

## Hydrogen Storage by Selective Adsorbents

The major goal is to develop carbon nanostructured material, which will be able to store more than 6% by weight hydrogen. We will explore carbon nanofibers (CNF) and carbon nanotube (CNT) arrays decorated with appropriate materials. Different techniques have been tested at UC for functionalizing of CNF and CNT with metals and groups, known as promising storage substances. The approaches are:

- Taking advantage of the huge CNF and CNT surface area, their controlled porosity, and ability to be functionalized or decorated with different ions, elements and compounds with potential application for hydrogen storage-Fig. 8.
- Using dry and wet chemistry for attaching functional groups or elements, suitable for hydrogen storage- Fig. 3.

Other adsorbents that can be developed includes B-nanorods, BN-nanotubes, which have better potentials in hydrogen storage than c-nanotubes either alone or in combination with surface modified B-/BN-nanorods/nanotubes by borohydrides because of the significant affinity of B to tie with hydrogen. The aim of this research will be to demonstrate ability of the nanostructures in hydrogen storage.