

Supporting Information

Anchoring Ce-Modified Ni(OH)₂ Nanoparticles on Ni-MOF Nanosheets Enhance the Oxygen Evolution Performance

Dongying Liu^{a,c}, Zhifeng Zhao^c, Zhikun Xu^{a,b,*}, Lin Li^{a,*}, Shuangyan Lin^{a,c,*}

^a *Key Laboratory for Photonic and Electronic Bandgap Materials, Ministry of Education, School of Physics and Electronic Engineering, Harbin Normal University, Harbin 150025, PR China*

^b *School of Science, Guangdong University of Petrochemical Technology, Maoming, Guangdong 525000, PR China*

^c *School of Chemistry, Guangdong University of Petrochemical Technology, Maoming, Guangdong 525000, PR China*

*Corresponding author.

E-mail address: xuzhikunnano@163.com (Xu Z.); linshyan123@163.com (Lin S.)

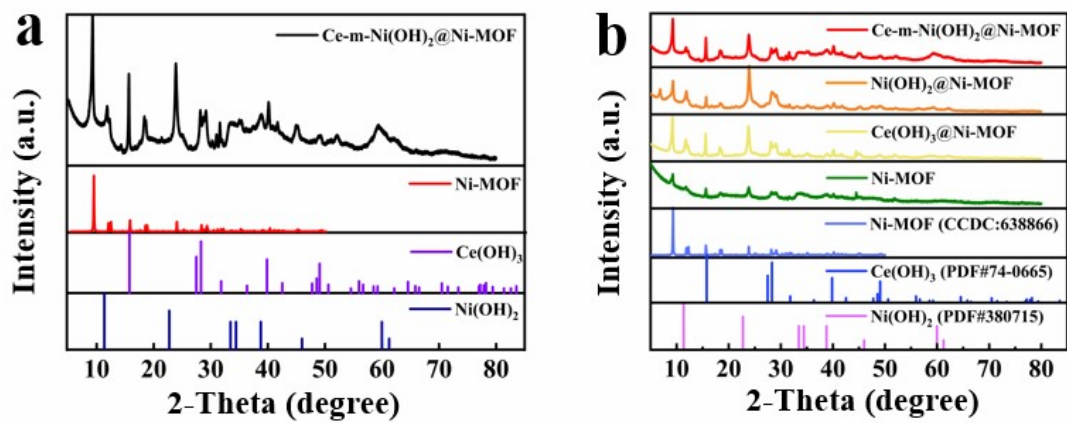


Figure S1. XRD patterns of a) Ce-m-Ni(OH)₂@Ni-MOF, b) Ni(OH)₂@Ni-MOF, Ce(OH)₃@Ni-MOF and Ni-MOF.

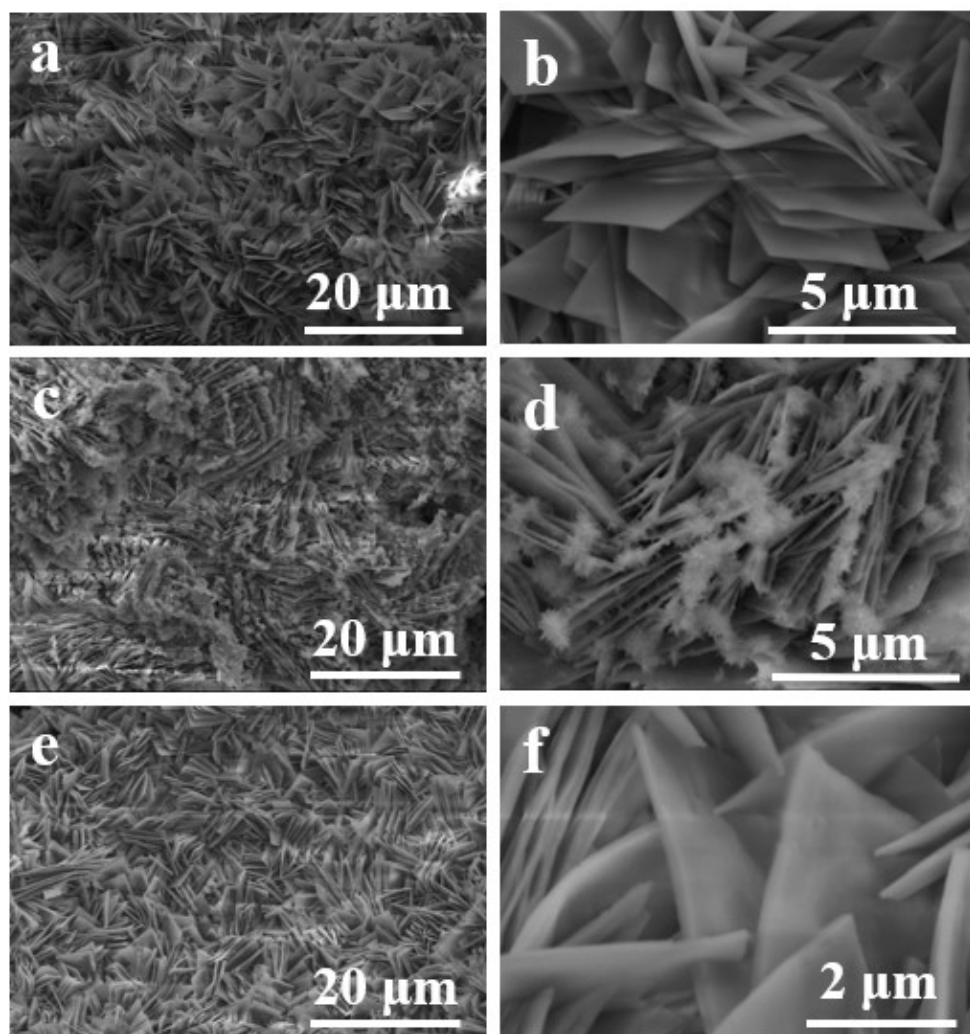


Figure S2. SEM images of a-b) Ni-MOF, c-d) Ce(OH)₃@Ni-MOF, e-f) Ni(OH)₂@Ni-MOF.

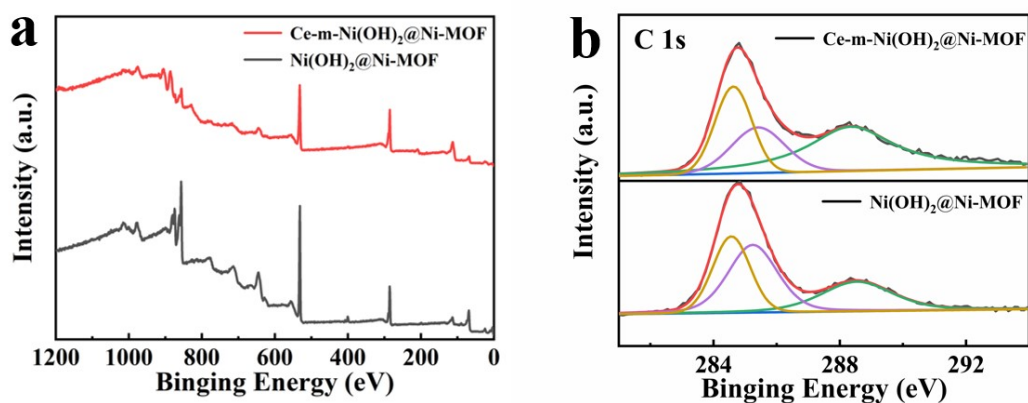


Figure S3. a) Full spectrum of Ce-m-Ni(OH)₂@Ni-MOF and Ni(OH)₂@Ni-MOF electrodes. b) High-resolution XPS spectra of C 1s for Ce-m-Ni(OH)₂@Ni-MOF and Ni(OH)₂@Ni-MOF.

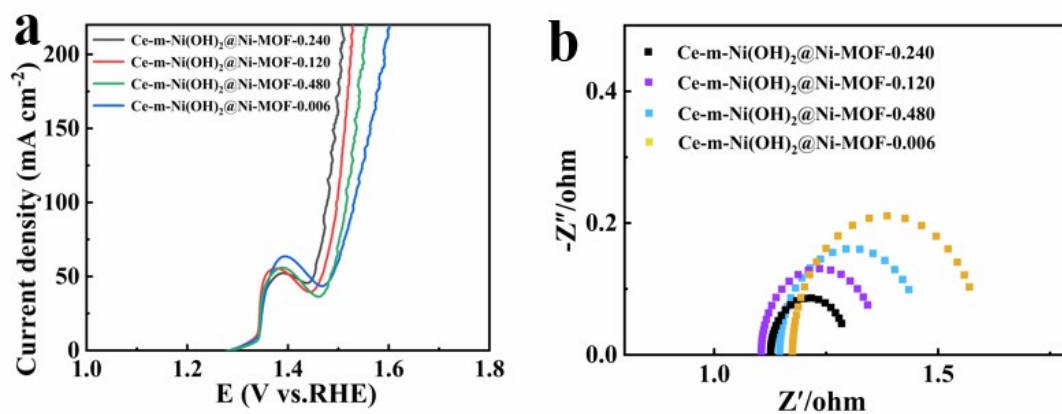


Figure S4. a) LSV polarization curves and b) electrochemical impedance spectroscopy (EIS) of Ce-m-Ni(OH)₂@Ni-MOF-0.240, Ce-m-Ni(OH)₂@Ni-MOF-0.120, Ce-m-Ni(OH)₂@Ni-MOF-0.480 and Ce-m-Ni(OH)₂@Ni-MOF-0.006.

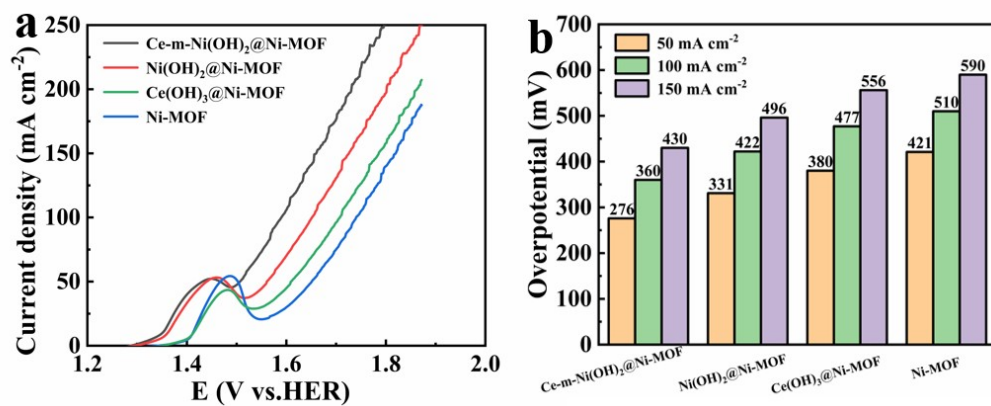


Figure S5. Polarization curves without IR compensation and overpotentials at 50, 100, and 150 mA cm^{-2} for Ce-m-Ni(OH)₂@Ni-MOF, Ni(OH)₂@Ni-MOF, Ce(OH)₃@Ni-MOF and Ni-MOF electrodes.

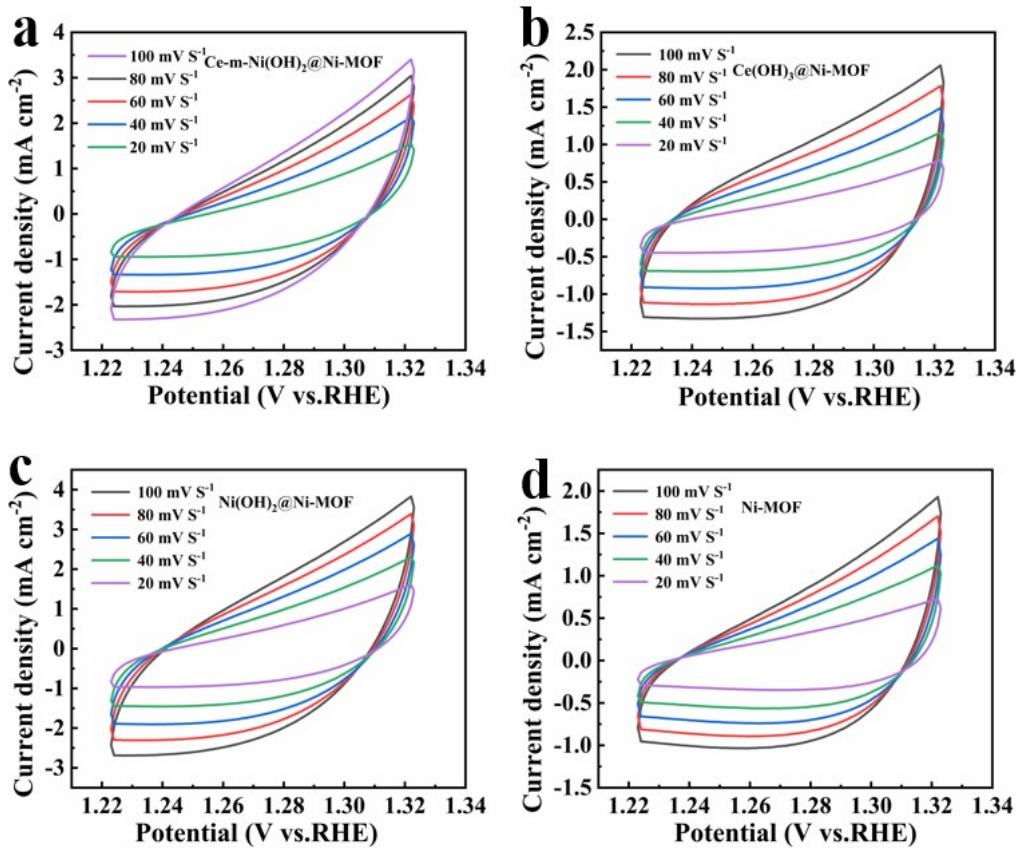


Figure S6. Cyclic voltammetry curves of a) Ce-m-Ni(OH)₂@Ni-MOF, b) Ce(OH)₃@Ni-MOF, c) Ni(OH)₂@Ni-MOF, and d) Ni-MOF.

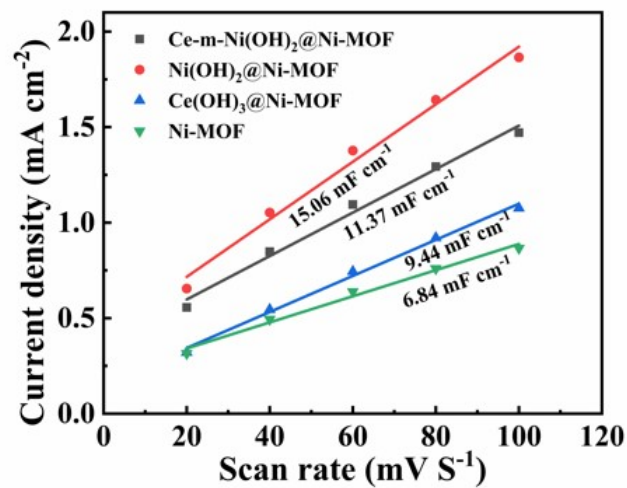


Figure S7. C_{dl} values of Ce-m-Ni(OH)₂@Ni-MOF, Ni(OH)₂@Ni-MOF, Ce(OH)₃@Ni-MOF and Ni-MOF electrodes.

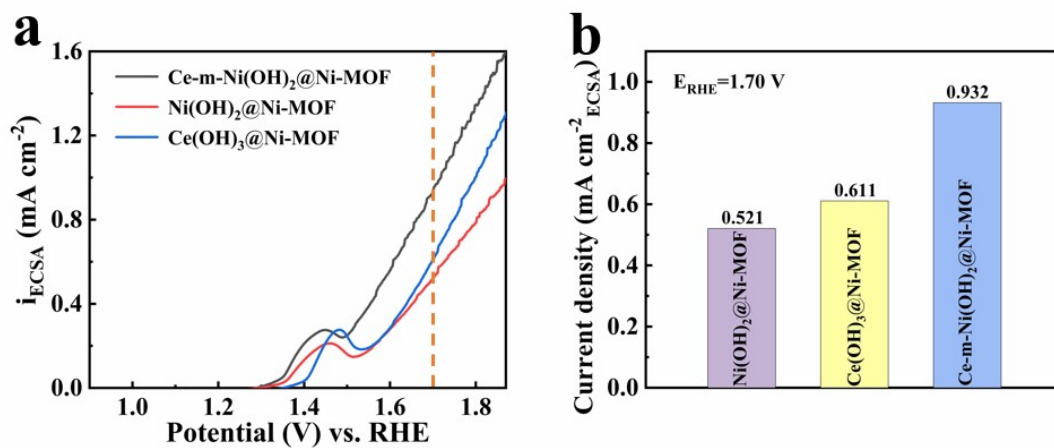


Figure S8. a) ECSA-normalized LSV curves, and b) i_{ECSA} ($E_{\text{RHE}}=1.70$ V) of Ce-m-Ni(OH)₂@Ni-MOF, Ce(OH)₃@Ni-MOF and Ni(OH)₂@Ni-MOF.

Table S1 Comparisons of OER performance of Ce-m-Ni(OH)₂@Ni-MOF with precious metal catalysts.

Catalyst	Electrolyte	Over potential (V) @ 10 mA cm ⁻²	Ref.
Ce-m-Ni(OH) ₂ @Ni-MOF	1 M KOH	0.219 V at 50 mA cm ⁻²	This work
LNFBPO@Ni foam	1 M KOH	0.215	[1]
Ni(OH) ₂ @Au	0.1M KOH	0.390 V at 5 mA cm ⁻²	[2]
NiCo/Fe ₃ O ₄ /MOF-74	1 M KOH	0.238	[3]
Fe-doped-(Ni-MOFs)/FeOOH	1M KOH	0.210 V at 15 mA cm ⁻²	[4]
Ni-MOF/LDH	1 M KOH	0.210	[5]
NiPc-NiFe _{0.09}	1 M KOH	0.300	[6]
NiCo-LDH@MOFs-4 h	1 M KOH	0.289	[7]
FeNi LDH/MOF	1 M KOH	0.272 V at 100 mA cm ⁻²	[8]
Fe ^{II} _{0.1} Ni _{0.4} -MOF	1 M KOH	0.294	[9]
N-Ni ₁ Co ₄ -S	1 M KOH	0.284	[10]
FeNi (MoO ₄) _x @NF	1 M KOH	0.227	[11]
Ni _{0.95} Mn _{0.05} O/CNT	1 M KOH	0.293	[12]
Ni-Fe-Ce LDH	1 M KOH	0.242	[13]
Ce@NiFe LDH	1 M KOH	0.205	[14]
6.7%Ce-NiFe LDH@MoSe ₂	1 M KOH	0.221	[15]
NiFeCe-LDH/MXene	1 M KOH	0.260	[16]

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