

Boosting the electrocatalytic activity and stability of Ni/NiO toward
oxygen evolution reaction by coupling FeOOH nanosheets

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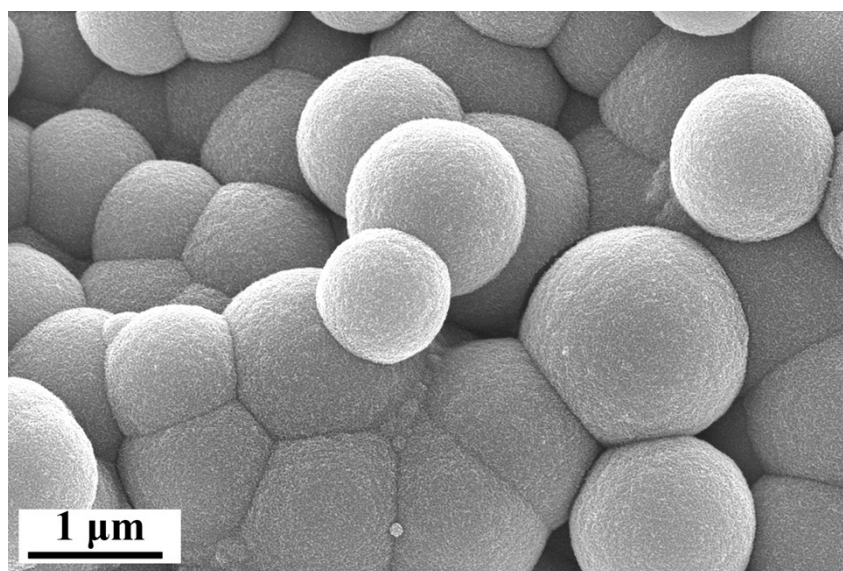


Fig. S1 SEM image of Ni/NiO/TM

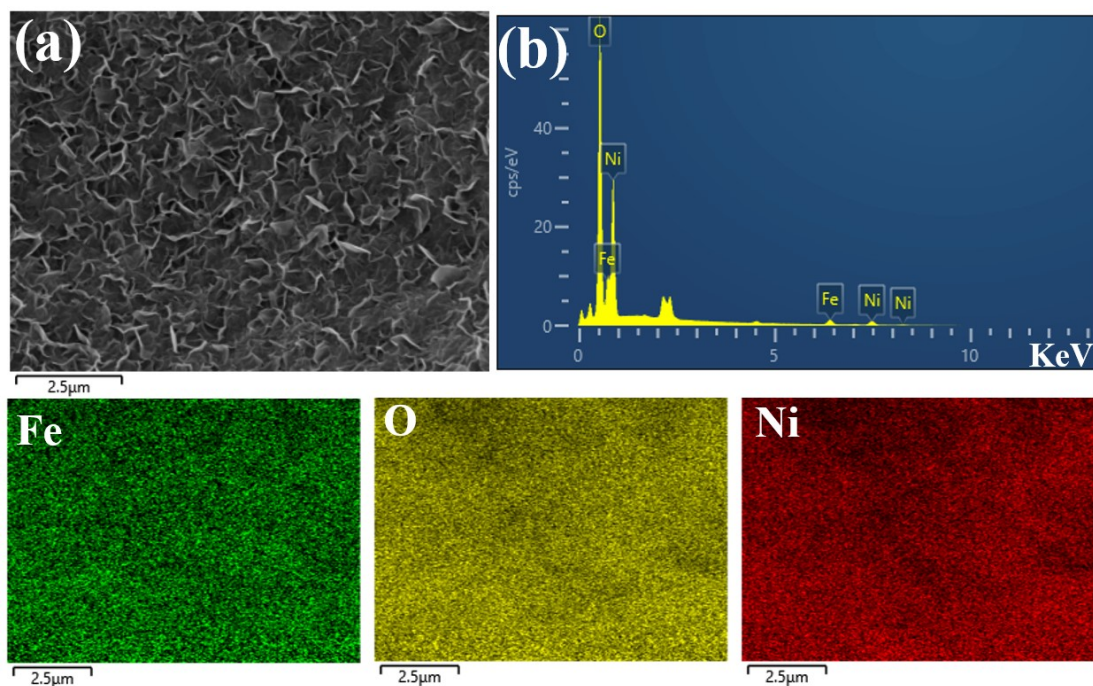


Fig. S2 SEM image (a), SEM-EDS spectra (b) and corresponding elemental mapping including Fe, O and Ni of FeOOH-5/Ni/NiO/TM

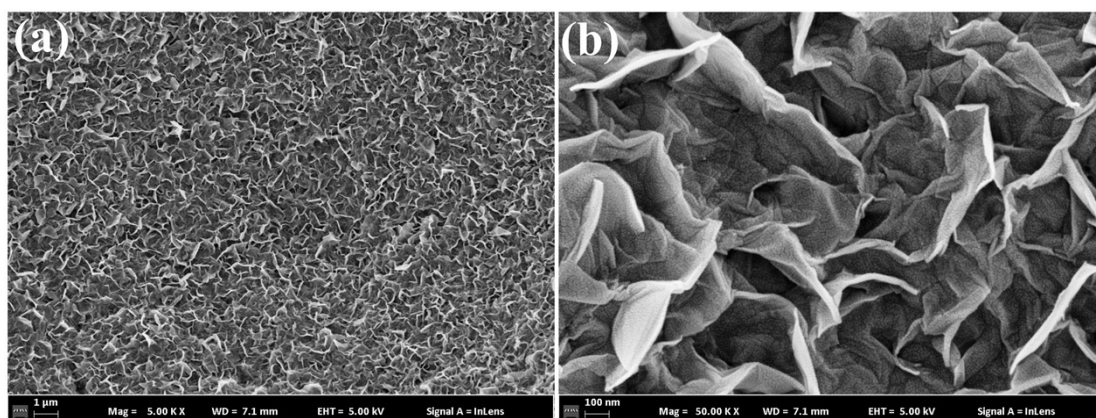


Fig. S3 SEM images of FeOOH-5/Ni/NiO/TM under different magnification.

(a) $\times 5,000$; (b) $\times 50,000$

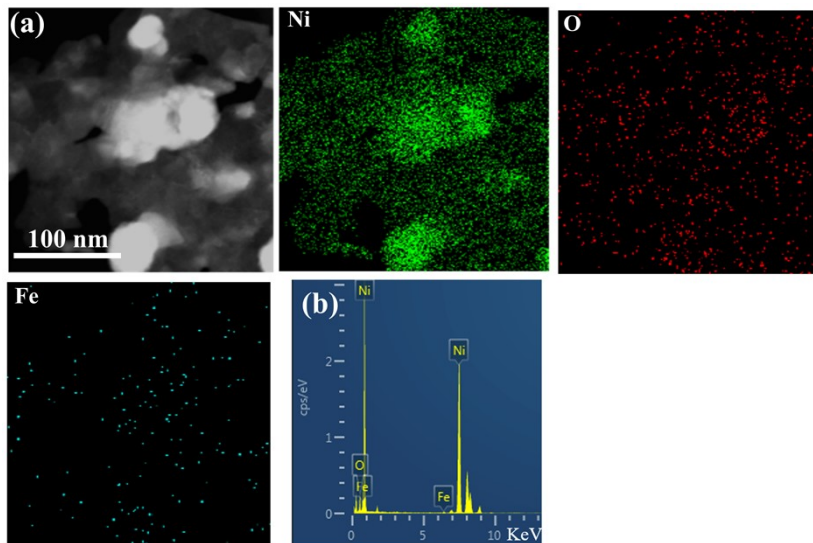


Fig. S4 (a) HAADF-STEM image and corresponding elemental mapping, including Ni, O, Fe; (b) TEM-EDS spectrum

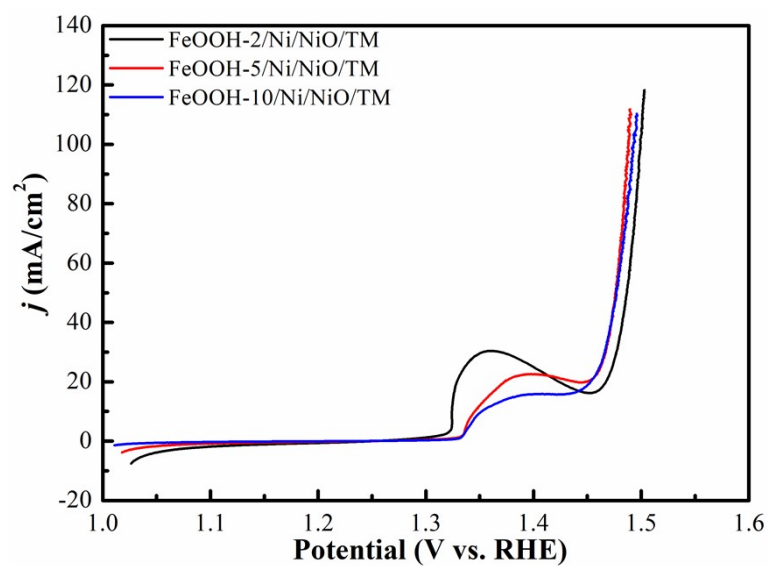


Fig. S5 LSV curves of FeOOH/Ni/NiO/TM samples synthesized under different deposition time

Table S1 OER performance comparison of our catalyst with the previously reported catalysts in 1.0 M KOH

Catalysts	Tafel slope (mV/dec)	η (mV)		Refs.
		10 mA/cm ²	50 mA/cm ²	
FeOOH- 5/Ni/NiO/TM	40.9	N/A	246	This work
CoNi/NC-YS	53.8	292	N/A	Appl. Catal. B-Environ., 2022, 315: 121551
Ni/NC-600	22	336	N/A	Chem. Eng. J., 2022, 429: 132122
Co/N CCPC-3	103	401	N/A	Nano Energy, 2021, 79: 105487
Co/Ce- Ni ₃ S ₂ /NF	71.7	286@20 mA/cm ²	ca. 350	Nano Res., 2020, 13: 2130- 2135
CuO@NiCo LDH/CF	91	256@20 mA/cm ²	> 290	Inorg. Chem. Front., 2021, 8: 3049-3054
NiCo LDH/NF	72	271	ca. 370	Dalton Trans., 2017, 46: 8372-8376
NiVO _x /NF ₁₈₀	60	220	N/A	ACS Appl. Energy Mater., 2022, 5: 4318-4328
MOF- Fe/Co(1:2)	52	238	285	Angew. Chem. Int. Ed. 2021, 60: 12097-12102
FeCo-MOF- EH/NF	42	231	> 420	Angew. Chem. Int. Ed. 2020, 59: 13101-13108

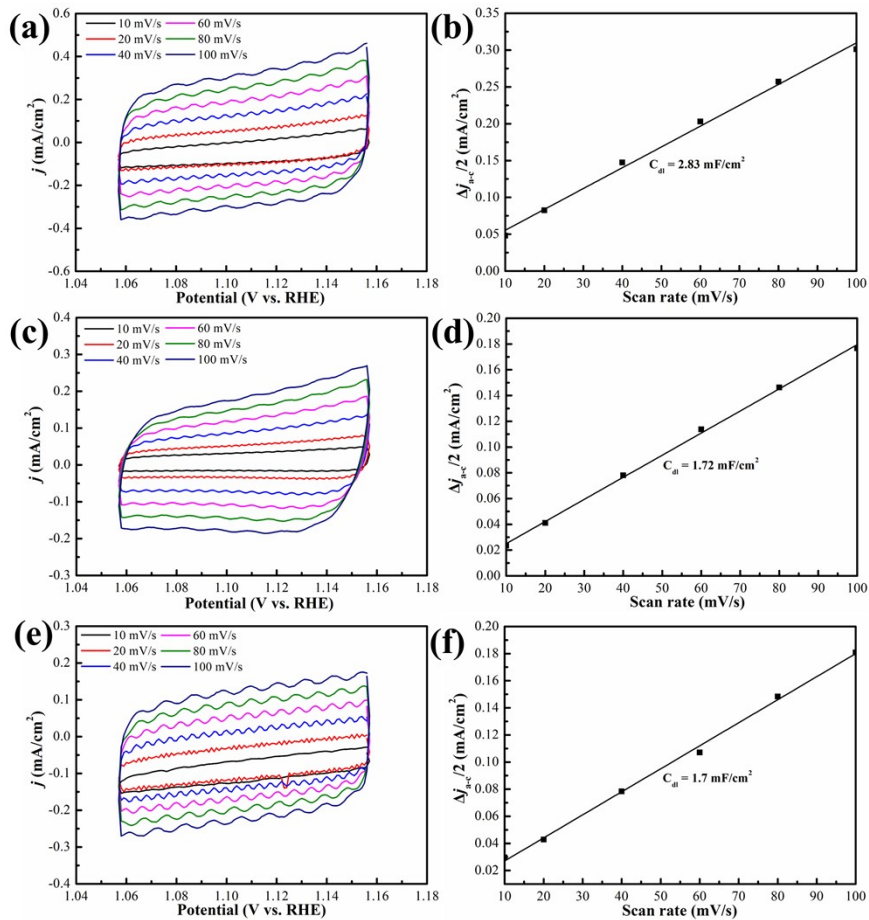


Fig. S6 CV curves under different scan rates and corresponding capacitive current vs. scan rate curves of Ni/NiO/TM (a, b), FeOOH-5/NF (c, d) and FeOOH-5/Ni/NiO/TM (e, f)

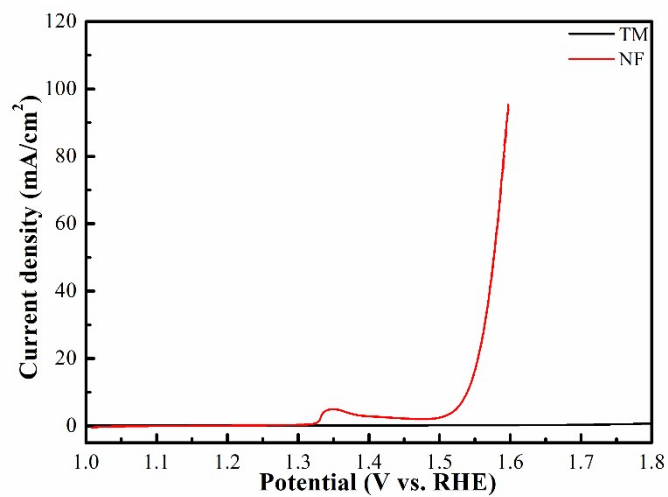


Fig. S7 LSV curves of Ti mesh (TM) and Ni foam (NF)

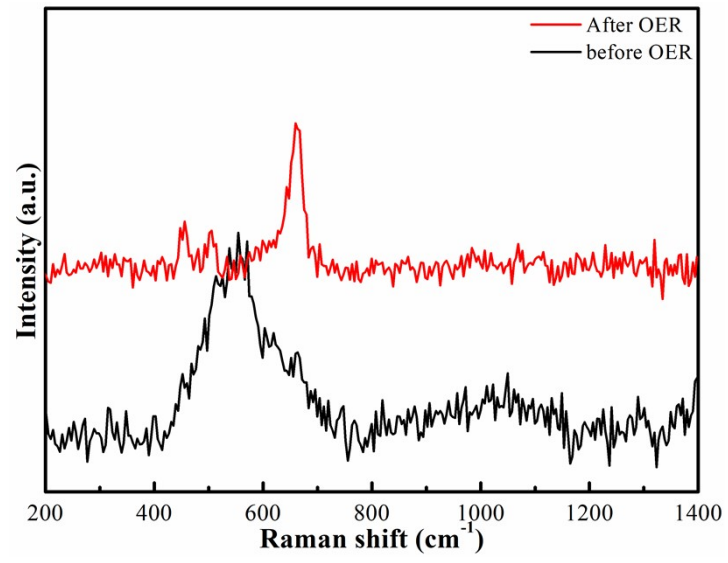


Fig. S8 Raman spectra of FeOOH-5/Ni/NiO/TM before and after OER stability test