

Supporting Information for:

**Strongly Coupled 1D Sandwich-like C@Fe<sub>3</sub>O<sub>4</sub>@C Coaxial Nanotubes with Ultrastable and High Capacity for Lithium-ion Batteries**

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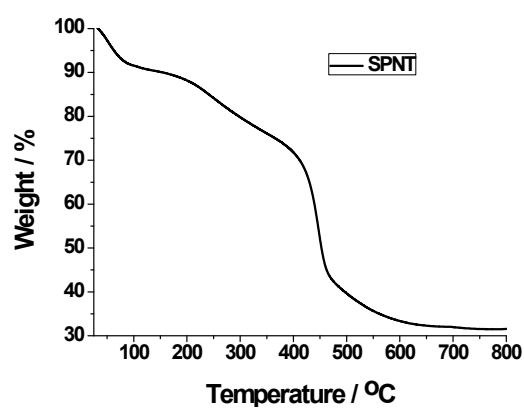


Figure S1 TG curve of SPNT treated under Ar flow.

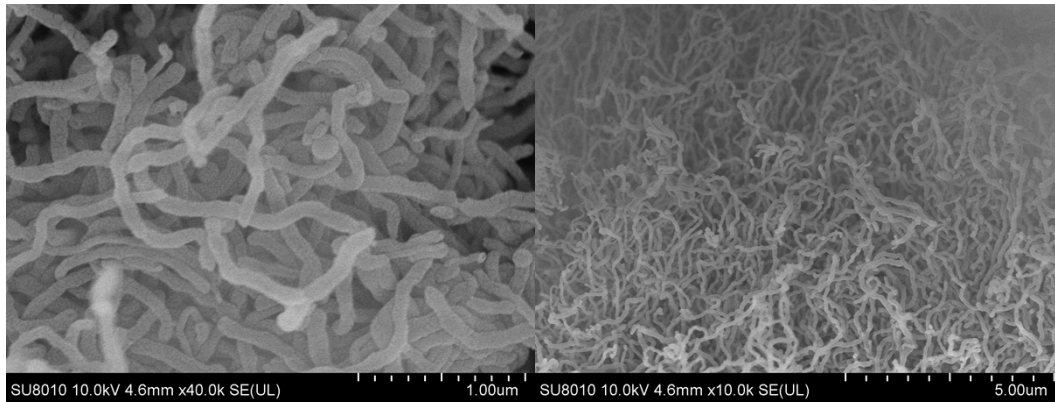


Figure S2 Typical SEM images of PNTs at different magnification.

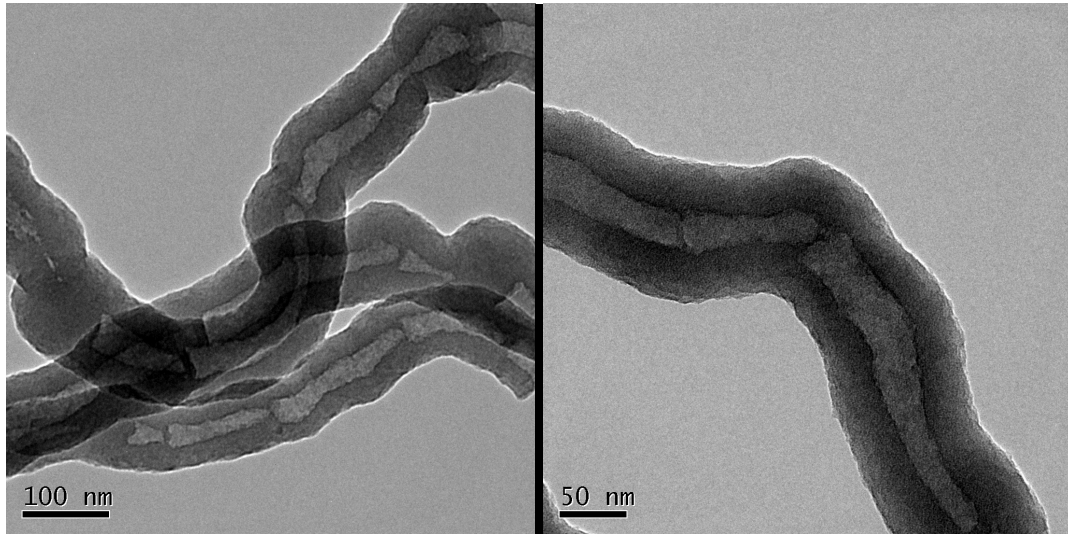


Figure S3 TEM images of SPNTs at different magnification.

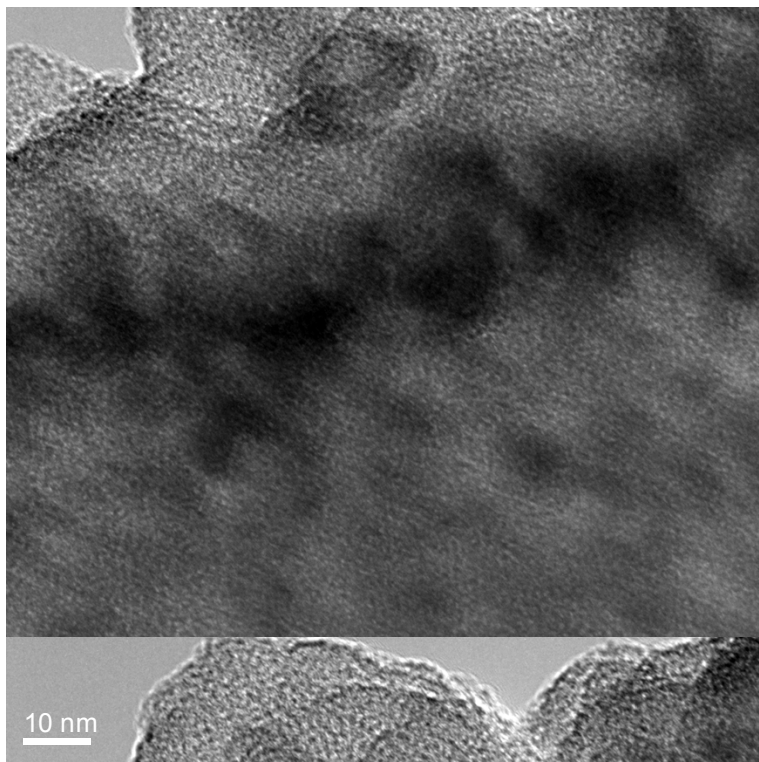


Figure S4 TEM images of C@Fe<sub>3</sub>O<sub>4</sub>@C at high magnification

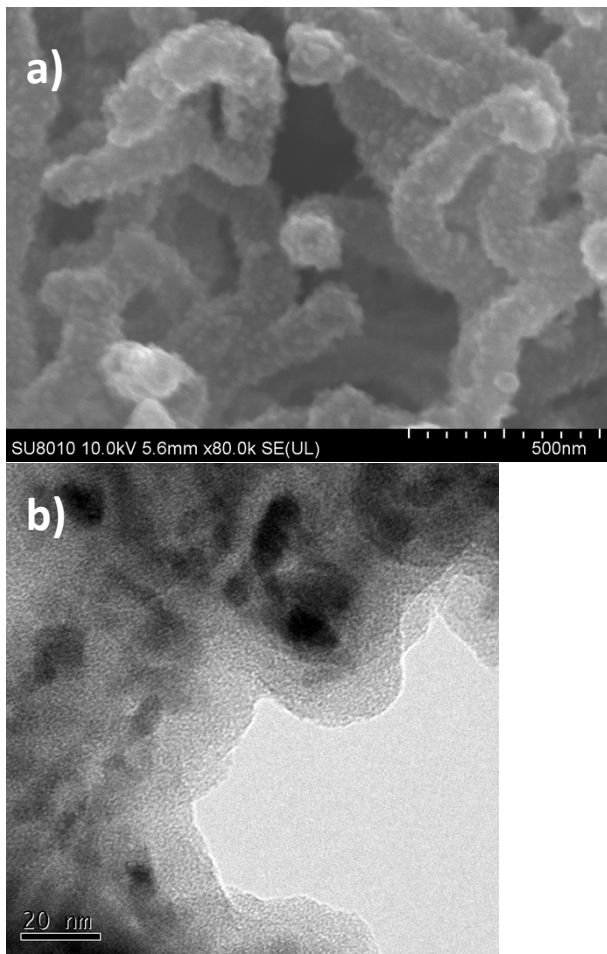


Fig. S5 a) SEM and b) TEM images of  $C@Fe_3O_4@C$  nanotubes with 81.69% of  $Fe_3O_4$ , c) TEM image of  $C@Fe_3O_4@C$  nanotubes with the thinnest carbon shell about 5 nm, which could be obtained through further decreasing the amount of dopamine in the synthesis..

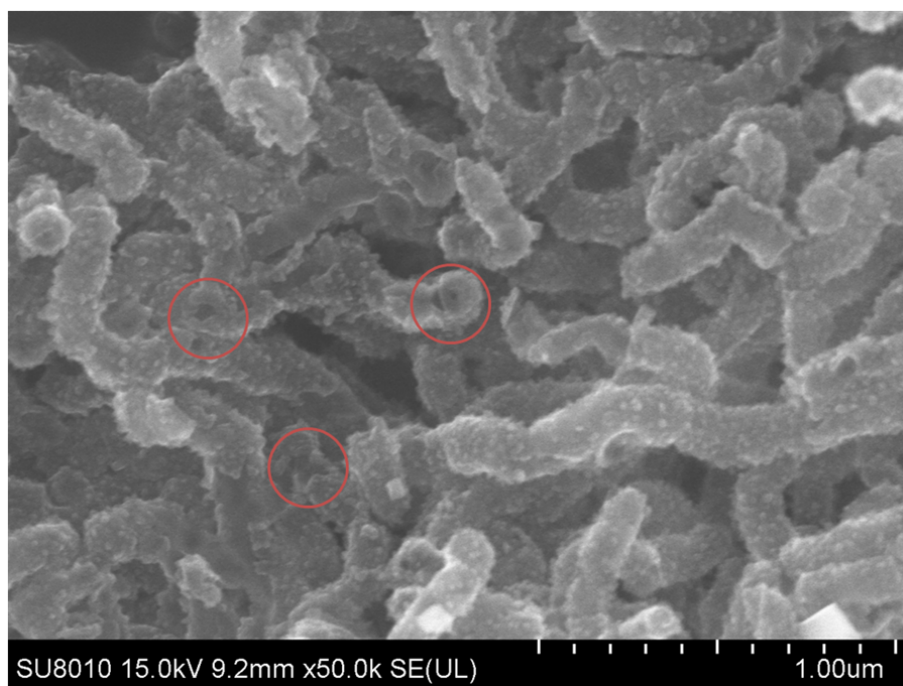


Figure S6 SEM images of C@Fe<sub>3</sub>O<sub>4</sub> nanotubes.