Supporting Information

Functionalized $ZnO@TiO_2$ nanorod array film loaded with $ZnIn_{0.25}Cu_{0.02}S_{1.395}$ solid-solution: synthesis, characterization and enhanced visible light driven water splitting†

Ruosong Wang,[a] Xiaoxue Xu, [c] Yi Zhang,[a] Zhimin Chang,[a] Zaicheng Sun,[b*] and Wen-Fei Dong [a*]

[a] *CAS Key Laboratory of Bio-Medical Diagnostics, Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Science (CAS), 88 Keling Road, Suzhou 215163, People's Republic of China.* *E-mail: wenfeidong@126.com

[b] *Beijing Key Laboratory for Green Catalysis and Separation, Department of Chemistry and Chemical Engineering, Beijing University of Technology, Beijing 100124, People's Republic of China.* *E-mail: sunzc@ciomp.ac.cn

[c] *Advanced Cytometry Labs, ARC Centre of Excellence for Nanoscale BioPhotonics(CNBP), Macquarie University, Sydney, NSW, 2109, Australia.*

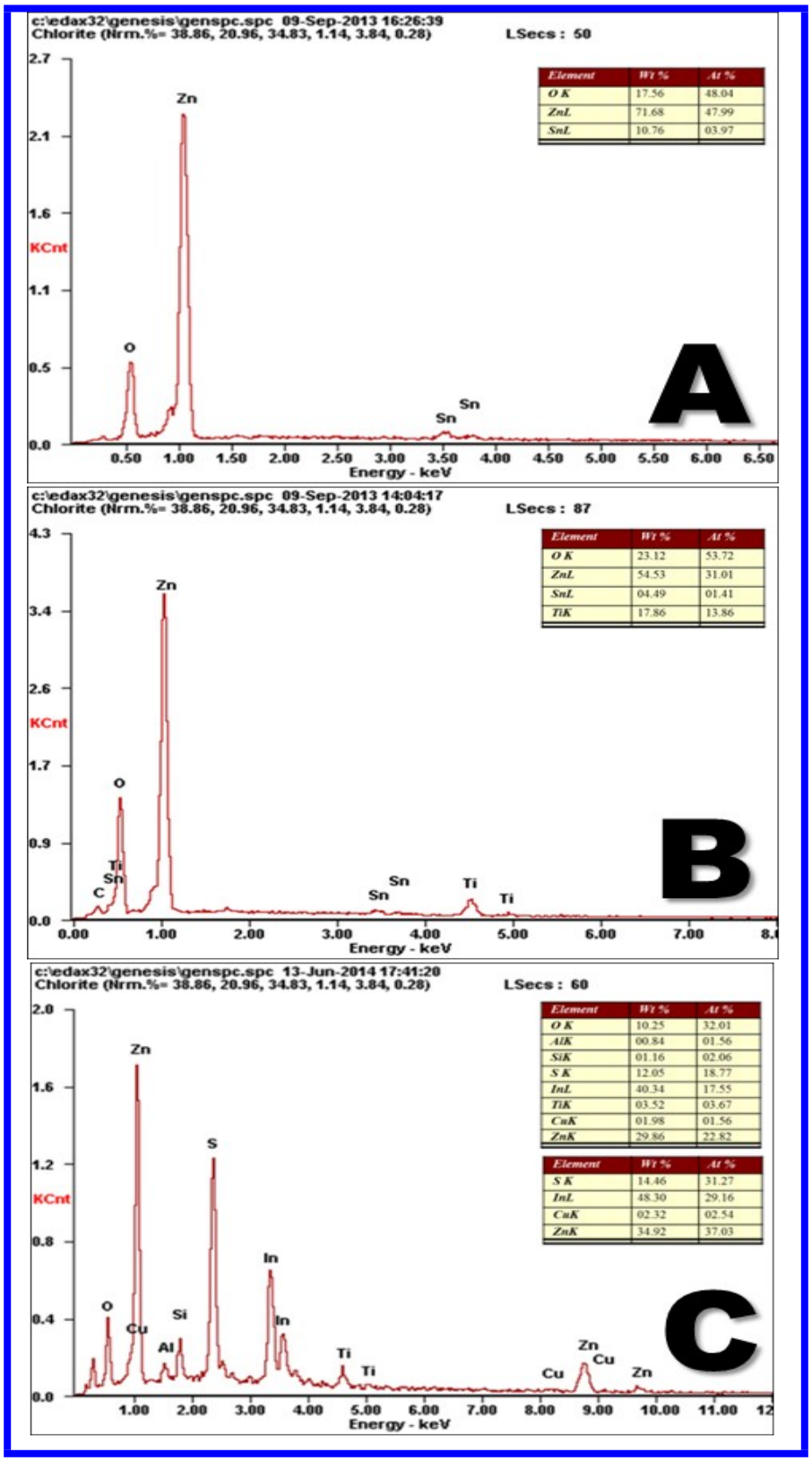

Figure S1 Energy-dispersive X-ray spectroscopy (EDX) of related samples (A) ZnO NRA, (B) ZnO@TiO_2 NRA, and (C) ZICS-15unit sample.

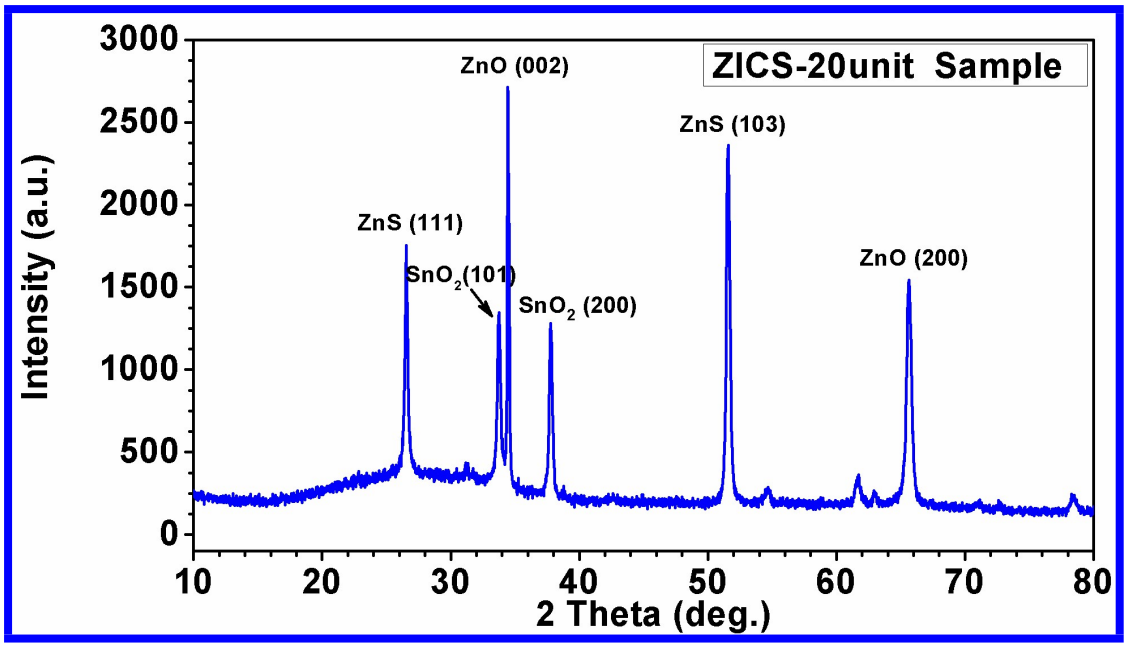

Figure S2 X-ray diffraction (XRD) pattern of ZICS-20uint sample as reference.

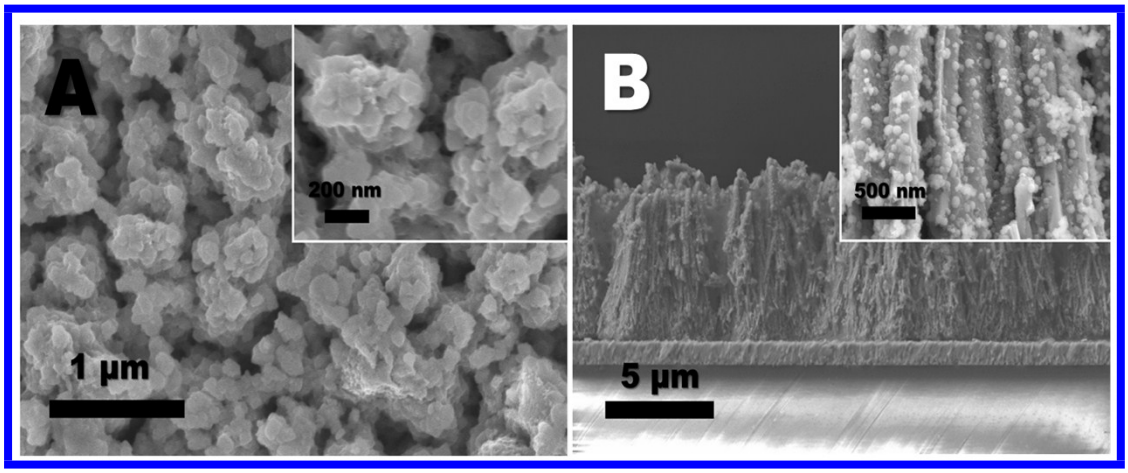

Figure S3 Field emission scanning electron microscope (FESEM) images of ZnO corrosion of ZICS-20unit sample. (A) Top-view of ZICS-20unit sample, (B) Side-view of ZICS-20unit sample. All the insets as shown are the corresponding magnification views.

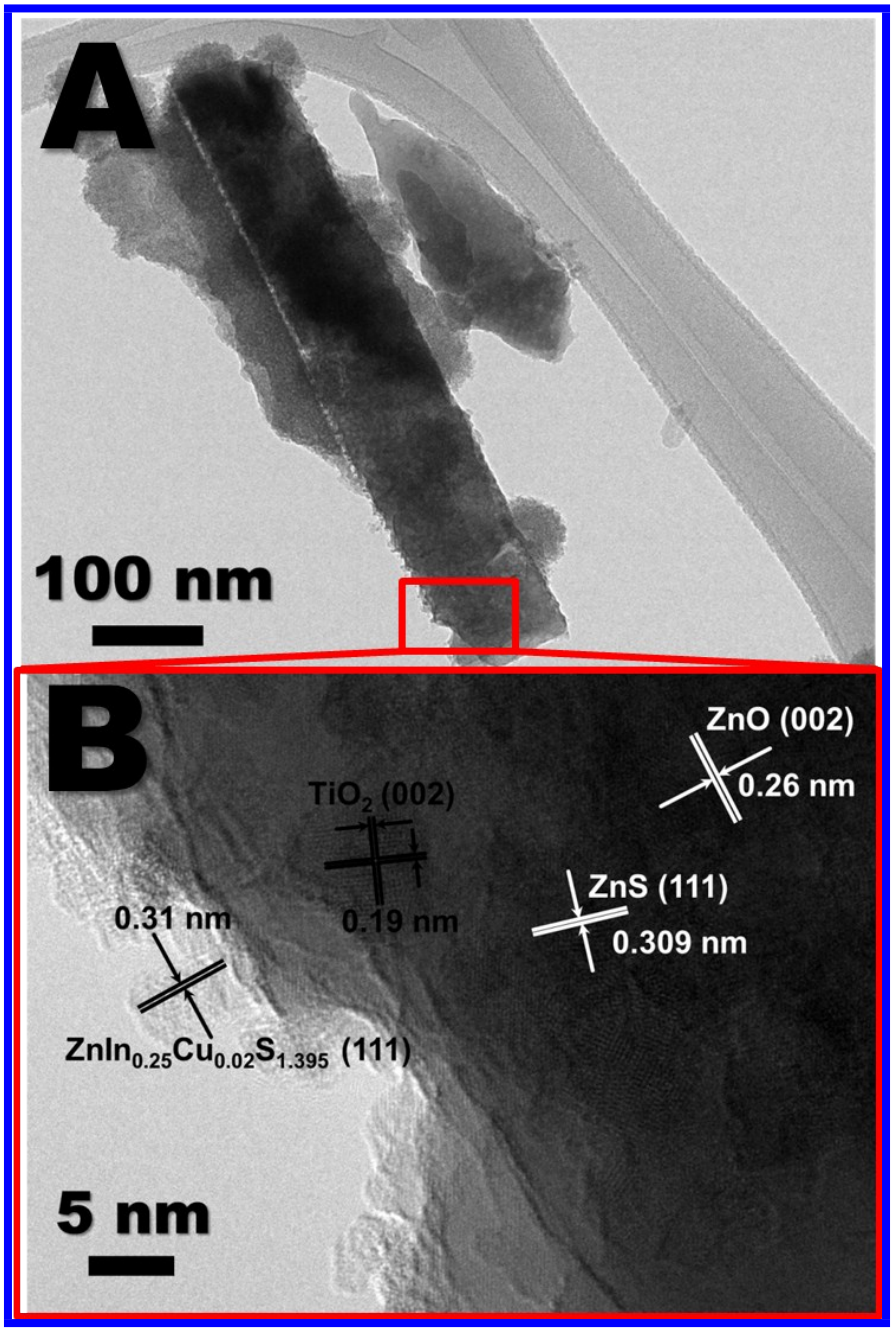

Figure S4 (A) Transmission electron microscope (TEM) image of ZnO corrosion of ZICS-20unit sample, (B) High resolution TEM (HRTEM) images of the selected square area shown in (A).