

Supplementary Material

Construction of heterostructured BiVO₄-{010}/Ag plasmonic photocatalysts by multi-objects synchronously optimizing microstructure of BiVO₄ for significantly enhanced visible-light driven photocatalytic performance

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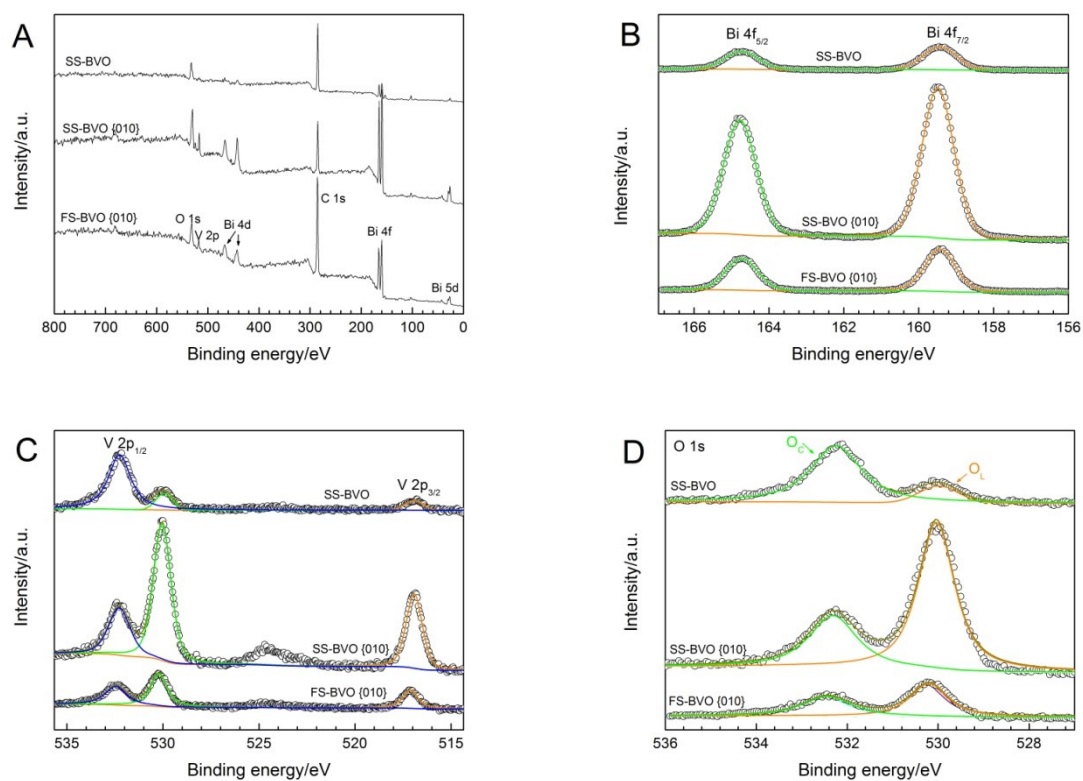


Fig. S1 XPS spectra of pure BiVO_4 including (A) survey, (B) Bi 4f, (C) V 2p, (D) O 1s.

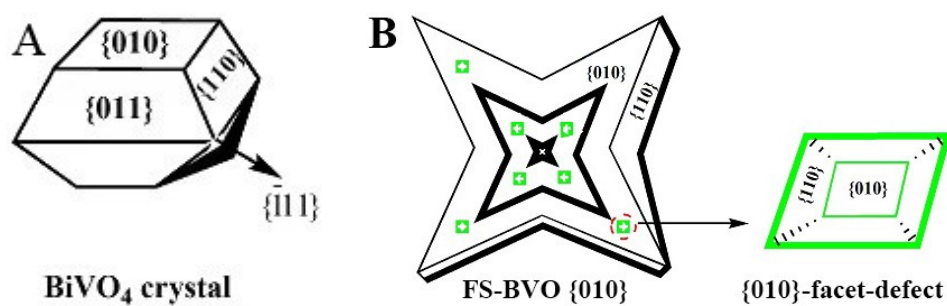


Fig. S2 Schematic illustrations for (A) decagonal BiVO_4 crystal reported by Wang et al.⁵² and (B) present FS-BVO $\{010\}$.

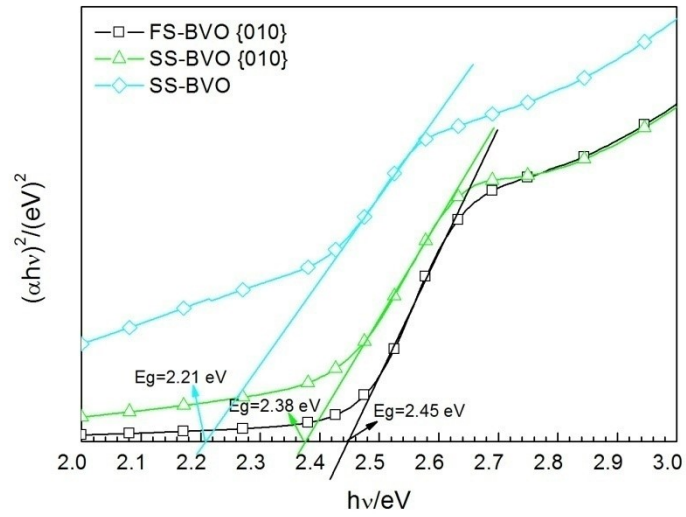


Fig. S3 Tauc plots of $(\alpha h\nu)^2$ vs energy $h\nu$ and band gap energy of pure BiVO_4 .

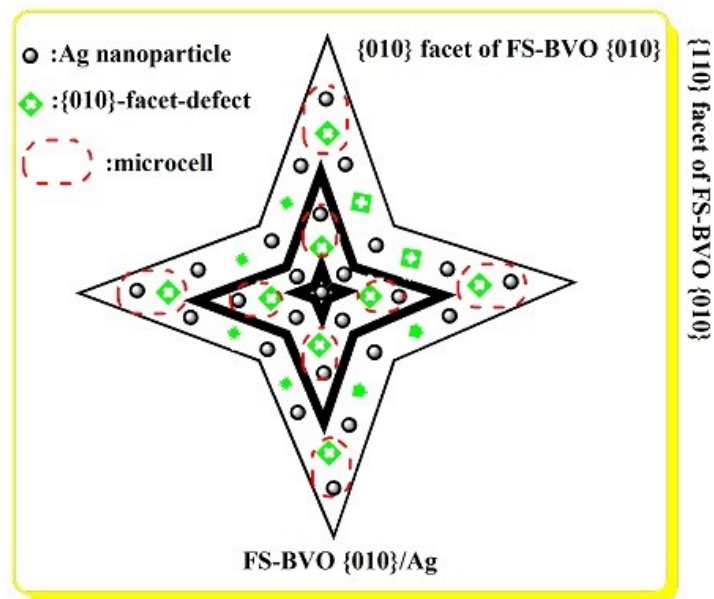


Fig. S4 Schematic illustration of microcells in single FS-BVO $\{010\}$ /Ag particle.

Table S1 Summary of elemental compositions of BiVO₄/Ag composites

Sample	Element content (atom%)				Atomic ratio
	Bi	V	O	Ag	
FS-BVO {010}/Ag	10.5	18.34	69.37	1.79	0.573:1:3.782:0.098
SS-BVO {010}/Ag	15.03	25.61	59.15	0.21	0.587:1:2.310:0.008
SS-BVO/Ag	16.6	28.15	54.98	0.27	0.590:1:1.953:0.010

Table S2 Raman shifts and intensities of the vibrations of pure BiVO₄ and BiVO₄/Ag composites

Sample	Band 1: external modes of VO ₄ ³⁻ anions		Band 2: antisymmetric (B _g) V-O bending mode		Band 3: symmetric (A _g) V-O bending mode		Band 4: symmetric (A _g) V-O stretching mode	
	Wavenumbe	Intensity	Wavenumbe	Intensity	Wavenumbe	Intensity	Wavenumbe	Intensity
	r /cm ⁻¹		r /cm ⁻¹		r /cm ⁻¹		r /cm ⁻¹	
FS-BVO {010}	211.5	8264	327	3767	367.5	6557	826.5	32717
FS-BVO {010}/Ag	211.5	980	331.5	874	364.5	695	822	5251
SS-BVO {010}	210	1399	327	823	367.5	1161	823.5	6717
SS-BVO {010}/Ag	210	492	331.5	292	367.5	408	823.5	2841
SS-BVO	211.5	584	325.5	303	367.5	500	823.5	2986
SS-BVO /Ag	211.5	332	328.5	184	364.5	238	823.5	1648