Electronic Supplementary Material (ESI) for CrystEngComm.

Supporting Information

Morphology Engineering of $WO_3/BiVO_4$ Heterojunction for Efficient Photocatalytic Water Oxidation

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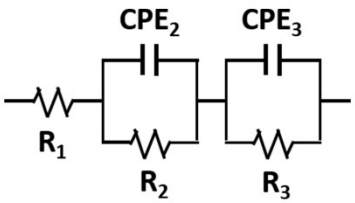

Samples	$R_1(\Omega)$	$R_2(\Omega)$	$R_3(\Omega)$
M-WO3	100.90	456.20	1448.00
E-WO3	71.05	422.30	114.90
I-WO3	81.11	399.70	162.50
EG-WO3	72.14	152.00	782.60

Fig.S1 EIS plots of the WO_3 samples with different morphologies: (a) The equivalent circuit used for fitting of EIS data and (b) The fitted values of EIS parameters derived using the equivalent circuit model under irradiation

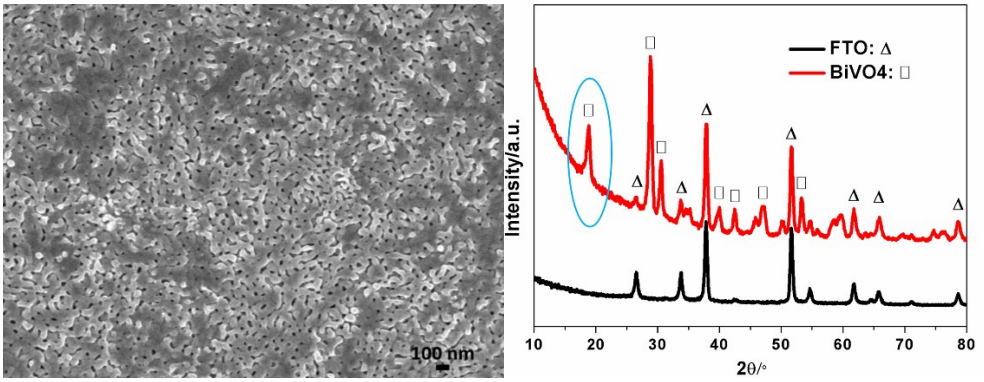

Fig.S2 SEM images and XRD patterns of bare $BiVO_4$ synthesized on FTO by a same spin-coating method.

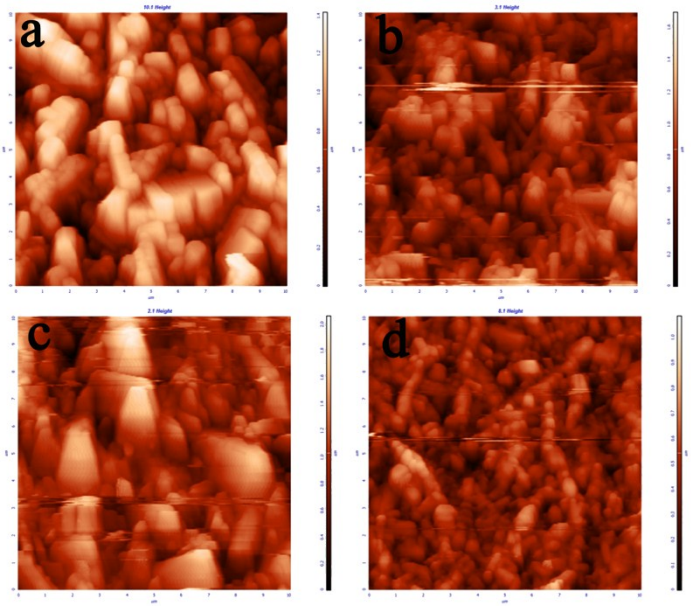

Fig.S3 2D AFM micrographs of $WO_3/BiVO_4$ heterojunction based on WO_3 scaffolds with different morphologies(the scanning area is 10*10μm): (a) M-$WO_3/BiVO_4$, (b) E-$WO_3/BiVO_4$, (c) I-$WO_3/BiVO_4$ and (d) EG-$WO_3/BiVO_4$

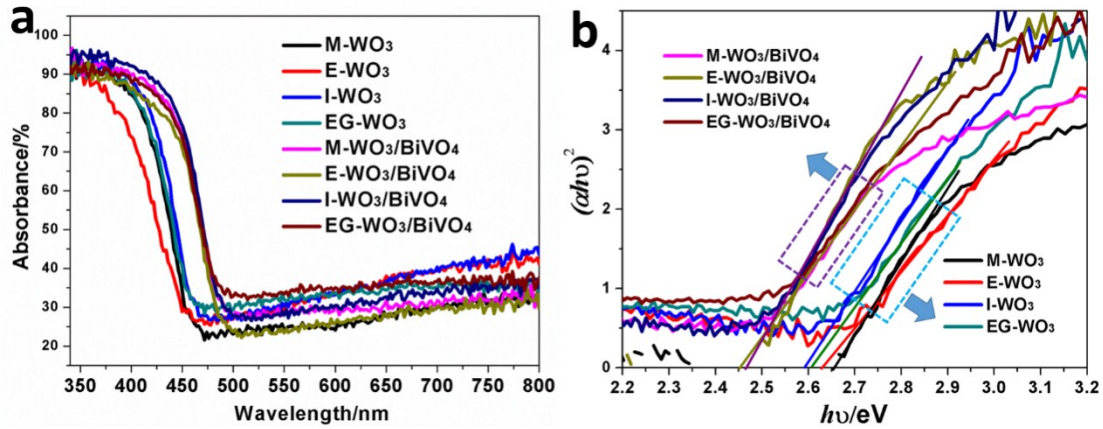

Fig.S4 UV-vis spectra (a) and Tauc plots (b) of WO_3 nanostructures with different morphologies and corresponding $WO_3/BiVO_4$ heterojunction structures prepared by a spin-coating method.

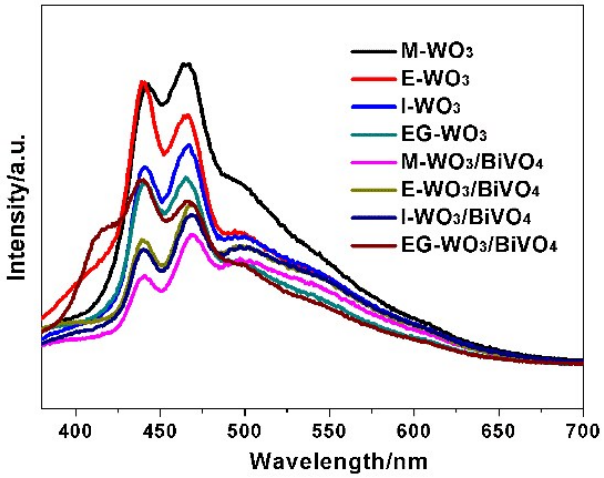

Fig.S5 Normalized photoluminescence (PL) emissionspectra of WO_3nanostructures with different morphologies and corresponding $BiVO_4/WO_3$ heterojunctions employing an excitationwavelength λ_{ex}=377 nm.

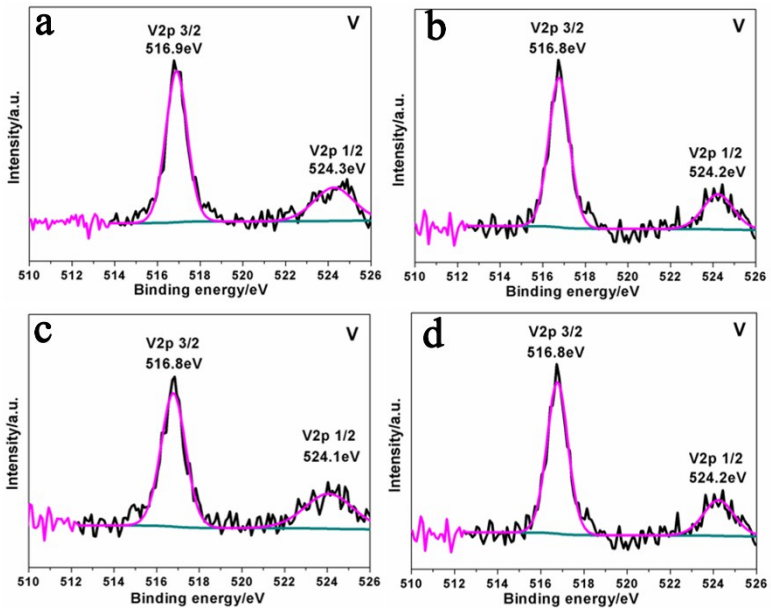

Fig.S6 XPS spectra for V element of prepared $WO_3/BiVO_4$ heterojunctions based on WO_3 nanostructures with different morphologies: (a) M-$WO_3/BiVO_4$, (b) E-$WO_3/BiVO_4$, (c) I-$WO_3/BiVO_4$ and (d)EG-$WO_3/BiVO_4$.

Samples	$R_1(\Omega)$	$R_2(\Omega)$	$R_3(\Omega)$
M-WO3/BiVO4	89.81	29.53	242.90
E-WO3/BiVO4	61.83	29.19	204.20
I-WO3/BiVO4	97.16	44.15	189.70
EG-WO3/BiVO4	85.11	191.00	96.45

Fig.S7 The fitted values of EIS parameters of four types of $WO_3/BiVO_4$ nanostructures derived using the equivalent circuit model under irradiation.

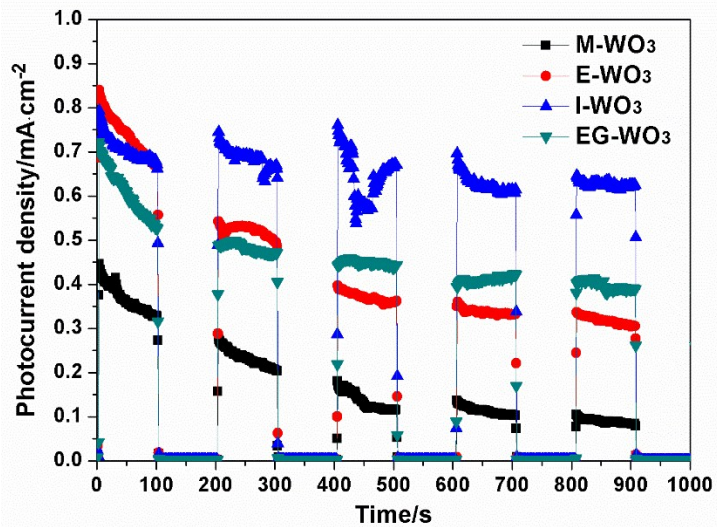

Fig.S8 Chronoamperometric curves of WO_3 nanostructures with different morphologies at 0.8V (vs Ag/AgCl) under illumination with 100s light on/off cycles