

Supporting Information

Construction of hierarchical NiFe layered double hydroxide with 3D mesoporous structure as advanced electrocatalyst for water oxidation

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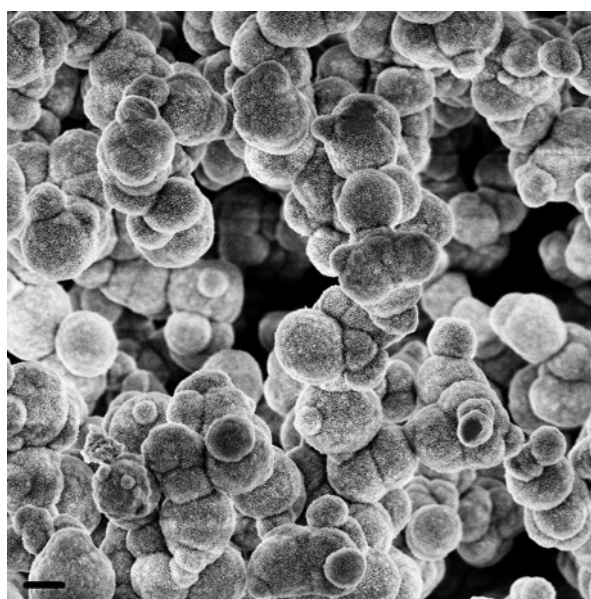


Figure S1. SEM images of Ni(OH)₂. Scale bar: 2 μ m.

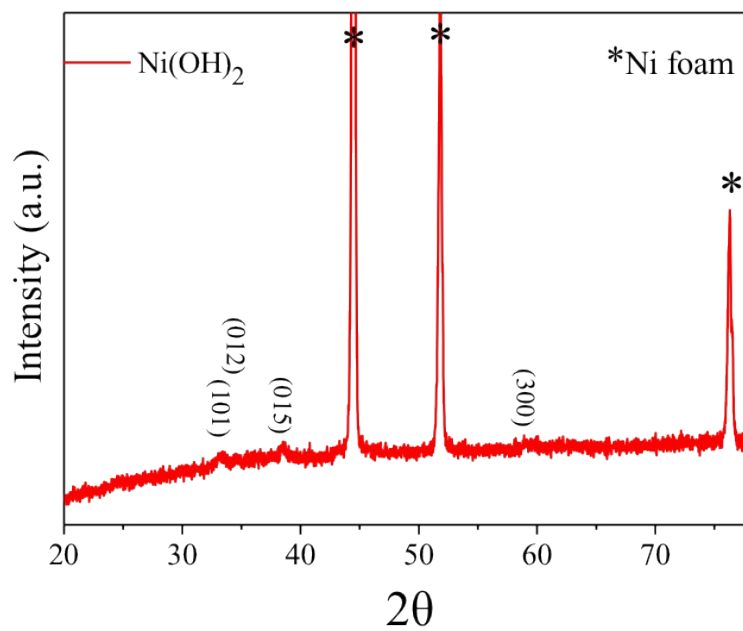


Figure S2. XRD pattern for Ni(OH)_2

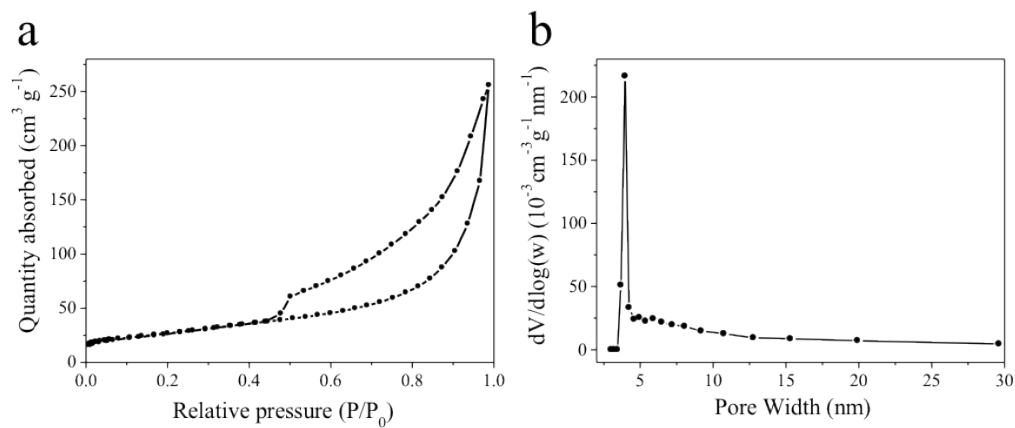


Figure S3. (a) N_2 adsorption-desorption isotherm and (b) pore size distribution (BJH model) of NiFe LDH

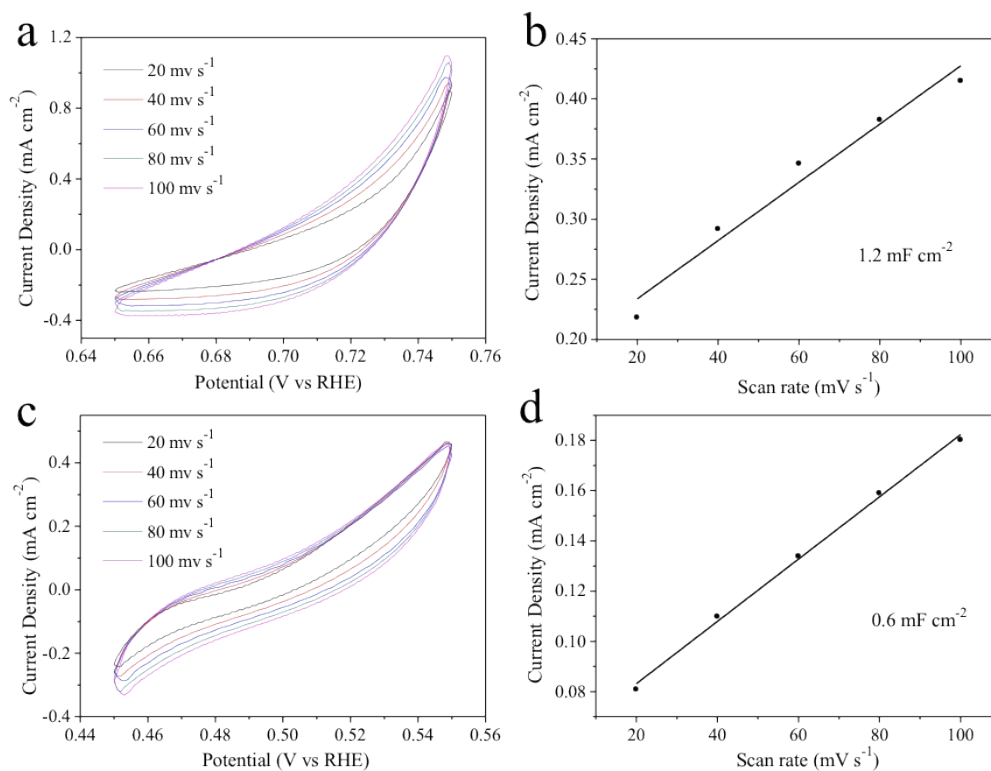


Figure S4. Cyclic voltammetry (CV) curves of (a) NiFe LDH and (c) Ni(OH)₂ tested at various scan rates from 20 to 100 mV s^{-1} . Scan rate dependence of the current densities of (b) NiFe LDH and (d) Ni(OH)₂ at 0.7 V and 0.6 V (vs RHE), respectively.

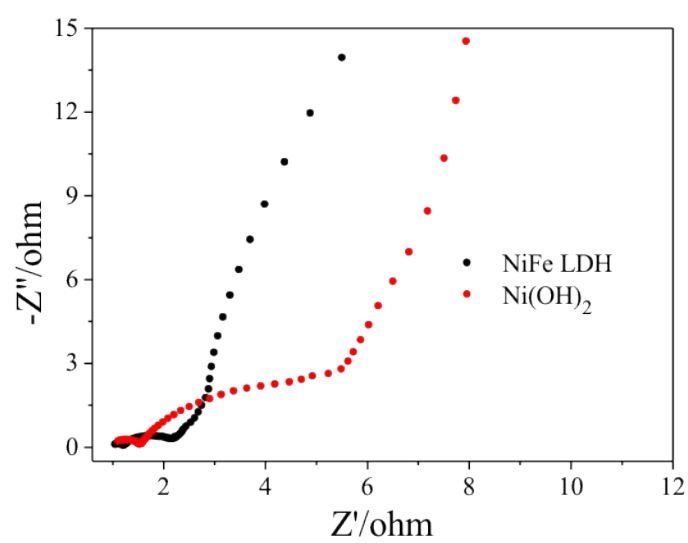


Figure S5. EIS spectra of NiFe LDH and Ni(OH)₂.

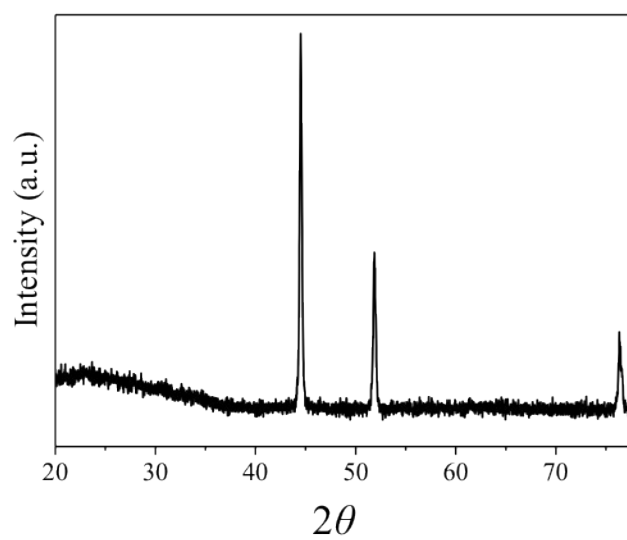


Figure S6. XRD pattern for NiFe LDH after OER.

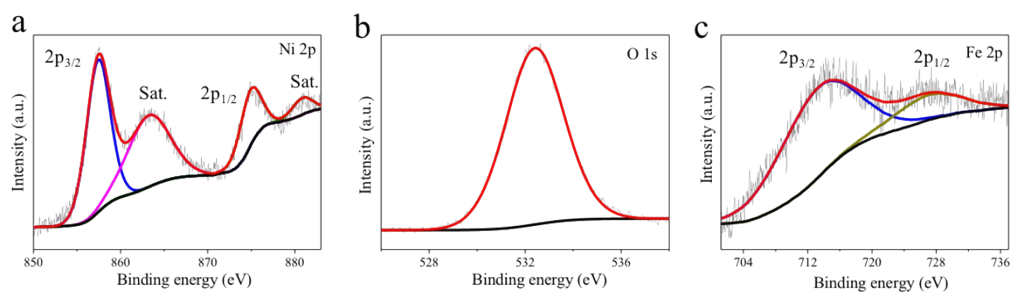


Figure S7. XPS spectra in the (a) Ni 2p, (b) O 1s and (c) Fe 2p region of NiFe LDH after OER.

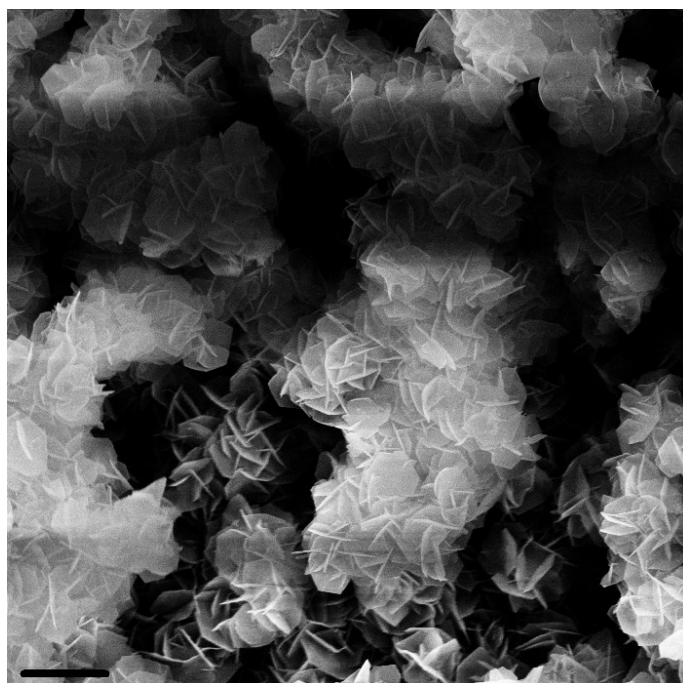


Figure S8. SEM of NiFe LDH after OER. Scale bar: 1 μm .

Table S1 The comparison of electrocatalytic activities toward OER in 1 M KOH of
NiFe LDH with other reported materials

Materials	Current Density (mA cm ⁻²)	Support of testing	Overpotential (mV)	Tafel slope (mV dec ⁻¹)	Reference
	10		211		
	20		223		
NiFe LDH	50	Ni foam	248	42	This work
	100		283		
	200		343		
NiFe-LDH	10	Ni foam	224	53	1
	10		265		
NCNT/CoAl LDH		Ni foam		69	2
	50		368		
NiFeMn-LDH	20	Carbon fiber paper	289	47	3
NiFeCr LDH	10	Carbon paper	280	130	4
Fe-NiSe/NF	10	Ni foam	233	48	5
Co(S _{0.71} Se _{0.29}) ₂	10	Ni foam	283	86	6
MoO _x /Ni ₃ S ₂ /NF	200	Ni foam	373	90	7
Ni _x Co _{3-x} S ₄ /Ni ₃ S ₂ /NF	100	Ni foam	320	95	8
N-NiFe LDH	10	Ni foam	230	35	9
Ni ₃ N-NiMoN	10	Carbon cloth	277	118	10
Co-Ni-B@NF	50	Ni foam	535	120	11
NC-FeCoNiMn ₄	10	Ti mesh	340		12
NiFe LDH/NiCo ₂ O ₄ /NF	50	Ni foam	290	53	13

$(\text{Ni}_{0.51}\text{Co}_{0.49})_2\text{P}$	10	Ni foam	239	45	14
$(\text{Co}_{0.52}\text{Fe}_{0.48})_2\text{P}$	10		270	30	15

References

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