

# Engineering MoS<sub>2</sub> nanostructures from various MoO<sub>3</sub> precursors towards hydrogen evolution reaction

Wenpin Wang,<sup>a</sup> Qing Yao,<sup>a</sup> Jiaojiao Ma,<sup>b</sup> Yue Xu,<sup>b</sup> Jiaqin Jiang,<sup>b</sup> Xien Liu<sup>b</sup> and Zhongcheng Li<sup>\*b</sup>

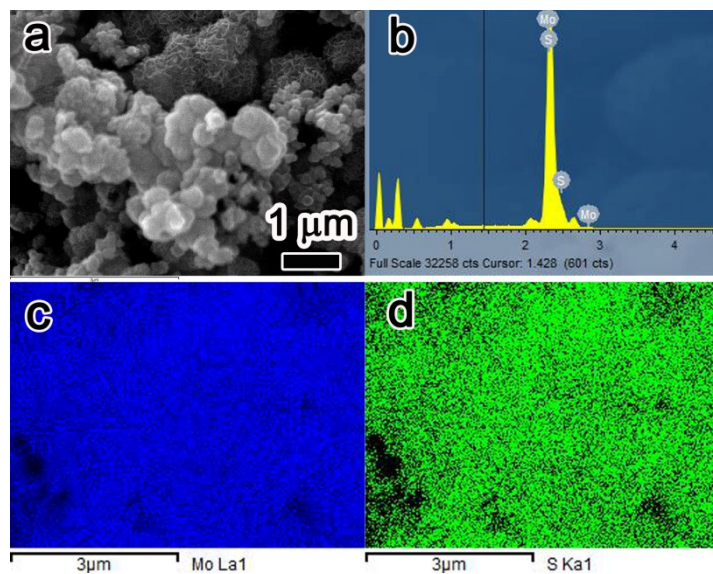
<sup>a</sup> Key Laboratory of Biobased Polymer Materials, Shandong Provincial Education Department, School of Polymer Science and Engineering, Qingdao University of Science and Technology, Qingdao 266042, China

<sup>b</sup> Key Laboratory of Optic-electric Sensing and Analytical Chemistry for Life Science, MOE, College of Chemistry and Molecular Engineering, Qingdao University of Science and Technology, Qingdao 266042, China,

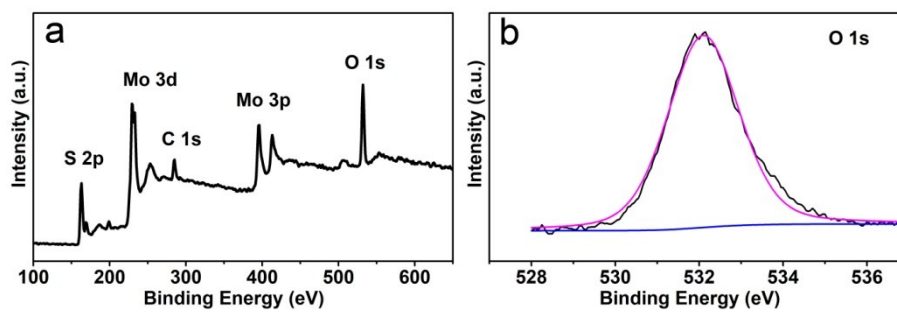
\* Corresponding authors:

Dr. Zhongcheng Li

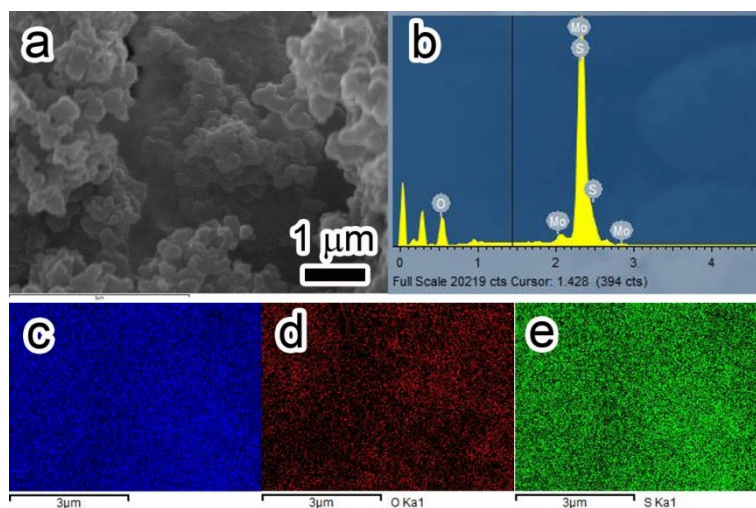
Email: [zhongchengli@qust.edu.cn](mailto:zhongchengli@qust.edu.cn);



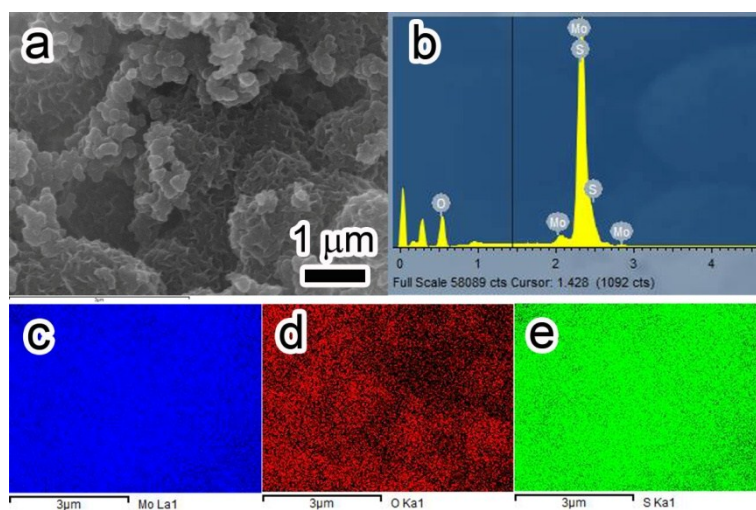
**Fig. S1** SEM image (a), EDX analysis (b) and the corresponding Mo (c), S (d) elemental mappings images of MoS<sub>2</sub> nanoflowers.



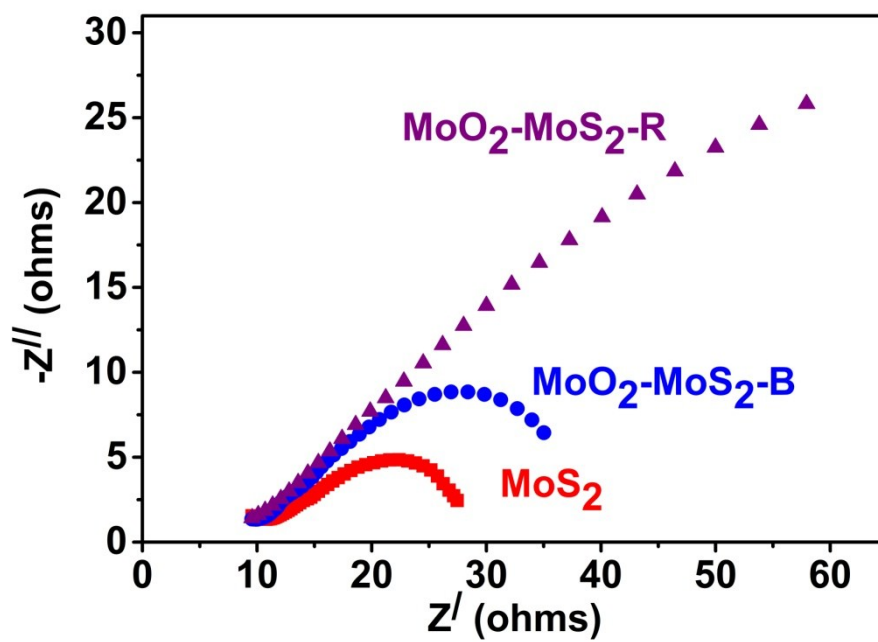
**Fig. S2** The survey XPS spectrum (a) and oxygen 1s spectrum (b) of the MoS<sub>2</sub> nanoflowers.



**Fig. S3** SEM image (a), EDX analysis (b) and the corresponding Mo (c), O (d) , S (e) elemental mappings images of MoO<sub>2</sub>-MoS<sub>2</sub>-B nanoflowers.



**Fig. S4** SEM image (a), EDX analysis (b) and the corresponding Mo (c), O (d) , S (e) elemental mappings images of MoO<sub>2</sub>-MoS<sub>2</sub>-R nanoflowers.



**Fig. S5** Nyquist plots of  $\text{MoS}_2$  nanoflowers,  $\text{MoO}_2\text{-MoS}_2\text{-B}$  nanoflowers and  $\text{MoO}_2\text{-MoS}_2\text{-R}$  nanoflowers electrocatalysts in 0.5 M  $\text{H}_2\text{SO}_4$ .