Supporting Information

Construction of an Advanced MoS_2/MoO_3/NiFe-LDH/NF Heterostructure Catalyst toward Boosting Efficient Alkaline Oxygen Evolution Reaction

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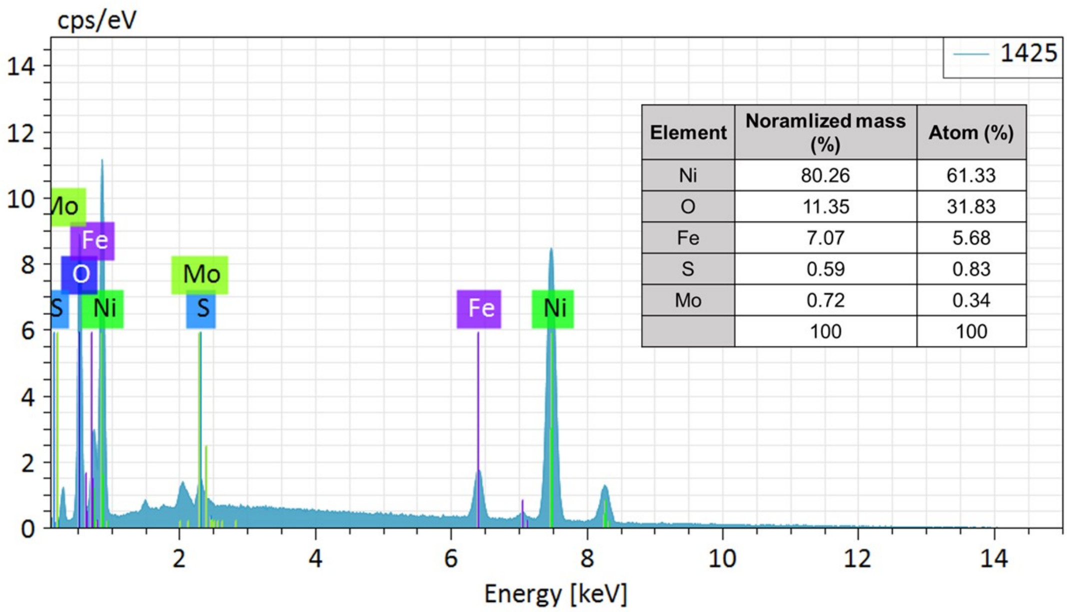
1.Supplementary Figures



Element	Noramlized mass (%)	Atom (%)
Ni	80.26	61.33
O	11.35	31.83
Fe	7.07	5.68
S	0.59	0.83
Mo	0.72	0.34
	100	100

Figure S1 EDS test results of MoS_2/MoO_3/NiFe-LDH/NF.

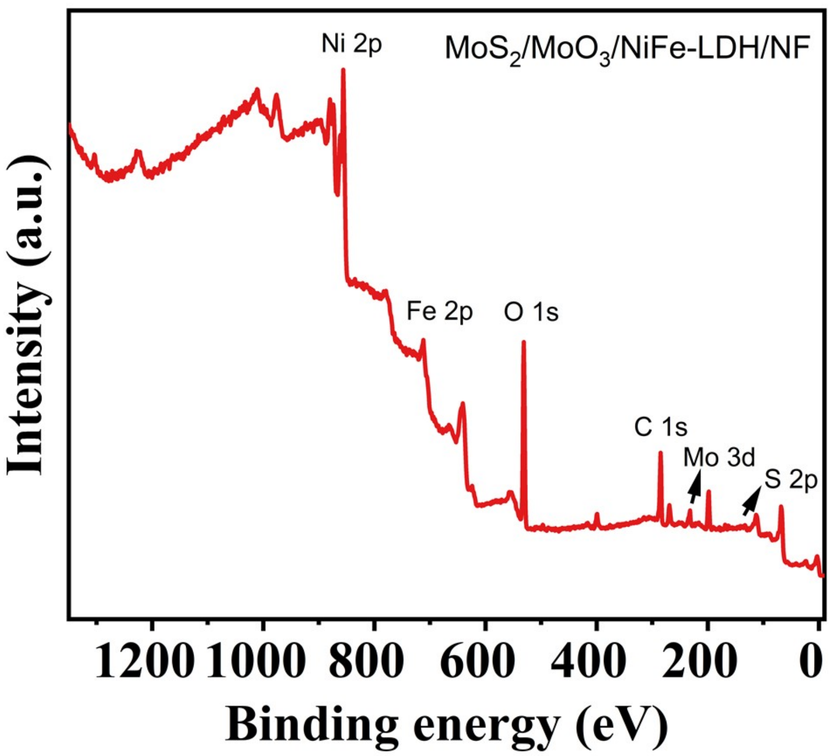


Figure S2 High-resolution XPS full spectrum of MoS_2/MoO_3/NiFe-LDH/NF.

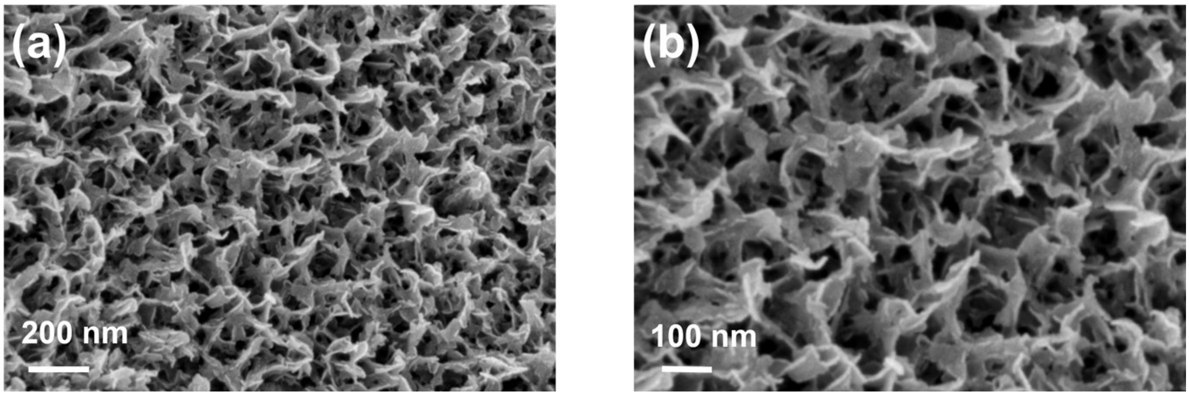


Figure S3 SEM images of MoS_2/MoO_3/NiFe-LDH/NF after durability test.

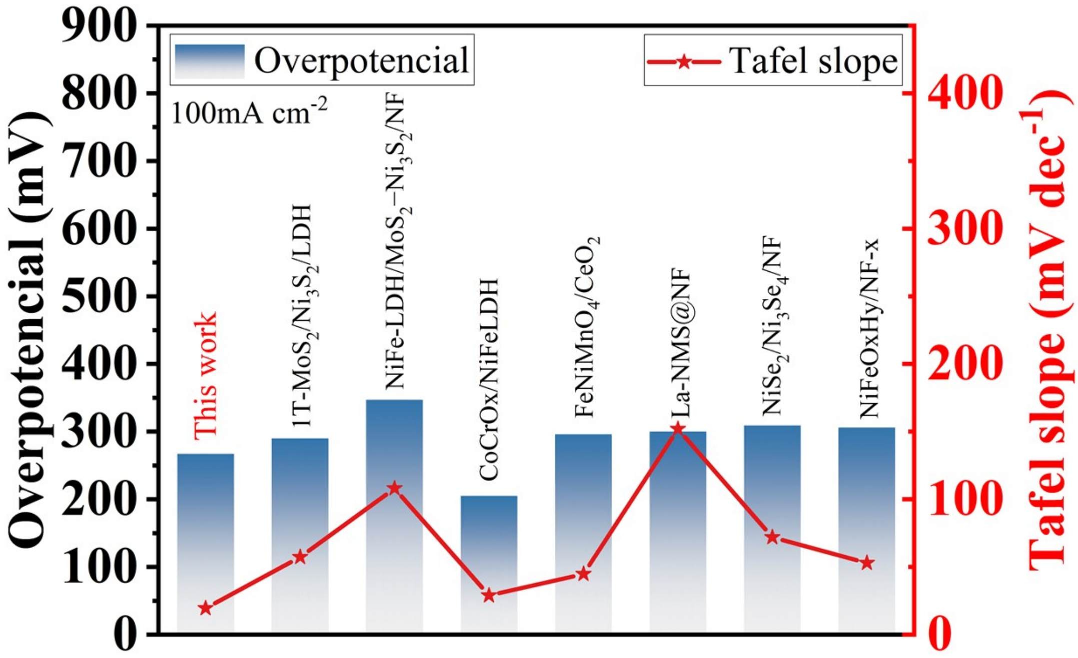


Figure S4 The comparison of OER performance for some representative non-noble. electrocatalysts.

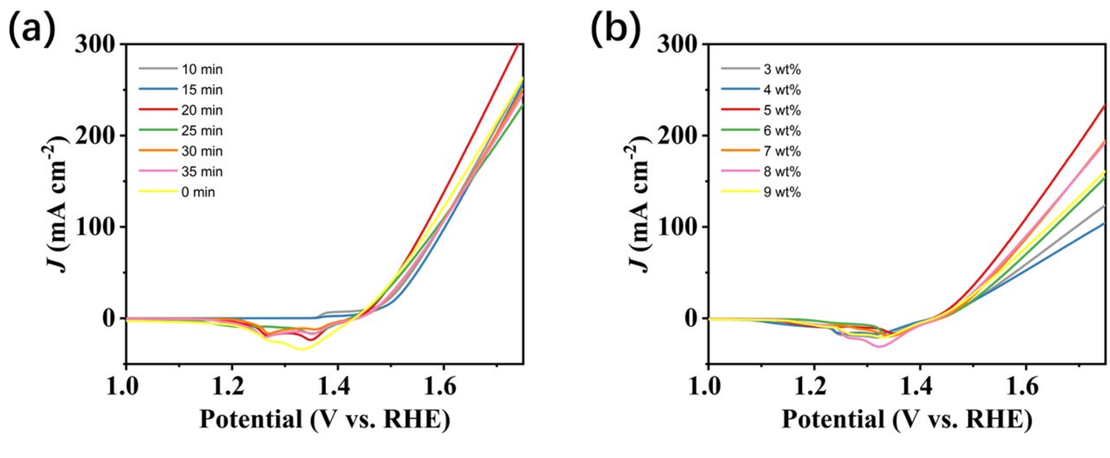


Figure S5 Control experiments using different time and different volumes of H_2O_2.

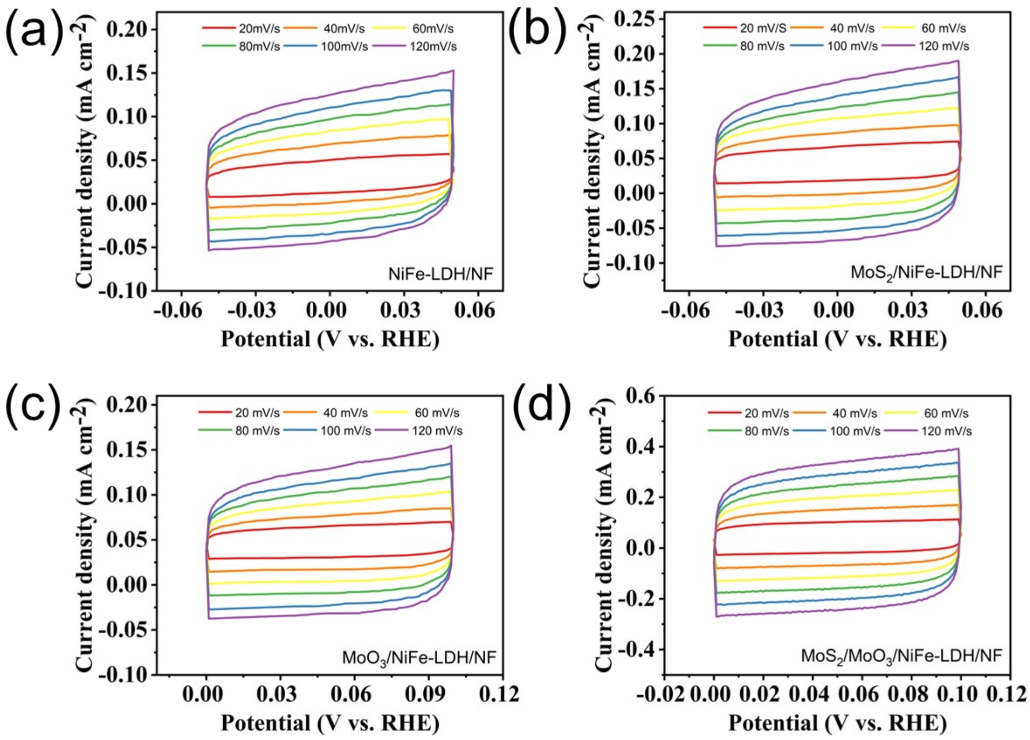


Figure S6 CV curves of (a) NiFe-LDH/NF, (b) MoS_2/ NiFe-LDH/NF, (c) MoO_3/NiFe-LDH/NF and (d) MoS_2/MoO_3/NiFe-LDH/NF for the OER reaction at different scan rates.

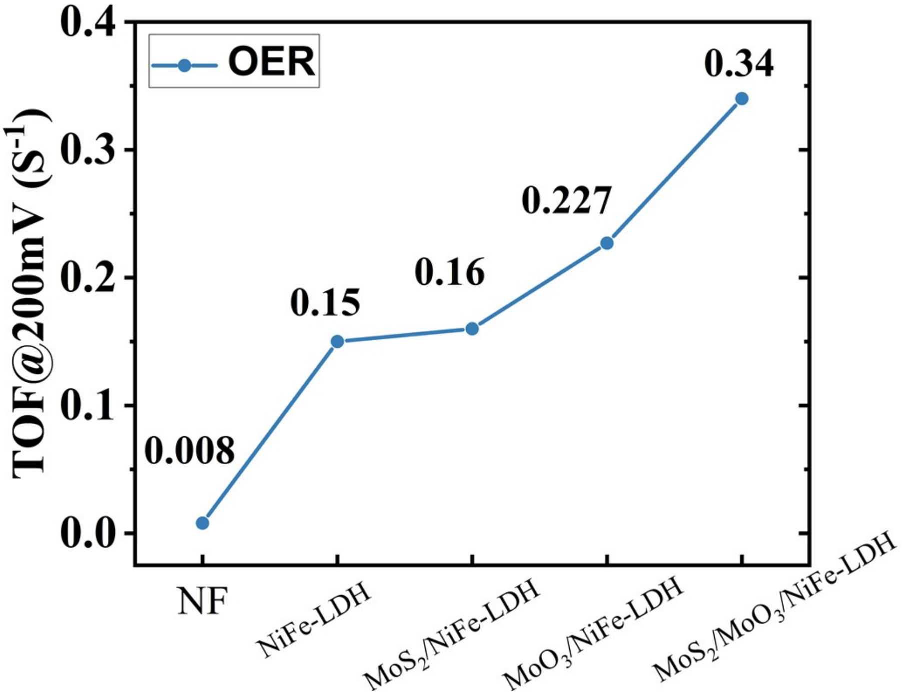


Figure S7 The corresponding turnover frequency at an overpotential of 200 mV.

2. Supplementary Tables

Table S1 Comparison of electrocatalytic performance for OER to other reported catalysts in 1.0 M KOH.

Catalysts	**J (mA cm^{-2})**	**η mV (vs.RHE)**	**Tafel slope (mV dec^{-1})**	**Electrolyte**	**reference**
MoS_2/MoO_3/NiFe-LDH/NF	**50** **100**	**255** **267**	**19.4**	**1.0M KOH**	**This work**
1T-MoS_2/Ni_3S_2/LDH	100	290	57.3	1.0M KOH	[1]
NiFe-LDH/MoS_2–Ni_3S_2/NF	100	347	108	1.0M KOH	[2]
CoCrOx/NiFeLDH	100	205	28.9	1.0M KOH	[3]
$FeNiMnO_4/CeO_2$	100	296	44.8	1.0M KOH	[4]
La-NMS@NF	100	300	152	1.0M KOH	[5]
$NiSe_2/Ni_3Se_4$/NF	100	309	71.9	1.0 M KOH	[6]
NiFeOxHy/NF-x	100	306	53	1.0 M KOH	[7]

3. Notes and references

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