b) and H2 production (c) under composite systems (with different ZCS and CSO ratios).

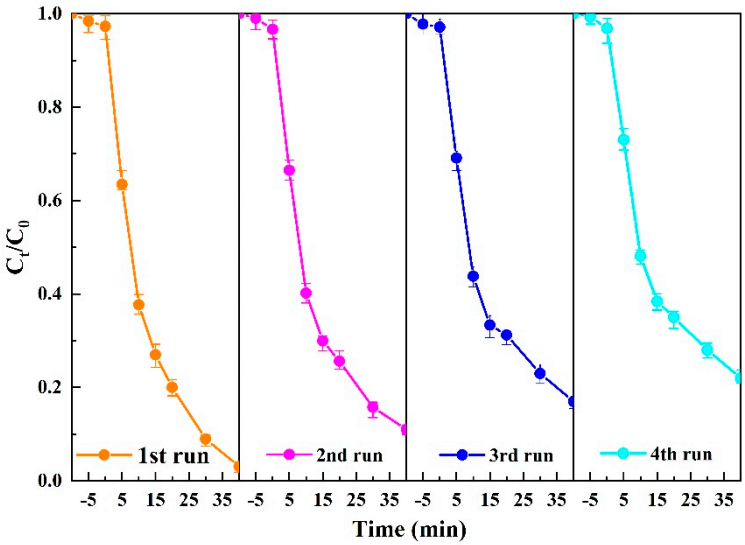

Figure S6. The MB photocatalytic degradation efficiency under ZCS@1CSO system for four runs.

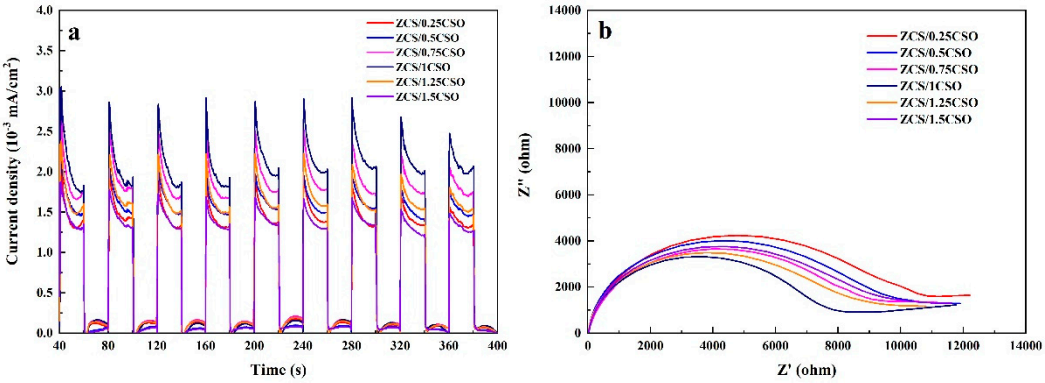

Figure S7. The transient photocurrent responses (a), Electro-chemical impedance spectra (b) for ZCS/CSO heterojunction with different mass ratio.