Supplementary Information (SI) for New Journal of Chemistry.

Supplementary Data

Construction of an S-Type Fe-Doped g-C_3N_4/MoS_2 Heterojunction for Enhanced Charge Separation and Dual Photocatalytic Activities

Haiyan Qian[1], Wenbin Qu[2]， Lixin Song[1], Pingfan Du[1*]

[1]College of Textile Science and Engineering, Zhejiang Sci-Tech University, Hangzhou 310018, PR China

[2]Research Institute of Frontier Science, Southwest Jiaotong University, Chengdu 610031, China

*Corresponding author. Tel.: +86 571 86849370; fax: +86 571 86843603.

E-mail address: dupf@zstu.edu.cn (P. Du).

Materials

Ammonium molybdate tetrahydrate ($(NH_4)_6Mo_7O_{24}\cdot 4H_2O$), thiourea ($CH_4N_2S$), melamine ($C_3H_6N_6$), ferric nitrate nonahydrate ($Fe(NO_3)_3\cdot 9H_2O$), methanol (CH_3OH), absolute ethanol (C_2H_5OH), isopropanol (IPA), benzoquinone (BQ), disodium ethylenediaminetetraacetate (EDTA-2Na), and Nafion perfluorinated resin solution were all purchased from Hangzhou Gaojing Fine Chemical Co., Ltd. Polypropylene (PP) fibers were obtained from Zhejiang Jinda New Material Technology Co., Ltd. All chemicals used in this study were of analytical grade and used without further purification. Deionized water was used as the solvent throughout all experiments.

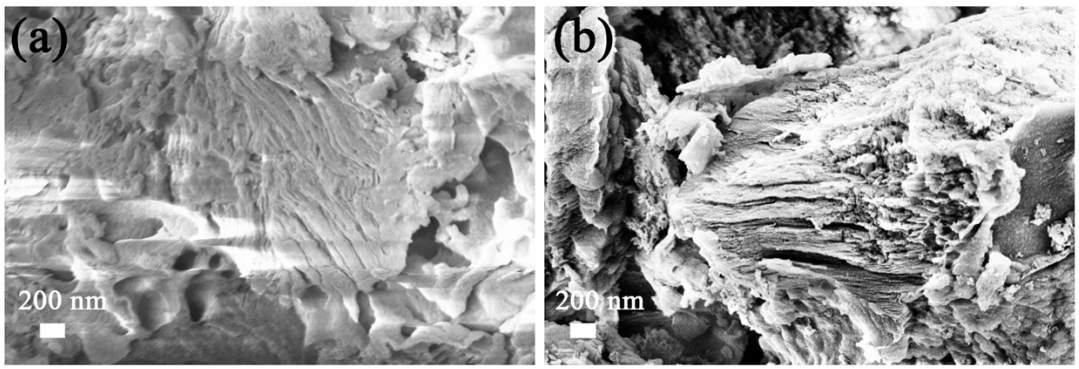

Fig. S1. SEM images of g-C_3N_4

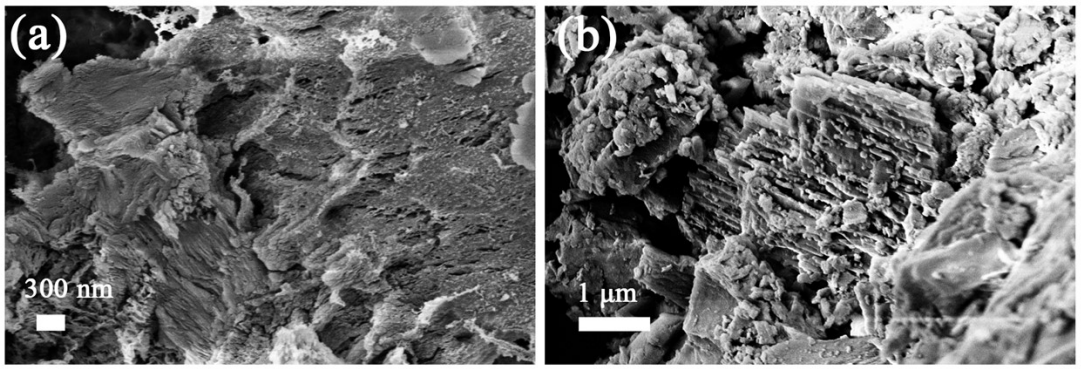

Fig. S2. SEM images of Fe-g-C_3N_4

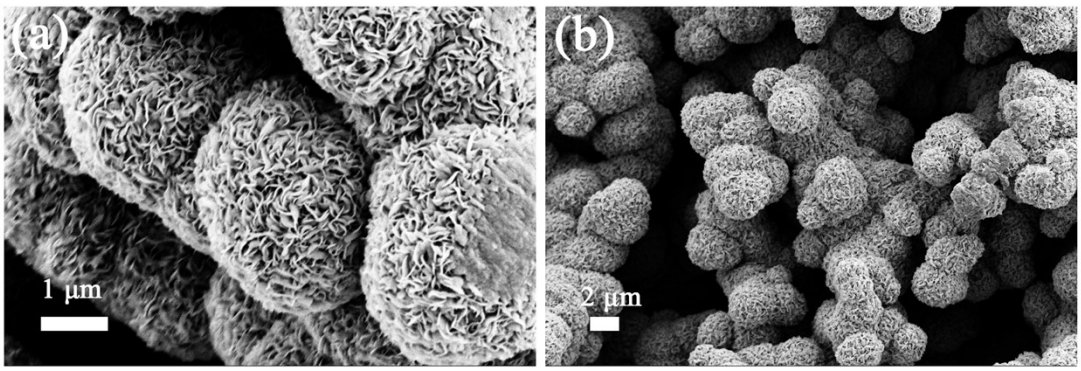

Fig. S3. SEM images of MoS_2

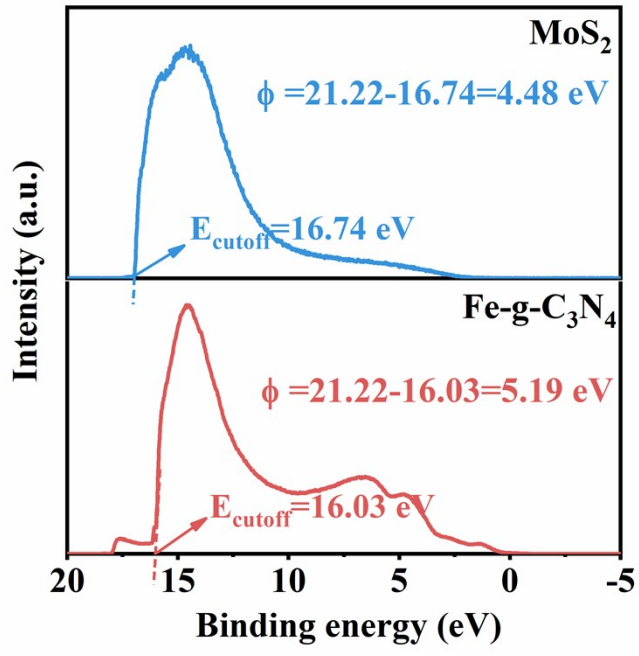

Fig. S4. The UPS of MoS_2 and Fe-g-C_3N_4

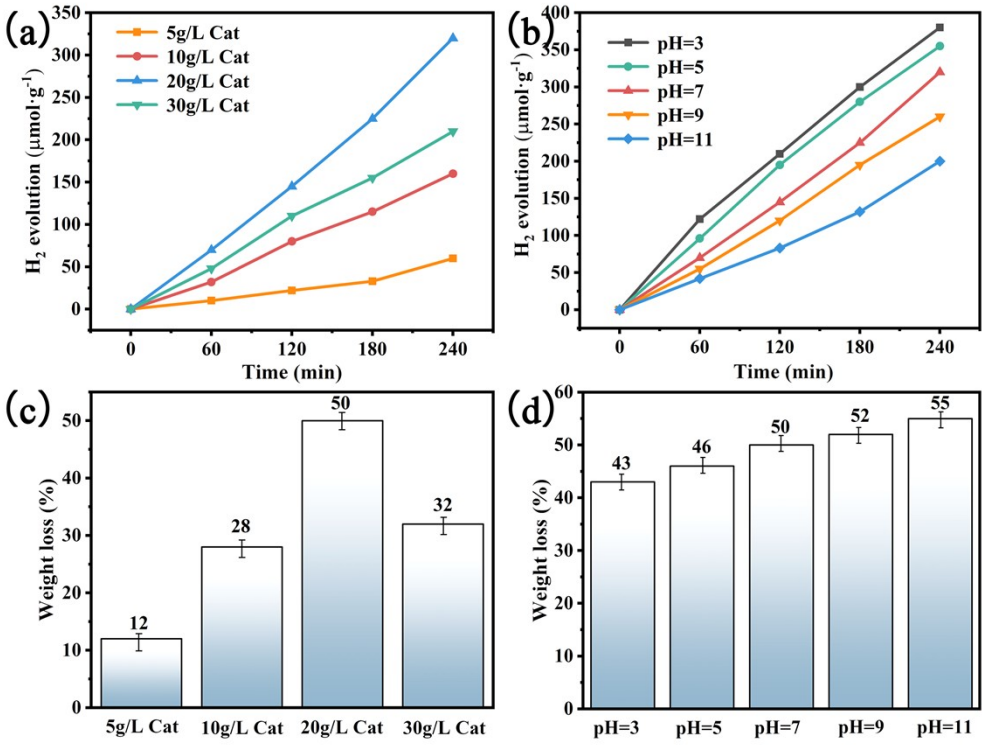

Fig. S5. Effect of catalyst dosage on (a) hydrogen evolution rate and (c) PP degradation rate. The effect of pH on (b) hydrogen evolution rate and (d) PP degradation rate.

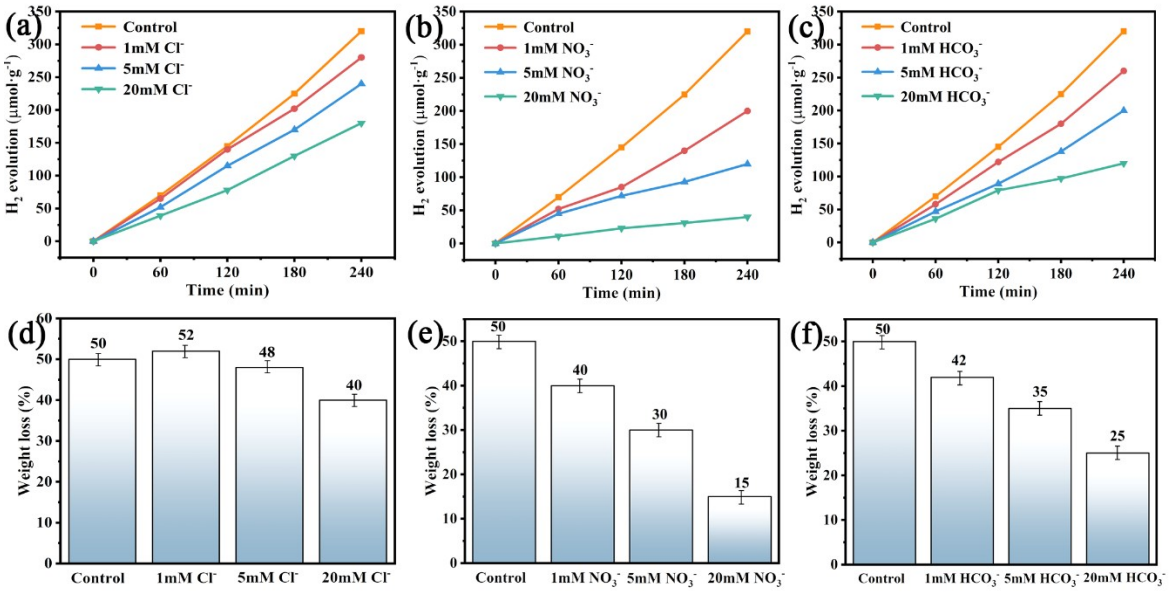

Fig. S6. Effect of Cl^- on (a) hydrogen evolution rate and (d) PP degradation rate. The effect of NO_3^- on (b) hydrogen evolution rate and (d) PP degradation rate. The effect of HCO_3^- on (b) hydrogen evolution rate and (d) PP degradation rate.

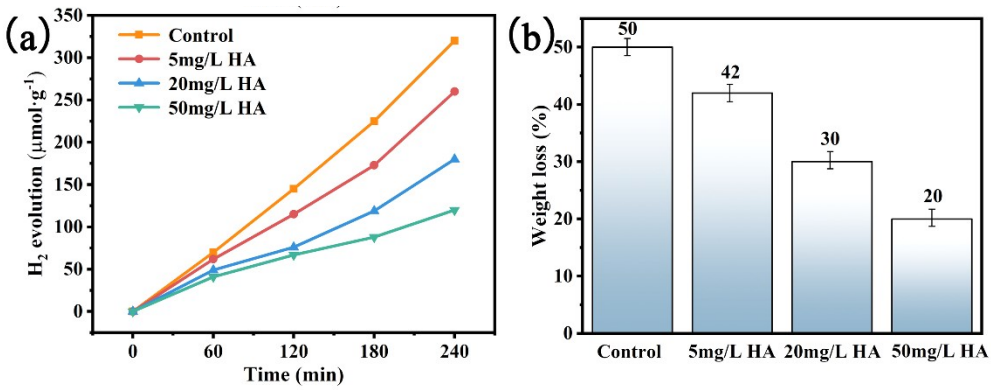

Fig. S7. Effect of HA on (a) hydrogen evolution rate and (d) PP degradation rate.

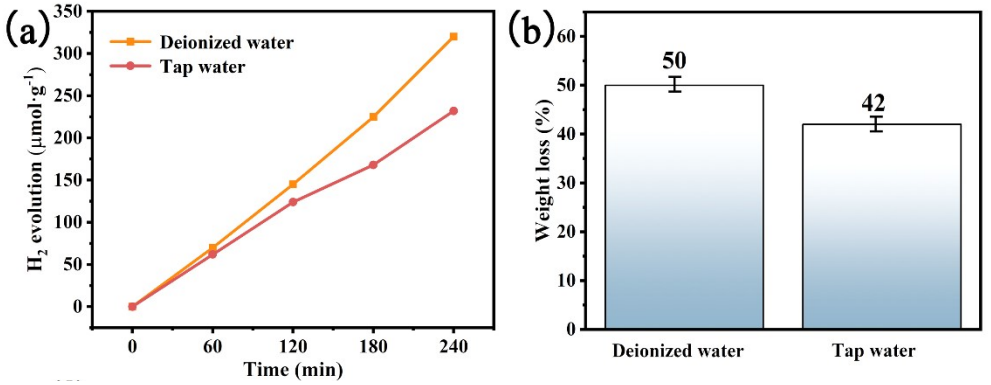

Fig. S8. The hydrogen production (a) and pp degradation amounts (b) in deionized water and tap water.