Electronic Supplementary Material (ESI) for Materials Chemistry Frontiers.

Supporting Information

Ethylene glycol assisted self-template conversion approach to synthesize hollow NiS microspheres for a high performance all-solid-state supercapacitor

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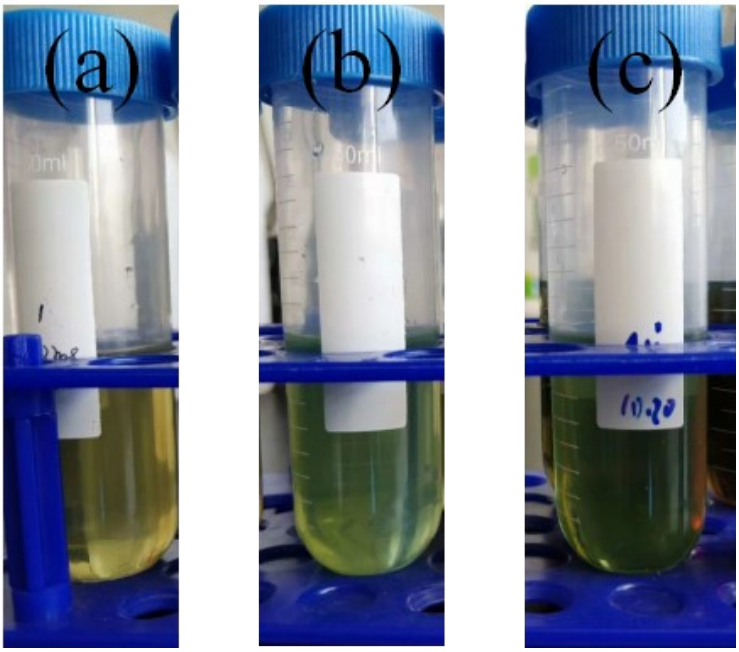

Figure S1. Optical photographs of different solutions after solvothermal reaction using different amount of $Ni(NO_3)_2 \cdot 6H_2O$ as nickel resource. (a) low amount, (b) moderate amount, and (c) high amount.

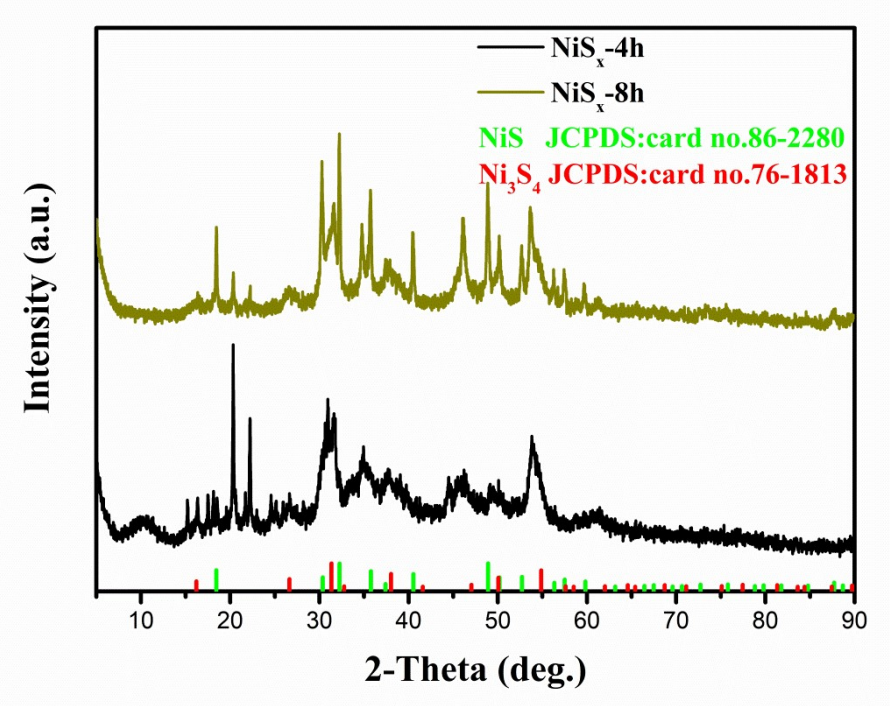

Figure S2. XRD patterns of different vulcanization time of NiS_x

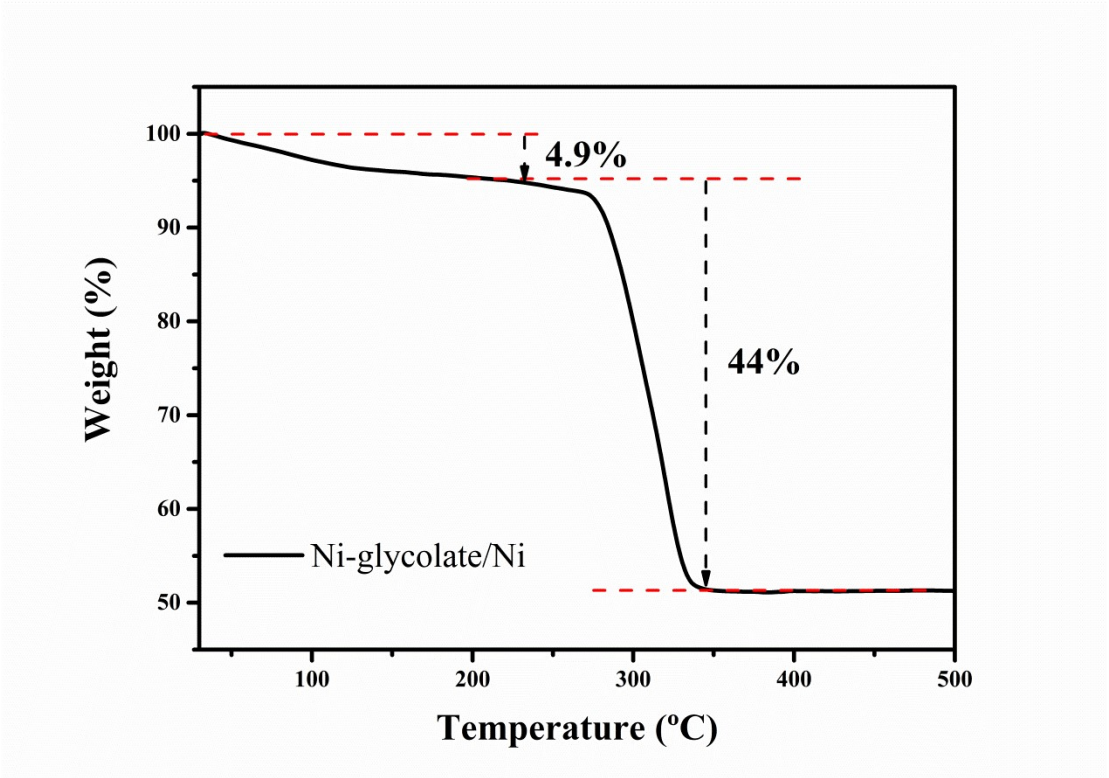

Figure S3. TGA curve of Ni-glycolate/Ni.

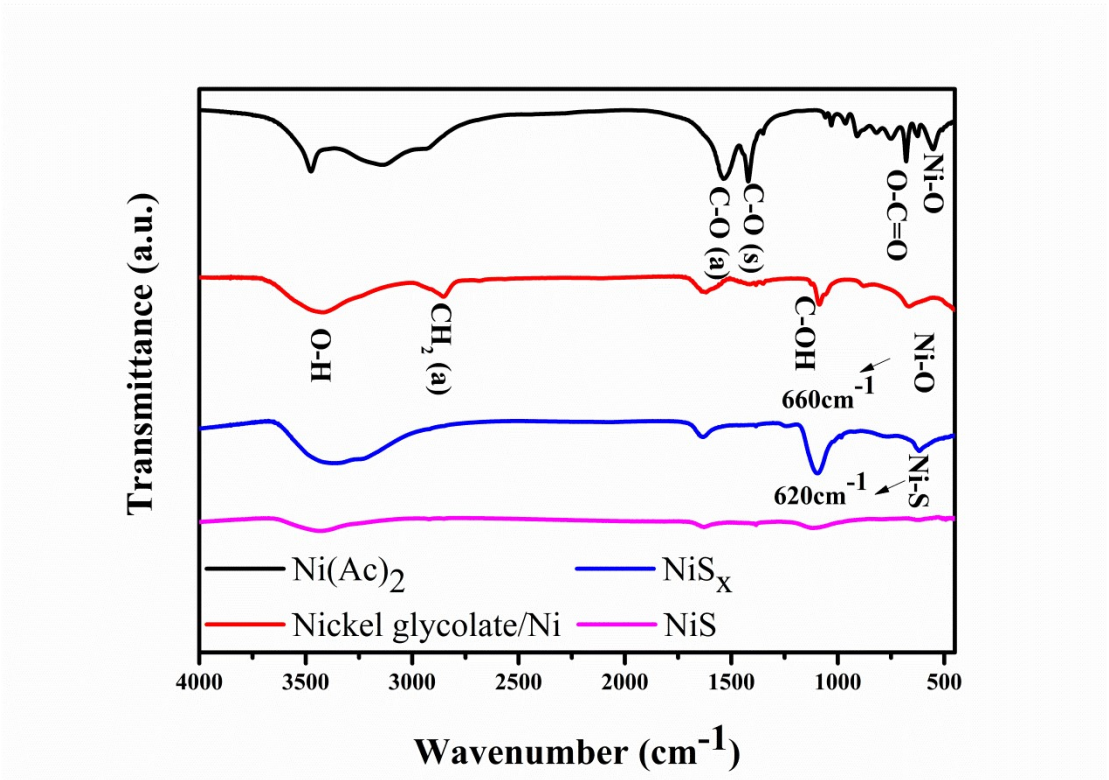

Figure S4. FT-IR spectra of $Ni(Ac)_2$, Ni-glycolate/Ni, NiS_x and NiS.

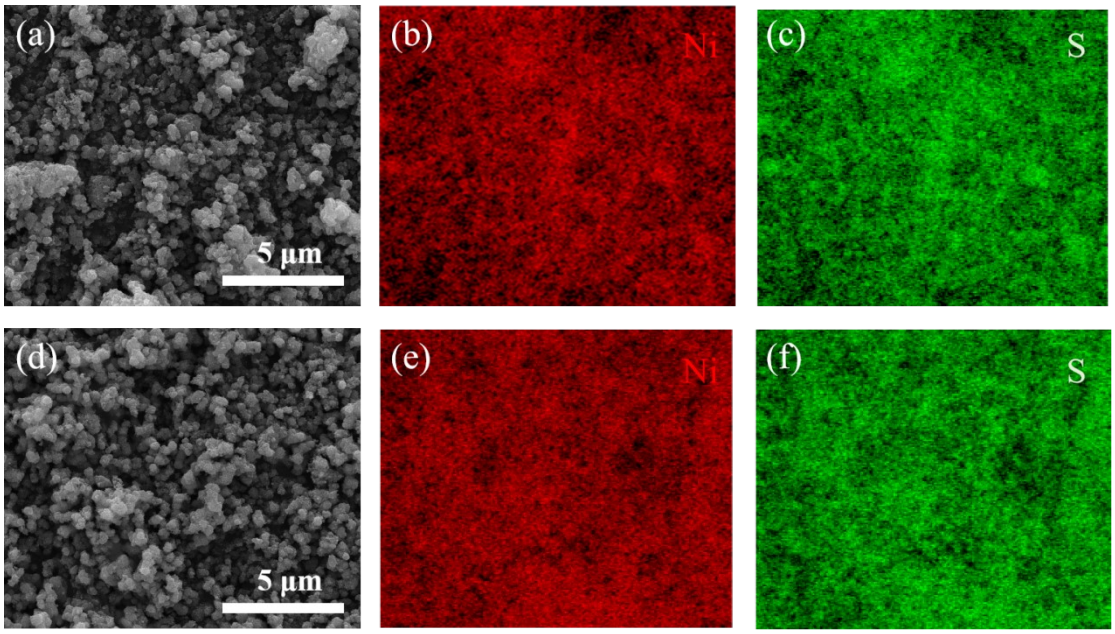

Figure S5. SEM images of (a) NiS, (b−c) EDS mapping of NiS_x, (d) NiS, (e-f) EDS mapping of NiS.

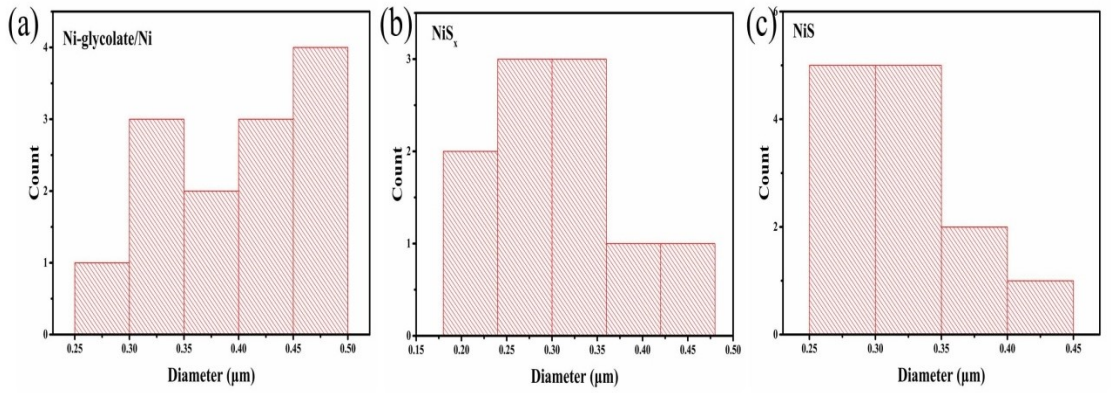

Figure S6. Diameter distribution of Ni-glycolate/Ni, (b) NiSx, (c) NiS.

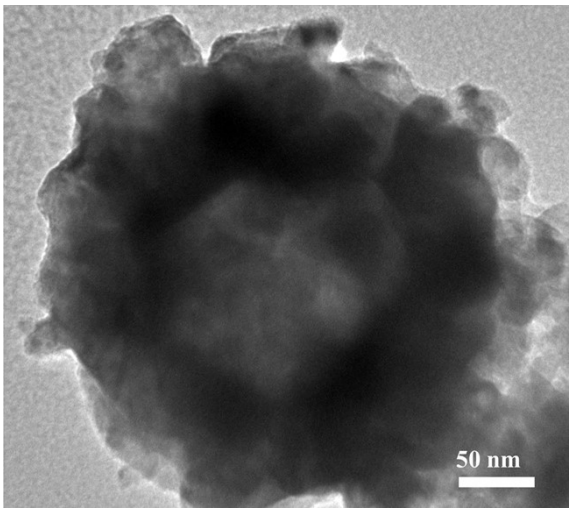

Figure S7. TEM image of an individual NiS hollow microsphere.

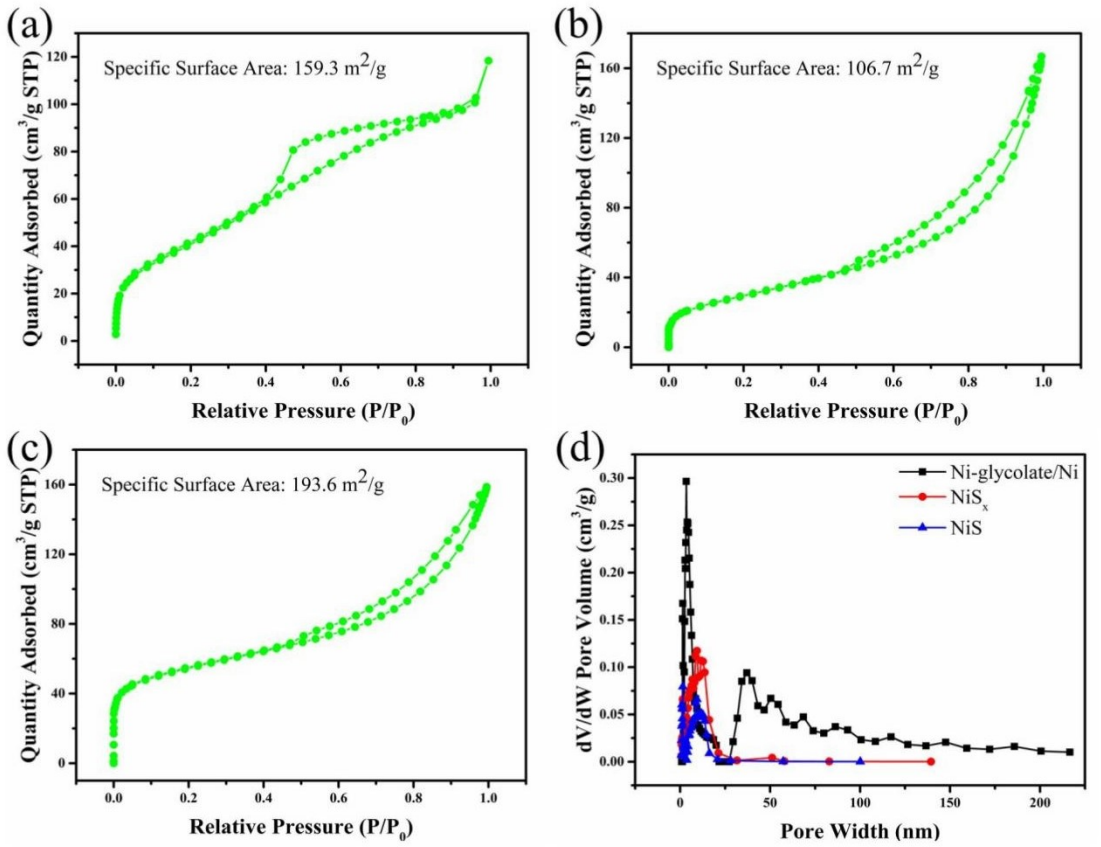

Figure S8. Nitrogen adsorption-desorption isotherms of (a) Ni-glycolate/Ni, (b) NiS_x, (c) NiS and (d) their corresponding pore size distributions.

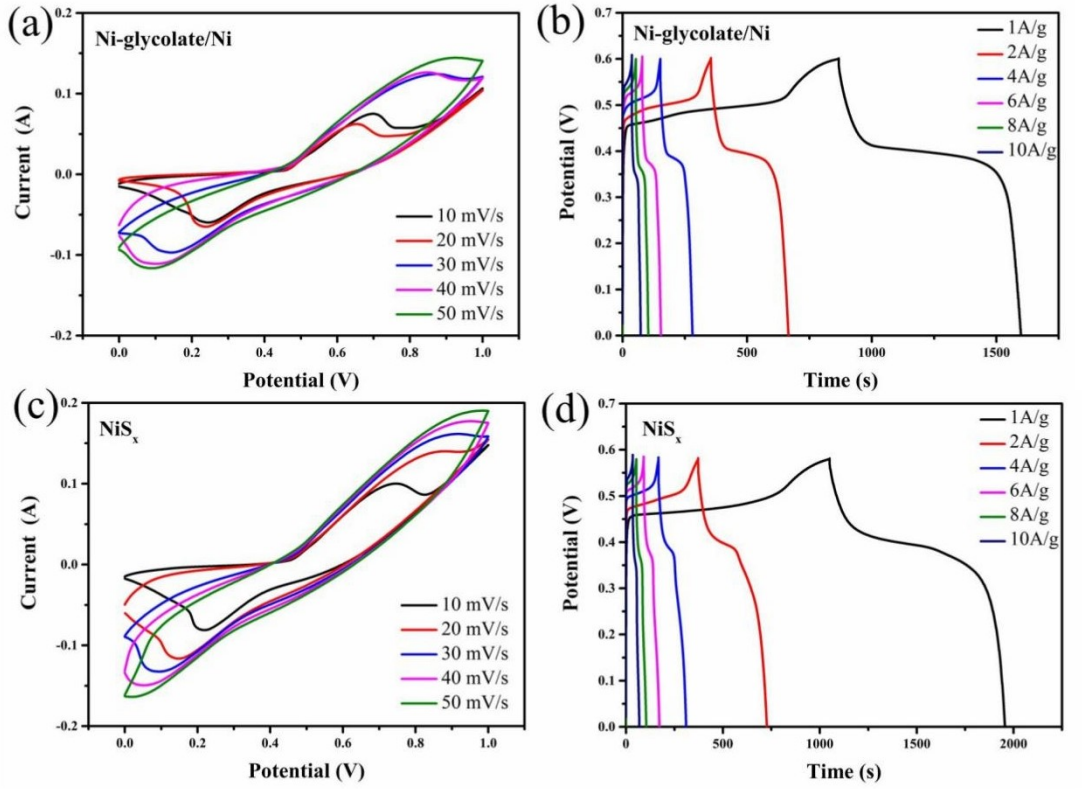

Figure S9. (a) CV curves of Ni-glycolate/Ni, (b) GCD curves of Ni-glycolate/Ni, (c) CV curves of NiS_x and (b) GCD curves of NiS_x.

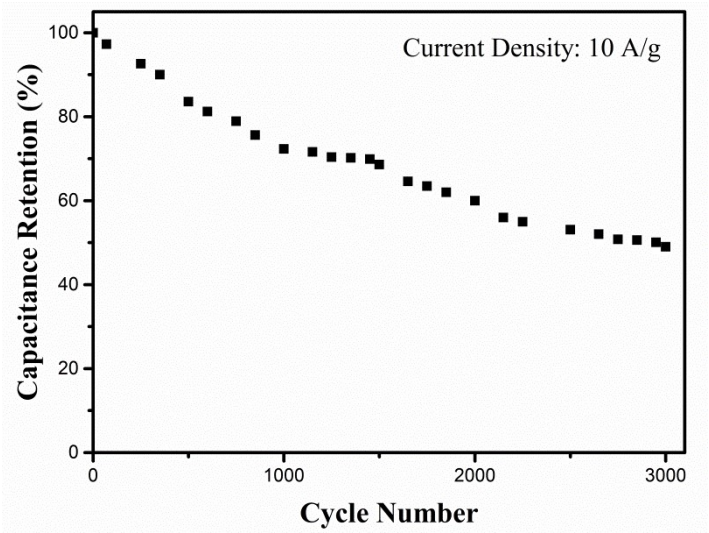

Figure S10. Cycling stability of NiS.

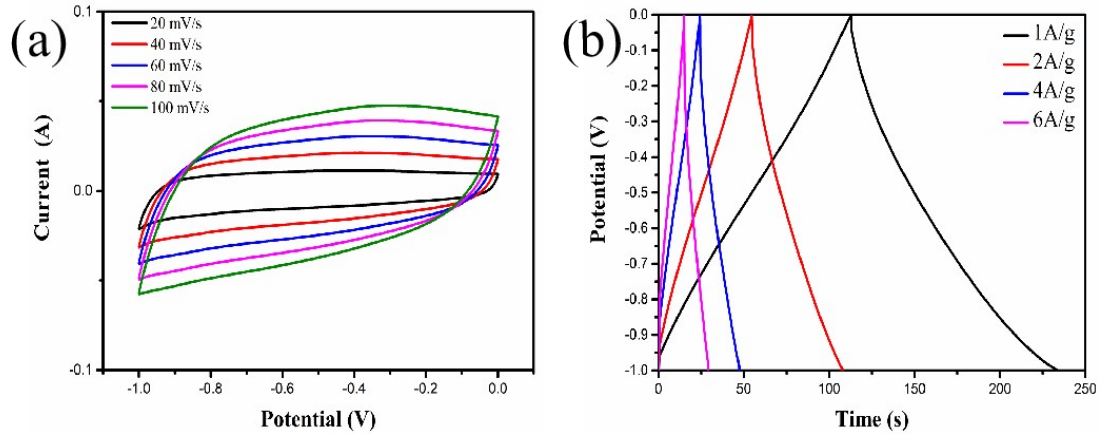

Figure S11. (a) CV curves of AC, (b) GCD curves of AC.

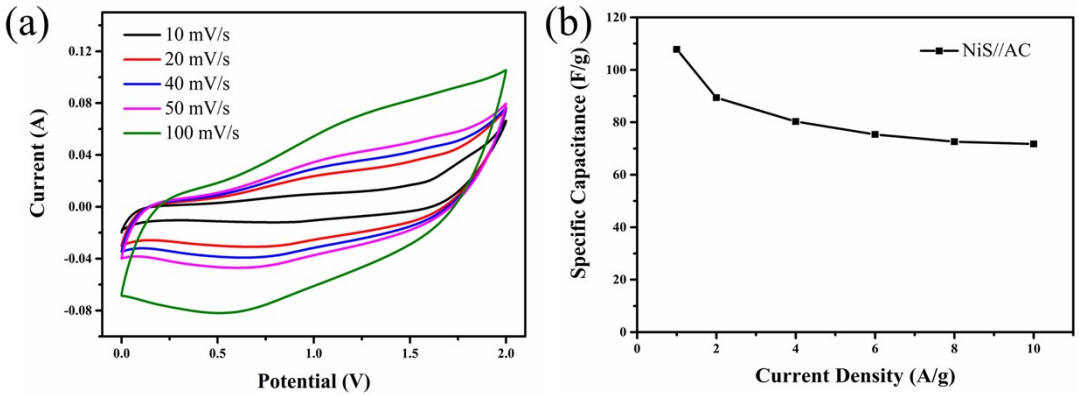

Figure S12. (a) CV profiles of NiS//AC at various sweep rates, (b) the calculated capacitances of the hybrid supercapacitor at 1–10 A/g.

Table S1. Components of the Equivalent Circuit Fitted for the Impedance Spectra

sample	Rs (Ω)	Rct(Ω)	Zw(Ω)
Ni-glycolate/Ni	2.06	0.86	0.41
NiS_x	1.88	0.85	0.51
NiS	1.63	0.13	0.43

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