Supporting Information

Corrosion-engineered transition metal multi-anionic interface for efficient electrocatalysis toward overall water splitting

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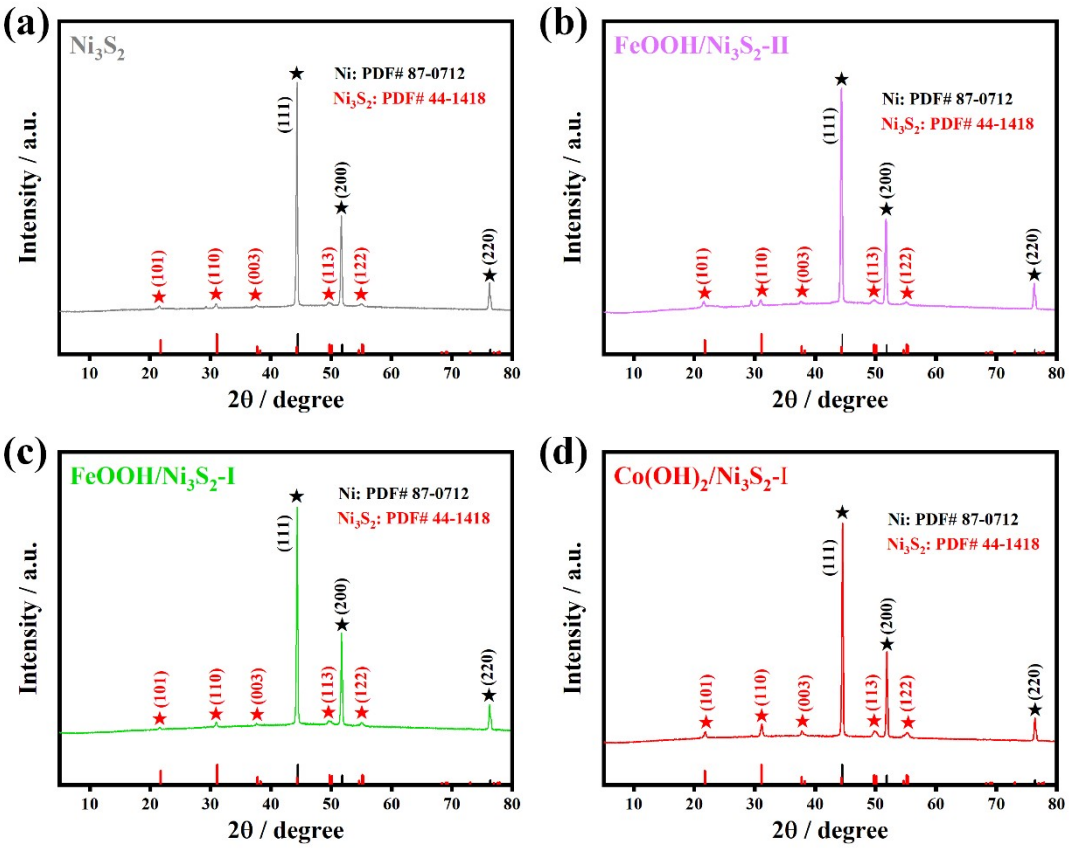

Figure S1. XRD patterns of samples: (a) Ni_3S_2, (b) FeOOH/Ni_3S_2-II, (c) FeOOH/Ni_3S_2-I, (d) $Co(OH)_2$/Ni_3S_2-I.

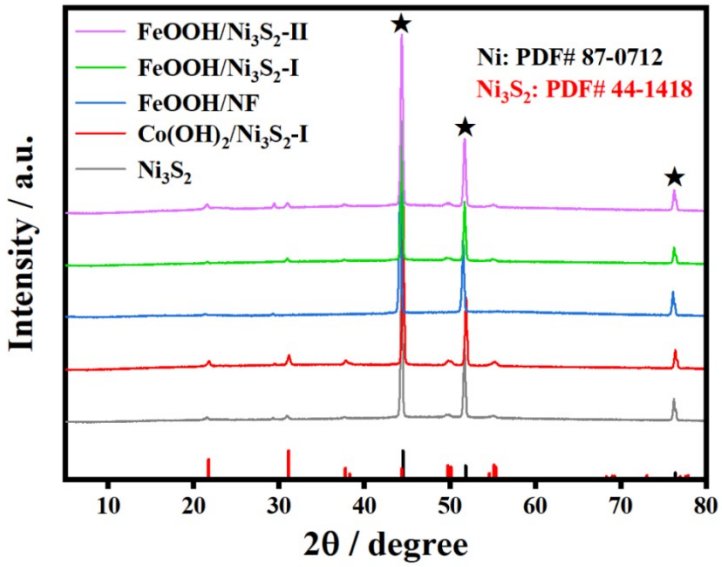

Figure S2. XRD patterns of samples FeOOH/Ni_3S_2-II, FeOOH/Ni_3S_2-I, FeOOH/NF, $Co(OH)_2$/Ni_3S_2-I and Ni_3S_2.

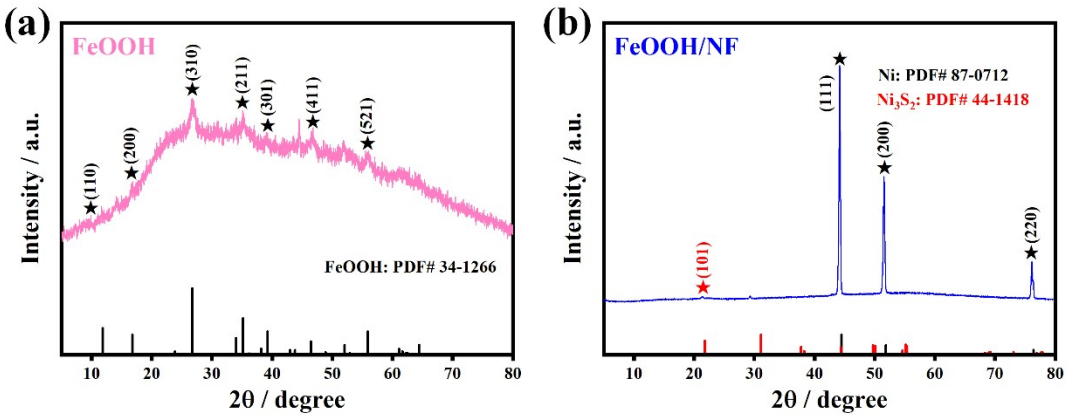

Figure S3. XRD patterns: (a) the precipitation of FeOOH was collected during the preparation process, and (b) FeOOH/NF.

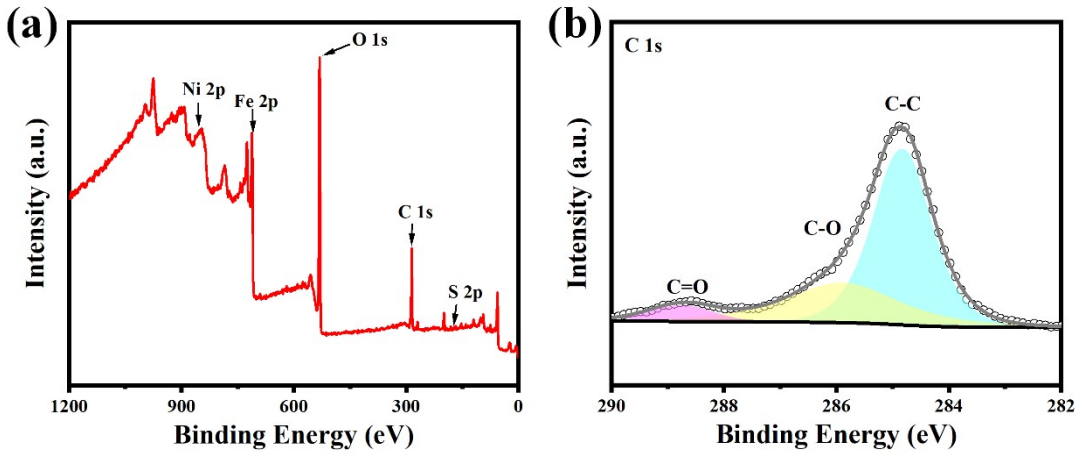

Figure S4. The X-ray photoelectron spectroscopy of FeOOH/Ni_3S_2-II: (a) The XPS survey spectrum, (b) High-resolution XPS spectrum of C 1s.

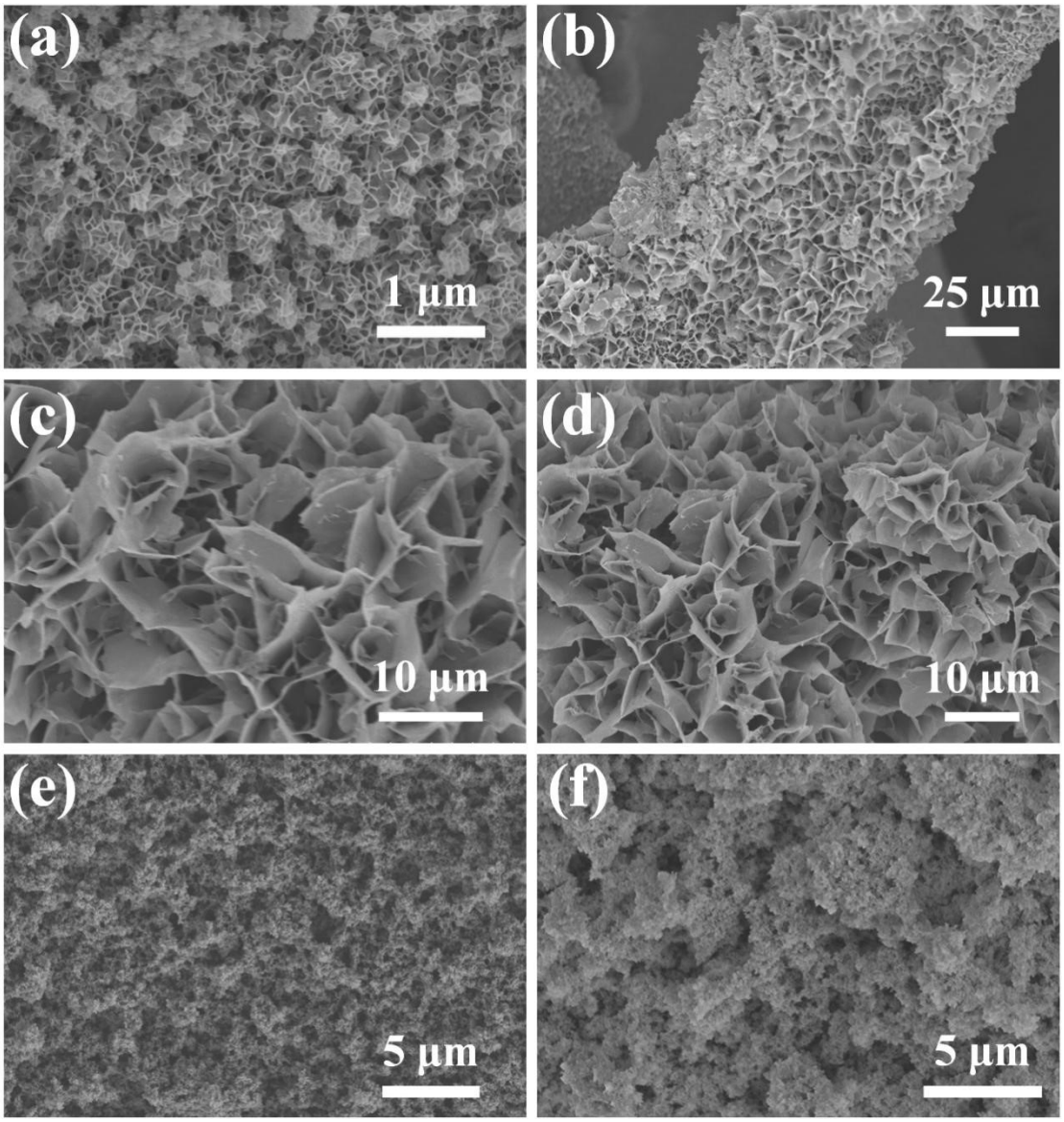

Figure S5. SEM images: (a) FeOOH/Ni_3S_2-II, (b-d) FeOOH/Ni_3S_2-I, (e, f) FeOOH.

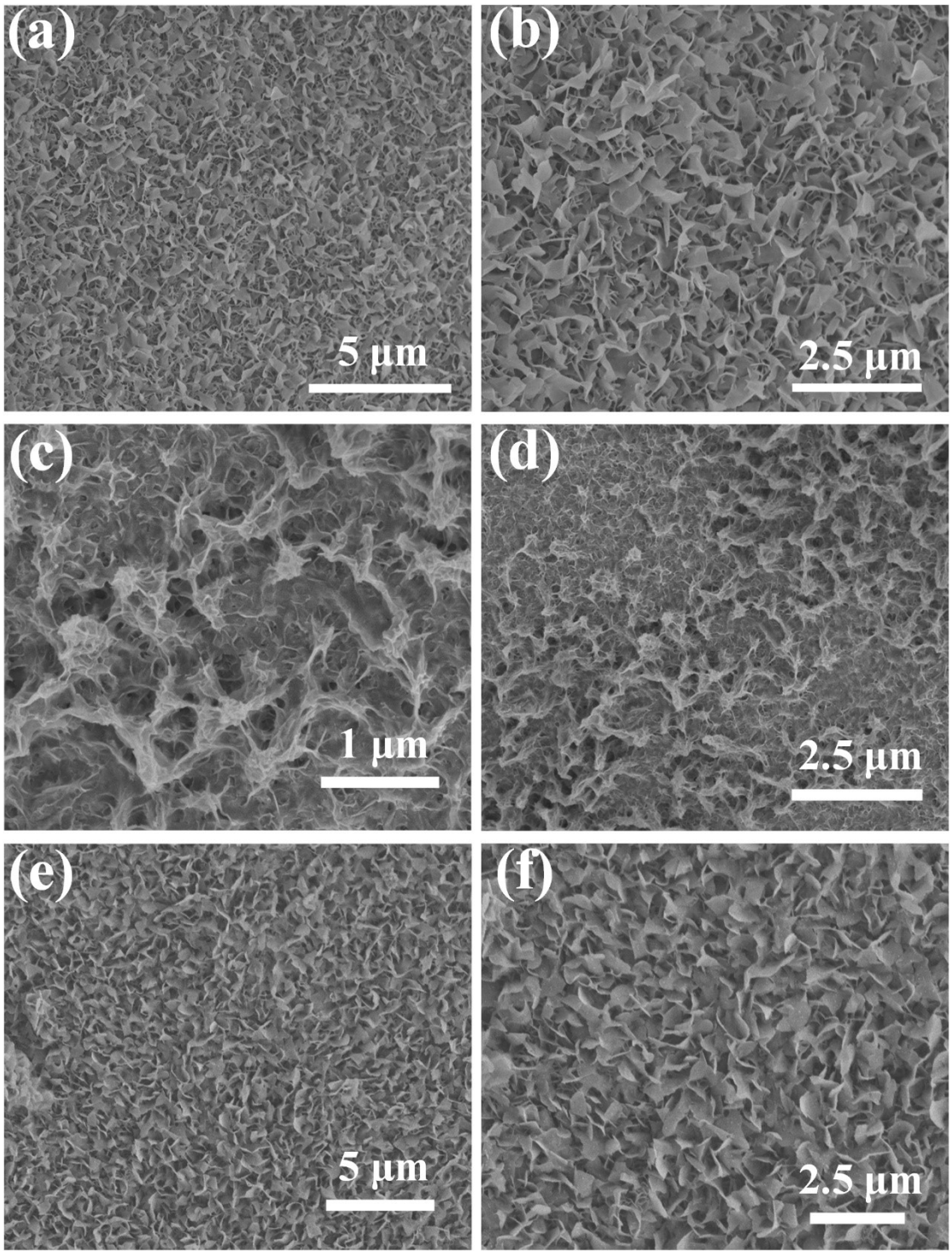

Figure S6. SEM images: (a, b) $Co(OH)_2/Ni_3S_2$-II, (c, d) $Co(OH)_2/Ni_3S_2$-I, (e, f) $Co(OH)_2$.

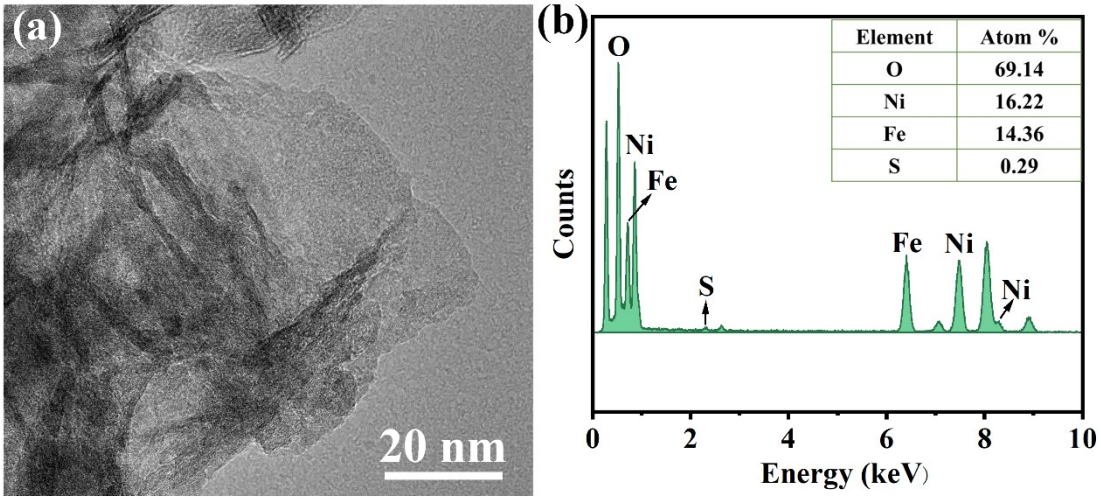

Figure S7. (a) TEM image of FeOOH/Ni_3S_2-II, (b) EDS spectrum of FeOOH/Ni_3S_2-II.

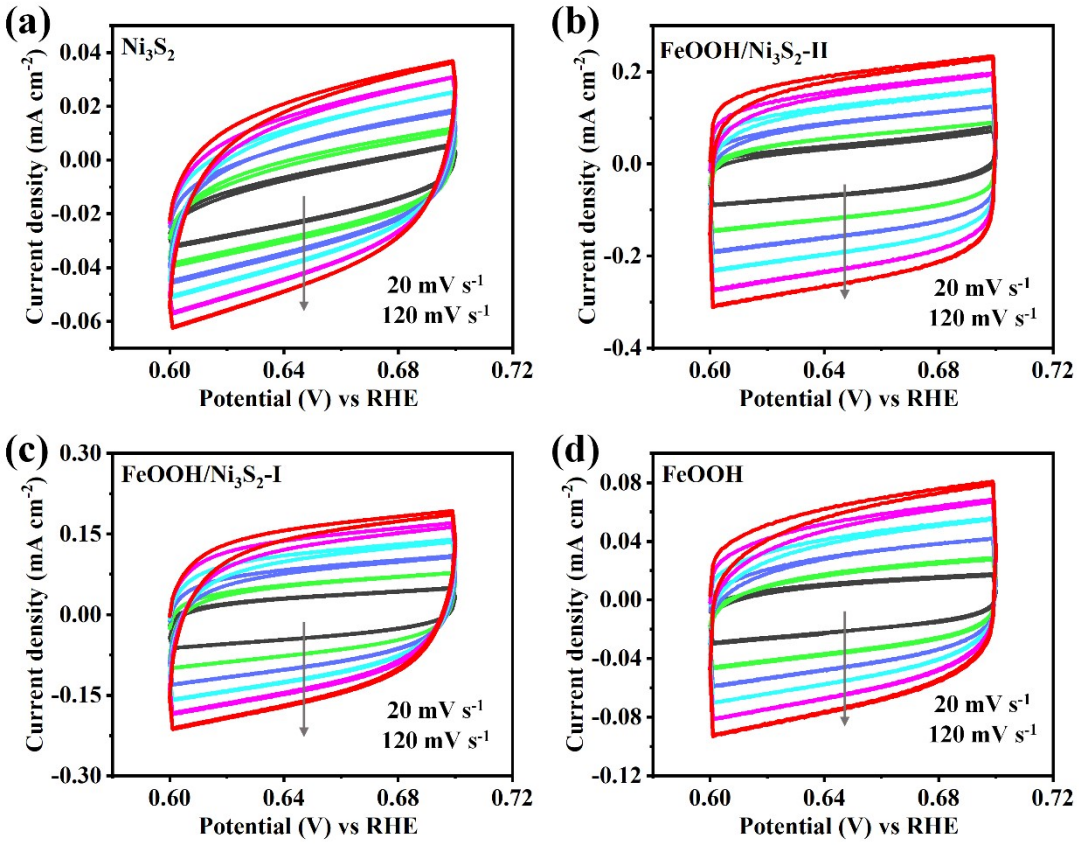

Figure S8. Cyclic voltammetry curves of (a) Ni_3S_2, (b) FeOOH/Ni_3S_2-II, (c) FeOOH/Ni_3S_2-I, (d) FeOOH.

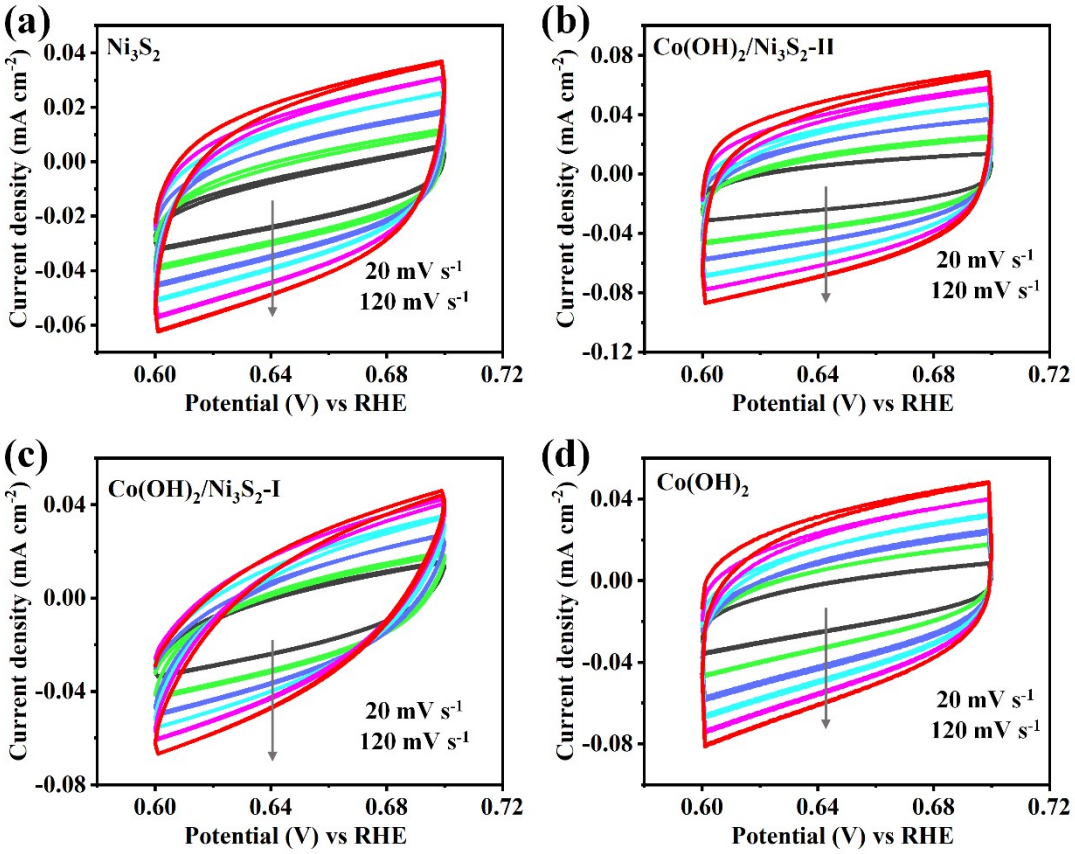

Figure S9. Cyclic voltammetry curves of (a) Ni_3S_2, (b) $Co(OH)_2/Ni_3S_2$-II, (c) $Co(OH)_2/Ni_3S_2$-I, (d) $Co(OH)_2$.

Table S1. Comparison of the OER performance of catalysts reported in literatures. (Current density: 100 mA cm^{-2}).

Catalysts	Overpotential	Substrate	Reference
$FeOOH/Ni_3S_2$-II	269 mV	Ni foam	This work
$Co(OH)_2/Ni_3S_2$-II	348 mV	Ni foam	This work
$FeOOH\text{-}Fe_{2.0}$	263 mV	Ni foam	[1]
$NiFe(OH)_x/FeS/IF$	261 mV	Iron foam	[2]
Ni-FeOOH/NF	277 mV	Ni foam	[3]
$FF\text{-}Na_{500}Ni_{500}$	212 mV	Fe Foam	[4]
$FeNi(OH)_x/FeS/IF$	273 mV	Iron foam	[5]
NiFe/NF	290 mV	Ni foam	[6]
2D Co_3O_4	380 mV	Co powders	[7]
NiCo–OH	376 mV	Ni foam	[8]
Ni_5Co_3Mo–OH	304 mV	Ni foam	[8]
Ni-Co-S/CF	363 mV	Cu foam	[9]
Fe–Co–Ni hydroxide	319 mV	Ni foam	[10]

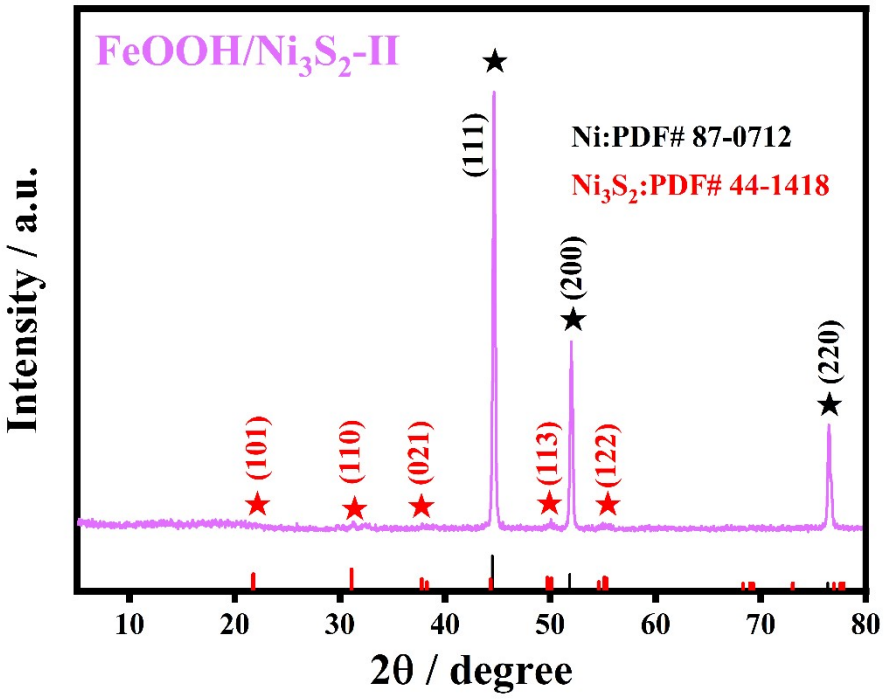

Figure S10. The XRD image after the OER of FeOOH/Ni_3S_2-II.

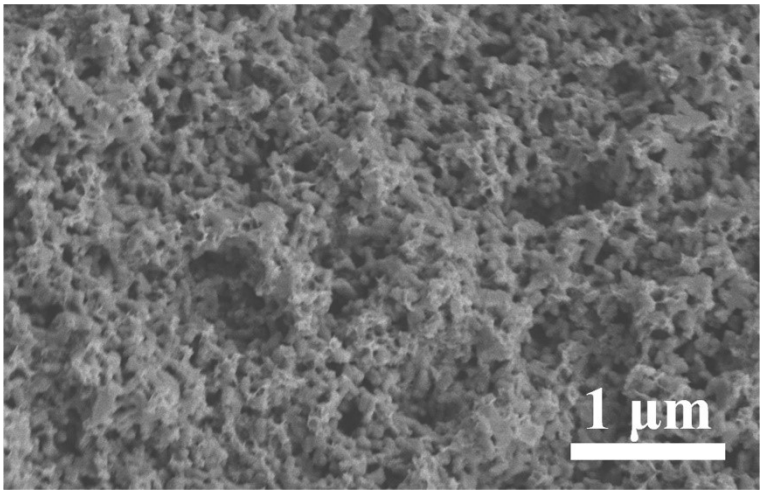

Figure S11. The SEM image after the OER of FeOOH/Ni_3S_2-II.

References

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