# Supporting Information

## Facile synthesis of graphene nanoribbons from zeolite-templated ultra-small carbon nanotubes for lithium ion storage

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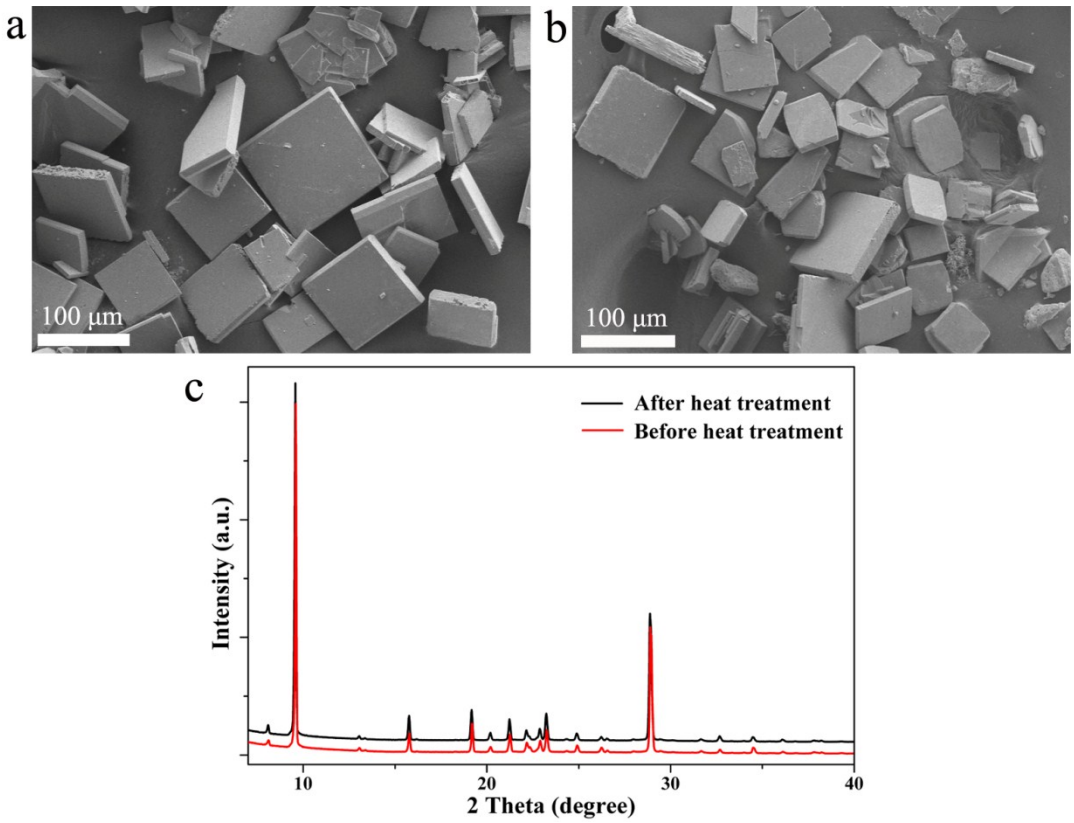


**Figure S1.** Evidence for no structural damage of as-synthesized AEL after carbonization of DPA. (a) SEM image of the AEL crystals before carbonization. (b) SEM image of the AEL after carbonization for 3 h at 550 °C under Ar atmosphere. (c) Powder XRD patterns of the AEL before and after carbonization.

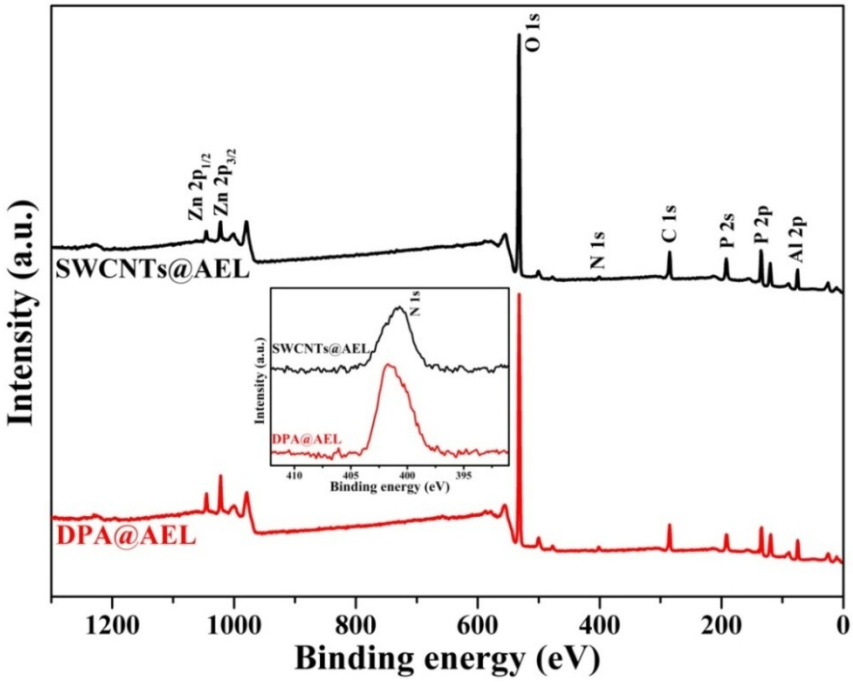


**Figure S2.** The XPS spectrums for DPA@AEL before (a lower curve) and after (an upper curve) carbonization at 550 °C for 3 h. The inset plot is the curves near N 1s peak.

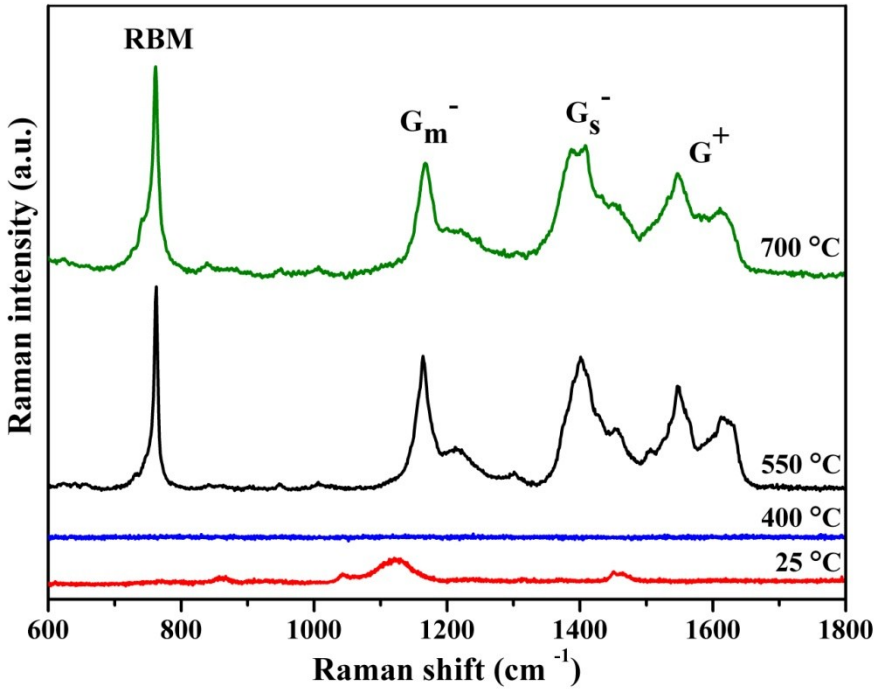


**Figure S3.** Raman spectrum of several samples processed under different pyrolysis temperature. As-synthesized DPA@AEL crystal (red one), and the samples after processing at 400 °C (blue one), 550 °C (black one) and 700 °C (olive one), respectively.

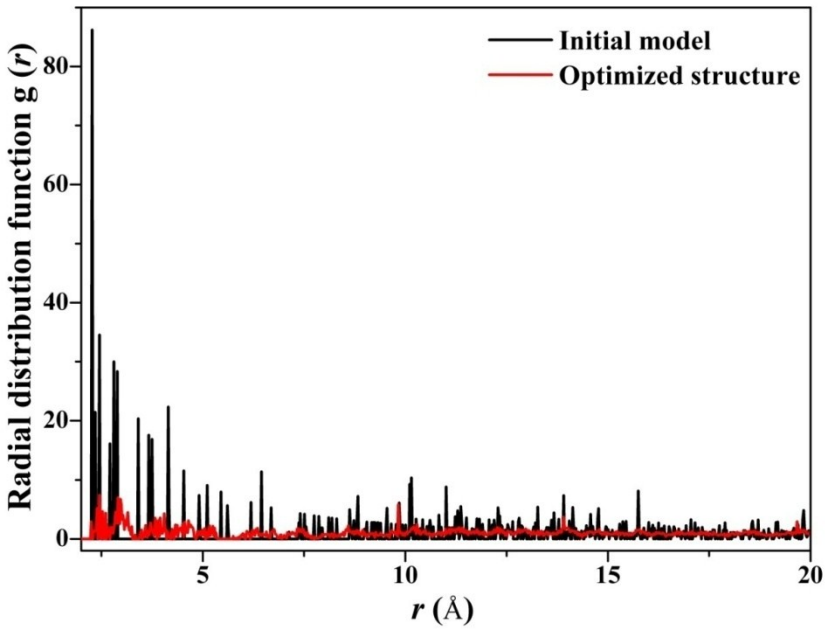


**Figure S4.** Radial distribution functions of initial model and optimized structure. The sharp and discrete peaks turned into broadened and successive ones after the Coarse-Graining (CG) optimization. It indicated the ordered arrangement of the atoms in the initial model was not kept. The ideal free standing (2,2) SWCNT was unstable during the relaxation, and it was easy to break and may transform into the other carbon structured materials.

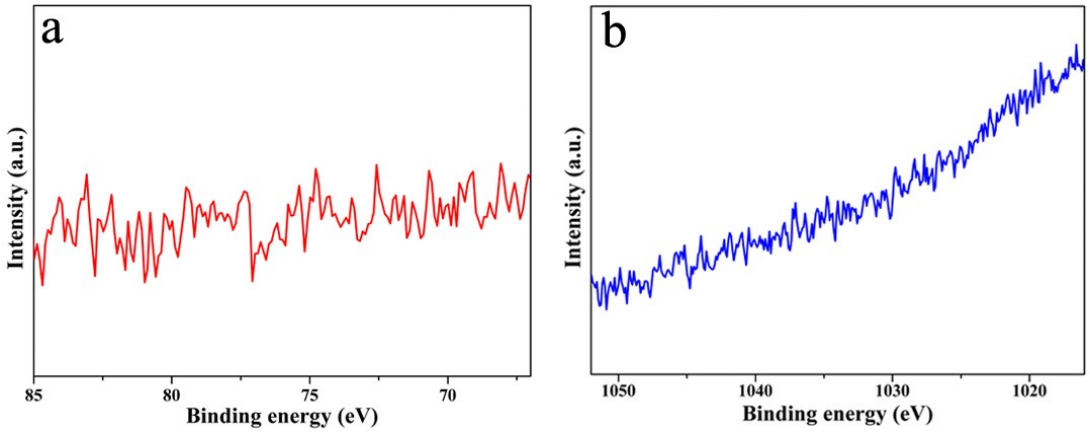


**Figure S5.** XPS spectrum of as-synthesized GNRs. (a) Al 2p region, suggesting no signals for Al in the sample. (b) Zn 2p region, suggesting no signals Zn in the sample.

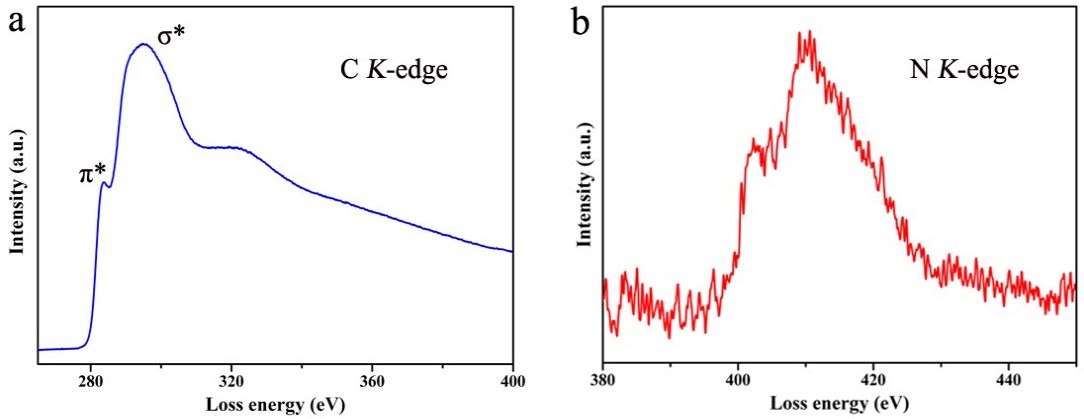


**Figure S6.** Electron energy loss spectroscopy (EELS) spectrum of as-synthesized GNRs. (a) C K-edge in EELS spectrum. (b) EELS features at 410 eV characteristic of N bonding.

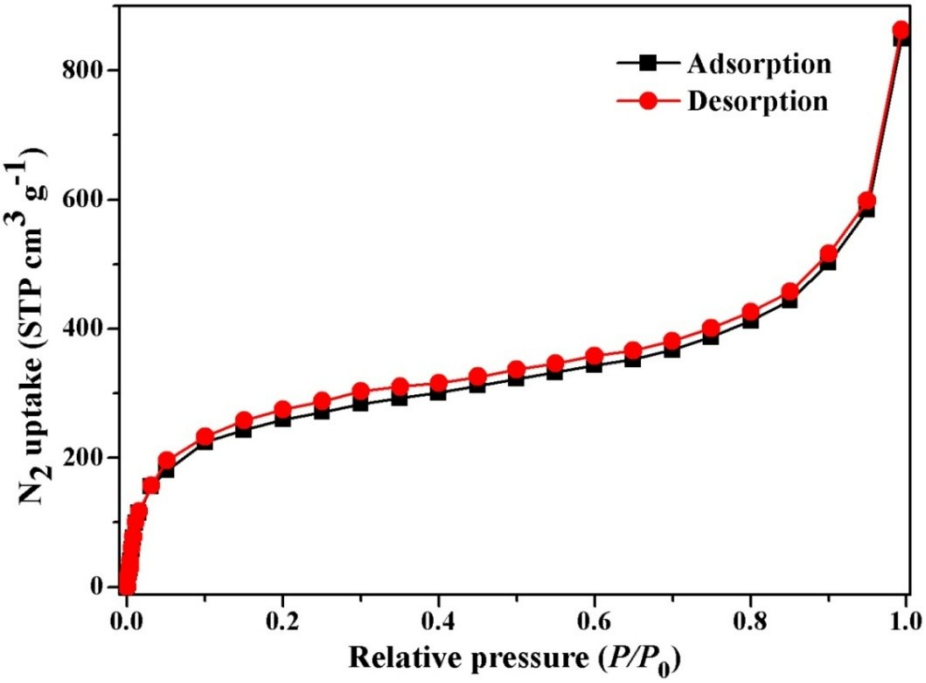


**Figure S7.** Nitrogen adsorption and desorption isotherms.

**Figure S8.** A photo picture showing bulk quantity of N-doped GNRs products, in which ~1 g N-doped GNRs can be fabricated from ~11 g DPA@AEL crystals.

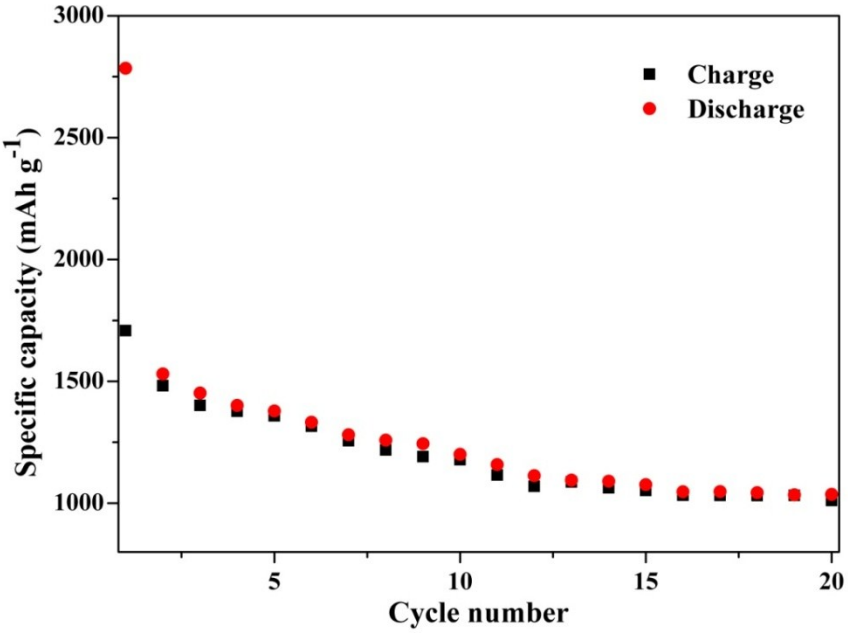


**Figure S9.** Cycling performance at current density of 0.1C

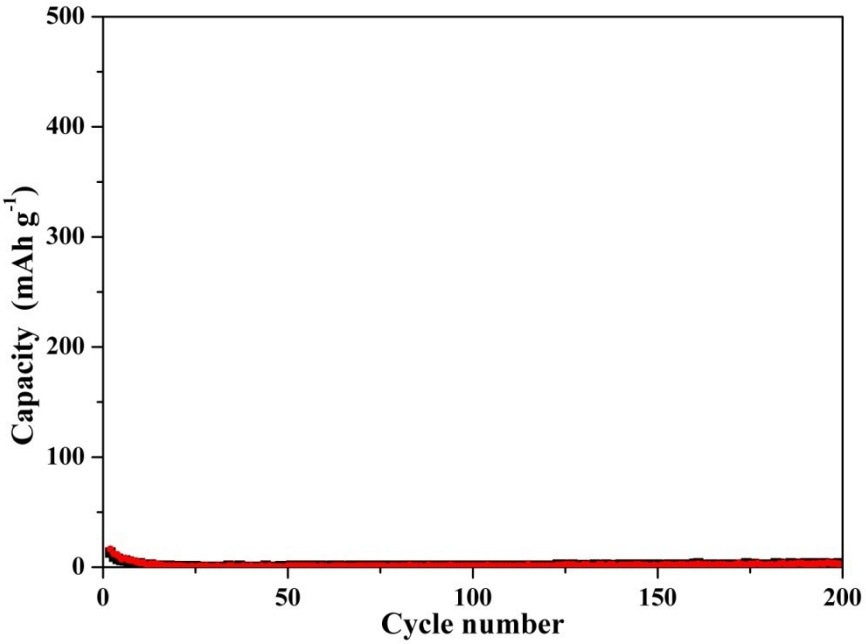


**Figure S10.** Cycling performance of Ni foam electrode at the same condition.

**Supplementary Table 1**. Summary of elemental (CHNO) and ICP analyses of as-synthesized GNRs.

| CHNO Analyses (%) | | | | ICP analyses (%) | | |
|---|---|---|---|---|---|---|
| **C** | **H** | **N** | **O** | **Zn** | **Al** | **Na** |
| 91.82 | 2.01 | 1.32 | 4.68 | 0.01 | 0.01 | 0.03 |