

Supporting Information

**Boosting charge transfer of FeOOH/Ni(OH)<sub>2</sub> for excellent  
oxygen evolution reaction via Cr modification**

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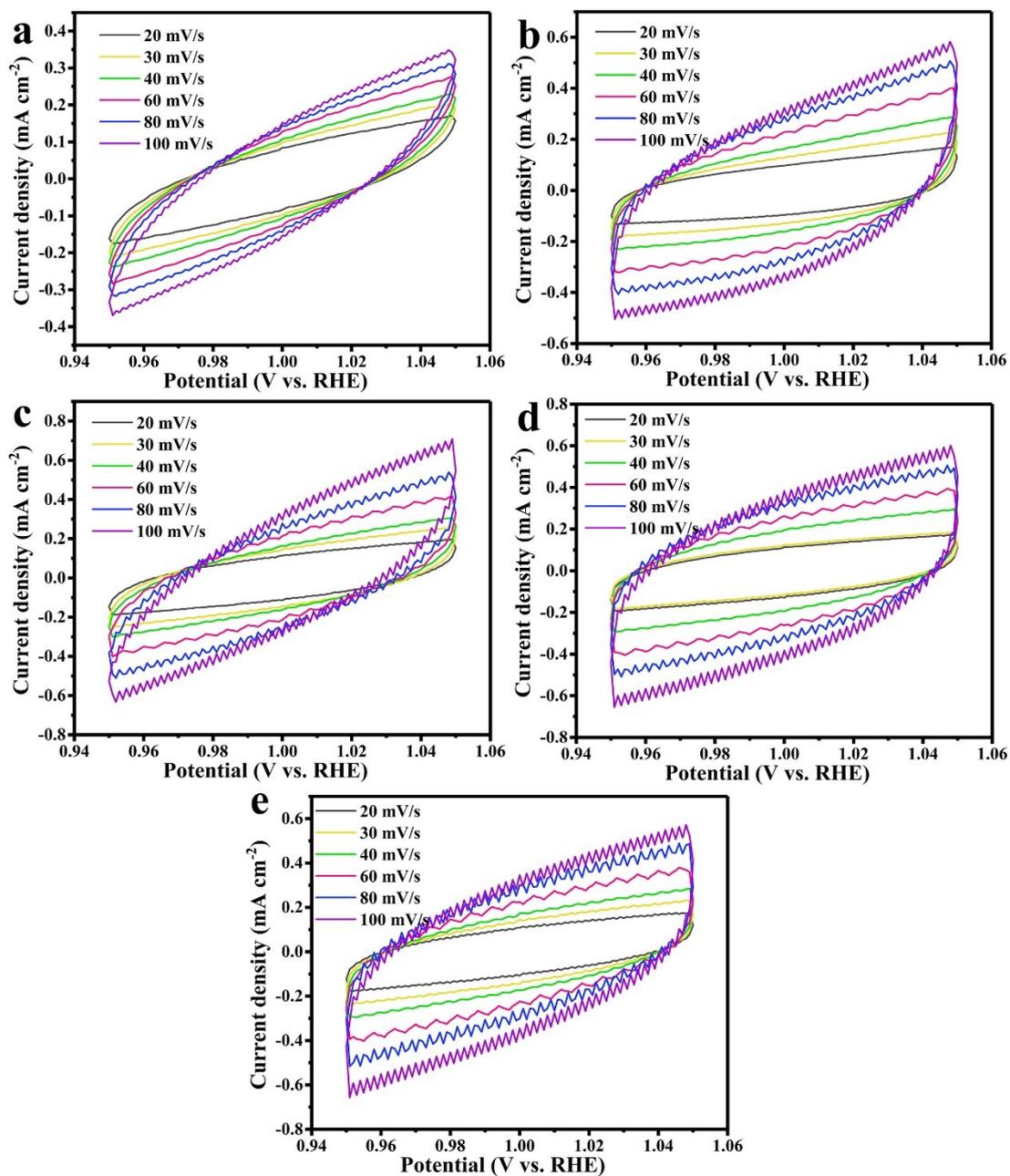
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**Table S1.** A comparison of OER activity of some selected NiFe-related catalysts

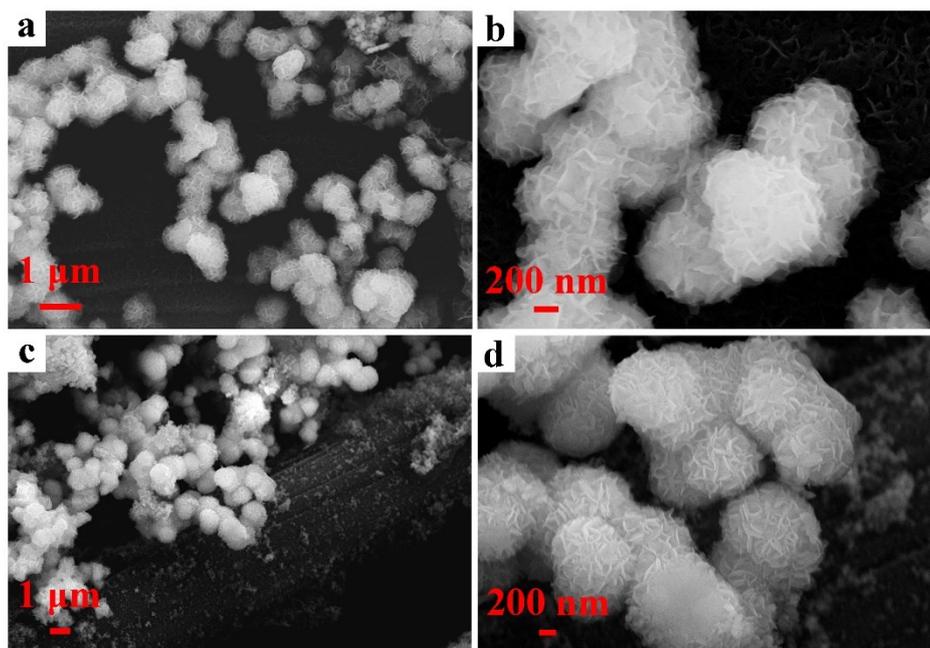
Catalysts	Substrate	Solution	Overpotential (mV)	Ref.
Co <sup>2+</sup> -NiFe LDH	glassy carbon	1 M KOH	265 mV@10 mA·cm <sup>-2</sup>	[1]
Co <sup>3+</sup> -NiFe LDH	carbon fiber	1 M KOH	295 mV@10 mA·cm <sup>-2</sup>	[2]
NiFeMn LDH	carbon fiber	1 M KOH	262 mV@10 mA·cm <sup>-2</sup>	[3]
NiFeV LDH	Ni foam	1 M KOH	231 mV@10 mA·cm <sup>-2</sup>	[4]
WO <sub>4</sub> <sup>2-</sup> -NiFe LDH	Ni foam	1 M KOH	290 mV@10 mA·cm <sup>-2</sup>	[5]
h-NiFeCr LDH	Ni foam	1 M KOH	220 mV@10 mA·cm <sup>-2</sup>	[6]
NiCoFe LDH NA	carbon fiber	1 M KOH	270 mV@10 mA·cm <sup>-2</sup>	[7]
NiCoFe LTH	carbon fiber	1 M KOH	239 mV@10 mA·cm <sup>-2</sup>	[8]
H <sub>2</sub> PO <sub>2</sub> <sup>-</sup> -NiFe LDH	carbon fiber	1 M KOH	245 mV@10 mA·cm <sup>-2</sup>	[9]
NiFeCr	carbon cloth	1 M KOH	291 mV@50 mA·cm <sup>-2</sup>	This work



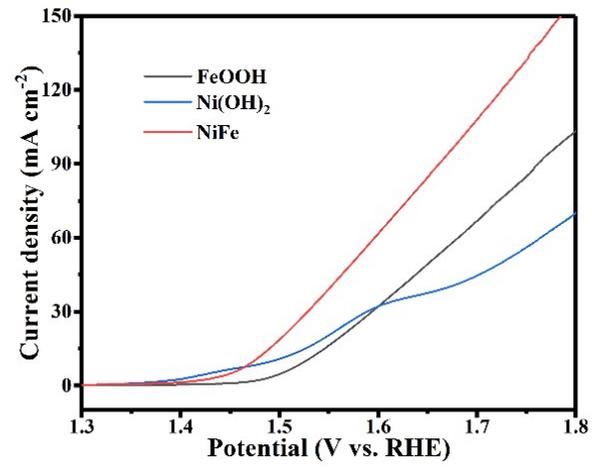
**Figure S1.** Cyclic voltammogram curves of CC (a), NiFe (b), NiFeCr-3 (c), NiFeCr-6 (d), and NiFeCr-9 (e) measured in the range of 0.95 ~ 1.05 V vs. RHE at different scan rates: 20, 30, 40, 60, 80, and 100 mV s<sup>-1</sup>.

**Table S2.** Fitted values of the equivalent circuit for the EIS simulation

Catalysts	$R_s/\Omega$	$C_1/\text{mF cm}^{-2}$	$R_{ct}/\Omega$	$C_2/\text{mF cm}^{-2}$	$R_d/\Omega$
CC	1.57	0.127	96.9	1.18	1.46
NiFe	1.86	0.161	68.3	0.751	3.77
NiFeCr-3	1.73	0.322	71.3	0.793	1.67
NiFeCr-6	1.64	3.49	18.3	9.11	14.5
NiFeCr-9	1.86	2.98	33.2	11.0	9.38



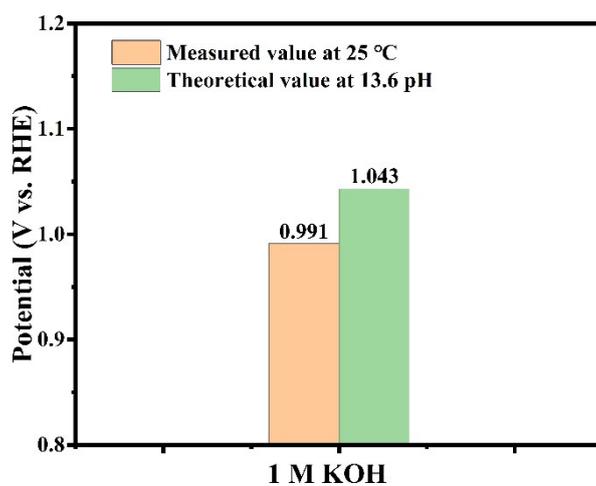
**Figure S2.** SEM images of NiFeCr-3 (a and b) and NiFeCr-9 (c and d) at high (left) and low (right) magnifications.



**Figure S3.** LSV curves of different electrocatalysts (Ni(OH)<sub>2</sub>, FeOOH, and NiFe).

## Note S1.

The overpotential value for SCE in 1 M KOH in the manuscript was calculated from the Nernst equation with 13.6 pH value. When the reference electrode was calibrated, the calibrated value of overpotential for SCE in 1 M KOH at 25 °C is 0.991 V, which is about 49 mV smaller than that calculated from the Nernst equation with 13.6 pH value shown in **Fig. S4** (ACS Energy Lett. 2020, 5, 1083-1087).



**Figure S4.** RHE calibrated the potential of SCE with different methodologies: measured at 25 °C (experimental calibration) and theoretically calculated values based on the Nernst equation with 13.6 pH value.

## References

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