

## Supplementary Material

### Effect of carbon-based carrier on HER performance of NiMo-based polyalloy catalysts

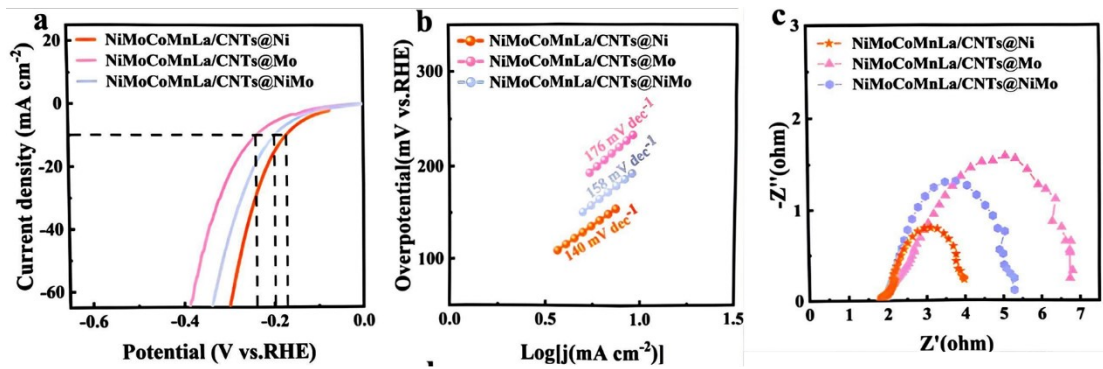
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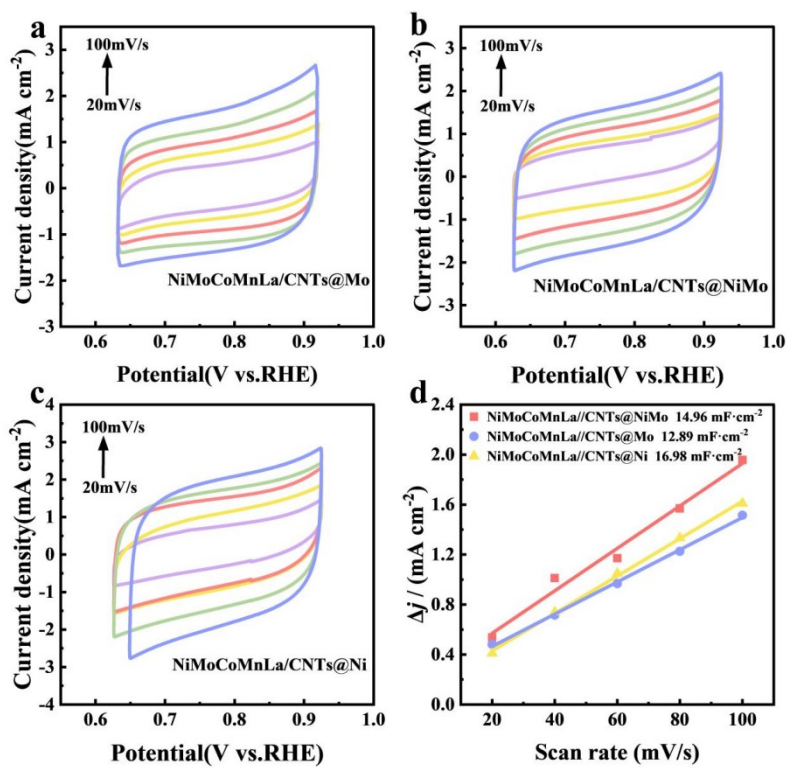
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**Supplementary Figure 1.** (a) HER polarisation curves of NiMoCoMnLa/CNTs@Ni, NiMoCoMnLa/CNTs@Mo, NiMoCoMnLa/CNTs@NiMo. (b) Corresponding Tafel slopes; (c) AC impedance spectra;



**Supplementary Figure 2.** (a) NiMoCoMnLa/CNTs@Mo, (b) NiMoCoMnLa/CNTs@NiMo, (c) NiMoCoMnLa/CNTs@Ni CV curves at scanning rates of 20, 40, 60, 80, and 100 mV/s; (d) current density versus scanning rate