Supplementary Material

Synthesis of plasmonic Bismuth metal deposited $InVO_4$ nanosheets for enhancing solar light-driven photocatalytic nitrogen fixation

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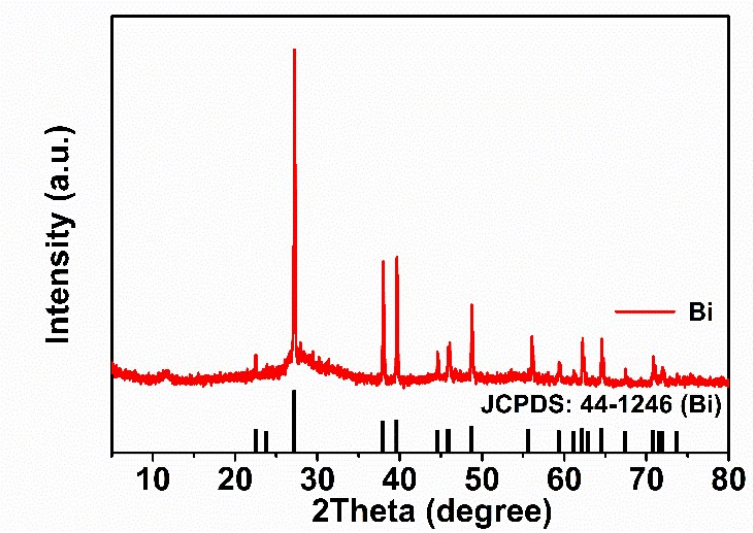

Fig. S1. XRD pattern of metallic Bi.

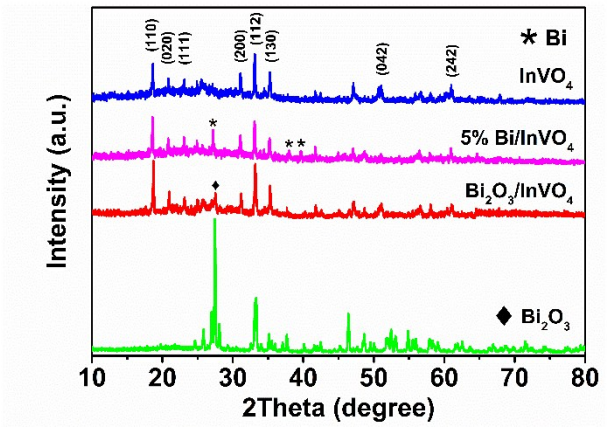

Fig. S2. XRD spectra of $InVO_4$, 5% Bi/$InVO_4$, Bi_2O_3/$InVO_4$ and Bi_2O_3.

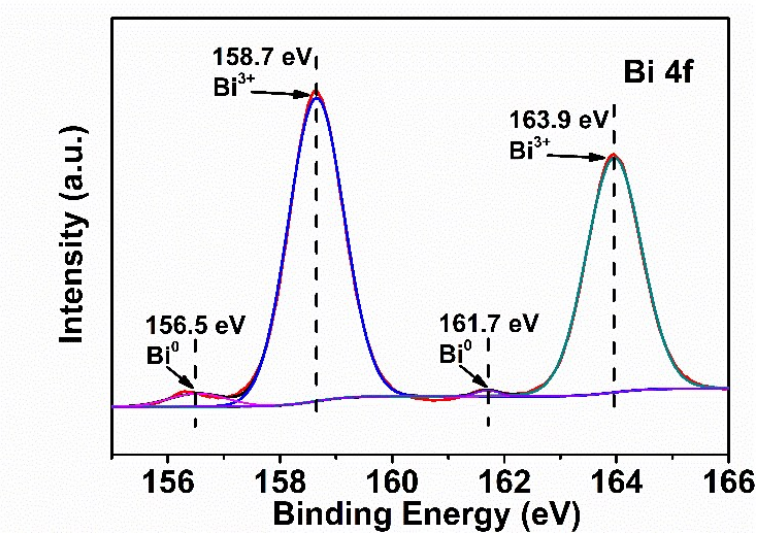

Fig. S3. XPS spectra of Bi 4f of metallic Bi.

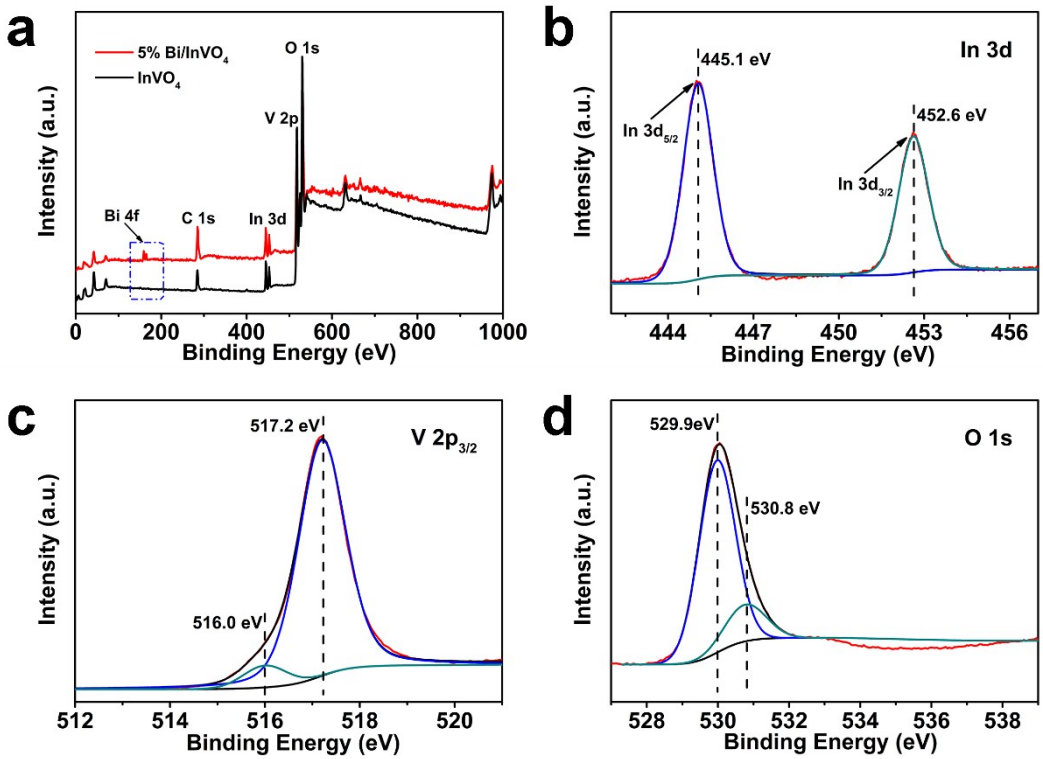

Fig. S4. (a) XPS survey spectra of $InVO_4$ and 5% Bi/$InVO_4$, XPS spectra of $InVO_4$ sample: (b) In 3d, (c) V $2p_{3/2}$ and (d) O 1s.

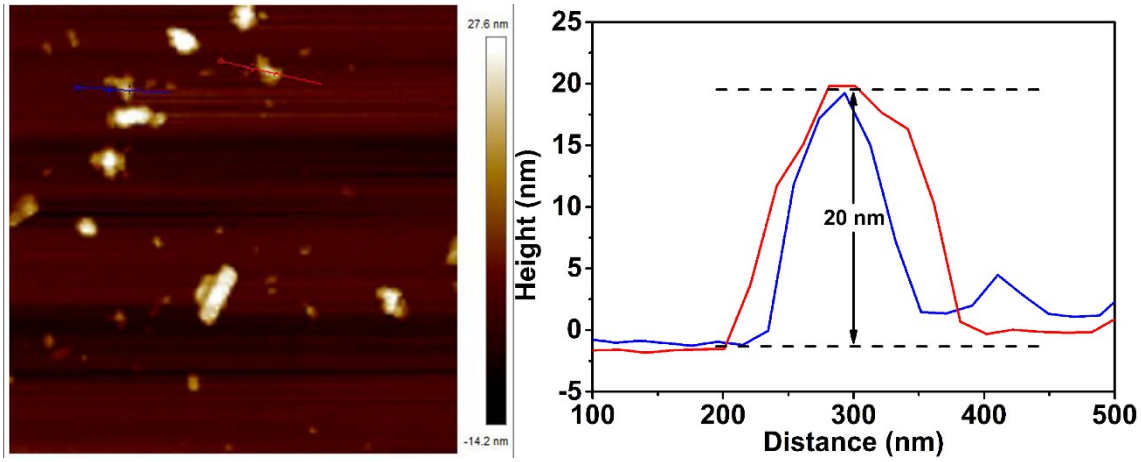

Fig. S5. AFM image of the $InVO_4$ nanosheets.

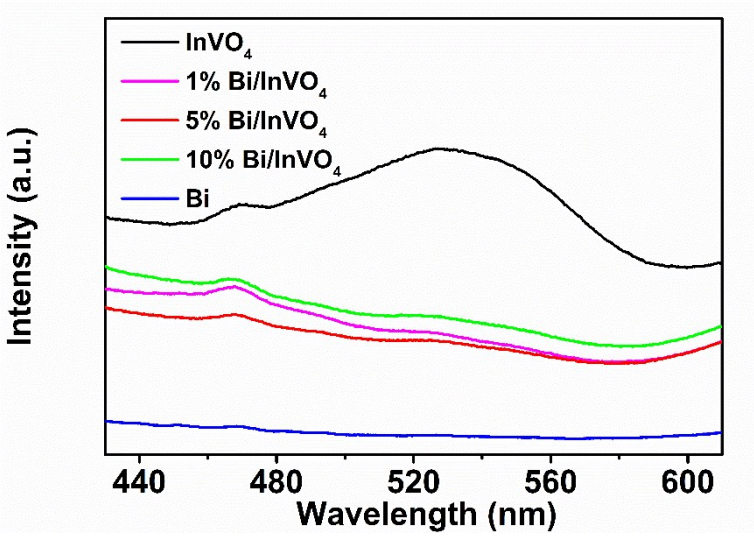

Fig. S6. PL spectra of Bi, $InVO_4$, 1% Bi/$InVO_4$, 5% Bi/$InVO_4$ and 10% Bi/$InVO_4$ under the excitation wavelength of 325 nm.

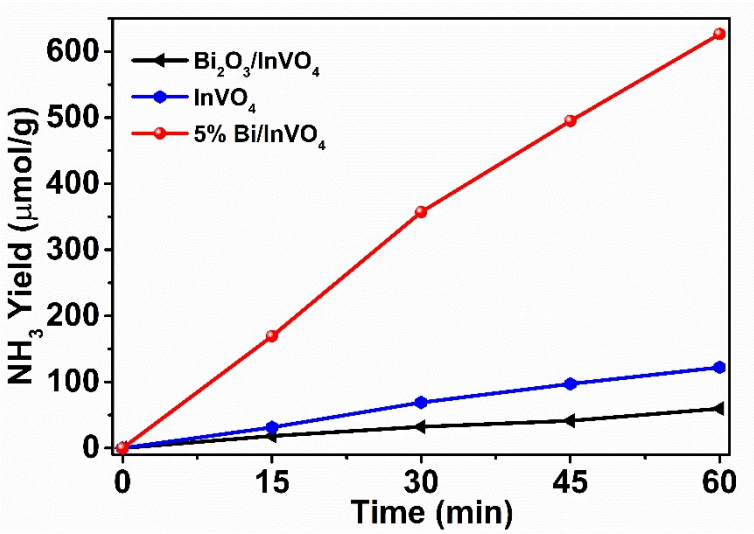

Fig. S7. Ammonia yield on $InVO_4$, 5% Bi/$InVO_4$ and Bi_2O_3/$InVO_4$ under UV-vis irradiation.

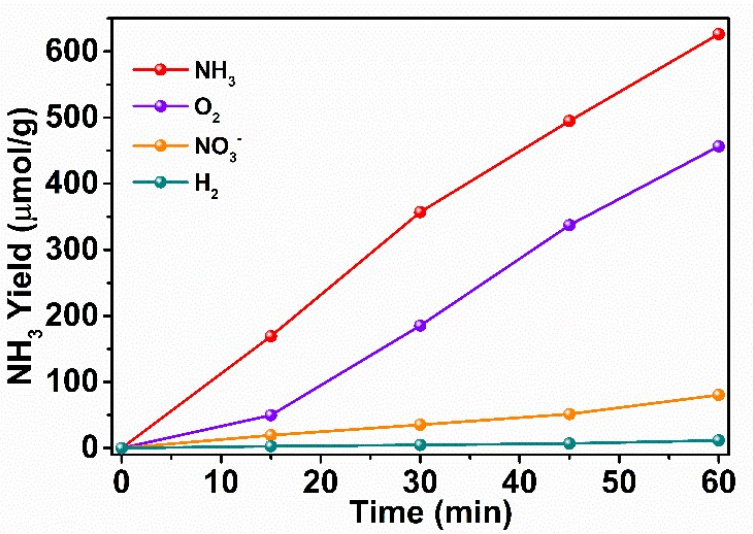

Fig. S8. Generation rates for NH_3, O_2, NO_3^- and H_2 of 5% Bi/$InVO_4$.

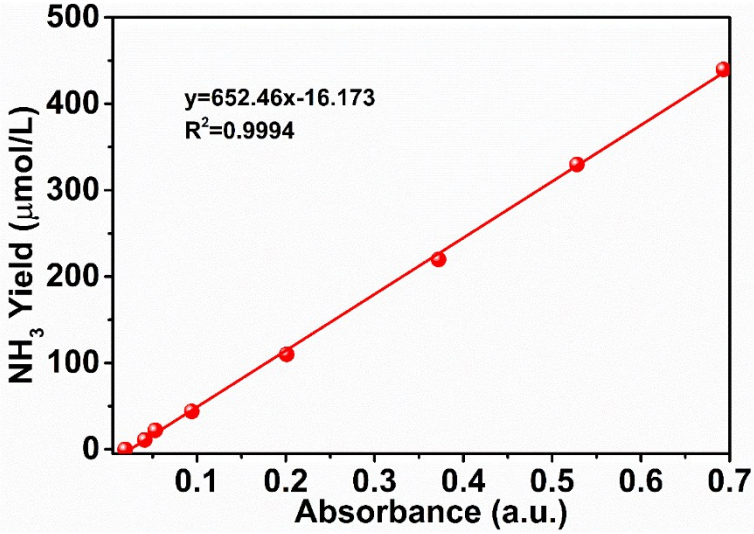

Fig. S9. The calibration curve of NH_3 yield with Nessler's regent.

Table 1. Summary of photocatalysts for the nitrogen fixation of N_2 to NH_3

Catalyst	**Light source**	**Scavenger**	**NH_3 yield**	**Ref.**
OV-BiOBr	Visible light	None	104.2 μmol h^{-1} g^{-1}	1
	UV-vis light	None	223.3 μmol h^{-1} g^{-1}	
OV-Bi_5O_7Br	$\lambda > 420$ nm	None	1.38 mmol h^{-1} g^{-1}	2
5% Ru@n-GaN NWs	290-380 nm	None	120 μmol h^{-1} g^{-1}	3
MoS_2	$\lambda \geq 420$ nm	None	325 μmol h^{-1} g^{-1}	4
Pt/ZnO	UV-vis light	EDTA-2Na	860 μmol h^{-1} g^{-1}	5
K^+/g-C_3N_4	Visible light	None	3.42 mmol h^{-1} g^{-1}	6

References

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