Electronic transport in intermediate sized carbon nanotubes

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MTSUKO, ANTTI JUUTILAINEN, University of Jyvaskyla — We have measured
low temperature transport properties of multiwalled carbon nanotubes (MWNT) of
different diameters in the range 2-10 nm [1]. In nearly all samples the gate dependent
conductance exhibits a gap whose size increases with decreasing tube diameter and
increasing electrode separation. This so called transport gap is attributed, based
on the experimental findings, on a combination of localization effects and narrow
diameter induced gaps in the electronic band structure.


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