Fullerenes, Nanotubes and Carbon Nanostructures

Effect of Ni and Co Catalysts on the Synthesis of Carbon Nanotubes on Silicon Substrate

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Abstract

The effects of Ni and Co catalysts are investigated on growth of aligned carbon nanotubes (CNTs) by thermal chemical vapor deposition (TCVD) method. It is found that the nickel catalyst has an important and strong role on the CNTs density, morphology and smaller diameter CNTs, whereas by using cobalt catalyst lower densities and larger diameter CNTs are obtained. The carbon nanotubes catalyzed by Ni have the best alignment and the smoothest rather than Co catalyst in this research. The conditions were same for synthesis of CNTs with the both catalyst in this our research work but structures were different, because presence different catalyst in desired experiment. Therefore, Ni is considered as the best catalyst for growth of aligned carbon nanotubes.

Keywords

TCVD, Catalyst, carbon nanotube, Raman spectroscopy, SEM