

## Supporting Information

### **Ta<sub>3</sub>N<sub>5</sub> Nanorods Encapsulated into 3D Hydrangea-like MoS<sub>2</sub> for Enhanced Photocatalytic Hydrogen Evolution under Visible Light Irradiation**

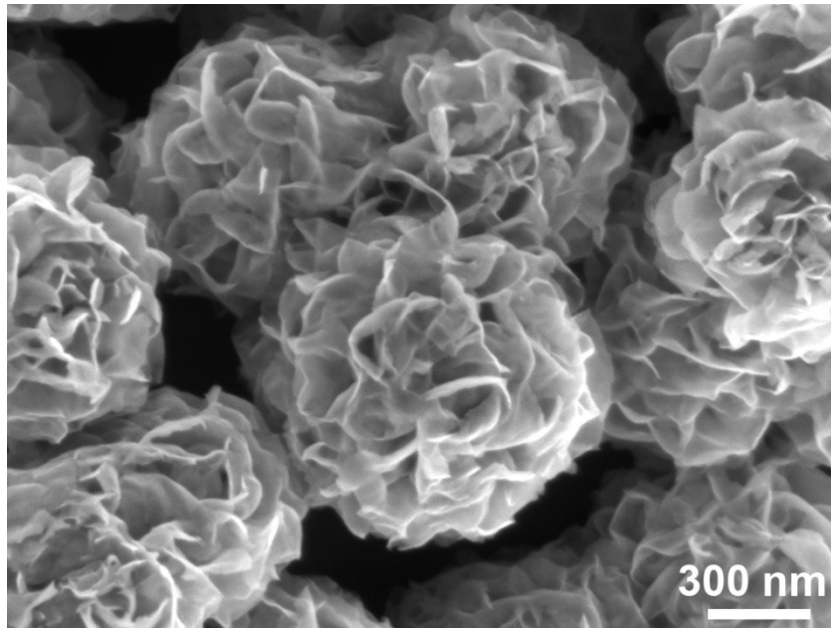
Lang Pei,<sup>a,b</sup> Yongjun Yuan,<sup>a</sup> Jiasong Zhong,<sup>a</sup> Taozhu Li,<sup>b</sup> Tao Yang,<sup>b</sup> Shicheng Yan,<sup>\*b</sup> Zhenguo Ji<sup>a</sup> and  
Zhigang Zou<sup>b</sup>

<sup>a</sup>College of Materials and Environmental Engineering, Hangzhou Dianzi University, Hangzhou  
310018, P. R. China

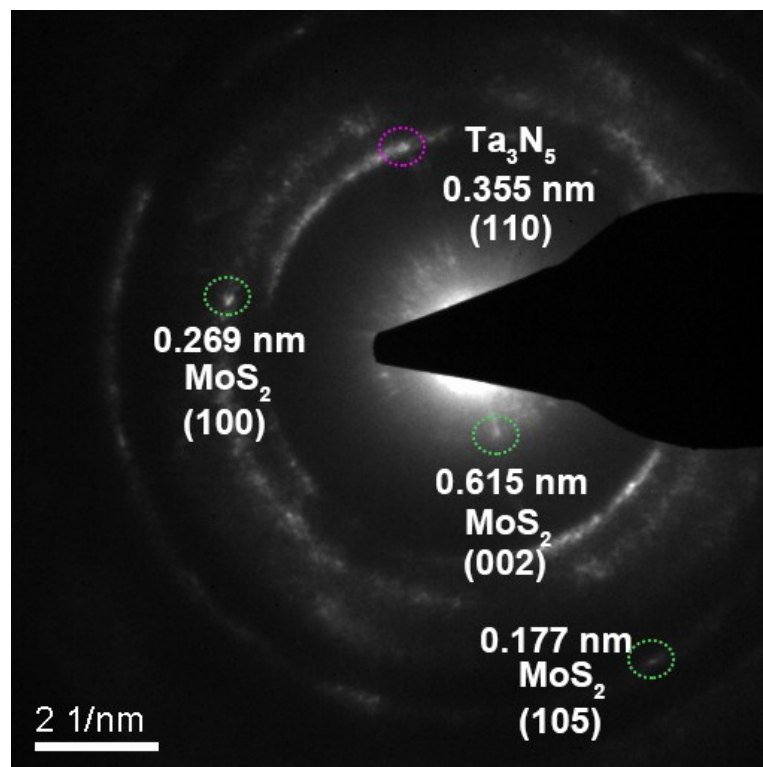
<sup>b</sup>Eco-materials and Renewable Energy Research Center (ERERC), Collaborative Innovation  
Center of Advanced Microstructures, College of Engineering and Applied Sciences, Nanjing  
University, Nanjing 210093, P. R. China.

#### **Corresponding Author**

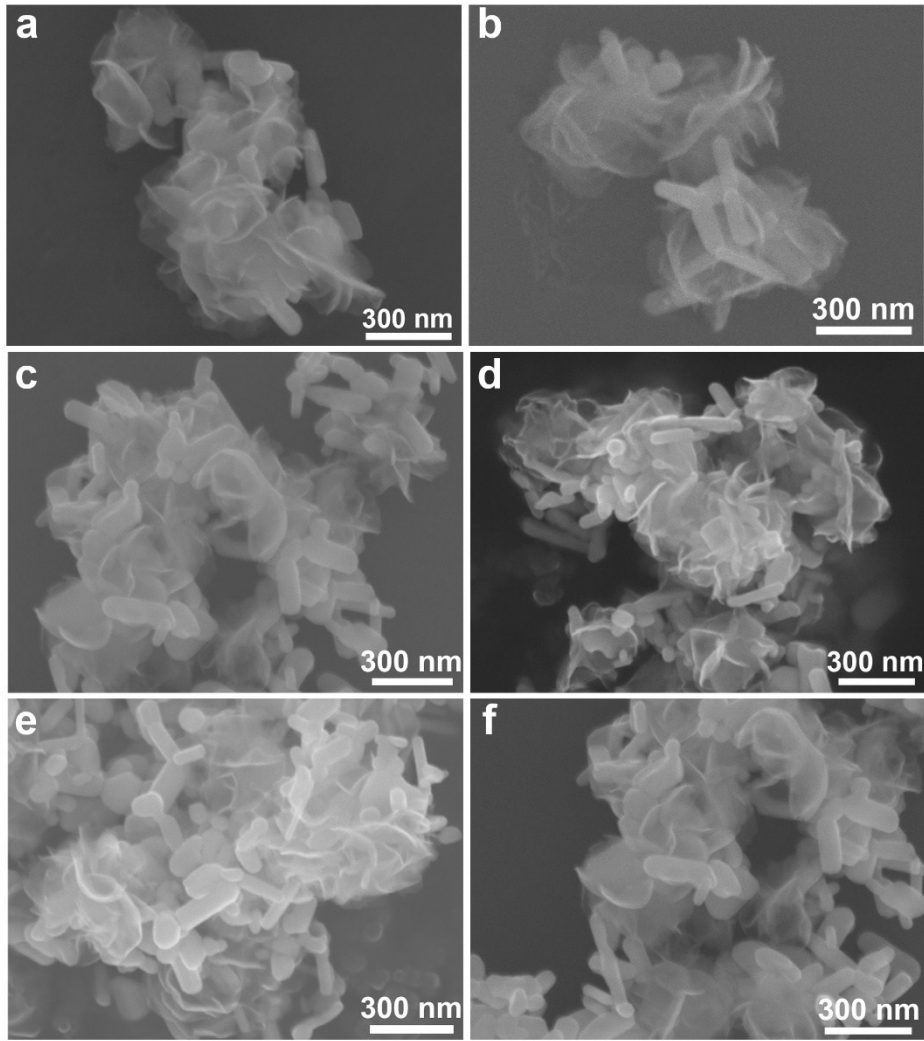
\*E-mail: Shicheng Yan: [yscfei@nju.edu.cn](mailto:yscfei@nju.edu.cn) (S. Yan)



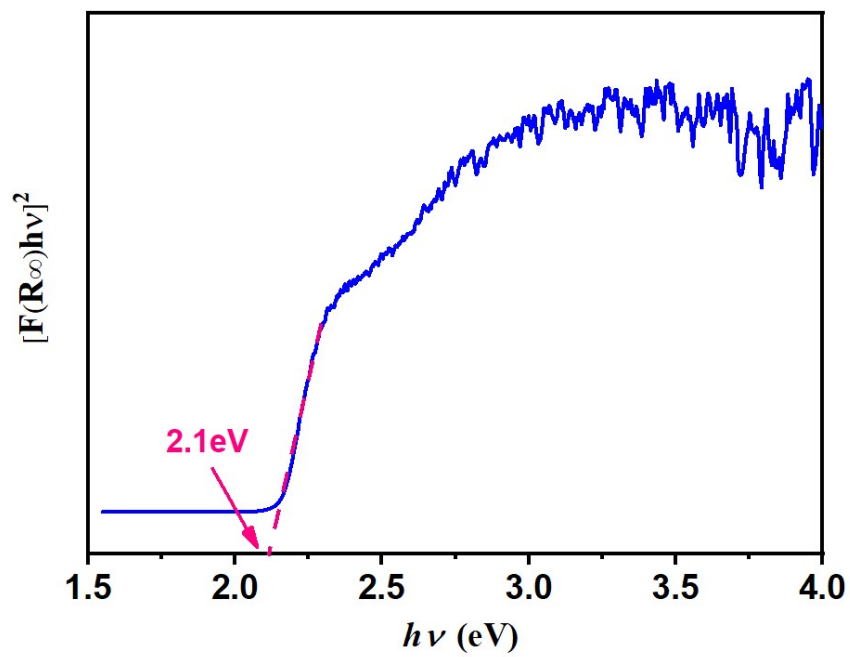
**Figure. S1** SEM image of pristine MoS<sub>2</sub>.



**Figure. S2** SAED image of Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-2.



**Figure. S3** SEM images of (a,b) Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-1, (c,d) Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-3 and (e,f) Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-4, respectively.



**Figure. S4** The Tauc plot for Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-2.



**Figure. S5** The photographs of (1) Ta<sub>3</sub>N<sub>5</sub>, (2) Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-1, (3) Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-2, (4) Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-3 and (5) Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-4 aqueous solution.

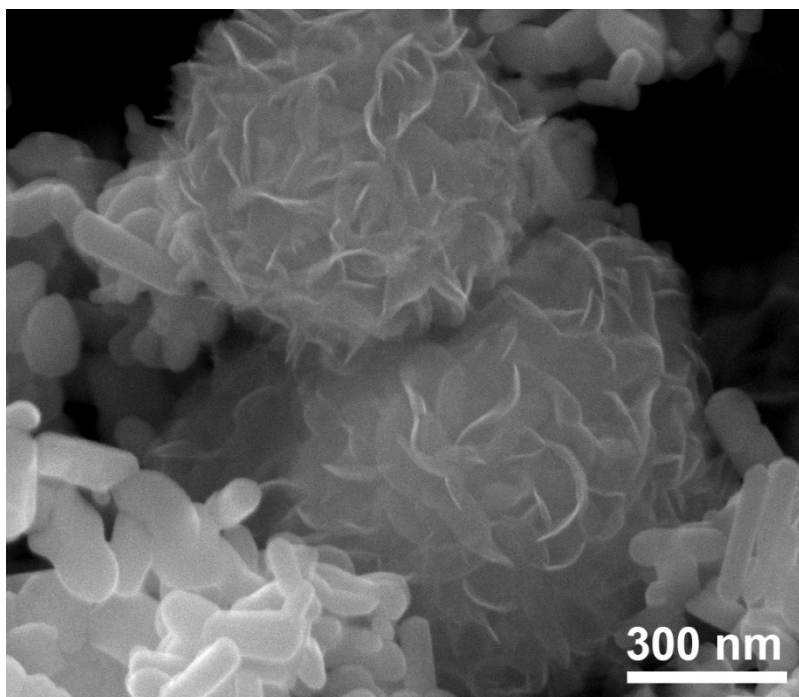


Figure. S6 SEM image of Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-M.

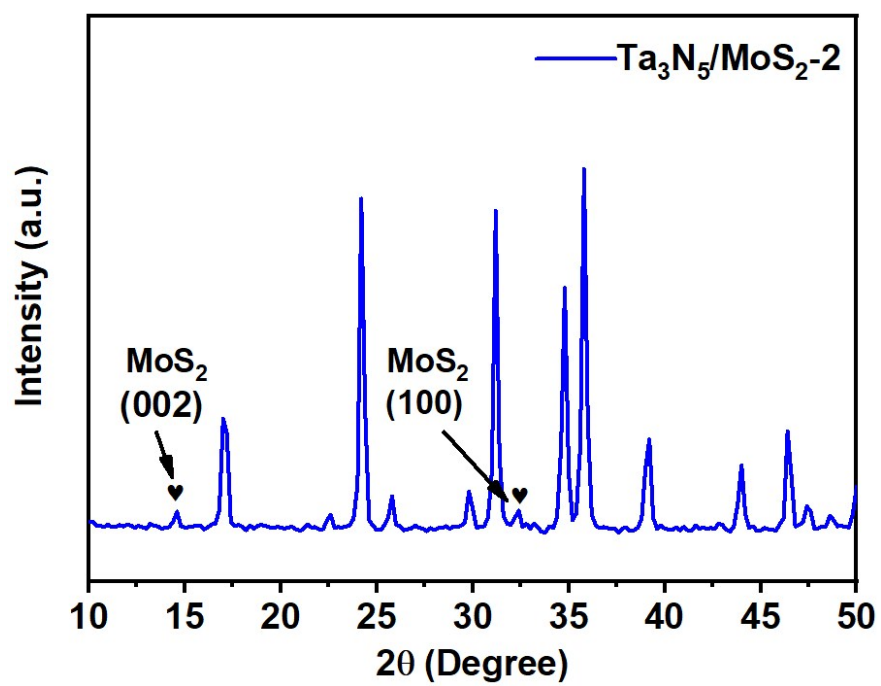
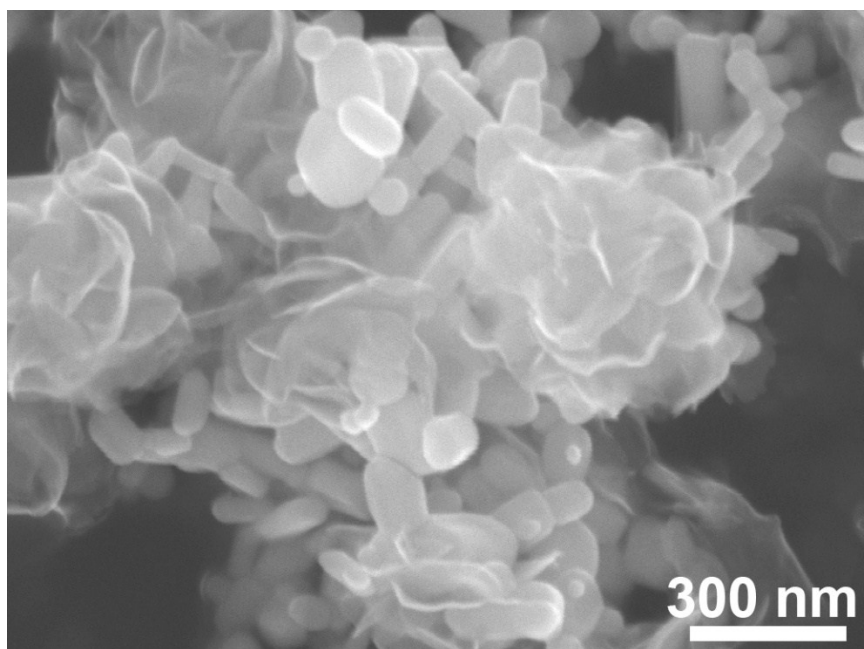


Figure. S7 XRD pattern of Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-2 after cycle stability test.



**Figure. S8** SEM image of Ta<sub>3</sub>N<sub>5</sub>/MoS<sub>2</sub>-2 after cycle stability test.