

Electronic Supplementary Information

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NiFe-LDH/g-C₃N₄ binary heterostructures with 2D/2D configuration for highly efficient photocatalytic degradation of antibiotics and hydrogen production

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Photoelectrochemical measurements

The PEC performance was tested using a three-electrode working system, that is, the electrode containing the sample as the working electrode, the standard Ag/AgCl electrode as the reference electrode, the platinum electrode as the counter electrode, and the electrolyte solution was 0.100 M Na₂SO₄ solution as the electrolyte. The working electrode was prepared by the following procedure. 5.00 mg samples were dispersed with 800 μL isopropanol, 200 μL deionized water and 50 μL Nafion solution by ultrasound, then the mixture was coated on conductive glass (FTO) with an area of about 2 cm².

Table S1 Comparison of the H₂ revolution rates with other photocatalysts.

Catalysts	Light source	Sacrificial reagent	H ₂ yield ($\mu\text{mol}\cdot\text{g}^{-1}$)	Reaction time (h)	Refs.
NiFe-LDH/ g-C ₃ N ₄	$\lambda > 400$ nm 300 W Xe	15 vol.% TEOA	3122	4	This work
NiCo-LDH/ g-C ₃ N ₄	$\lambda > 400$ nm 300 W Xe	15 vol.% TEOA	1355.1	3	[S1]
CoAl-LDH/ g-C ₃ N ₄	Optical filter AM 1.5 300 W Xe	10 vol.% TEOA	2720.5	4	[S2]
In ₂ S ₃ /g-C ₃ N ₄ / CoZnAl-LDH	$\lambda > 410$ nm 300 W Xe	methanol	404.78	8	[S3]
Pt/CoO/g- C ₃ N ₄	$\lambda > 400$ nm 300 W Xe	10 vol.% TEOA	2605.2	4	[S4]
Pt/Al ₂ O ₃ / g-C ₃ N ₄	$\lambda > 420$ nm 300 W Xe	25 vol.% TEOA	3126	6	[S5]
ACN-550	$\lambda > 190$ nm 300 W Xe	10 vol.% TEOA	4570.8 \pm 25.8	6	[S6]

Table S2 Comparison of the degradation efficiency with other photocatalysts.

Catalysts	Light source	Degradation efficiency	Pollutants	Reaction time (min)	Refs.
1.8LDH/CN	$\lambda > 400$ nm 300 W Xe	76.3%	TC	80	This work
NTU-9/C ₃ N ₄	LED	65%	toluene	60	[S7]
BiOI/ZnFe ₂ O ₄ / g-C ₃ N ₄	LED	66.6%	phenol	120	[S8]
g-C ₃ N ₄ /LDH- OVs	$\lambda > 420$ nm 300 W Xe	95%	TC	90	[S9]
Fe ₂ O ₃ /g-C ₃ N ₄ / 300 W Xe	$\lambda > 420$ nm 300 W Xe	70%	MB	90	[S10]

Notes and references

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