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Supplementary Information

Design of an intermediate carbon layer between bimetallic sulfide and carbon-based substrate for high-performance asymmetric supercapacitors

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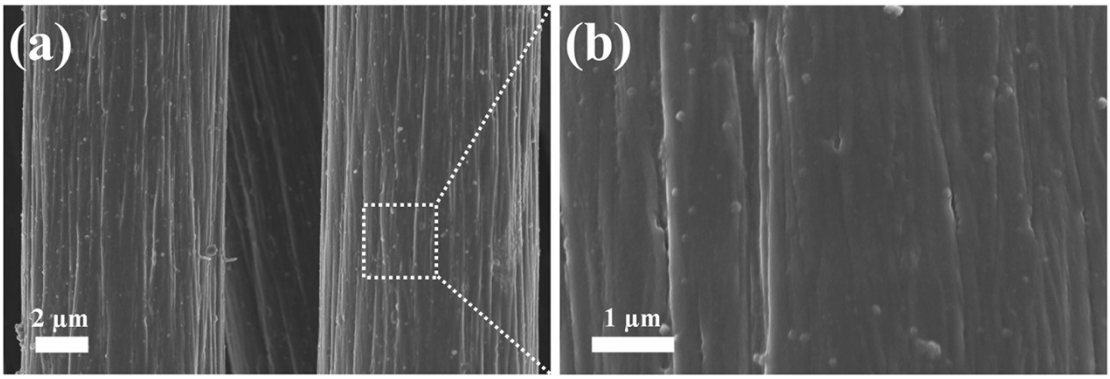

Fig. S1 SEM images of the CC-NPC sample before annealing .

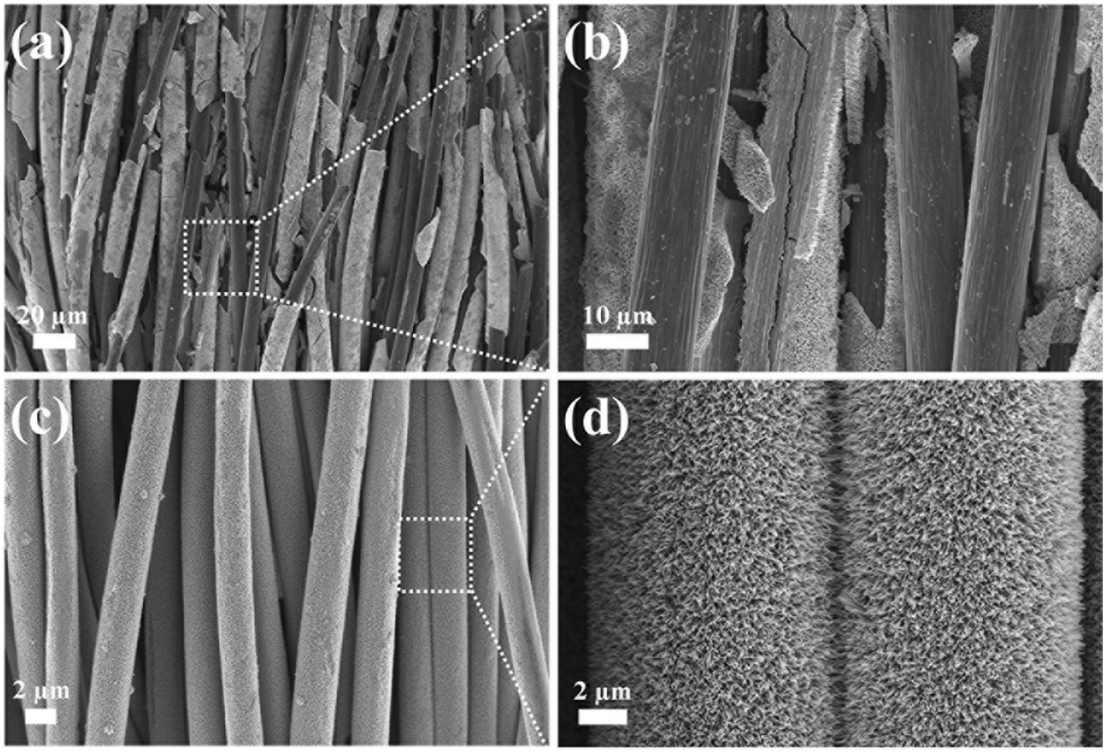

Fig. S2 SEM images of (a, b) the CC-BS sample after 5 min sonication treatment; (c, d) the CC-NPC-BS sample after 15 min sonication treatment.

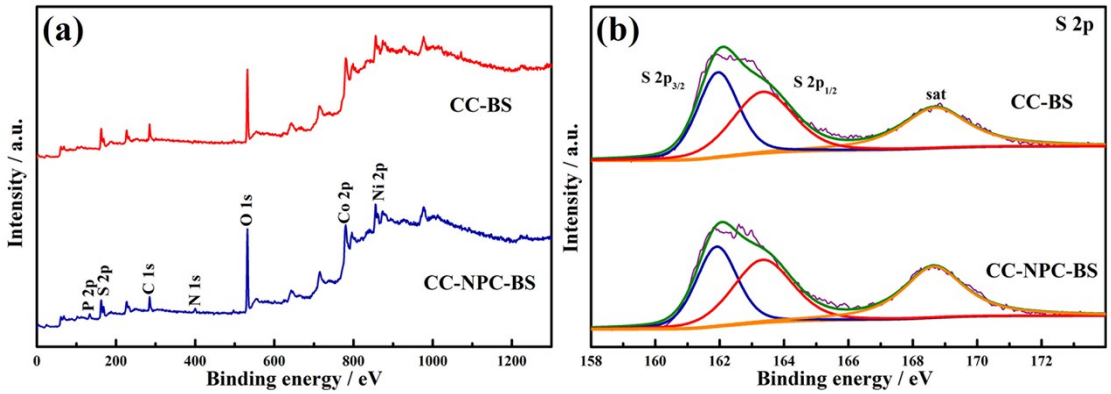

Fig. S3 (a) XPS survey spectra of CC-BS and CC-NPC-BS samples; (b) high-resolution XPS spectra of S 2p for the CC-BS and CC-NPC-BS samples.

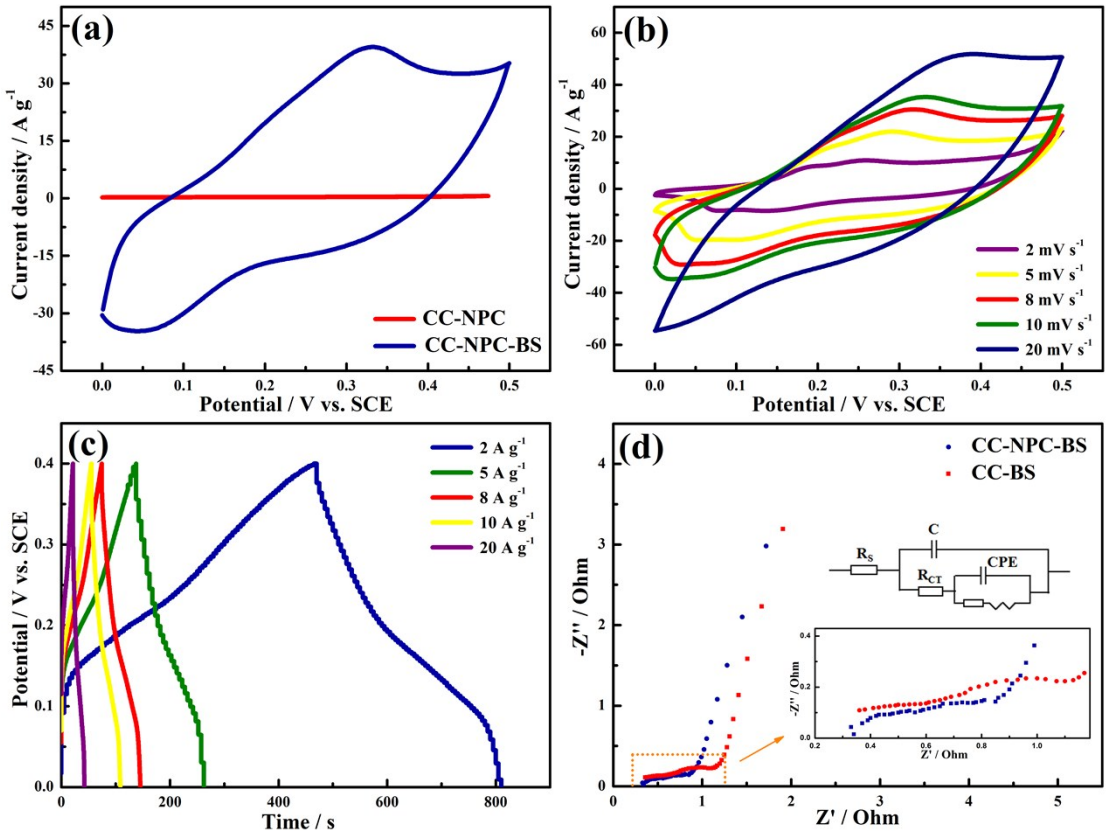

Fig. S4 (a) CV curves of the CC-NPC and CC-NPC-BS electrodes at 5 mV s^{-1}; (b) CV curves of the CC-BS electrode at different scan rates ranging from 2 to 20 mV s^{-1}; (c) galvanostatic charge/discharge curves CC-BS electrode at various current densities ranging from 2 to 20 A g^{-1}; (d) Nyquist impedance spectra and equivalent circuit of the CC-BS and CC-NPC-BS electrodes.

Table S1

EIS simulation parameters of CC-NPC-BS and CC-BS electrodes.

	R_S ($\Omega \cdot cm^2$)	R_{CT} ($\Omega \cdot cm^2$)	C ($F \cdot cm^{-2}$)	CPE ($F \cdot cm^{-2}$)
CC-NPC-BS	0.3341	0.4669	5.659×10^{-4}	5.961×10^{-2}
CC-BS	0.3621	0.6559	7.115×10^{-4}	5.695×10^{-2}

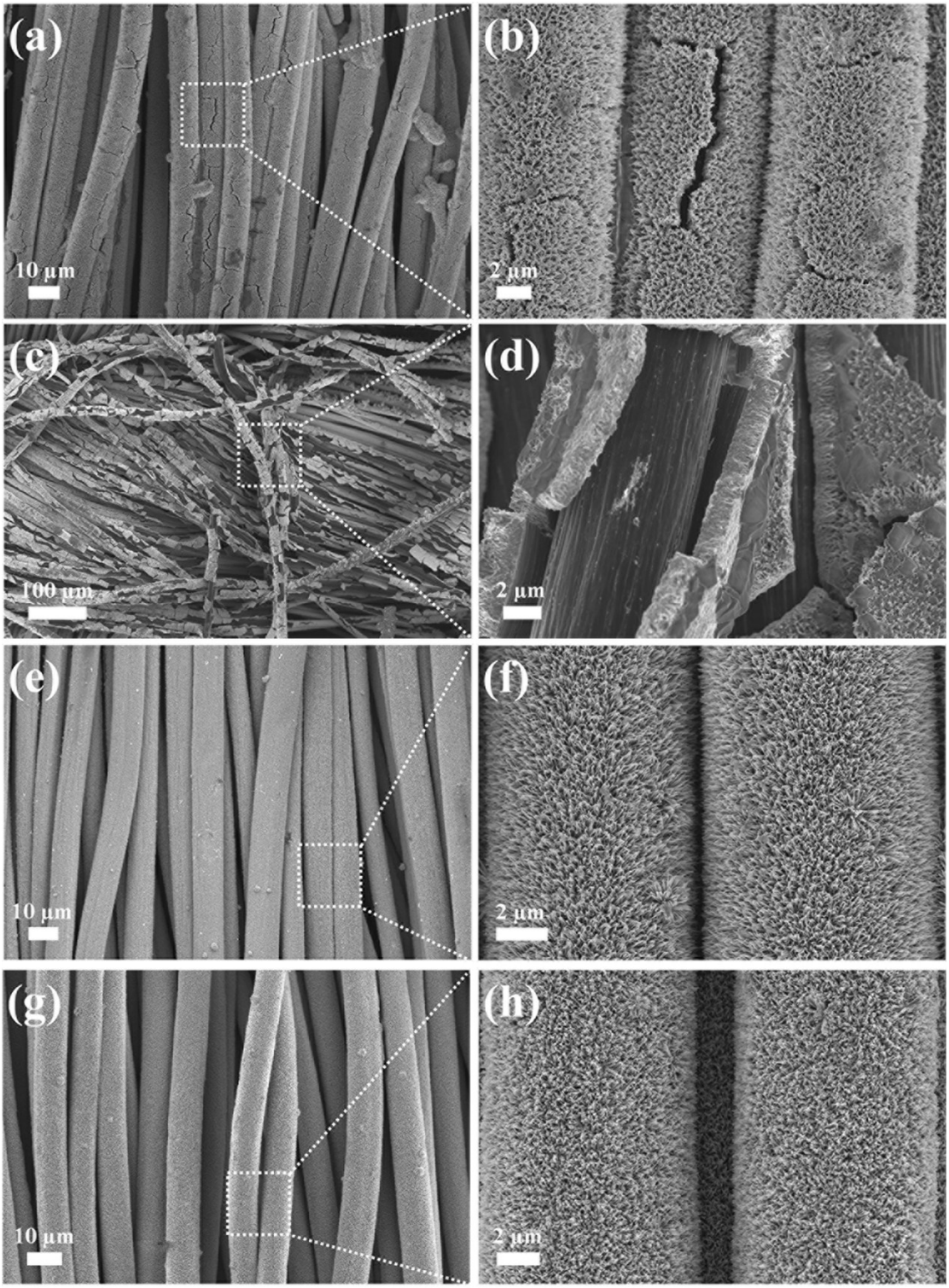

Fig. S5 SEM images of the CC-BS sample before (a, b) and after (c, d) 1000 cycles at 10 A g^{-1}; the CC-NPC-BS sample before (e, f) and after (g, h) 10000 cycles at 10 A g^{-1}.

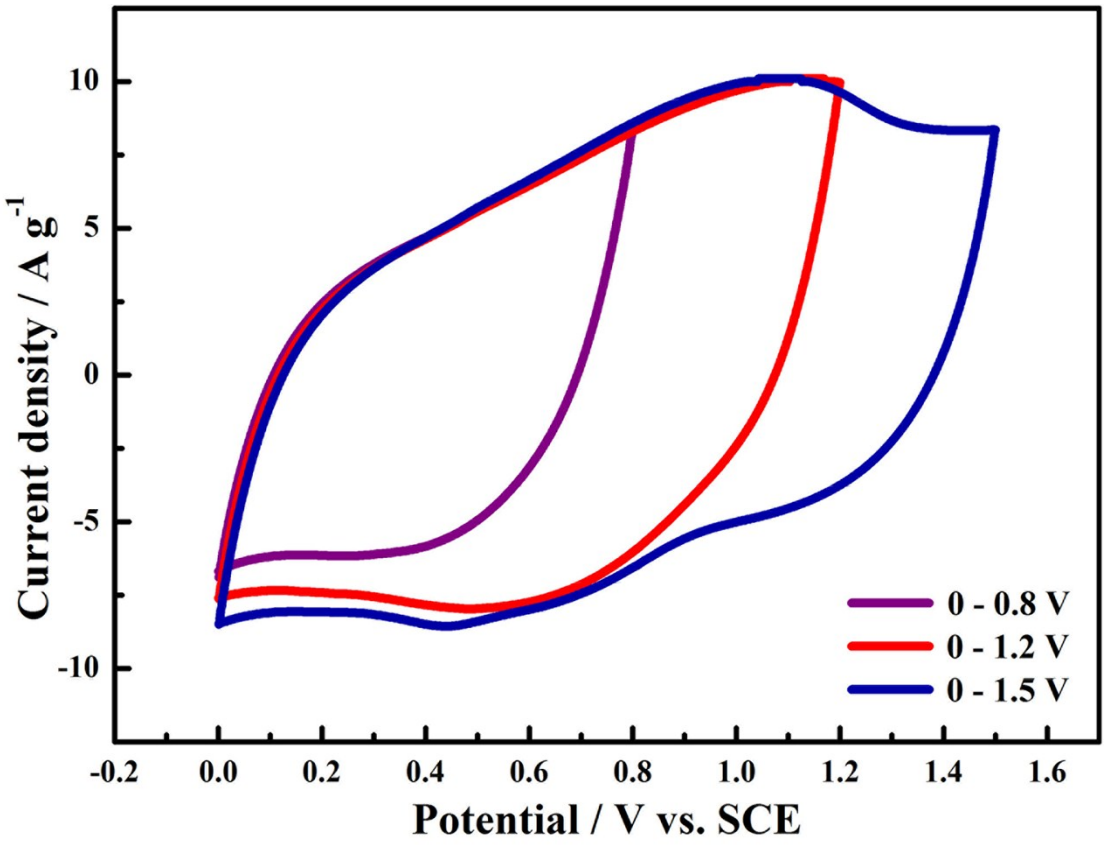

Fig. S6 CV curves of CC-NPC-BS // AC asymmetric supercapacitor in various voltage windows at 5 mV s^{-1}.