

Aligned Nanoparticles Functionalized Carbon Nanotubes by External Fields

윤상천, 정희태*
한국과학기술원
(heetae@kaist.ac.kr*)

Carbon nanotubes(CNTs) have emerged as one of the most promising electron field emitter due to their high aspect ratio, high emission current and chemical stability. For such applications, it requires that CNTs be aligned over large-scale. The assembly of CNTs attached nanoparticles is one of the most challenging tasks in alignment of Nanoparticles functionalized CNTs by external field in field effect transistors, and field emission devices. Here, we present a novel method for aligning CNTs external fields on the CNTs-attached nanoparticles. The nanoparticles were constructed via thermal decomposition in high boiling solvent by metal chloride and sodium oleate. The nanoparticles were attached to the CNTs during thermal reaction process. Transmission electron microscope(TEM) revealed the CNTs attached nanoparticles and scanning electron microscope(SEM) results show that the nanoparticles functionalized CNTs align perpendicular to the surface. And we discuss the emission properties of those materials as a function of alignment.