Electronic Supplementary Material (ESI) for Materials Advances.

Effective Regulation on Catalytic Performance of Nickel-Iron-Vanadium Layered Double Hydroxide for Urea Oxidation via Sulfur Incorporation

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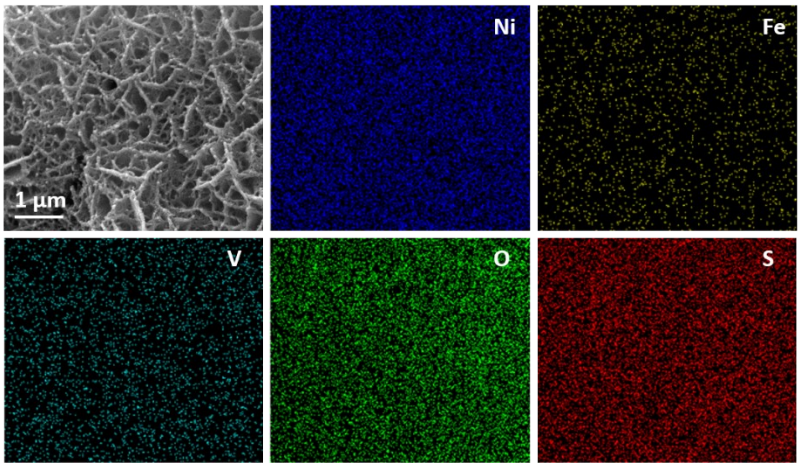

Fig. S1. SEM image and corresponding EDS mapping results of the S-NiFeV LDH catalysts.

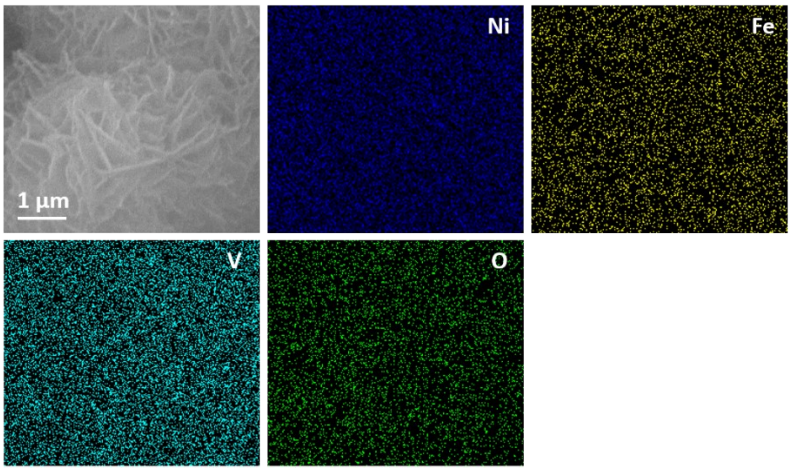

Fig. S2. SEM image and corresponding EDS mapping results of the NiFeV LDH catalysts.

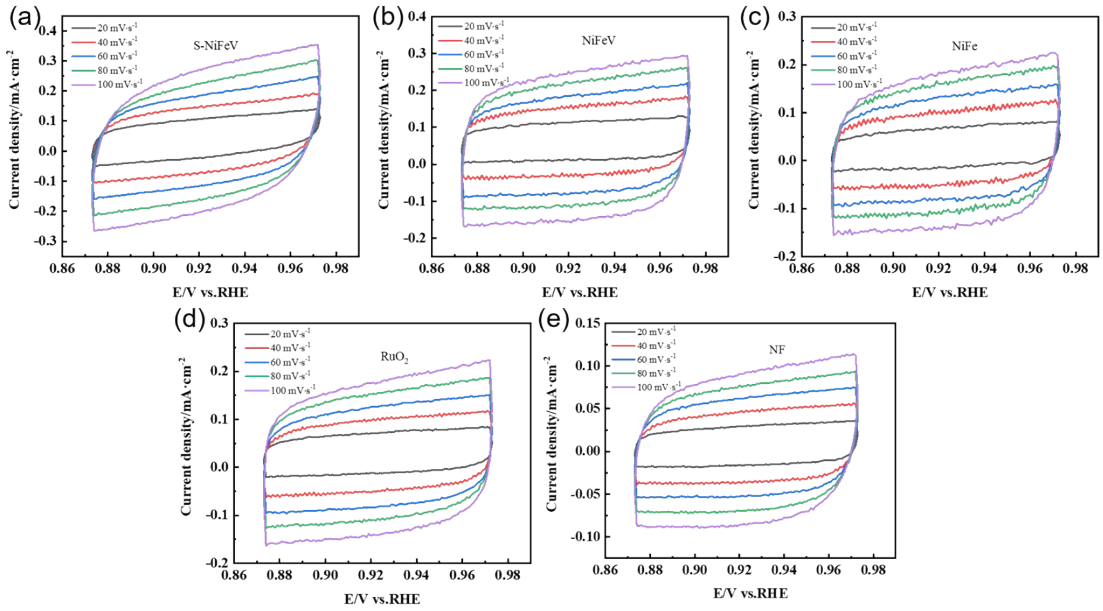

Fig. S3. CV curves record in 1 M KOH with scan rates from 20 to 100 mV·s^{-1} for (a) S-NiFeV LDH, (b) NiFeV LDH, (c) NiFe LDH, (d) RuO_2, and (e) bare NF.

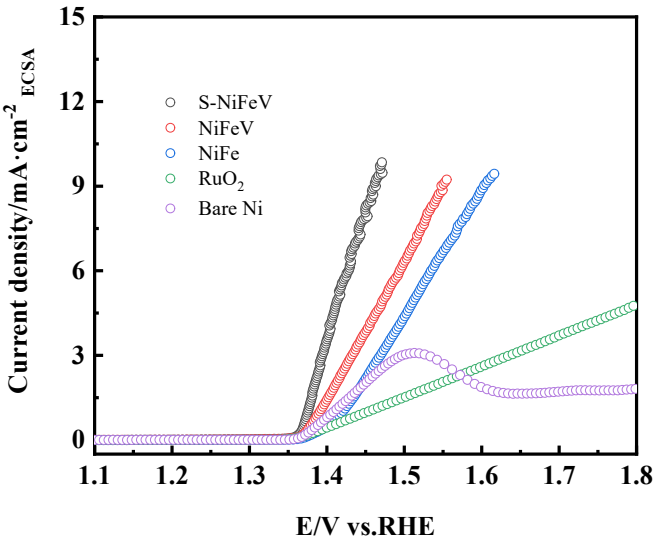

Fig. S4. Polarization curves of different electrode normalized ECSAs.

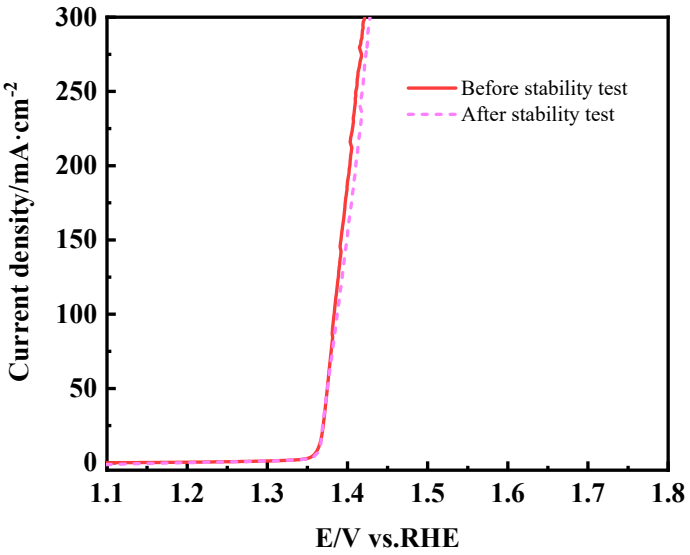

Fig. S5. The polarization curves of the S-NiFeV LDH sample before and after stability measurement.

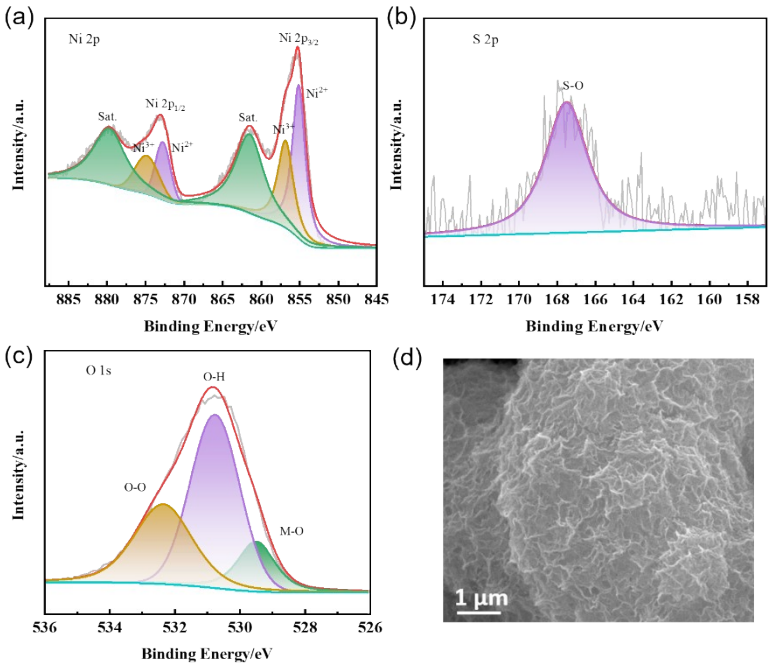

Fig. S6. XPS spectra of (a) Ni 2p, (b) S 2p and (c) O 1s in the S-NiFeV LDH after stability test. (d) SEM image of S-NiFeV LDH after stability test.

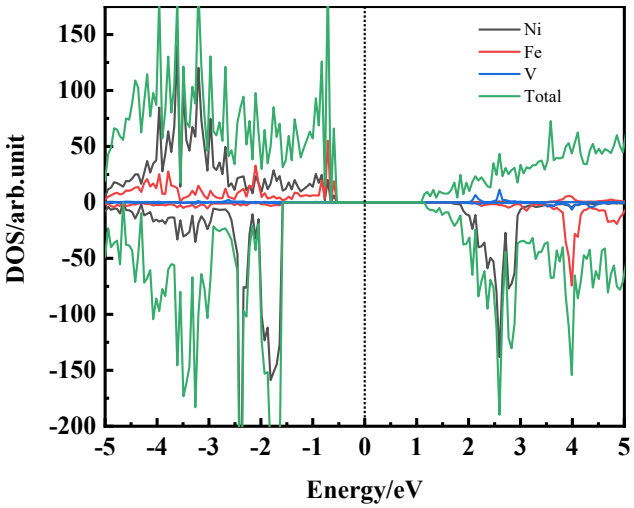

Fig. S7. Density of states (DOS) of the NiFeV LDH sample.

Table S1. Comparison of UOR performance for the S-NiFeV LDH and other previously reported catalysts.

Catalysts	Electrolyte	Current density ($mA \cdot cm^{-2}$)	Potential (mV vs. RHE)	Tafel (mV/dec)	Ref.
O-NiMoP/NF	1 M KOH and 0.5 M urea	100	1.41	34	[1]
Ni_3N/NF	1 M KOH and 0.5 M urea	100	1.42	41	[2]
Ni-DMAP-2/NF	1 M KOH and 0.5 M urea	100	1.45	23	[3]
Co-doped $NiMoO_4$	1 M KOH and 0.5 M urea	100	1.38	38.5	[4]
O_{vac}-V-$Ni(OH)_2$	1 M KOH and 0.33 M urea	100	1.47	29.12	[5]
NiCoP	1 M KOH and 0.5 M urea	100	1.42	59	[6]
Ni–Mo–P/CP	1 M KOH and 0.33 M urea	100	1.39	27	[7]
P-$NiFeO_xH_y$	1 M KOH and 0.33 M urea	10	1.37	72.6	[8]
Ce-Co_3O_4	1 M KOH and 0.5 M urea	50	1.39	30.5	[9]
WO_3/NF-0.25	1 M KOH and 0.33 M urea	100	1.384	-	[10]
P–NiCoZn LDH/NF-10%	1 M KOH and 0.5 M urea	100	1.421	70	[11]

Ni_2P	1 M KOH and 0.5 M urea	50	1.34	46.3	[12]
SS-NiCo-0.5	1 M KOH and 0.33 M urea	100	1.34	48.2	[13]
S-NiFeV LDH	1 M KOH and 0.33 M urea	100	1.38	30.1	This work

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