

## Supporting Information

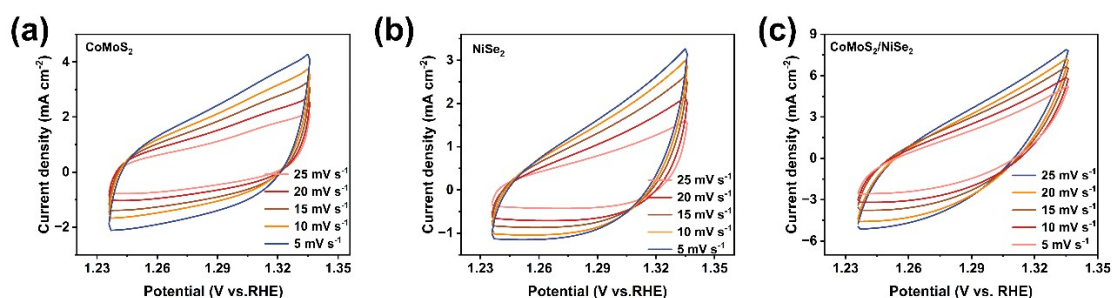
# Heterostructure design of CoMoS<sub>2</sub>/NiSe<sub>2</sub>-induced electric field engineering toward promoted efficient water electrolysis

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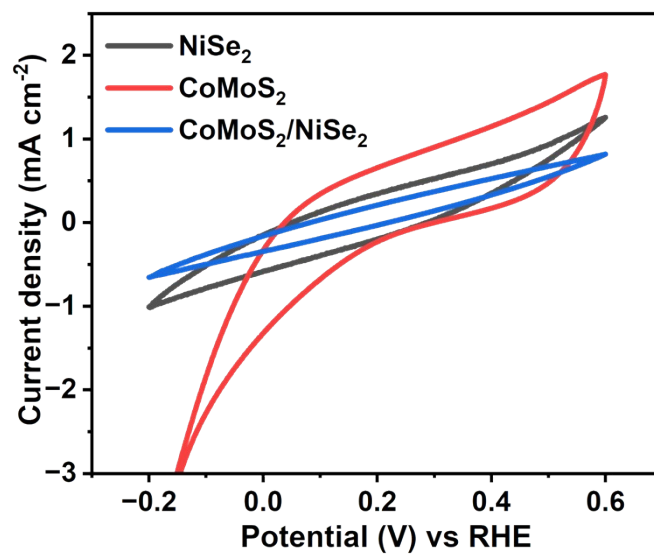
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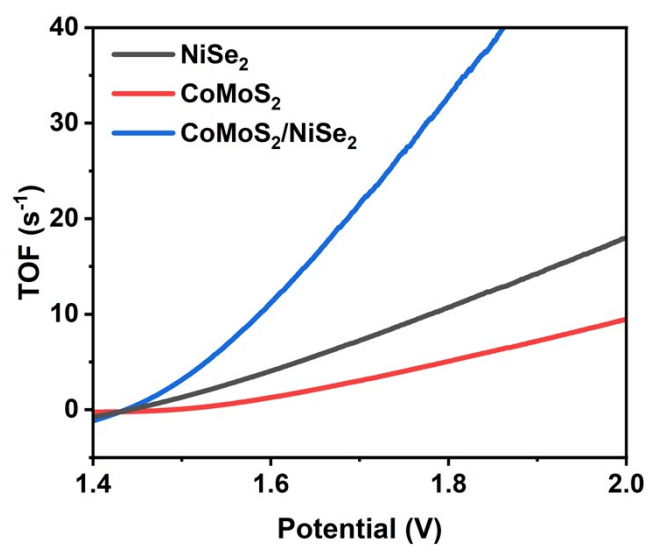
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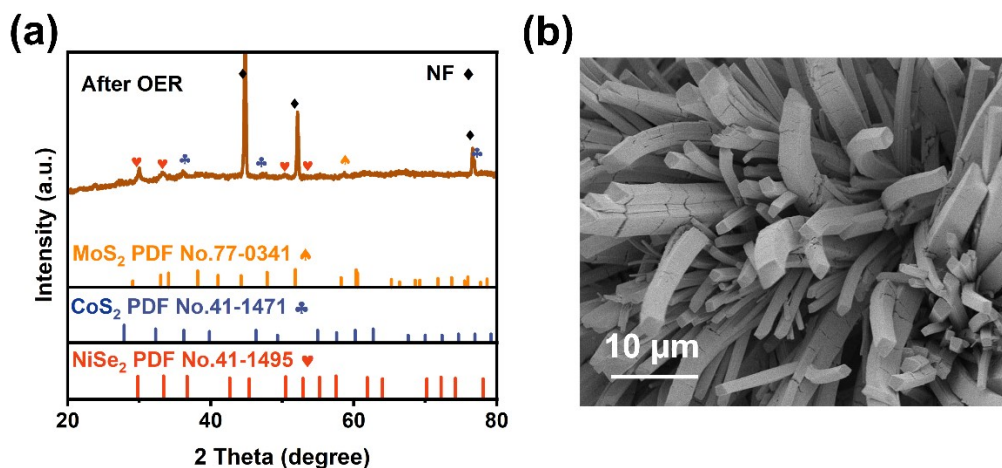
**Fig. S1** CV curves of (a) CoMoS<sub>2</sub>, (b) NiSe<sub>2</sub>, (c) CoMoS<sub>2</sub>/NiSe<sub>2</sub> for OER at different sweep rates in 1.0 M KOH solution.



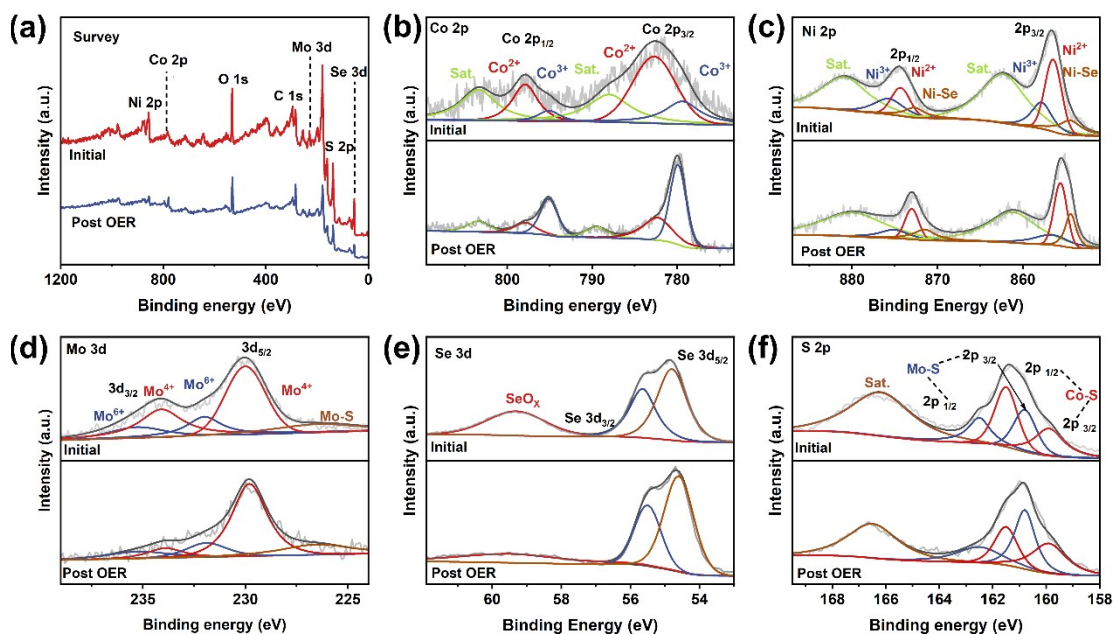
**Fig. S2** CV curves of the catalysts in PB (pH=7) with scan rate of  $50 \text{ mV}\cdot\text{s}^{-1}$ .



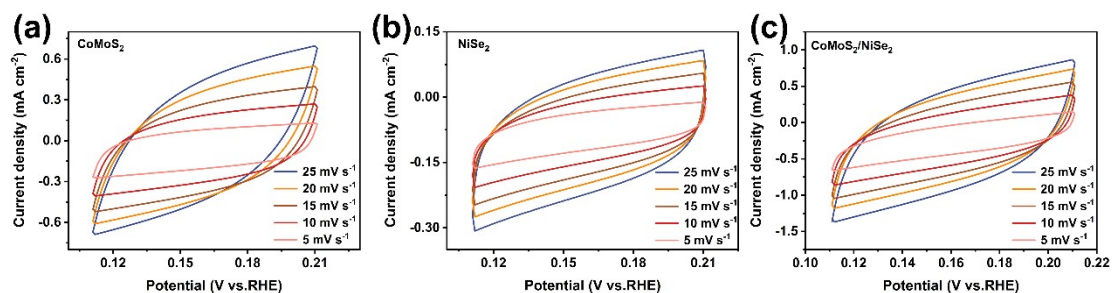
**Fig. S3** Calculated TOF of the catalysts for OER in 1.0 M KOH.



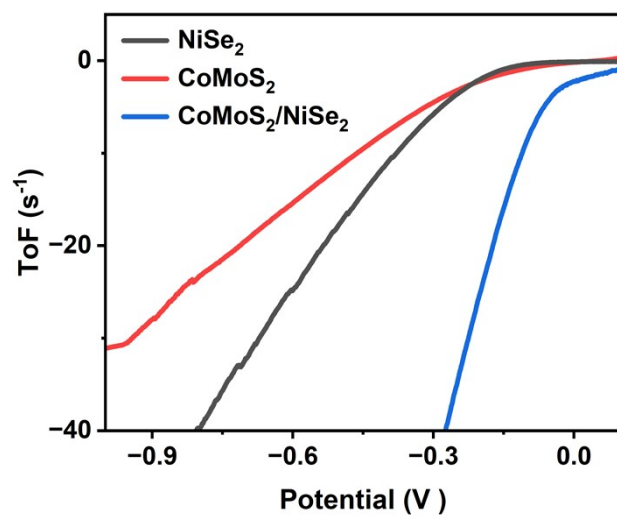
**Fig. S4** (a) XRD patterns and (b) SEM image of CoMoS<sub>2</sub>/NiSe<sub>2</sub> after OER test.



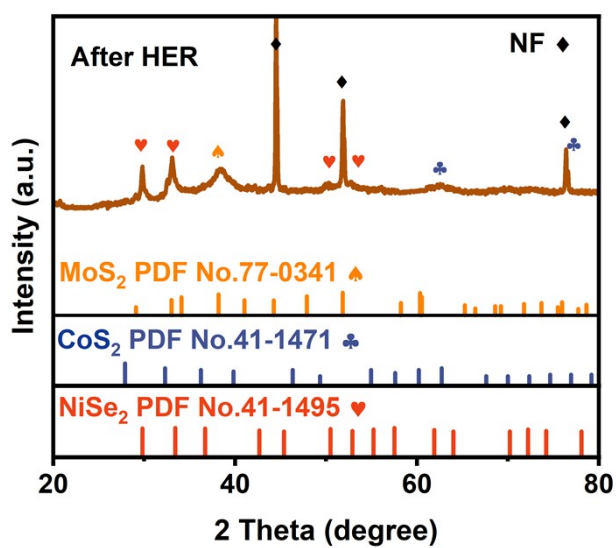
**Fig. S5** XPS image of CoMoS<sub>2</sub>/NiSe<sub>2</sub> after OER test.



**Fig. S6** CV curves of (a) CoMoS<sub>2</sub>, (b) NiSe<sub>2</sub>, (c) CoMoS<sub>2</sub>/NiSe<sub>2</sub> for HER at different sweep rates in 1.0 M KOH solution.



**Fig. S7** Calculated TOF of the catalysts for HER in 1.0 M KOH.



**Fig. S8** XRD patterns of  $\text{CoMoS}_2/\text{NiSe}_2$  before and after HER test.