Defect engineering of Na-induced oxygen vacancies in nickel ferrite for dual site electrocatalytic water splitting

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Table S1. *Comparison of Electrocatalytic characteristics of various recently reported OER catalysts.*

Catalyst	**OER overpotential for 10 mAcm^{-2}**	**Tafel slope (mVdec^{-1})**	**Ref.**
C-$NiFe_2O_4$@A-S-$NiFe_2O_4$	275 mV	76.1	S[1]
NH_2 functionalized Sm-MOF	433 mV	95.1	S[2]
Co@NC/NGC	340 mV	180	S[3]
g-C_3N_4/Co_3O_4/α-Fe_2O_3	359 mV	116	S[4]
NiMoSe@CC	320 mV	226	S[5]
NiMoSe/$Ti_3C_2T_x$@CC	320 mV	189	S[6]
Commercial IrO_2	383 mV	107	S[5]
ZrTe-Mn_2O_3	437 mV	201	S[7]
NiFeCe-LDH/Fe-ZIF8@Nd-ZIF67	300 mV	134	S[8]
$Pd_{13}Cu_3S_7$/rGO	387 mV	96	S[9]
NiO-SnO_2-600 °C	320 mV	149	S[10]
IrO_2	380 mV	47.7	S[11]
RuO_2	332 mV	73.2	S[12]
NaNF/NiP	**310 mV**	**97**	**Present work**

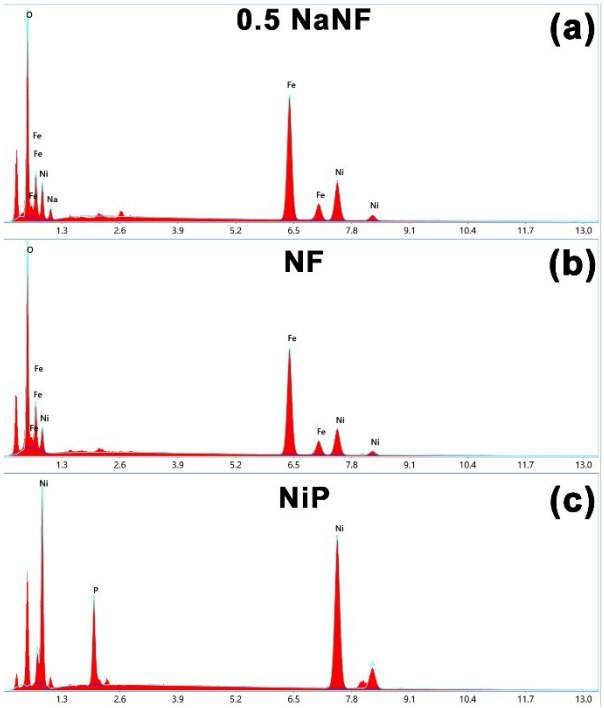


Figure S1. EDAX spectra of (a) 0.5 NaNF powder, (b) NF powder, and (c) NiP electrode

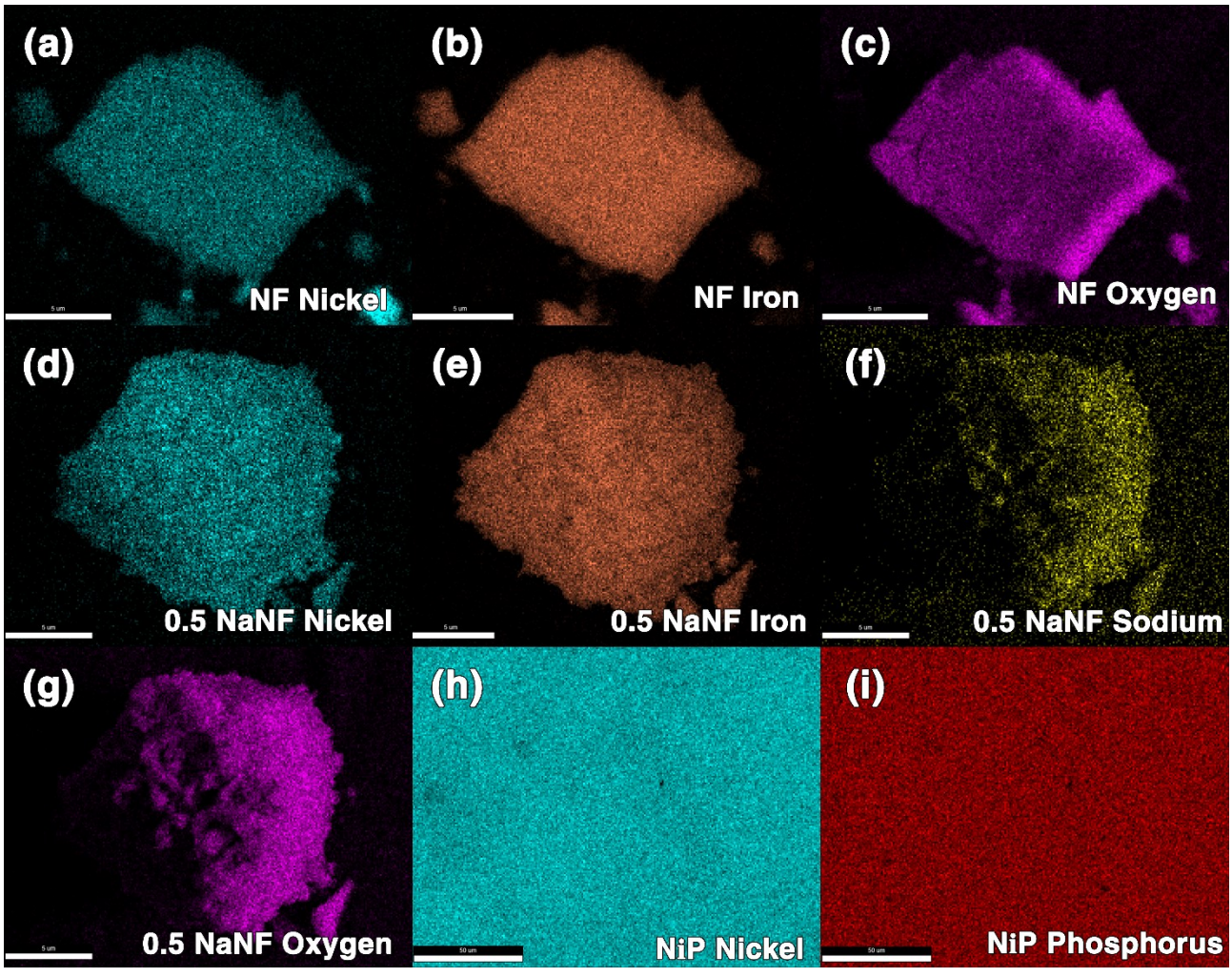


Figure S2. Elemental mapping NF powder, 0.5 NaNF powder and NiP electrode

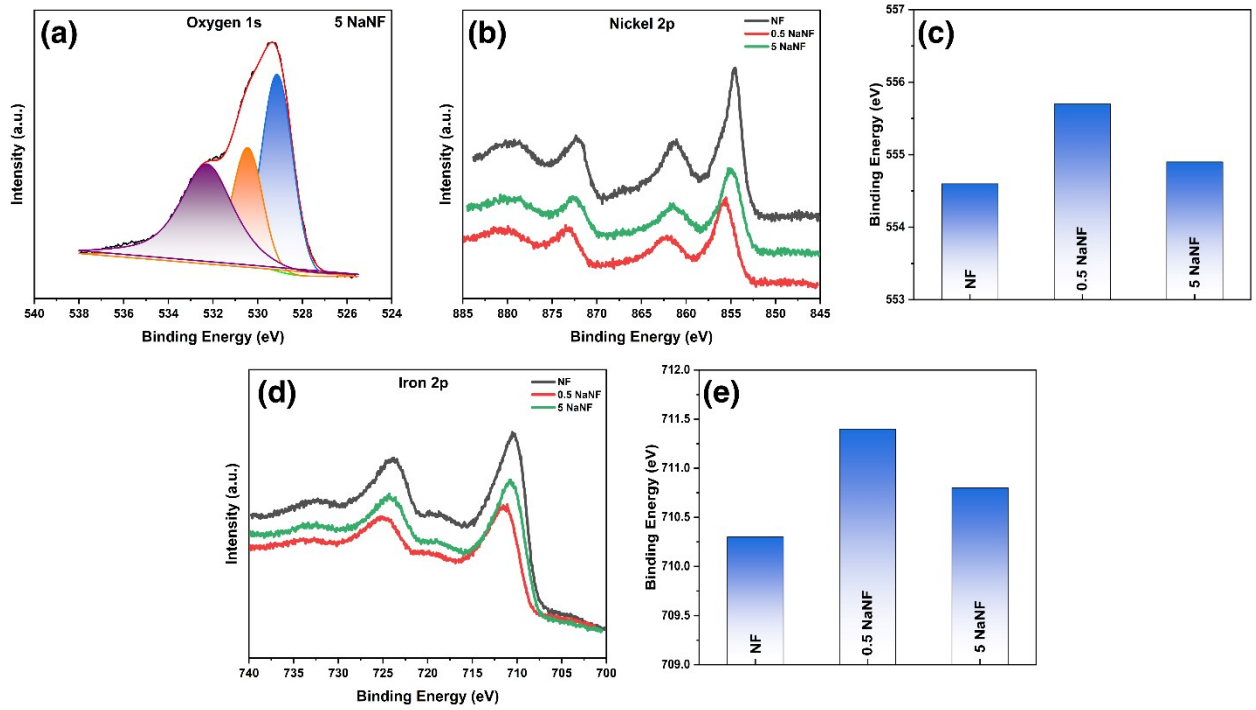


Figure S3. (a) Deconvoluted O 1s XPS spectra of 5 NaNF, (b) Ni 2p XPS spectra, (c) Binding energies of Ni2p (d) Fe 2p XPS spectra, (c) Binding energies of Fe2p XPS spectra

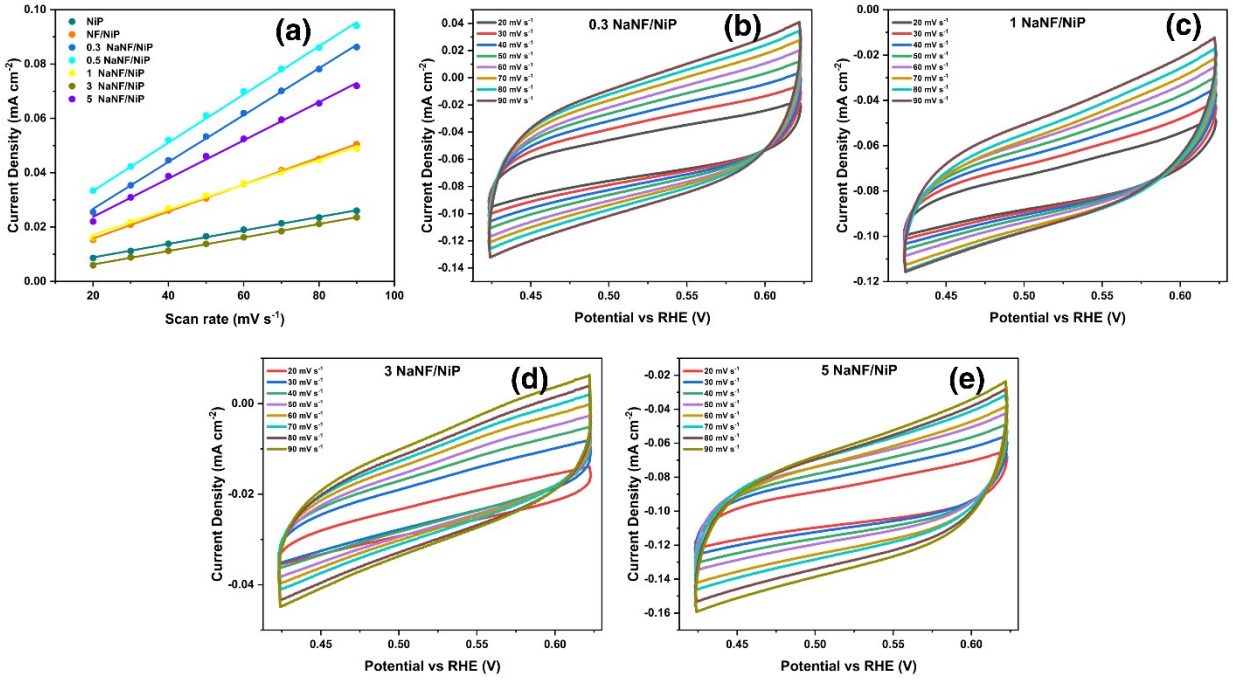


Figure S4. (a) Scan rate vs. Current density plot of NaNF/NiP electrodes, (b-e) CV in the non-faradaic region of NaNF/NiP electrodes

Table S2. *Weight percent of different metals obtained from ICP-MS*

	Sodium	Nickel	Iron
NF	-	32%	68%

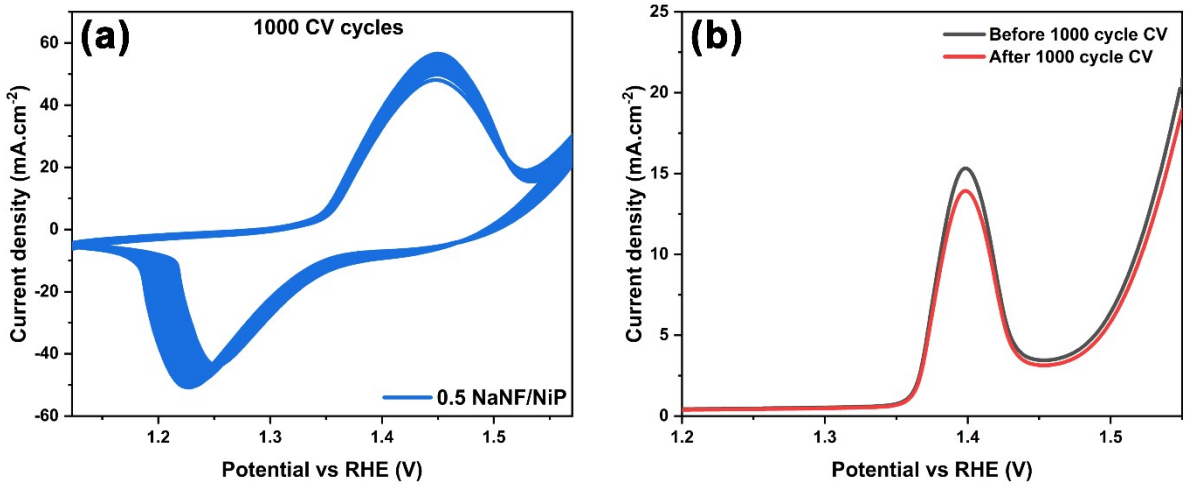
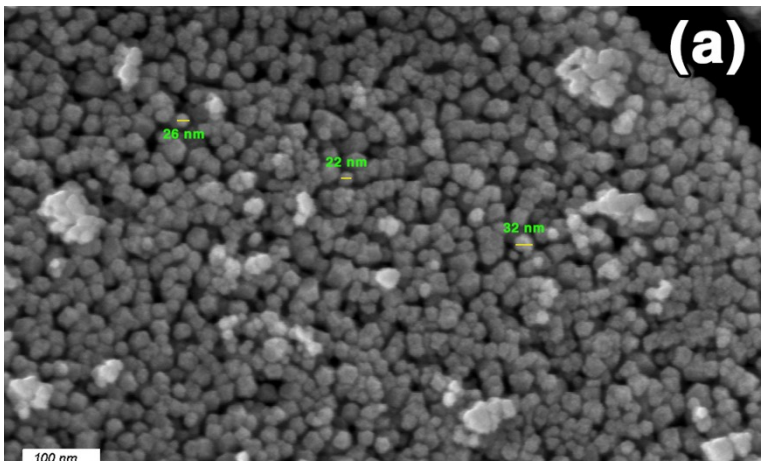


Figure S6. (a) 1000 CV cycles in the NiOOH redox potential, (b) LSV before and after the 1000 cylcle CV study



0.5 NaNF	0.52%	32.84%	66.64%
5 NaNF	4.91%	31.08%	64%

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