

Fig. S1. The light spectrum of LED lamp (30 W).

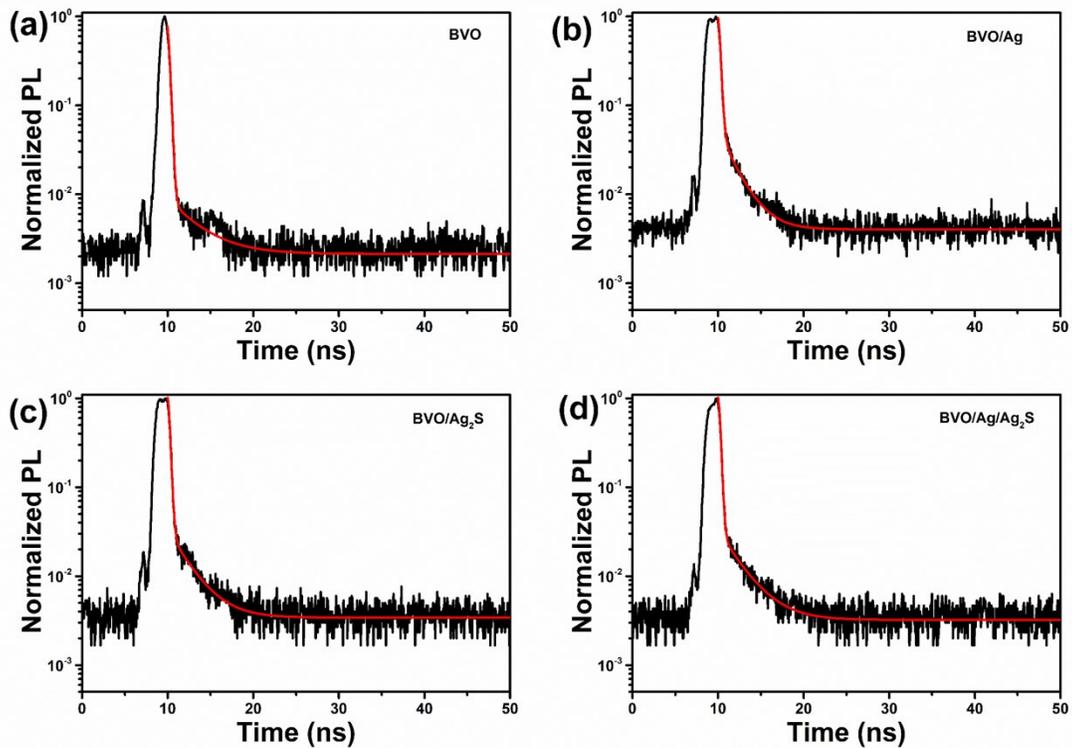


Fig. S2. Time-resolved PL decay spectra of (a) BiVO_4 , (b) BiVO_4/Ag , (c) $\text{BiVO}_4/\text{Ag}_2\text{S}$, and (d) $\text{BiVO}_4/\text{Ag}/\text{Ag}_2\text{S}$.

The recorded PL decay curves (Fig. S2) were fitted by a biexponential function. The fast decay component (τ_1) and slow component (τ_2) were calculated and listed in Table S1. τ_1 is usually arises from the nonradiative relaxation process, and τ_2 is usually attributed to the radiative process from the photoinduced carrier's recombination. The $\text{BiVO}_4/\text{Ag}/\text{Ag}_2\text{S}$ sample shows the highest τ_2 , suggesting a lowest recombination of photogenerated electron-hole pairs.

Table S1. Fitted parameters from time-resolved PL spectroscopy of BiVO₄, BiVO₄/Ag, BiVO₄/Ag₂S, and BiVO₄/Ag/Ag₂S samples.

	BiVO ₄	BiVO ₄ /Ag	BiVO ₄ /Ag ₂ S	BiVO ₄ /Ag/Ag ₂ S
τ_1 (ns)	0.16	0.19	0.16	0.17
τ_2 (ns)	1.92	1.94	2.37	2.6

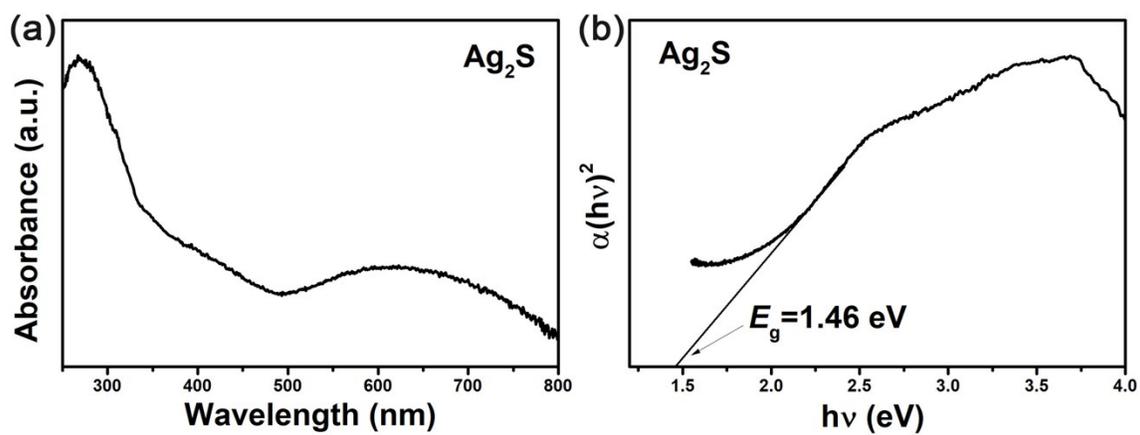


Fig. S3. (a) UV-vis DRS absorption and (b) the plot of $(\alpha h\nu)^2$ vs. $h\nu$ of the as-obtained Ag_2S sample.