Electronic Supplementary Material (ESI) for Inorganic Chemistry Frontiers.

Supporting Information for

Engineering thiospinel-based hollow heterostructured nanoarrays for boosting electrocatalytic oxygen evolution reaction

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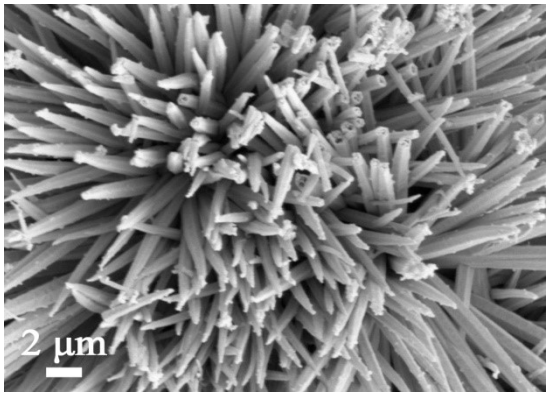

Fig.S1 SEM image of $Ni_3S_2/NiCo_2S_4$@NF.

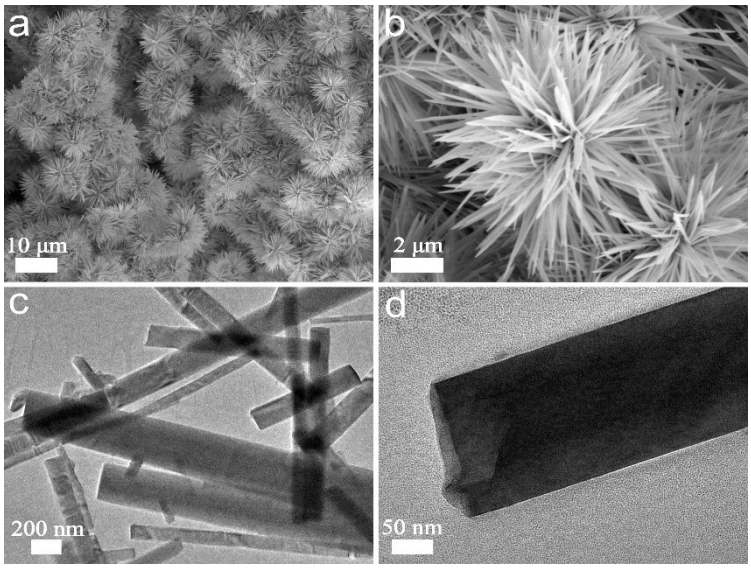

Fig.S2 (a, b) SEM images and (c, d) TEM images of the NiCo-LDH@NF.

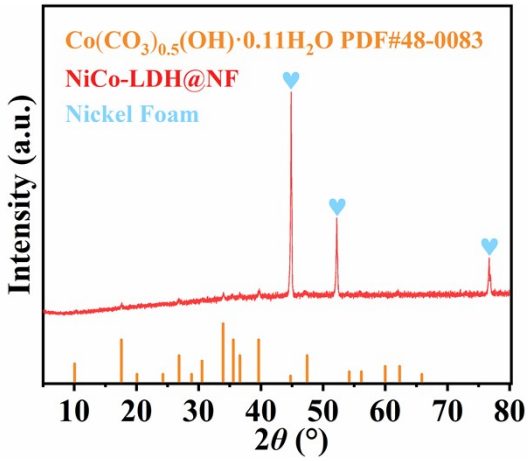

Fig.S3 XRD pattern of NiCo-LDH@NF.

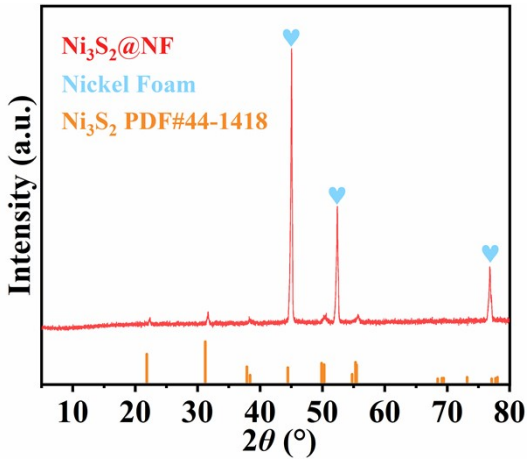

Fig.S4 XRD pattern of Ni_3S_2@NF.

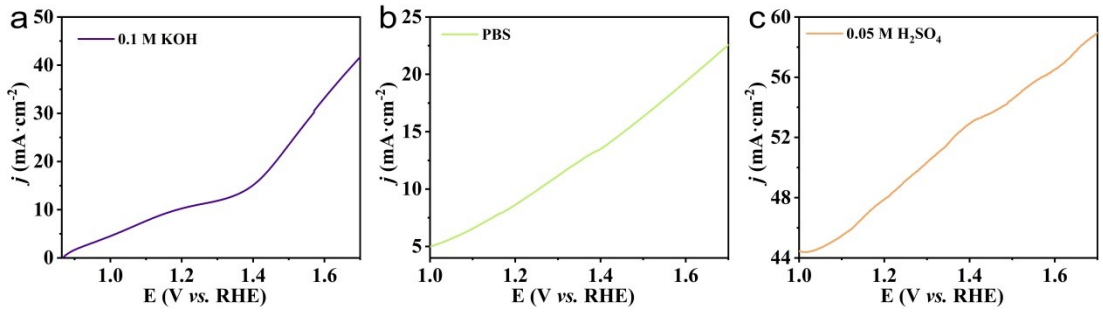

Fig.S5 OER polarization curves of Ni_3S_2/$NiCo_2S_4$@NF in (a) 0.1 M KOH, (b) PBS and (c) 0.05 M H_2SO_4 electrolyte.

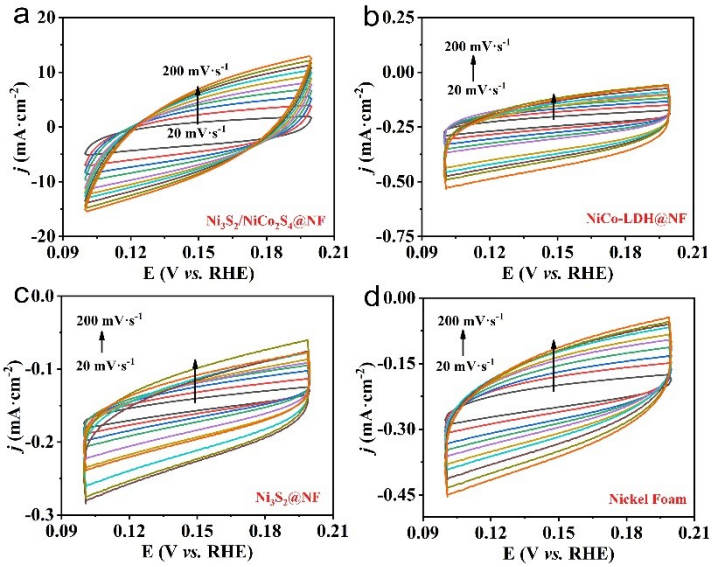

Fig.S6 Cyclic voltammograms in a capacitive current region at a scan rate ranging from 20 to 200 $mV \cdot s^{-1}$. (a) Ni_3S_2/$NiCo_2S_4$@NF, (b) NiCo-LDH@NF, (c) Ni_3S_2@NF and (d) NF.

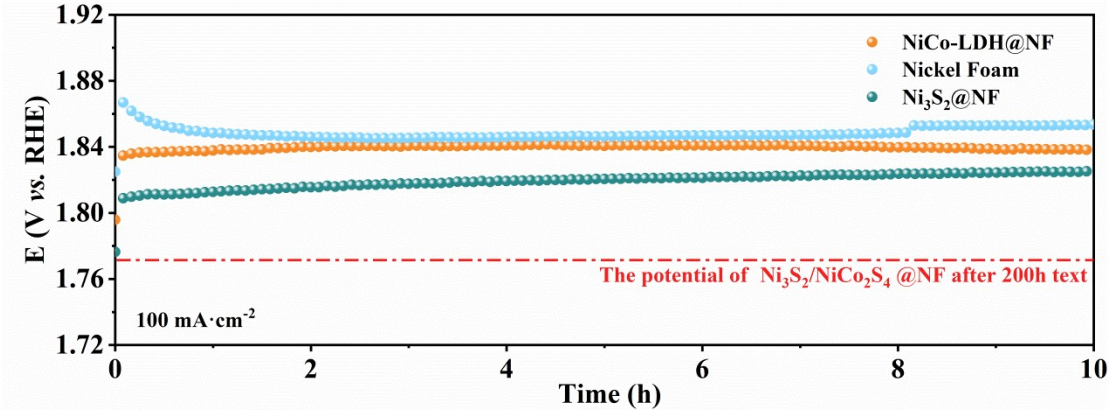

Fig.S7 Chronopotentiometry test of Ni_3S_2@NF, NiCo-LDH@NF, and NF at a constant current density of 100 $mA \cdot cm^{-2}$.

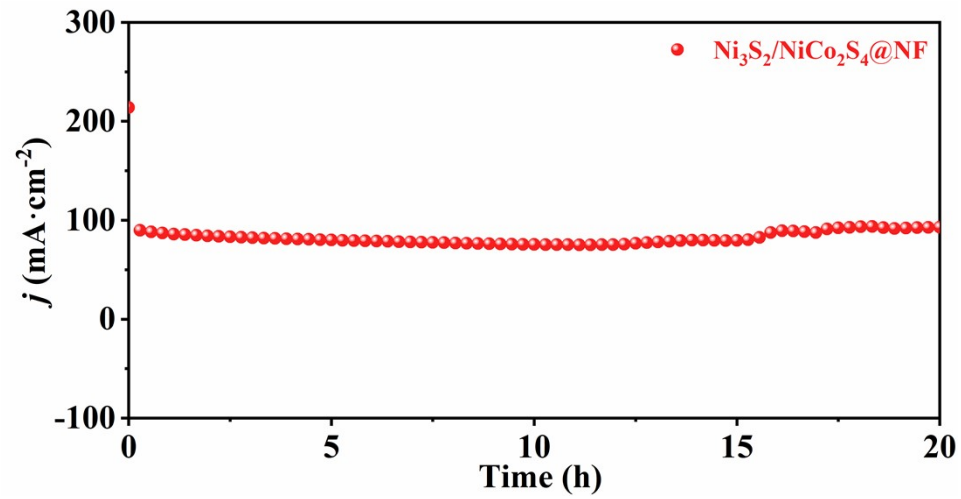

Fig.S8 Chronoamperometry test of $Ni_3S_2/NiCo_2S_4$@NF.

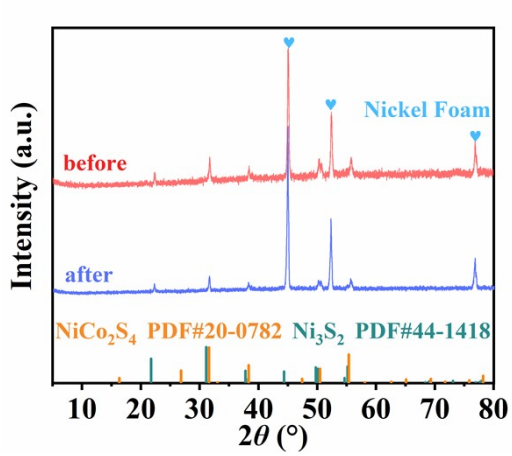

Fig.S9 XRD pattern of $Ni_3S_2/NiCo_2S_4$@NF before and after a continuous 200 h stability test.

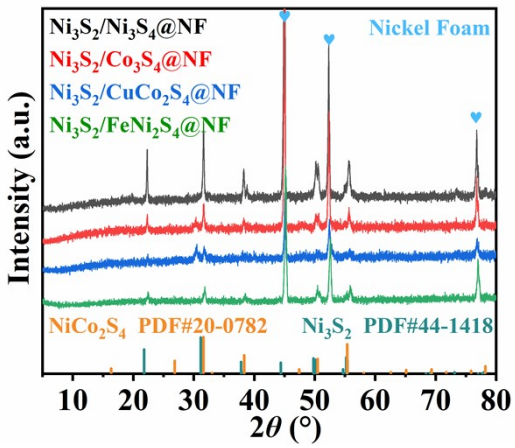

Fig.S10 XRD pattern of Ni_3S_2/Ni_3S_4@NF, Ni_3S_2/Co_3S_4@NF, $Ni_3S_2/CuCo_2S_4$@NF and $Ni_3S_2/FeNi_2S_4$@NF.

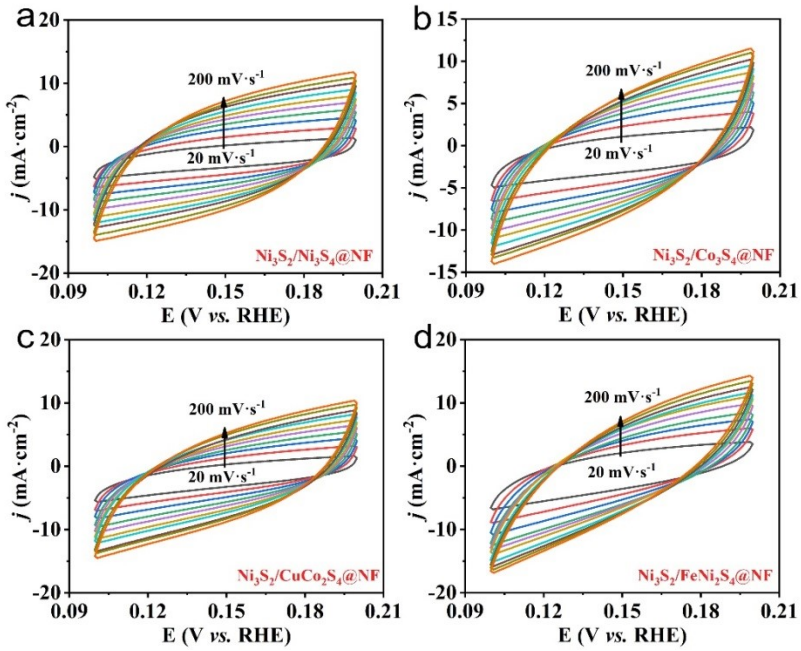

Fig.S11 Cyclic voltammograms in a capacitive current region at a scan rate from 20 to 200 $mV \cdot s^{-1}$. (a) Ni_3S_2/Ni_3S_4@NF, (b) Ni_3S_2/Co_3S_4@NF, (c) $Ni_3S_2/CuCo_2S_4$@NF and (d) $Ni_3S_2/FeNi_2S_4$@NF.

Table S1 OER activity comparison of different catalysts in alkaline condition.

Catalysts	Electrolyte	Overpotential	Reference
$Ni_3S_2/NiCo_2S_4$@NF	**1.0 M KOH**	**177 mV at 100 mA·cm^{-2}**	**This Work**
$NiCo_2S_4$@NiFe-LDH@NF	1.0 M KOH	201 mV at 60 mA·cm^{-2}	1
P-$NiCo_2S_4$@NF	1.0 M KOH	300 mV at 50 mA·cm^{-2}	2
Mn-$NiCo_2S_4$@NF	1.0 M KOH	220 mV at 10 mA·cm^{-2}	3
$NiCo_2S_4$/NiFeP@NF	1.0 M KOH	293 mV at 100 mA·cm^{-2}	4
$NiCo_2S_4$ @NF	1.0 M KOH	279 mV at 50 mA·cm^{-2}	5
$NiCo_2S_4$@N-rGO@NF	1.0 M KOH	230 mV at 10 mA·cm^{-2}	6
$MoS_2/NiCo_2S_4$@NF	1.0 M KOH	220 mV at 10 mA·cm^{-2}	7
Ru-$NiCo_2S_{4-x}$@NF	1.0 M KOH	330 mV at 100 mA·cm^{-2}	8
$CuCo_2S_4/NiCo_2S_4$@NF	1.0 M KOH	271 mV at 10mA·cm^{-2}	9
$NiCo_2S_4$@NF	1.0 M KOH	319 mV at 100 mA·cm^{-2}	10
$NiCo_2S_4$@NF	1.0 M KOH	260 mV at 10 mA·cm^{-2}	11

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