Supplementary Materials

Large-scale and Simple Synthesis of $NiFe(OH)_x$ Electrode Derived from Raney Ni Precursor for Efficient Alkaline Water Electrolyzer

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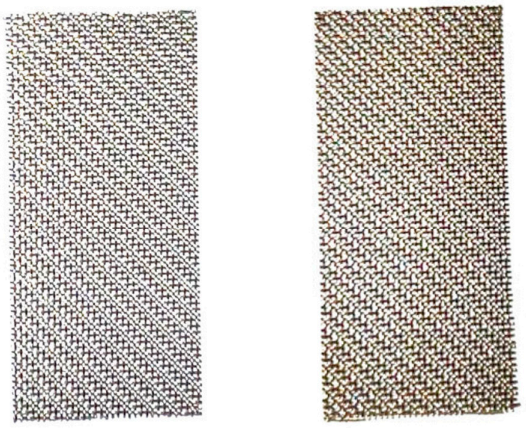

Figure S1. Images of bare Ni mesh before and after immersing in a solution containing Ni^{2+} and Fe^{3+} at 60°C for 12 hours, the left image depicts the original bare Ni mesh, while the right image illustrates the Ni mesh after immersion.

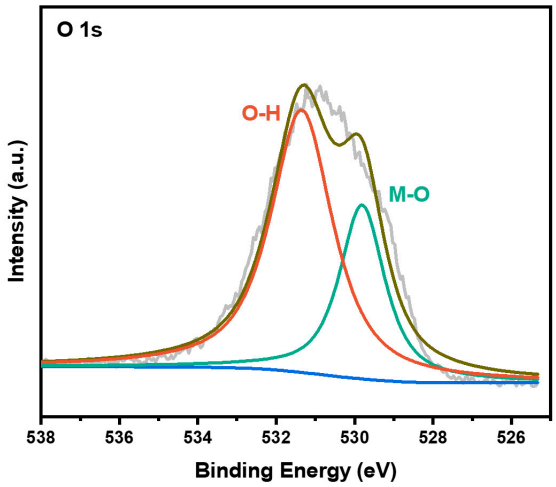

Figure S2. The high-resolution XPS spectrum of O 1s for $NiFe(OH)_x$@Raney Ni

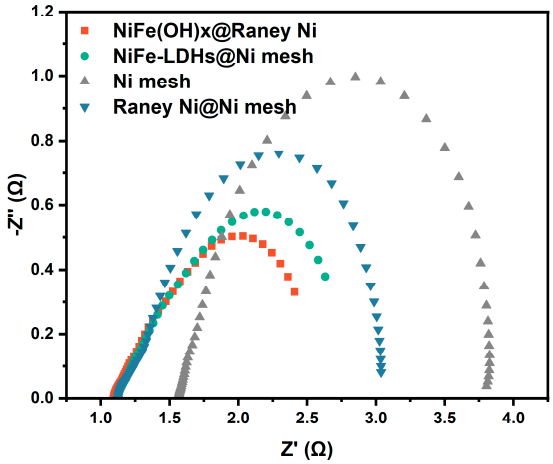

Figure S3. EIS test curves for different electrodes.

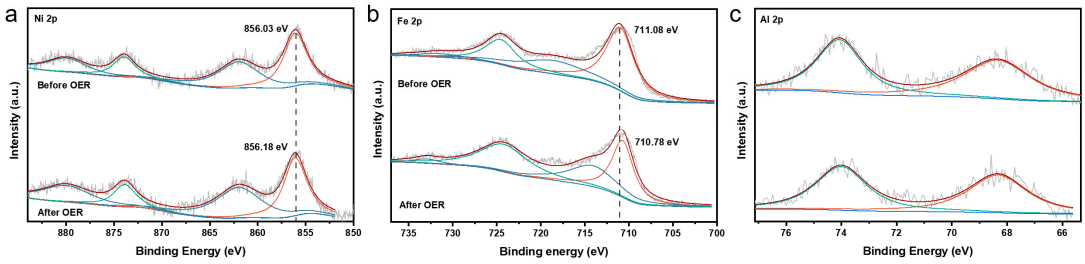

Figure S4. A comparison of the high-resolution XPS spectra for (a) Ni 2p, (b) Fe 2p, and (c) Al 2p before and after the OER stability test.

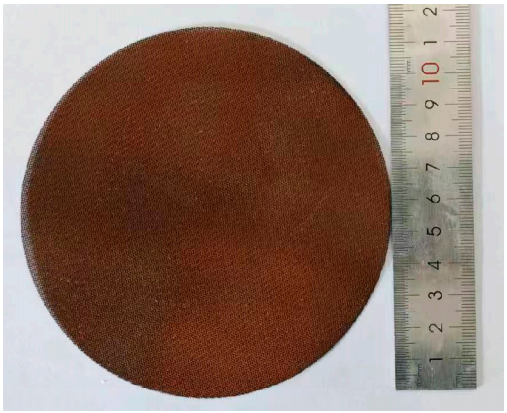

Figure S5. Appearance of the anode surface assembled into the electrolyzer.

Table S1 The ratio of various elements characterized by EDS

Element	Normalized mass (%)	Atom (%)
Ni	63.28	55.59
Fe	25.95	23.83
Al	10.77	20.59
Total	100	100

Table S2 Faraday efficiency testing of H_2 and O_2 in the electrolyzer.

Time	Current density (mA cm^{-2})	Theoretical production of H_2 (mL)	Actual production of H_2 (mL)	H_2 Faraday efficiency	Theoretical production of O_2 (mL)	Actual production of O_2 (mL)	O_2 Faraday efficiency
50	50	65.75	65.3	99.3	33.88	33.5	98.9
50	100	131.50	130.2	99.0	65.75	65.5	99.6
50	150	197.25	196.3	99.5	98.63	98.2	99.6
Average				99.3			99.4