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Supporting Information

A moderate method for in-situ growing Fe-based LDHs on Ni foam for catalyzing the oxygen evolution reaction

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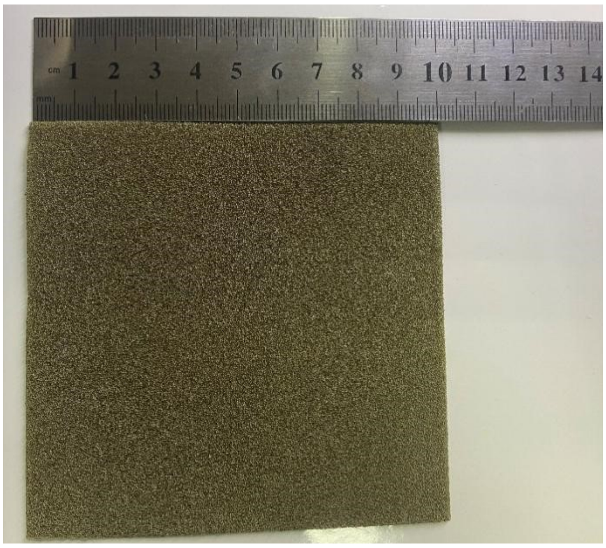

Fig. S1. Digital photograph of NiFe-LDH@NF.

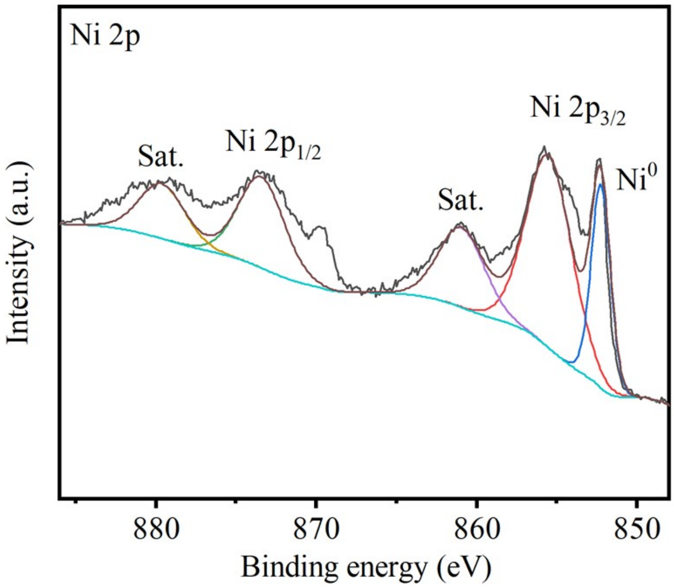

Fig. S2. Ni 2p X-ray photoelectron spectroscopy (XPS) spectra of NF.

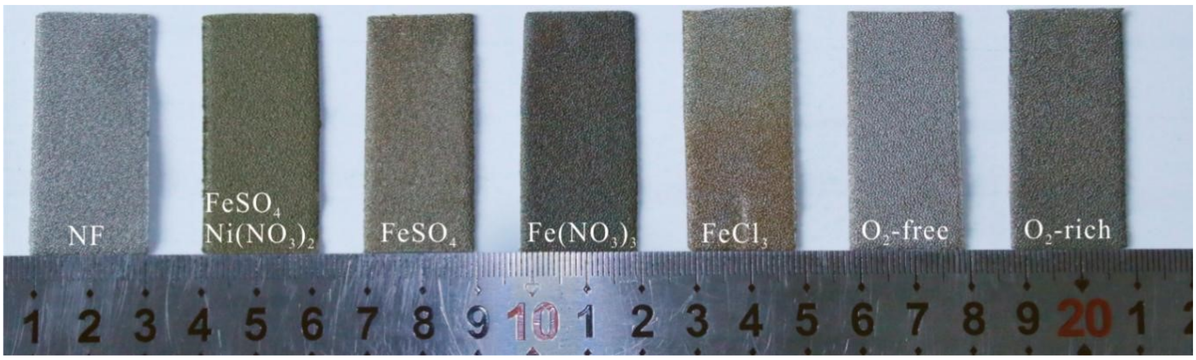

Fig. S3. The digital photographs of bare NF and NF treated by immersion in $FeSO_4$/ $Ni(NO_3)_2$, $FeSO_4$, $Fe(NO_3)_3$, $FeCl_3$, O_2-free and O_2-rich $FeSO_4$/ $Ni(NO_3)_2$ solution.

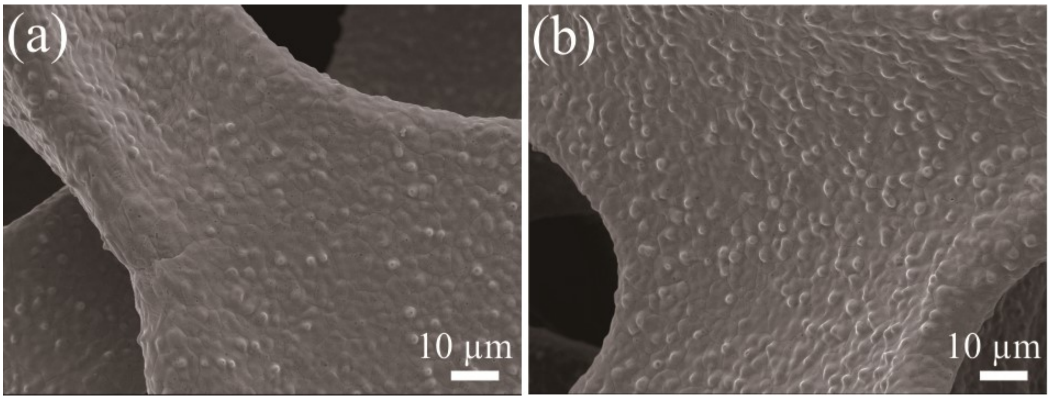

Fig. S4. SEM images of nickel foam in (a) $Ni(CH_3COO)_2$, (b) $NiCl_2$.

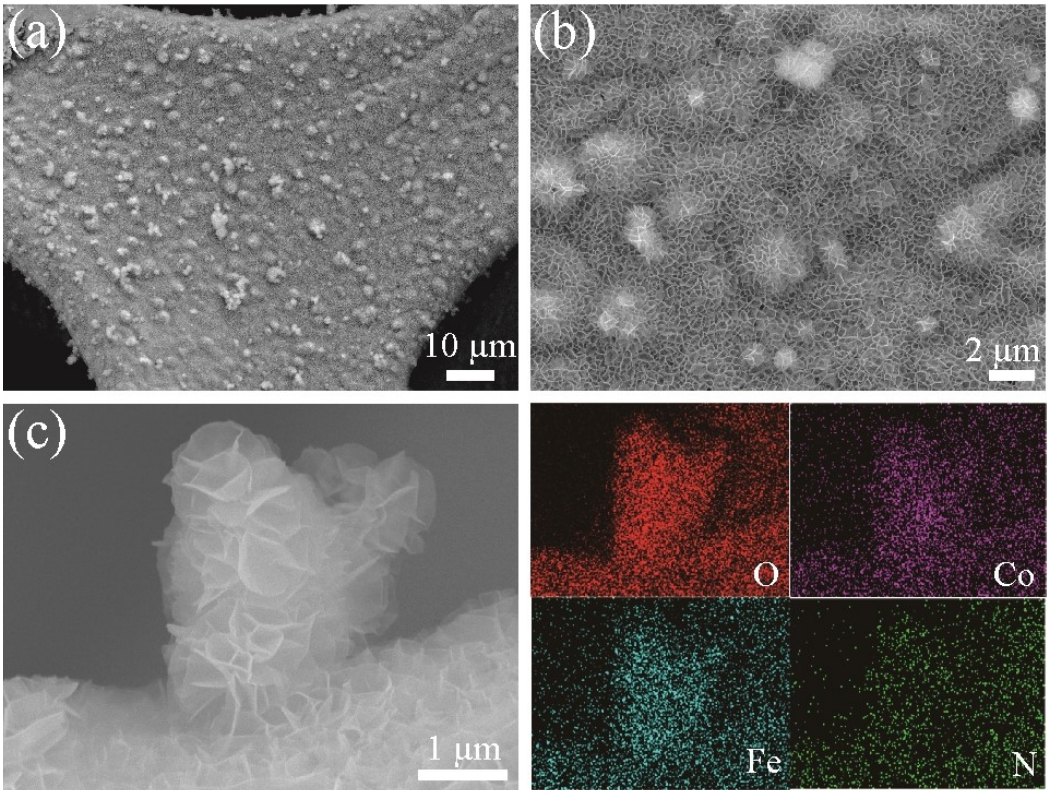

Fig. S5. SEM-EDS spectra of CoFe-LDH@NF.

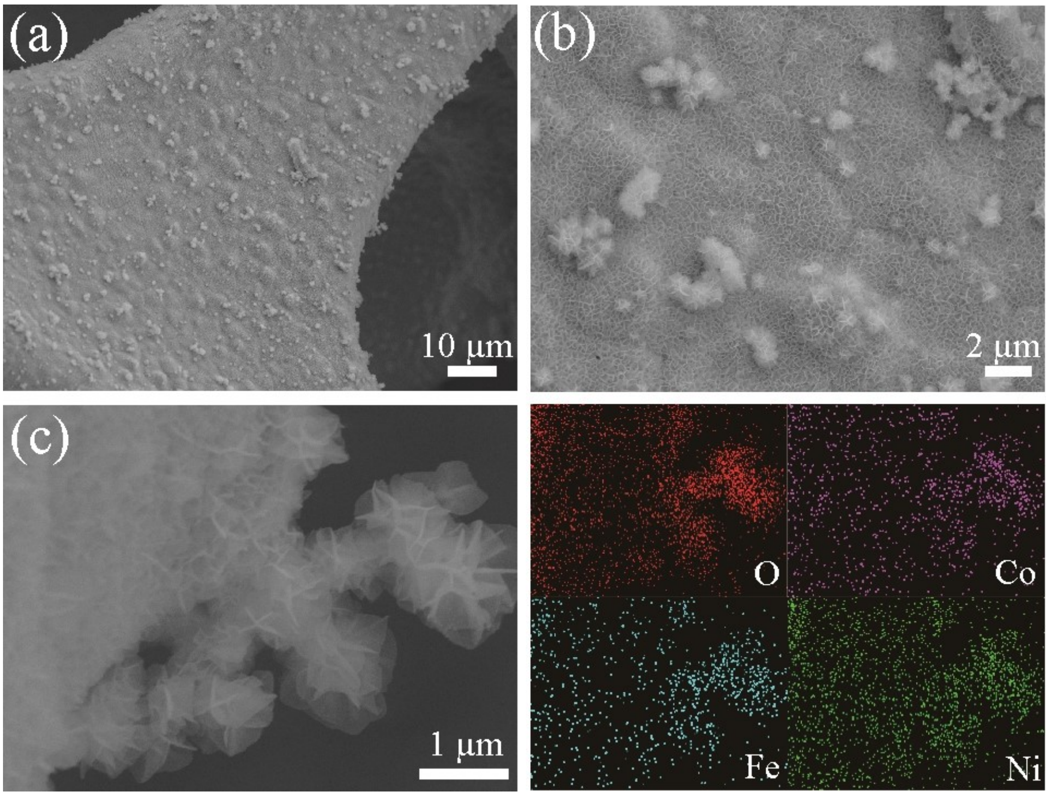

Fig. S6. SEM-EDS spectra of NiCoFe-LDH@NF.

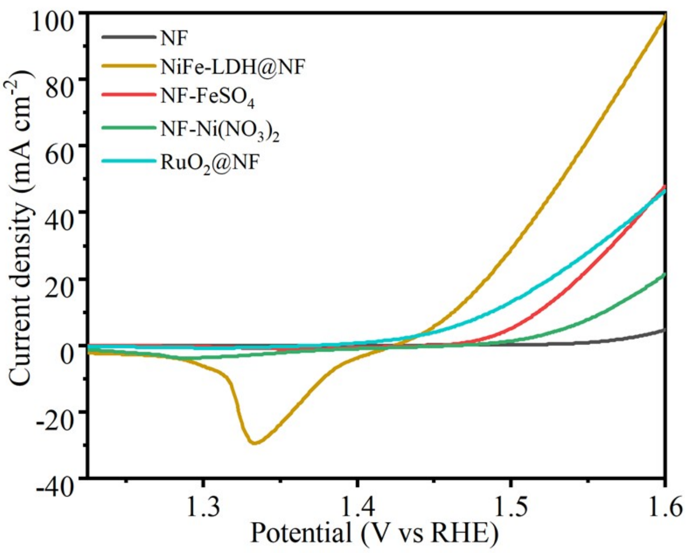

Fig. S7. The LSV curves for OER without iR compensation.

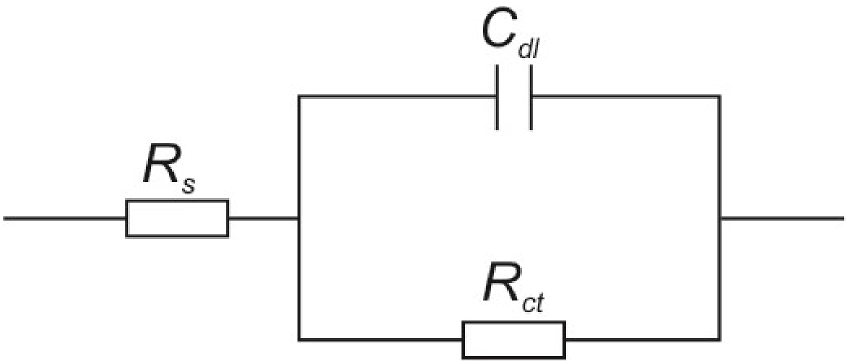

Fig. S8. EIS equivalent circuit diagram.

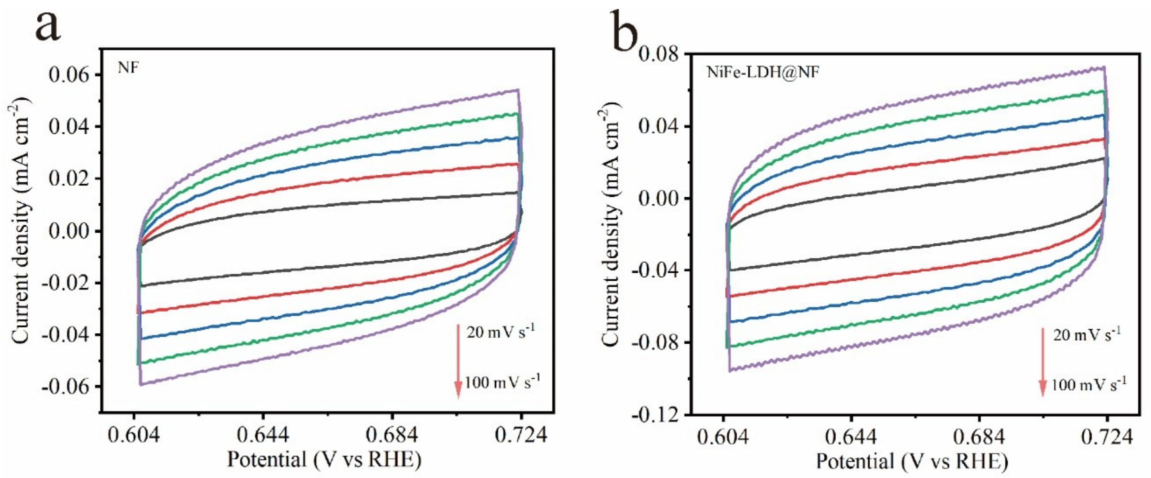

Fig. S9. CV curves of (a) NF, (b) NiFe-LDH@NF with different scan rates (20-100 mV s^{-1}) in 1 M KOH.

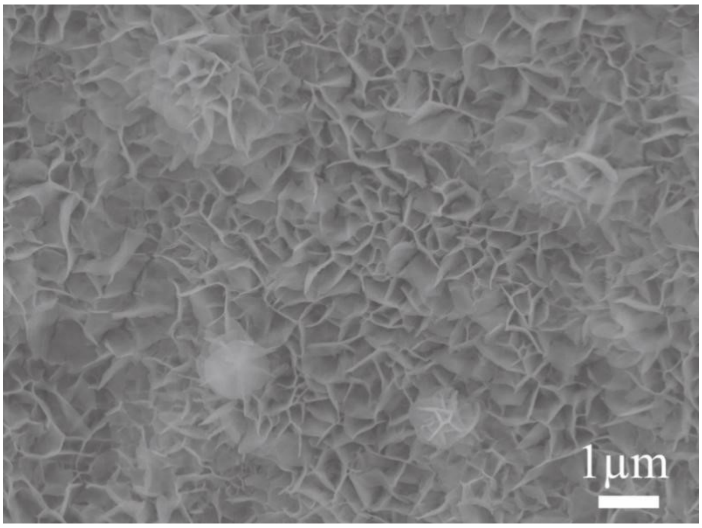

Fig. S10. SEM images of NiFe-LDH@NF after long-term testing.

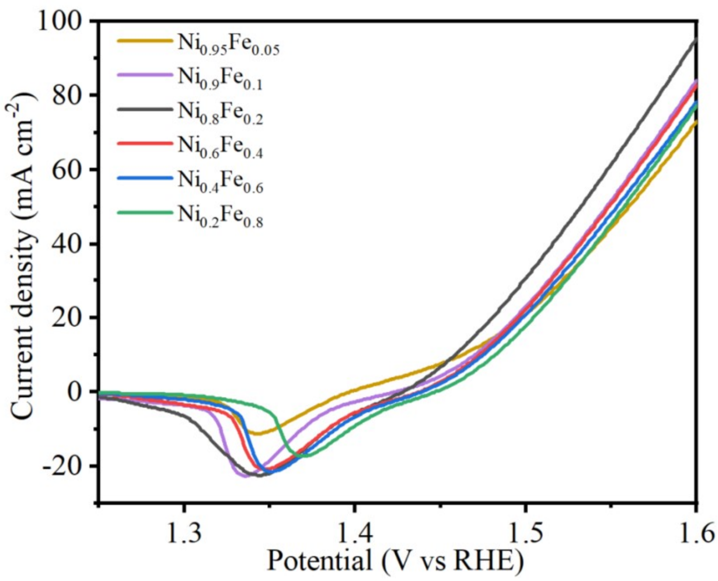

Fig. S11. The OER activities of NiFe-LDH@NF prepared in solutions with different Ni/Fe molar ratio

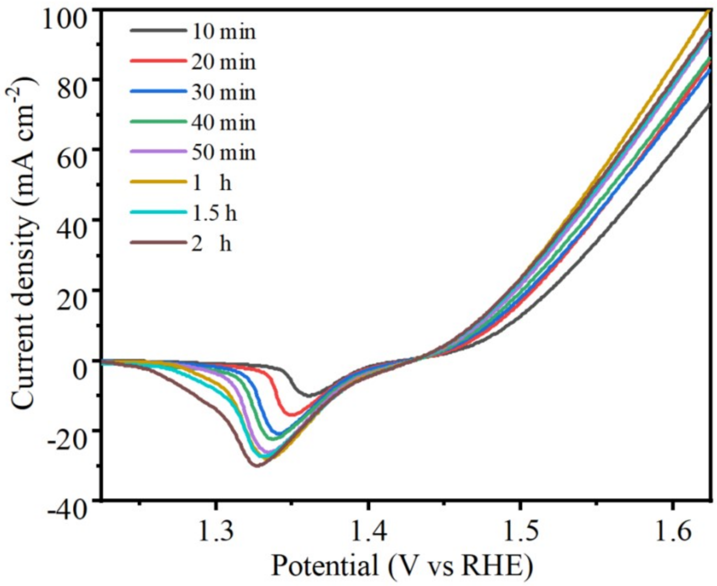

Fig. S12. The OER activities of different periods of NiFe-LDH@NF.

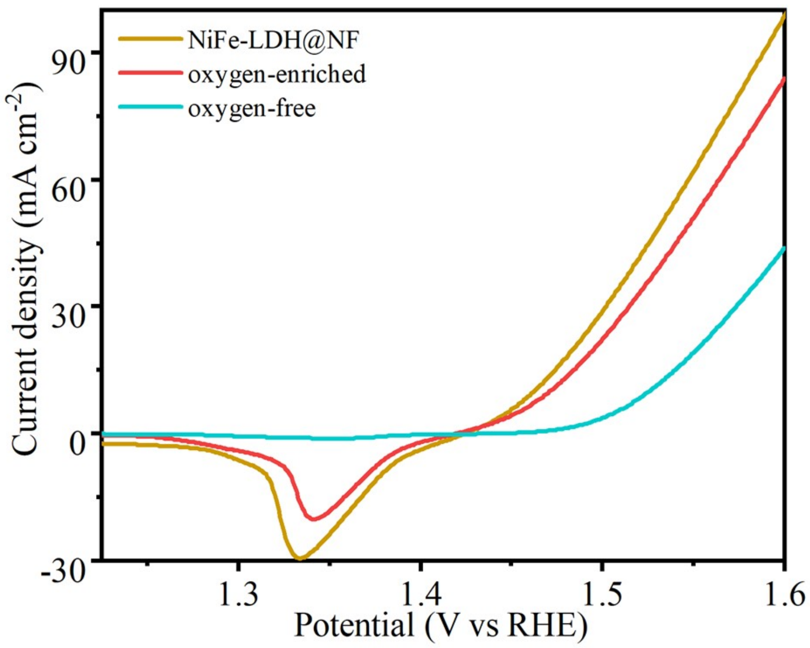

Fig. S13. The OER activities of NiFe-LDH@NF prepared in oxygen-enriched and oxygen-free Fe/Ni solutions.

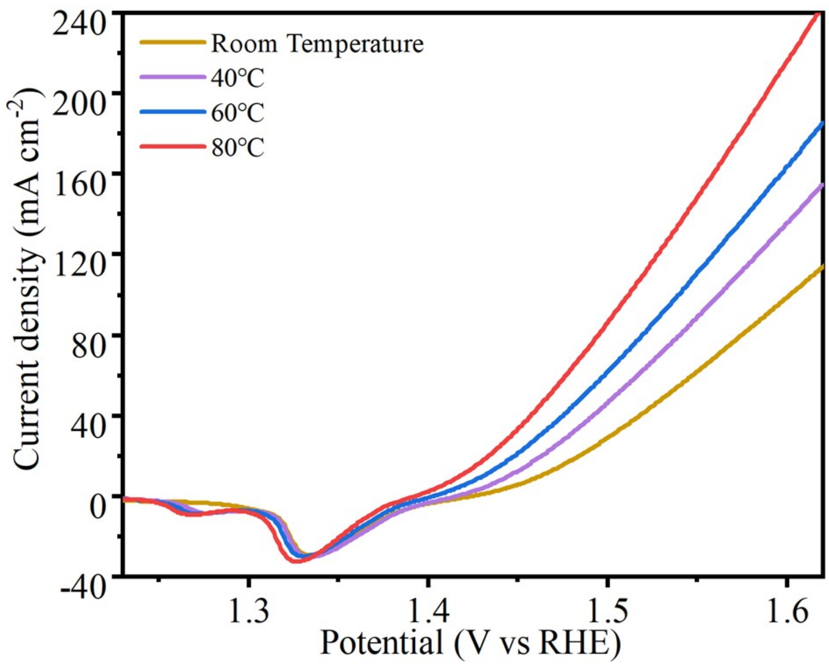

Fig. S14. OER electrocatalytic properties of different temperatures of NiFe-LDH@NF.

Table S1. Comparison of OER activity data for various catalysts.

Materials	$OER_{\eta 10}$ (mV)	$OER_{\eta 100}$ (mV)	Ref.
NiFe-LDH@NF	206	239	This Work
NiFeCe-LDH@CP	232	267	[1]
NiFeCo-LDH	249	*	[2]
NiFe-CuCoLDH	212	262	[3]
NiFeLDH/C on NF	210	*	[4]

ex-Ir-$Ni(OH)_2$	270	*	5
NiCo-LDH-10min	250	*	6
NiFe@TiO_{2-x}	*	300	7
$Ni_3Fe_{0.9}Cr_{0.1}$/CACC	239	302	8
S-FeOOH/IF	244	308	9
MoNiFe-27% (oxy)hydroxide	242	290	10
NiCoP@NiMnLDH/NF	*	293	11
Ni_3S_2@$FeNi_2S_4$@NF	235	379	12
FeIr/NF	220	*	13

Marked: CP, carbon paper; CACC, CO_2-Activated carbon cloth; IF, iron foam.

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