

Supplementary Information

E1 Reaction-induced Synthesis of Hydrophilic Oxide Nanoparticles in Non-hydrophilic Solvent

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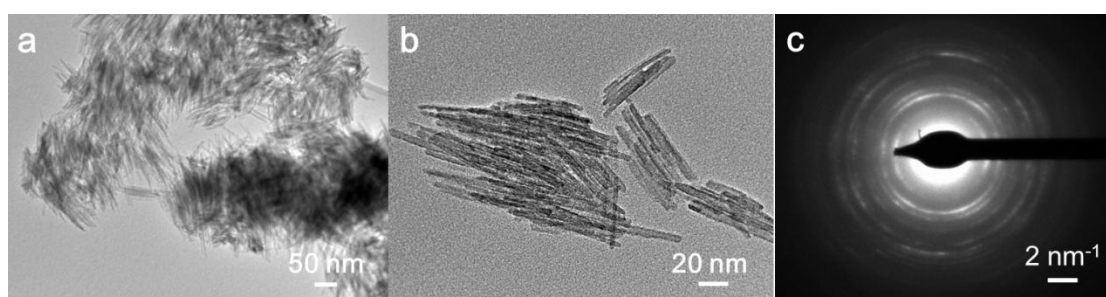


Fig. S1 a, b) TEM images and c) selected area electron diffraction (SAED) of FeOOH nanoparticles prepared through the reaction between FeCl₃ and tert-amyl alcohol at 80°C.

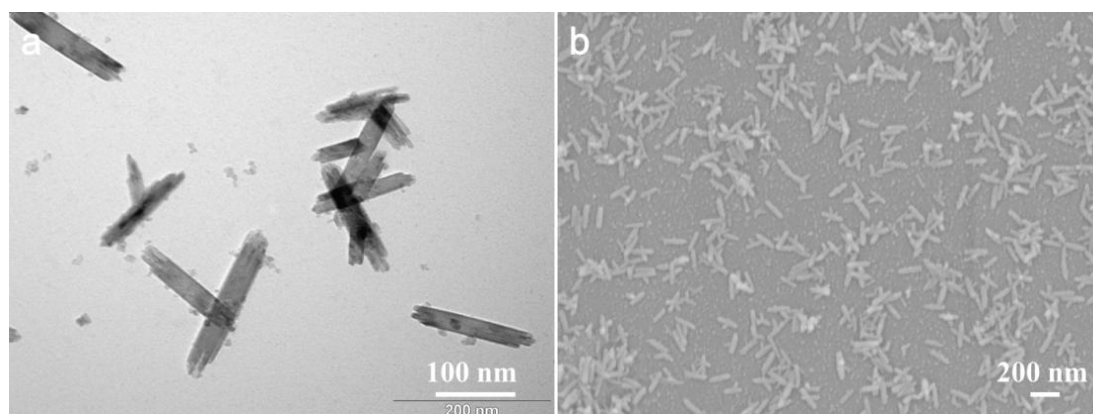


Fig. S2 a) TEM images and b) SEM images of TiO₂ nanorods prepared in solvothermal process of 100°C through the reaction of tert-amyl alcohol with TiCl₄.

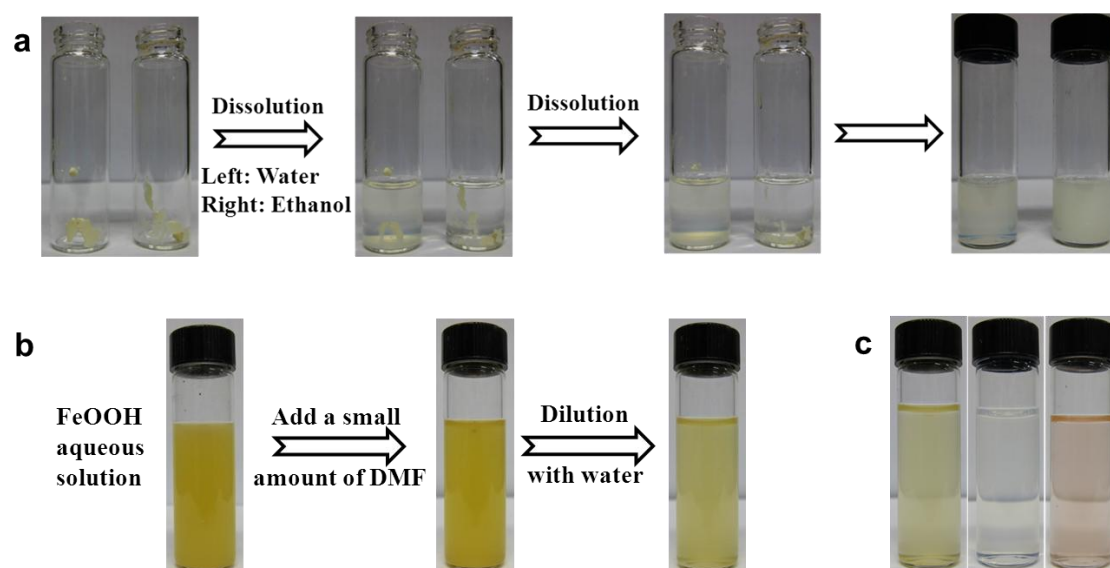


Fig. S3 a) dissolution process of TiO₂ nanorods in water and ethanol; b) dissolution process of FeOOH nanowires in water with the help of DMF; c) the dispersion of oxides in water with or without the help of a small amount of DMF, and they are FeOOH (water and DMF), TiO₂ (water) and Fe₂O₃ (water and DMF) from left to right.

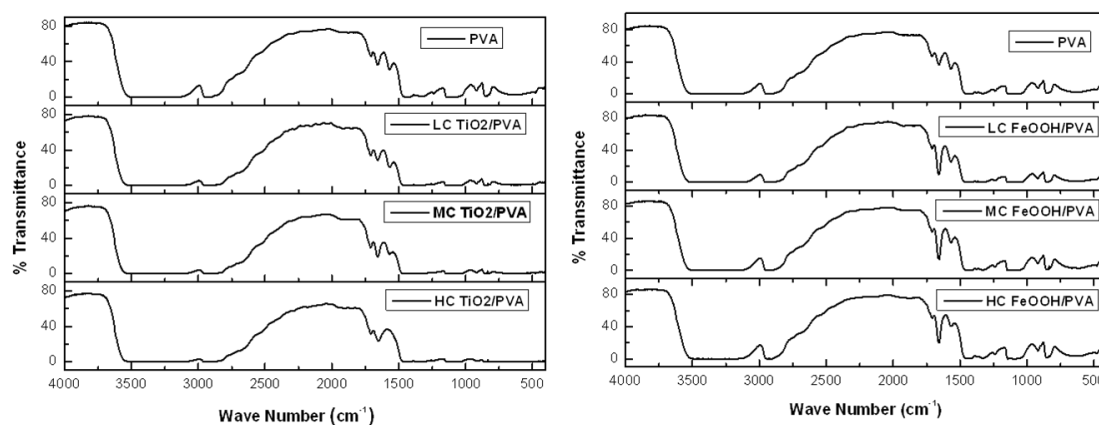


Fig. S4 FT-IR spectra of TiO₂ PVA composite films with different TiO₂ contents and FeOOH PVA composites with different FeOOH contents.

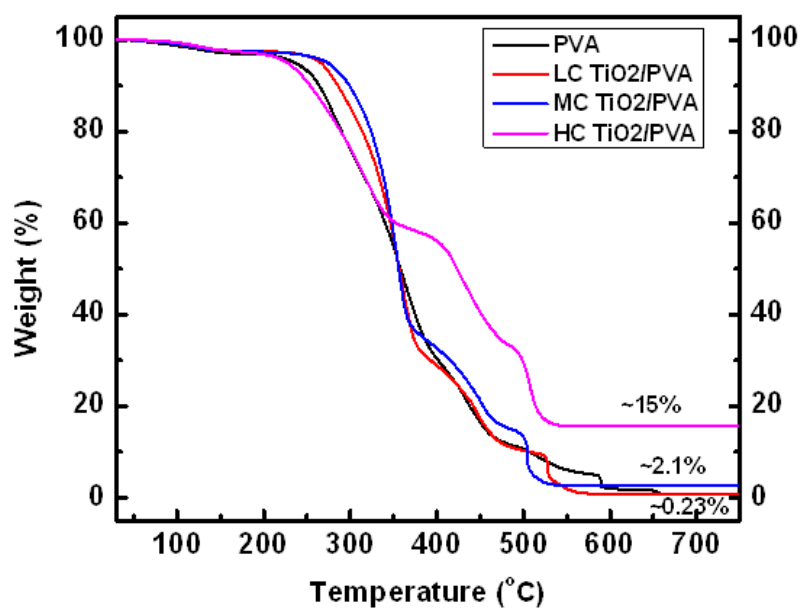


Fig. S5 TGA curves of TiO₂ PVA composites with different TiO₂ contents under atmosphere.

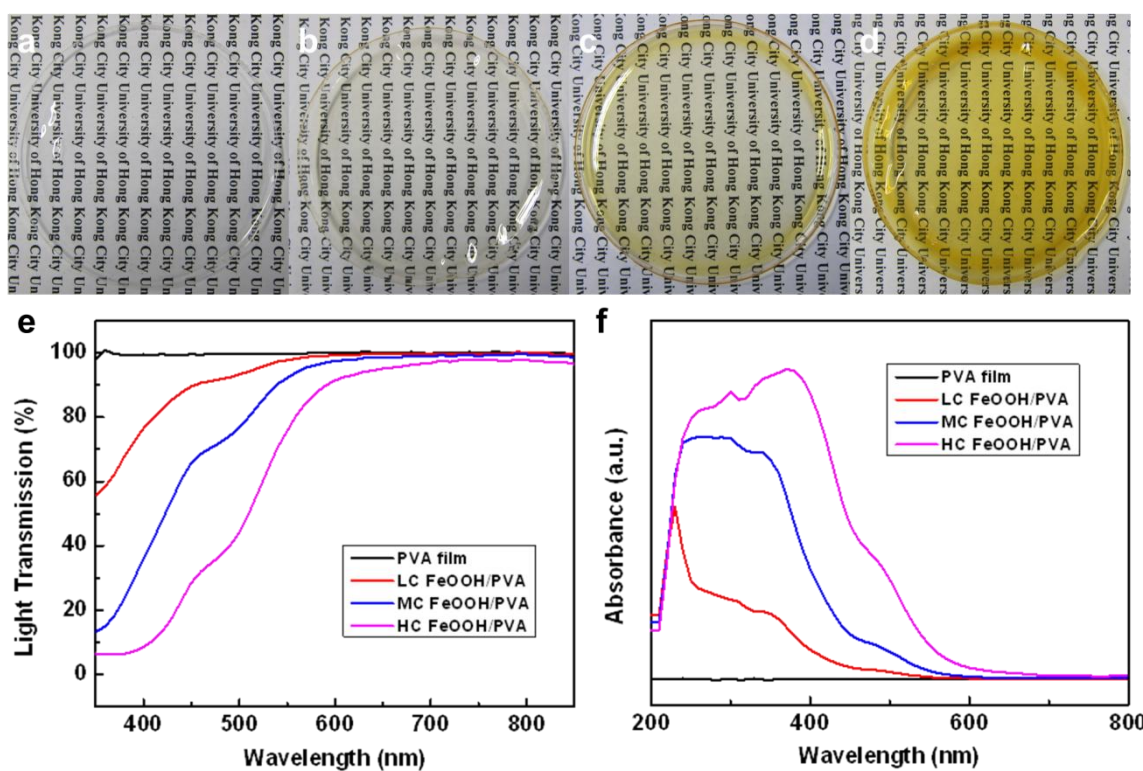


Fig. S6 Light transmission and UV-vis spectrum of FeOOH PVA composite films, showing increasing absorbance of UV-vis light with increasing the content of FeOOH.