Electronic Supplementary Material (ESI) for Catalysis Science & Technology.

Supporting Information

Metallic WN Plasmonic Fabricated g-C_3N_4 Significantly Steered Photocatalytic Hydrogen Evolution under Visible and Near-Infrared Light

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Table S1. Comparison of photocatalytic hydrogen evolution rate with previous literature.

Material	**Synthetic Method**	**Co-Catalyst**	**H_2 (μmol h^{-1})**	**Ref.**
g-C_3N_4-TiO_2	Photodeposition, Hydrothermal	TEOA/3 wt% Pt	79.28	[1]
O-g-C_3N_4-TiO_2	Photo-deposition, Hydrothermal	TEOA/3 wt% Pt	29.35	[2]
g-C_3N_4-TiO_2	Electro-spinning, Heat treatment	TEOA/1wt% Au, Ag or Pt	1.50	[3]
g-C_3N_4-NPBIm	Hydrothermal	TEOA/1 wt% Pt	46.97	[4]
g-C_3N_4-CoO	Hydrothermal	TEOA/3 wt% Pt	65.35	[5]
g-C_3N_4-$CoFe_2O_3$	Hydrothermal	TEOA/1wt% Pt	18.61	[6]
g-C_3N_4-WN	**Hydrothermal**	**TEOA/1 wt% Pt**	**72.15**	**Our work**

Table S1. Fitting parameters of EIS results

Samples	**R_s**	**R_{ct}**
g-C_3N_4 nanosheets	23.2	1492
WN/CN-1 photocatalyst	14.8	834

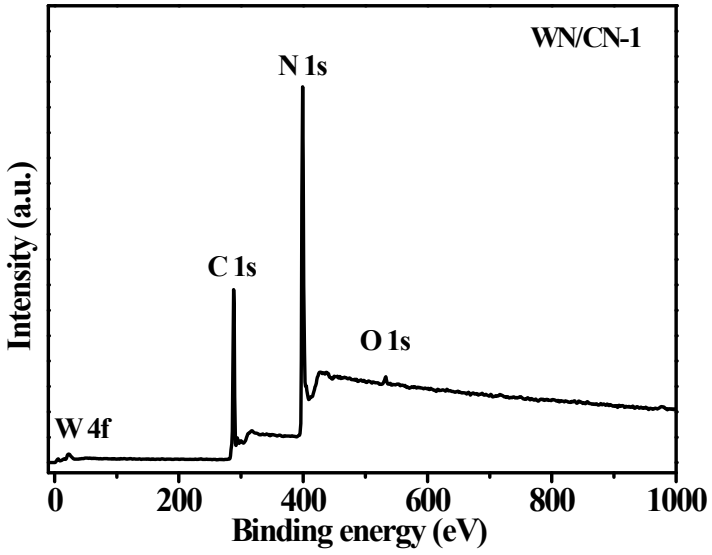

Figure S1. XPS spectrum of WN/CN-1 photocatalyst.

Figure S2. XPS-VBM of WN NPs.

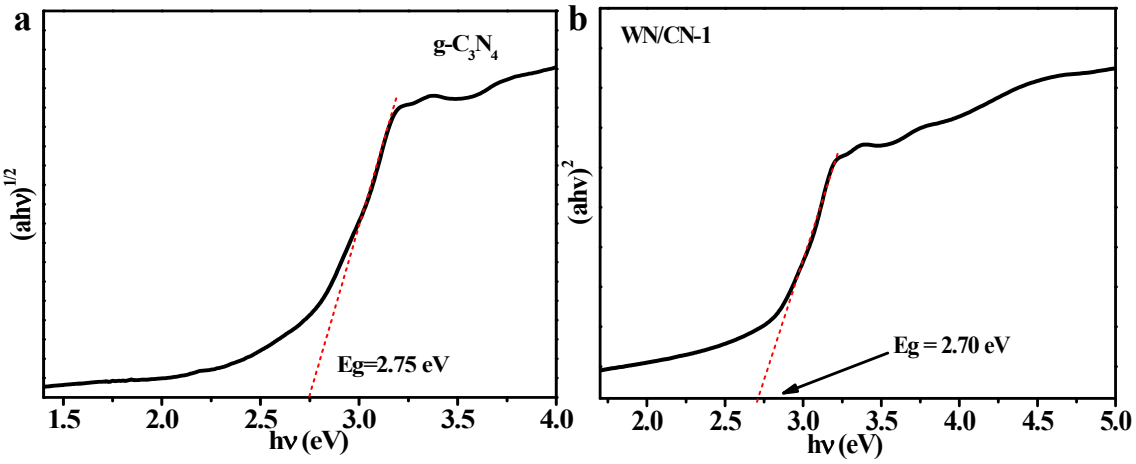

Figure S3. The Kubelka-Munk energy band gap graph of g-C_3N_4 (a) and WN/CN-1

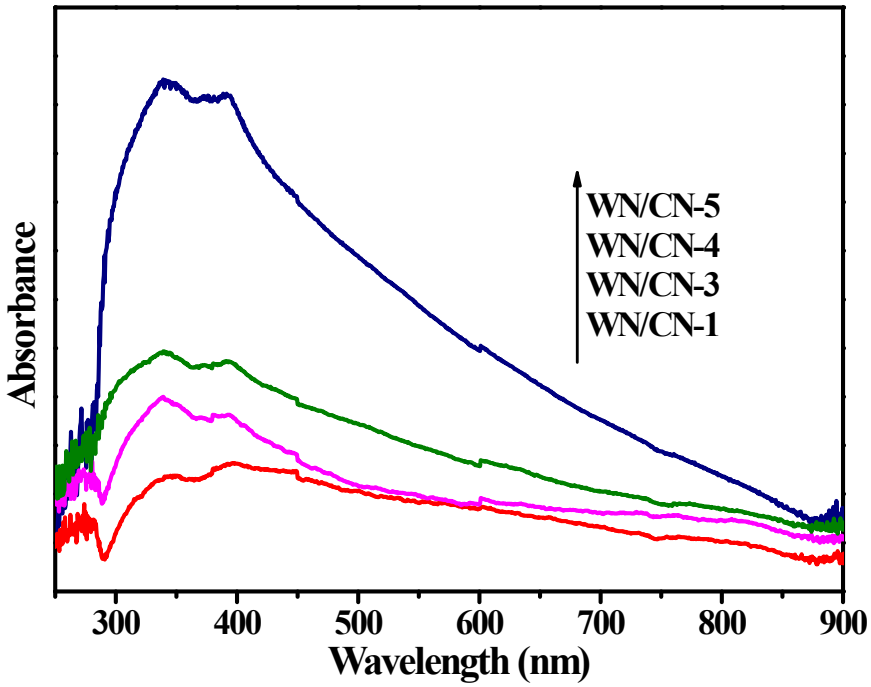

Figure S4. UV-vis absorption spectra of WN/CN-x composites with different weight contents of WN NPs in aqueous solution.

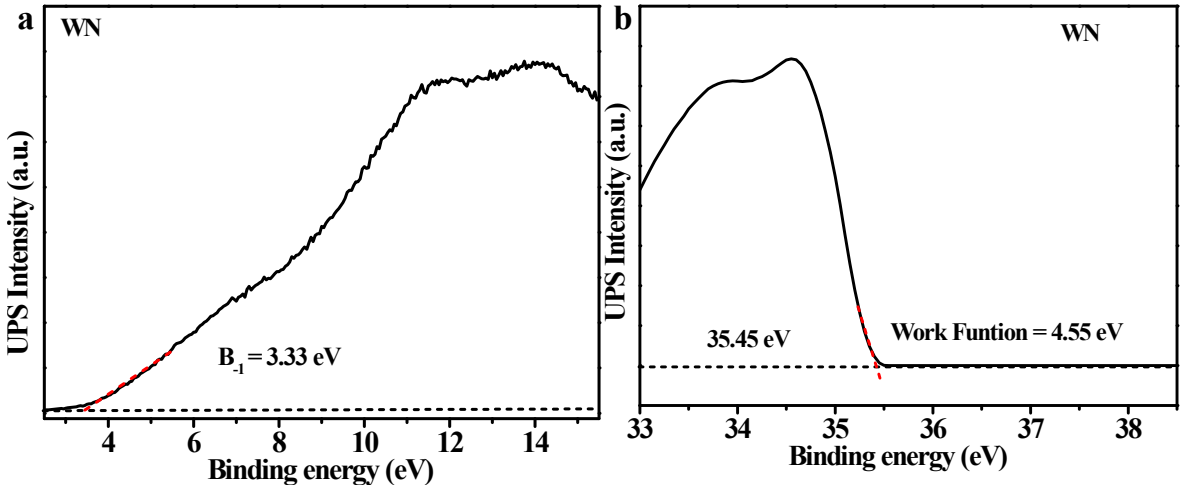

Figure S5. UPS spectrum of WN NPs.

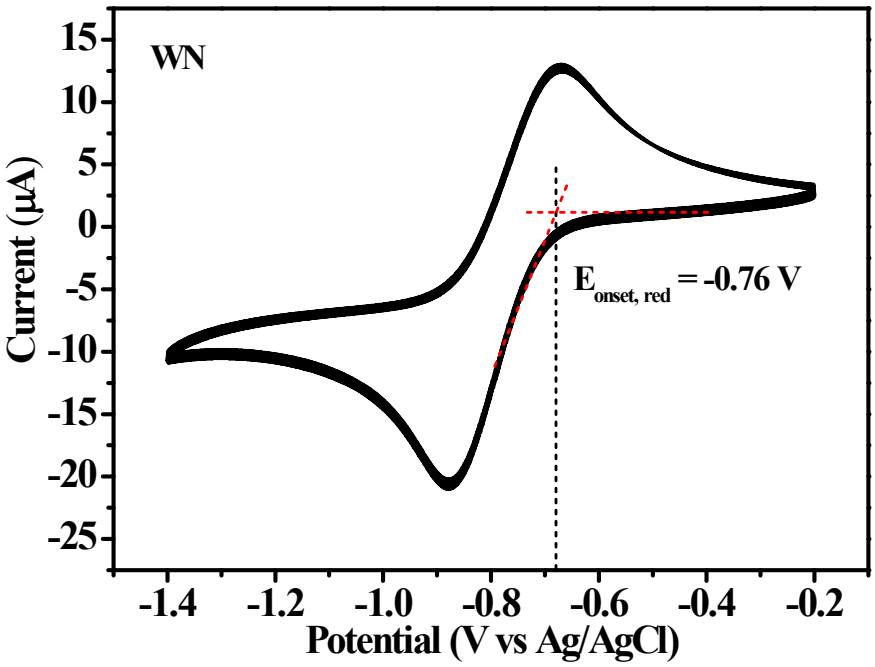

Figure S6. Cyclic voltammetry (CV) measurements of WN NPs.(b).

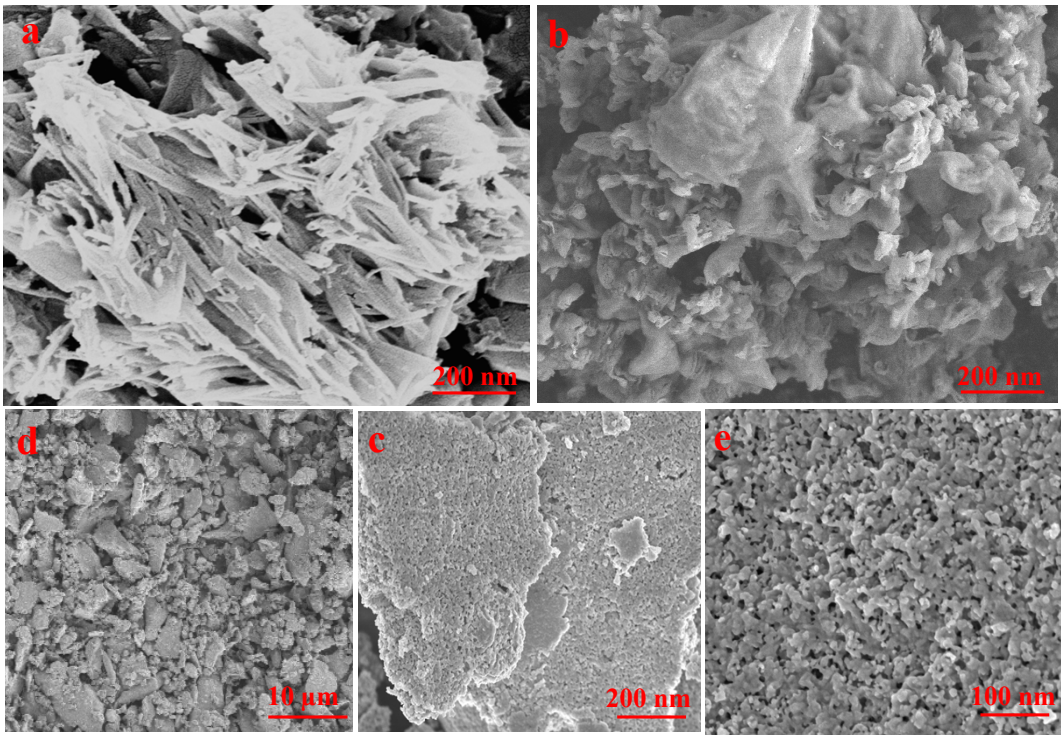

Figure S7. SEM images of g-C_3N_4 (a), WN/CN-1(b) and WN NPs (c-e).

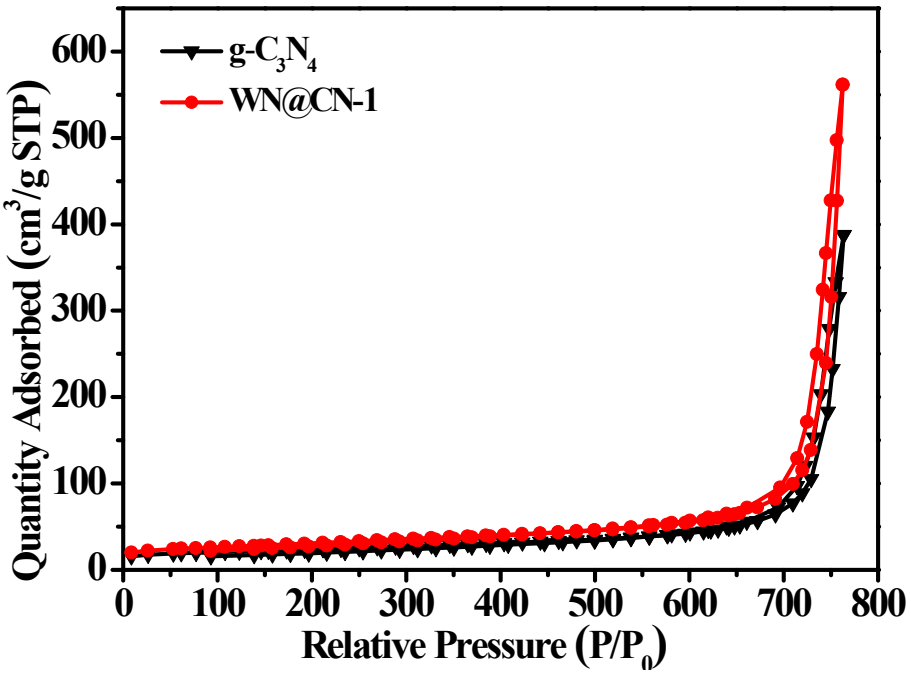

Figure S8. Nitrogen adsorption-desorption isotherm of g-C_3N_4 and WN/CN-1.

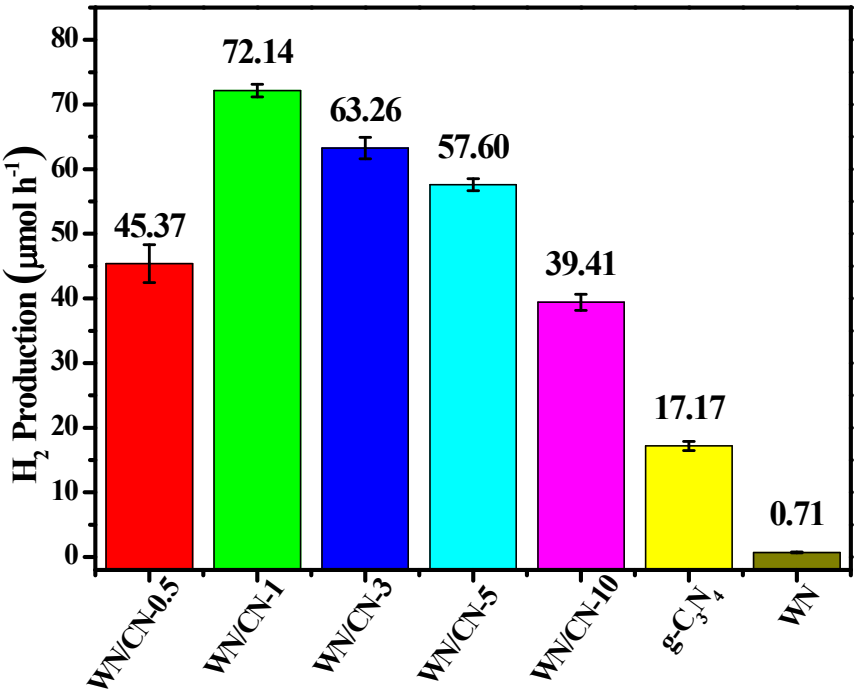

Figure S9. H_2 evolution comparison of a series of WN/CN-x samples with different contents of WN NPs and g-C_3N_4 under visible region.

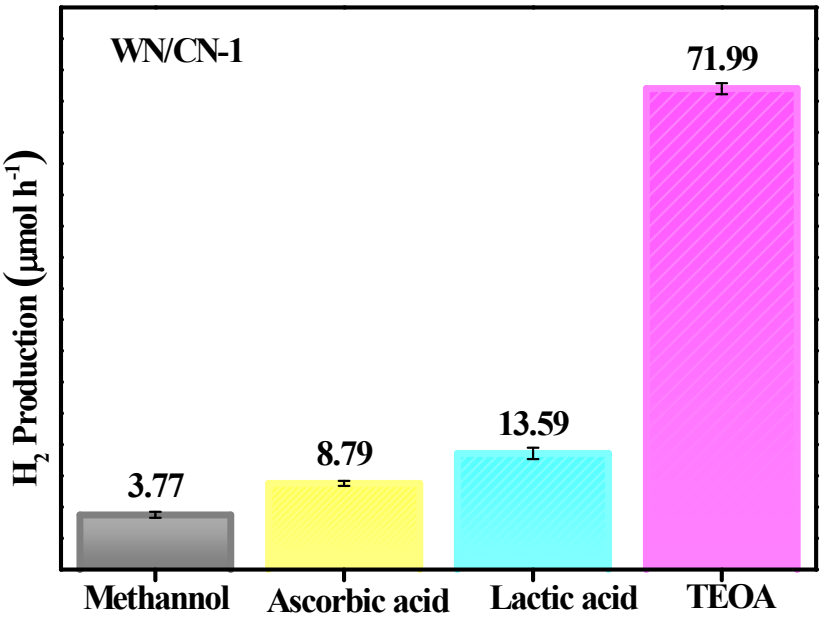

Figure S10. H_2 evolution comparison of a series of WN/CN-x samples with different sacrificial agents.

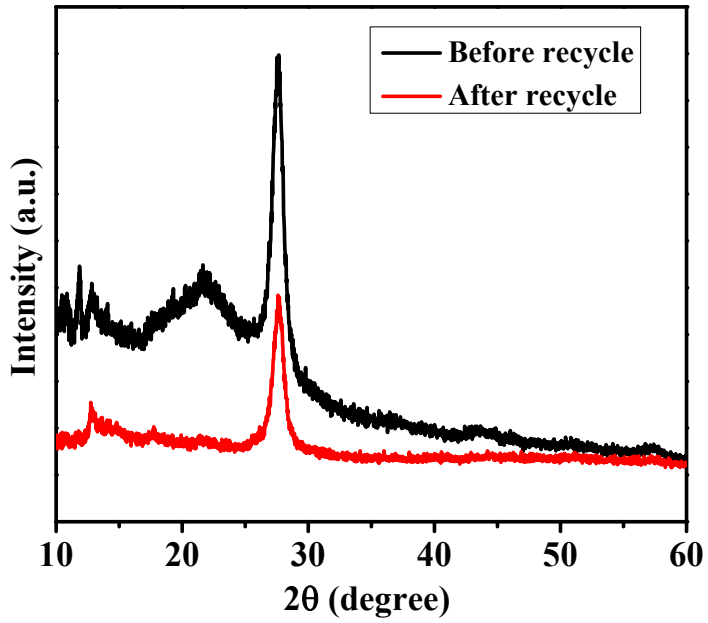

Figure S11. XRD spectra of WN/CN-1 composite before and after the photocatalytic experiment.

REFERENCES

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