

## Nano-fabrication using Functionalized Single-Walled Carbon Nanotubes & Macromolecular Hybridization

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The chemical modification of nanotubes has shown great promise as a technique for the tailored preparation of SWNTs-based functional materials. The purification and the shortening process of SWNTs produce carboxylic acid groups at the ends and side-walls of the nanotubes, which provide reaction sites for various guest species. Here we present the aggregation behavior of poly (ethylene glycol) (PEG)-grafted SWNTs in a selective solvent to form a new type of ring-like nanostructure and the SWNTs conducting arrays constructed via consecutive amidation reactions. The behavior of the PEG-grafted SWNTs resembles the aggregation behavior of self-assembled block copolymers in dilute solution. And the high-density SWNTs multilayer film showed the complete and uniform coverage for substrate and the good electric conductivity for electronic device application.