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Aligned MoS_2 nanosheets vertically on N-doped carbon nanotubes with NiFe alloy for overall water splitting

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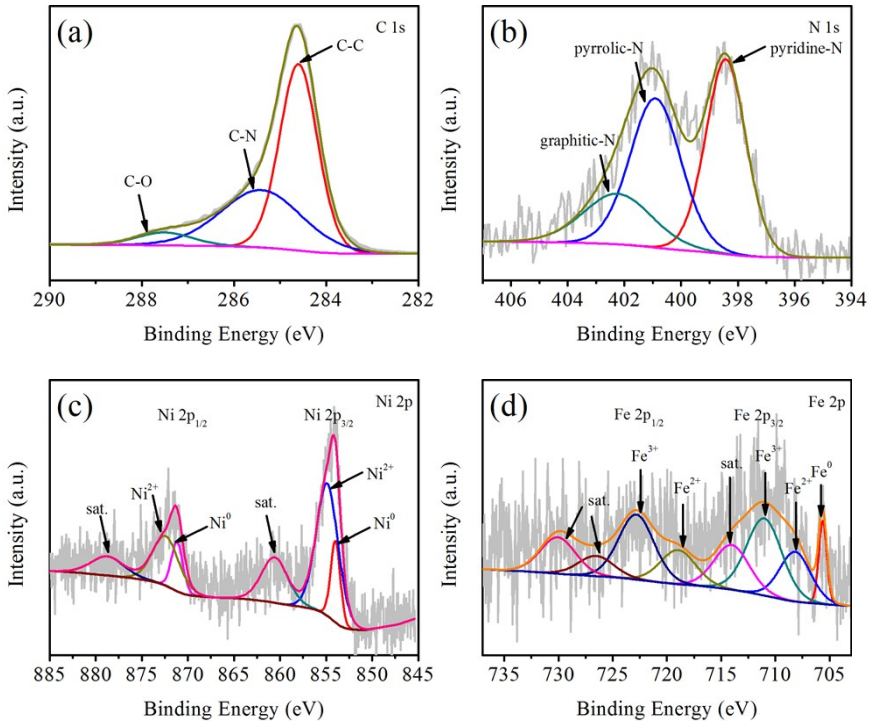

Fig. S1 XPS spectra of NiFe-NCNT-875. (a) C 1s, (b) N 1s, (c) Ni 2p, and (d) Fe 2p.

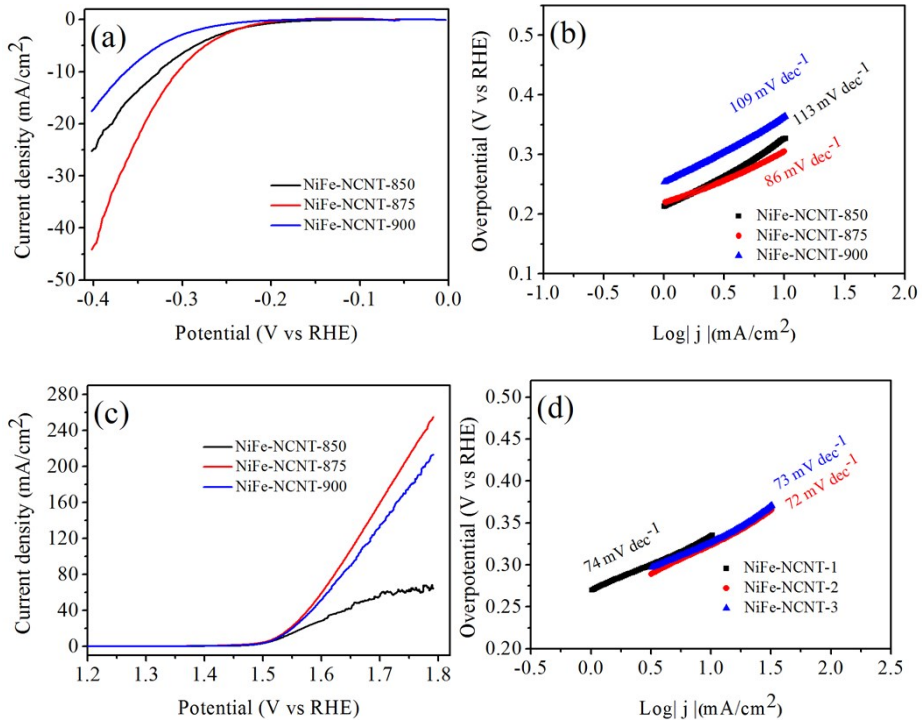

Fig. S2 HER and OER performances of NiFe-NCNT-875 and contrast samples. (a) LSV curves and (b) Tafel plots of HER. (c) LSV curves and (d) Tafel plots of OER.

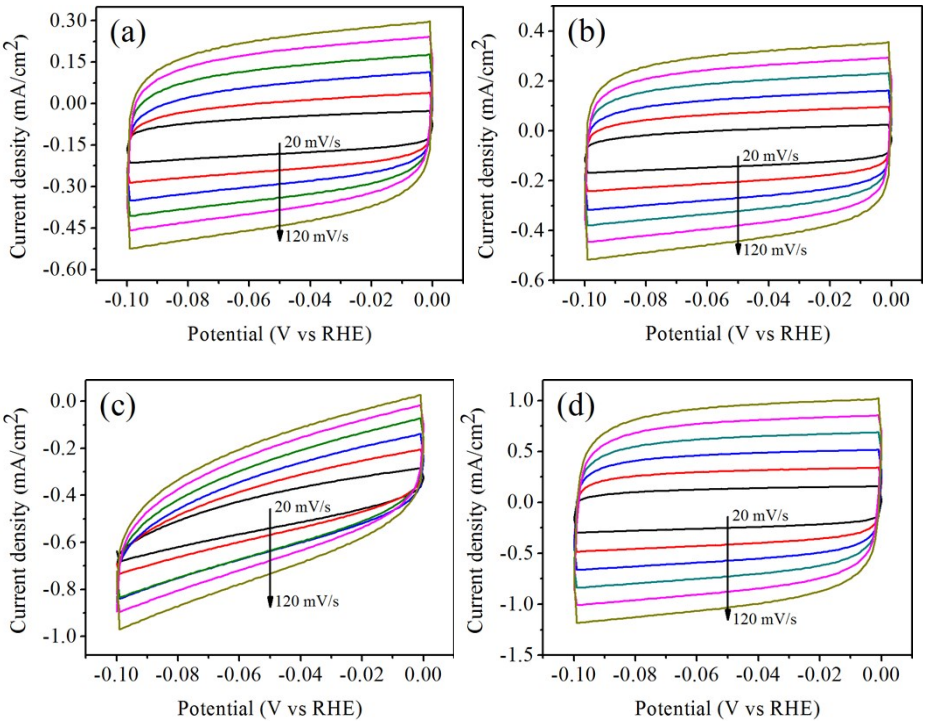

Fig. S3 Cyclic voltammetry curves (CV) of samples for HER. (a) NiFe-NCNT-850 (b) NiFe-NCNT-875 (c) NiFe-NCNT-900 (d) NiFe-NCNT@MoS_2-12.

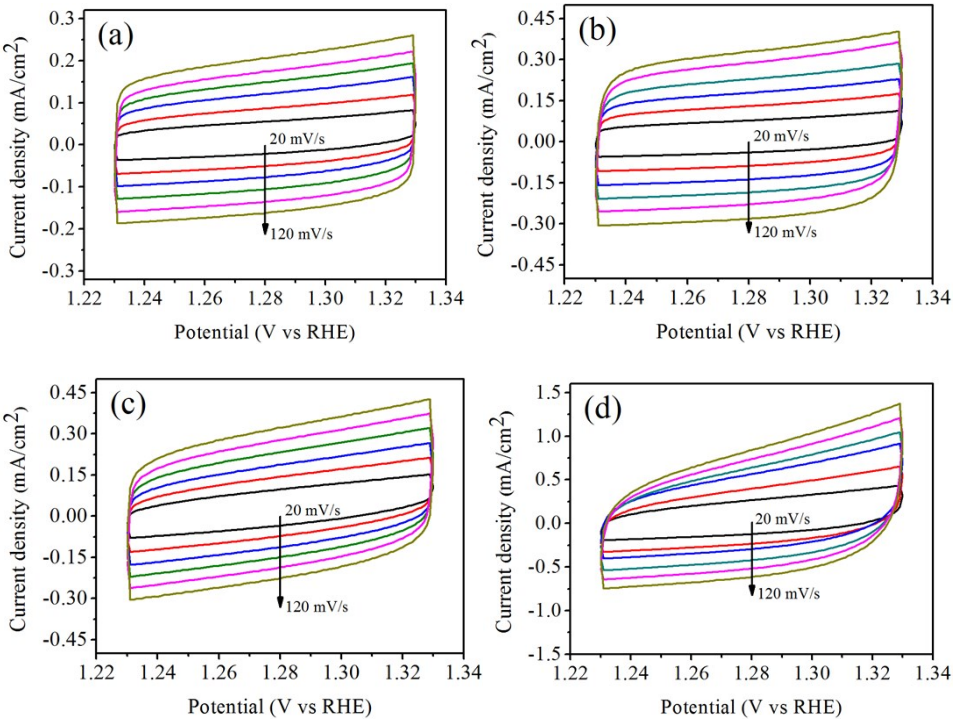

Fig. S4 Cyclic voltammetry curves (CV) of samples for OER. (a) NiFe-NCNT-850 (b) NiFe-NCNT-875 (c) NiFe-NCNT-900 (d) NiFe-NCNT@MoS_2-12.

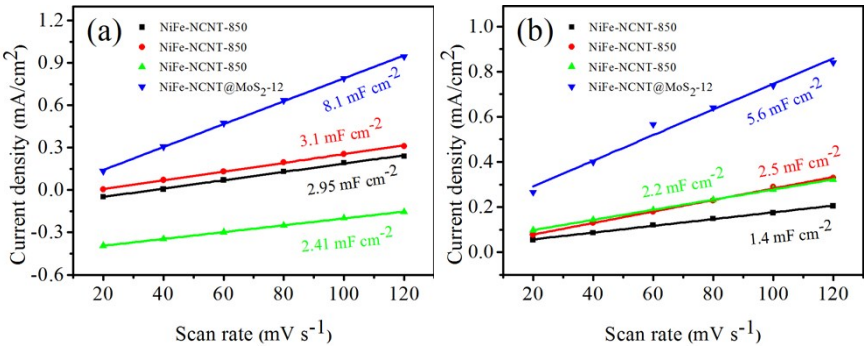

Fig. S5 (a) Linear fitting of the measured capacitive currents at -0.05 V (vs RHE) versus scan rates of samples, (b) Linear fitting of the measured capacitive currents at 1.28 V (vs RHE) versus scan rates of samples.

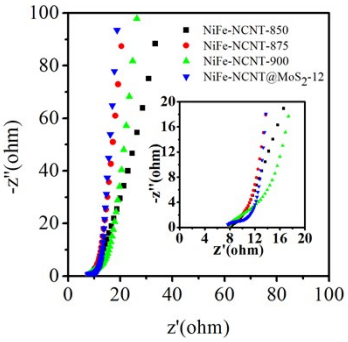

Fig. S6 Nyquist plots of samples.

Table S1 Comparison of electrochemical overall water splitting activities among different nonprecious catalysts in 1M KOH solution.

Catalysts	η (V) at J=10 mA/cm^2	Ref.
NiFe-NCNT@MoS_2-12	1.6	This work
Fe_xNi_y/CeO_2/NC	1.7	1
$CoMo_2S_4$	1.65	2
CoP/PNC	1.68	3
CoS_x/Co-MOF	1.48	6
Ni_2P@$NiFeAlO_x$	1.52	12
$NiFeO_x$@NiFeP	1.65	34
(Ni, Fe)S_2@MoS_2	1.56	38
NiFe-NC	1.67	46