Pr-Doped NiFe-Layered Double Hydroxide on Plasma-Etched Nickel Foam as a High-Efficiency Electrocatalyst for Oxygen Evolution Reaction

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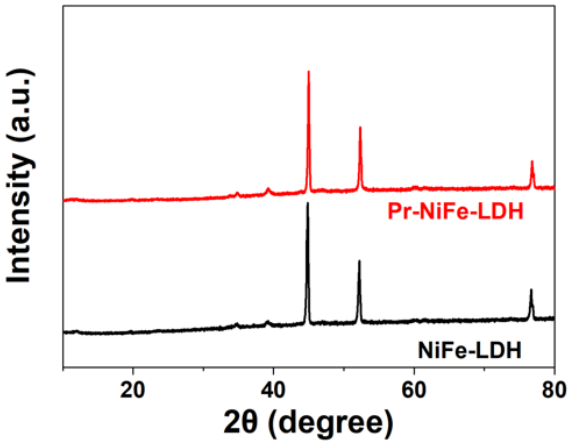

Fig. S1. XRD patterns of NiFe LDH and Pr-NiFe LDH.

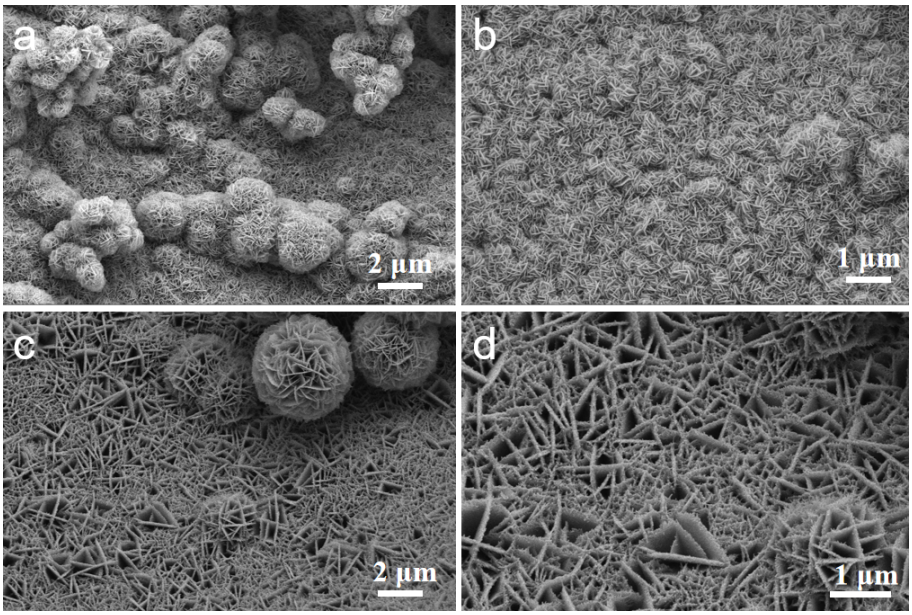

Fig. S2. SEM images of (a,b) NiFe LDH and (c,d) Pr-NiFe LDH.

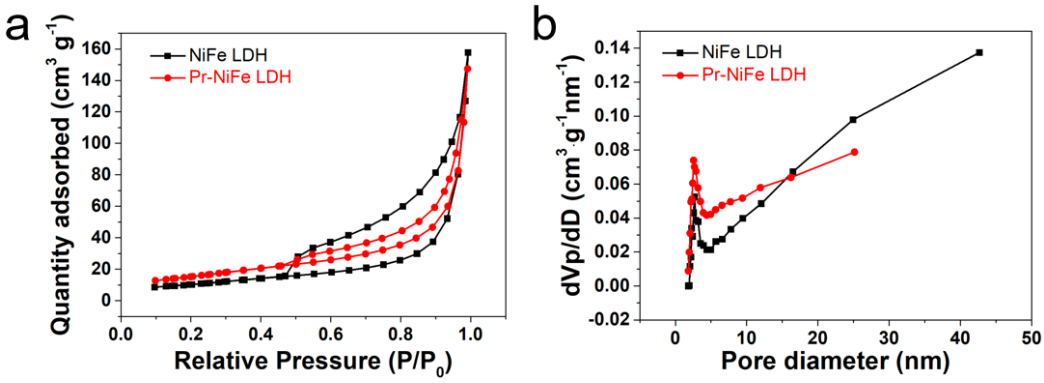

Fig. S3.(a) Nitrogen adsorption/desorption isotherms (b) and the pore size distribution curves of Pr-NiFe LDH.

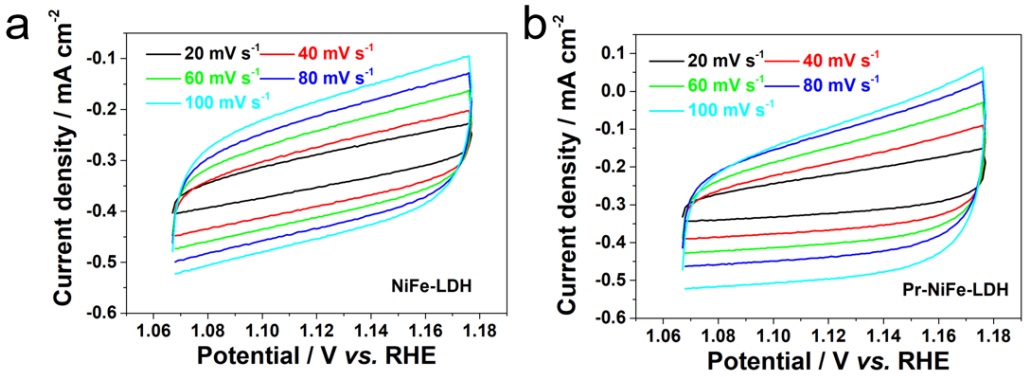

Fig. S4. Cyclic voltammogram (CV) curves of (a) NiFe LDH and (b) Pr-NiFe LDH.

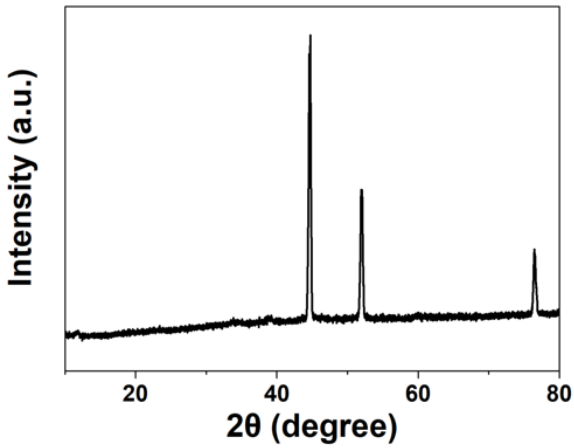

Fig. S5. (a) XRD pattern of Pr-NiFe LDH after OER test.

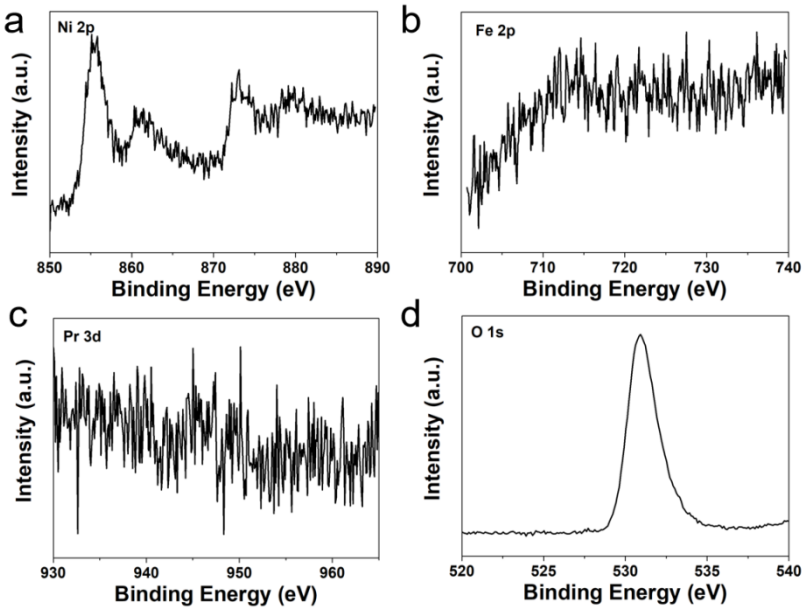

Fig. S6. High-resolution XPS spectra at (a) Ni 2p, (b) Fe 2p, (c) Pr 3d and (d) O 1s for Pr-NiFe LDH after OER test.

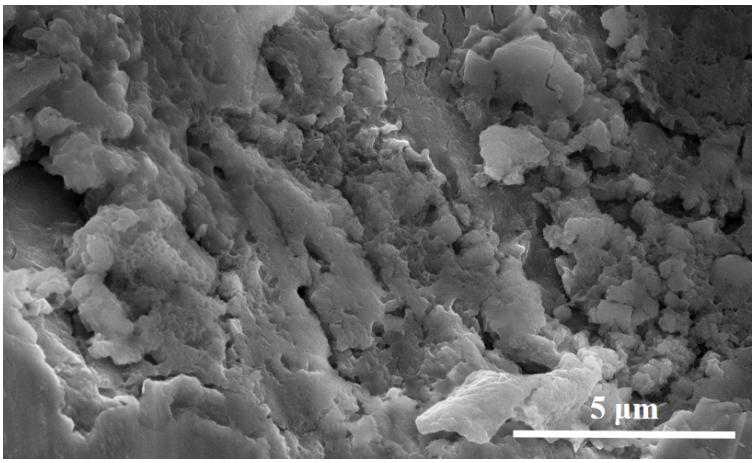

Fig. S7. SEM image for Pr-NiFe LDH after OER test.

Table S1 Comparison of the OER performances of the heterostructure Pr-NiFe LDH nanoarrays with the previously reported electrocatalysts at alkaline media.

Electrocatalysts	Overpotential (mV) at 100 mA cm^{-2}	Reference
Pr-NiFe LDH	321	This work
heterostructure Mn-Co-Fe-P nanoarrays	279	[1]Adv. Sci. 2025, 12, 2417521
MnCoP/CC	460	[2]Appl Surf Sci, 2020, 515, 146059
Ni-Fe-$K_{0.23}MnO_2$ CNFs-300	320	[3]Small, 2020, 16, e1905223
N-CoO@CoP	332	[4]Electrochimica Acta, 2020, 330, 135210
porous NiCo nanostructures	372.9	[5]Int. J. Hydrogen Energy,2025,114,497-506
Ni4MoW PMEC ternary alloys	209	[6]Adv. Powder Technol. ,2025,36,104839
W/NiBP microsphere	330	[7]Adv. Mater. Technol. 2025,10,70021
Vs-$Ni_2Fe_1S_2$/NF	270	[8]J. Energy Chem.2025,105,872-884.