**Supporting Information**

# Bimetallic $CoNiS_x$ nanocrystallites embedded in nitrogen-doped carbon anchored on reduced graphene oxide for high-performance supercapacitors

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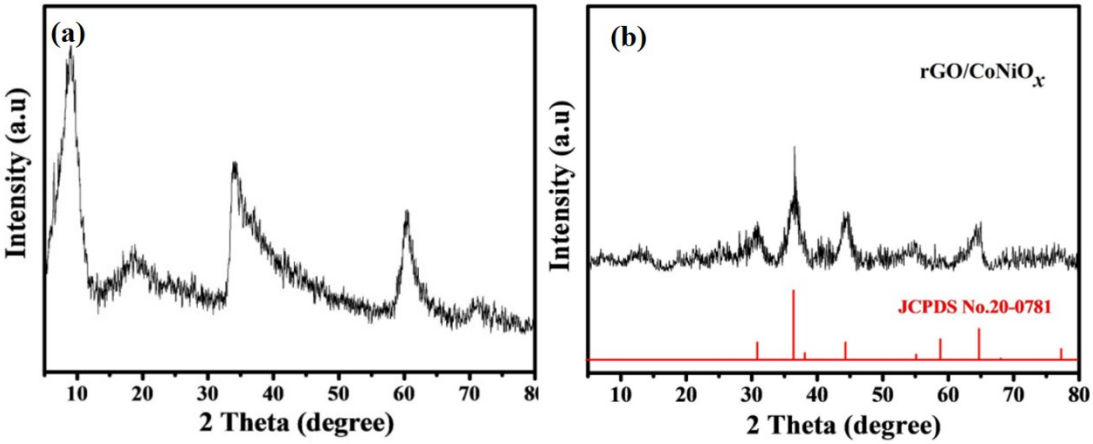


**Figure S1.** XRD pattern of the (a) rGO/Co-Ni precursor and (b) rGO/CoNiO$_x$ nanocomposite.

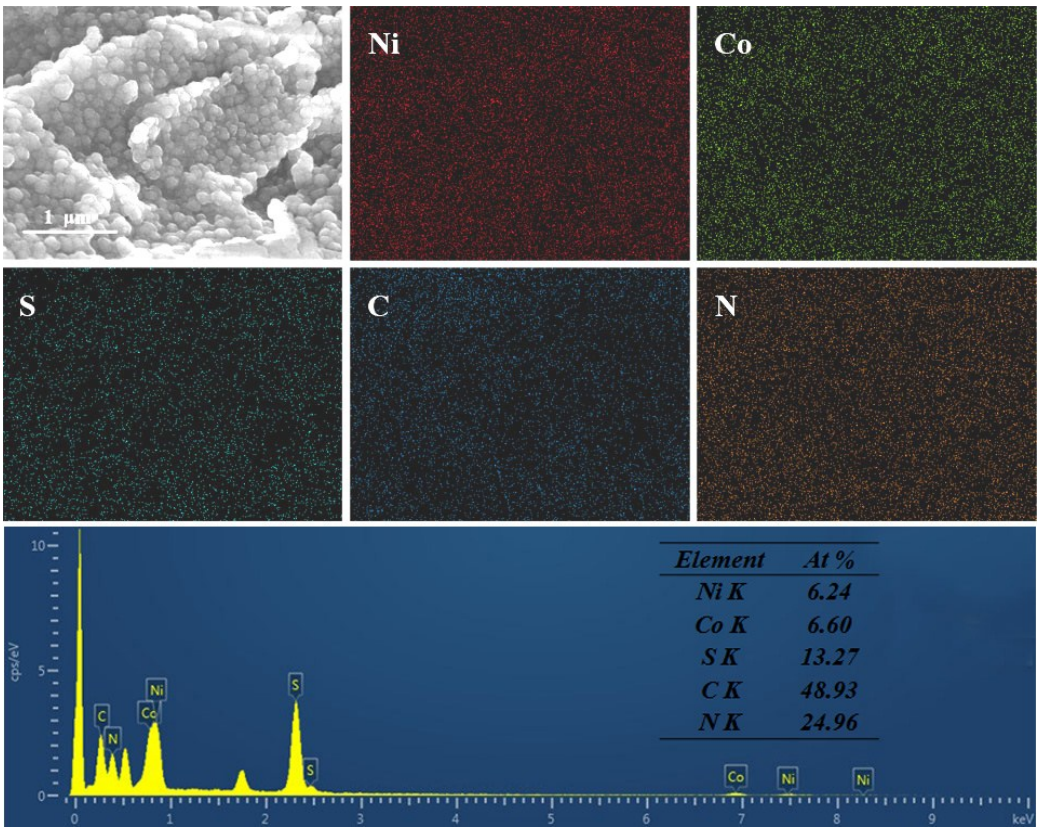


**Figure S2.** EDX analysis of the rGO/CoNiS$_x$/N-C nanocomposite.

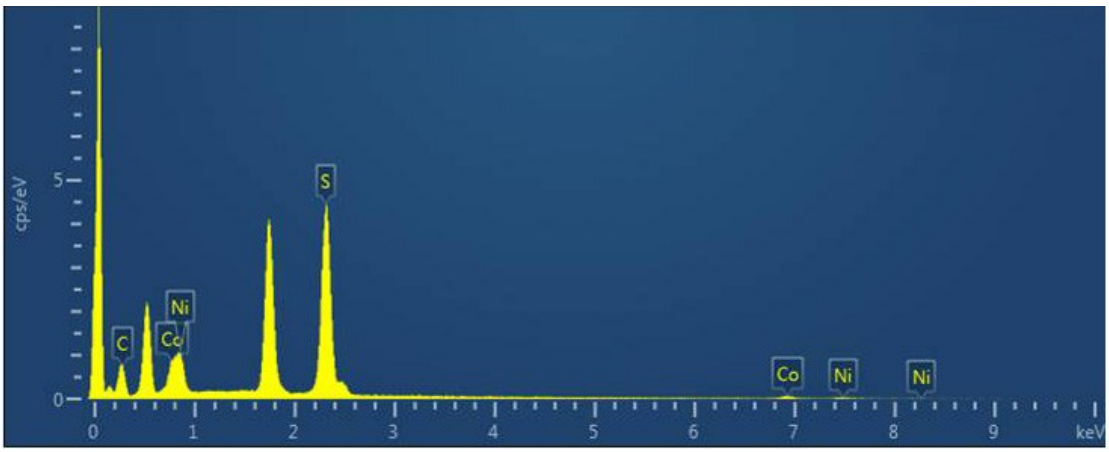


**Figure S3.** EDX analysis of the rGO/CoNi$S_x$ nanocomposite.

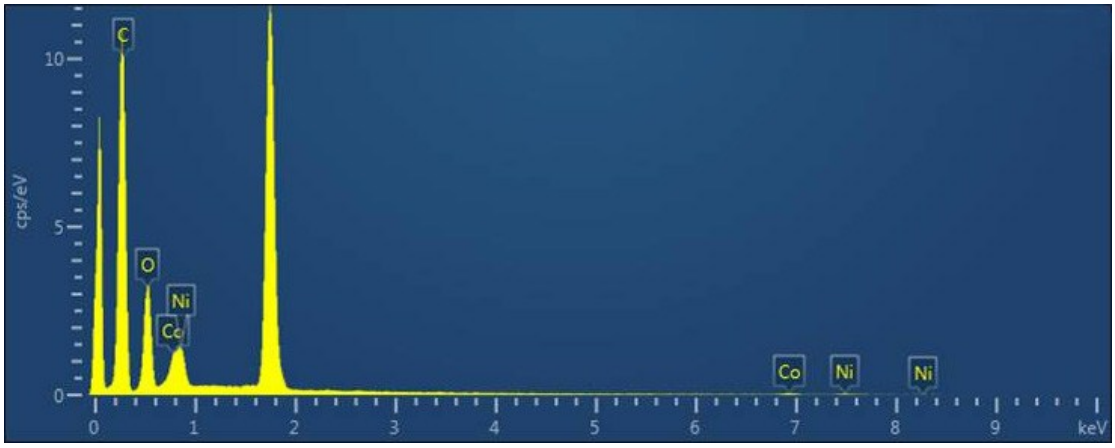


**Figure S4.** EDX analysis of the rGO/CoNi$O_x$ nanocomposite.

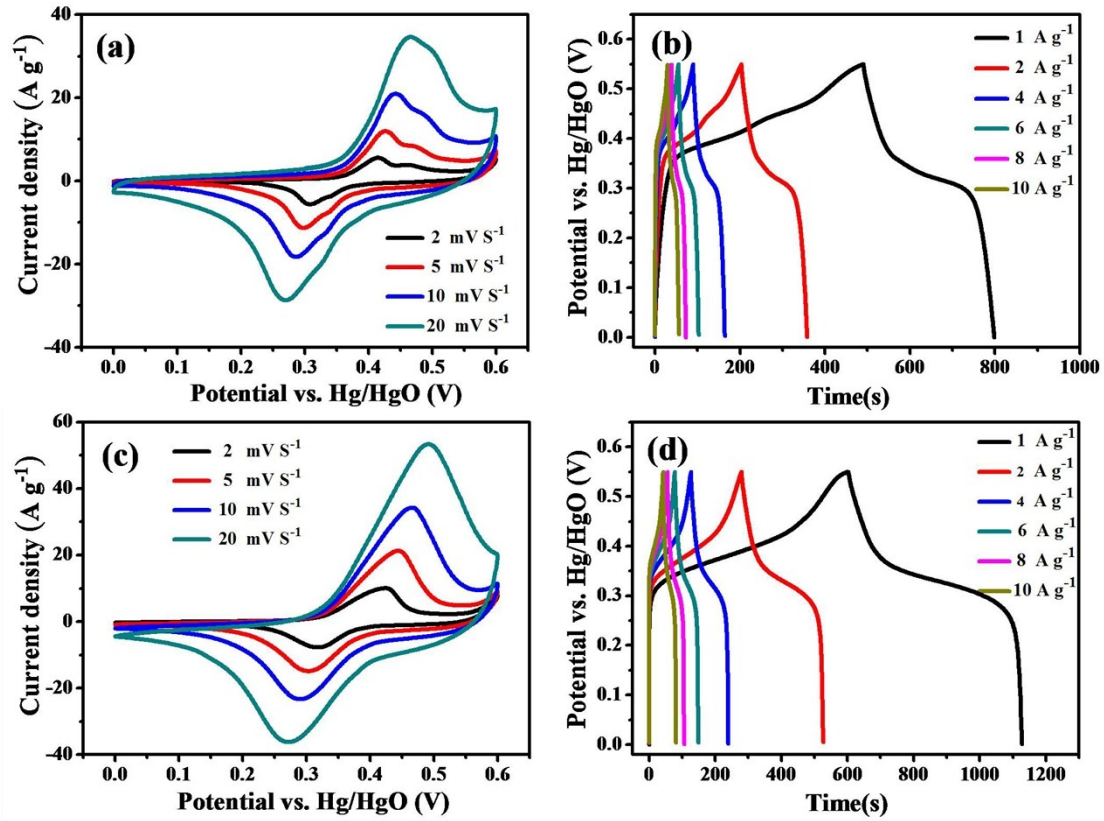


**Figure S5.** CV curves of the (a) rGO/$CoNiO_x$ and (c) rGO/$CoNiS_x$ electrode recorded at at different scan rates; GCD curves of the (b) rGO/$CoNiO_x$ and (d) rGO/$CoNiS_x$ electrode at different current densities.

| Materials | Specific capacitance ( F $g^{-1}$) | Current density ( A $g^{-1}$) | References |
|---|---|---|---|
| $Ni_xCo_{3-x}S_4$ hollow nanoprisms | 895.2 | 1 | 26 |
| Ni-Co sulfide ball-in-ball hollow spheres | 1036 | 1 | 27 |
| Onion-like $NiCo_2S_4$ particles | 1016 | 2 | 28 |
| $NiCo_2S_4$ porous nanotubes | 933 | 1 | 47 |
| Hollow hexagonal $NiCo_2S_4$ nanoplates | 437 | 1 | 48 |
| Mesoporous $NiCo_2S_4$ nanoparticles | 1440 | 3 | 49 |
| Nickel cobalt sulfide hollow nanocolloids | 935 | 3 | 50 |
| Hollow hetero-$Ni_7S_6/Co_3S_4$ nanoboxes | 677 | 4 | 51 |
| Hollow hetero-$NiCo_2S_4/Co_9S_8$ submicro-spindles | 749 | 4 | 52 |
| rGO/$CoNiS_x$/N-C nanocomposite | 1028.2 | 1 | This work |

**Table S1.** Comparison of the electrochemical performance of other reported Ni-Co sulfide electrode materials for supercapacitors.

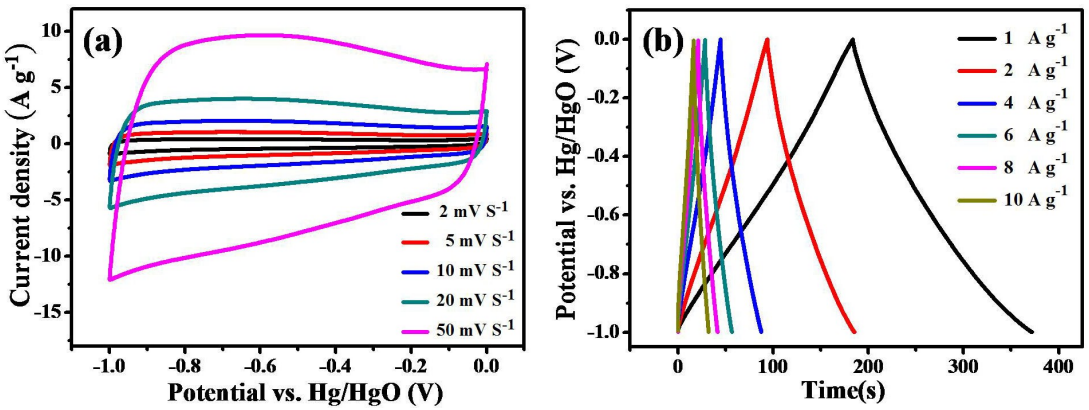


**Figure S6.** (a) CV curves of the AC electrode recorded at at different scan rates; (b) GCD curves of the AC electrode at different current densities.

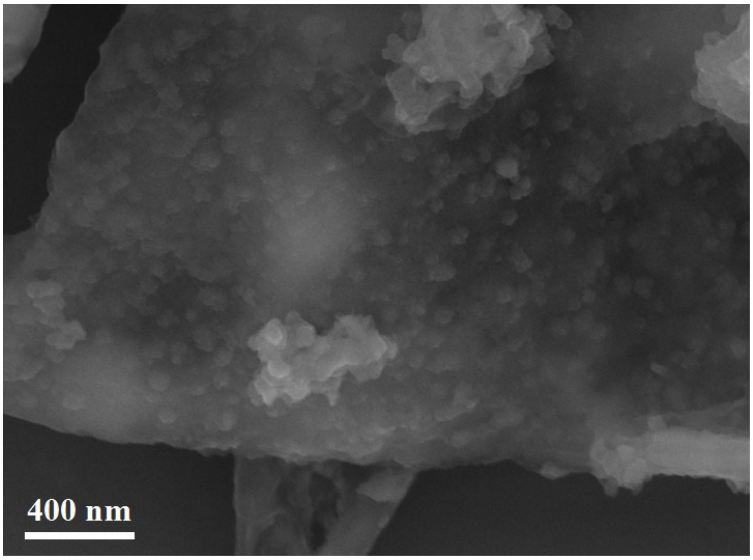


**Figure S7.** SEM image of the rGO/CoNi$S_x$/N-C nanocomposite after cycling.