

Sondervortrag

Am **Mittwoch, dem 15. September 2010**, um **15:00 Uhr** hält

Prof. R. Jayavel

Centre for Nanoscience and Technology, Anna University, Chennai-600025, INDIA.

einen Vortrag mit dem Titel

Synthesis and Characterization of Carbon Nanotubes using Mesoporous MCM-41 molecular sieves for Memory Device Applications

Der Vortrag findet in A5-0054 statt.

Kurzfassung:

The properties of CNTs depend on their diameter and helicity and synthesis methods. Because of this, considerable efforts have been made to synthesis CNTs by different techniques and the corresponding growth mechanism has been investigated. The catalytic chemical vapor deposition (CCVD) method has been considered as one of the most promising techniques for single-walled carbon nanotube (SWNT) synthesis. The use of mesoporous molecular sieves as a catalytic template for the production of CNTs is gaining prominence because of the possibility of controlling the pore diameter independent of the chemical composition of the pore walls. This allows these parameters to be used independently to control the size of the metal particles incorporated in the mesoporous from which the CNT growth occurs. In our investigation, the free standing SWCNTs were synthesized by CCVD using MCM-41 molecular sieves. The TEM studies show the formation of CNTs, and the results clearly indicate that the metal particles are at the tip of the CNTs, confirming the tip growth mechanism. The chemical reactivity, electronic, optical and mechanical properties of the SWCNT were studied. These unique properties of CNTs are very favorable for their application as the charge storage nodes in the memory devices. The characteristics of the floating gate memory device using CNTs as floating gate have also been investigated.

Eingeladen von: Prof. Dr.-Ing. habil. Sergej Fatikow