Supplementary Information

Improved Sodium-Ion Storage Properties by Fabricating Nanoporous CuSn Alloy Architecture

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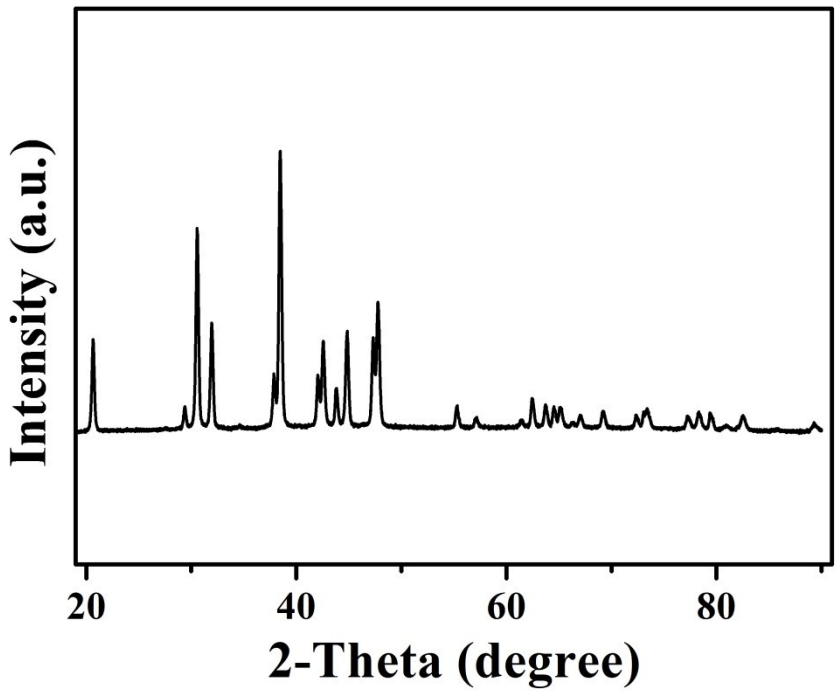

Fig.S1 The XRD pattern of CuSnAl alloy precursor.

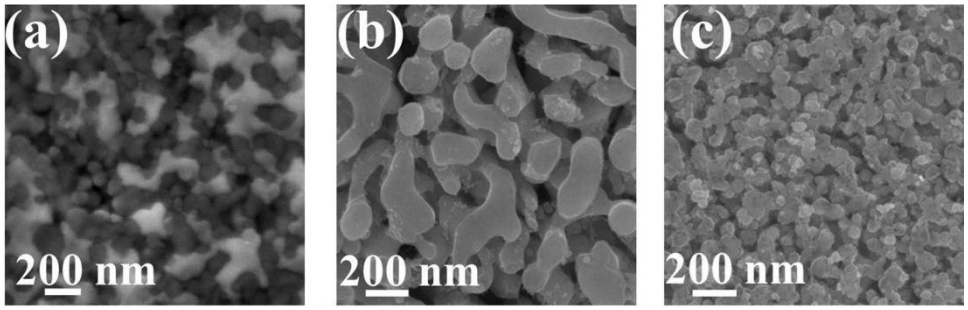

Fig.S2 Morphological characterizations of CuSn anodes: SEM image of CuSnAl alloy precusor (a)，CS12 (b) and CS48 (c) .

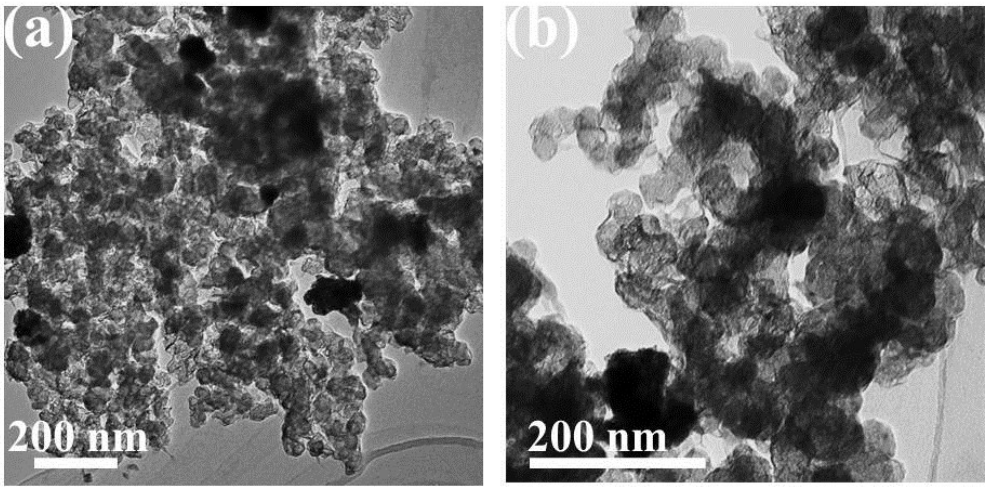

Fig.S3 TEM images of CS24 nanoporous composites at different magnifications.

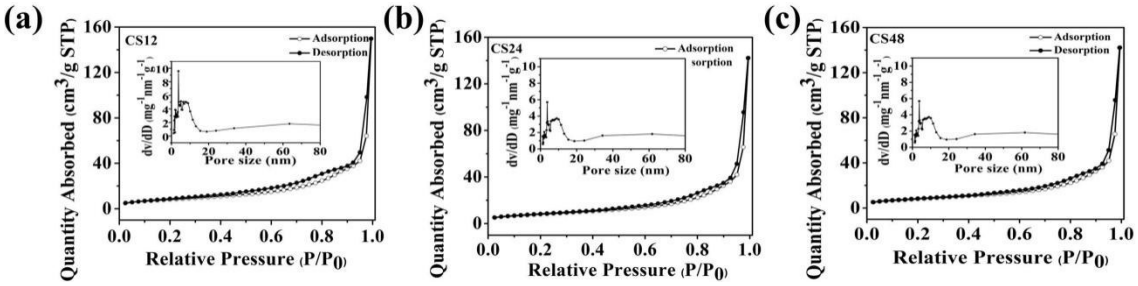

Fig. S4 The N_2 adsorption-desorption isotherms of (a) CS12, (b) CS24 and (c) CS48.

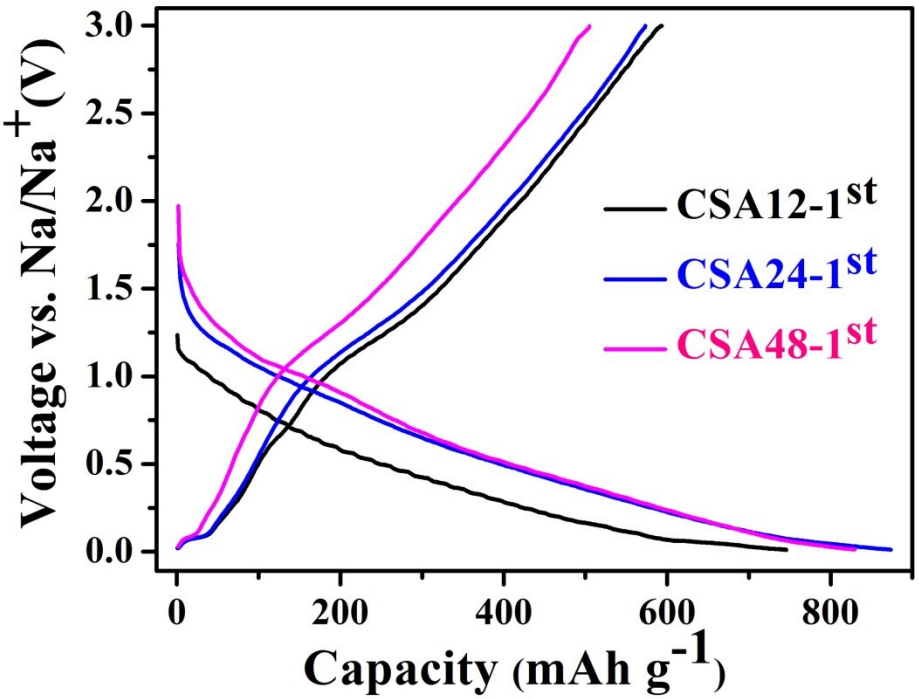

Fig.S5 Galvanostatic discharge/charge curves for CS12, CS24, CS48 electrodes of the first cycle at a current density of 50 mA g^{-1}.

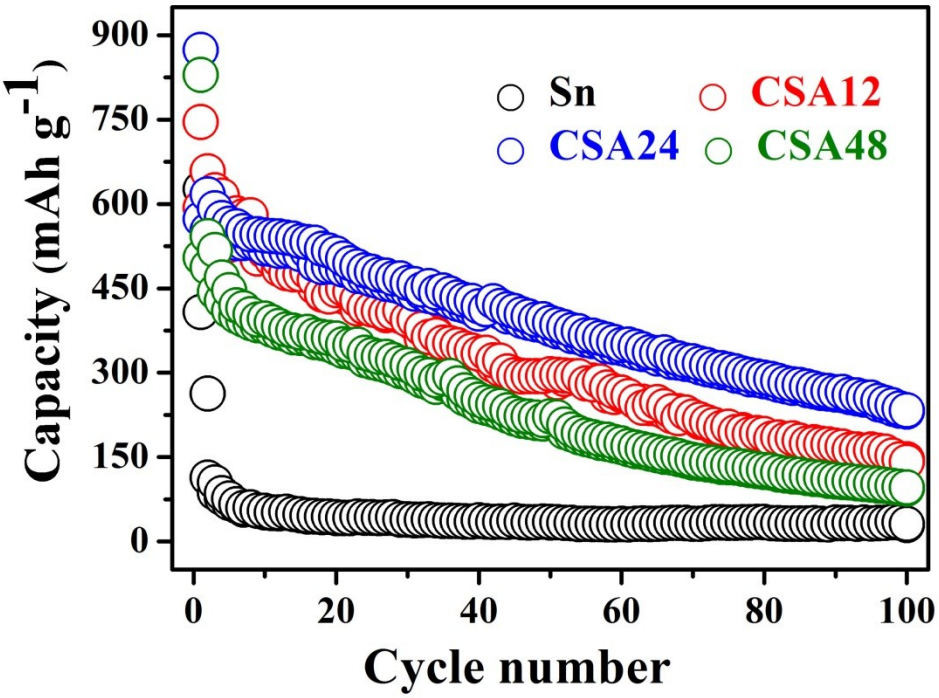

Fig.S6 Cycling performance comparison of pure Sn, CS12, CS24 and CS48 electrodes at a density

of 50 mA g^{-1}.

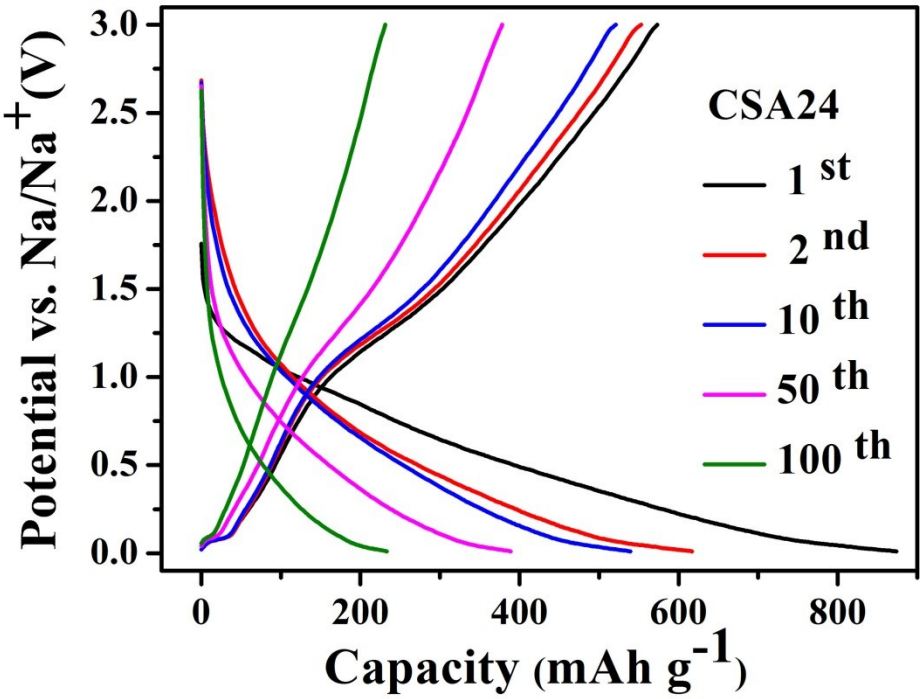

Fig.S7 Galvanostatic discharge/charge curves of CS24 at a current density of 50 mA g^{-1}.

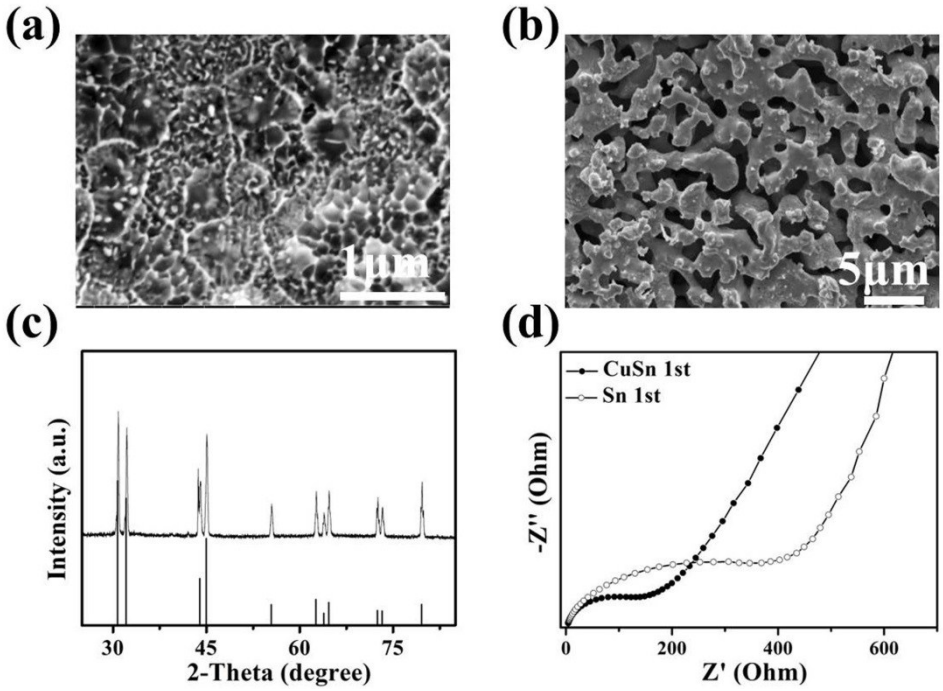

Fig. S8. SEM image of SnAl alloy precursor: (a) before etching, (b) after etching 24h. (c) XRD patterns of SnAl-24, (d) Nquist plots of SnAl-24 and CS24 after the initial formation cycle.

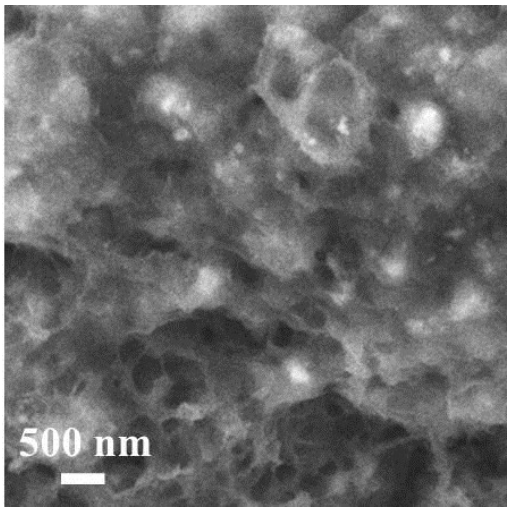

Fig.S9 SEM image of CS24 electrode after 100 discharge /charge cycles at a current density of 50 mA g^{-1}.

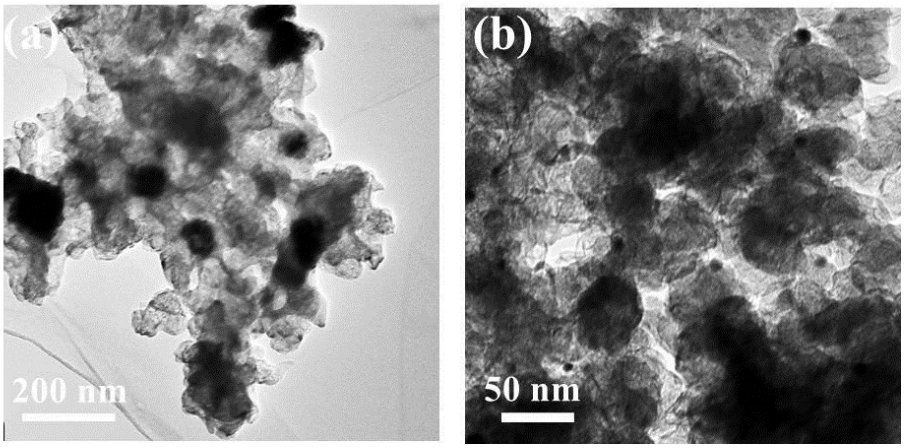

Fig.S10 Low-magnification TEM images of CSA24 electrode after the first discharged to 0.05 V cycles at a current density of 50 mA g^{-1}.

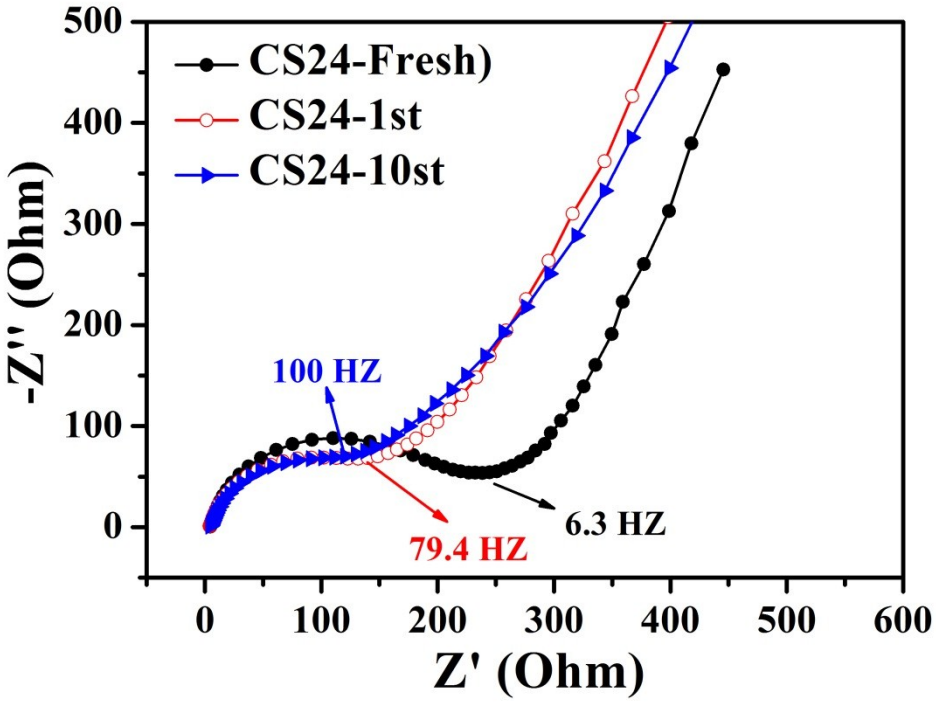

Fig.S11 Electrochemical impedance spectroscopy (EIS) of CSA24 electrodes for fresh, after 1st and 10st cycled in the frequency range 100000 Hz to 0.01 Hz at 5 mV amplitude.

Table S1 The compositions of CSA and various CuSn samples (CS12, CS24, CS48).

	CSA (Cu：Sn：Al)	**CS12**	**CS24**	**CS48**
Cu：Sn （molar ratio）	17：7：76	47：41	54：37	57：35