

Supporting Information for:

**Hierarchical 1D Nanofiber-2D Nanosheet-Shaped Self-Standing
Membrane for High-Performance Supercapacitors**

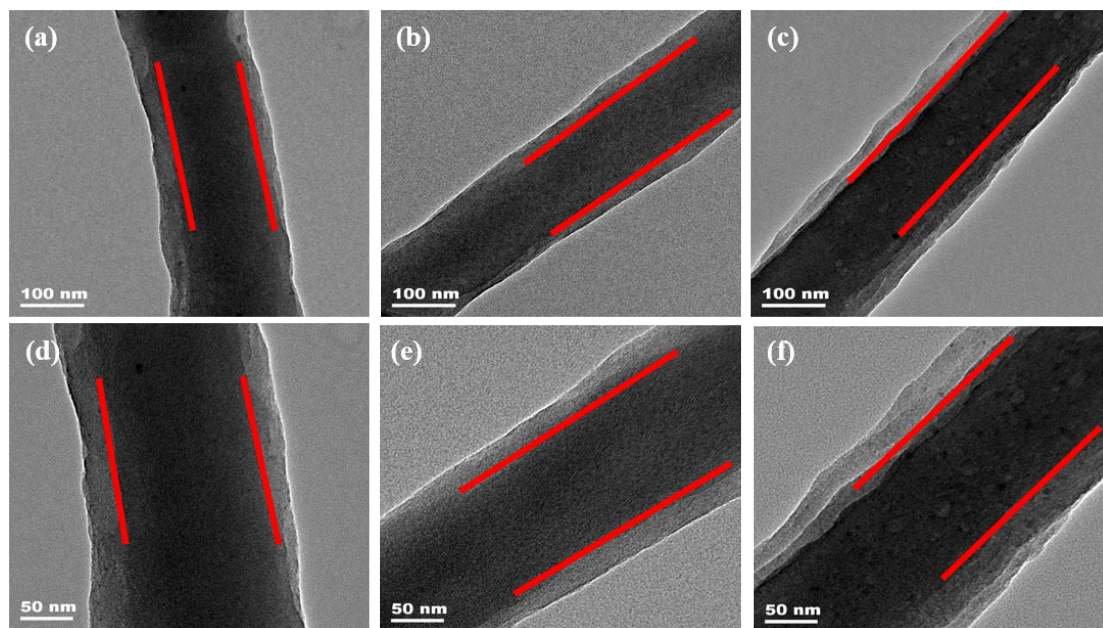


Fig. S1 TEM images of DCCNF.

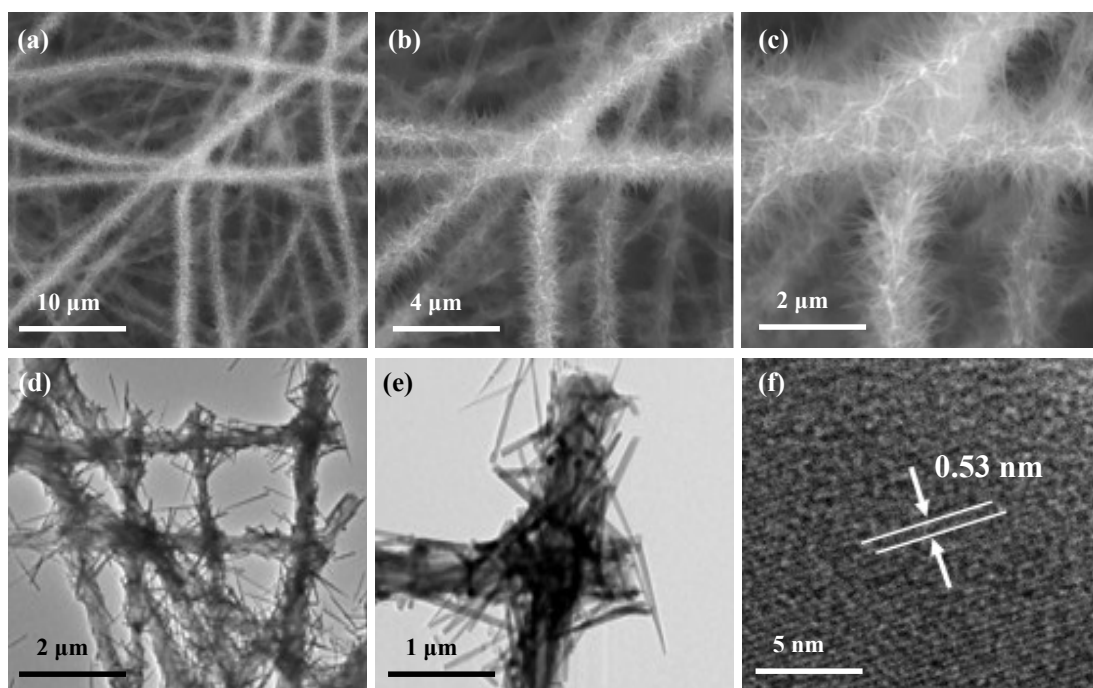


Fig. S2 (a-c) SEM, and (d-e) TEM images of $\text{NiCo}_2(\text{CO}_3)_{1.5}(\text{OH})_3@\text{DCCNF}$. (f) HRTEM of $\text{NiCo}_2(\text{CO}_3)_{1.5}(\text{OH})_3@\text{DCCNF}$.

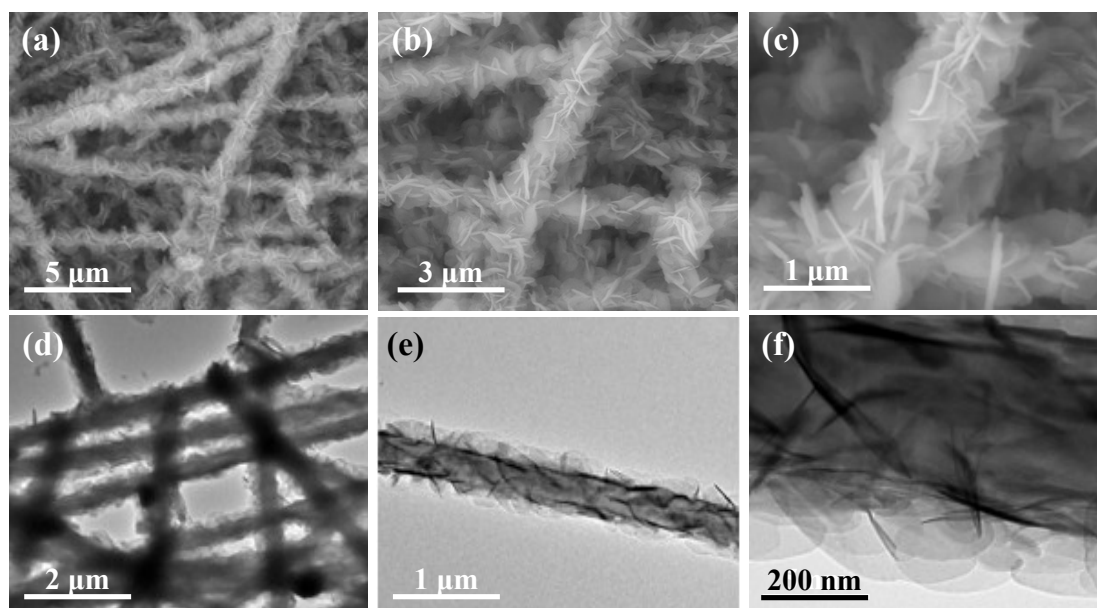


Fig. S3 (a-c) SEM and (d-f) TEM images of $\text{NiCo}_2(\text{CO}_3)_{1.5}(\text{OH})_3@\text{DCCNF}$.

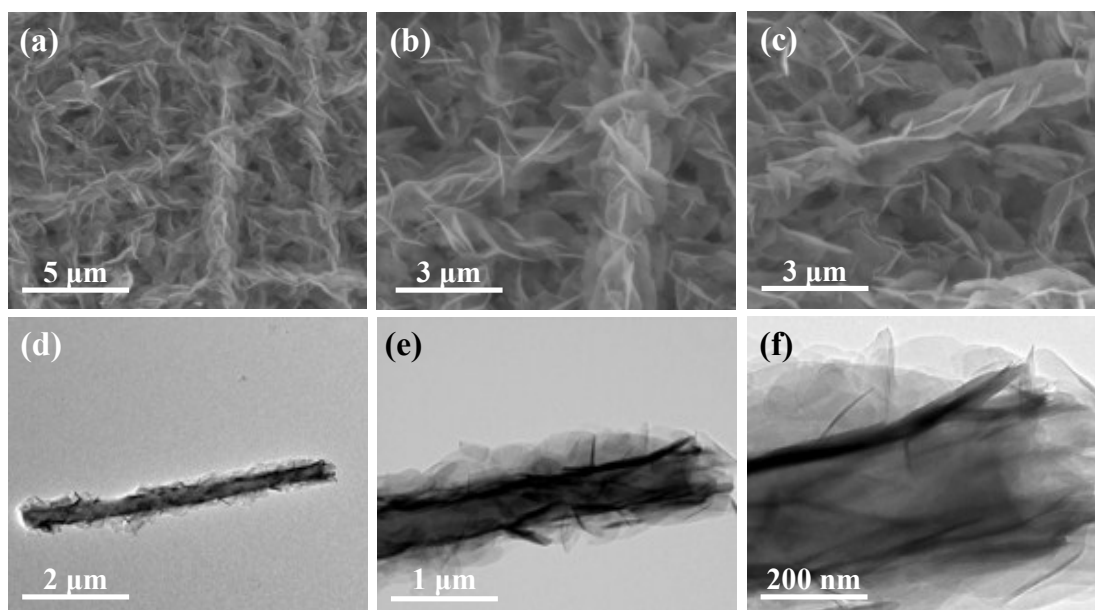


Fig. S4 (a-c) SEM and (d-f) TEM images of $\text{NiCo}_2\text{S}_4@\text{DCCNF}$

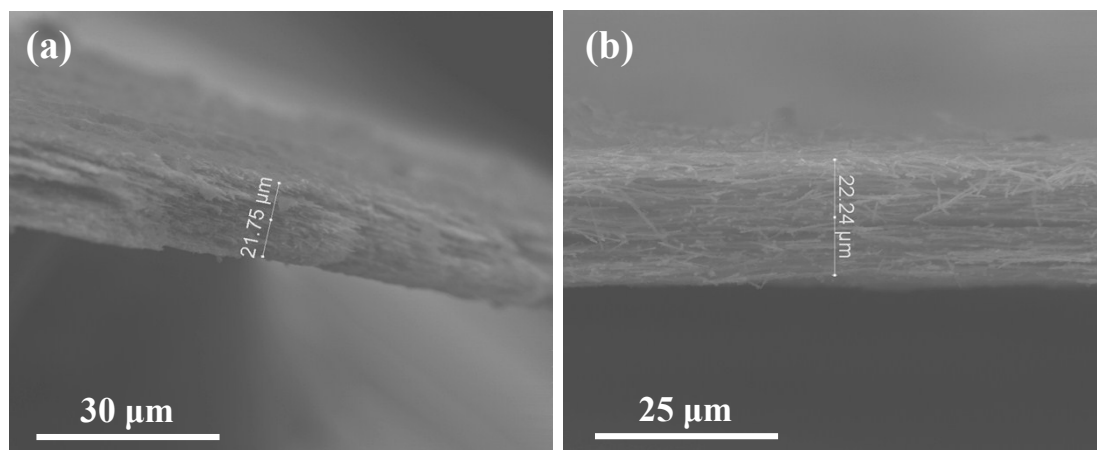


Fig. S5 Cross-section SEM image of $\text{NiCo}_2\text{S}_4@\text{DCCNF}$ electrode. The thickness of the electrode is ca. 22 μm.

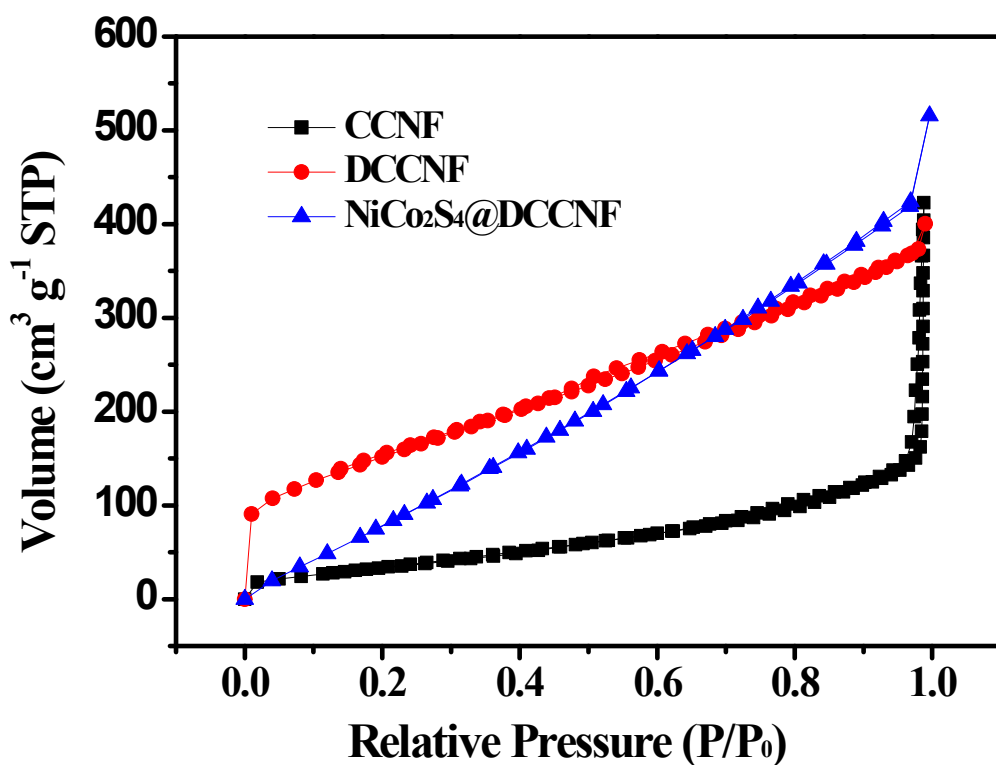


Fig. S6 N_2 adsorption/desorption isotherms of CCNF, DCCNF and $\text{NiCo}_2\text{S}_4@\text{DCCNF}$.

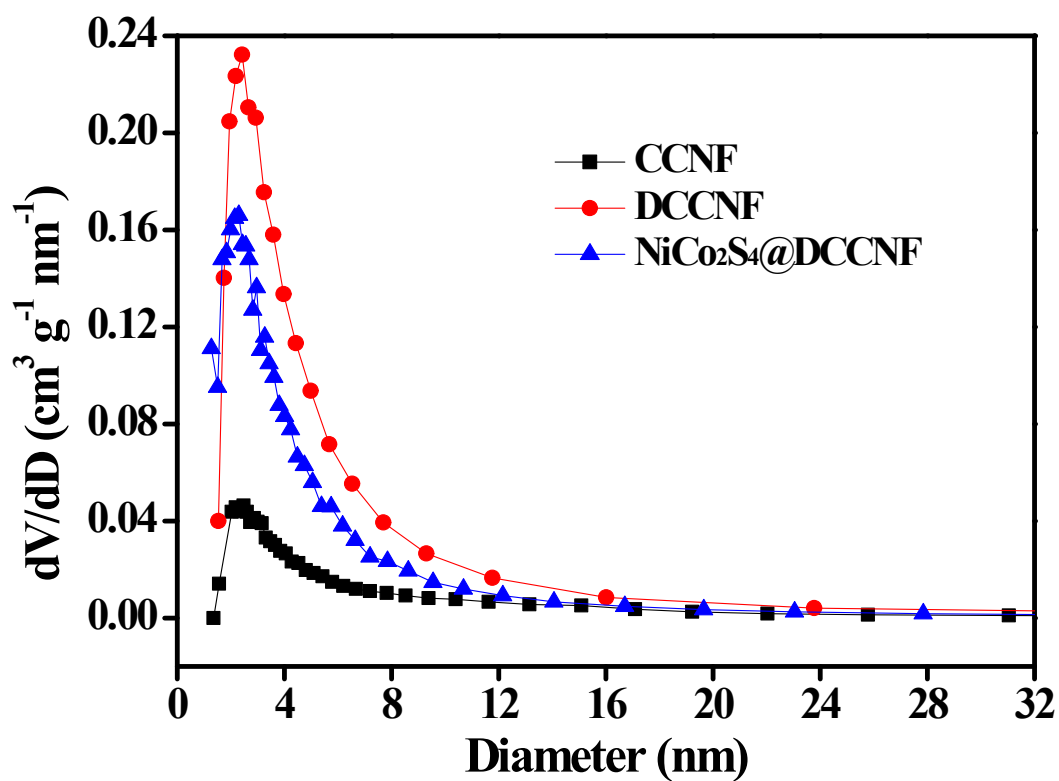


Fig. S7 Non-localized density functional theory (NLDFT)-derived pore size distribution diagrams of CCNF, DCCNF and $\text{NiCo}_2\text{S}_4@\text{DCCNF}$.

Table S1 Summary of the pore structure parameters of the CCNF, DCCNF, and NiCo₂S₄@DCCNF samples.

Samples	SSA [m ² g ⁻¹]	Micropore SSA [m ² g ⁻¹]	Pore Volume [cm ³ g ⁻¹]	Micropore size [nm]	Mesopore size [nm]
NiCo ₂ S ₄ @DCCNF	555	442	0.53	1.24	2.2
DCCNF	596	478	0.58	1.24	2.4
CCNF	139	87	0.1	1.4	2

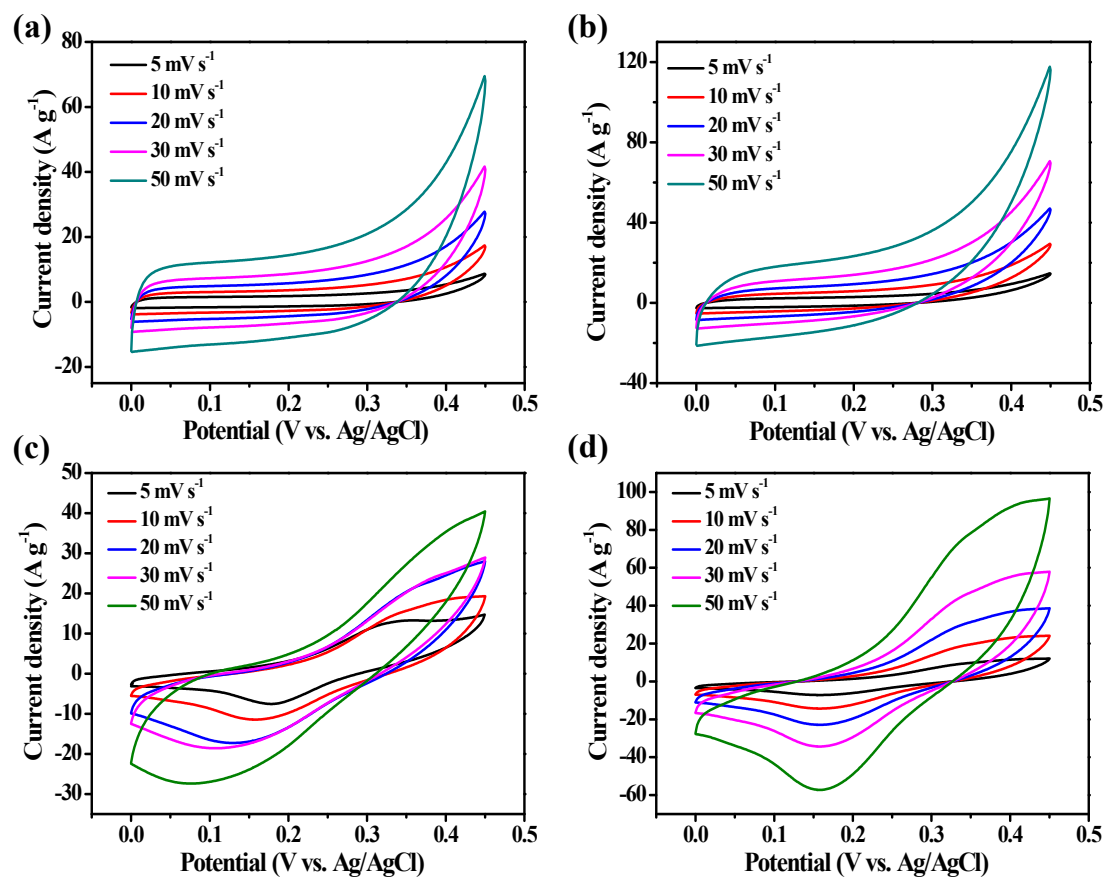


Fig. S8 CV curves of (a) CCNF, (b) DCCNF, (c) NiCo₂(CO₃)_{1.5}(OH)₃@CCNF, and (d) NiCo₂(CO₃)_{1.5}(OH)₃@DCCNF at various scan rates.

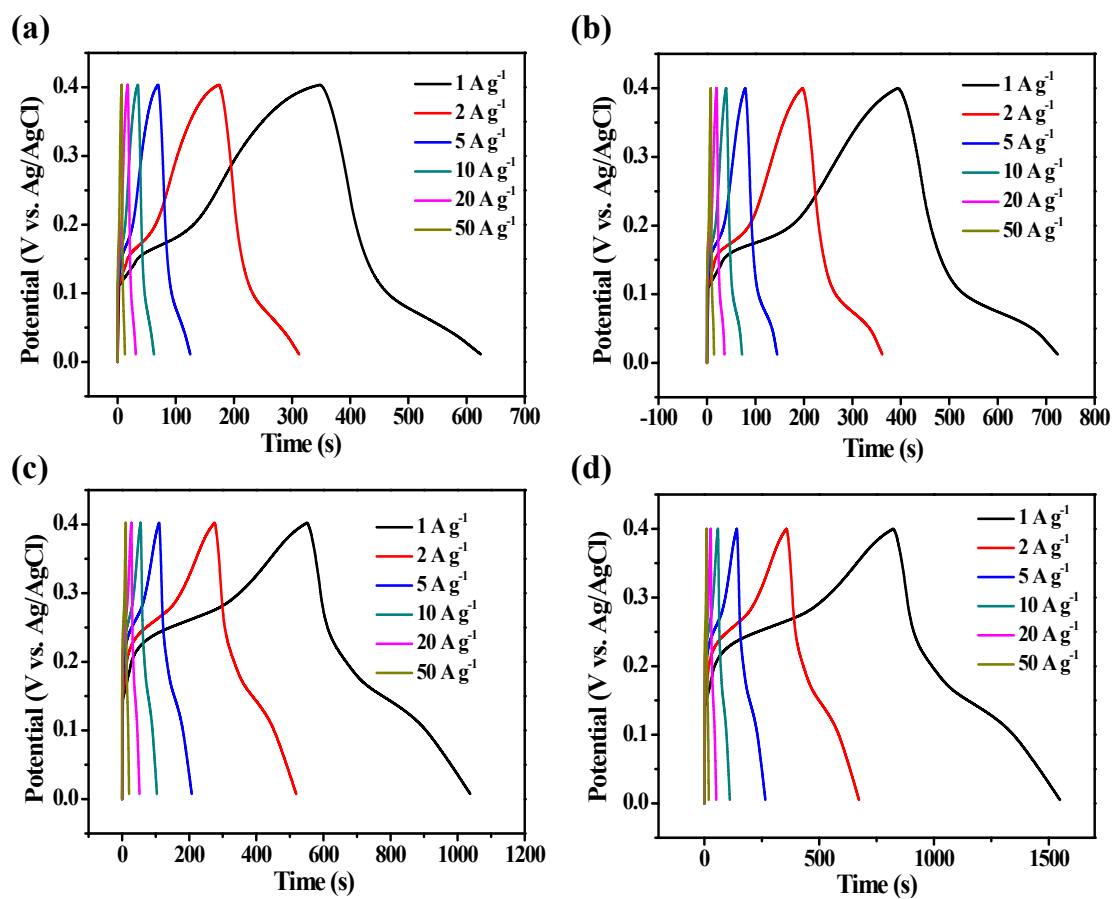


Fig. S9 GCD curves of (a) CCNF, (b) DCCNF, (c) NiCo₂(CO₃)_{1.5}(OH)₃@CCNF, and (d) NiCo₂(CO₃)_{1.5}(OH)₃@DCCNF at different current densities.

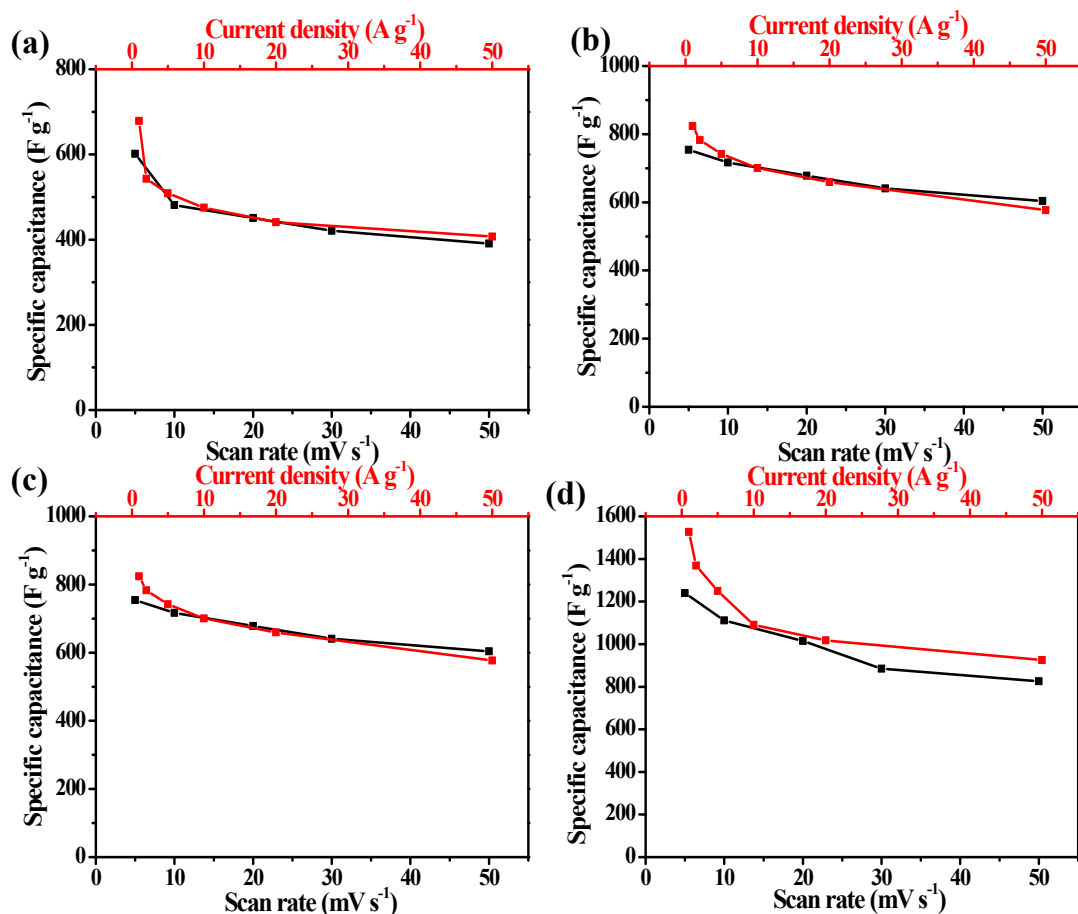


Fig. S10 Specific capacitance of (a) CCNF, (b) DCCNF, (c) NiCo₂(CO₃)_{1.5}(OH)₃@CCNF, and (d) NiCo₂(CO₃)_{1.5}(OH)₃@DCCNF as a function of the current density and scan rate.

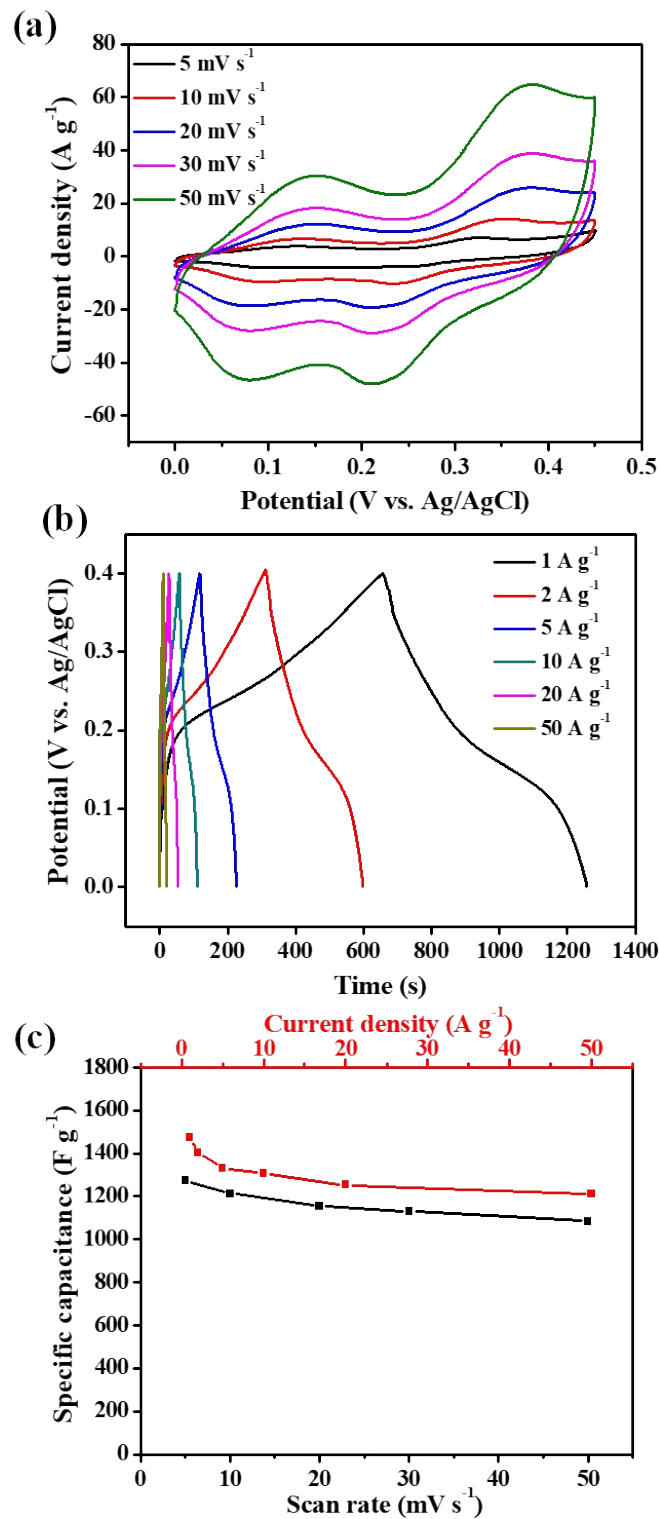


Fig. S11 Electrochemical evaluation of NiCo₂S₄@DCCNF electrodes in a three-electrode system with 3 M KOH as electrolyte: (a) CV curves with scan rates from 5 to 50 mV s^{-1} , and (b) GCD curves with current densities from 1 to 50 A g^{-1} ; (c) rate dependence of the capacitance.

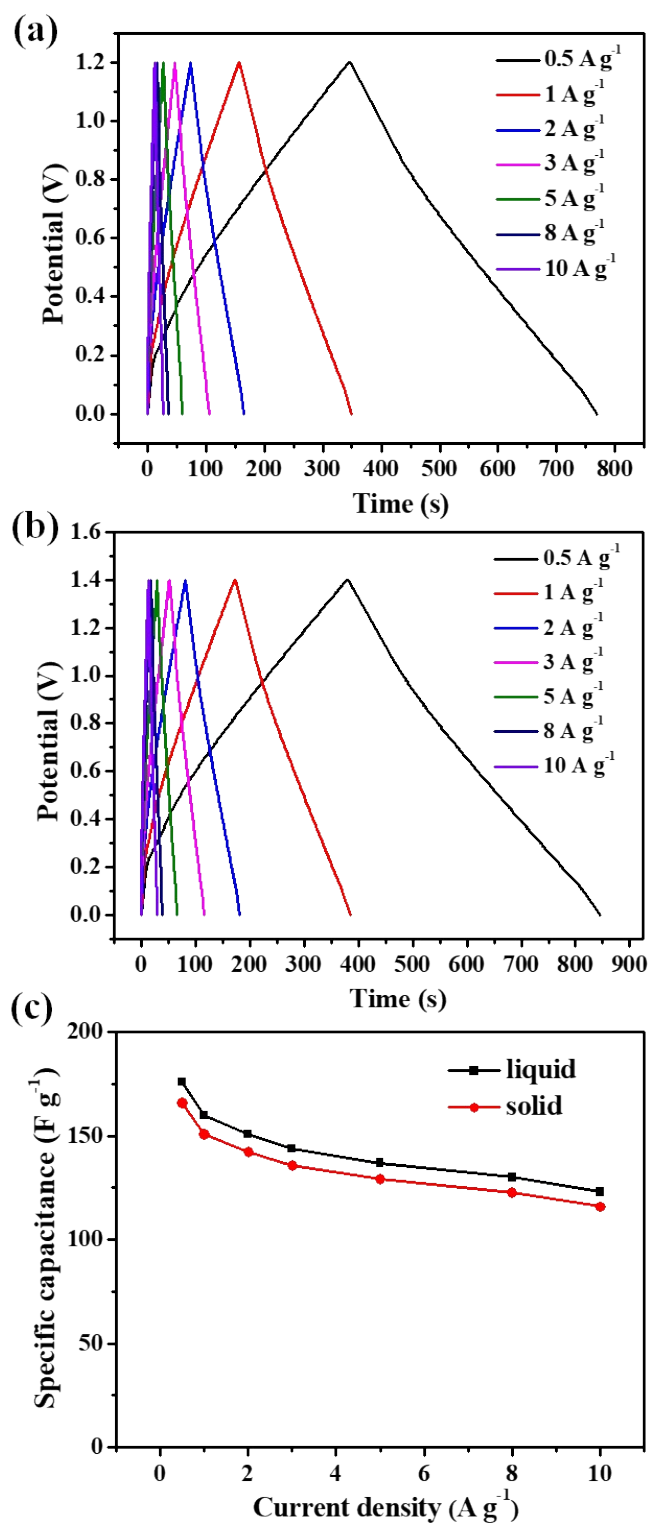


Fig. S12 Electrochemical performance comparison of NiCo₂S₄@DCNF-based supercapacitor devices with 3 M KOH and PVA/KOH as electrolyte: (a) GCD curves of all-solid-state supercapacitor devices with PVA/KOH as electrolyte; (b) GCD curves of liquid supercapacitor devices with 3 M KOH as electrolyte; (c) Rate dependent capacitance at various current densities.