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(54) Title: HIGHLY SOLUBLE CARBON NANOTUBES WITH ENHANCED CONDUCTIVITY

(57) Abstract: New methods for preparing carbon nanotube films having enhanced properties are provided. The method broadly provides reacting carbon nanotubes (CNTs) and compounds comprising a polyaromatic moieties in the presence a strong acid. During the reaction process, the polyaromatic moieties noncovalently bond with the carbon nanotubes. Additionally, the functionalizing moieties are further functionalized by the strong acid. This dual functionalization allows the CNTs to be dispersed at concentrations greater than 0.5 g/L in solution without damaging their desirable electronic and physical properties. The resulting solutions are stable on the shelf for months without observable bundling, and can be incorporated into solutions for printing conductive traces by a variety of means, including inkjet, screen, flexographic, gravure printing, or spin and spray coating.



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