

***Supporting information***

**Promoting responsive ability of carbon nanotubes to external stress field in polypropylene matrix: A synergistic effect of physical interaction and chemical linking**

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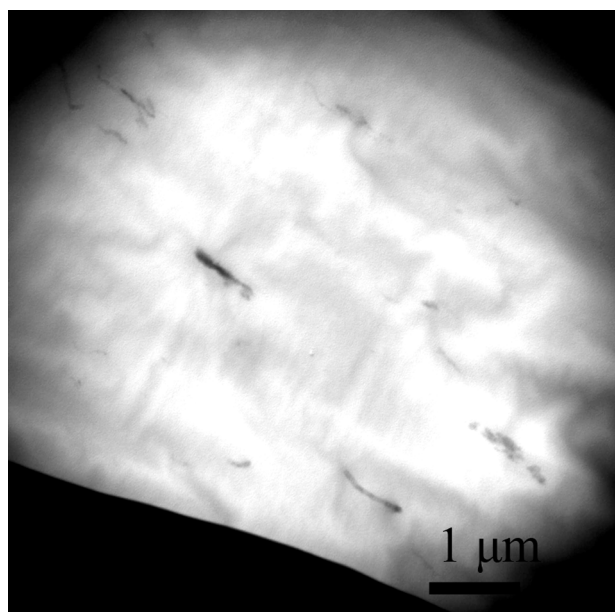


Figure S1 TEM image of PP-g-TBzTD/CNTs composites (0.5 wt% CNTs)

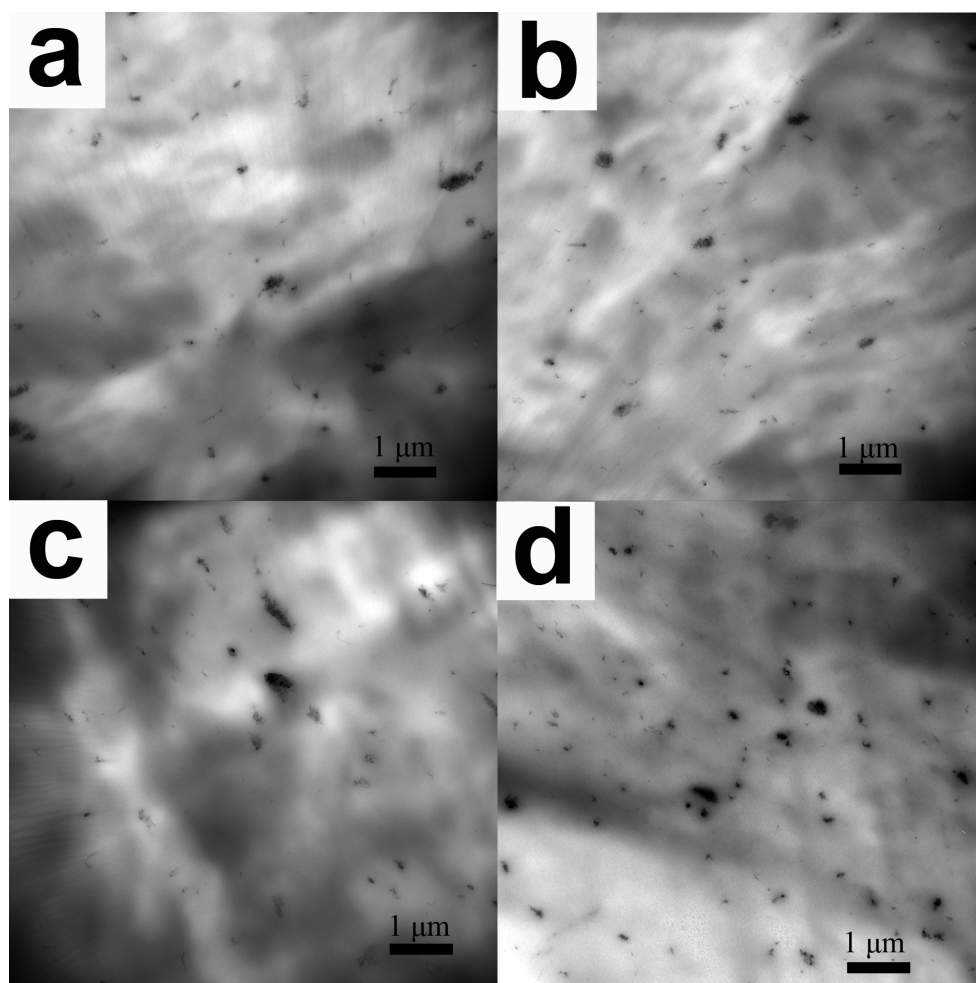


Figure S2 TEM images of PP/CNTs composites (containing 0.5 wt% CNTs and 0.02 wt% DHBP) prepared via melt mixing in the presence of various amount of BA: a) 0.02 wt%; b) 0.04 wt%; c) 0.08 wt%; d) 0.20 wt%.

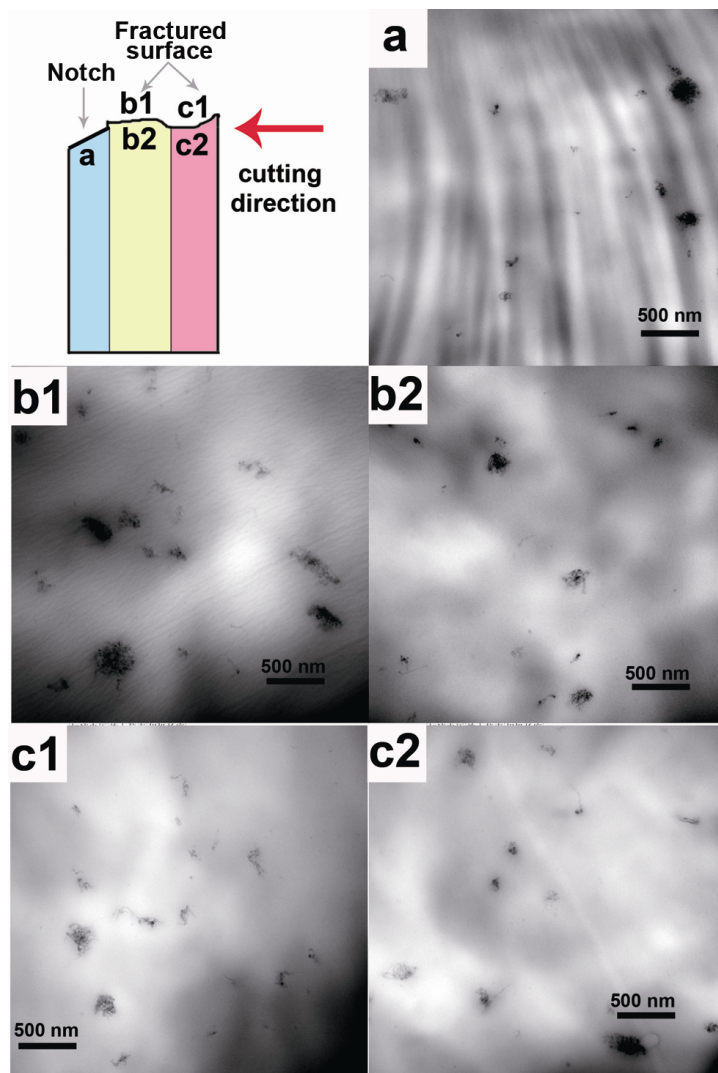


Figure S3 Morphologies of cutting pieces from different positions on the fractured surface of 0.5C0.04M0.02D specimens after impact test. The five TEM images represent un-impact part (a), upper section of fractured surface in the middle region (b1), inside section of fractured surface in the middle region (b2), upper section of fractured surface in the side region (c1) and inside section of fractured surface in the side region (c2).

**Table S1.** The G intensities of PP/CNTs composites at 0° and 90° and their ratios.

Sample	G <sub>0</sub>	G <sub>90</sub>	G <sub>0</sub> /G <sub>90</sub>
TB50(150)	43.23	29.49	1.47
TM50(150)	33.96	24.34	1.39
PT50(150)	30.33	26.96	1.12
TB	47.47	37.30	1.27
TM	37.07	37.07	1.00
PT	28.41	28.09	1.01