

Noncovalent Functionalization of Carbon Nanotubes via Grafting of End-Functionalized Polymers

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Because of the high aspect ratio and ideal sp^2 hybrid network structure, carbon nanotubes (CNTs) have unique mechanical, electrical, optical, and thermal properties. However, the pristine CNTs generally exist as the bundles due to strong Van der Waals interaction among them, so that CNTs are not dispersed in organic solvents or polymer matrix. In order to utilize the superior properties of individual carbon nanotubes, developing a robust strategy to promote the dispersion is essential. Here, we introduce a simple dispersion method for CNTs through grafting of end functionalized polymers. Functional groups induced to polymer ends could noncovalently interact with the surface of CNTs. The noncovalent functionalization of CNTs enhanced the dispersibility of CNTs in various organic solvents and polymer matrices.