

# **Chemical stability of carbon nanotubes upon gas exposures**

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Superb mechanical, electrical, and chemical properties of carbon nanotubes open a new possibility of breaking-through the existing device performances. For instance large surface area adsorbs a large amount of gases, which may lead to high hydrogen storage capacity, applicable to fuel cell and secondary battery. In addition, the dangling bonds at the edge, chemically viable to the gas adsorption, yet much less reactive than other kinds of carbonaceous particles, provides a new intuition for the purification of carbon nanotubes in the powder form. In this talk, we will provide a full analysis for the hydrogen gas adsorption, which may be applicable to the secondary battery, and oxidative etching process to explain the purification of carbon nanotubes.