


Supporting information

Plasma-Assisted Synthesis of Hierarchical Defect N-doped iron-cobalt sulfide@Co Foam as Efficient Bifunctional Electrocatalysts for Overall Water Splitting

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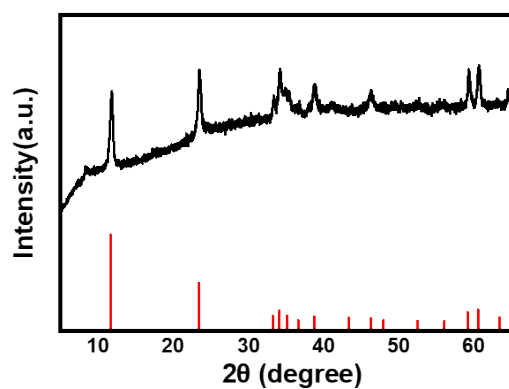


Fig. S1 XRD pattern of CoFeLDH and Standard diffraction pattern PDF#50-0235

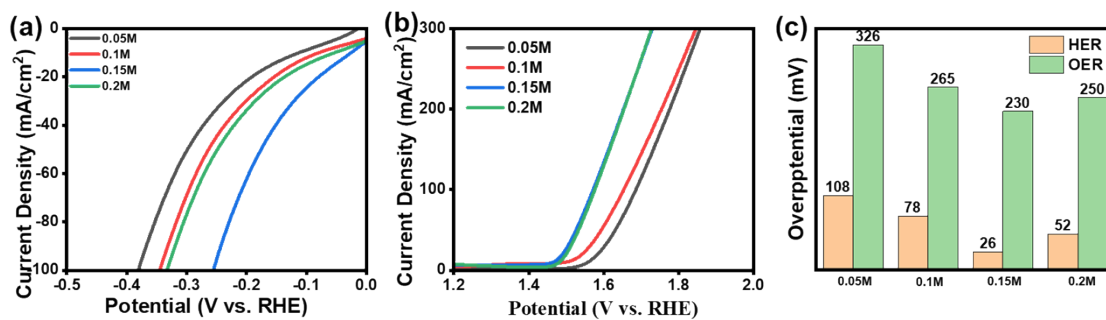


Fig. S2 The LSV curves for HER (a) and OER (b) of samples with different solution concentrations used for ion exchange, and (c) the overpotential for HER and OER at 10 mA/cm².

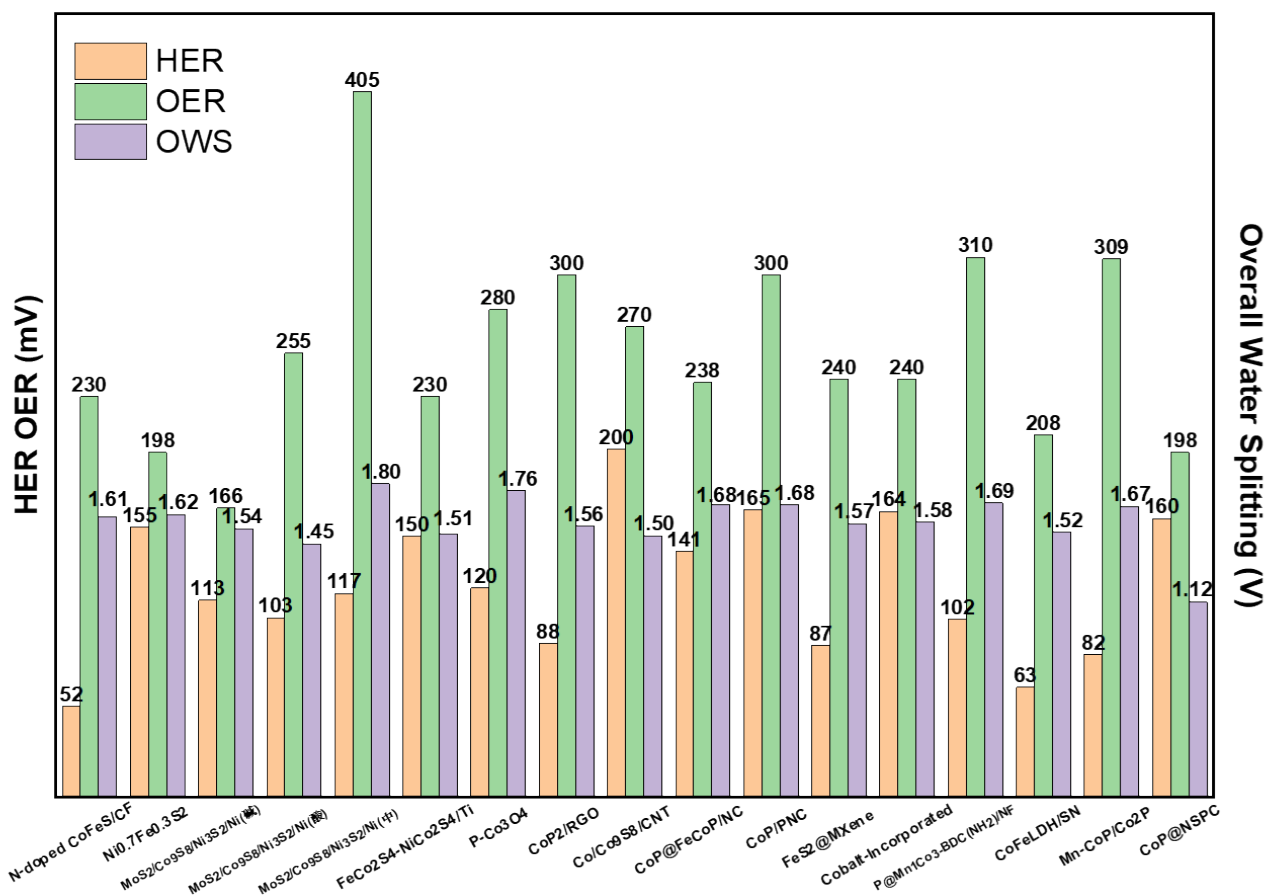


Fig. S3 Comparison of the performance of N-doped CF with those of other catalysts for water splitting

Table S1. Comparison of the performance of N-doped CF with that of other catalysts for water splitting

Material	Electrolytle	Reaction/J (mA cm ⁻²)	Potential	Ref
Ni-Fe-O nanowire network	1M KOH	HER/10; OER/10; OWS /10	/;244mV;1.64V	1
CuCo Hybrid Oxides	1M KOH	HER/10; OER/327; OWS/10	140mV;370mV;1.61V	2
Mo-Ni ₃ S ₂ /Ni _x P _y /NF	1M KOH	HER/10; OER/50; OWS/10	109mV;238mV;1.46V	3
NiFeRu-LDH	1M KOH	HER/10; OER/10; OWS/10	29mV;225mV;1.52V	4
MoO ₂ Nanosheets	1M KOH	HER/10; OER/10; OWS/10	27mV;260mV;1.53V	5
Ni/NiP	1M KOH	HER/10; OER/30; OWS/10	130mV;270mV;1.63V	6
N-WC nanoarray	0.5M H ₂ SO ₄	HER/10; OER/60; OWS/30	113mV;470mV;1.7V	7
Ni ₃ FeN Nanoparticles	1M KOH	HER/10; OER/10; /	158mV;280mV;/	8
Ni _{0.7} Fe _{0.3} S ₂ microflower	1M KOH	HER/10; OER/10; OWS/10	155mV;198mV;1.625V	9
CoS _x /Ni ₃ S ₂ @NF	1M KOH	HER/10; OER/20; OWS/10	204mV;280mV;1.573V	10
MoS ₂ /Co ₉ S ₈ /Ni ₃ S ₂ /Ni	1M KOH	HER/10; OER/10; OWS/10	113mV;166mV;1.54V	
	0.5M H ₂ SO ₄	HER/10; OER/10; OWS/10	103mV;255mV;1.45V	11
	1M PBS, (pH=7)	HER/10; OER/10; OWS/10	117mV;405mV;1.8V	
FeCo ₂ S ₄ -NiCo ₂ S ₄ /Ti mnanosheet arrays	1M KOH	HER/10; OER/10; OWS/10	150mV;230mV;1.51V	12
P-Co ₃ O ₄	1M KOH	HER/10; OER/10; OWS/50	120mV;280mV;1.76V	13
NiCo ₂ O ₄ NA/CC	1M KOH	HER/100; OER/100; OWS/10	305mV;340mV;1.68V	14
CoP ₂ /RGO	1M KOH	HER/10; OER/10; OWS/10	88mV;300mV;1.56V	15
Co/Co ₉ S ₈ /CNT	1M KOH	HER/10; OER/10; OWS/10	200mV;270mV;1.5V	16
Fe ₃ S ₄ -Fe ₇ Se ₈ @C iron pyrite	1M KOH	HER/10; OER/20; OWS/10	124mV;219mV;1.67V	17
	1M KOH	HER/10; OER/100; OWS/10	150mV;326mV;1.567V	18
CoP@FeCoP/NC	1M KOH	HER/10; OER/10; OWS/10	141mV;238mV;1.68V	19
CoP/PNC	1M KOH	HER/10; OER/10; OWS/10	165mV;300mV;1.68V	20
FeS ₂ @MXene	1M KOH	HER/10; OER/10; OWS/10	87mV;240mV;1.57V	21
Cobalt-Incorporated Copper Sulfide/NF	1M KOH	HER/10; OER/10; OWS/10	164mV;240mV;1.58V	22
Vs-Co ₃ S ₄ @NF	1M KOH	HER/10; OER/100; OWS/20	45mV;245mV;1.53V	23
Cu _x O@NiO-MoO ₂ NRs	1M KOH	HER/10; OER/50; OWS/10	65mV;321mV;1.54V	24
P@Mn ₁ Co ₃ -BDC(NH ₂)/NF	1M KOH	HER/10; OER/10; OWS/10	102mV;310mV;1.69V	25
CuCo ₂ O ₄ /CoOOH	1M KOH	HER/10; OER/20; OWS/10	125mV;217mV;1.583V	26
CoFeLDH/SN	1M KOH	HER/10; OER/10; OWS/10	63mV;208mV;1.52V	27
HEA/JMPA-NPs	1M KOH	HER/10; OER/20; OWS/100	85mV;314mV;1.75V	28
FMO/NF	1M KOH	HER/100; OER/100; OWS/100	263mV;278mV;1.87V	29
Mn-CoP/Co ₂ P	1M KOH	HER/10; OER/10; OWS/10	82mV;309mV;1.67V	30
NiCoVO _x @NF	1M KOH	HER/10; OER/50; OWS/10	107mV;217mV;1.56V	31
CoP@NSPC	1M KOH	HER/10; OER/10; OWS/10	160mV;198mV;1.125V	32
NiCo ₂ S ₄ @NiMoO ₄ /NF	1M KOH	HER/100; OER/100; OWS/10	197mV;285mV;1.46V	33
N-doped CoFeS/CF	1M KOH	HER/10; OER/10; OWS/10	160mV;198mV;1.125V	

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