

Supplemental Materials for
2D Z-scheme TiO₂/SnS₂ Heterojunctions with Enhanced Visible-light
Photocatalytic Performance for Refractory Contaminants and
Mechanistic Insight

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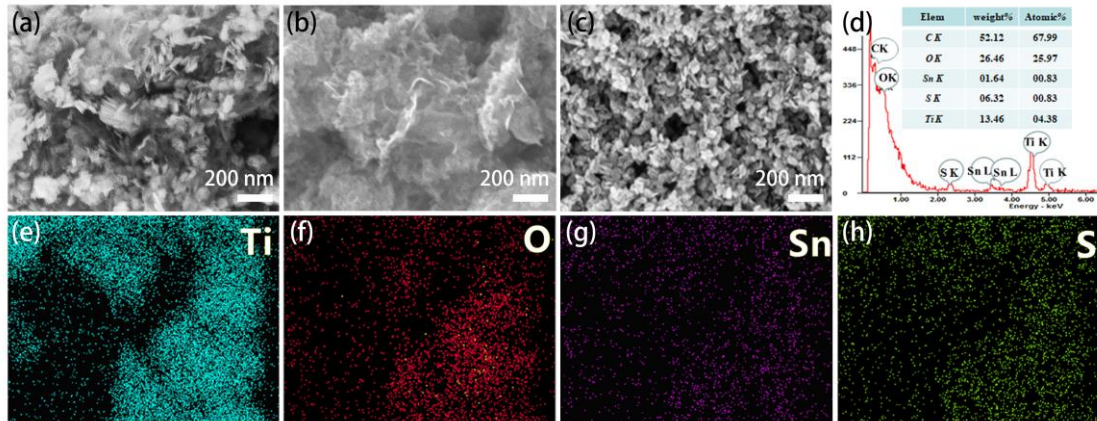


Fig. S1 (a-c) SEM images of the TiO_2 , SnS_2 and $\text{TOSS}_{0.15}$, (d) EDS spectrum of $\text{TOSS}_{0.15}$ and (e-h) Ti, Sn, S and O element mapping images of $\text{TOSS}_{0.15}$.

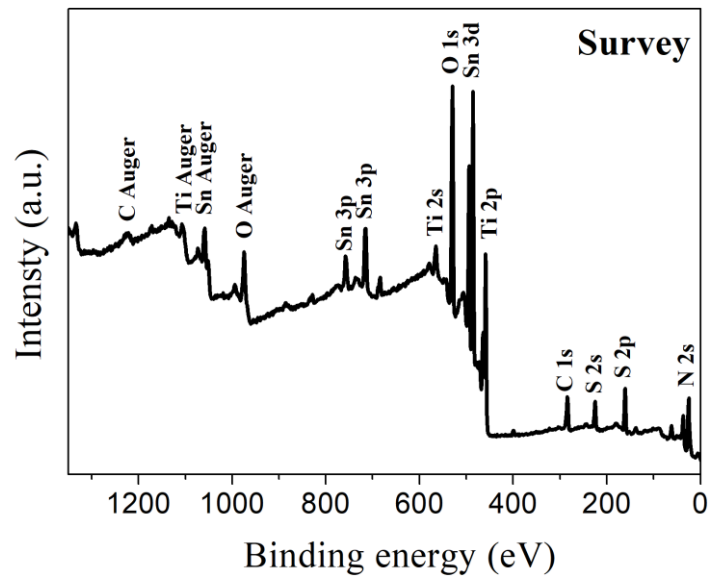


Fig. S2 Full survey of XPS spectrum of $\text{TOSS}_{0.15}$.

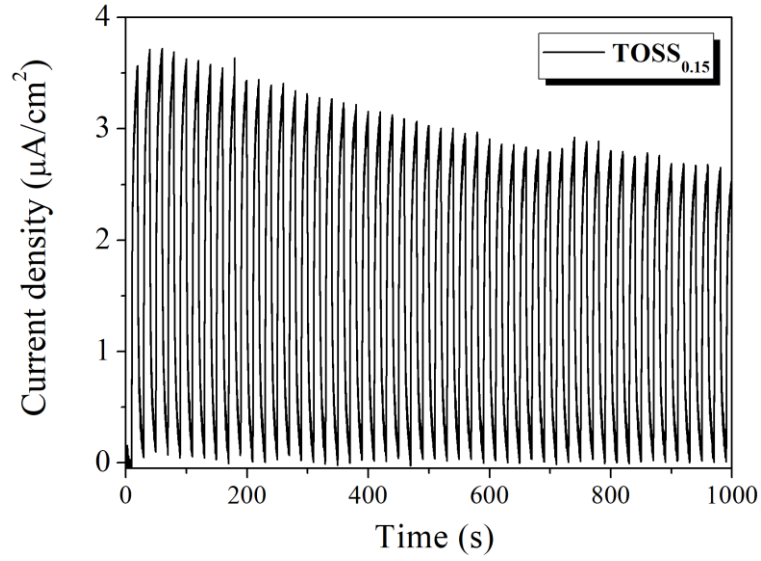


Fig. S3 J-T curves for TOSS_{0.15} under chopped light.

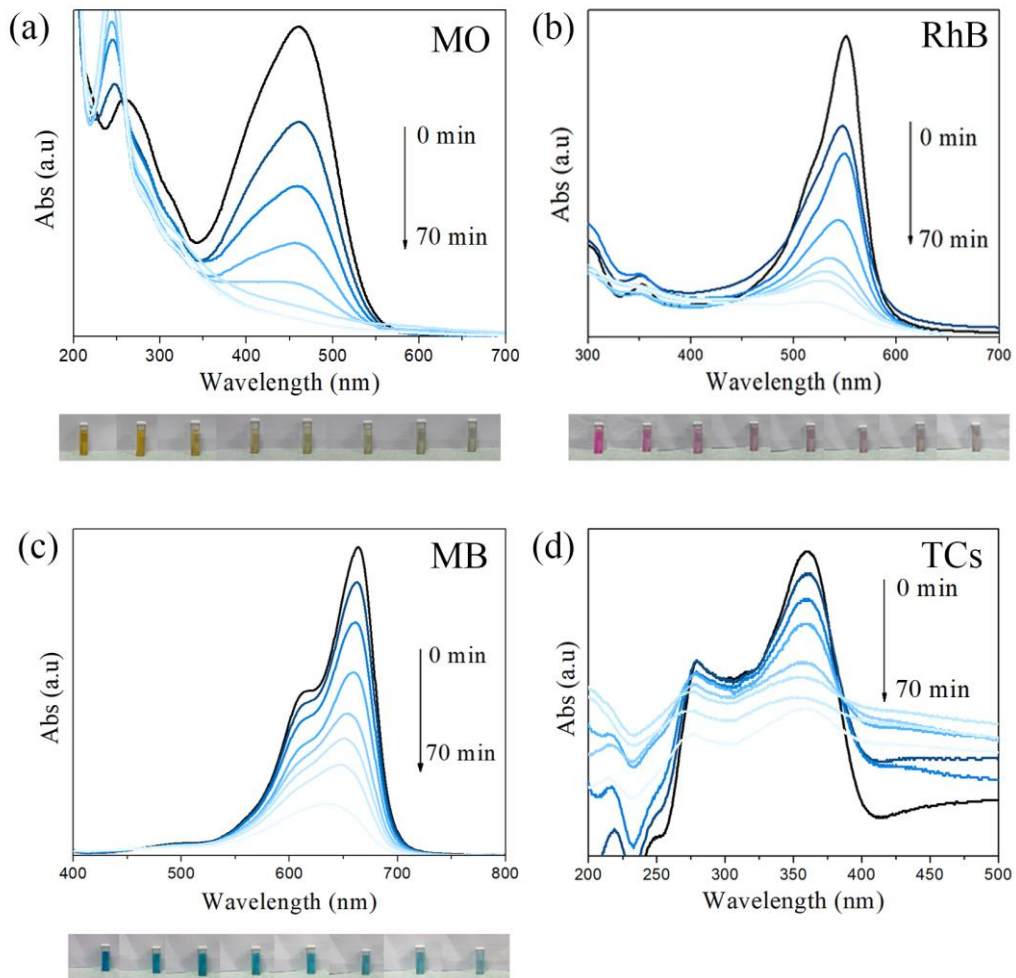


Fig. S4 UV-Vis absorption spectrum of (a) MO, (b) RhB, (c) MB and (d) TCs and the corresponding photos of the contaminants at different irradiation time.

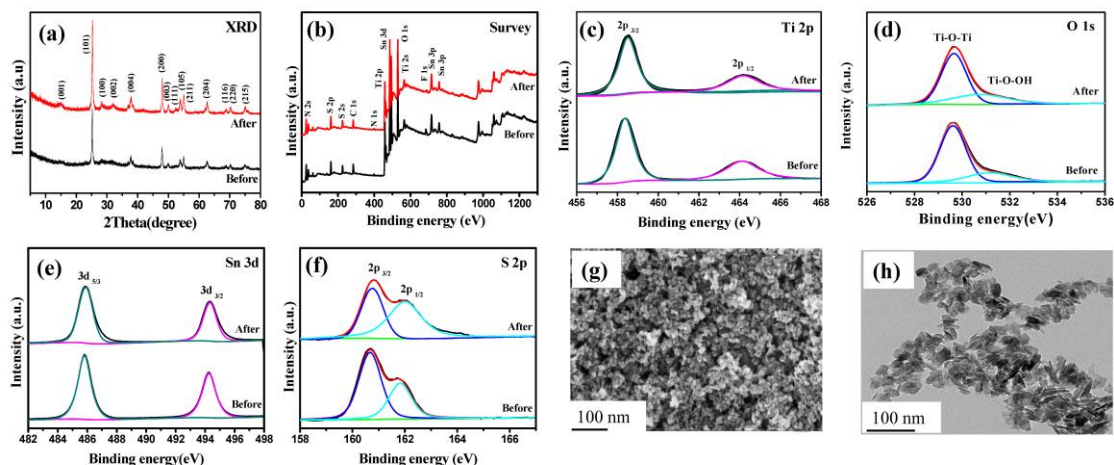


Fig. S5 (a) XRD spectra, (b) survey, (c) Ti 2p, (d) O 1s, (e) Sn 3d and (f) S 2p core level spectra of TOSS_{0.15} sample before and after photodegradation, (g) SEM and (h) image of TOSS_{0.15} sample after photodegradation.

Table S1. Comparison of the photocatalytic performance of the TiO₂/SnS₂ composite prepared with different experimental conditions (all the photodegradation time is 50 min).

Mass of TOSS	Contaminants	concentration	Degradation rate (%)	K (min ⁻¹)	References
15 mg	MO	100 mL 0.03 mM	98.3	0.057	This work
	RhB	100 mL 10 mg/L	82.9	0.022	
	MB	100 mL 0.012 mM	79.4	0.020	
	TCs	100 mL 10 mg/L	71.0	0.016	
100 mg	MO	25 mL 13 mg/mL	90.9	0.055	Ref. 36
70 mg	RhB	70 mL 10 mg/mL	71.0	0.035	Ref. 38
20 mg	MB	100 mL 0.02 mM	80.0	0.015	Ref. 37