

Supporting Information

Table S1. EDX spectrum of $\text{Ce}_{0.5}\text{Fe}_{0.5}\text{O}_{1.75}\text{@NF}$

Z	Element	Family Atomic	Fraction (%)	Atomic Error (%)	Mass Fraction (%)	Mass Error (%)	Fit error (%)
8	O	K	63.80	3.27	32.35	3.08	1.29
26	Fe	K	1.31	0.19	2.31	0.38	2.04
28	Ni	K	34.73	3.34	64.60	3.38	0.37
58	Ce	L	0.17	0.02	0.74	0.11	6.03

Fig. S1. Cyclic voltammetry (CV) curves collected for NF under various scan rates

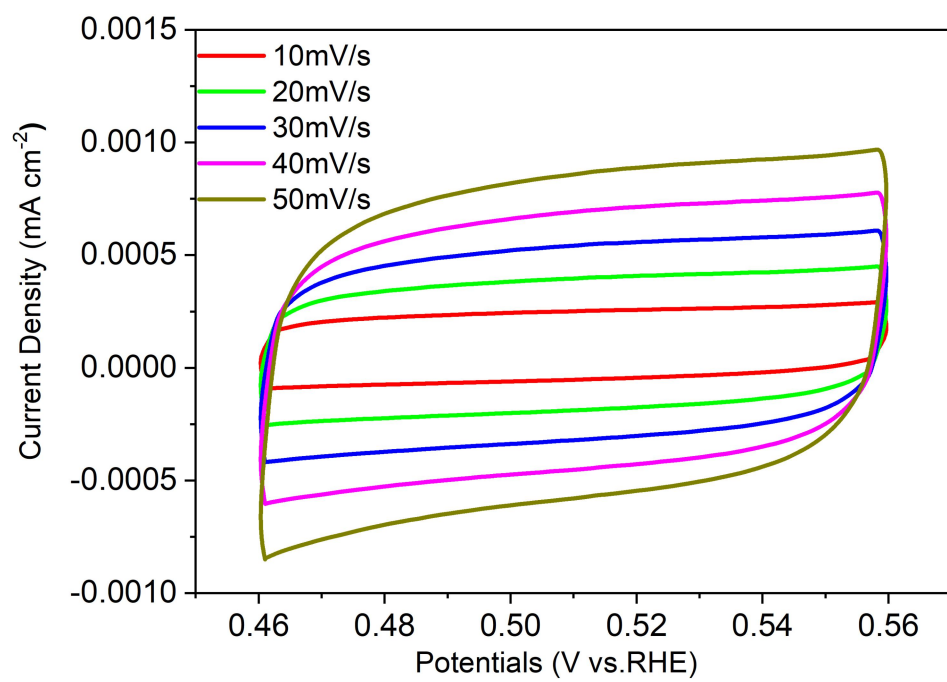


Fig. S2. Cyclic voltammetry (CV) curves collected for CeO₂NF under various scan rates

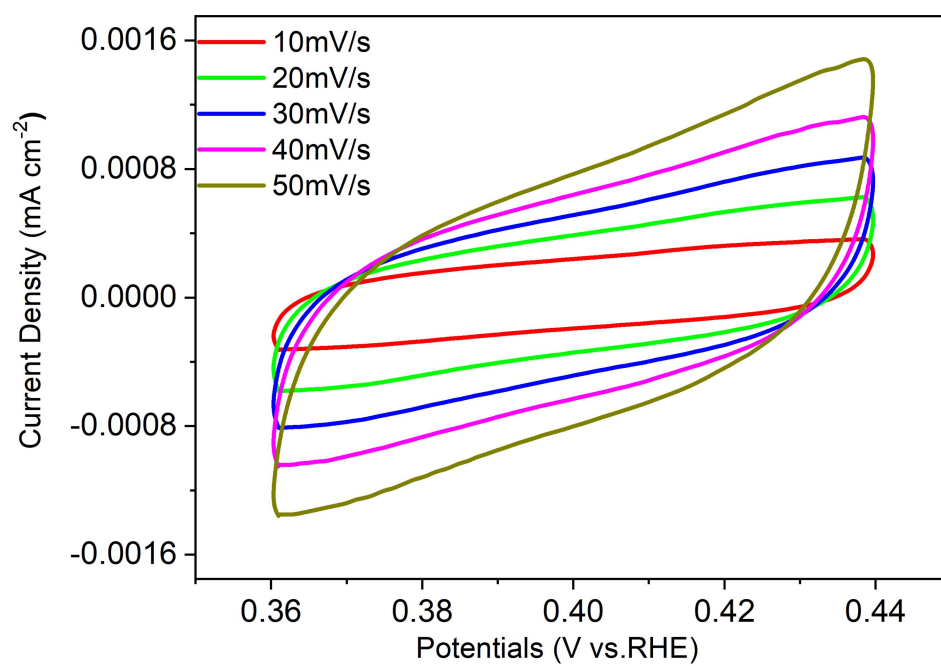


Fig. S3. Cyclic voltammetry (CV) curves collected for $\text{Ce}_{0.5}\text{Fe}_{0.5}\text{O}_{1.75}\text{NF}$ under various scan rates

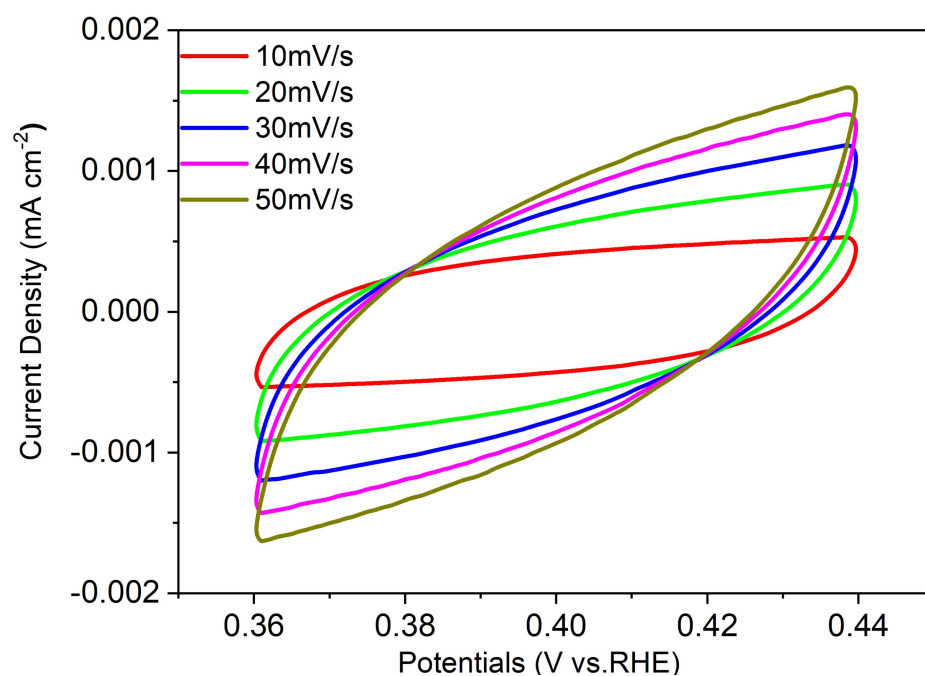
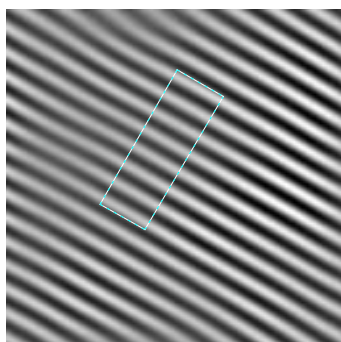


Fig. S4. HRTEM real-time profiles (a) IFFT image (b) of NiO crystal.

a



b

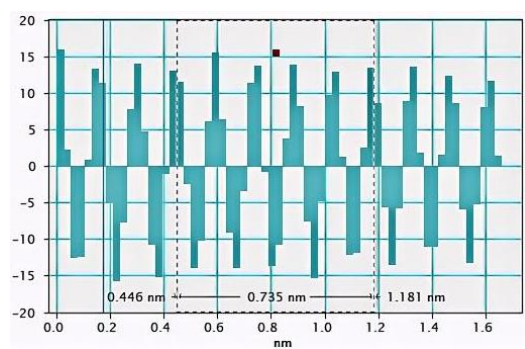


Fig. S5. Equivalent circuit model for fitting EIS data of OER electrocatalysis, where R_s is the solution resistance.

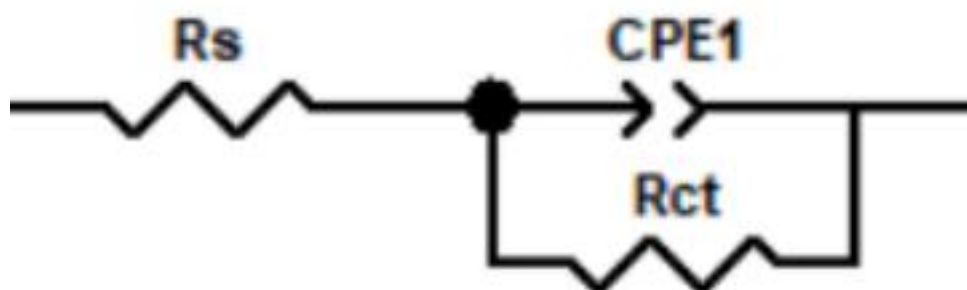


Fig. S6. Ce 3d XPS spectra of $\text{Ce}_{0.5}\text{Fe}_{0.5}\text{O}_{1.75}\text{@NF}$.

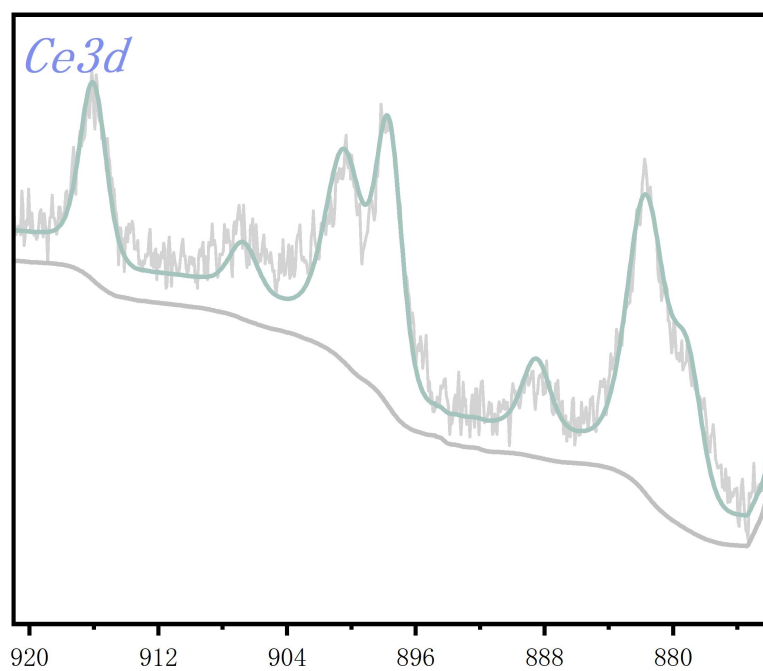


Fig. S7. Ni 2p XPS spectra of $\text{Ce}_{0.5}\text{Fe}_{0.5}\text{O}_{1.75}\text{@NF}$.

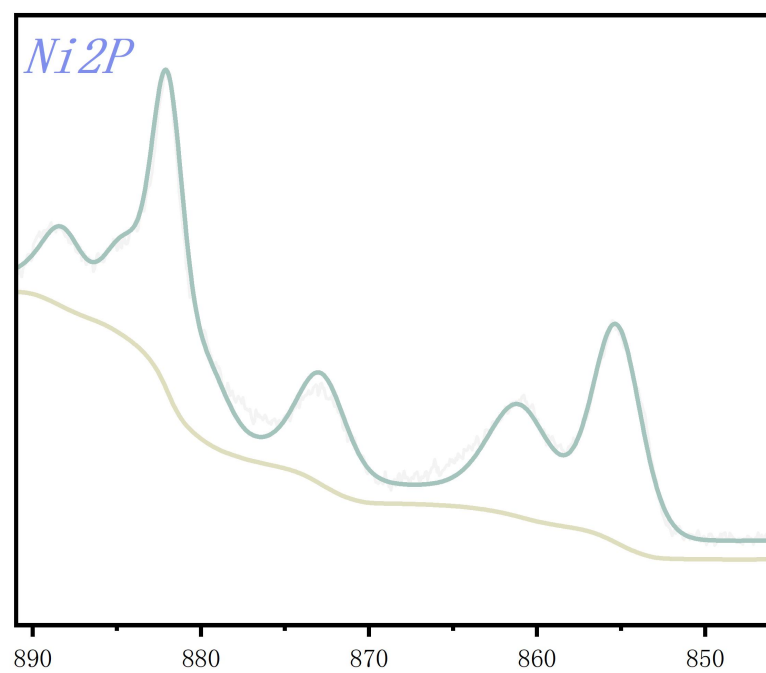


Fig. S8. Digital photograph of the three-electrode electrolyzer.

