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MDPI

Supplementary data

Enhanced Photocatalytic Activity of $BiVO_4/Bi_2S_3/SnS_2$ Heterojunction Under Visible Light

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Experimental

Preparation of Bi_2S_3

A typical Bi_2S_3 as a reference was synthesized as follows. First, 5 mmol of $Bi(NO_3)_3{\cdot}5H_2O$ was dissolved in 40 mL of ethylene glycol via sonication for 10 min. After that, Thiourea (10 mmol) was added into the solution, and magnetically stirred for 10 min. The homogeneous solution was then transferred to a stainless steel autoclave attached with Teflon-liner and heated at 160 ℃ for 18 h. The Bi_2S_3 precipitates were then collected and washed several times with deionized water and ethanol, and dried at 90 ℃ overnight.

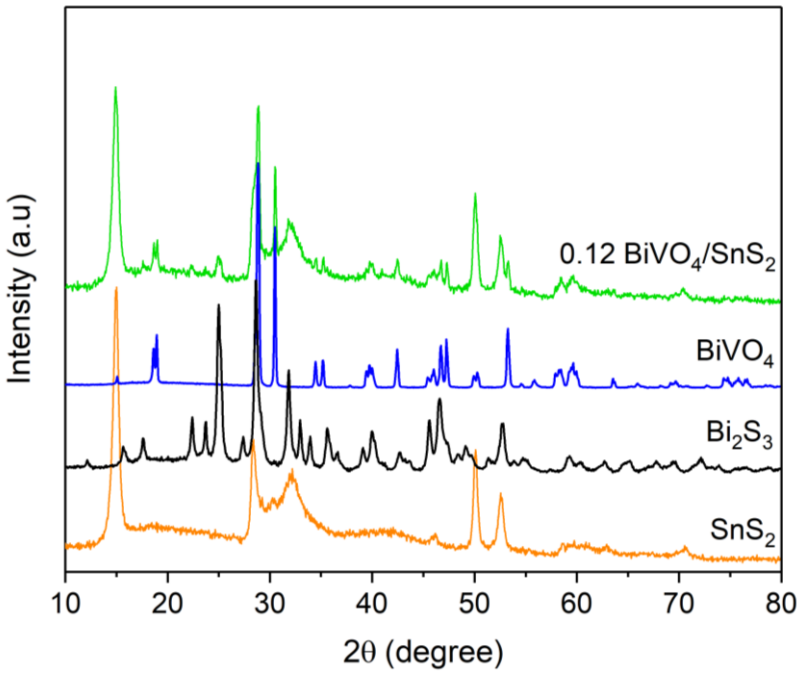

Figure S1. XRD pattern comparison of SnS_2, Bi_2S_3, $BiVO_4$, and 0.12 $BiVO_4/SnS_2$ composite.

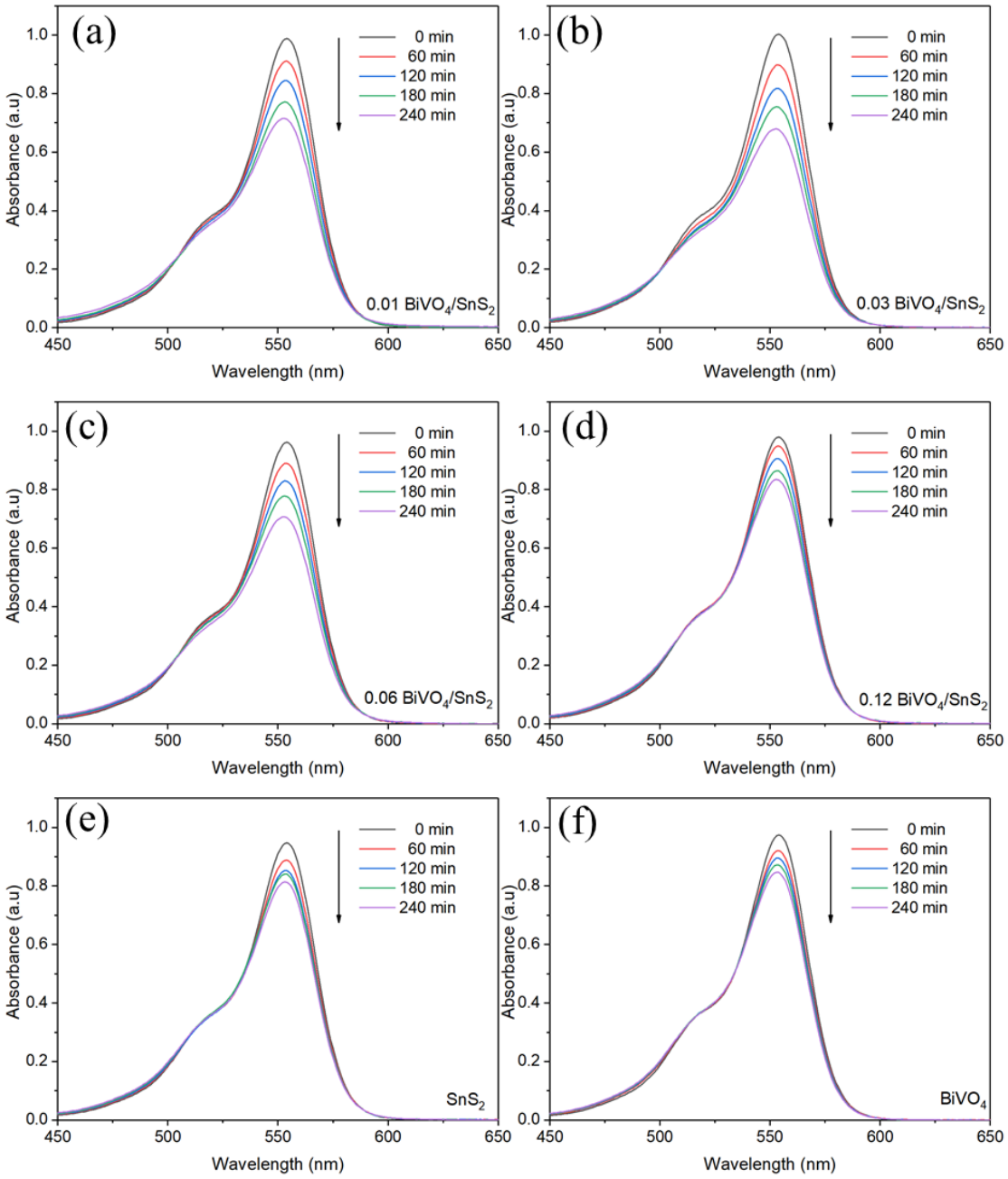

Figure S2. Absorbance spectra of RhB solution as a function of time during the degradation process under visible light (λ > 420 nm) in the presence of (**a**) 0.01 $BiVO_4/SnS_2$, (**b**) 0.03 $BiVO_4/SnS_2$, (**c**) 0.06 $BiVO_4/SnS_2$ (**d**) 0.12 $BiVO_4/SnS_2$, (**e**) SnS_2, and (**f**) $BiVO_4$.

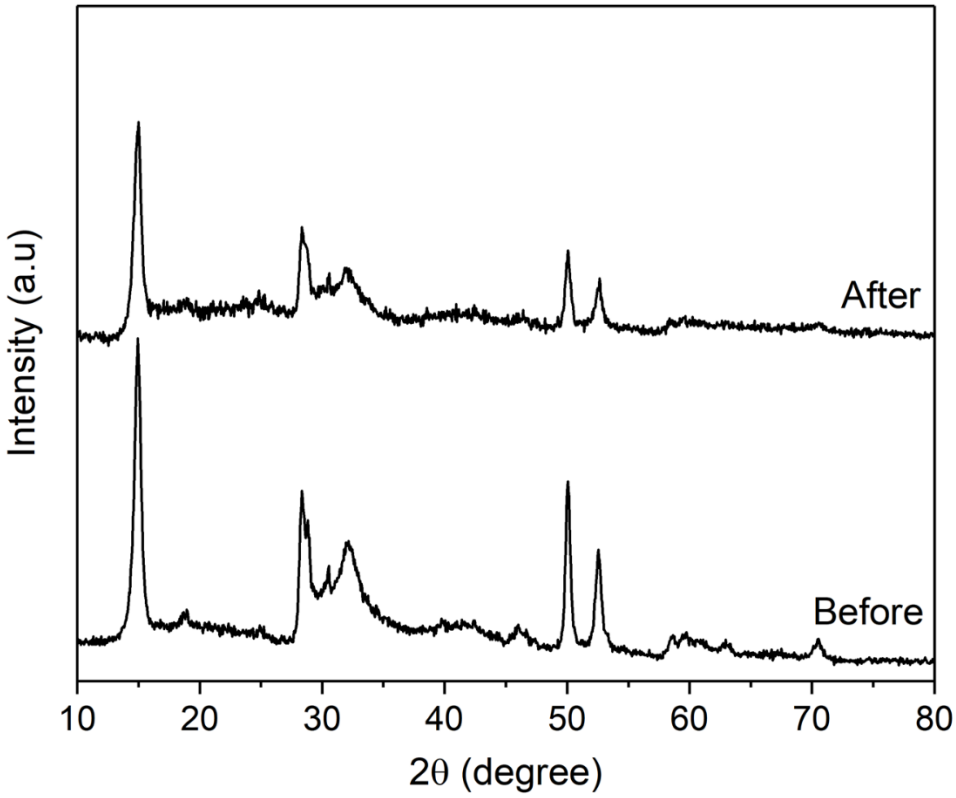

Figure S3. XRD patterns of 0.03 $BiVO_4/SnS_2$ before and after RhB photodegradation.

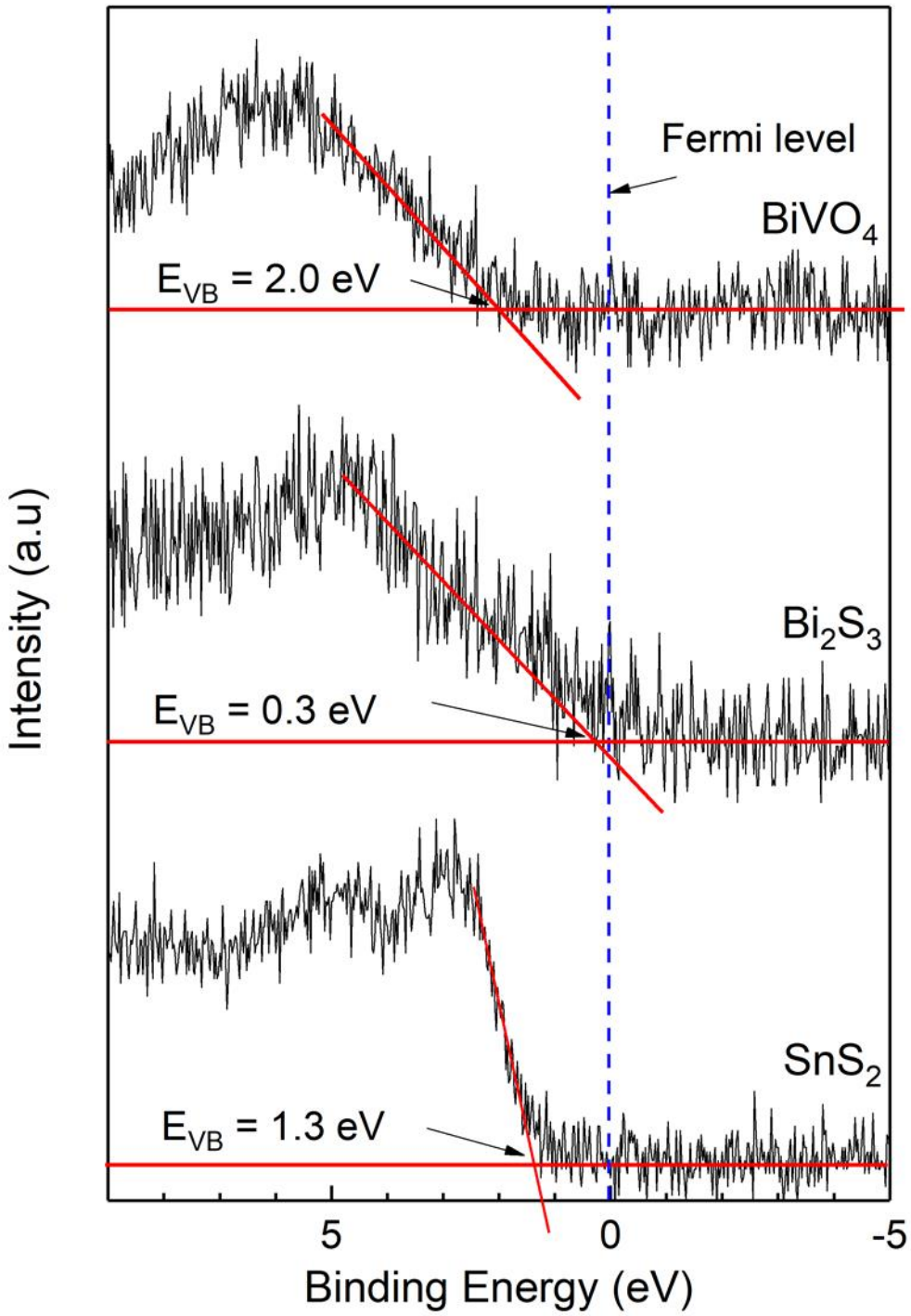

Figure 4. Valence band XPS spectra of bare $BiVO_4$, Bi_2S_3, and SnS_2.