Electronic Supplementary Material (ESI) for Catalysis Science & Technology.

Supplementary Material

Enhanced Visible-Light-Driven Photocatalysis from WS_2 Quantum Dots Coupled to BiOCl nanosheets: Synergistic effect and mechanism insight

Peiyuan Xiao[a], Jufeng Lou[a], Huixian Zhang[a], Weili Song[a], Xi-Lin Wu[a,*], Hongjun Lin[a], Jianrong Chen[a,*], Shoujie Liu[c], Xiangke Wang[a,b]

[a]College of Geography and Environmental Science, Zhejiang Normal University, Jinhua, 321004, China

[b]School of Environment and Chemical Engineering, North China Electric Power University, Beijing 102206, China

[c]College of Chemistry and Materials Science, Anhui Normal University, Wuhu, 241000, China

*Corresponding author

E-mail: dbwxl@zjnu.cn (X-L. Wu); cjr@zjnu.cn (J-R. Chen).

Tel.: +86 579 82291275;

Fax: +86 579 82282273.

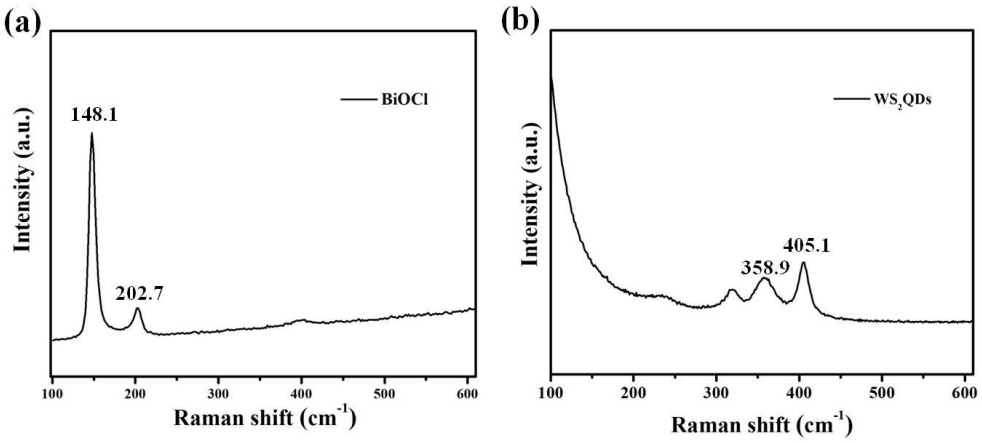

Fig. S1. Raman spectra of the BiOCl and WS_2/BiOCl-2 .

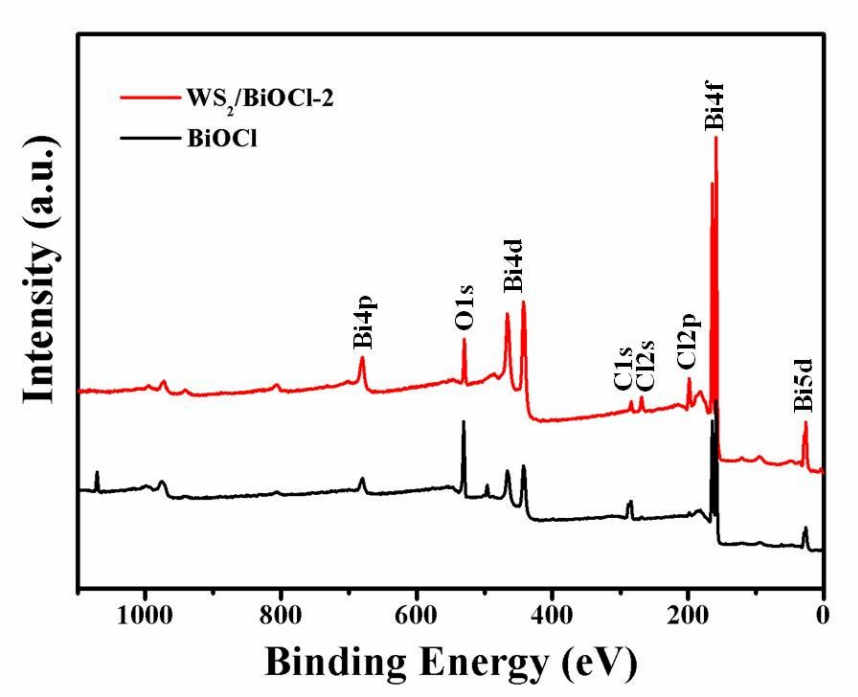

Fig. S2. XPS survey of the BiOCl and WS_2/BiOCl-2 .

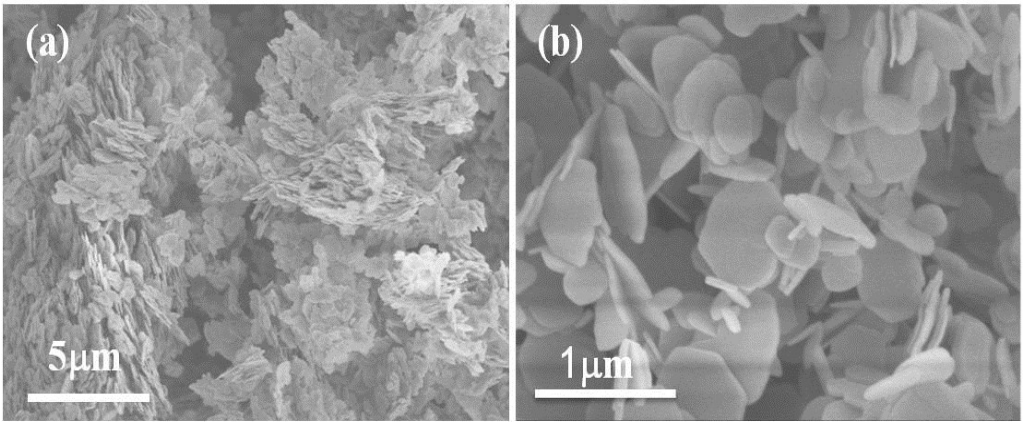

Fig. S3. (a) low magnification and (b) high magnification SEM images of the BiOCl.

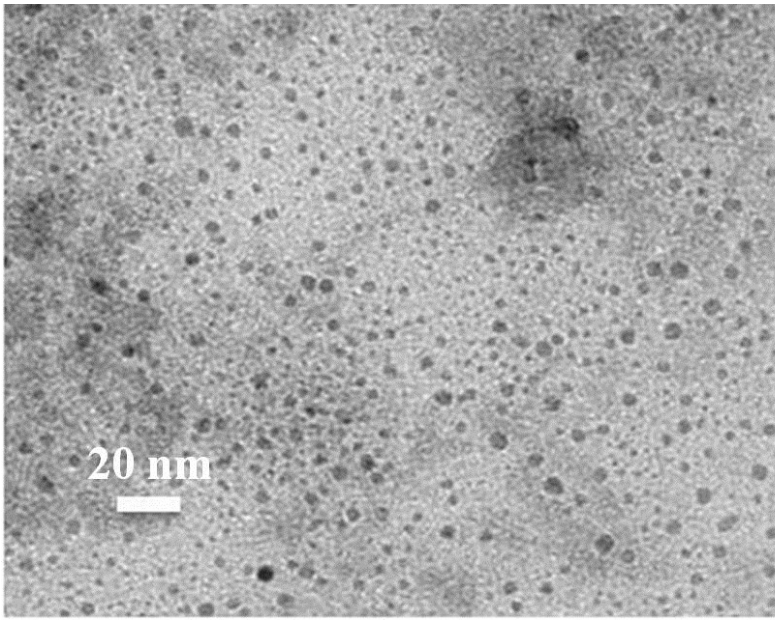

Fig. S4. TEM image of the WS_2 QDs.

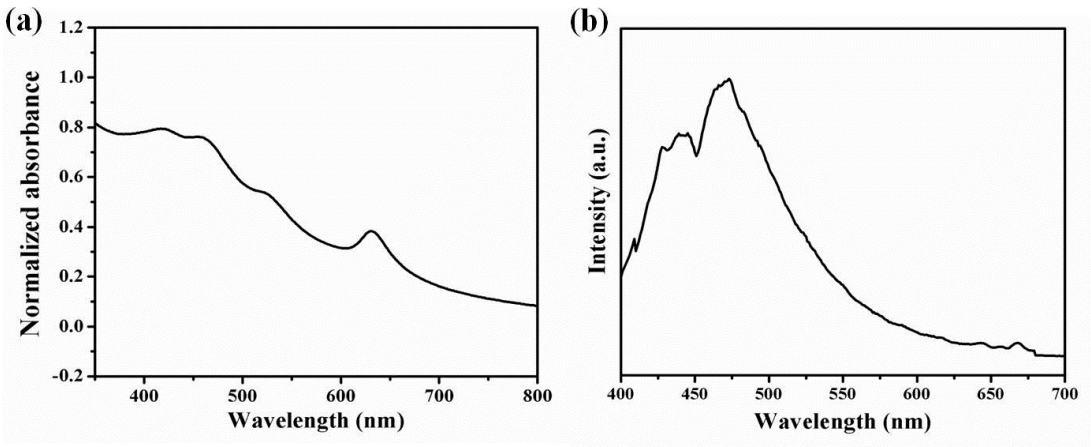

Fig. S5. (a) UV–Vis absorption spectrum and (b) PL emission spectrum (Ex = 380 nm) of the WS_2 quantum dots.

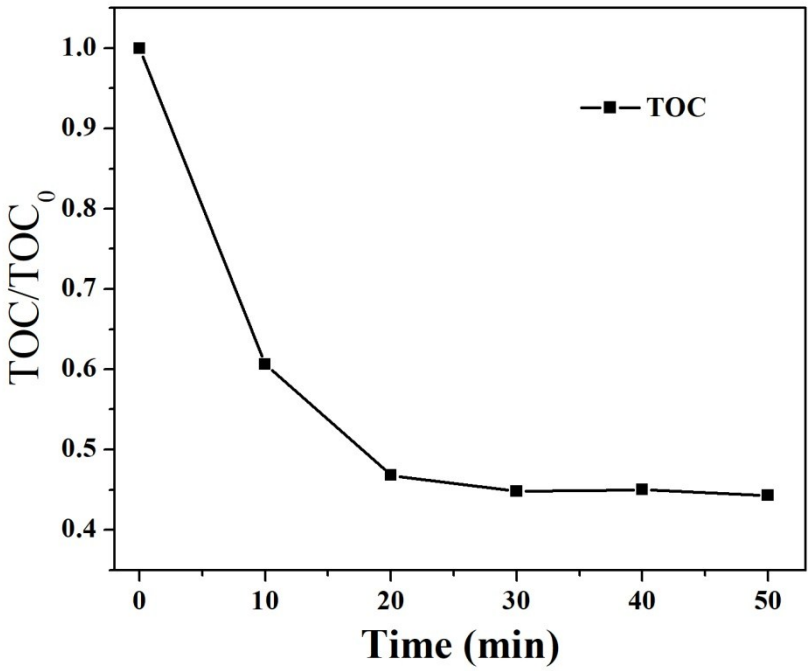

Fig. S6. Time dependent TOC removal percentage of photocatalytic degradation of RhB by the WS_2/BiOCl-2 (initial RhB concentration = 30 mg/L, dosage of catalysts = 0.2 g/L);

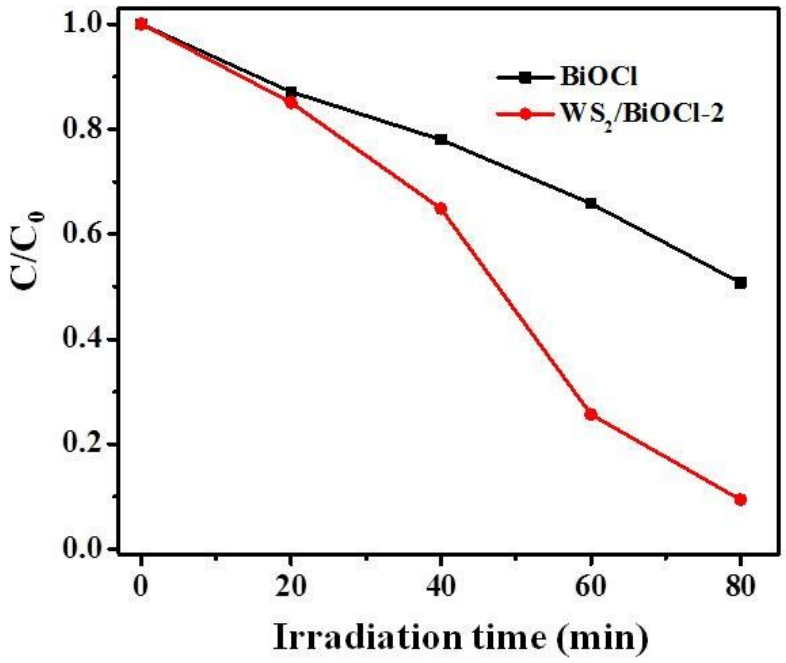

Fig. S7. (a) Photocatalytic degradation of Congo red (CR) by the BiOCl and WS_2/BiOCl-2 (initial CR concentration = 40 mg/L, dosage of catalysts = 0.2 g/L).

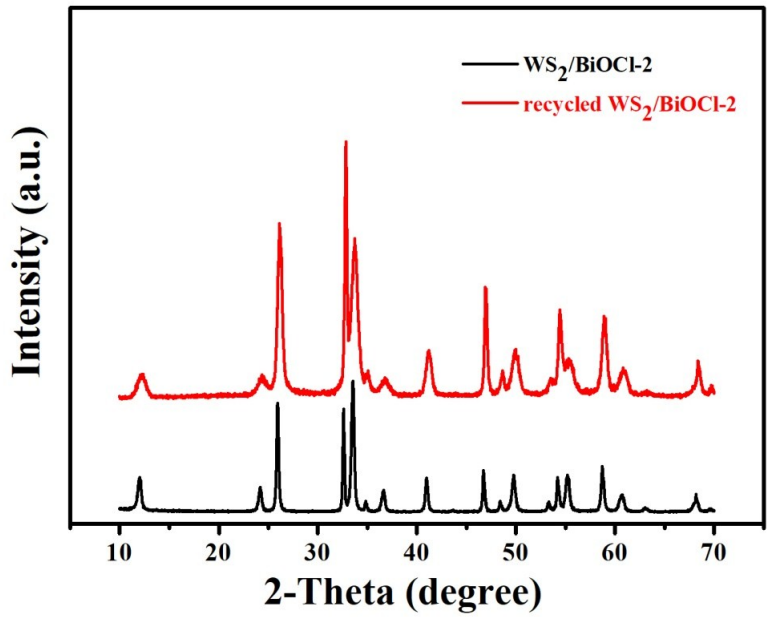

Fig.S8. XRD patterns of the WS_2/BiOCl-2 before and after cyclic degradation experiments.

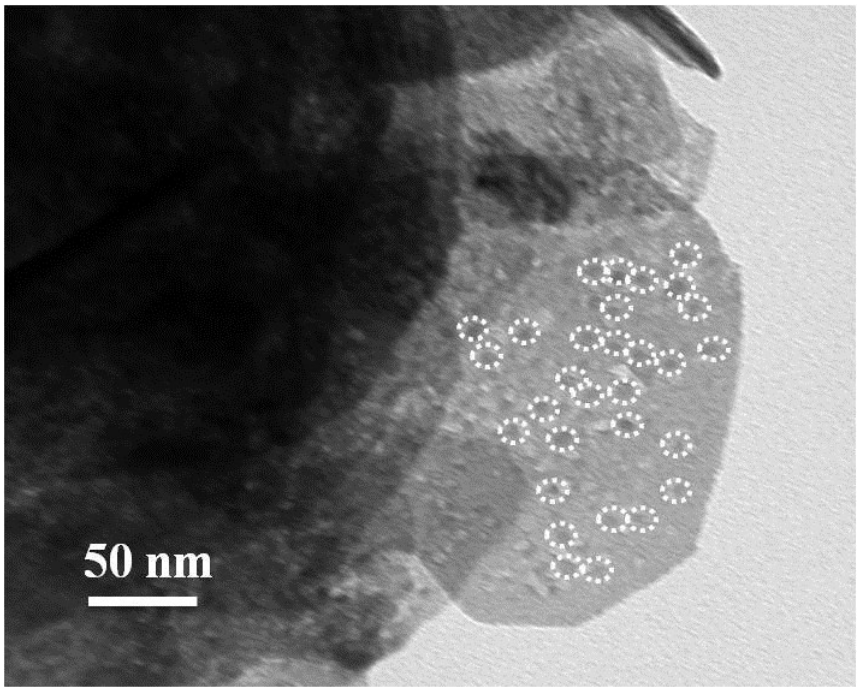

Fig.S9. TEM image of the WS_2/BiOCl-2 after cyclic degradation experiments.

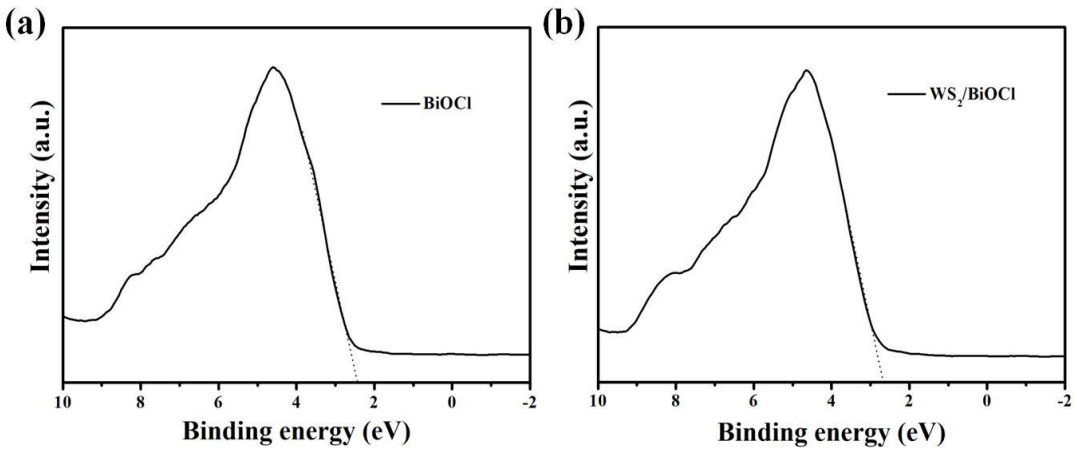

Fig. S10. Valence band XPS spectra of the (a) BiOCl and (b) WS_2/BiOCl.

Table S1 W content in the samples (calculated from the ICP data).

	WS_2/BiOCl-1	WS_2/BiOCl-2	WS_2/BiOCl-3
W concentration (mg/L)	1.35	2.84	4.20
W % (mg/g)	13.5	28.4	42.0
WS_2% (wt%)	1.82	3. 83	5.66

The samples for ICP analysis were prepared by dissolve 10 mg of the WS_2/BiOCl in aqua regia and diluted to 100 mL.