Supporting Information

Efficient photocatalytic hydrogen evolution: a novel multi-modified carbon nitride based on physical adsorption

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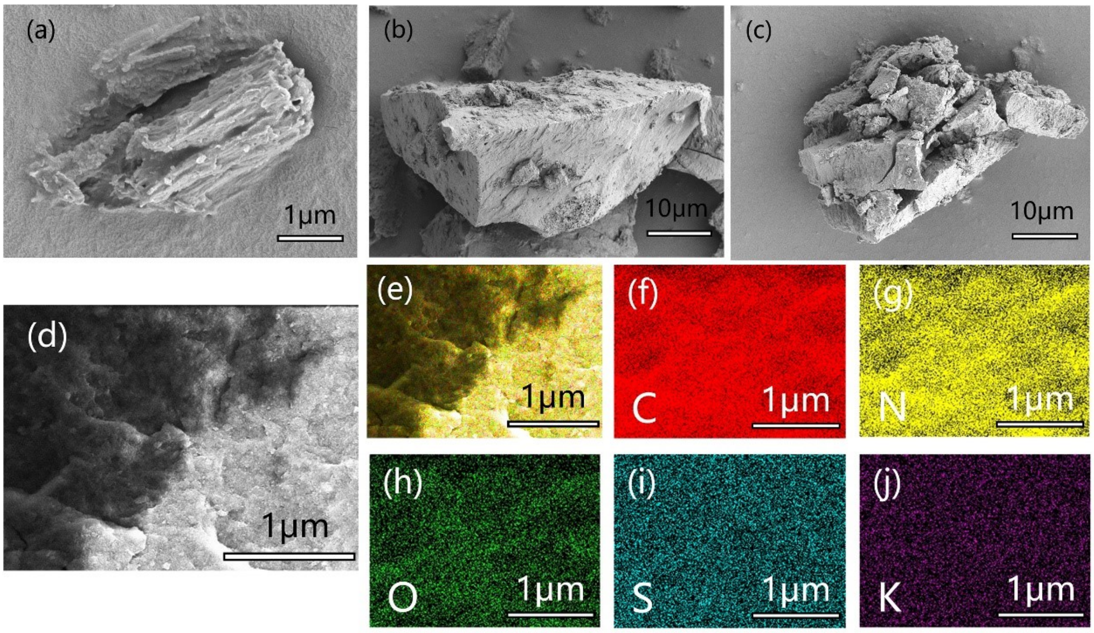

Figure 1S. SEM images of (a) g-C_3N_4, (b) c-C_3N_4, (c) b-C_3N_4, (d) measuring range of element distribution, (e) distribution of all elements, (f)~(j) the element distribution map of C, O, K, N, and S, respectively.

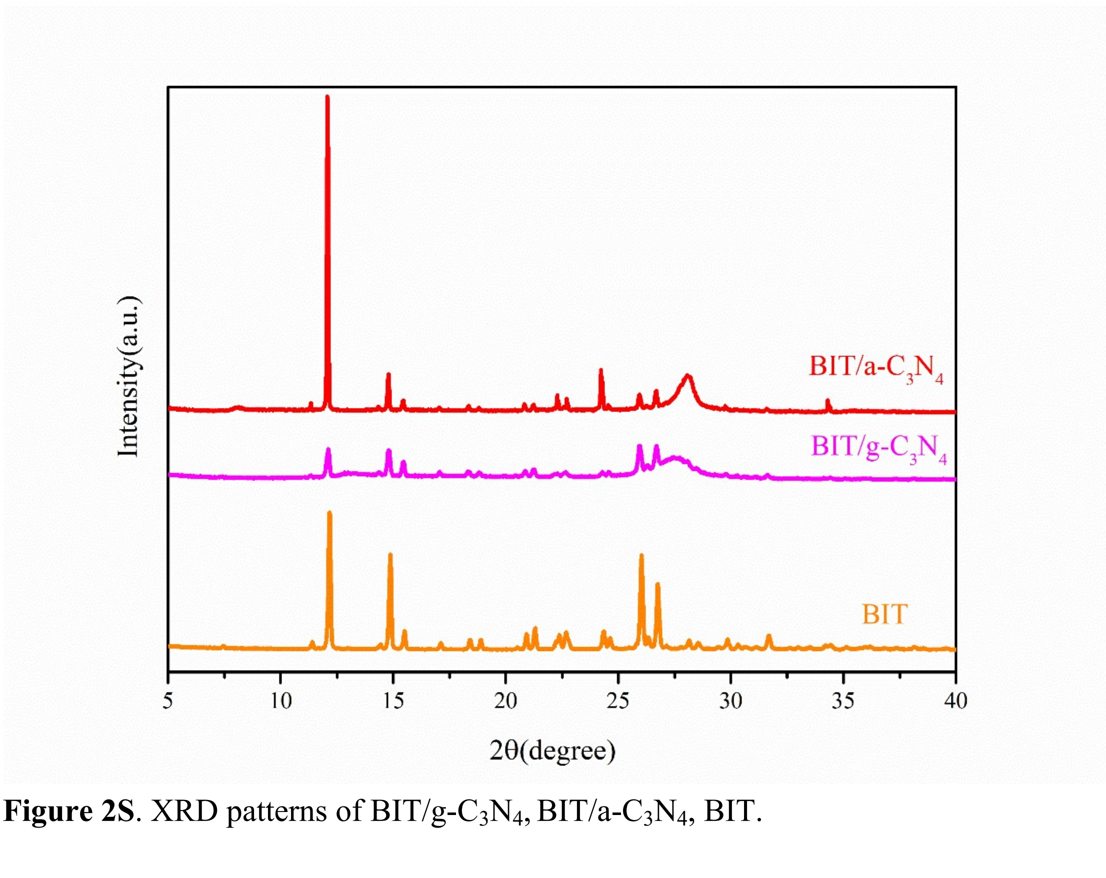

Figure 2S. XRD patterns of BIT/g-C_3N_4, BIT/a-C_3N_4, BIT.

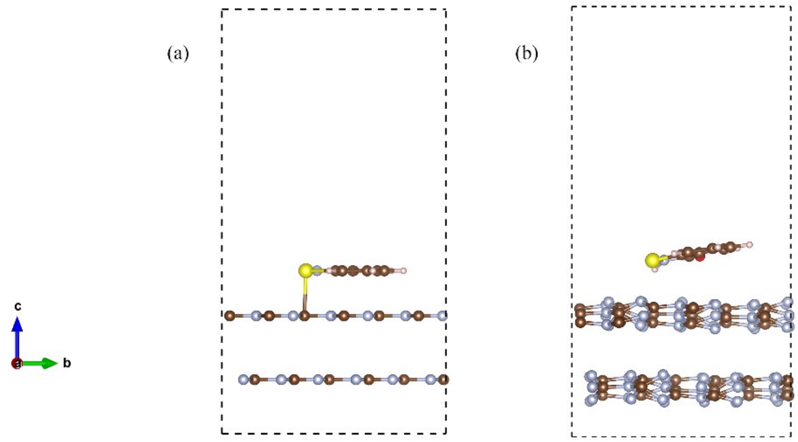

Figure 3S. Schematic of the model before (a) and after (b) DFT calculations（g-C_3N_4-SC-1）.

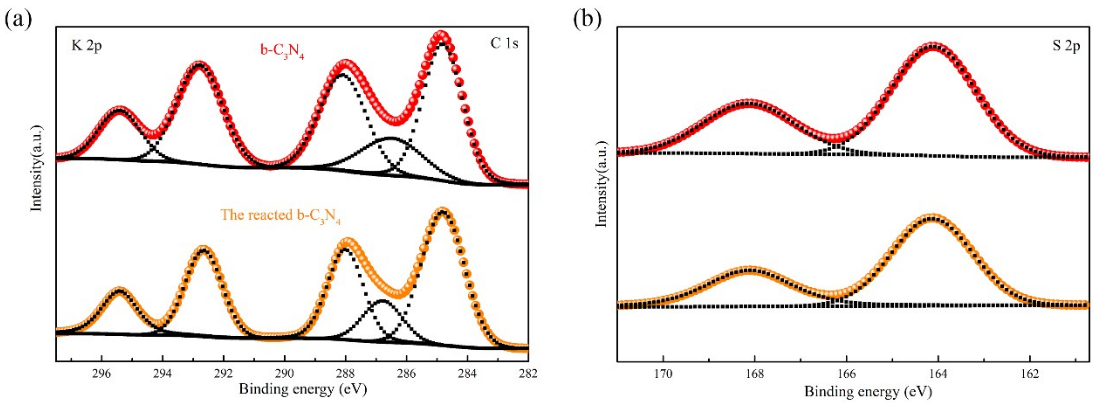

Figure 4S. XPS spectra of the fresh b-C_3N_4 and the reacted b-C_3N_4.

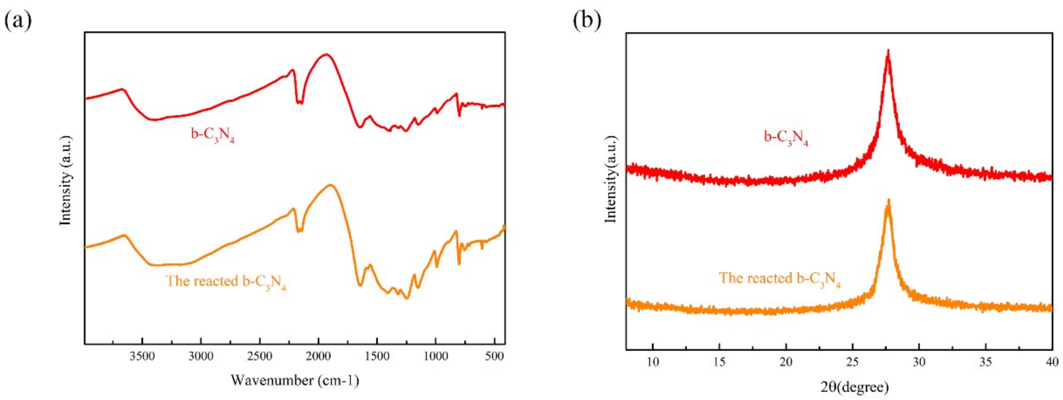

Figure 5S. (a) FTIR spectra and (b) XRD patterns of the fresh b-C_3N_4 and the reacted b-C_3N_4.

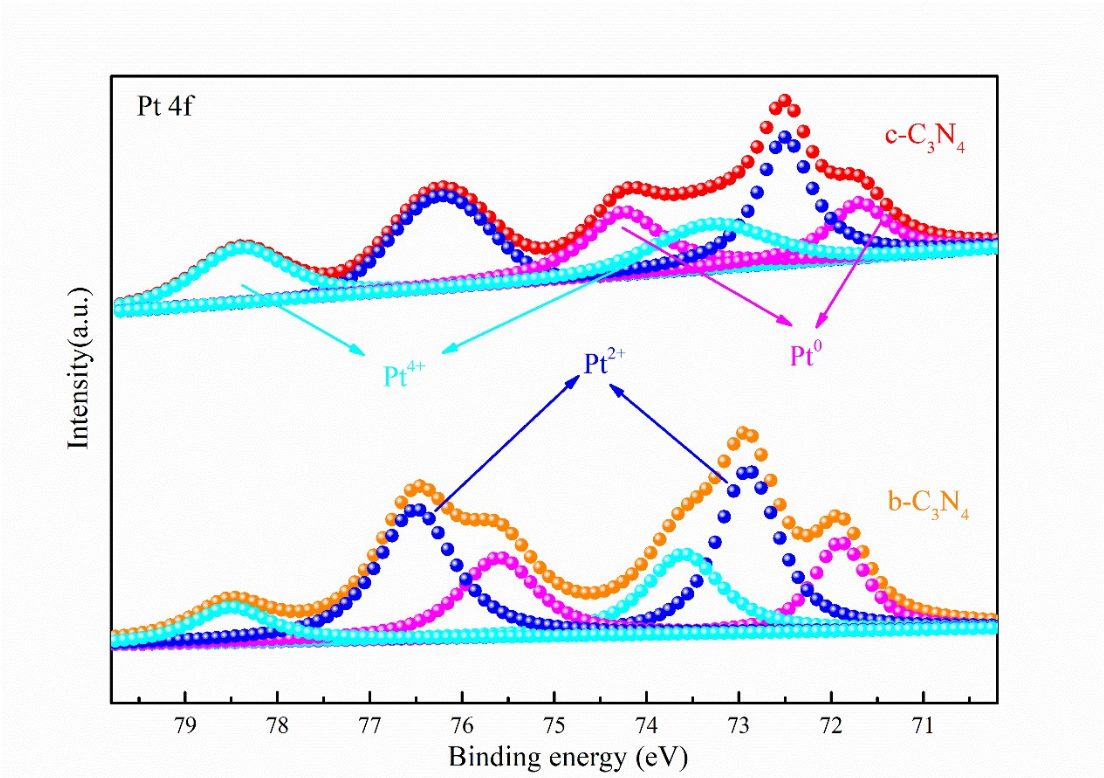

Figure 6S. XPS spectra of b-C3N4 and c-C3N4 after loading Pt.

Table 1S. Comparison of hydrogen production efficiency of b-C_3N_4 with photocatalysts in other literature.

Catalyst	Light Source	H_2 evolution and co-catalyst	AQY	Ref.
PhCN-5%	300 W Xenon lamp Visible light	2.39 mmol/(g·h) (1 wt% Pt, 20 vol% TEOA)	8.3%	1
0.2% BC/g-C_3N_4	300 W Xenon lamp Visible light	4.1 mmol/(g·h) (1 wt% Pt, 10 vol% TEOA)	—	2
H-CN	300 W Xenon lamp Visible light	4.3 mmol/(g·h) (1 wt% Pt, 10 vol% TEOA)	3.03%	3
2% NP/ g-C_3N_4	300 W Xenon lamp Visible light	2.297 mmol/(g·h) (3 wt% Pt, 10 vol% TEOA)	—	4
PCNNVs-L	300 W Xenon lamp Visible light	10.3 mmol/(g·h) (1 wt% Pt, 10 vol% TEOA)	3.5%	5
P-CN 20%	300 W Xenon lamp Visible light	2.96 mmol/(g·h) (1 wt% Pt, 20 vol% TEOA)	—	6

1% $Yb_2O_3/g\text{-}C_3N_4$-CA·M	300 W Xenon lamp Visible light	4.072mmol/(g·h) (1 wt% Pt, 9 vol% TEOA)	7%	7
CN-PU	300 W Xenon lamp Visible light	8.116 mmol/(g·h) (3 wt% Pt, 10 vol% TEOA)	6.1%	8
b-C_3N_4	300 W Xenon lamp Visible light	18.51 mmol/(g·h) (3.75 wt% Pt, 10 vol% TEOA)	8.9%	This work

$$photocatalyst + hv = e^- + h^+ \tag{1}$$

$$2H^+ + 2e^- = H_2 \tag{2}$$

$$TEOA + h^+ = TEOA^+ \tag{3}$$

References

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