

Polarization effects of transversal and longitudinal optical phonons in bundles of multi-wall carbon nanotubes.

We report on the polarization analysis of the Raman spectrum of highly aligned multi-wall carbon nanotubes (MWCNTs). A simple model considering the average angle distribution across the MWCNT axes accounts for the observed angular dependent Raman mode intensity. The model results fully fit the experimental data, allowing to derive an average waving angle of about 37° around the MWCNT axes, and allow to explain the apparent discrepancy of previous experiments reported in the literature. We believe that the present study would provide a simple effective spectroscopic method to prove physico-chemical and specific morphological characteristic of carbon nanotubes.

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