Electronic Supplementary Material (ESI) for Nanoscale.

A general steam-assisted method for one-step synthesis of polymeric carbon nitride nanosheets with/without doping for efficient photocatalytic hydrogen evolution

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The preparation of photocatalyst-coated FTO glass: First, 20 mg catalyst was dispersed in a 60 mL acetone solution containing 40 mg iodine by sonicating for 10 min and standing for 30 min. Next, two clean FTO glasses were inserted into the solution and electroplated at 10 V DC voltage for 10 min. Finally, the catalyst-coated FTO glass was annealed at 150 ℃ for 2 h.

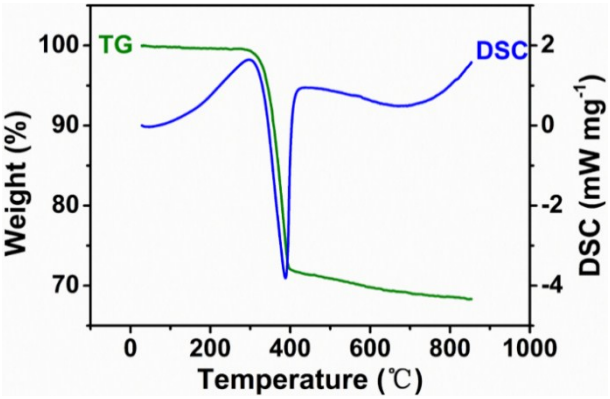

Figure S1. TG and DSC curves of $Mg(OH)_2$.

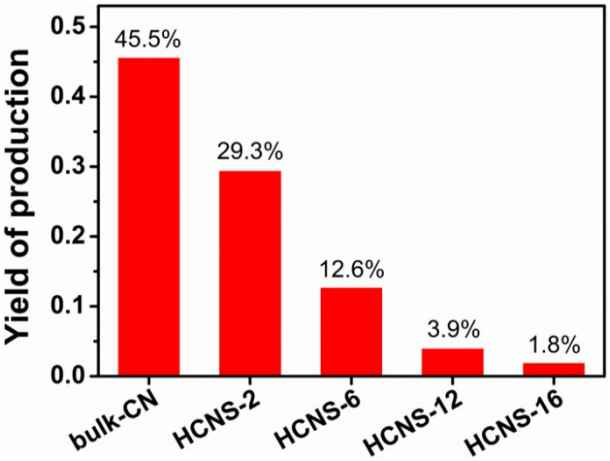

Figure S2. Yield of bulk PCN and PCN nanosheets.

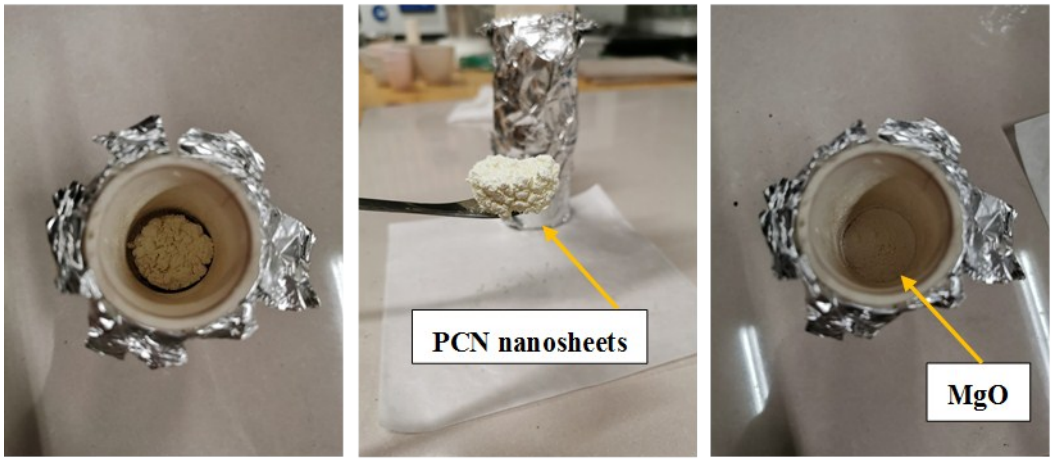

Figure S3. The collection process of production.

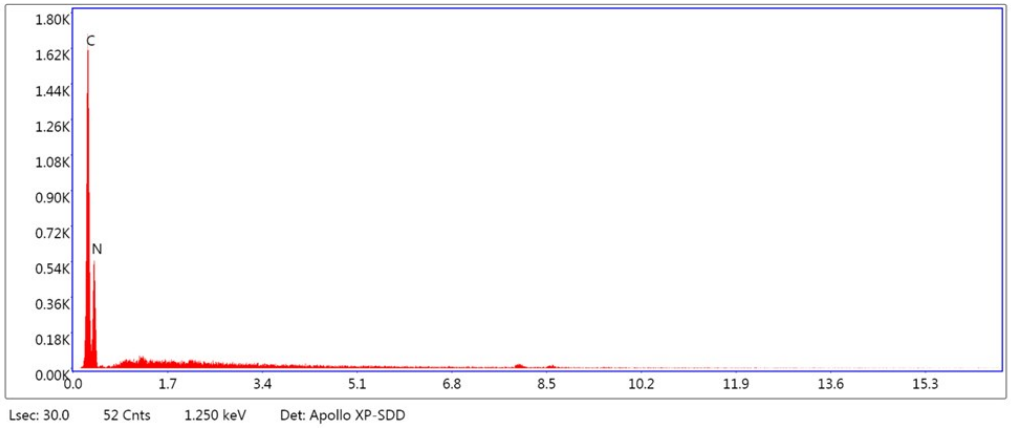

Figure S4. EDS spectrum of HCNS-16.

Table S1

The eZAF smart quant results of HCNS-16

Element	Weight %	Atomic %	Net Int.	Error %	Kratio	Z	A	F
C K	39.49	43.21	334.97	4.48	0.2951	1.0132	0.7379	1.0000
N K	60.51	56.79	103.47	11.91	0.0786	0.9910	0.1312	1.0000

Table S2

The parameters for apparent quantum efficiency (AQE) calculation

Parameter	Description	Data
M	Mole number of H_2 evolution	Determined in the test (mol)
N_A	Avogadro constant	6.022×10^{23} mol^{-1}
h	Planck constant	6.626×10^{-34} J s
c	Speed of light	3×10^{8} m s^{-1}
P	Power of lamp	44.8 mW cm^{-2}
S	Irradiated area	38.5 cm^2
t	Reaction time	Determined in the test (s)
λ	Wavelength of monochromatic light	Determined in the test (300, 350, 400, 420, 450, 500 or 600 nm)

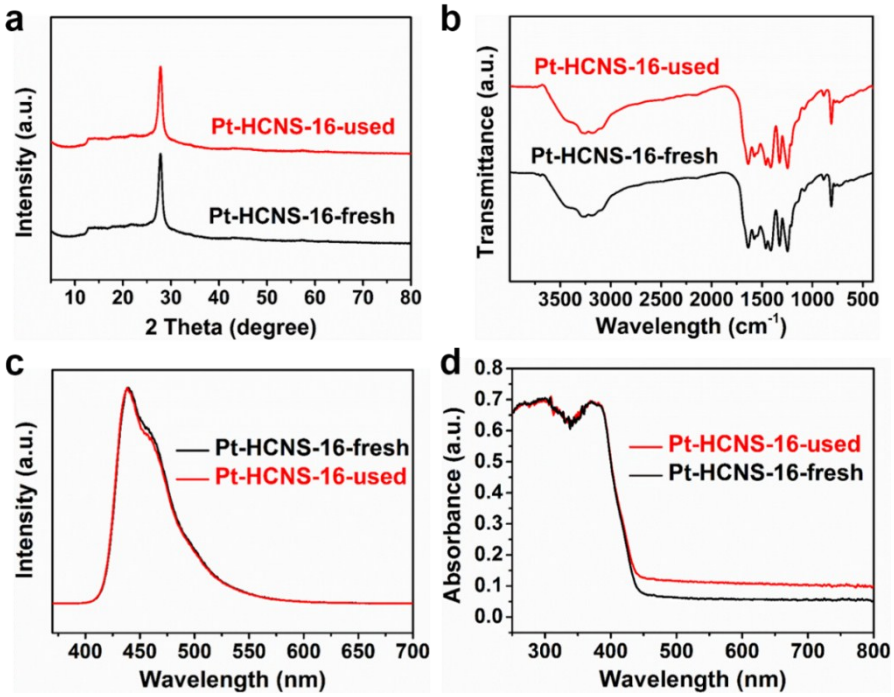

Figure S5. (a) XRD patterns, (b) FT-IR, (c) PL and (d) UV-vis DRS spectra of Pt-HCNS-16-fresh and Pt-HCNS-16-used.

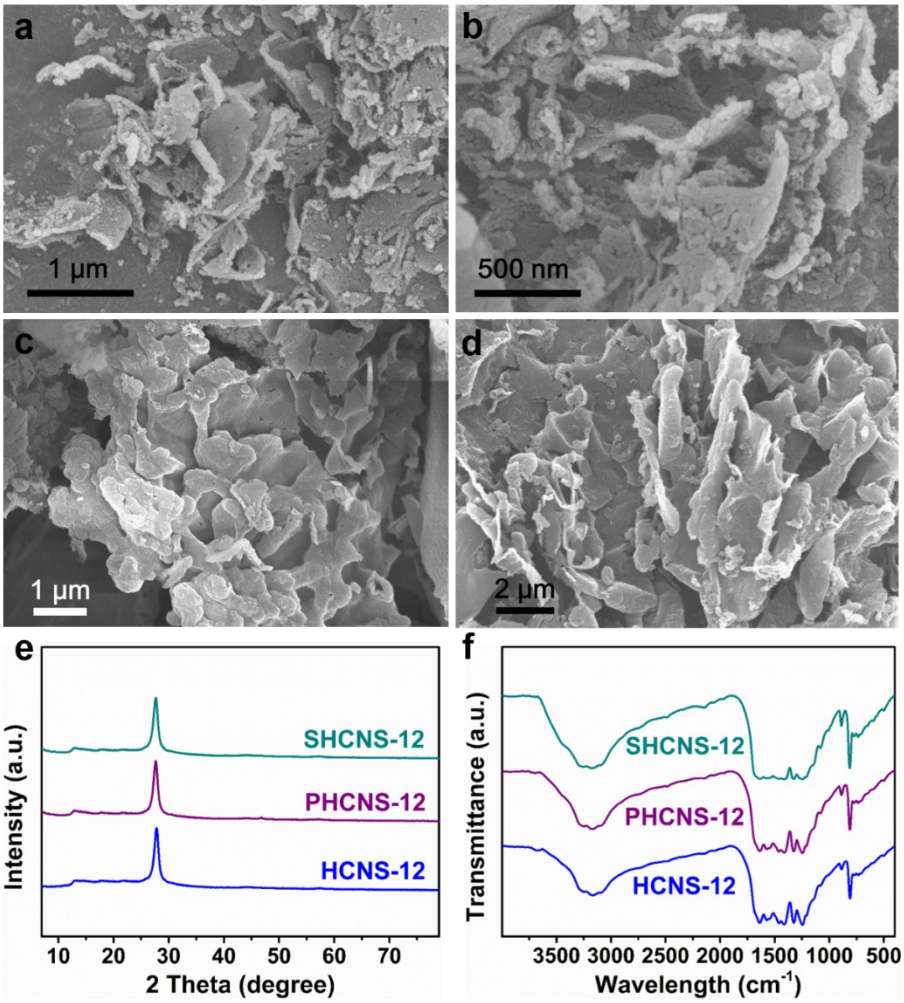

Figure S6. (a) and (b) SEM images of HCNS-12. (c) and (d) SEM images of PHCNS-12 and SHCNS-12. (e) XRD patterns and (f) FT-IR spectra of HCNS-12, PHCNS-12 and SHCNS-12.