Supplementary Materials

N/S-Co-Doped Porous Carbon Sheets Derived from Bagasse as High-Performance Anode Materials for Sodium-Ion Batteries

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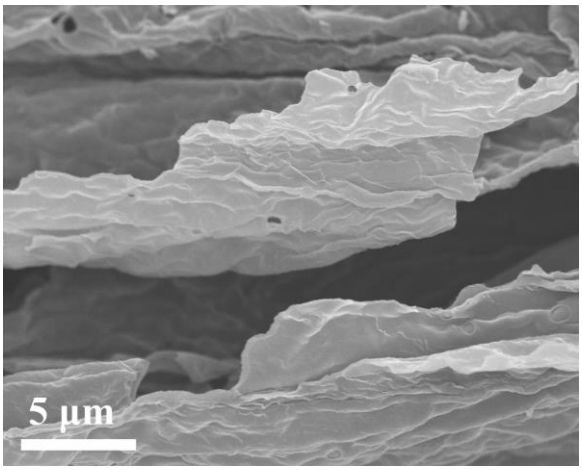

Figure S1. SEM image of CS.

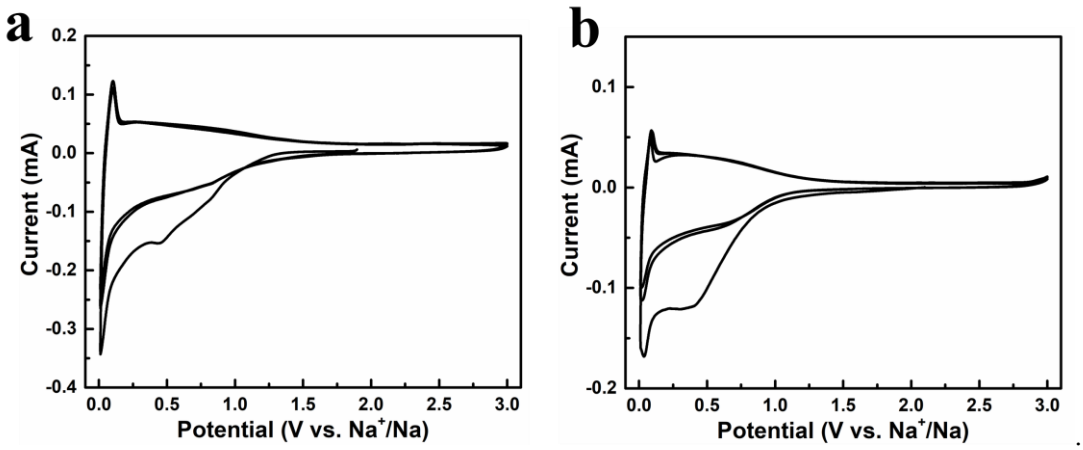

Figure S2. Cyclic voltammetry performance of (a) N/S-CS and (b) CS.

Calculation method of the theoretical capacity of N/S-CS:

The calculation formula of theoretical capacity is $C = \frac{96500*n}{3.6}$. According to calculation method of previous work (*J. Am. Chem. Soc.* **2012**, 134, 4505-4508), the theoretical capacity of N/S-CS is as follows:

$C_{\text{theoretical capacity}}$ = 0.0593*C_N+0.0507*C_s+0.89*C_c (C_N= 638 mAh g^{-1}, C_S= 1675 mAh g^{-1}, C_c= 279 mAh g^{-1})

Therefore, $C_{\text{theoretical capacity}}$ =37.8 + 84.9 + 248 = 370.7 mAh g^{-1}.

Table S1. The S and N contents dependence on the annealing temperature.

Carbonization temperature (°C)	N content (wt%)	S content (wt%)
900	4.24	6.09
800	5.93	5.07
700	7.37	3.89

Table S2. Comparison of the electrochemical performance of N/S-CS with other carbon materials reported in previous literature.

Carbon materials	Precursor	Capacity and cycle stability	Ref.
Carbon nanosheet frameworks	Peat moss	255 mA h g^{-1} after 210 cycles at 0.1 A g^{-1}	1
Nanoporous carbon nanosheets	Citrus peel	53 mA h g^{-1} after 2000 cycles at 1 A g^{-1}	2
N-doped porous carbon fiber	Polypyrrole	72 mA h g^{-1} after 100 cycles at 10 A g^{-1}	3
S-Doped carbon	Poly(3,4-ethylenedioxythiophene)	303 mA h g^{-1} after 700 cycles at 0.5 A g^{-1}	4
N-doped carbon sheets	Graphene	88.9 mA h g^{-1} after 260 cycles at 1 A g^{-1}	5
N/O-codoped carbon	1-alkyl-3-methylimidazolium bromide	60 mA h g^{-1} after 30 cycles at 0.2 A g^{-1}	6
S/N/O-tridoped porous carbons	Carrageen	157 mA h g^{-1} after 500 cycles at 1 A g^{-1}	7
N/S co-doped carbon	Gelatin	300 mA h g^{-1} after 500 cycles at 0.2 A g^{-1}	8
S/N-co-doped hollow carbon spheres	Polymethyl methacrylate	169 mA h g^{-1} after 2000 cycles at 0.5 A g^{-1}	9
N/S-CS	Bagasse	155 mA h g^{-1} after 2000 cycles at 1 A g^{-1}	This work

Table S3. EIS fitting results of the N/S-CS and CS.

Sample	R_s/Ω	R_{ct}/Ω
N/S-CS	4.3	40.1
CS	7.1	58.1

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