Poster

STUDY OF AUGER CVV LINESHAPES FROM SINGLE WALLED CARBON NANOTUBES.

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We present a model to describe Auger CVV lineshapes from bundles of clean and Na^+ irradiated single-walled carbon nanotubes, specifically examining shake up processes in both metallic and semiconducting bands, with energy gaps below 1 eV.
Auger electrons are ejected by a primary electron beam of 1.8 keV and acquired either with the clean sample or after Na^+ bombardment at different temperatures (see Fig.1).
Using the tight binding approach, we determine the effect of the suddenly created core hole, in the 1s-state of a carbon atom, on the many electron states of π and $\pi*$ bands of the target material.
We compute the energy distributions of many body excitations, created at the expense of ejected electrons in (10, 10) and (16, 0) tubes, thus, obtaining the core hole propagator in tubes with different chirality, as function of the concentration Na+ atoms.
We find a good agreement between the theory and the experiments.

References:

References
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Figure 1