*Supplementary Materials*

# Design and Construction of $Cu(OH)_2/Ni_3S_2$ Composite Electrode on Cu Foam by Two-Step Electrodeposition

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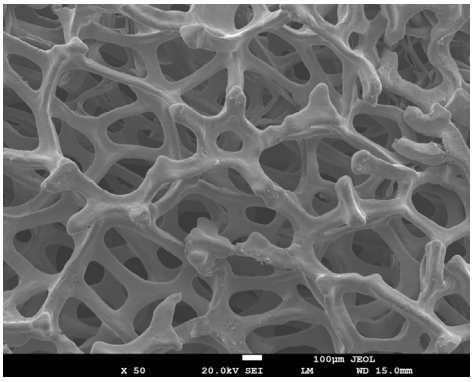


**Figure S1.** FE-SEM image of pristine Cu foam.

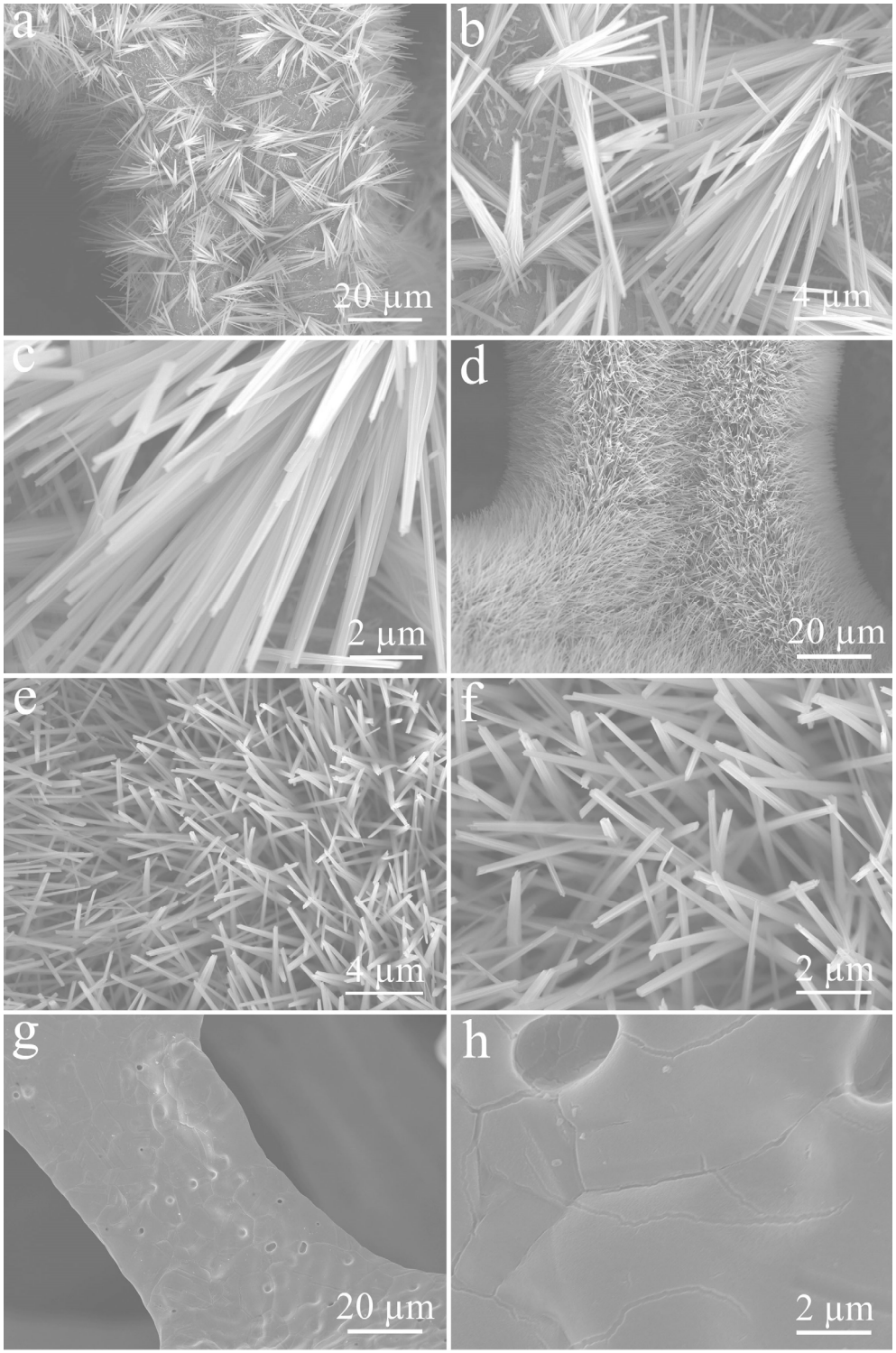


**Figure S2.** FE-SEM images of $Cu(OH)_2$ formed on Cu foam substrate at different current densities: **(a-c)** 0.01 A $cm^{-2}$ ; **(d-f)** 0.025 A $cm^{-2}$ ; **(g-h)** 0.075 A $cm^{-2}$.

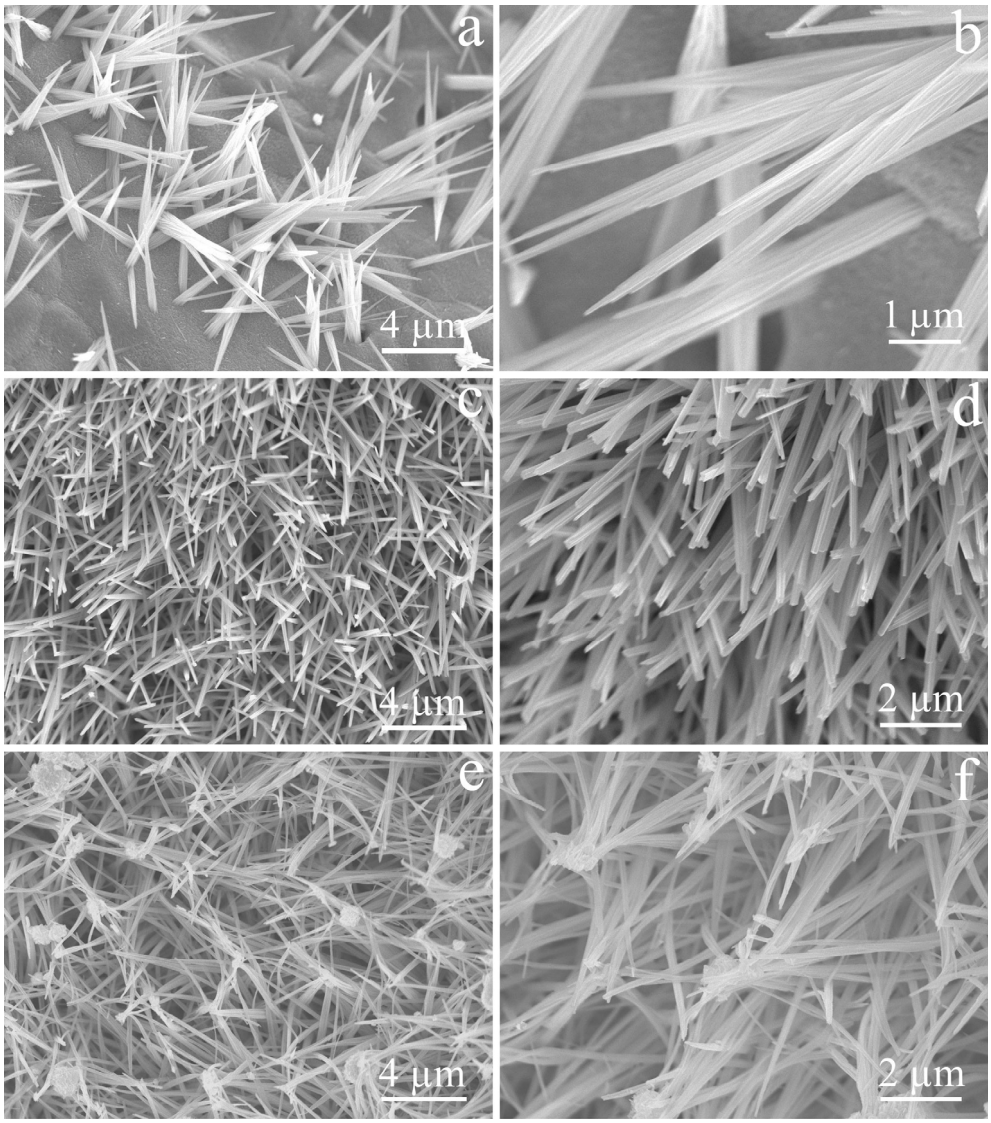


**Figure S3.** FE-SEM images of $Cu(OH)_2$ formed on Cu foam substrate at different electrodeposition time: **(a-b)** 1 min ; **(c-d)** 5 min; **(e-f)** 1 h.

The areal capacitance of $Cu(OH)_2/Ni_3S_2$ electrode is calculated according to the equation:

$$C_S = \frac{I \times \Delta t}{S \Delta V}$$

where *C*s (F $cm^{-2}$) is the specific capacitance, *I* (A) is the charge–discharge current, $\Delta t$ (s) is the discharging time, *S* ($cm^2$) is the effective area of the electrode and $\Delta V$ (V) represents the potential drop during discharge.