Supporting materials

Controllable Synthesis Photocatalytic Property and Mechanism of a Novel Direct Z-scheme POMs-based Nano Heterojunction α-Fe_2O_3/P_2Mo_{18}

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Characterization

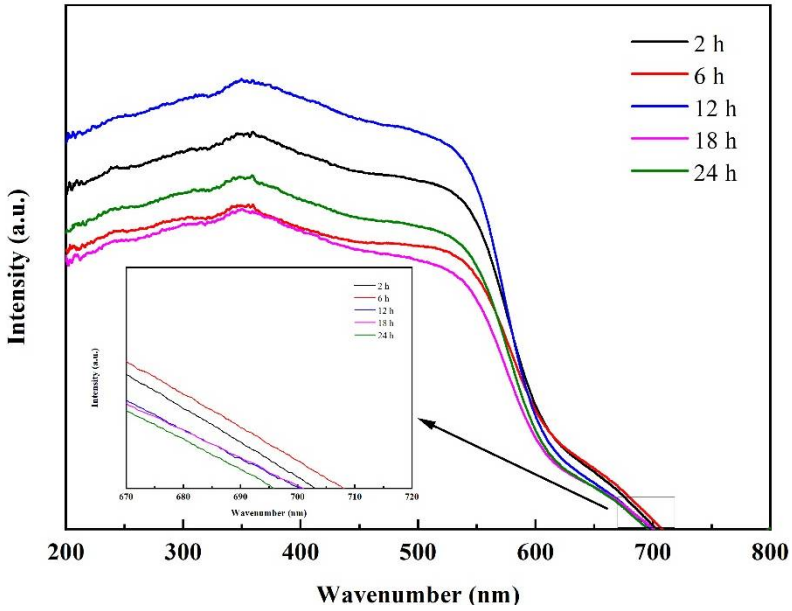

Fig. S1. DRS spectra of Fe_2O_3

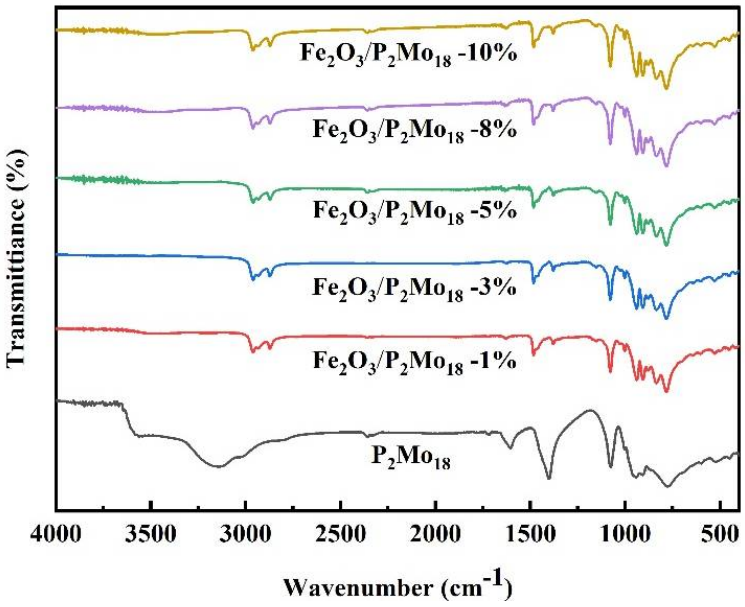

Fig S2. FI-IR spectra of the hybrid materials.

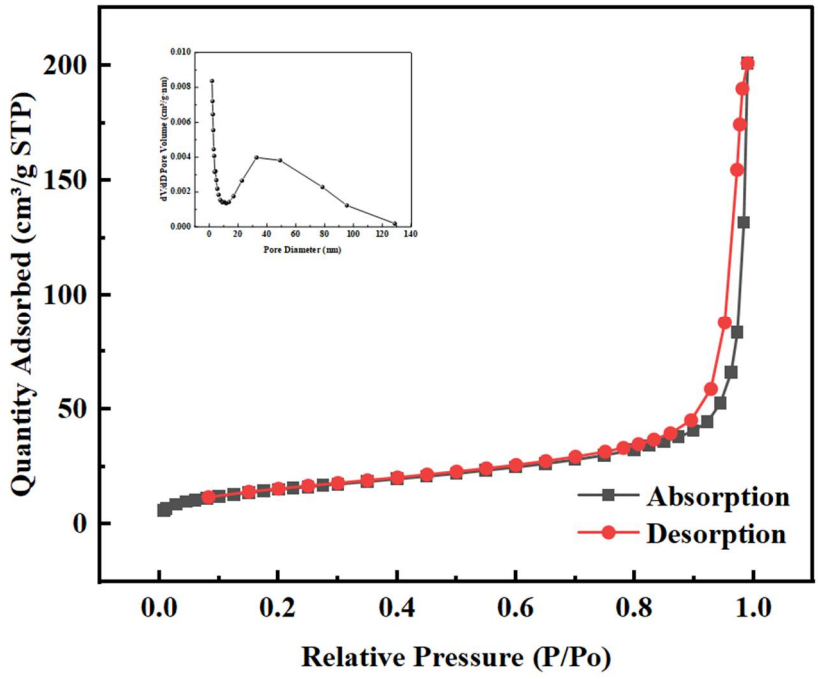

Fig. S3. N_2 adsorption desorption isotherms and pore size distribution curves (Insert)

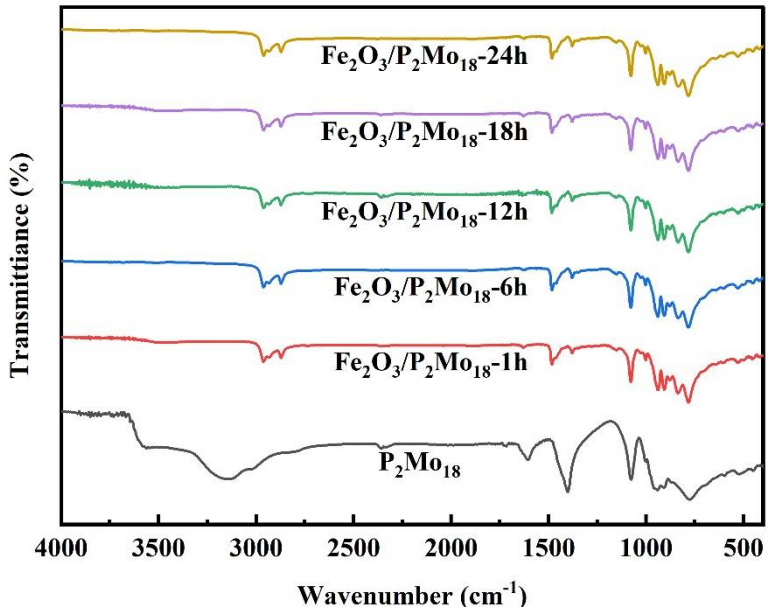

Fig. S4. FI-IR spectra of the hybrid materials with different reaction times of Fe_2O_3

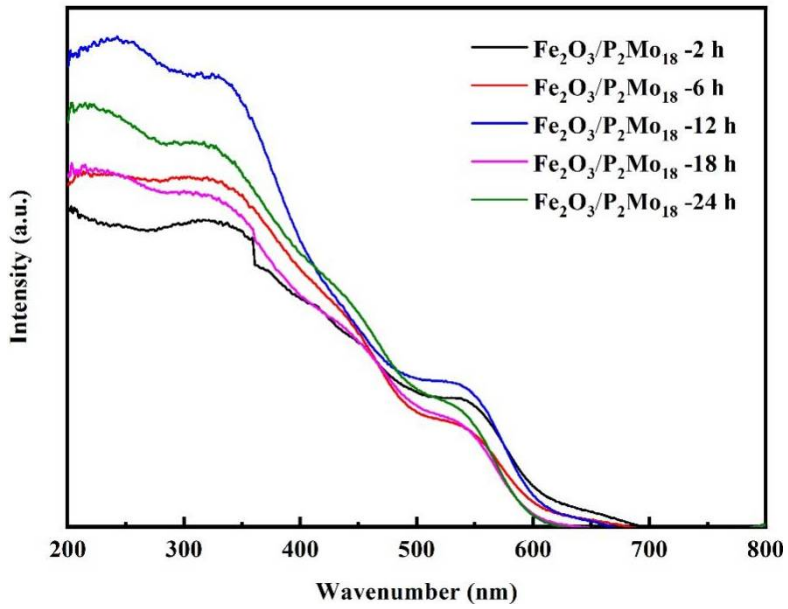

Fig. S5. UV-vis spectra of composites with different reaction times of Fe_2O_3

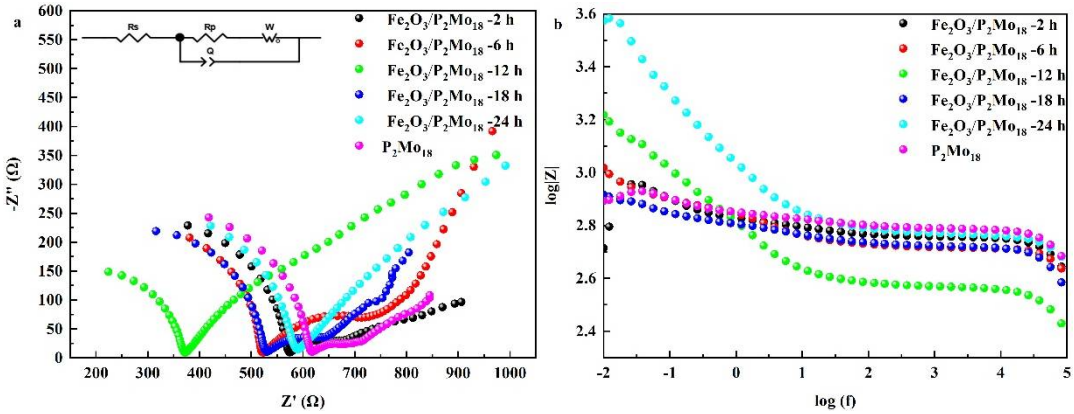

Fig. S6. Nyquist (a) and Bode (b) plots of composites made from Fe_2O_3 with different reaction times

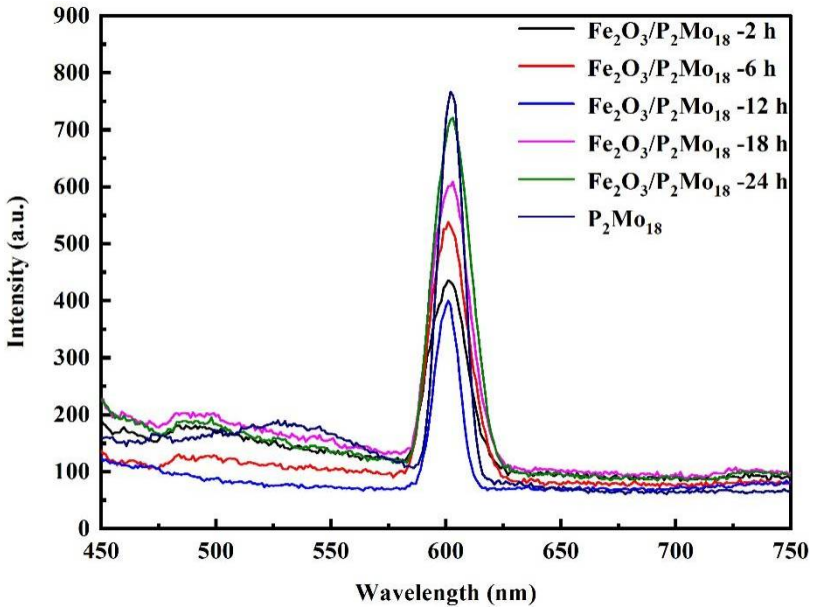

Fig. S7. Photoluminescence spectra of composites with different reaction times of Fe_2O_3

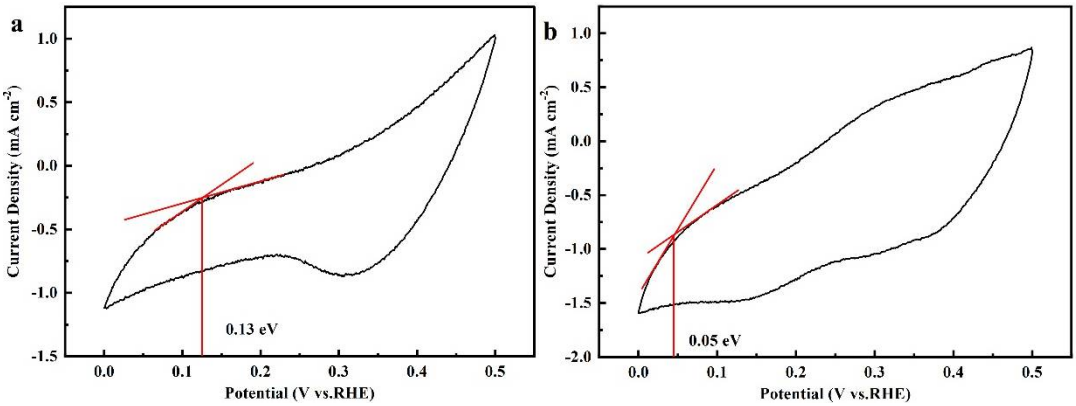

Fig. S8. the CV test diagram of polyoxoanion P_2Mo_{18} (a) ,Fe_2O_3 (b)

Table S1 The comparison of MB degradation activity of P_2Mo_{18}/Fe_2O_3-5% with literature.

Photocatalyst	Concentration ($mg \cdot L^{-1}$)	Dosage ($g \cdot L^{-1}$)	Time (min)	Remove (%)	Reference
Fe_2O_3	10	0.5	120	73	1
TiO_2	13.5	0.2	60	78	2
α-$Fe_2O_3/BaTiO_3$	20	0.5	180	94	3
α-Fe_2O_3/Bi_2WO_6	5	0.2	25	98	4
K_8/EuW_{10}	2	0.25	2880	91	5
CdS@ZIF-8	10	1	120	72	6
ZnO/CeO_2	10	0.5	60	70	7
MoS_2/ZnO	10	0.05	180	93	8
Fe_2O_3/P_2Mo_{18}	20	0.1	90	98.9	This work

Table S2 The comparison of Cr reduction performance of P_2Mo_{18}/Fe_2O_3-5% with literature.

Photocatalyst	Concentration ($mg \cdot L^{-1}$)	Dosage ($g \cdot L^{-1}$)	Time (min)	Remove (%)	Reference
$BiVO_4/FeVO_4$ @rGO	20	0.025	90	90.9	9
$Co_3O_4/g\text{-}C_3N_4$	15	0.02	150	92.6	10
TiO_2	10	0.01	180	62	11
TiO_2/SiO_2	3	0.1	180	93	12
Fe_3O_4–ZnAl-LDH and TiO_2	20	0.1	420	98	13
$\alpha\text{-}Fe_2O_3/g\text{-}C_3N_4$	10	0.1	150	98	14
$AgI/BiVO_4$	15	0.02	100	71	15
$Ag_2CO_3/BiVO_4$	15	0.02	150	70	16
Fe_2O_3/P_2Mo_{18}	50	0.1	90	95.9	This work

Reference:

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