Fabrication Of Aligned Carbon Nanotube Arrays Using Mesoporous Molecular Sieves Of The MCM Class

Description:

A transition metal substituted, amorphous mesoporous silica framework with a high degree of structural order and a narrow pore diameter distribution (± 0.15 nm FWHM) was synthesized and used for the templated growth of single walled carbon nanotubes (SWNT). The physical properties of the SWNT (diameter, diameter distribution, electronic characteristic) can be controlled by the template pore size and the pore wall chemistry. The SWNT can find applications, for example, in chemical sensors and nanoscale electronic devices, such as transistors and crossbar switches.

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