

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Unoccupied electronic states of Multiwall Carbon Nanotubes Arrays PATRICIO HÄBERLE, SAMUEL HEVIA, RODRIGO SEGURA, WLADIMIR IBÁÑEZ, Universidad Técnica Federico Santa María, Valparaíso, Chile — We have grown multiwall carbon nanotube (MWCNT) arrays by CVD both from pyrolysis of Fe-Phthalocyanine and decomposition of Acetylene on Fe covered SiO₂/Si(111) substrates. The characteristic diameter of the tubes is 50 nm for both type of samples. Even though the films show good alignment in the bulk, they do present some disorder of the tubes at the top of the films. Inverse photoemission spectra from these samples are similar to those obtained from HOPG. The main differences are in: the non existence of what has been recognized as an image charge state on graphite and some additional intensity very close to the Fermi level (ε_F). A similar intensity has been measured previously by photoemission in a symmetrical position with respect to ε_F . This increased metallic character could, at this point, be interpreted as defects from the closure of the tubes or as a manifestation of van Hove oscillations in the unoccupied density of states.

Patricio Häberle
Universidad Técnica

Date submitted: 30 Nov 2005

Electronic form version 1.4