

Support Information

***In situ* encapsulation of metal sulfide into hierarchical nanostructured electrospun nanofibers as self-supported electrodes for flexible quasi-solid-state supercapacitors**

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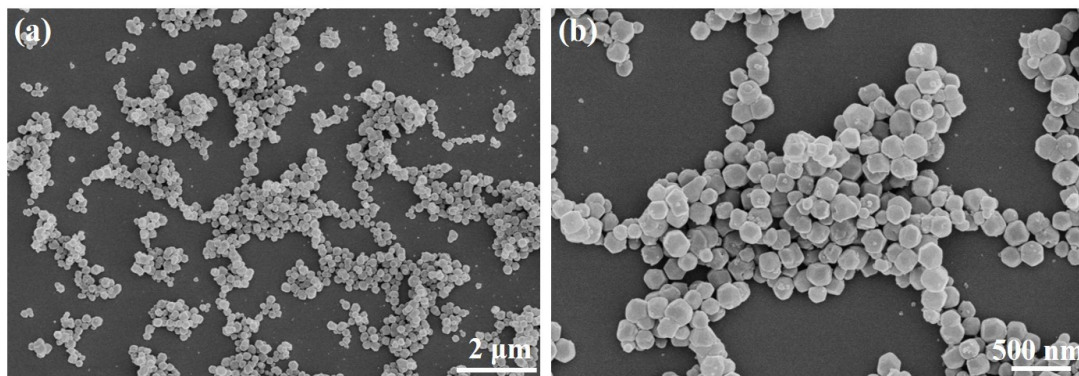


Figure S1. SEM images of ZIF-67 nanoparticles.

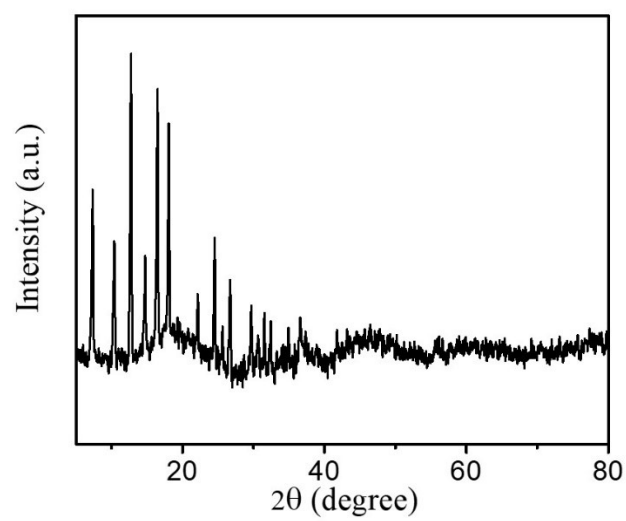


Figure S2. XRD patterns of ZIF-67 nanoparticles.

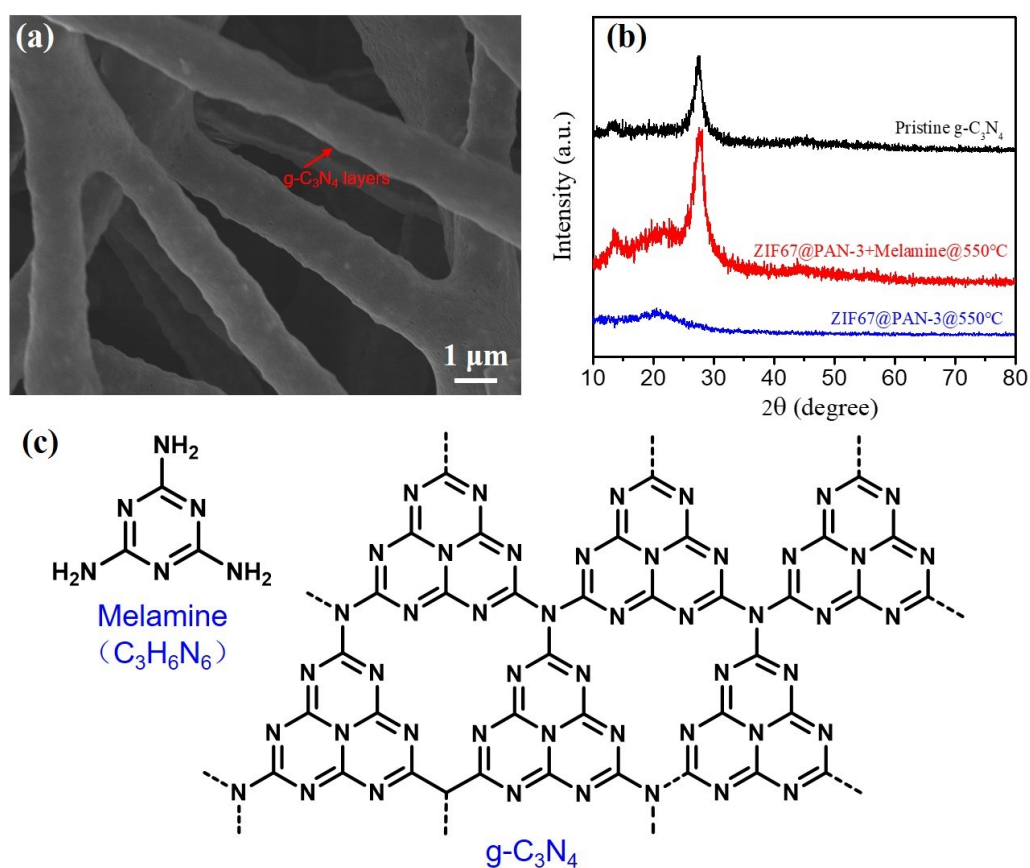


Figure S3. SEM image of the stabilized ZIF-67/PAN-3 at 550°C in the presence of melamine; (b) XRD patterns showing that the overlayer of the stabilized ZIF-67/PAN-3 is g-C₃N₄; (c) the chemical structure of melamine and g-C₃N₄.

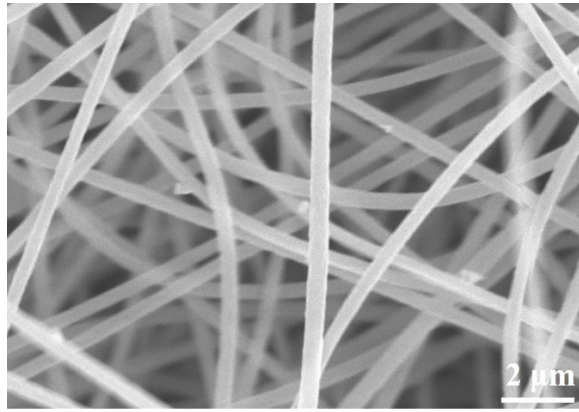


Figure S4. SEM image of pristine PAN film.

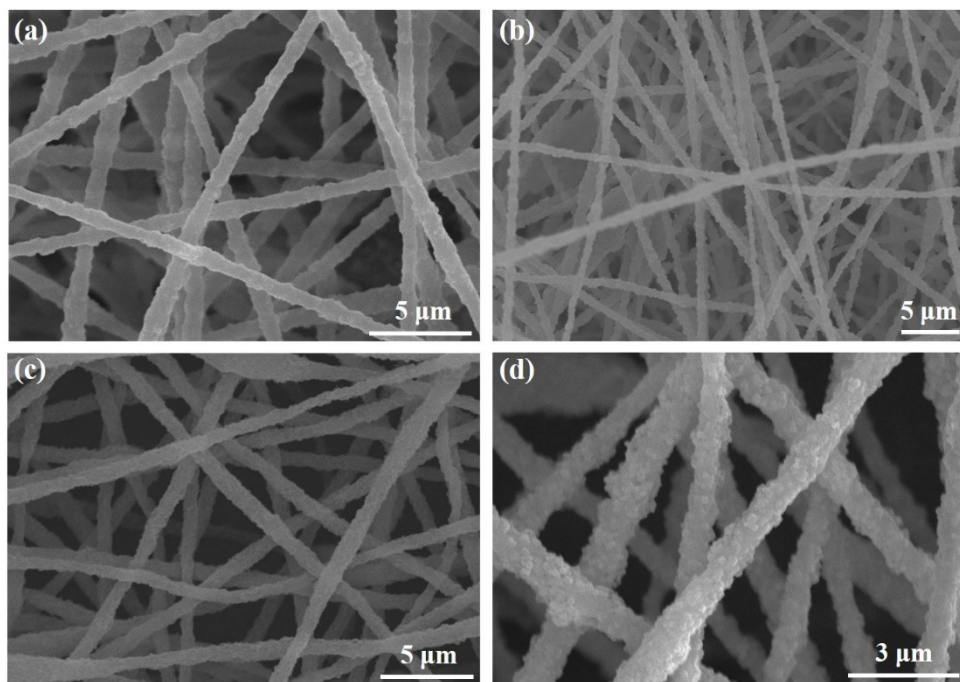


Figure S5. SEM images of (a) ZIF-67@PAN-1 film, (b) ZIF-67@PAN-2 film, (c) ZIF-67@PAN-3 film and (d) ZIF-67@PAN-4 film.

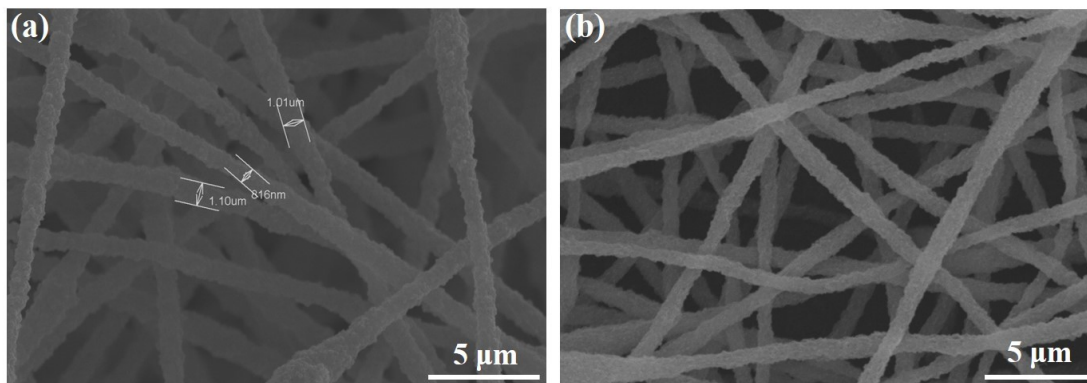


Figure S6. SEM images of (a) ZIF-67@PAN-3 film and (b) the stable ZIF-67@PAN-3 film at 280 °C.

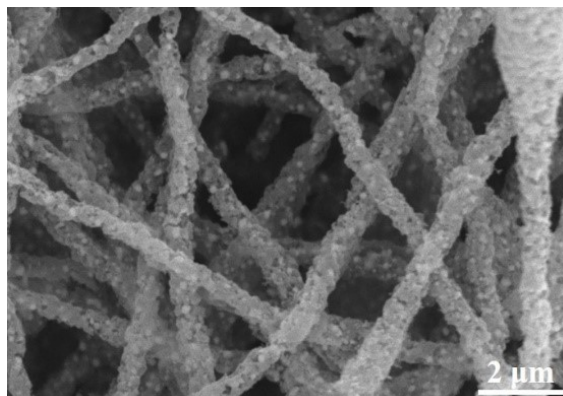


Figure S7. The SEM image of Co-C@CNF-CNT-3 without the addition of melamine. During the calcination process, the growth of CNT cannot be catalyzed without the addition of melamine.

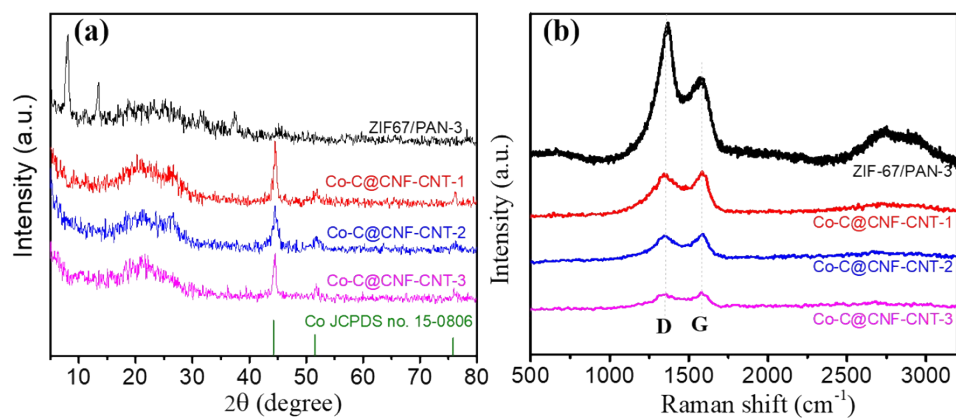


Figure S8. (a) XRD survey spectra and (b) Raman spectra of ZIF-67/PAN-3 and Co-C@CNF-CNT-x (x=1, 2, 3).

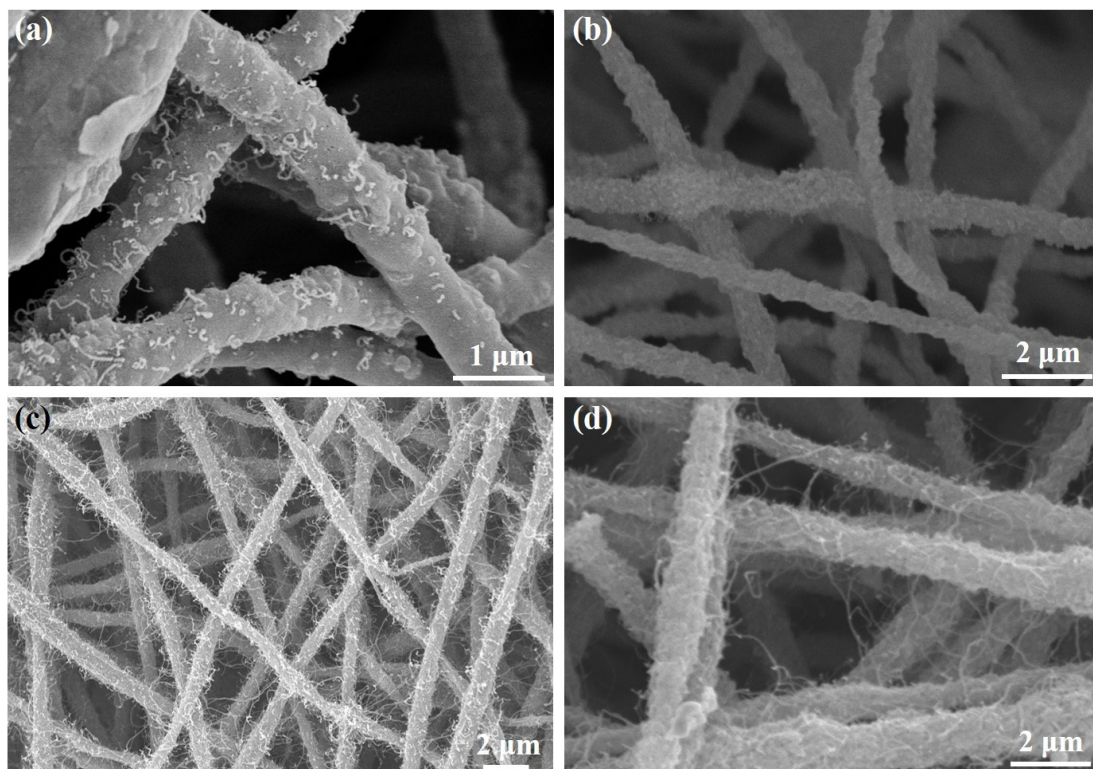


Figure S9. SEM images of (a) Co-S@CNF-CNT-1 film, (b) Co-S@CNF-CNT-2 film, (c) Co-S@CNF-CNT-3 film and (d) Co-S@CNF-CNT-4 film.

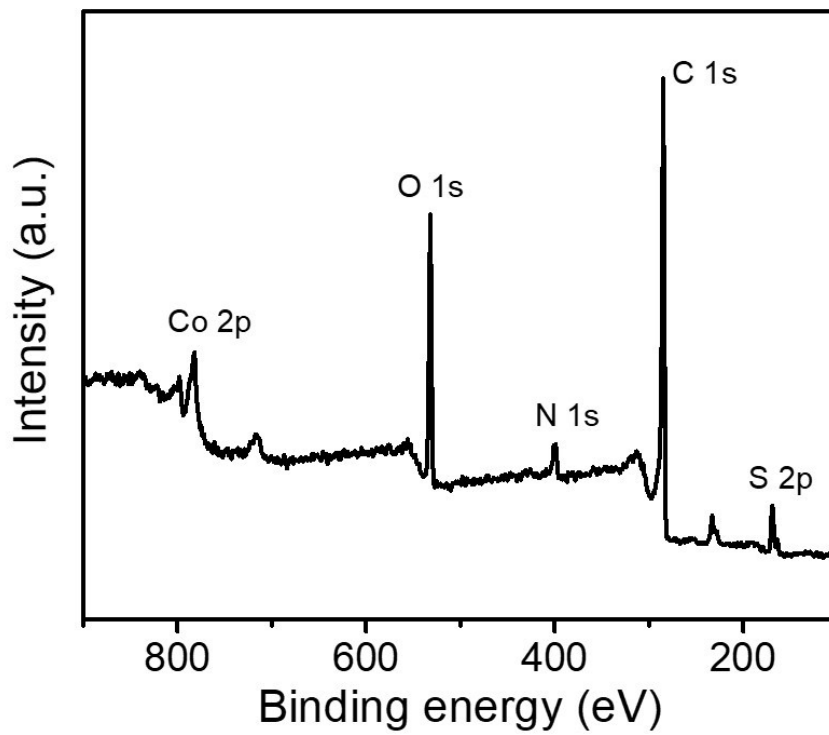


Figure S10. XPS survey spectra of Co-S@CNF-CNT-3.

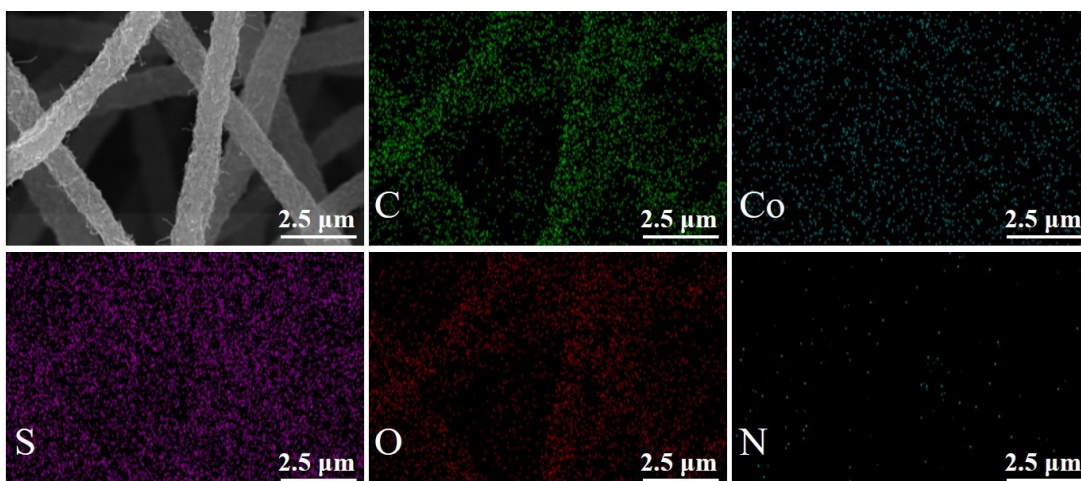


Figure S11. The SEM image of Co-S@CNF-CNT-3 and its corresponding EDS elemental mapping images of C, Co, S, O, N

Table S1. The elements analysis results of Co-S@CNFs-CNTs-3

Sample	C/wt%	N/wt%	Co/wt%	S/wt%
Co-S@CNFs-CNTs-3	31.21	2.15	10.42	6.77

The contents of Co and S in Co-S@CNF-CNT-3 are shown in Table S1, which were carried out on Vario EL IIIelement analyzer and Leeman Prodigy Inductively Coupled Plasma-Atomic Emission Spectrometer. Moreover, the EDS elemental mapping images of Co and S are shown in Figure S11, which also demonstrates that the Co and S elements are uniformly dispersed in Co-S@CNF-CNT-3.

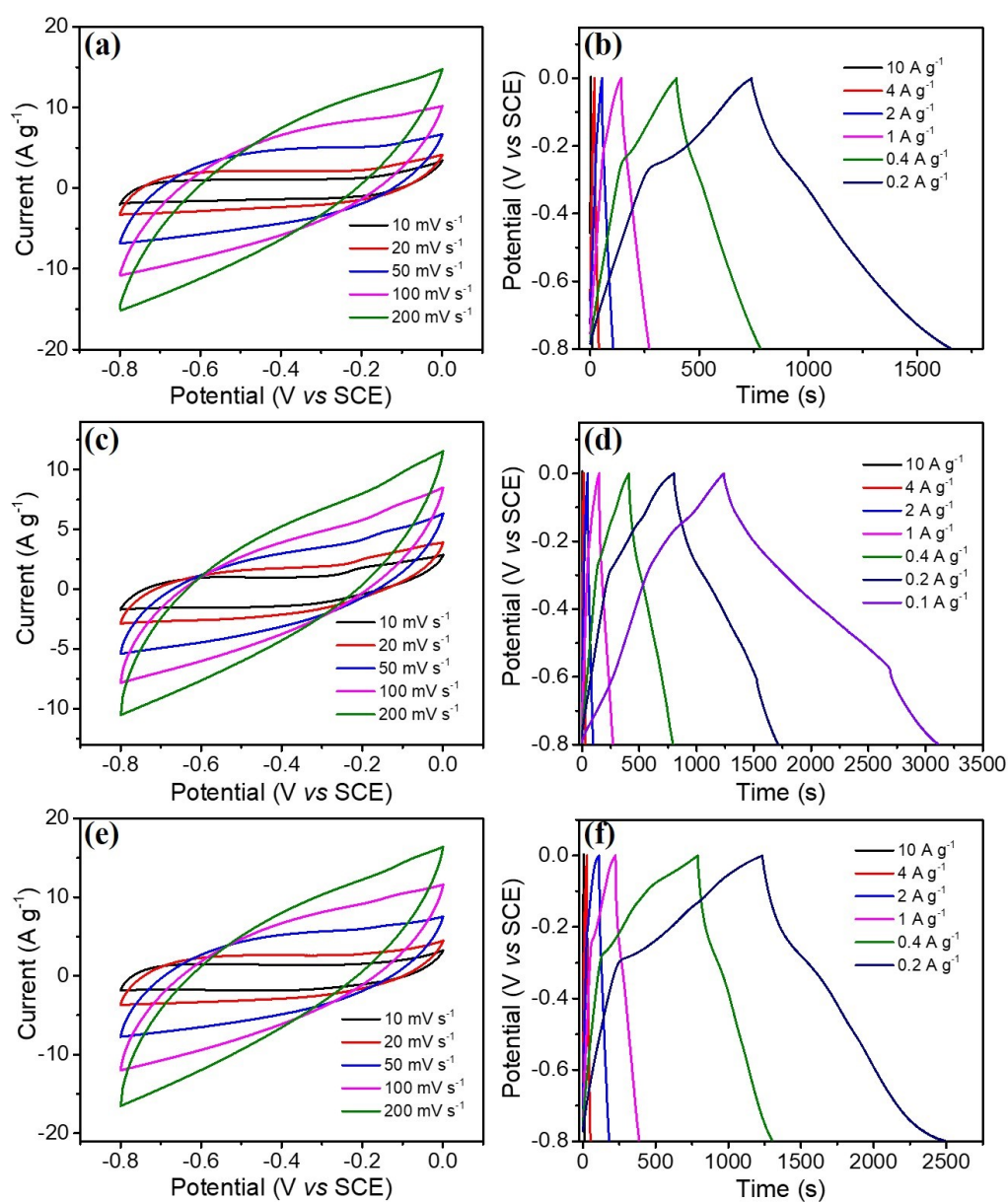


Figure S12. (a) CV curves at different scan rates and (b) Galvanostatic charge-discharge curves at various current densities of Co-C@CNF-CNT-1; (c) CV curves at different scan rates and (d) Galvanostatic charge-discharge curves at various current densities of Co-C@CNF-CNT-2; (e) CV curves at different scan rates and (f) Galvanostatic charge-discharge curves at various current densities of Co-C@CNF-CNT-3.

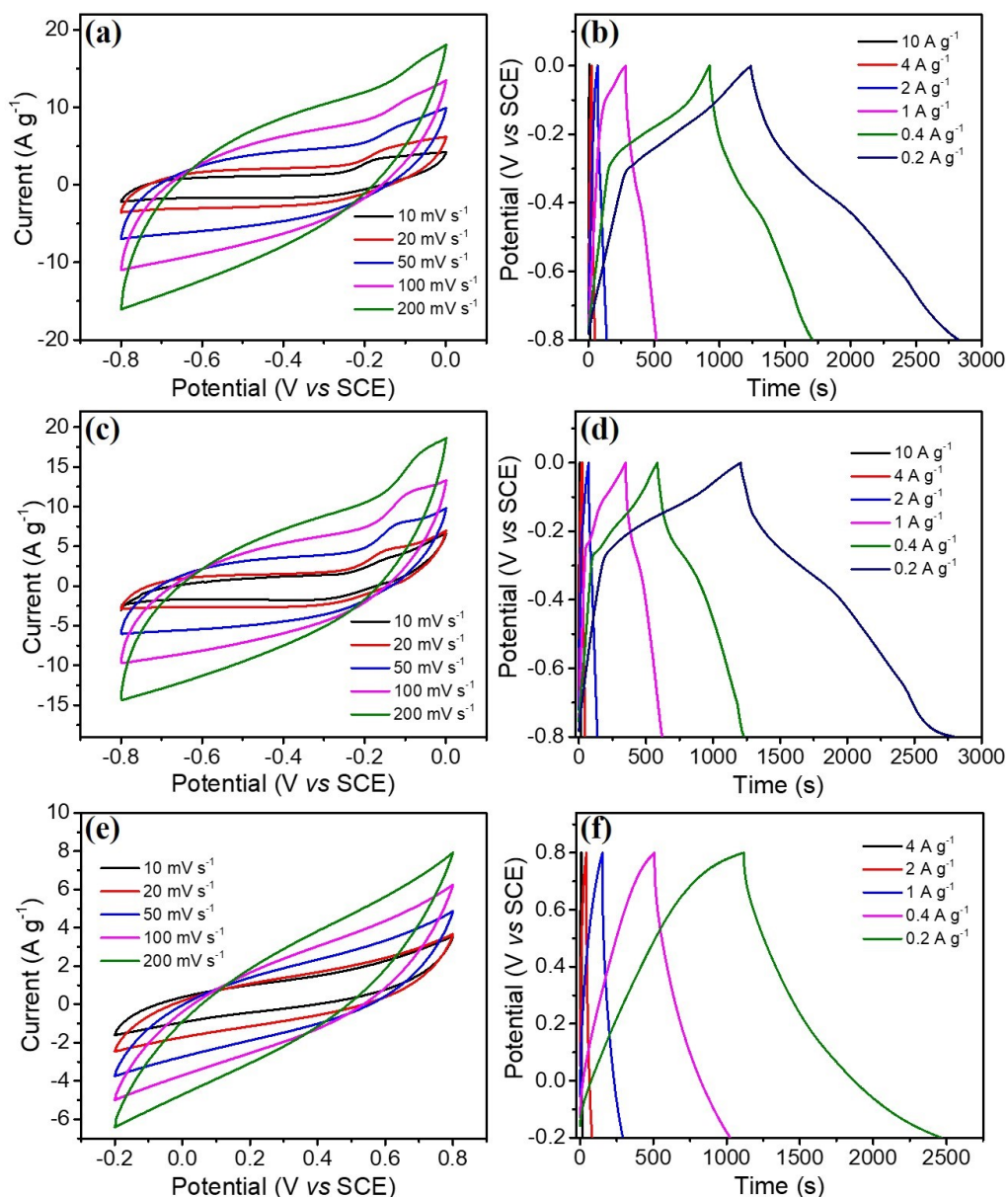


Figure S13. (a) CV curves at different scan rates and (b) Galvanostatic charge-discharge curves at various current densities of Co-S@CNF-CNT-1; (c) CV curves at different scan rates and (d) Galvanostatic charge-discharge curves at various current densities of Co-S@CNF-CNT-2; (e) CV curves at different scan rates and (f) Galvanostatic charge-discharge curves at various current densities of C@CNF-CNT-3.

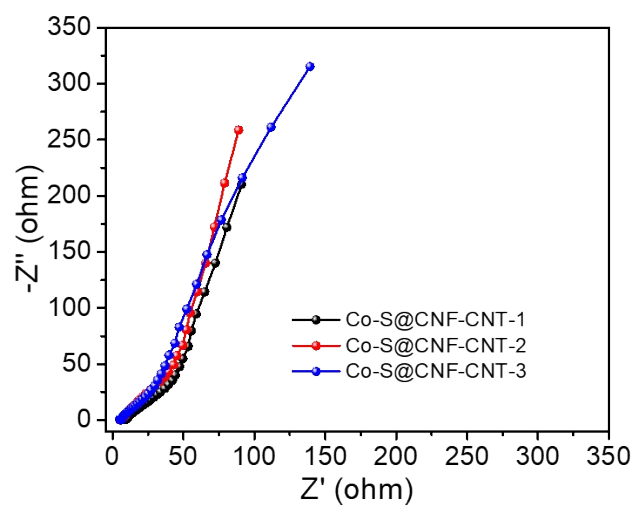


Figure S14. Nyquist plot of Co-S@CNF-CNT-1, Co-S@CNF-CNT-2 and Co-S@CNF-CNT-3.

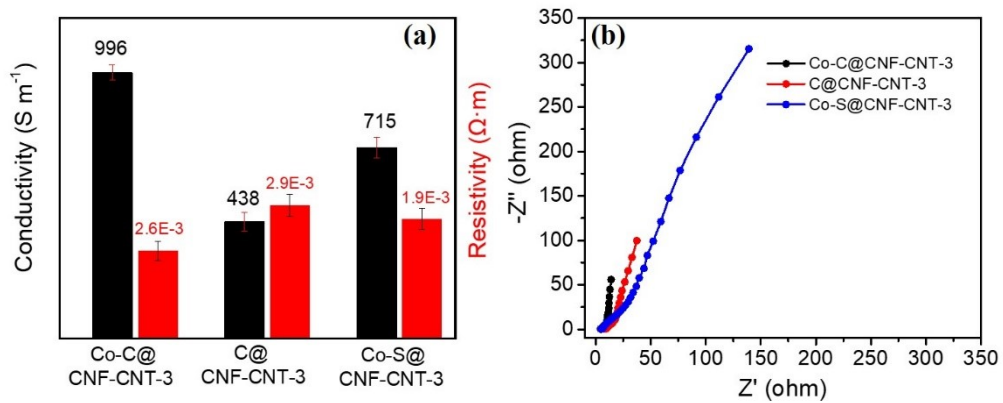


Figure S15. (a) Conductivity and resistivity diagram of different samples; (b) Nyquist plot of Co-C@CNF-CNT-3, C@CNF-CNT-3 and Co-S@CNF-CNT-3

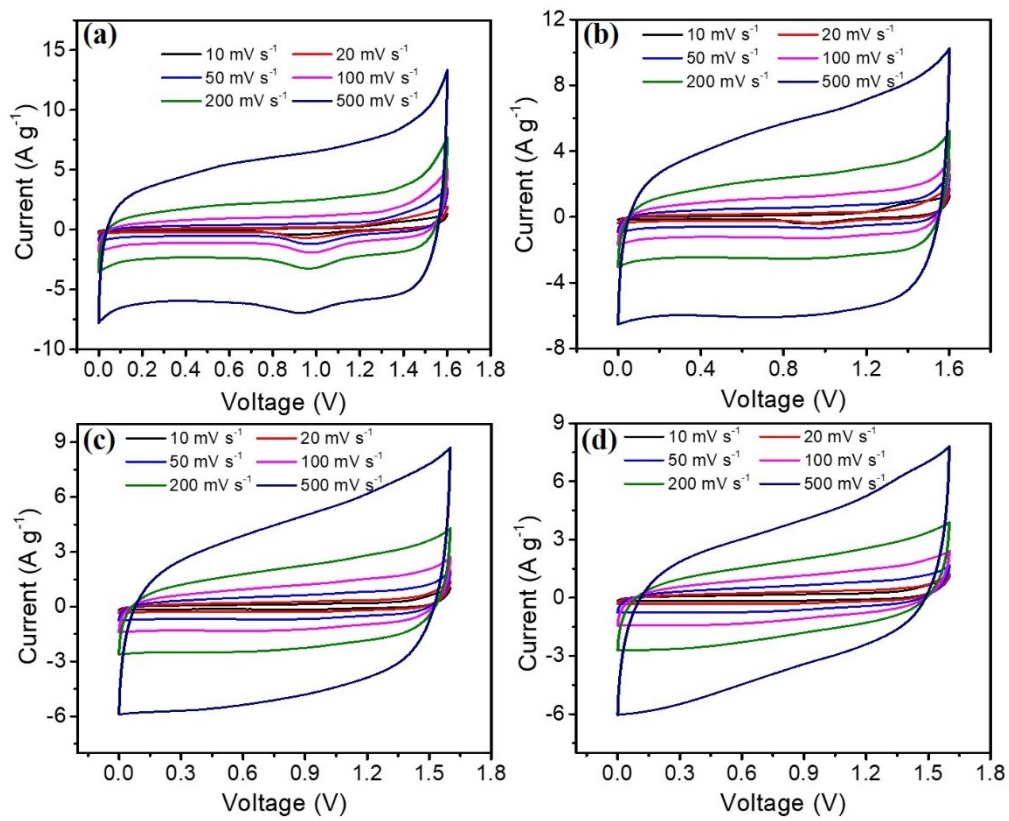


Figure S16. CV curves of the hybrid supercapacitor after various bending times: (a) 0, (b) 100, (c) 200 and (d) 400.

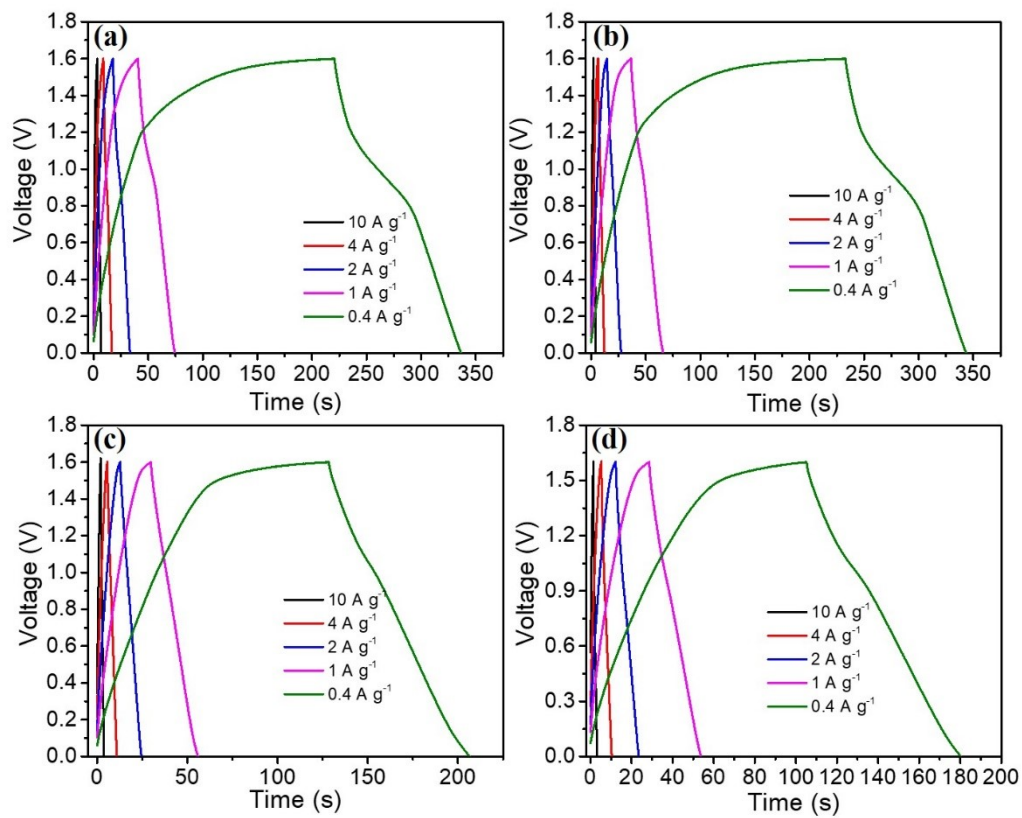


Figure S17. Charge-discharge plots of the hybrid supercapacitor after various bending times: (a) 0, (b) 100, (c) 200 and (d) 400.