Polydopamine-derived Porous Nanofibers as Host of $ZnFe_2O_4$ Nanoneedles: Towards High-performance Anodes for Lithium-Ion Batteries

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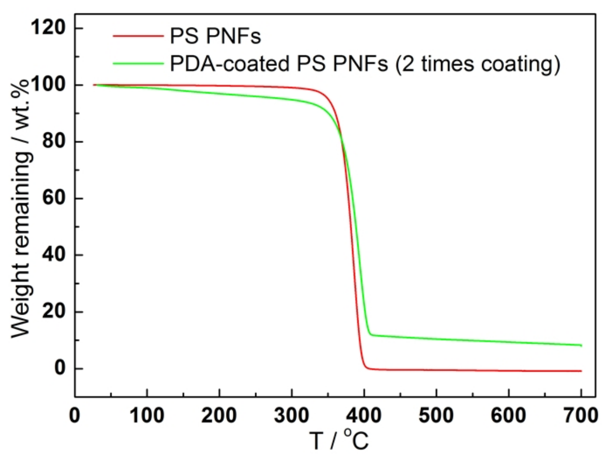

Fig. S1. TGA curves of pure PS porous nanofibers (PNFs) and PDA-coated PS PNFs from 2-time coating. The TGA test conditions are the same as that for annealing of PDA-coated PS PNFs: heating from room temperature in N_2 environment at heating rate of 5 °C/min to 700 °C and keeping at 700 °C for 60 min. It is indicated that the PS PNFs fully decompose while there is about 8.4 wt% residue from PDA-coated PS PNFs, which is due to the conversion of PDA to carbon that doped with N and O.

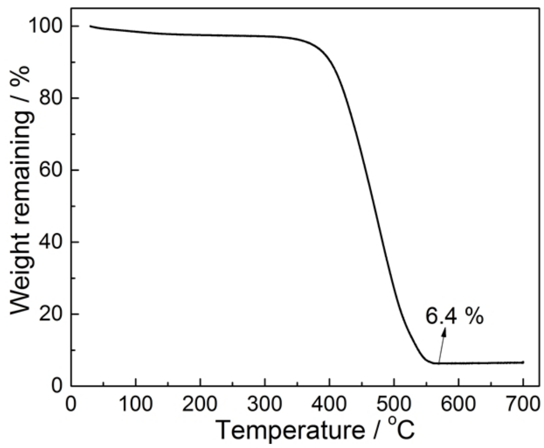

Fig. S2. TGA curve of the introduction of $ZnFe_2O_4$ nanoneedles into PNFs-2 (ZnFe-PNFs-2), showing the low $ZnFe_2O_4$ content of 6.4 wt%.

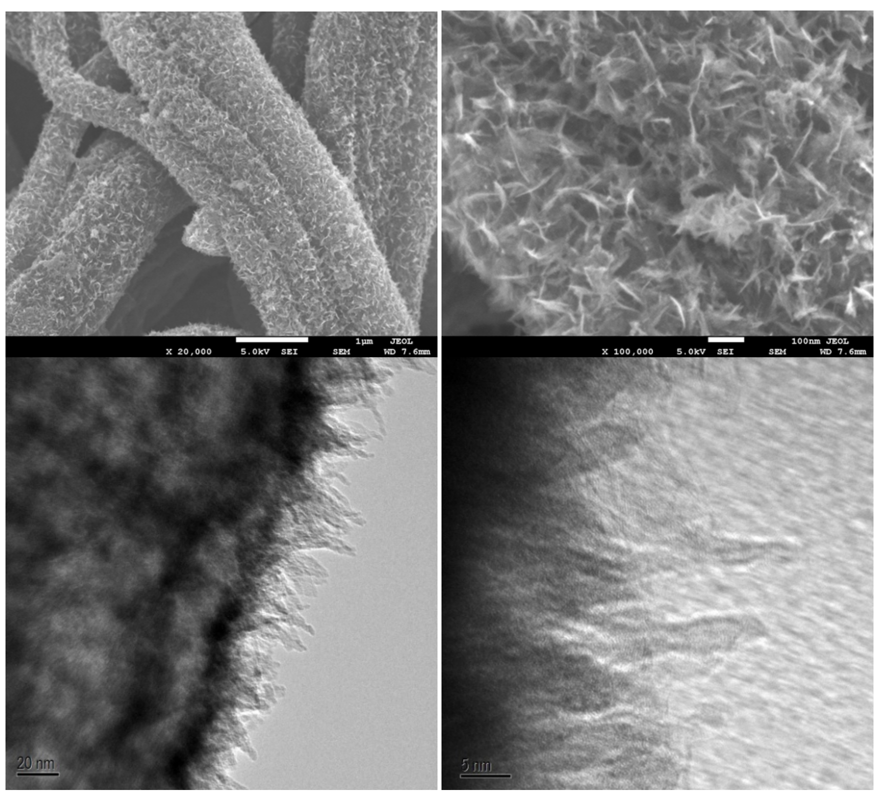

Fig. S3. The morphology of the Zn complexes/$Fe(OH)_3$ nanoneedles on the C-PDA porous nanofibers before annealing.

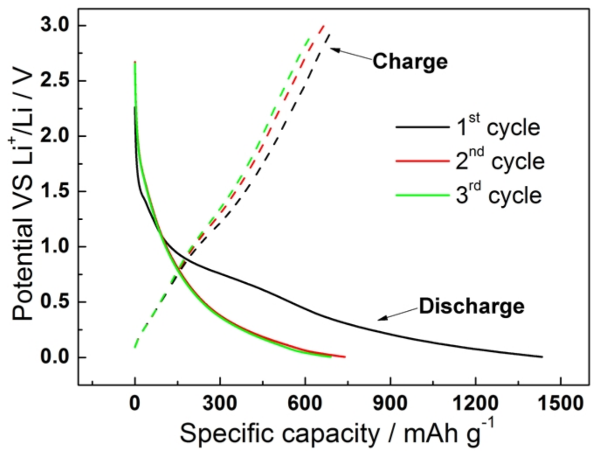

Fig. S4. Galvanostatic discharge/charge profiles (1st, 2nd and 3rd cycle) of the C-PDA porous nanofibers (PNFs-6) as a LIB anode, indicating the metallic lithium plating mechanism for the lithiation/de-lithiation.