Supporting Information

Unraveling Ce Dopant Evolution: the Formation of NiFeOOH/CeO_2 for Enhanced Water Oxidation

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Figure S1. Photograph of multiple samples synthesized simultaneously.

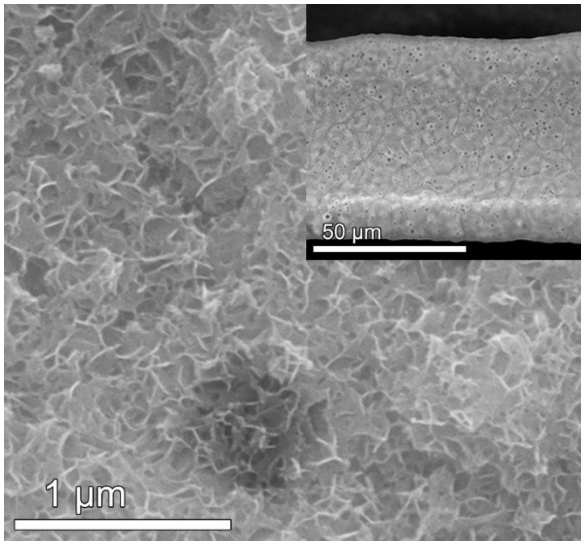

Figure S2. SEM image of FeNiO/NF.

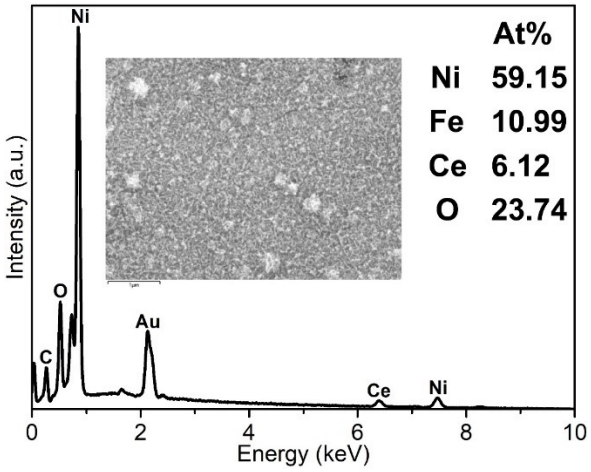

Figure S3. EDS result of Ce-FeNiO/NF.

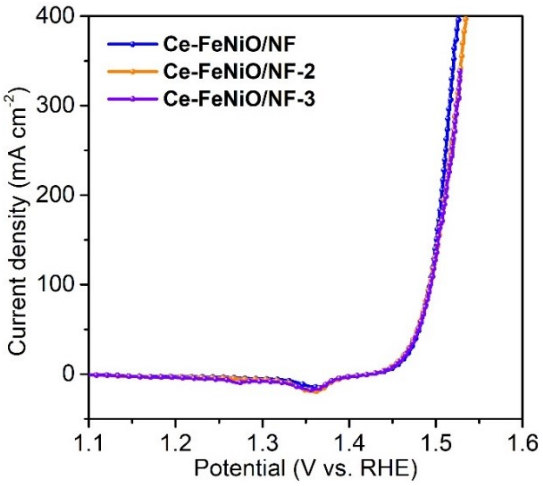

Figure S4. LSV curves of Ce-FeNiO/NF, Ce-FeNiO/NF-2, and Ce-FeNiO/NF-3.

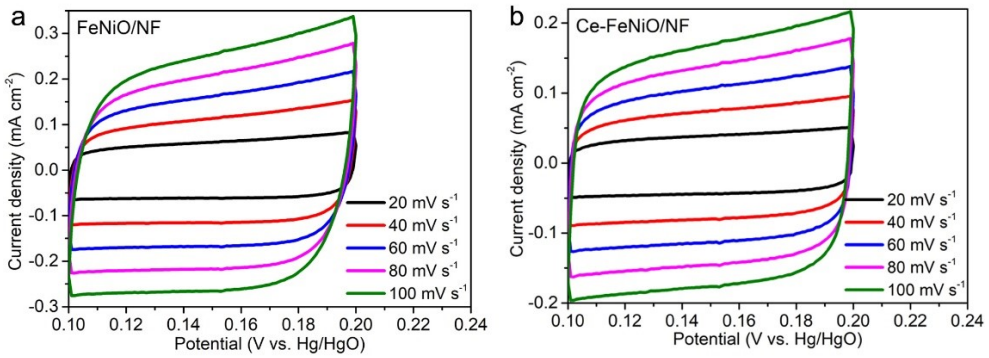

Figure S5. CV curves of (a) FeNiO/NF and (b) Ce-FeNiO/NF.

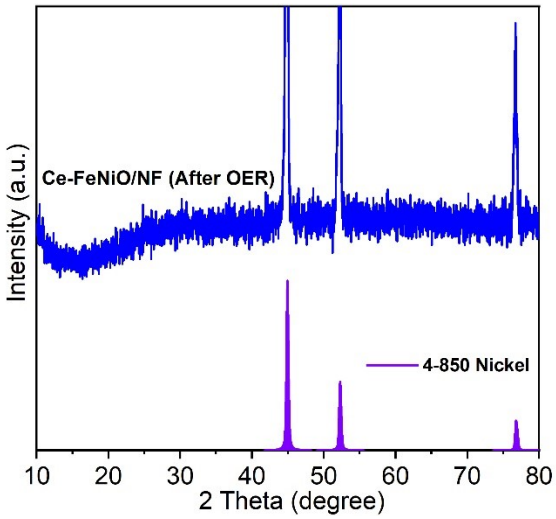

Figure S6. XRD pattern of Ce-FeNiO/NF after OER test.

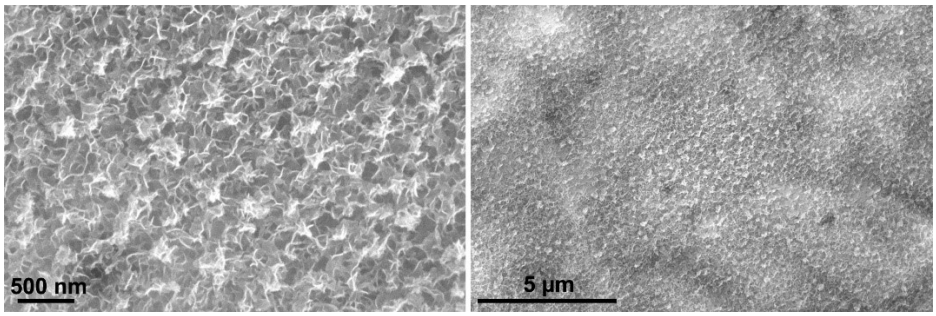

Figure S7. SEM image of Ce-FeNiO/NF after OER test.

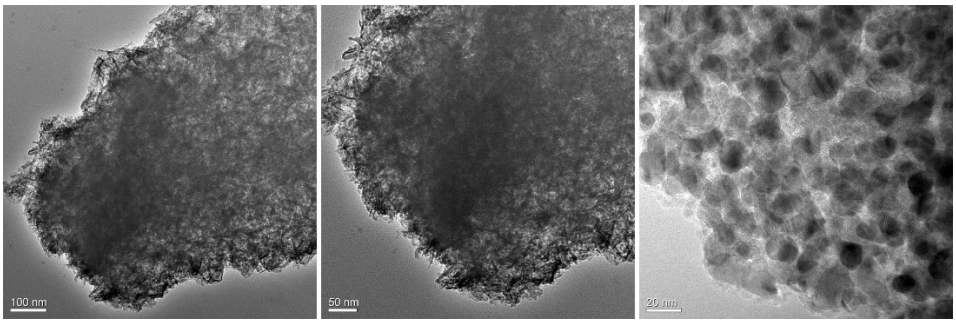

Figure S8. Low-magnification TEM image of Ce-FeNiO/NF after OER test.

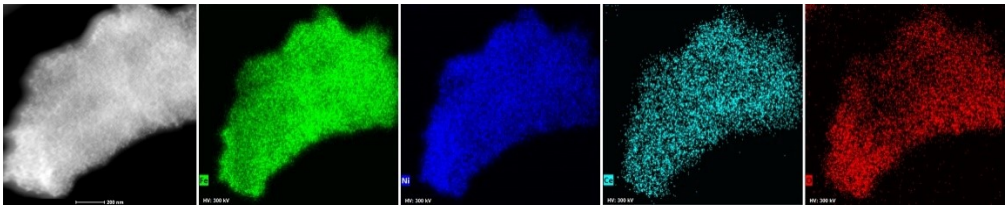

Figure S9. Dark-field TEM image and the corresponding elemental mappings of Ce-FeNiO/NF after OER test.

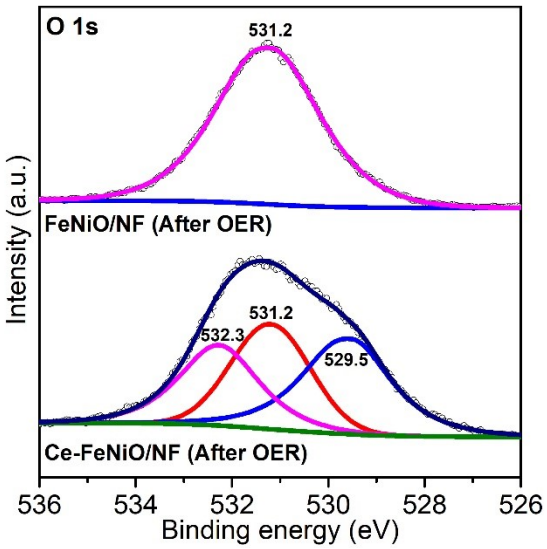

Figure S10. High-resolution XPS results of O 1s after OER test.

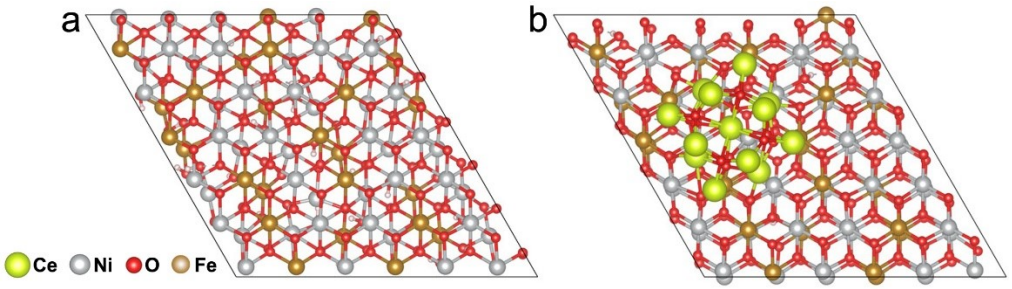

Figure S11. Optimized geometric atom models of NiFeOOH and NiFeOOH/CeO_2.

Table S1. Comparison of the OER activity of Ce-FeNiO/NF with other reported non-noble metal-based electrocatalysts.

Catalyst	Substrate	Electrolyte	Overpotential at 10 mA cm^{-2} (mV)	Tafel slope ($mV\ dec^{-1}$)	Reference
Ce-FeNiO	NF	1 M KOH	221	33.9	This work
FeOOH/CoO	NF	1 M KOH	256	49	*1*
FeOOH/Co_3O_4	NF	1 M KOH	228	29	*2*
FeOOH@$NiCo_2O_4$	NF	1 M KOH	203	22	*3*
FeOOH/Cr-$NiCo_2O_4$	NF	1 M KOH	217	31	*4*
NiOOH/FeOOH	NF	1 M KOH	228	41	*5*
Co/Ce-Ni_3S_2	NF	1 M KOH	286	72	*6*
CoOOH@Co-FeOOH	NF	1 M KOH	224	32	*7*
CoP_x@FeOOH	NF	1 M KOH	235	37.6	*8*
NiTe@FeOOH	NF	1 M KOH	241	36	*9*
$Fe_5Ni_4S_8$	GC	1 M KOH	265	59.46	*10*
NiO/NiS	CC	1 M KOH	256	73.8	*11*
$Ni_3FeN/Ni_3Fe/CeO_2$-5%	GC	1 M KOH	249	52.7	*12*
$Co_{0.7-x}Fe_{0.3-y}P/Co_xFe_yOOH$	GC	1 M KOH	256	52.6	*13*
NC-$CoFe_2O_4$/C NRAs	NF	1 M KOH	240	45	*14*
CeO_x/NiFe-OH	NF	1 M KOH	249	43	*15*
NiFe-LDH/MXene	NF	1 M KOH	229	44	*16*
CeO_2-NiFeOH	NF	0.1 M KOH	280	32	*17*
FeCoNi/$FeAl_2O_4$	Ti	1 M KOH	236	37.8	*18*
Cr-Ni_2P/Ni_3P	NF	1 M KOH	270	69.5	*19*
Pi-Fe:NiOH	NF	1 M KOH	118	52	*20*
$CoFe_xO_y$-SO_4	GC	1 M KOH	266	46.5	*21*

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