

Supporting Information

In situ photodeposition fabrication of NiCo/g-C₃N₄ photocatalyst for efficient catalytic hydrogen generation

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Supporting information

Figures

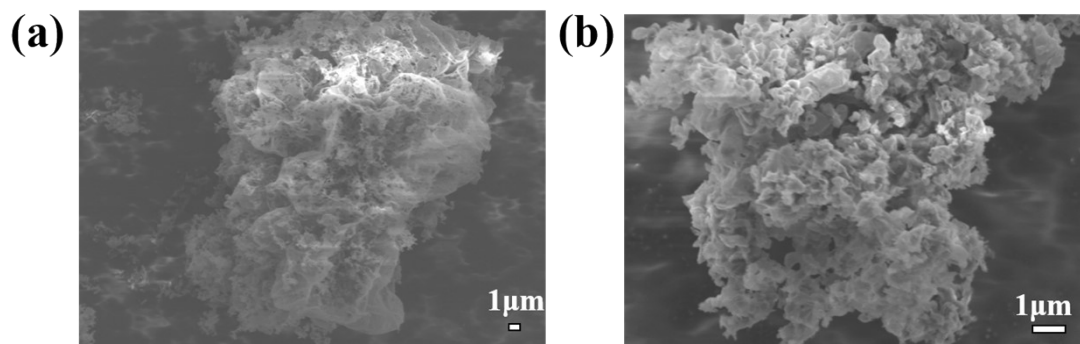


Fig. S1 The SEM images of (a) pure CN and (b) $\text{Ni}_{23}\text{Co}_1/\text{CN}$.

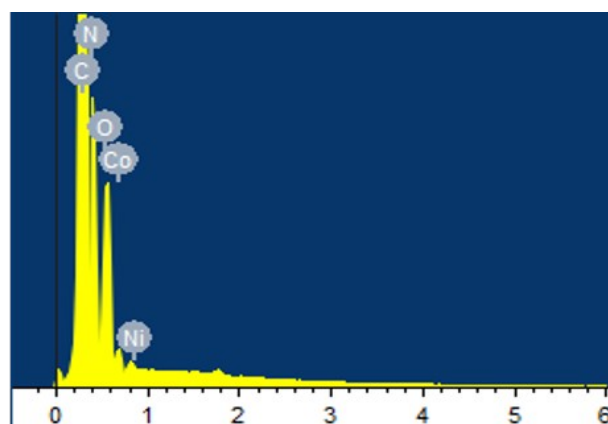


Fig. S2 The EDX elemental analysis of $\text{Ni}_{23}\text{Co}_1/\text{CN}$.

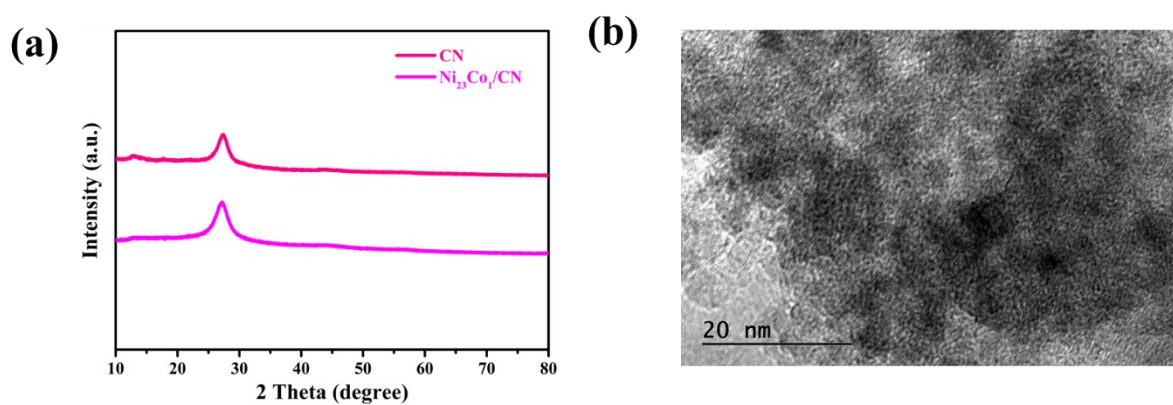


Fig. S3. (a) The XRD patterns of $\text{Ni}_{23}\text{Co}_1/\text{CN}$ after photocatalytic H_2 production reaction, (b) The TEM image of $\text{Ni}_{23}\text{Co}_1/\text{CN}$ after photocatalytic H_2 production reaction.

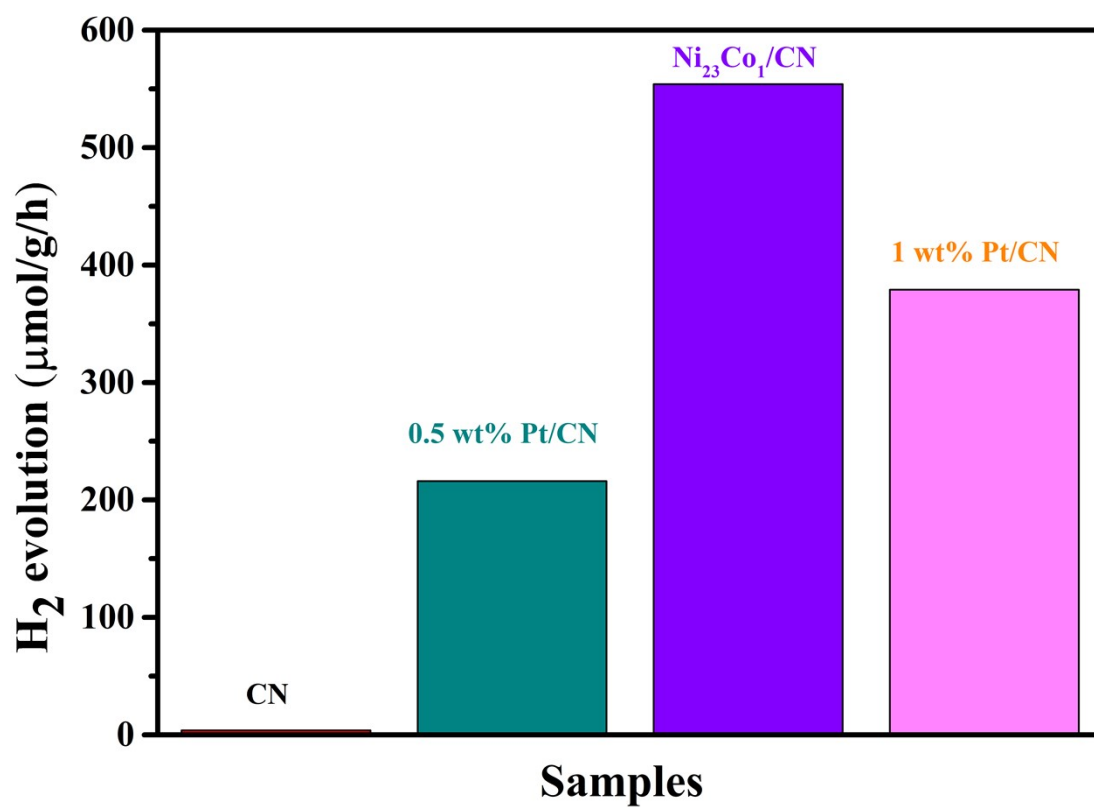


Fig. S4 The average H₂ evolution rate of CN, 0.5wt %Pt/CN, 1wt %Pt/CN, Ni₂₃Co₁/CN during the 3 h reaction.

Table. S1 Pore structure parameters of CN, Ni/CN, Ni₁₅Co₁/CN, Ni₂₃Co₁/CN, Ni₃₉Co₁/CN and Ni₄₇Co₁/CN.

Samples	BET surface area (m ² g ⁻¹)	Peak value of pore diameter(nm)	Pore volume (cm ³ g ⁻¹)
CN	73.6	2.5	0.28
Ni/CN	42.6	2.4	0.15
Ni ₁₅ Co ₁ /CN	38.5	2.4	0.14
Ni ₂₃ Co ₁ /CN	27.4	2.3	0.09
Ni ₃₉ Co ₁ /CN	14.5	1.7	0.06
Ni ₄₇ Co ₁ /CN	12.4	1.5	0.04

Table. S2 Resistance values of R_s and R_{ct} of different samples as obtained from the EIS measurements.

Samples	R _s (Ω.cm ⁻²)	CPE1-T	CPE1-P	R _{ct} (Ω.cm ⁻²)
CN	50.54	5.23×10^{-5}	0.94	142.2
Ni/CN	51.08	3.42×10^{-5}	0.94	130.4
Ni ₁₅ Co ₁ /CN	54.90	2.73×10^{-5}	0.95	61.24
Ni ₂₃ Co ₁ /CN	55.33	2.12×10^{-5}	0.94	30.69
Ni ₃₉ Co ₁ /CN	54.75	2.08×10^{-5}	0.95	30.81
Ni ₄₇ Co ₁ /CN	53.60	2.42×10^{-5}	0.94	54.57

R_s: the impedance of the electrolyte.

CPE: the constant phase element at the interface between the electrolyte and the electrode.

R_{ct} : the impedance at the interface between the photoelectrode and the electrolyte.

