Supporting Information

Self-assembly of g-C_3N_4-based 3D aerogel induced by N-doped carbon dots for enhanced photocatalytic hydrogen production

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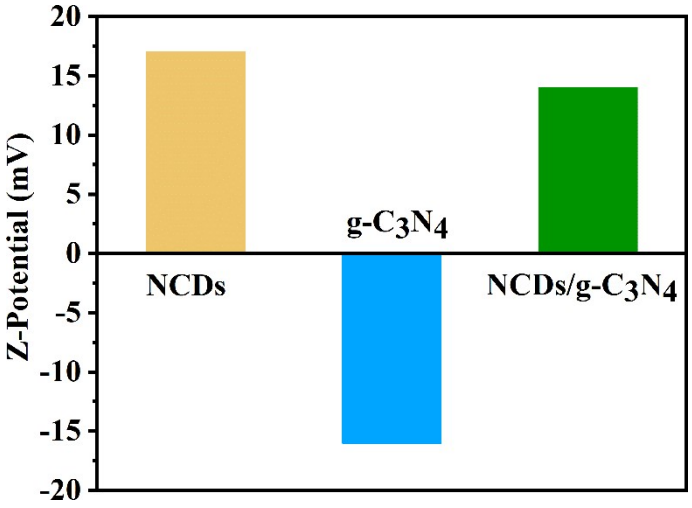

Fig. S1 Z-potential of NCDs, g-C_3N_4 and NCDs/g-C_3N_4 aerogel.

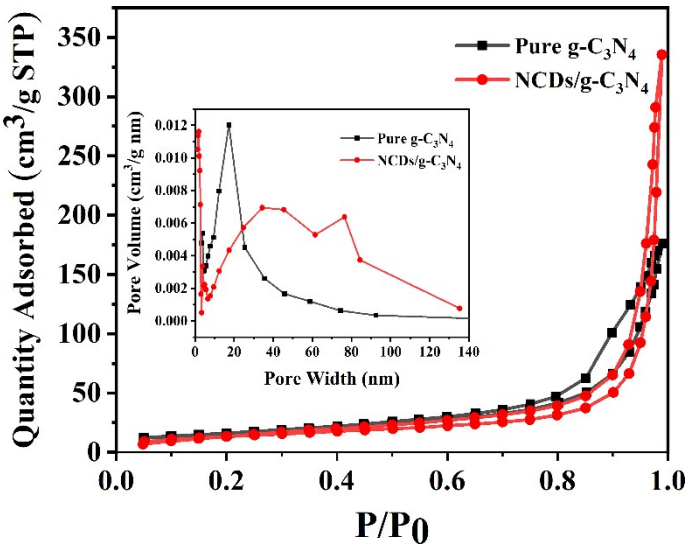

Fig. S2 N_2 adsorption and desorption isotherms (insert: pore volume distribution) of g-C_3N_4 and NCDs/g-C_3N_4 aerogel.

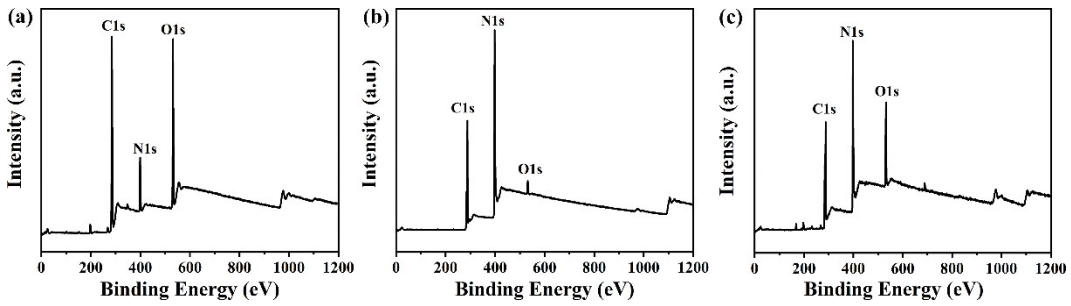

Fig. S3 Survey XPS spectra of (a) NCDs**,** (b) g-C_3N_4 and (c) NCDs/g-C_3N_4 aerogel.

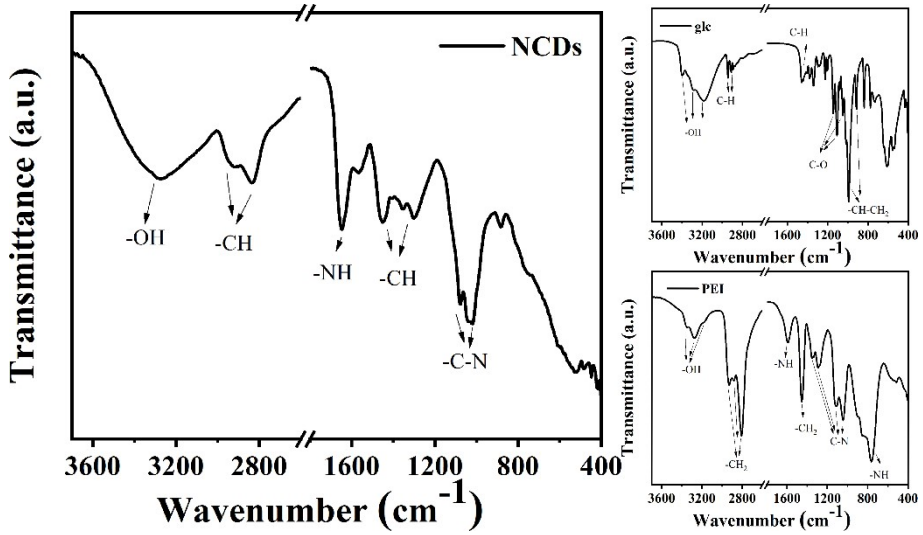

Fig. S4 FT-IR spectra of NCDs and their precursors.

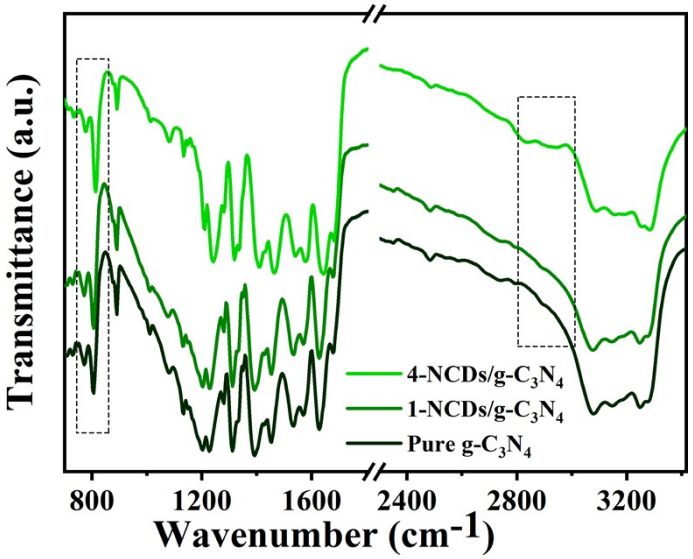

Fig. S5 FT-IR spectra of pure g-C_3N_4 and NCDs/g-C_3N_4 aerogel.

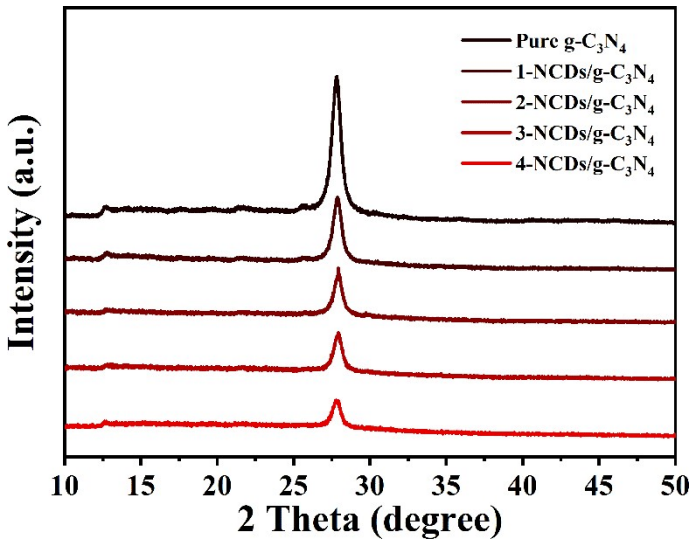

Fig. S6 XRD patterns of pure g-C_3N_4 and NCDs/g-C_3N_4 aerogel.

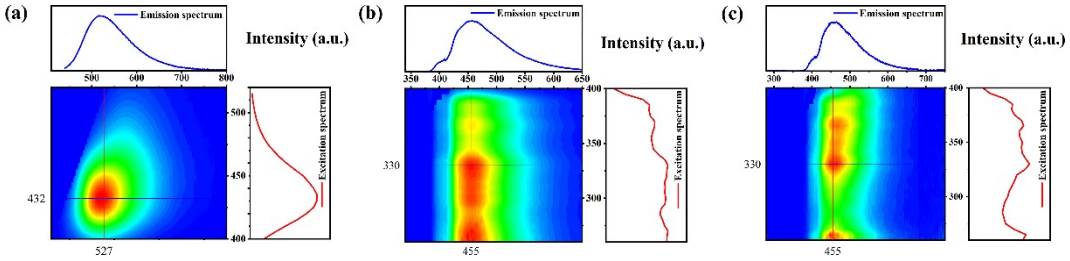

Fig. S7 The 3D PL spectra of (a) NCDs, (b) g-C_3N_4 and (c) NCDs/g-C_3N_4 aerogel.

Table S1: Results for photocatalytic H_2 production.

Sample	Photocatalyst	H_2 production (μmol h^{-1})	H_2 evolution rate (μmol h^{-1} g^{-1})
0	Pure g-C_3N_4	34211.3	8552.8
1	1-NCDs/g-C_3N_4	38641.6	9660.4
2	2-NCDs/g-C_3N_4	45276.7	11319.1
3	**3-NCDs/g-C_3N_4**	**53996**	**13499**
4	4-NCDs/g-C_3N_4	23897.3	5974.3

Table S2: Comparisons of photocatalytic H_2 performance for previously reported catalysts.

Photocatalysts	Cocatalysts	Reactant solution and sacrificial reagents	Light source	H_2 evolution rate (μmol h^{-1} g^{-1})	AQE (%)	Ref
Ag/CDs/g-C_3N_4	Ag (3 wt%)	Water (60 mL) and TEOA (10 mL)	300 W Xe lamp	629	4.81 (420nm)	1
P-CNG-Pt	Pt (9.3 wt%)	Water (42.5 mL) and TEOA (7.5 mL)	300 W Xe lamp	2566	21.6 (420nm)	2
ZCNQ40	Pt (5 wt%)	Water (80 mL) and TEOA (20 mL	500 W Xe lamp	4368	/	3
Pt SAs/C_3N_4	Pt (0.91 wt%)	Water (80 mL) and TEOA (20 mL)	300 W Xe lamp	10472	/	4
Highly crystalline g-C_3N_4	Pt (3 wt%)	Water (90 mL) and TEOA (10 mL)	300 W Xe lamp	9577	9.01 (420nm)	5
pd/g-CN	Pd (0.96 wt%)	Water (72 mL) and TEOA (8 mL)	300 W Xe lamp	6688	4 (420nm)	6
NCDs/g-C_3N_4 aerogel	Pt (1.5 wt%)	Water (90 mL) and TEOA (10 mL)	300 W Xe lamp	13499	7.6 (420nm)	This work

Table S3: Comparisons of photocatalytic H_2 performance for previously reported catalysts.

Photocatalysts	Cocatalysts	Reactant solution and sacrificial reagents	Light source	H_2 evolution rate (μmol h^{-1} g^{-1})	Ref

CoPi/g-C_3N_4	Co	120mL of solution containing 25% methanol by volume	300 W Xe lamp with a 400 nm cutoff filter	194.8	7
C-PDA/g-C_3N_4	Pt (1.5 wt%)	300mL of TEOA (10 vol %)	300 W Xe lamp with a 400 nm cutoff filter	811	8
N self-doped g-C_3N_4	Pt (3 wt%)	100mL of TEOA (10 vol %)	300 W Xe lamp with a 400 nm cutoff filter	553.5	9
g-C_3N_4 nanosheets	Pt (6 wt%)	300mL of TEOA (10 vol %)	300 W Xe lamp with a 400 nm cutoff filter	650	10
CN aerogels	Pd (3 wt%)	100mL of TEOA (10 vol %)	300 W Xe lamp with a 420 nm cutoff filter	600	11
NCDs/g-C_3N_4 aerogel	Pt (1.5 wt%)	Water (90 mL) and TEOA (10 mL)	300 W Xe lamp with a 400 nm cutoff filter	1827.5	This work

References

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