

Supporting Information

Construction of mass-controllable electrodes from mesoporous NiCo₂S₄ nanosheets for high performance supercapacitors

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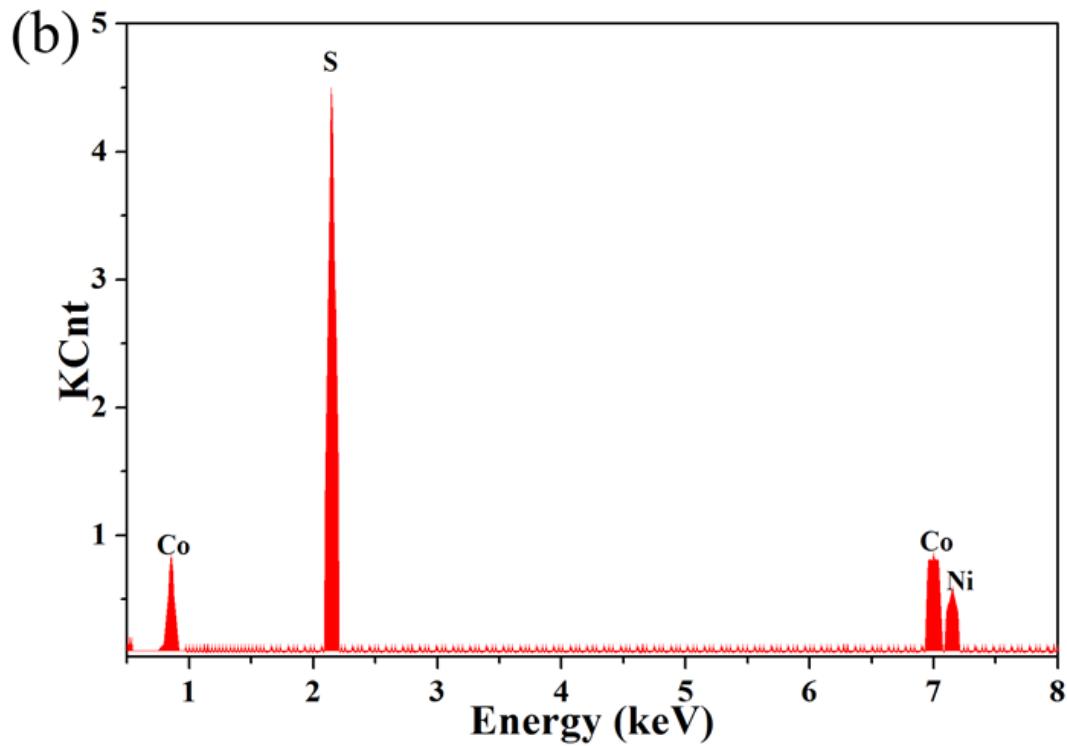
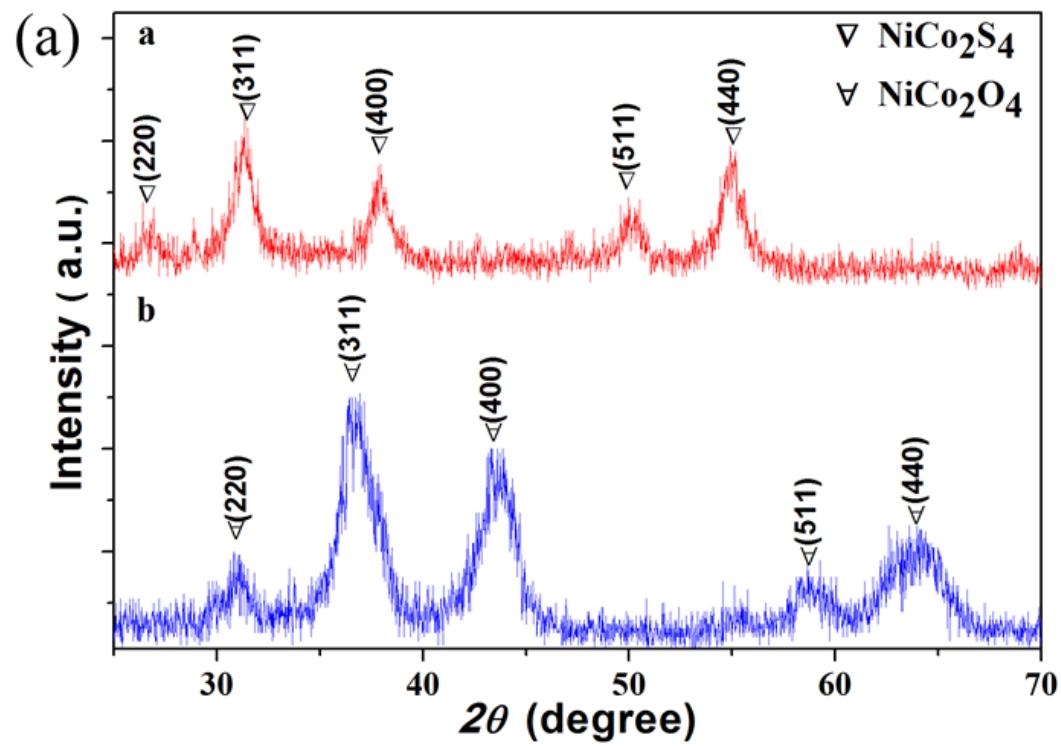


Fig.S1 (a) XRD patterns of the NiCo_2S_4 and NiCo_2O_4 . The NiCo_2O_4 nanosheets (JCPDF 20-0781) change into the NiCo_2S_4 nanosheets (JCPDF 43-1477) after AEC; (b) EDX spectrum of the NiCo_2S_4 nanosheets;

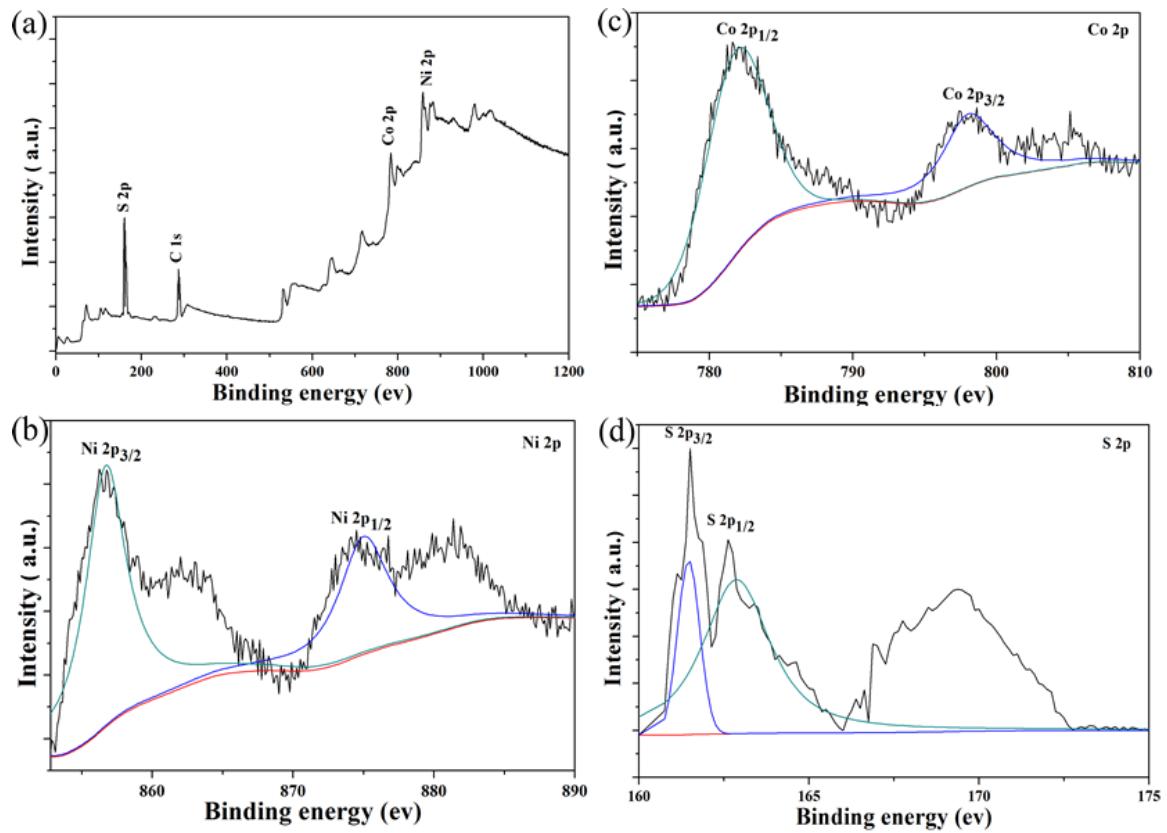


Fig.S2 XPS spectra of the NiCo_2S_4 nanosheets:(a) survey spectrum, (b) Ni 2p, (c) Co 2p and (d) S 2p.

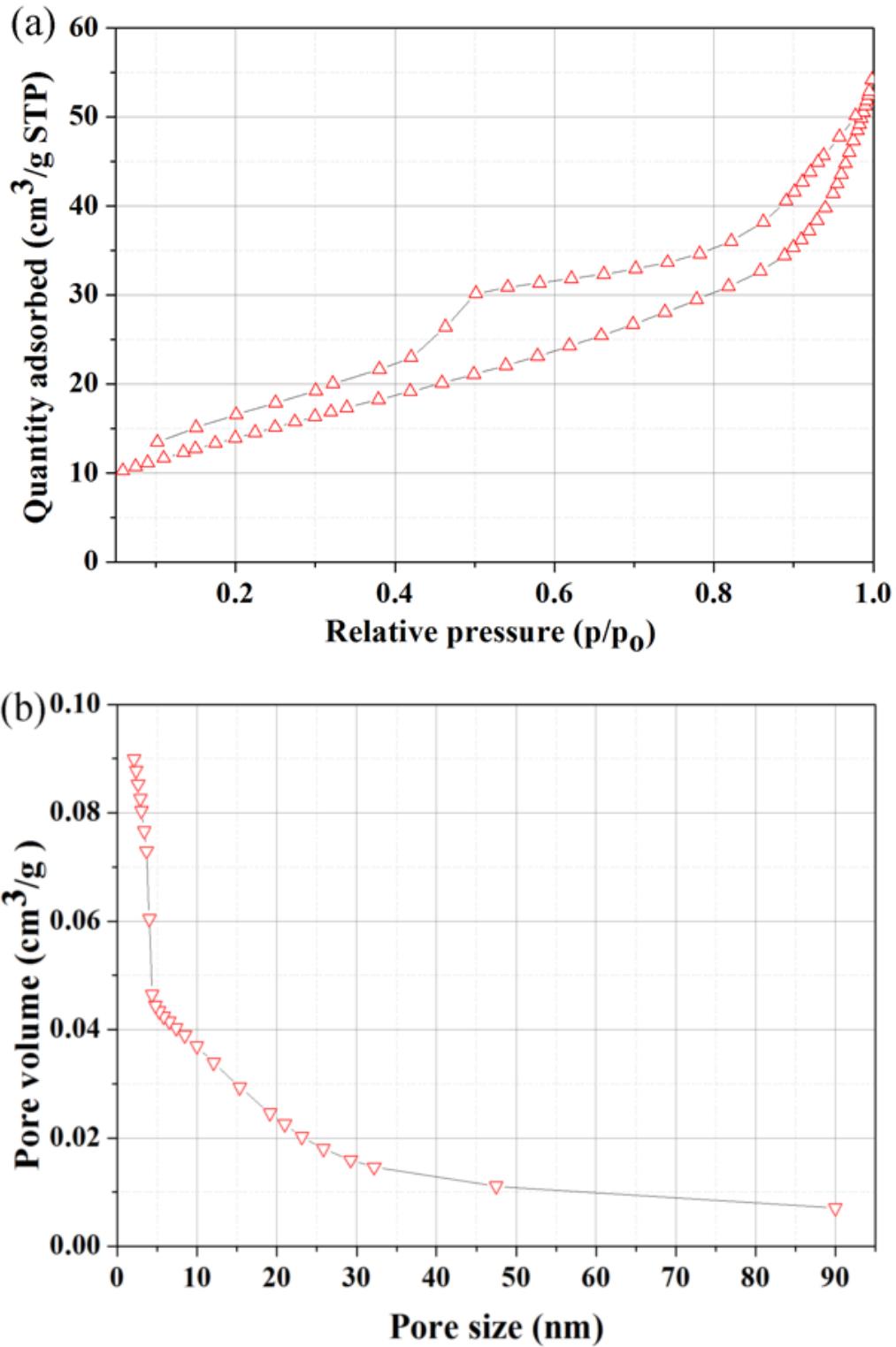


Fig.S3 (a) N₂ adsorption-desorption isotherm and (b) the pore size distribution of NiCo₂S₄.

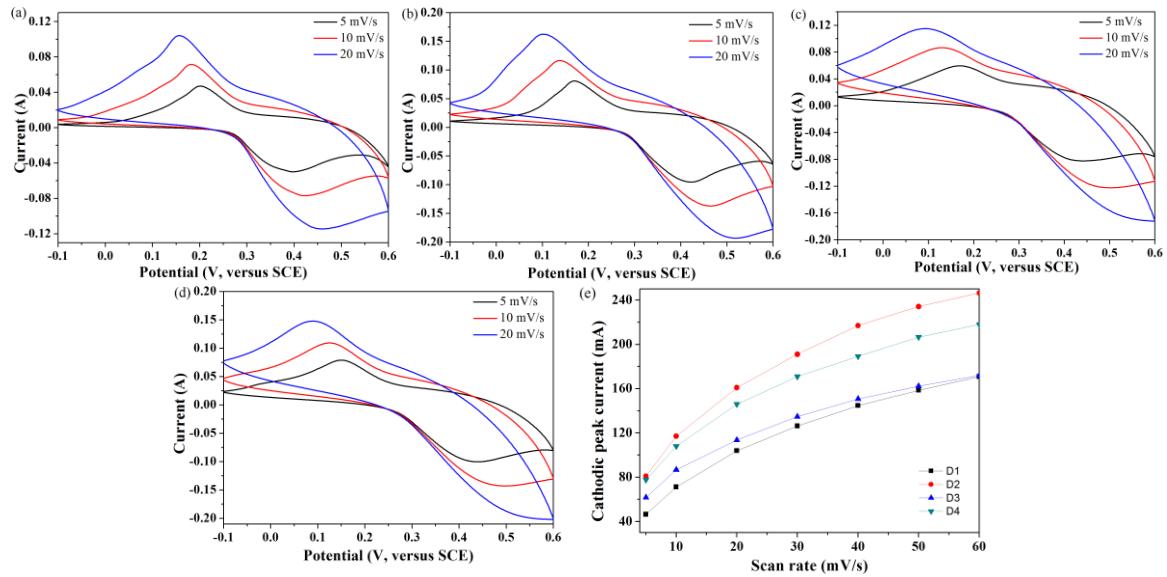


Fig.S4 (a),(b),(c),(d) CV spectra of D1, D2, D3, D4 at scan rates between 5 and 20 mV s⁻¹ respectively; (e) b-value determinnination of the peak cathodic currentsfrom 5 to 60mV s⁻¹.

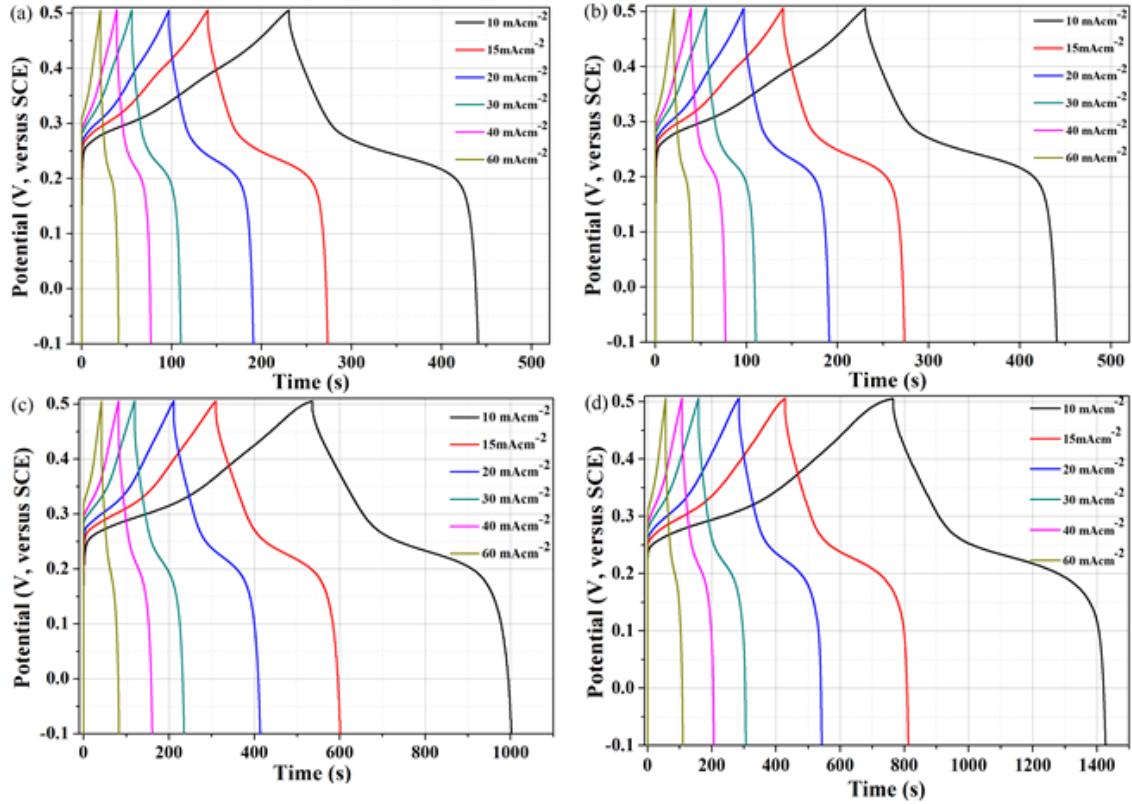


Fig.S5 (a)(b)(c)(d) Charge and discharge curves for D1, D2, D3, D4 at current densities between 10 to 60 mAcm⁻², respectively ;

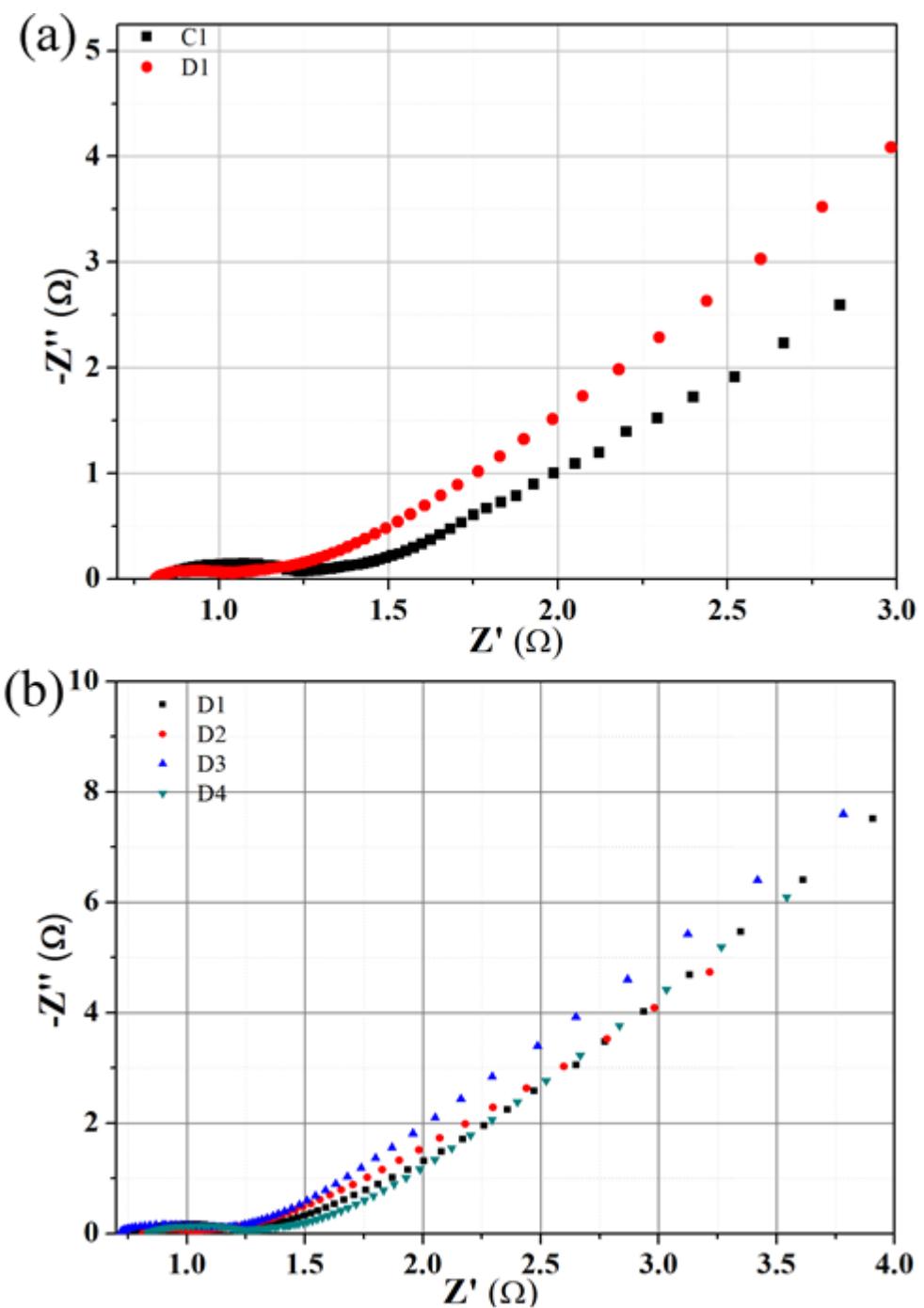


Fig.S6 (a) EIS spectra for the electrodes of C1 and D1 at open circuit voltage; (b) EIS spectra for the electrodes of D1, D2, D3, D4 at open circuit voltage.

Table S1 Literature survey of related active material electrodes for electrochemical capacitors

	NiCo ₂ S ₄ Nanotube Arrays ¹⁶	Urchin-like NiCo ₂ S ₄ Nanostructure ²⁰	NiCo ₂ O ₄ hetero-structure arrays ²⁴
Synthesis method	Solution based; H ₂ S sulfurization	Hydrothermal	Hydrothermal
Mass loading	4.3 mgcm ⁻²	2-3 mgcm ⁻²	1.8 mgcm ⁻²
Specific capacitance	2.86 Fcm ⁻² (4 mAcm ⁻²)	1149 Fg ⁻¹ (1 Ag ⁻¹)	1089 Fg ⁻¹ (2 Ag ⁻¹)
Cycle retention	96% after 2000 cycles (10 mAcm ⁻²)	91.4% after 5000 cycles (20 Ag ⁻¹)	97.2% after 8000 cycles (2 Ag ⁻¹)