Supporting Information

Autogenous Growth of Hierarchical V-doped NiFe Layer Double Hydroxides Electrode for Enhanced Overall Water Splitting

Jin Liang[a]*, Haiqi Shen[a], Yaming Ma[b], Dongyu Liu[d], Mingtao Li[d], Jie Kong[a], Yusheng Tang[a], Shujiang Ding[bc]

[a]MOE Key Laboratory of Space Applied Physics and Chemistry, Shaanxi Key Laboratory of Macromolecular Science and Technology, School of Chemistry and Chemical Engineering, Northwestern Polytechnical University, Xi'an, 710072, P. R. China. jin.liang@nwpu.edu.cn;

[b]Xi'an Key Laboratory of Sustainable Energy Materials Chemistry, Department of Applied Chemistry, School of Science, Xi'an Jiaotong University, Xi'an, 710049, P. R. China.

[c]Shenzhen Academy, Xi'an Jiaotong University, Shenzhen, 518057, P. R. China.

[d]International Research Center for Renewable Energy, State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, 710049, China

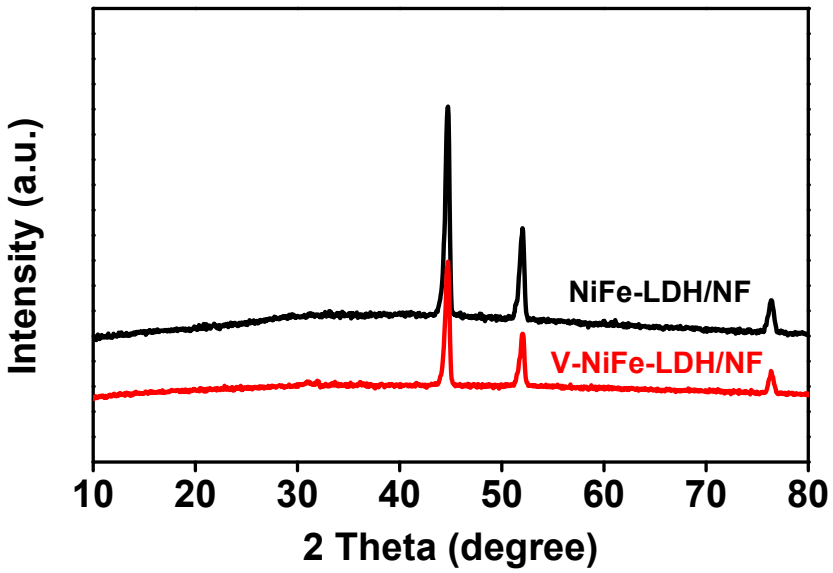

Figure S1. XRD patterns of V-NiFe-LDH/NF and NiFe-LDH/NF.

Table S1. Table of electrochemical performance of LDH-based electrodes

Electrocatalysts	Overpotential (mV) at 10 mA cm^{-2}	Tafel slope (mV dec^{-1})	Electrolyte	Reference
V-NiFe-LDH/NF	195	31.3	1M KOH	This work
NiFe LDH/$(NiFe)S_x$	210	105	1M KOH	Electrochim. Acta, 2020, 348, 136339
$(Ni_{0.7}Fe_{0.3})C_2O_4$	203	43	1M KOH	Small, 2019, 15, 1904579
NP Au/Cr–NiFe	323	33	0.1 M KOH	J. Mater. Chem. A, 2019, 7, 9690
$(Co,Ni)Se_2$@NiFe LDH	277	75	1M KOH	ACS Appl. Mater. Interfaces 2019, 11, 8106
NiFe LDH/NF	219	33	1M KOH	J. Mater. Chem. A, 2019, 7, 22889
Hcp−NiFe@NC	226	41	1M KOH	Angew. Chem. 10.1002/ange.201902446
NiFe-OH NS/NF-7	~210	46.7	1M KOH	Appl. Catal. B: Environmental, 2019, 244, 844

GDY@NiFe	260	95	1M KOH	ACS Appl. Mater. Interfaces, 2019, 11, 2662
NiO@NiFe-LDH	256	72	1M KOH	ACS Sustainable Chem. Eng. 2019, 7, 2327

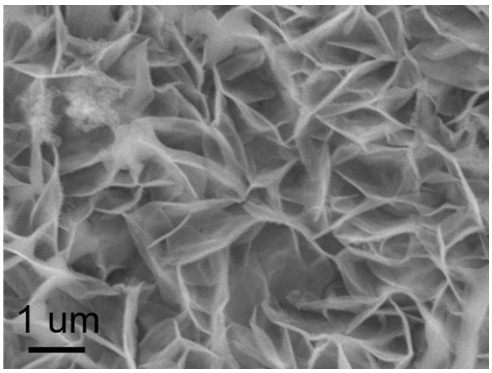

Figure S2. Postmortem check of tested V-NiFe-LDH/NF.

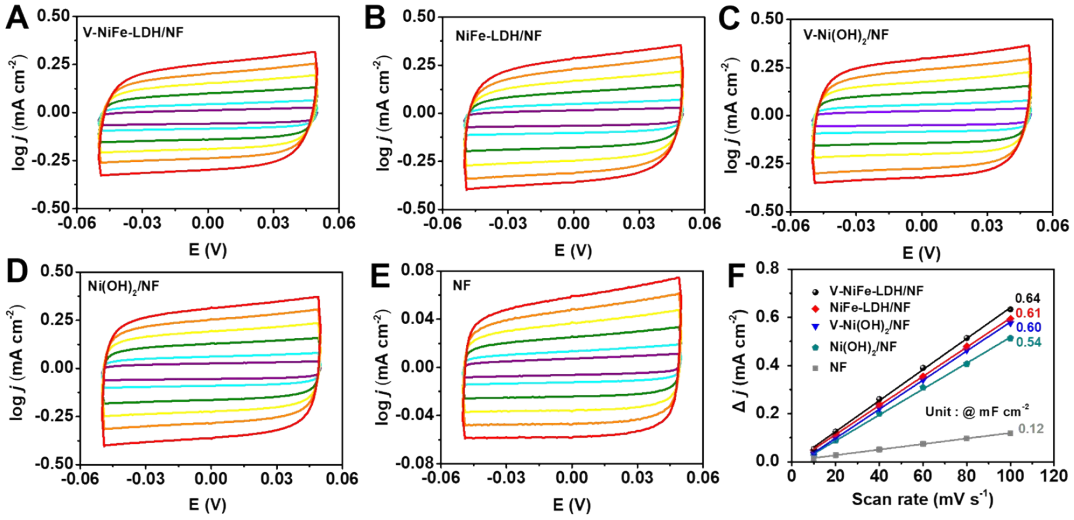

Figure S3. The ECSA was estimated based on C_{dll} to insight the excellent catalytic activity for both OER and HER.

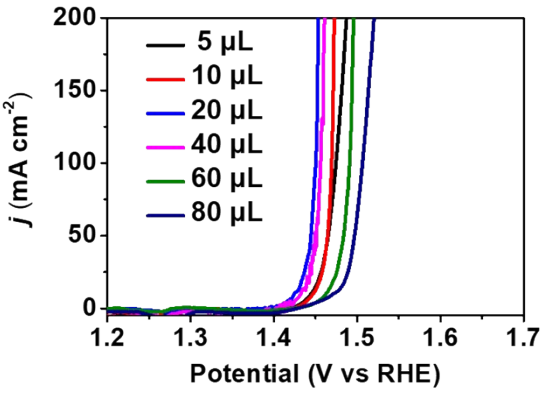

Figure S4. The series LSV curves of V-NiFe-LDH/NF.