Pyrite FeS$_2$/C nanoparticles as an efficient bifunctional catalyst for overall water splitting

Zhongcheng Li,*a Mengmin Xiao,a Ying Zhou,a Deliang Zhang,a Hongzhen Wang,a Xien Liu,a Debao Wanga and Wenpin Wang*b

a Key Laboratory of Sensor Analysis of Tumor Marker Ministry of Education, State Key Lab Base of Eco-chemical Engineering, College of Chemistry and Molecular Engineering, Qingdao University of Science and Technology, Qingdao 266042, China

b Key Laboratory of Biobased Polymer Materials, Shandong Provincial Education Department, School of Polymer Science and Engineering, Qingdao University of Science and Technology, Qingdao 266042, China

* Corresponding authors:

Dr. Zhongcheng Li
Email: zhongchengli@qust.edu.cn;

Dr. Wenpin Wang
E-mail: wangwp@qust.edu.cn
Figure S1. XPS of the synthesized FeS$_2$ nanoparticles.
**Figure S2.** The OER activity of the Ni foam electrode with various concentration of FeS$_2$/C electrocatalysts.
Figure S3. The Tafel plots of FeS$_2$/C/NF and Ni foam towards OER.
Figure S4. XPS of FeS$_2$/C/NF after oxygen evolution reaction.
Figure S5. HRTEM image of FeS$_2$/C/NF after oxygen evolution reaction.
Figure S6. Nyquist plots of the FeS$_2$/C/NF, FeS$_2$/NF and bare Ni foam in 1.0 M KOH at the overpotential of 233 mV towards HER.
Figure S7. The H₂ and O₂ evolution on FeS₂/C/NF at the current density of 15 mA/cm² towards overall water splitting.