

SUPPORTING INFORMATION

Electrodeposition of magnetic, superhydrophobic, non-stick, two-phase Cu-Ni foam films and their enhanced performance for hydrogen evolution reaction in alkaline water media

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SEM images

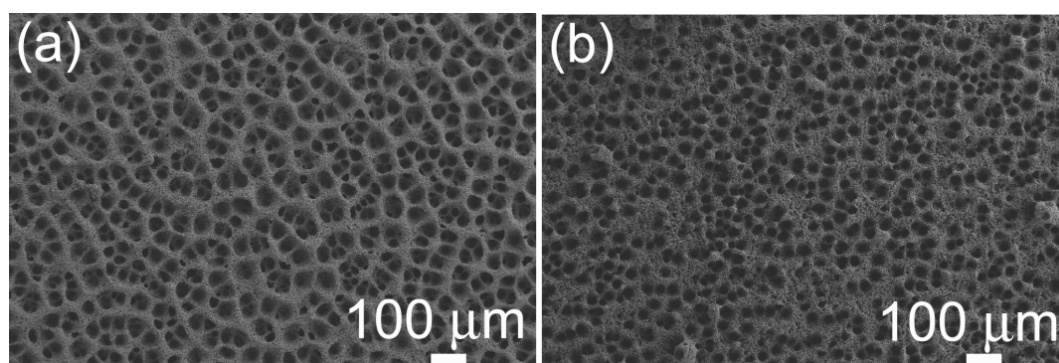


Fig. S1 SEM images of Cu-Ni MMFs electrodeposited at -1 A cm^{-2} for 300 s in electrolytes containing the following metal salts concentrations: (a) 0.02 M $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ + 0.3 M $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$, (b) 0.01 M $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ + 0.15 M $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$.

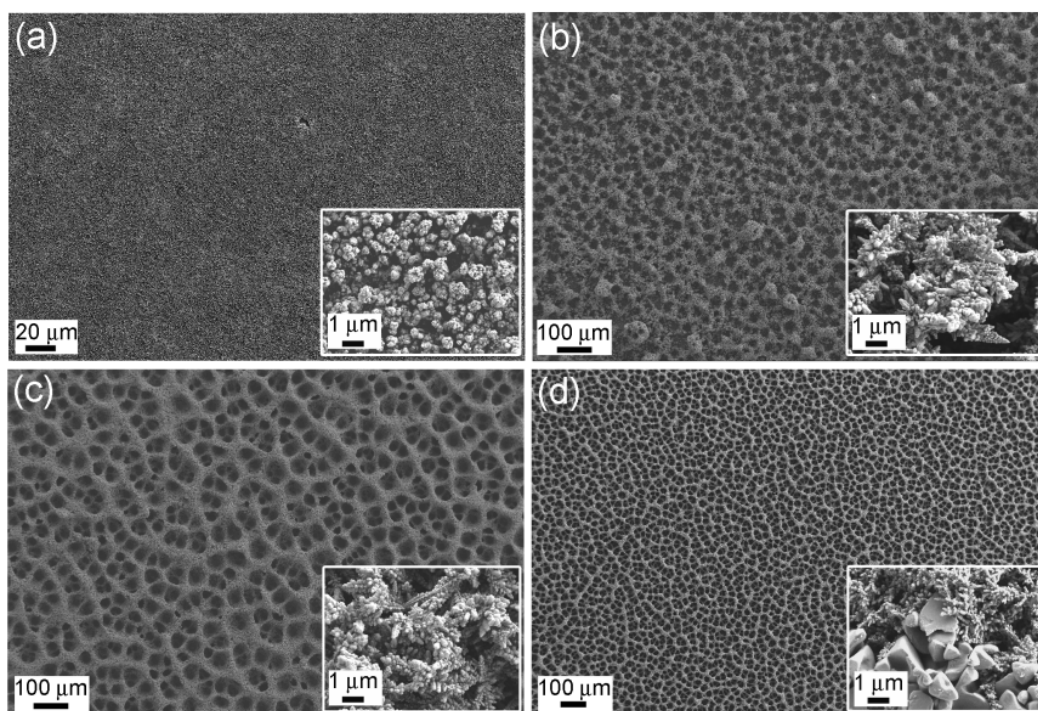


Fig. S2 SEM images of Cu-Ni MMFs electrodeposited at -1 A cm^{-2} for 300 s in electrolytes with varying $[\text{Ni (II)}]/[\text{Cu (II)}]$ ratios: (a) 30, (b) 20, (c) 15, (d) 1.

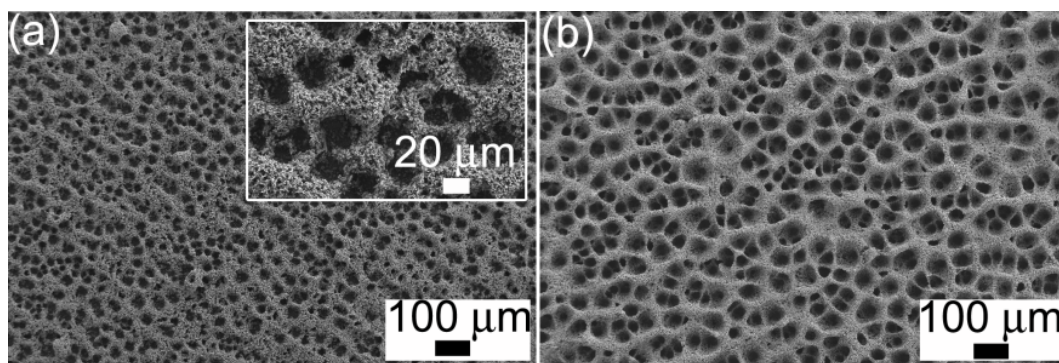


Fig. S3 SEM images of Cu-Ni MMFs were electrodeposited at -1 A cm^{-2} for 300 s under different stirring rates: (a) 600 rpm, (b) 800 rpm.

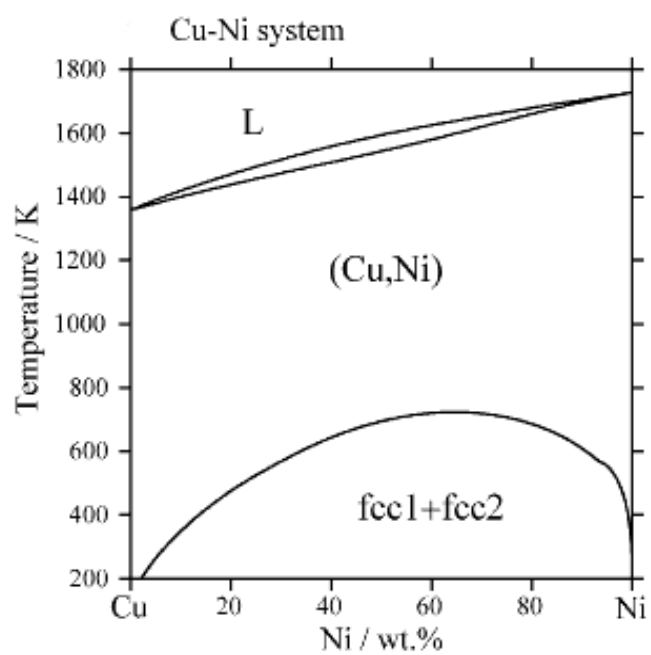


Fig. S4 Calculated phase diagram of the Cu-Ni binary system [44]. (*J. Phys. Chem. Solids*, 2005, **66**, 256–260).

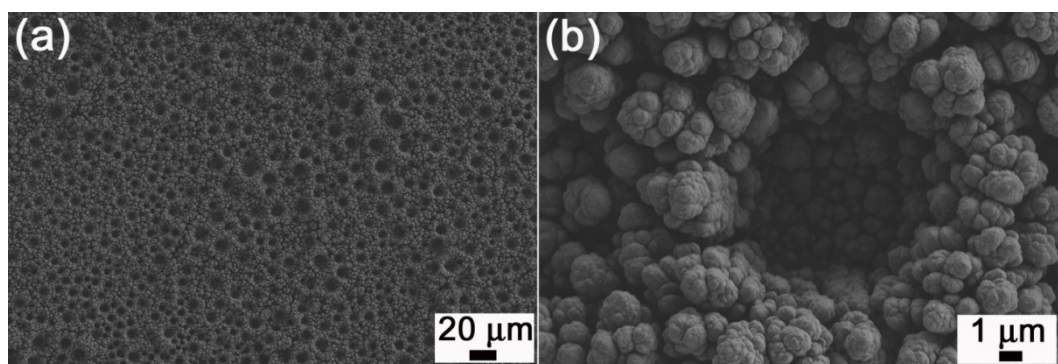


Fig.S5 SEM images of porous pure Ni films prepared according to reference [19]. (*J. Power Sources* 2012, **213**, 106).

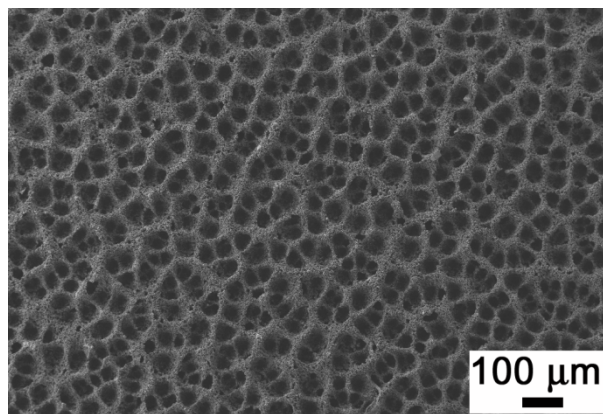


Fig. S6 SEM image of Cu₈₀Ni₂₀ film after 50 consecutive cycles in 1 M KOH (Figure 9). No apparent changes in morphology are observed, suggesting that the Cu-Ni MMFs are stable.