

Support information for

Hydrothermal Preparation of Carbon Nanosheet and its Supercapacitive Behavior

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Experiments

Preparation of crumpled carbon nanosheets

In a typical procedure, a 15 mL aqueous solution including 0.1 g glucose and 0.058g (0.2 mmol) sodium dodecyl sulfate (SDS) was put in a stainless steel autoclave with a Teflon liner of 25 mL capacity and heated at 180 °C for 6 h. After the autoclave was cooled down to room temperature, the floating products at the solution surface were collected and washed with ethanol and water.

Performance of cyclic voltammetry (CV)

To prepare CNS-modified glass carbon (GC) electrode, an aliquot of 5 μL of 4.1 $\text{mg}\cdot\text{mL}^{-1}$ heat-treated CNS ethanol solution containing 0.05% PTFE was coated on the clean GC electrode with a microsyringe. The modified GC electrode was then dried in air and subsequently soaked in 0.5 $\text{mol}\cdot\text{L}^{-1}$ H_2SO_4 aqueous solution for half an hour before use. CVs were done with a conventional three-electrode electrochemical cell containing a Pt foil electrode as a counter and an Ag/AgCl electrode as a reference and the CNS-modified GC electrode as a working electrode. An aqueous solution containing 0.5 $\text{mol}\cdot\text{L}^{-1}$ H_2SO_4 was used as electrolyte solution. The different sweep rates (2, 5, 10, 20, 50, 100 $\text{mV}\cdot\text{s}^{-1}$) and constant current densities (0.98, 2.44, and 4.88 A g^{-1}) were employed.

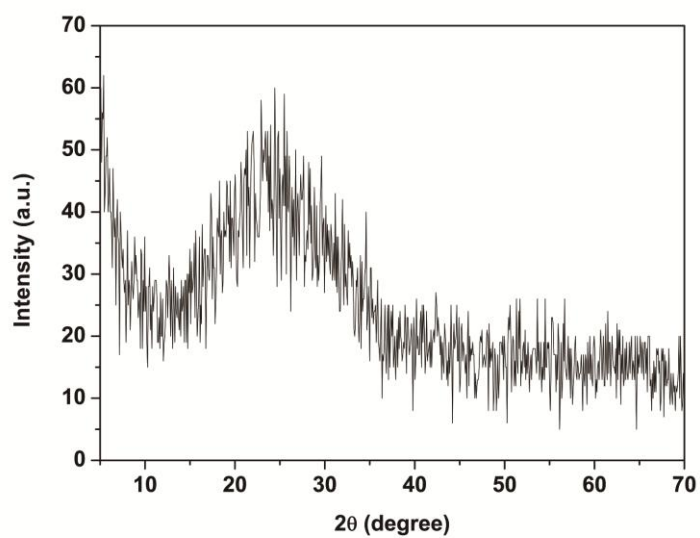


Figure S1 X-ray diffraction pattern of the product after calcination at 600 °C for 2 hours under Ar environment.

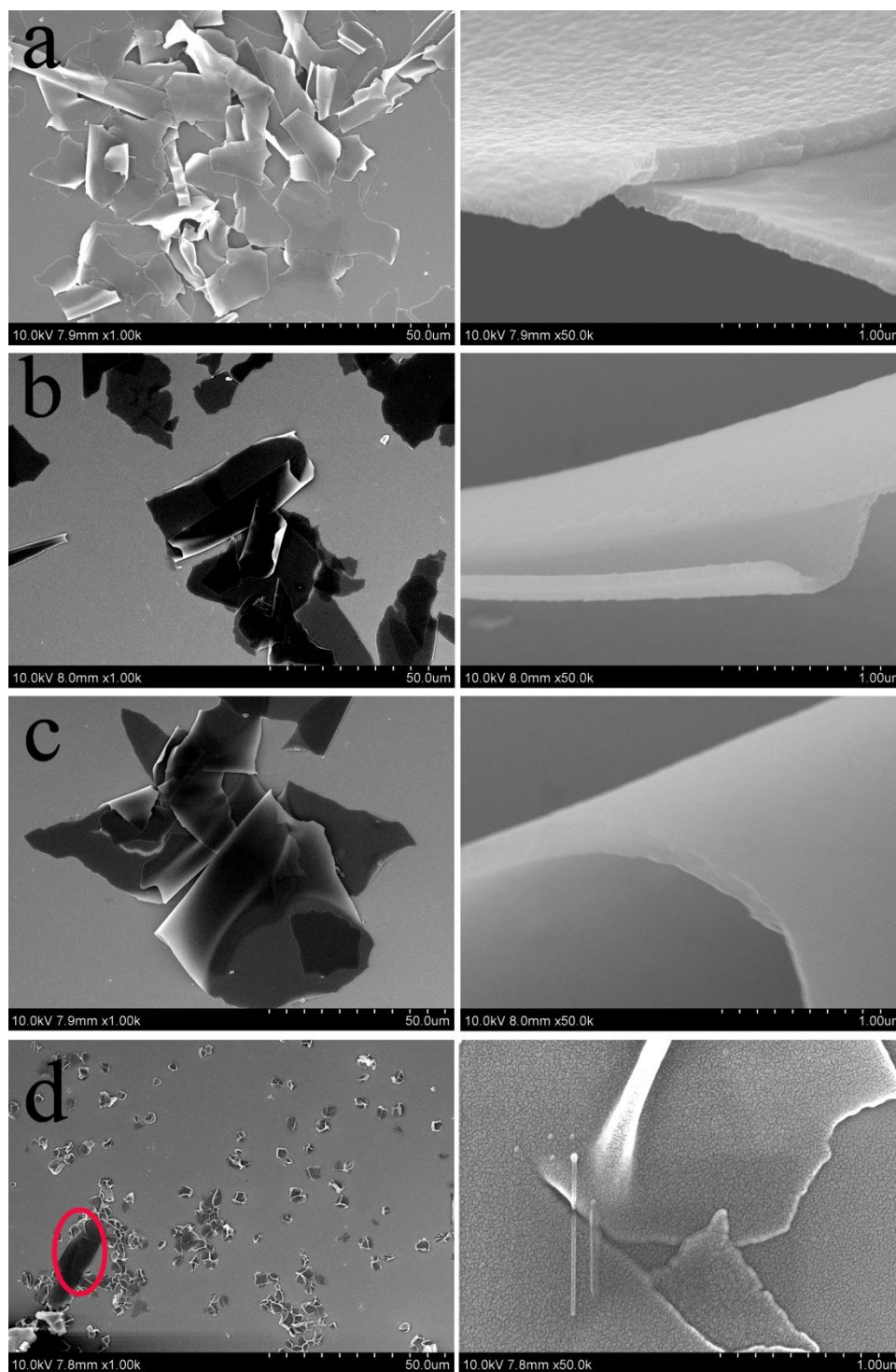


Figure S2 Low (left row) and high SEM images (right row) of products prepared with different SDS amounts while keeping other reaction conditions same as the typical procedure: (a) 0 mmol SDS, (b) 0.01 mmol SDS, (c) 0.05 mmol SDS, (d) 0.1 mmol SDS. The marked area in (d) shows a flat carbon sheet.

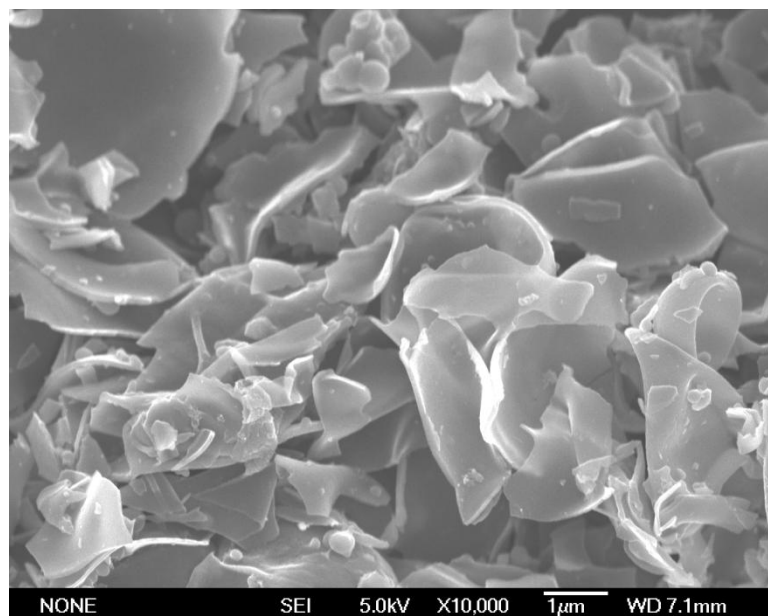


Figure S3 SEM image of CNS after calcination.

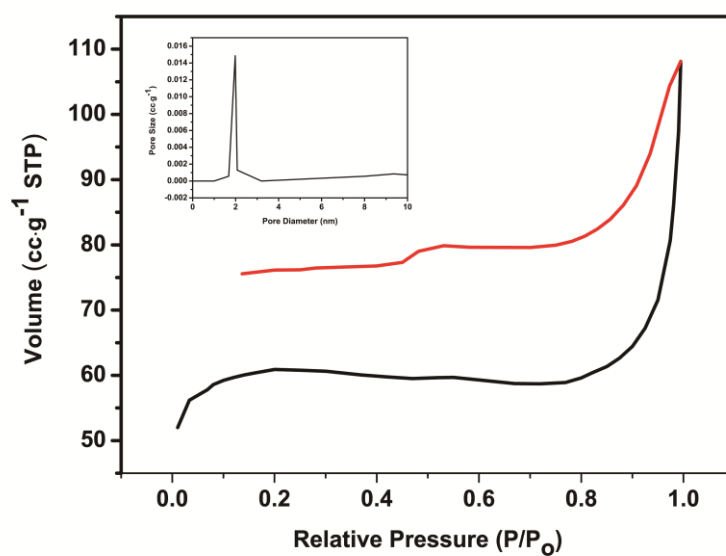


Figure S4 Nitrogen adsorption/desorption isotherms of the product;
(inset) BET pore size distribution curve.