Supporting Information

Molecular Dynamics Simulations of Twisting-Induced Helical Carbon Nanotube Fibers for Reinforced Nanocomposites

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$m = -4; \ n = 0; \ \kappa = 0$

$\rightarrow$

$Before \ equilibrium$

$\rightarrow$

$After \ equilibrium$

$\rightarrow$

$\rightarrow$

$m = -4; \ n = 0; \ \kappa = 4$

$m = -4; \ n = -4; \ \kappa = 4$

Figure S1. Top views of representative DHCNF before and after relaxation.
Figure S2. Morphologies of DHCNF with $m = -8; n = -8; \kappa = 8$ under different temperatures after energy equilibrium.
Figure S3. Morphologies of DHCNF with different lengths and diameters when $m=n=-2$ and $\kappa=2$. 

(5, 5) CNT with length 123 nm  
(10, 10) CNT with length 123 nm  
(5, 5) CNT with length 246 nm
Figure S4. (a) Top views of three HCNFs with different number of CNTs. (b) Corresponding tensile stress-strain curves. (c) Ratio of bond length distribution in HCNFs when tensile strain is 20%. (d) A local zoom-in image for the ratio of bond length distribution in (c).