Supporting information

3D amorphous NiFe LDH nanosheets electrodeposited on NiCoP@NC in-situ grown on nickel foam for remarkably enhanced OER electrocatalytic performance

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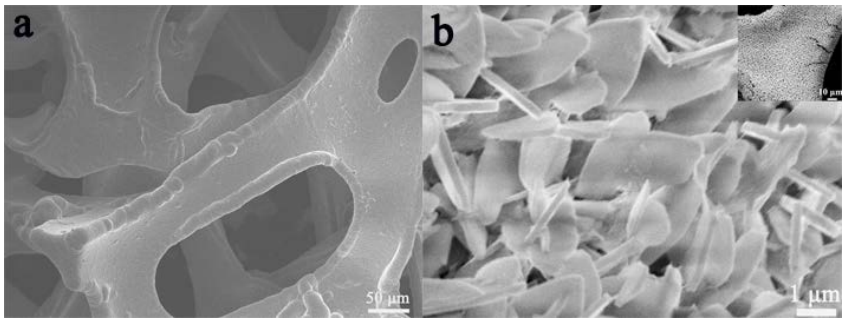

Figure S1.SEM images (a) bare Ni Foam and (b) ZIF-67/NF

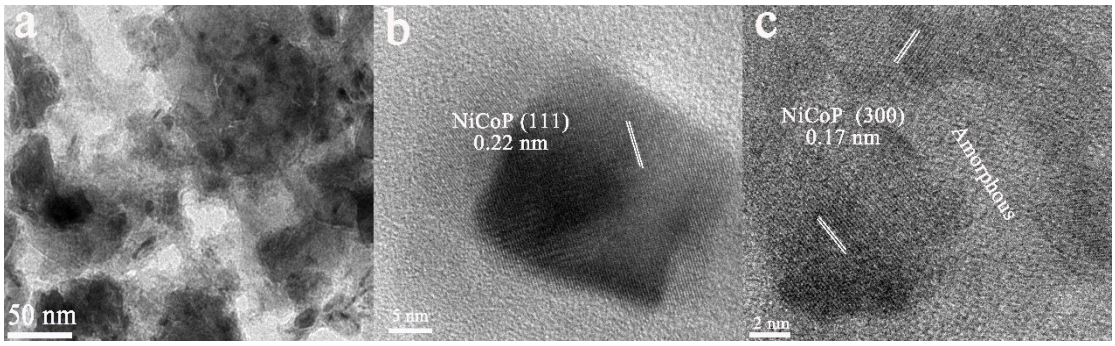

Figure S2.TEM images (a) and (b) (c) HRTEM images of NiCoP@NC.

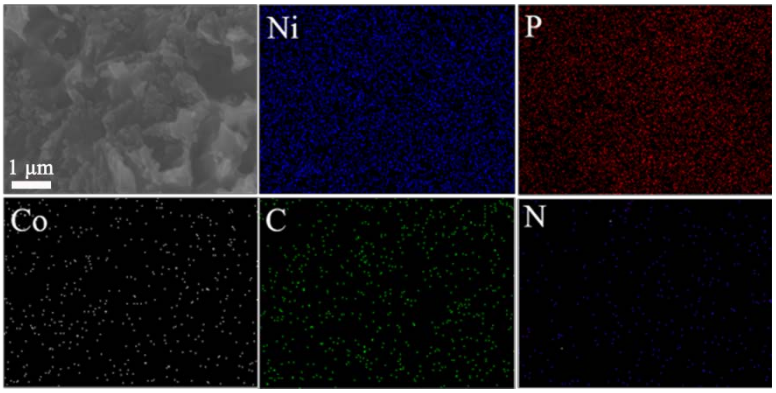

Figure S3.SEM elemental mapping images of NiCoP@NC/NF

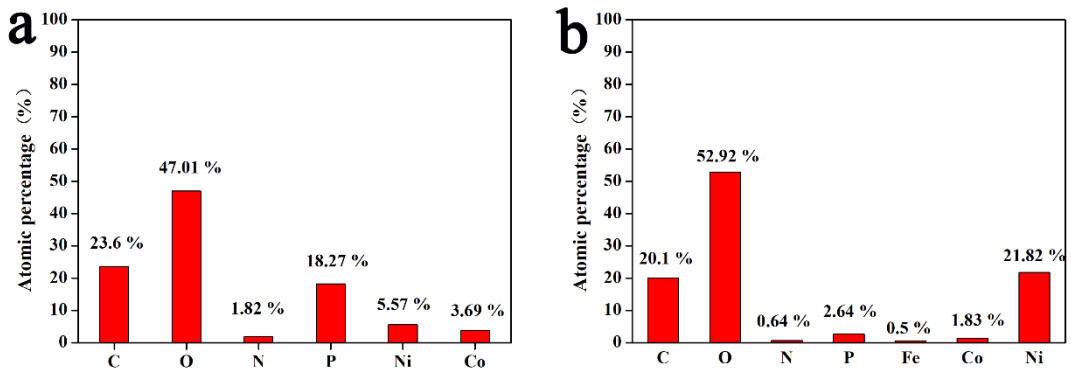

Figure S4. Surface atomic relative contents of NiCoP@NC/NF (a), and NiFe LDH/NiCoP@NC/NF (b) based on the XPS measurement.

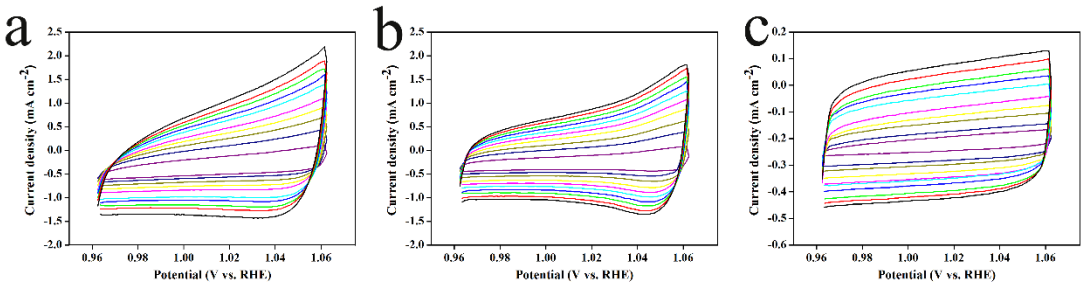

Figure S5. Cyclic voltammograms of (a) NiFe LDH/NiCoP@NC/NF, (b) NiCoP@NC/NF, and (c) pure NiFe LDH at scan rates ranging from 10 mV s^{-1} to 100 mV s^{-1}. The scanning potential range is from 0.96 V to 1.06 V vs RHE.

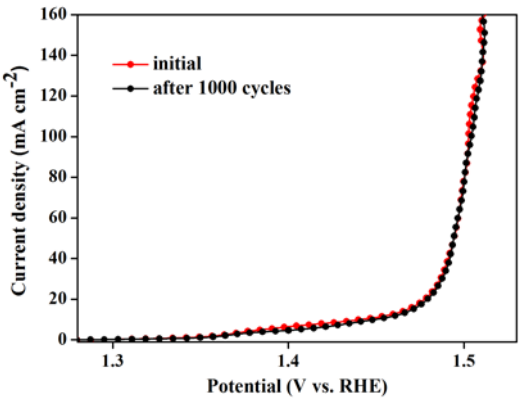

Figure S6. LSV polarization curves of the NiFe LDH/NiCoP@NC/NF catalyst before and after 1000 cycles at scan rate of 100 mV s^{-1} in 1 M KOH.

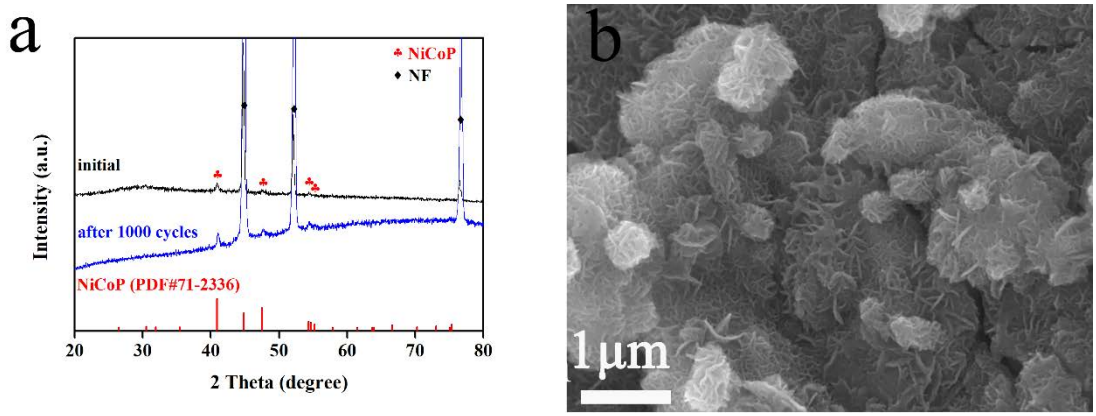

Figure S7. XRD pattern and SEM image of NiFe LDH/NiCoP@NC/NF after 1000 cycles at scan rate of 100 mV s^{-1} in 1 M KOH

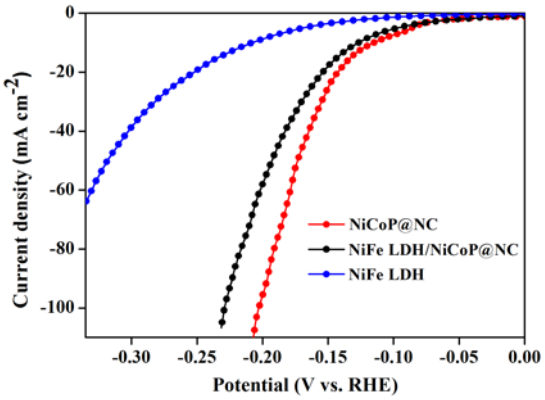

Figure S8. Polarization curves for HER in 1.0M KOH of NiFe LDH/ NiCoP@NC/NF, NiCoP@NC/NF, and pure NiFe LDH/NF

Table S1. Comparison of the OER performance for the NiFe LDH/NiCoP@NC catalyst with otherreported OER electrocatalysts in 1 M alkaline media.

Catalyst	η_{10} (mV)	Tafel slope (mV dec^{-1})	Voltage (V)@j_{10}//cathode	Stability test	Reference
NiFeLDH/NiCoP@NC /NF	210	35	1.54//NiCoP@NC/NF	40h	This work
NiFe LDH/CNT	247	31	-	1h	1
NiCoFe LDH nanoplates	340	93	-	15h	2
Porous NiCoFe LDH	239	32	1.55//NiCoFe	18h	3

nanosheets			LDH/CFC		
rGO/Ni2P/NiOOH	283	43.6	-	30	4
NiFe LDH/NiFe phosphate	290	38	-	10h	5
FeNi-P/NF	224	72	1.57		6
CoNi LDH/CoO	300	123	-	36h	7
CoCo LDH/$CoSe_x$	290	70	-	36 h	8
$Ni_{0.8}Co_{0.1}Fe_{0.1}O_xH_y$	239	45.4	1.58//$Ni_{0.9}Co_{0.1}O_xH_y$	50 h	9
CoS_x/Ni_3S_2	280	92	1.57//CoS_x/Ni_3S_2	35 h	10
NiCoPArrays	268	71	1.57//NiCoP Arrays	20 h	11

Reference

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