Supporting information

Characterization methods

Powder X-ray diffraction (XRD) analyses were taken on a Bruker D8 Advance diffractometer with Cu Kα radiation (λ≈0.154 nm) between 3° and 80° under a scan rate of 0.02° min^{-1}. Morphologies of as-obtained products were recorded on the scanning electron microscopy (SEM, JSM-6490LV), and the high resolution transmission electron microscope (HRTEM, JEOL JEM 2011F). Raman characterization was carried out using a Renishaw InVia confocal Raman spectrometer with a 532 nm wavelength laser. In order to demonstrate the large surface area and the hierarchical pore structure of the obtained graphitized carbon material, the Nitrogen adsorption/desorption isotherm was characterized using the Quantachrome Nova 2000e Analyzer at liquid-N_2 temperature (-196 ºC). All samples were outgassed at 200 ºC for 6 h before adsorption experiments. Surface areas were calculated by the multi-point Brunauer-Emmett-Teller (BET) method. The corresponding pore size distributions (PSD) were collected by the method of Density Function Theory (DFT). The total pore volume (V_T) was calculated at the relative pressure of P/P_0=0.977.

Preparation of electrodes and their electrochemical characterization

To evaluate the electrochemical properties of the prepared ACs, the working electrodes were prepared as follow. ACs were mixed with polytetrafluoroethylene (PTFE), and their mass ratio was 95: 5. The above slurry was made using ethanol as a solvent and coated onto nickel foam. After dried at 70 °C for 12 h, the coated nickel

foam was pressed to adhere better to the electrode material under the pressure of 20 MPa. In order to explore the impact of CB, a new type of electrode was prepared by the mixed ACs, CB and PTFE with the mass radio was 75:20:5, and named sample/CB, respectively.

The cyclic voltammetry (CV), galvanostatic charge–discharge (GCD) and electrochemical impedance spectroscopy (EIS) of ESs were examined by using an IM6 & ZENNIUM electrochemical workstation in three-electrode system. The working electrode (1cm×1cm) was characterized in 6M KOH solution using a Ag/AgCl as reference electrode and a platinum electrode as counter electrode. The voltage window of all the test was from -1.0V to 0V. EIS measurements were conducted in a frequency ranging from 100 kHz to 1 mHz with alternating current oscillation of 5 mV.

The symmetric supercapacitor was measured on the Land-CT2001A (100 mA) using two same electrodes of nickel foam smeared activated carbon as two-electrode system (coin cells (CR2025)).

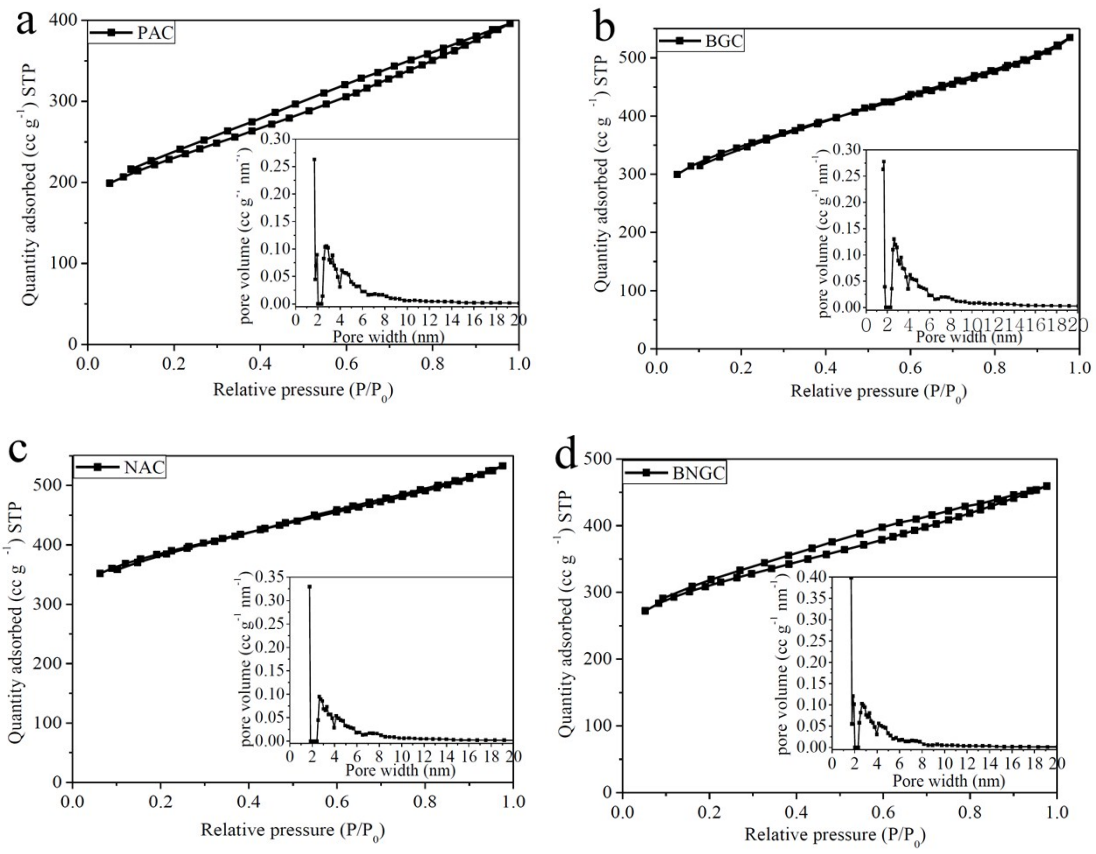

Fig.s1 Nitrogen adsorption/desorption isotherms of sample (a) PAC, (b) BGC, (c) NAC and (d) BNGC.

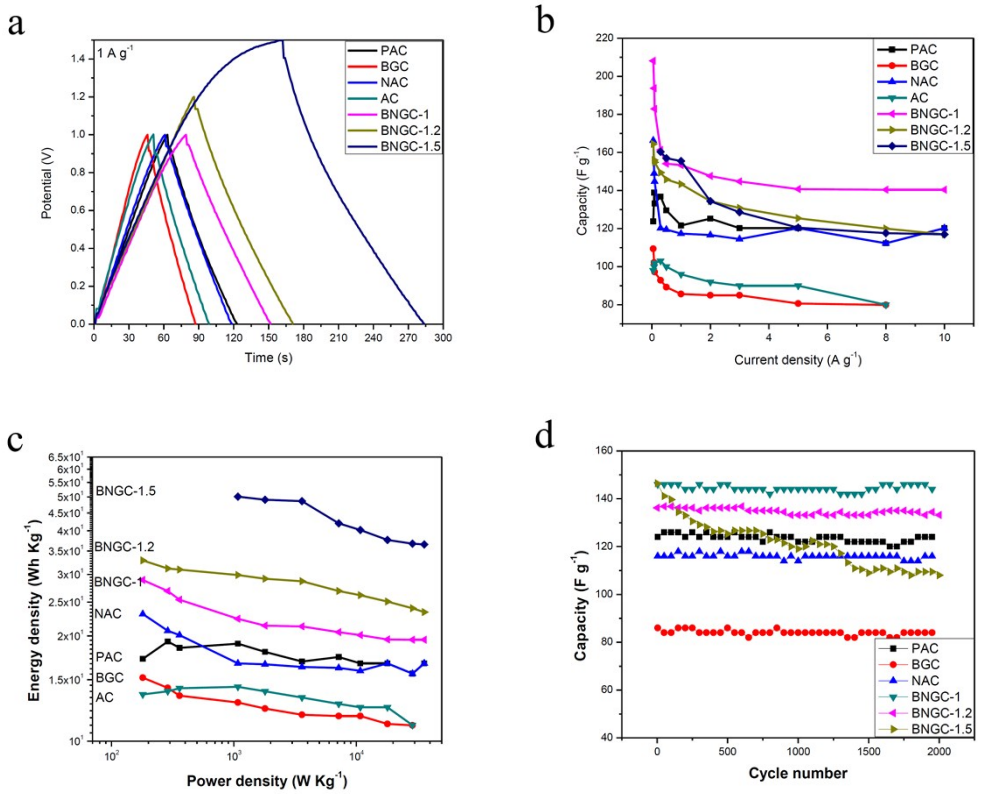

Fig.s2 (a) GCD curves of all the samples and BNGC at different potential windows; (b) the specific capacitance of all the samples at different current density; (c) Ragone plots referring to energy and power density of the prepared carbons; (d) cycle life of the prepared carbon materials at current density of 1 A/g.

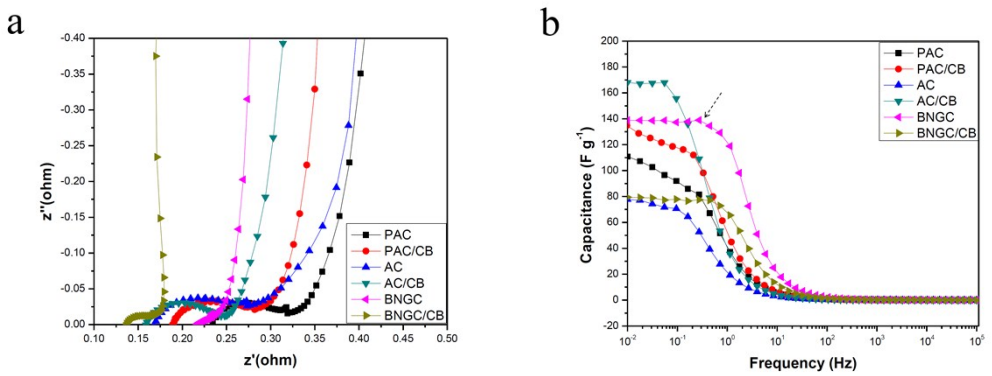

Fig.s3 the Nyquist plot (a) and the capacitance-frequency plot (b) for the influence of CB.