Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

Doping-template Approach of Porous-walled Graphitic Nanocages for Superior Performance Anodes of Lithium Ion Batteries

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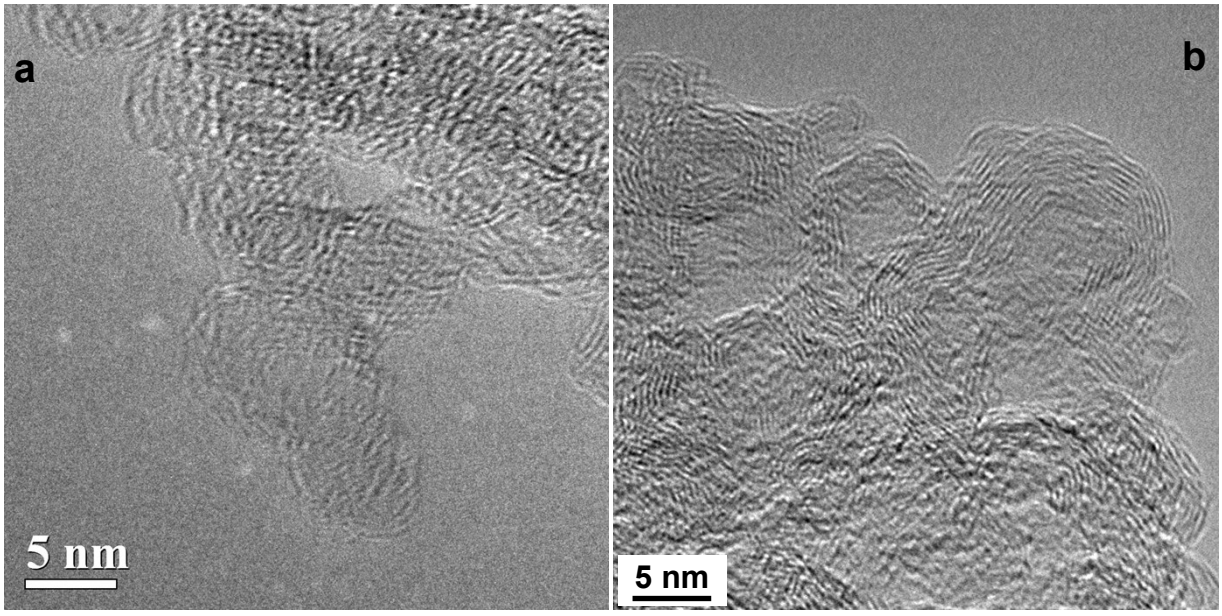

Figure S1. HRTEM image of the PWGNCs prepared at 550 ºC (a) and 1050 ºC (b) after removing doping templates.

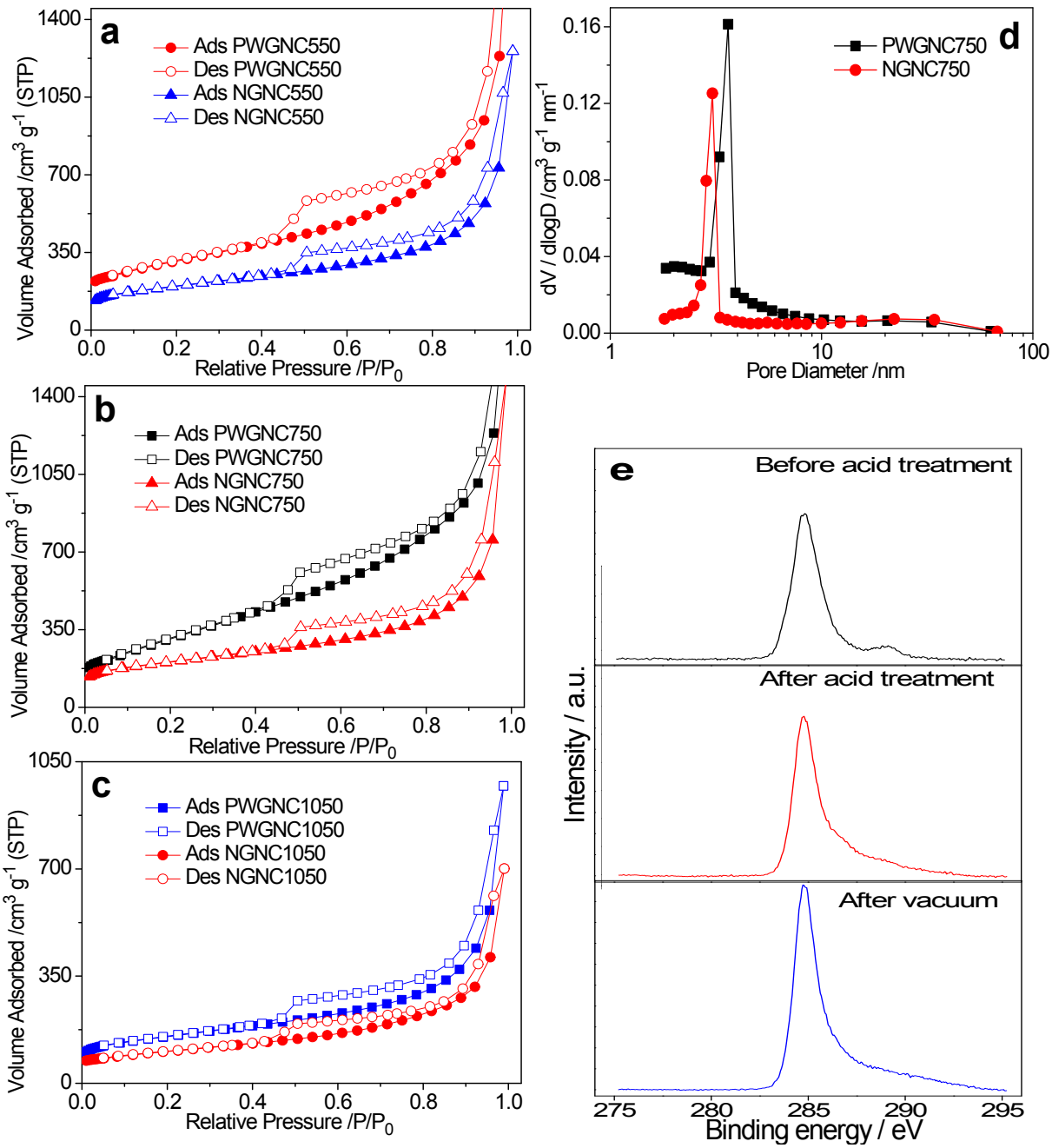

Figure S2. Nitrogen adsorption/desorption isotherms of GNCs before and after removal of doping template: NGNC550 and PWGNC550 (a), NGNC750 and PWGNC750 (b), and NGNC1050 and PWGNC1050 (c). (d) Mesopore distribution (BJH) of NGNC750 and PWGNC750. (e) XPS C1s spectra of GNC-precursor (before acid treatment), NGNCs (after acid treatment) and PWGNCs (after vacuum).

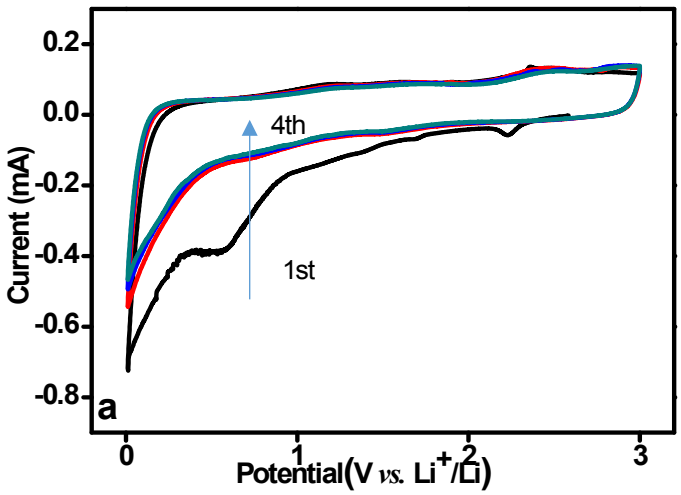

Figure S3. Cyclic voltammetry (CV) profile of PWGNC700 at a scan rate of 0.1mV/s between 0.01-3V versus Li^+/Li for the 1st-4th charge/discharge cycles.

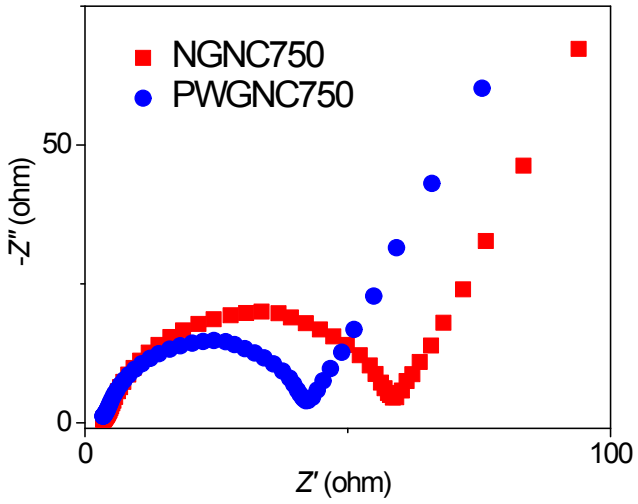

Figure S4. AC impedance plots for NGNC750 and PWGNC750

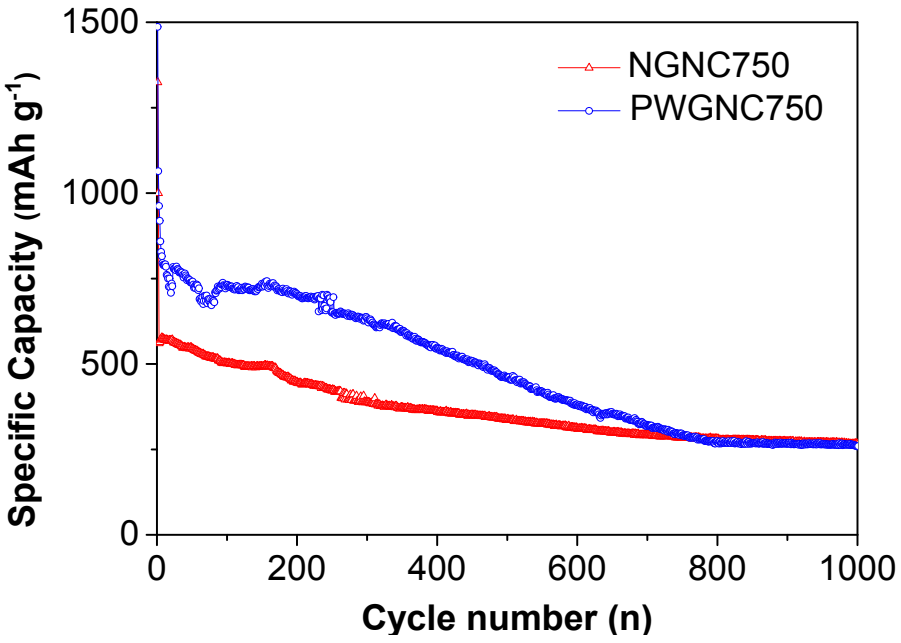

Figure S5. Cycling performance of the NGNC750 and PWGNC750 based electrodes at a current density of 4 A g^{-1}.

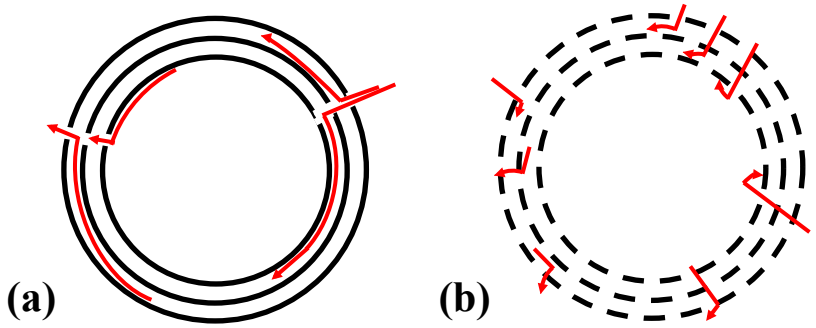

Figure S6. Effect of highly nanoporous graphitic shells of GNCs: shortening diffusion route of electrolyte ions. GNCs without (a) and with (b) removal of doping template.