

Physical properties of fluorinated Cobalt-doped multi-walled carbon nanotubes

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Multi-walled carbon nanotubes (MWCNTs) were directly fluorinated at different conditions. Fluorinated MWCNTs were impregnated with $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ solution. The changes of chemical and physical properties were investigated using BET surface area analysis, transmission electron microscopy (TEM), X-ray diffraction (XRD) and X-ray photoelectron spectroscopy (XPS). A direct fluorination of MWCNTs has been carried out to obtain a series of fluorinated multi-walled carbon nanotubes. The strong fluorination on the MWCNTs leads breaking the bond of carbon-carbon, which makes carbon-flourine bonding. The fluorinated MWCNTs shows the new textural and cobalt dispersion properties.