

## **Enhancement of capacitive performance of Ni<sub>2</sub>CoS<sub>4</sub> by incorporation of graphitized carbon dots**

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## The preparation of activate carbon (AC) electrode

Untreated AC was used as the active material and mixed with carbon nanotubes (conductive agent) and Nafion solution (binder) with a mass ratio of 80:15:5 and dispersed in 2 mL of ethanol under ultrasonication to obtain slurry. The slurry was coated on nickel foam and the mass loading of AC was controlled to  $1 \text{ mg cm}^{-2}$ . The electrochemical properties of AC were measured in 6 M KOH solution using a conventional three-electrode cell, platinum electrode, and Hg/HgO electrode were used as counter and reference electrodes, respectively.

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**Fig. S1** (a) Resistivity and (b) Raman spectrum of GCDs.

**Fig. S2** (a, b) SEM images of  $\text{Ni}_2\text{CoS}_4$ .

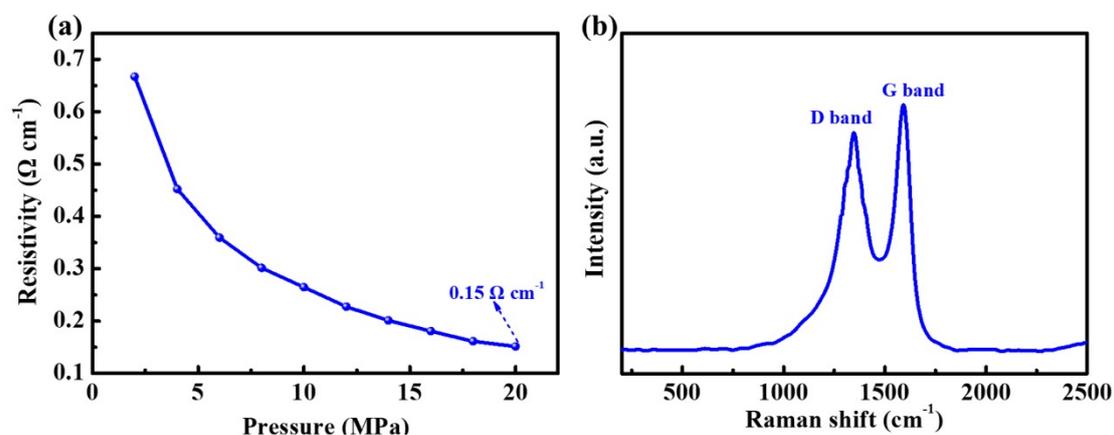
**Fig. S3** (a-e) Elemental mappings of  $\text{Ni}_2\text{CoS}_4/\text{GCDs}$  composite by EDS.

**Fig. S4** (a) CV curves, (b) GCD curves of  $\text{Ni}_2\text{CoS}_4$ .

**Fig. S5** (a) CV curves, (b) GCD curves of  $\text{Ni}_2\text{CoS}_4/\text{GCDs-6}$ .

**Fig. S6** (a) CV curves, (b) GCD curves of  $\text{Ni}_2\text{CoS}_4/\text{GCDs-12}$ .

**Fig. S7** (a) CV curves, (b) GCD curves of AC.



**Fig. S1** (a) Resistivity and (b) Raman spectrum of GCDs.

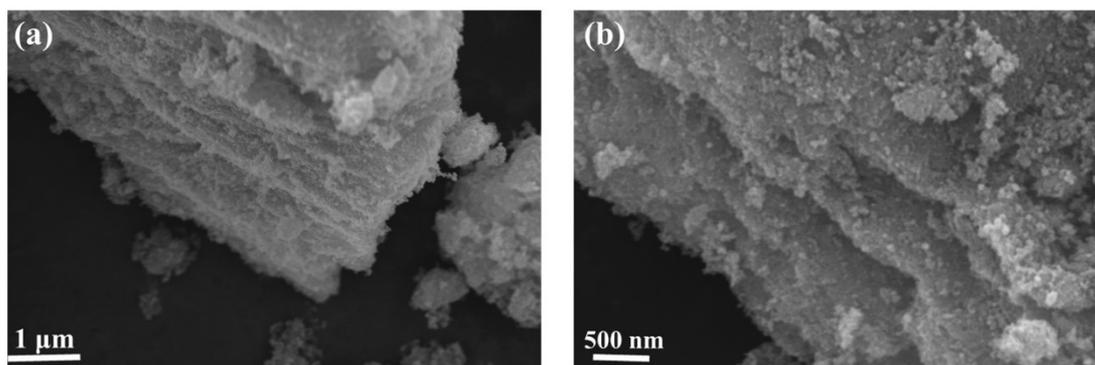


Fig. S2 (a, b) SEM images of  $\text{Ni}_2\text{CoS}_4$ .

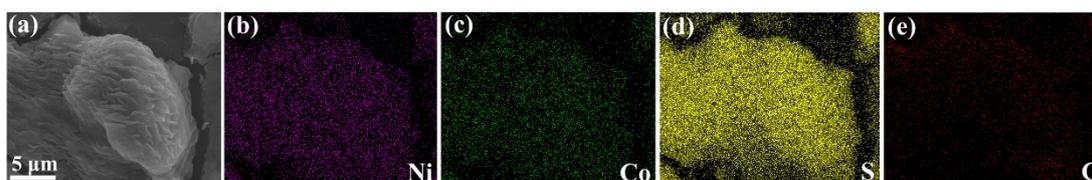


Fig. S3 (a-e) Elemental mappings of  $\text{Ni}_2\text{CoS}_4/\text{GCDs}$  composite by EDS.

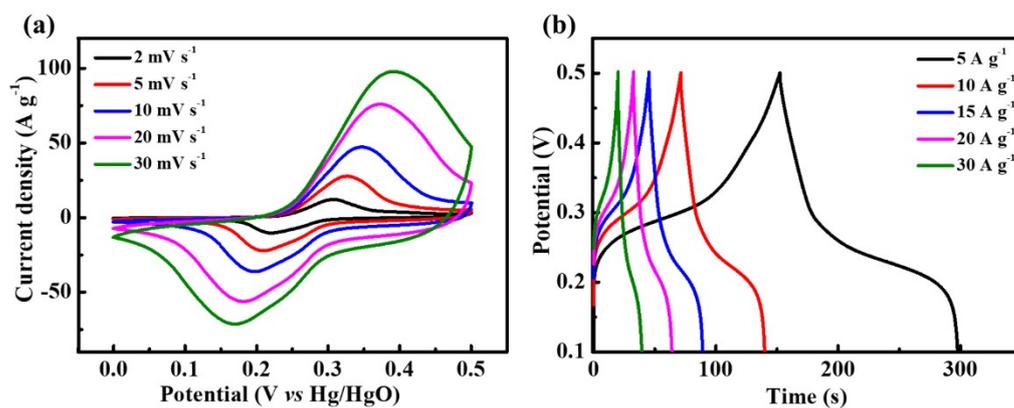


Fig. S4 (a) CV curves, (b) GCD curves of  $\text{Ni}_2\text{CoS}_4$ .

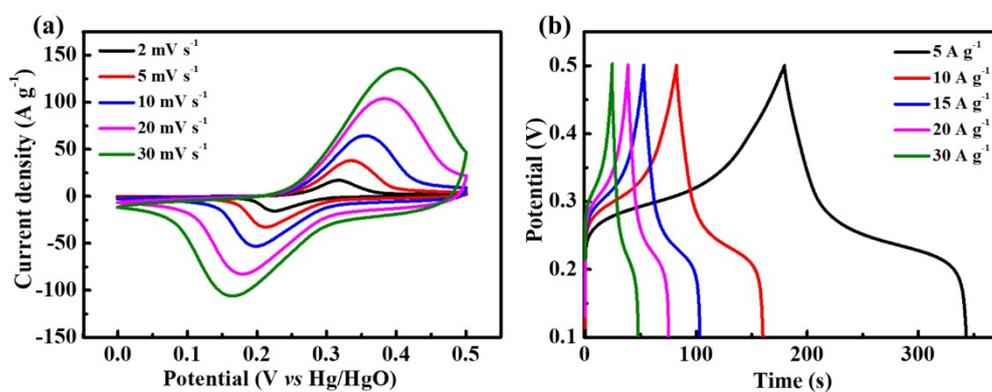
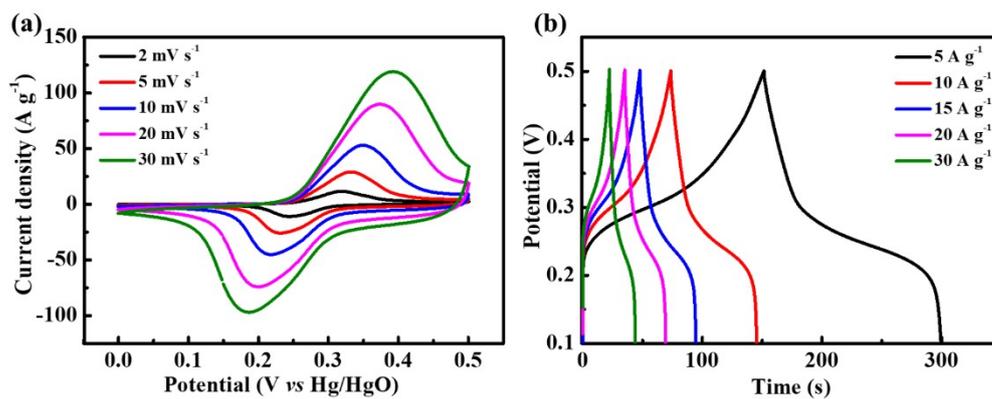
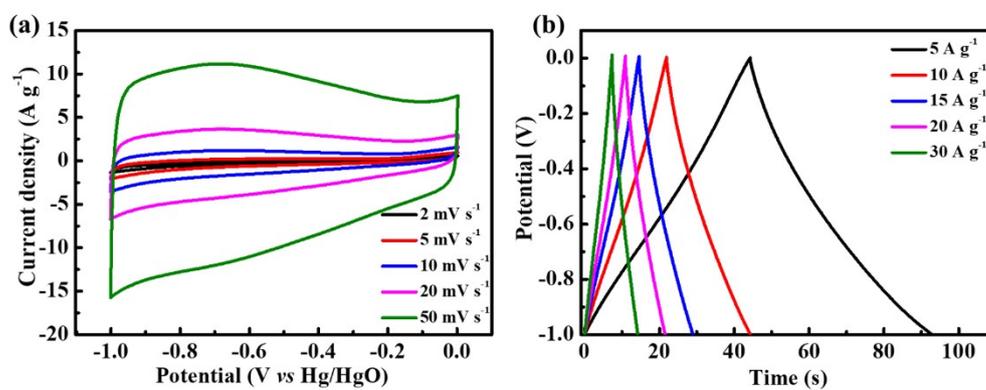


Fig. S5 (a) CV curves, (b) GCD curves of  $\text{Ni}_2\text{CoS}_4/\text{GCDs-6}$ .



**Fig. S6** (a) CV curves, (b) GCD curves of Ni<sub>2</sub>CoS<sub>4</sub>/GCDs-12.



**Fig. S7** (a) CV curves, (b) GCD curves of AC.