

Noncovalent functionalization of carbon nanotubes : fundamental aspects of dispersion and separation in water

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Abstrak

In this thesis, Claudia Backes guides the reader through her multidisciplinary research into the non-covalent functionalization of carbon nanotubes in water. Although one of the most remarkable materials of the 21st century, carbon nanotubes often have limited application because of their intrinsically low solubility and polydispersity. The author shows that rational surfactant design is a powerful tool for chemists because it can unmask the key to solubilization and allow us to tailor nanotube surface and optical properties in a fully reversible fashion. Aspects of organic, physical and analytical chemistry, as well as colloidal sciences are covered in this outstanding work which brings us one step closer to exploiting this super-material to its full potential.