Supplementary Information

Amorphous CuSnO$_3$ nanospheres anchored on interconnected carbon networks as novel anode materials for high-performance sodium ion batteries

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Fig. S1 TG/DSC profiles of the precursors (a) CuSn(OH)$_6$, (b) CuSn(OH)$_6$/GO, (c) CuSn(OH)$_6$/GO/CNTs tested in the Ar atmosphere, and (d) TG profile of CuSnO$_3$/GN/CNTs tested in air.

Fig. S2 (a) N$_2$ adsorption-desorption curves and (b) Pore size distribution of the CuSnO$_3$/GN/CNTs, CuSnO$_3$/GN, CuSnO$_3$. 
Fig. S3 SEM images of (a) GN and (b) GN/CNTs.

Fig. S4 (a) SEM and (b) HRSEM images of CuSnO$_2$/GN.
Fig. S5 (a) SEM and (b) HRSEM images of CuSnO$_3$/GN

Fig. S6 EDS pattern of the CuSnO$_3$/GN/CNTs.
Fig. S7 XPS spectra: (a) all peaks, (b) Cu 2p, (c) Sn 3d, (d) C 1s of the CuSnO$_3$/GN/CNTs, and (e) C 1s of GO/CNTs.

Fig. S8 (a) Cycling performance of GN/CNTs at a current density of 100 mA g$^{-1}$. (b) CV curves of GN/CNTs at a scan rate of 0.1 mV s$^{-1}$ with the potential range of 0.01–3 V for SIBs.
Fig. S9 SEM images of (a) CuSnO$_3$/GN/CNTs and (b) CuSnO$_3$ electrodes after 55 discharge/charge cycles at the current density of 0.1 A g$^{-1}$.

Fig. S10 (a) Discharge/charge curves of CuSnO$_3$/GN/CNTs at various current densities. (b) The Nyquist plots of the CuSnO$_3$/GN/CNTs, CuSnO$_3$/GN, CuSnO$_2$ after the cycling test.
Fig. S11 Discharge-charge profiles of (a) CuSnO$_3$ and (b) CuSnO$_3$/GN electrodes at 100 mA g$^{-1}$ for SIBs.

Fig. S12 The Nyquist plots of the CuSnO$_3$/GN/CNTs composite electrode before and after the cycling test.