## Electronic Supplementary Information

## Facile Approach to Surface Functionalized MoS<sub>2</sub> Nanosheets

Li Zhou\*, Benzhao He, Yao Yang, and Yangang He

Guangxi Ministry-Province Jointly-Constructed Cultivation Base for State Key Laboratory of Processing for Nonferrous Metal and Featured Materials, Key Laboratory of New Processing Technology for Nonferrous Metal and Materials (Ministry of Education), and College of Material Science and Engineering, Guilin University of Technology, Guilin 541004, P. R. China



**Fig. S1** Digital photographs of MoS<sub>2</sub>-MPA, MoS<sub>2</sub>-CY and MoS<sub>2</sub>-TG in different solvents.



Fig. S2 Representative TEM images of  $MoS_2$ -MPA (a-c),  $MoS_2$ -CY (d-f) and  $MoS_2$ -TG (g-i).



**Fig. S3** Representative SEM images of bulk  $MoS_2$  (a),  $MoS_2$ -MPA (b),  $MoS_2$ -CY (c) and  $MoS_2$ -TG (d). The (a) is secondary electrons image. The (b), (c) and (d) are backscattered electrons images on copper substrate.



Fig. S4 (a) N1s spectra of MoS<sub>2</sub>-none and MoS<sub>2</sub>-CY. (b) C1s spectrum of MoS<sub>2</sub>-TG.



**Fig. S5** (a) Representative AFM image of WS<sub>2</sub>-MPA. The height profile in panel (b) is along the line in (a). (c) Representative TEM image of WS<sub>2</sub>-MPA. (d) TGA curve of WS<sub>2</sub>-MPA. XPS survey (e) and C1s (f) spectra of WS<sub>2</sub>-MPA.



**Fig. S6**  $\zeta$ -potential of MoS<sub>2</sub>-none and MoS<sub>2</sub>-MPA.



Fig. S7 Representative TEM images of  $MoS_2$ -Ag using  $MoS_2$ -MPA (a,b) and  $MoS_2$ -none (c,d) as substrate, respectively.



Fig. S8 Digital photographs of  $MoS_2$ -g-PMMA and  $MoS_2$ -g-PCL in different solvents.