Electronic Supplementary Information

Metal-organic frameworks derived hierarchical nickel-cobalt sulfide nanosheets array on Ni foam with enhanced electrochemical performance for supercapacitor

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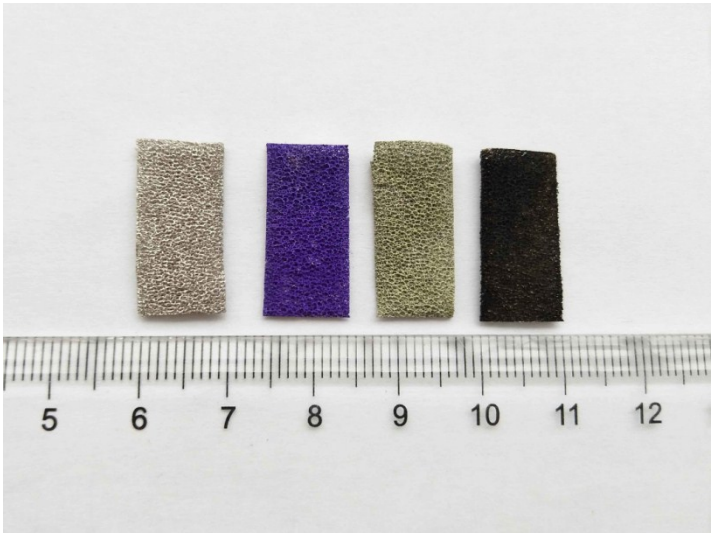

Figure S1. Digital photograph of the NF, Co-MOF/NF, Ni-Co LDH/NF and Ni-Co-S/NF (from left to right).

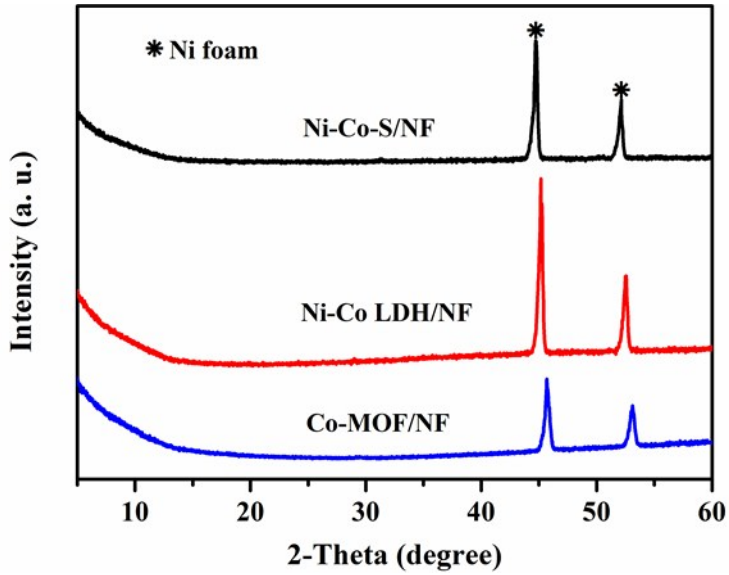

Figure S2. XRD patterns of Co-MOF/NF, Ni-Co LDH/NF and Ni-Co-S/NF.

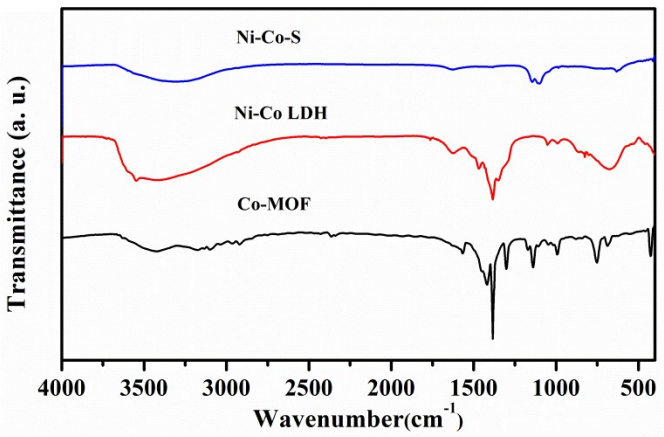

Figure S3. FTIR spectra of Co-MOF, Ni-Co LDH and Ni-Co-S scraped off from Ni foam.

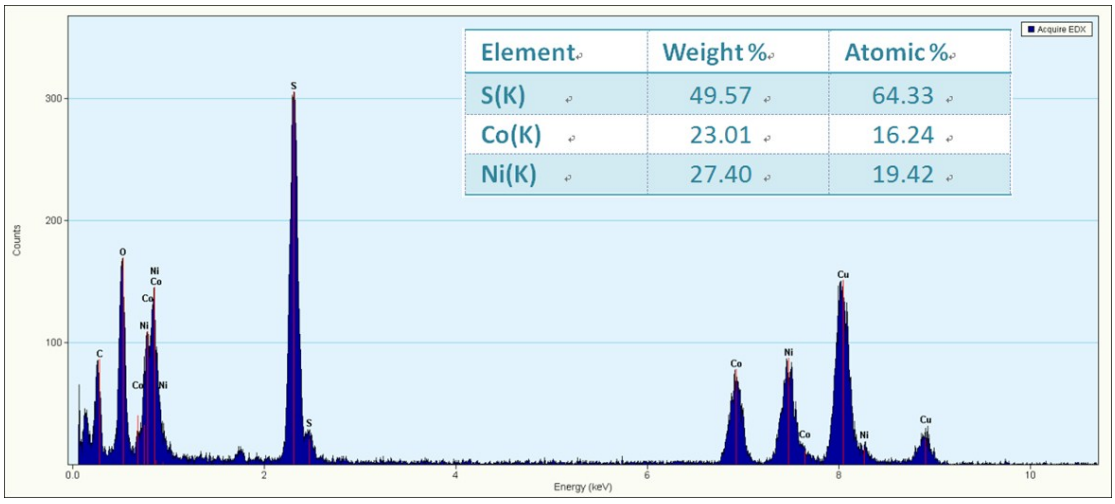

Figure S4. EDX pattern of Ni-Co-S nanosheet.

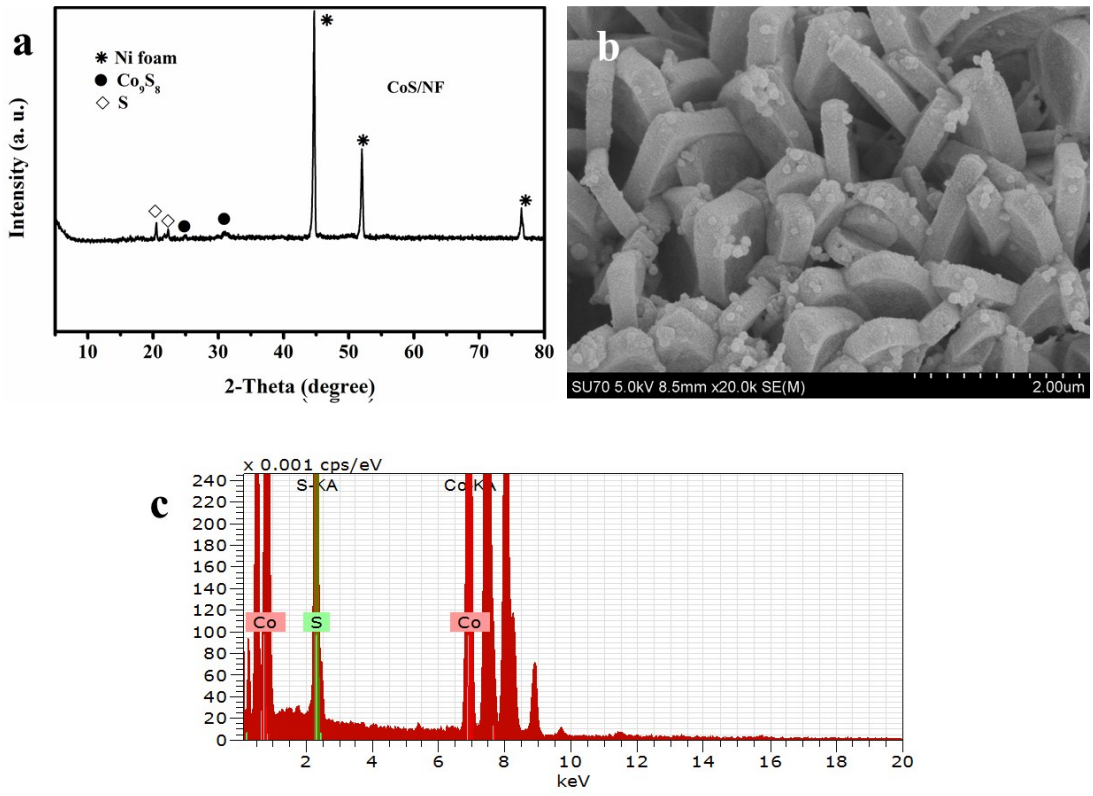

Figure S5. Characterizations of CoS/NF electrode. (a) XRD, (b) SEM image and (c) EDX pattern.

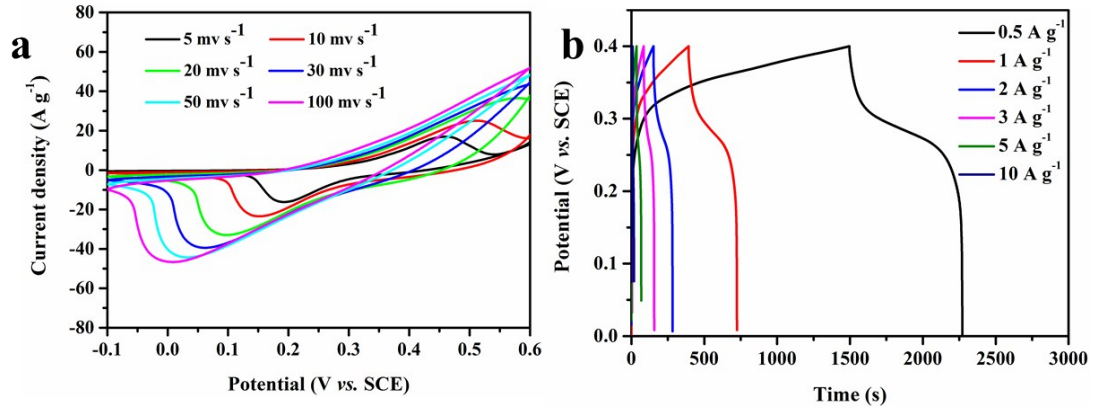

Figure S6. Electrochemical performance of CoS/NF electrode. (a) CV curves at different scan rates and (b) GCD curves at various current densities.

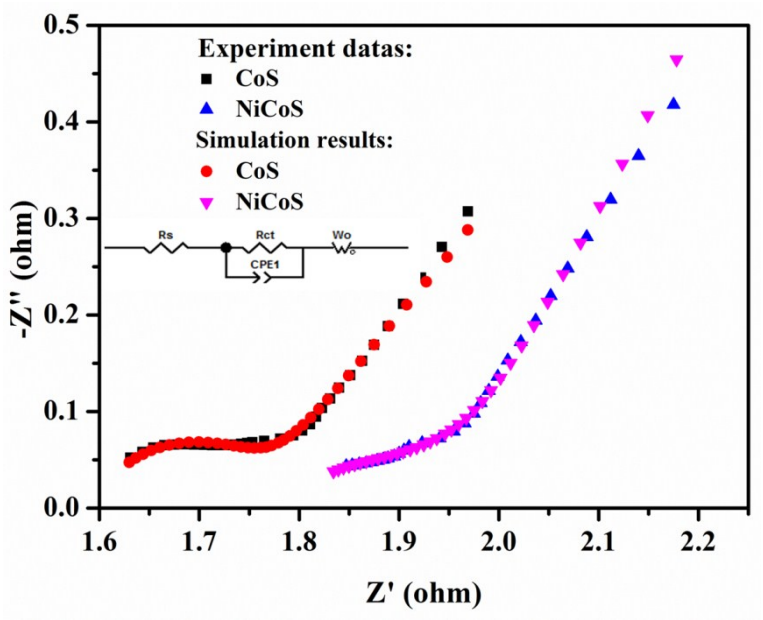

Figure S7. Nyquist plots of Ni-Co-S/NF and CoS/NF.

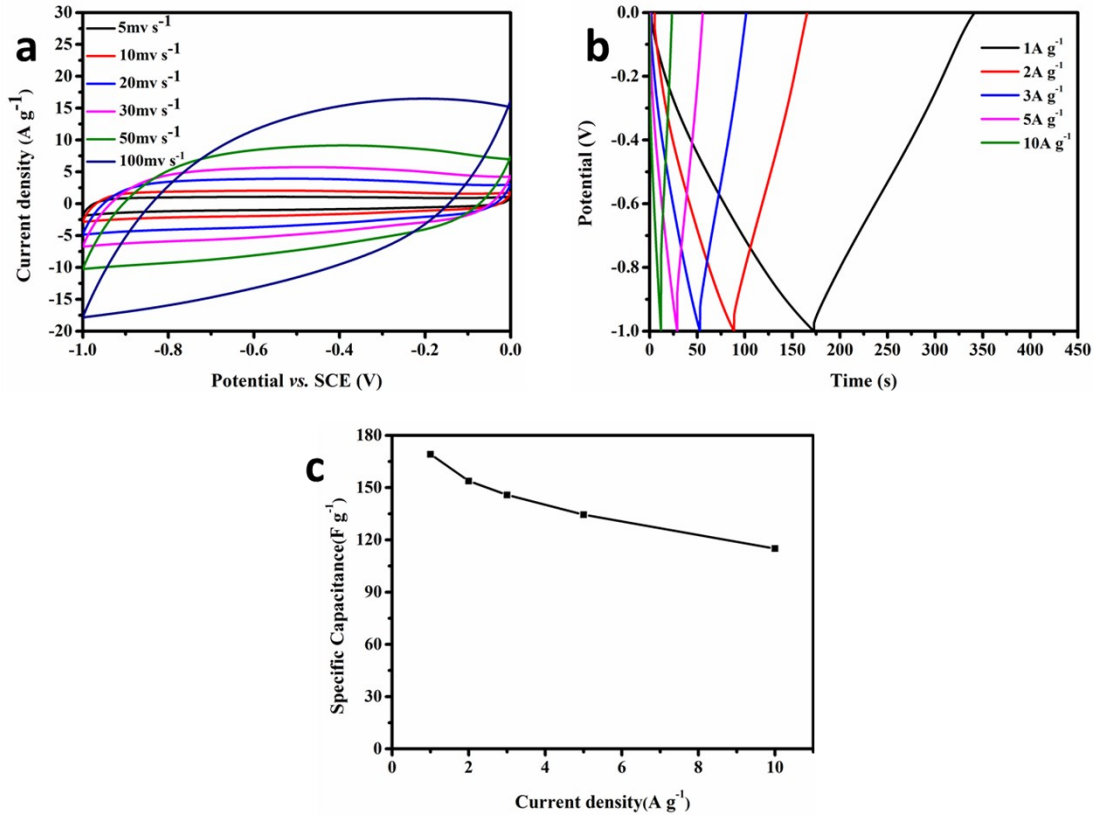

Figure S8. (a) CV curves of AC electrode at different sweep rates, (b) GCD curves of AC electrode at various current densities, and (c) the corresponding specific capacitance of AC electrode calculated by the GCD curves.

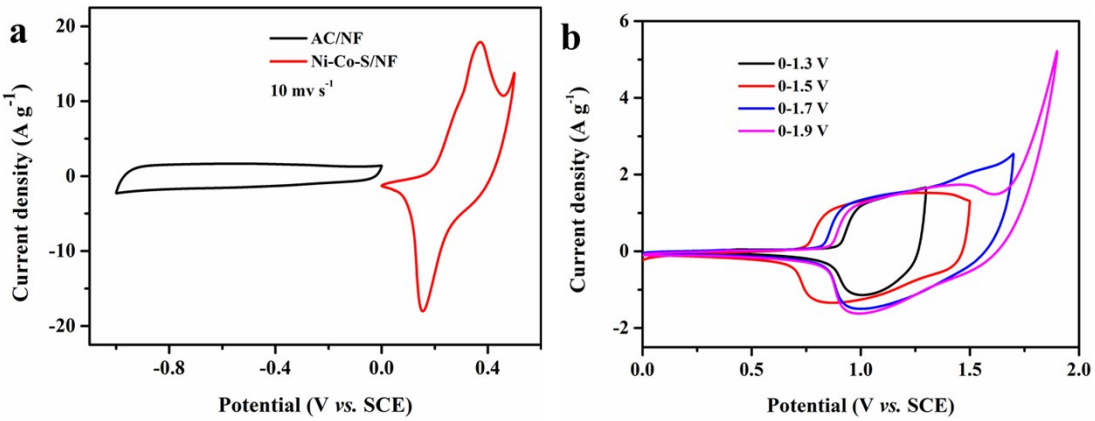

Figure S9. (a) CV curves of the Ni-Co-S and AC electrodes tested at a scan rate of 10 mV/s in a three-electrode mode, and (b) CV curves of ASC device at different voltage windows with scan rate of 10 mV s^{-1}.

Table S1. Electrochemical performance of representative nickel cobalt based sulfide electrodes.

Electrode materials	Specific capacitance	Current density	Reference
Ni-Co-S/NF	1406.9 F g^{-1}	0.5 A g^{-1}	This work
	1202.5 F g^{-1}	1 A g^{-1}	This work
$Ni_xCo_{1-x}S_{1.097}$ microspheres	867 F g^{-1}	0.5 A g^{-1}	1
Ni_3S_2@Co_9S_8	600 F g^{-1}	0.5 A g^{-1}	2
$Ni_xCo_{3-x}S_4$ hollow nanoprisms	895 F g^{-1}	1 A g^{-1}	3
$NiCo_2S_4$ ball-in-ball hollow spheres	1036 F g^{-1}	1 A g^{-1}	4
$NiCo_2S_4$ hollow hexagonal plates	437 F g^{-1}	1 A g^{-1}	5
$NiCo_2S_4$ nanostructured arrays	1154.4 F g^{-1}	1 A g^{-1}	6
$NiCo_2S_4$ porous nanotubes	933 F g^{-1}	1 A g^{-1}	7
Mesoporous $NiCo_2S_4$ polyhedron	1296 F g^{-1}	1 A g^{-1}	8
3D honeycomb-like $NiCo_2S_4$	1168 F g^{-1}	1 A g^{-1}	9
$NiCo_2S_4$/N,S doped multiple graphene aerogel	822.6 F g^{-1}	1 A g^{-1}	10

References

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