

*Supporting Information*

***Sulfur nanoparticles in situ growth on TiO<sub>2</sub> mesoporous  
single crystals with enhanced solar light photocatalytic  
performance***

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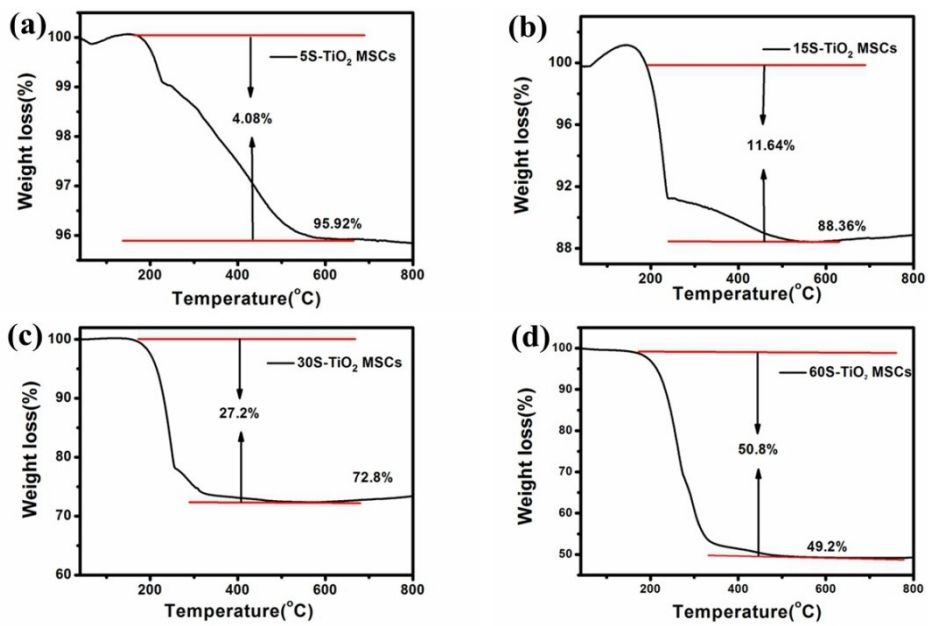


Fig. S1 TG spectra of different sulfur nanoparticles loaded TiO<sub>2</sub> MSCs.

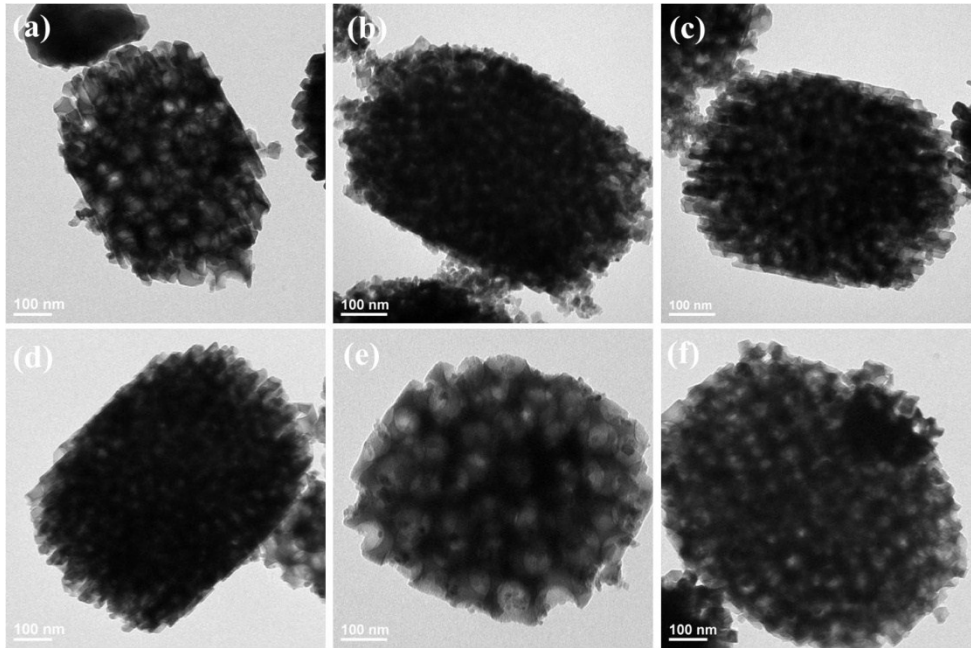


Fig. S2 TEM images of P-TiO<sub>2</sub> MSCs(a); 5S-TiO<sub>2</sub> MSCs(b); 15S-TiO<sub>2</sub> MSCs(c); 30S-TiO<sub>2</sub> MSCs(d); 60S-TiO<sub>2</sub> MSCs(e); 90S-TiO<sub>2</sub> MSCs(f).

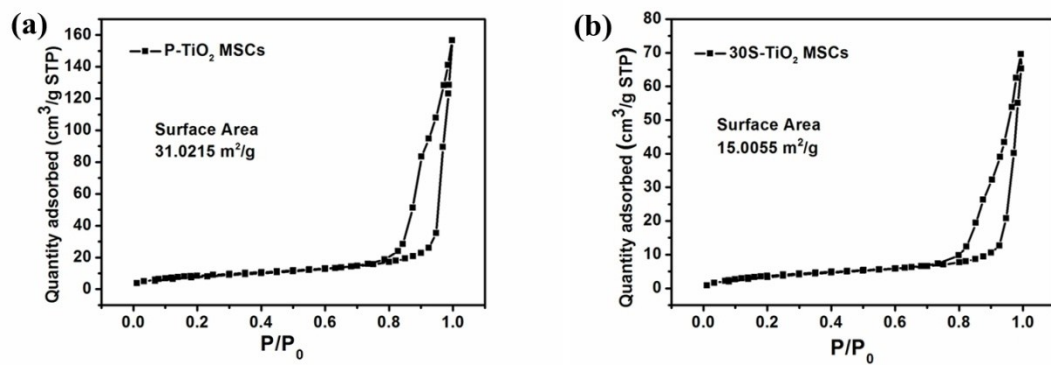


Fig. S3 Nitrogen adsorption-desorption isotherms of P-TiO<sub>2</sub> MSCs (a) and 30S-TiO<sub>2</sub> MSCs (b).

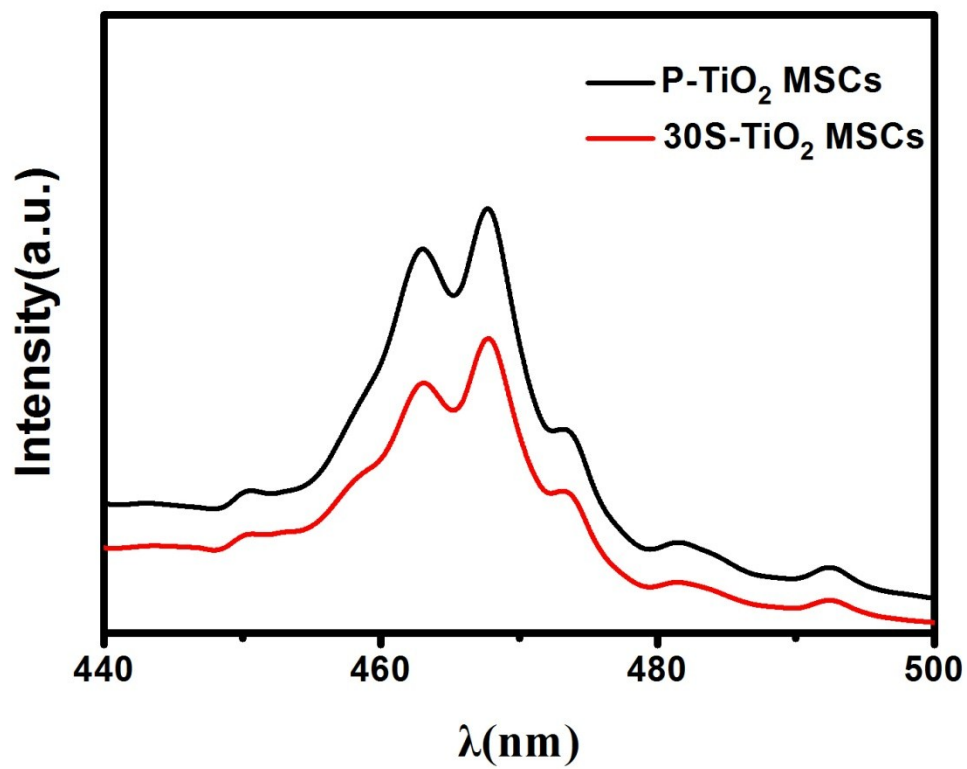


Fig. S4 PL spectra of different powder photo-catalysts (excitation wavelength: 320 nm)

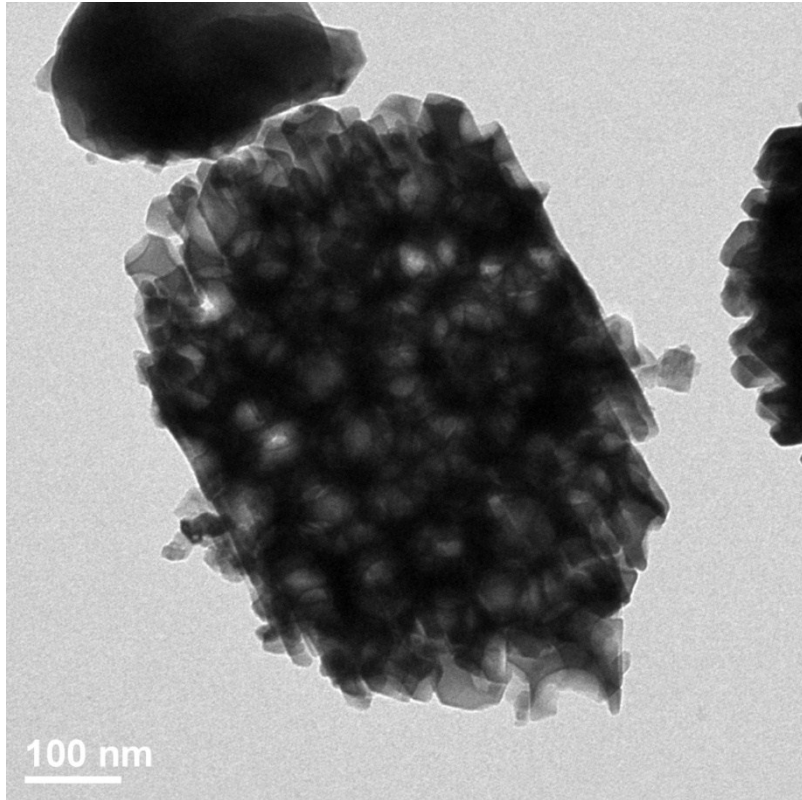


Fig. S5 the TEM image of 30S-TiO<sub>2</sub> MSCs after cycling test.

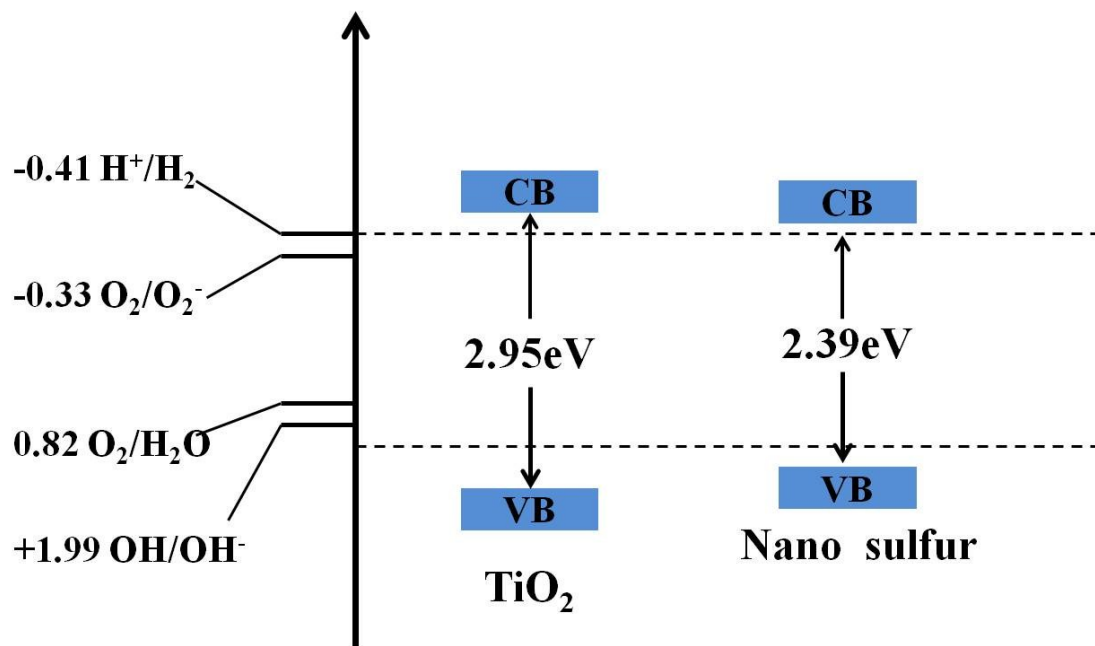


Fig. S6 Potential diagram for P-TiO<sub>2</sub> MSCs and Nano sulfur.