

# One-step Synthesis of Polycrystalline Carbon Nanofibers with Periodic Dome-shaped Interiors and Their Reversible Lithium Ion Storage Properties

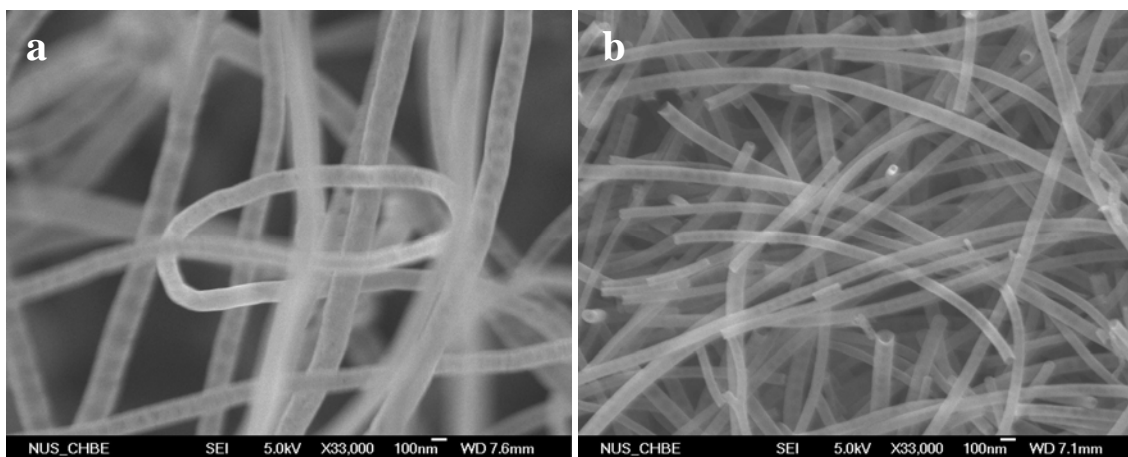
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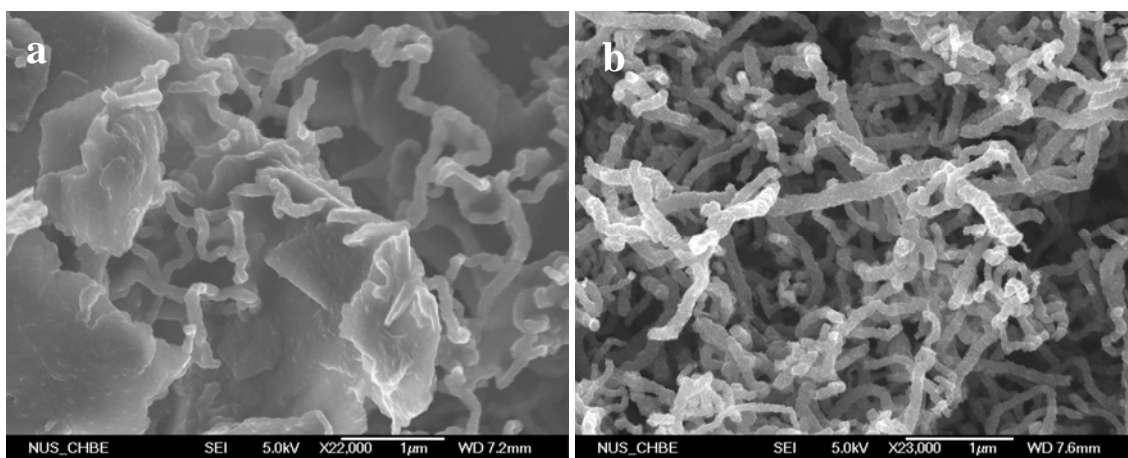
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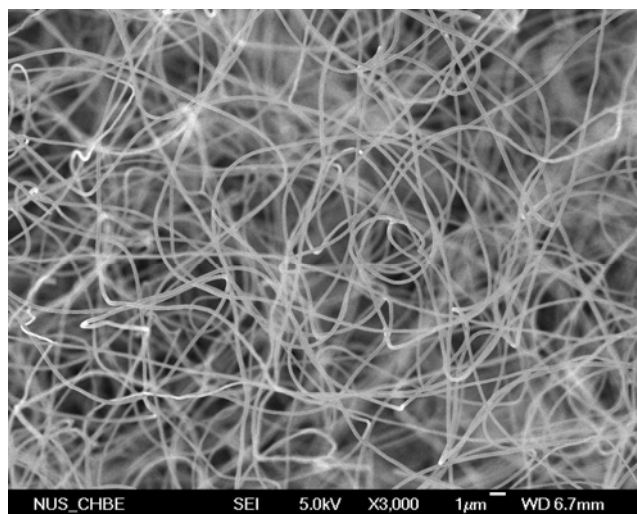
**Supporting Information**



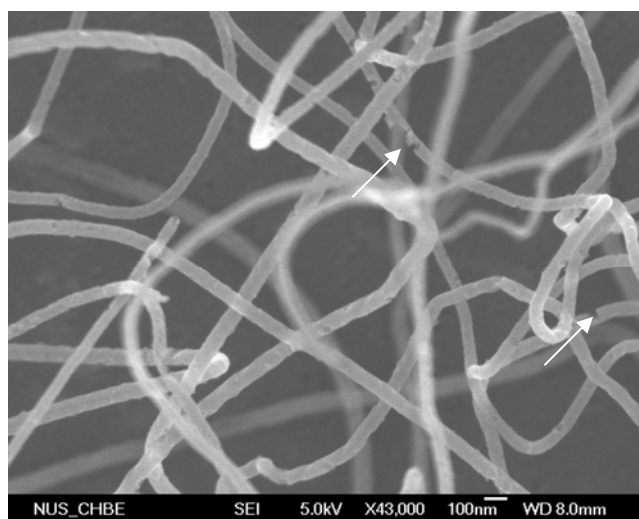
**Figure 1.** (a) CNFs grown on a TEM copper grid for 3h of CVD; (b) CNFs grown on a copper sheet for 3h of CVD.



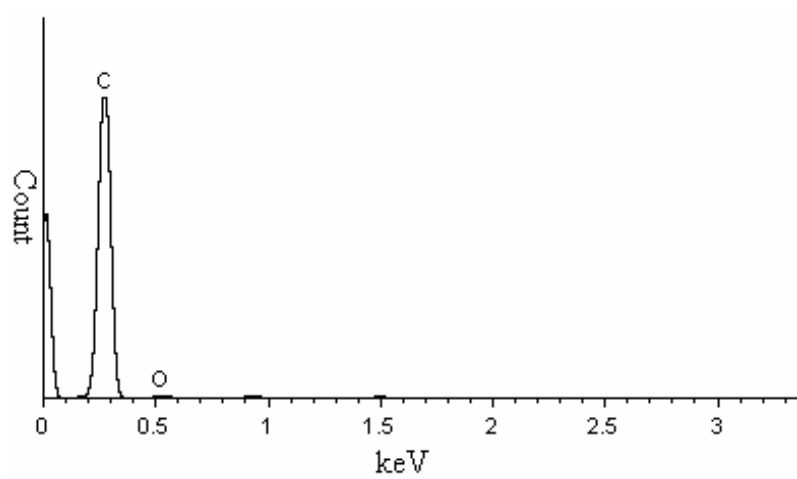
**Figure 2.** FESEM images of carbon nanowires formed on (a) KS6 with 6h CVD at 950°C, and on (b) a quartz substrate with 7h CVD at 950°C



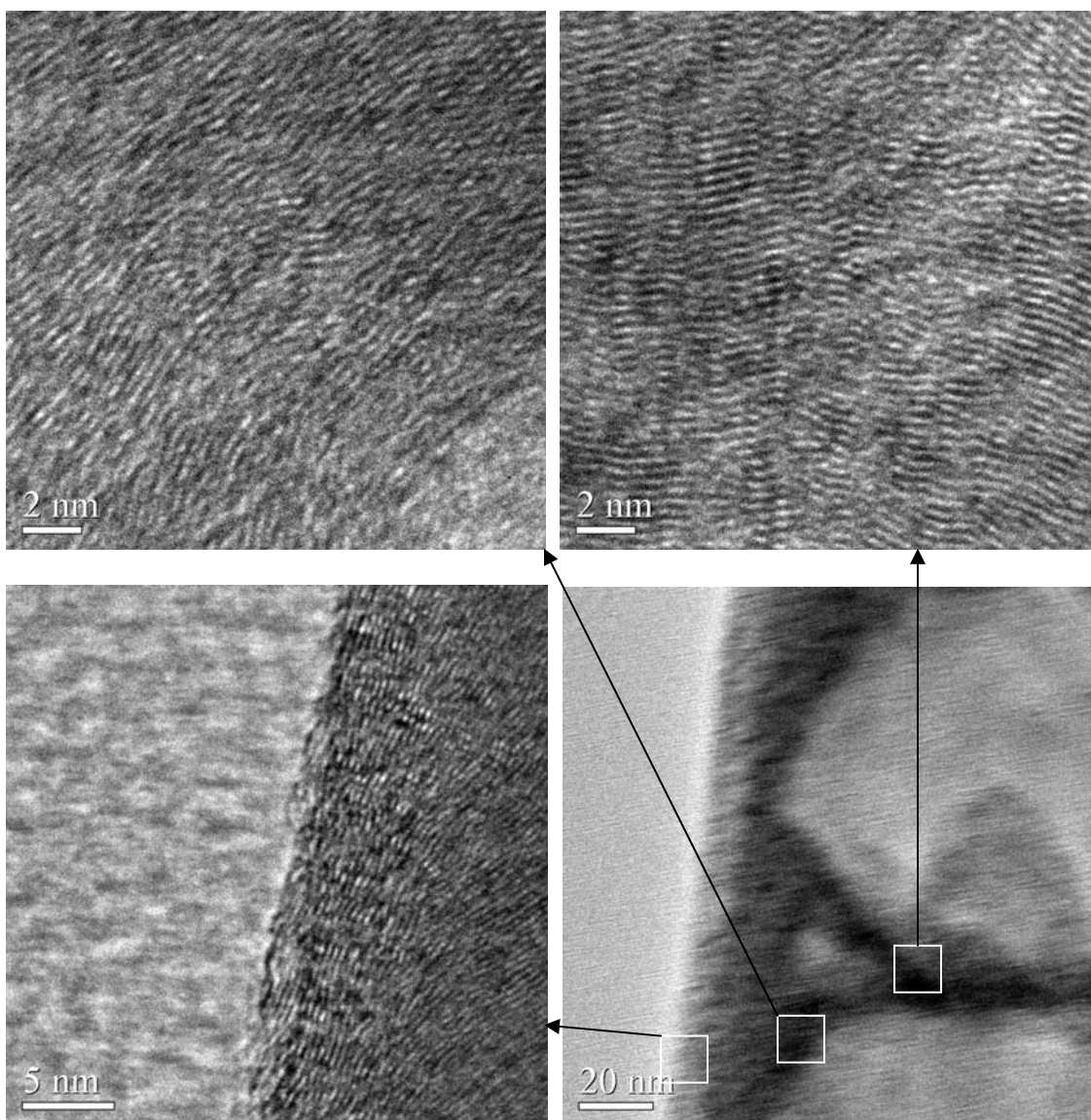
**Figure 3.** FESEM images of **CNFs** synthesized by 6h of CVD at 950°C.



**Figure 4.** FESEM images of **CNFs** synthesized by 5h of CVD at 850°C.

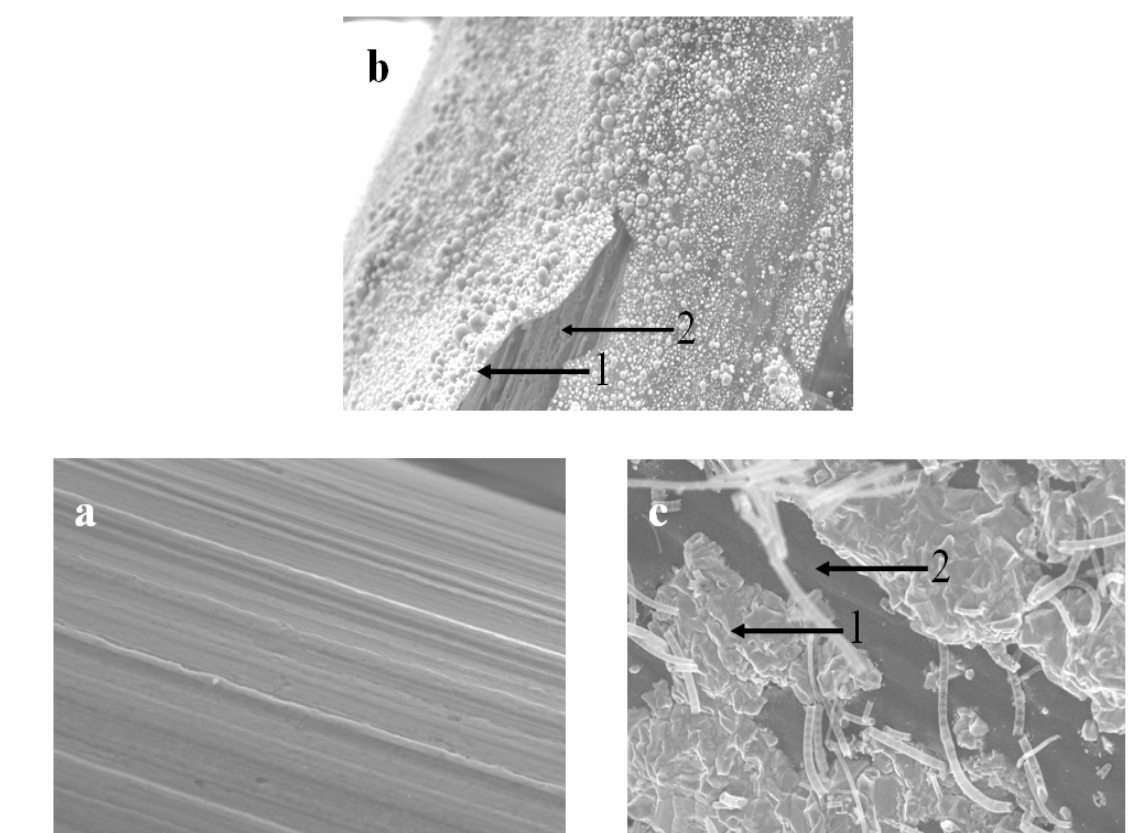


**Figure 5.** EDX analysis showing that the CNFs were metal free



**Figure 6.** HRTEM images of a section of a typical CNF.





**Figure 7.** The copper wire surface (a) and the surface of the copper wire after short term CVD with carbon spheres clearly visible on the graphite layer. The arrows in (b) pointing to the thin graphite layer (arrow 1) warped up with the surface of the copper wire (arrow 2). (c) The surface of the copper wire after ultrasonic remove of the CNFs prepared with long term CVD with few remaining CNFs and graphite layer visible. The arrows in (c) pointing to the thin graphite layer (arrow 1) attached with the surface of the copper (arrow 2).