Electron density of states for doublewalled carbon nanotubes

V. Zavalniuk

Odessa I.I. Mechnikov National University, Department of Theoretical Physics, 2 Dvoryanskaya Str., Odessa 65026, Ukraine,
E–mail: VZavalnyuk@onu.edu.ua

The method of zero-range potentials is used to investigate the one-electron density of states in double-walled carbon nanotubes. The results obtained were compared with those obtained as the sum of densities for the single-walled nanotube constituents, which were also calculated within the same method. The results for semiconductor tubes have proved to deviate in the Van-Hove's peak positions and widths by no more than 1% everywhere except for the band gap edges, where the differences can amount to as high as several percents. The intertube interaction leads to narrowing of the gaps in the both constituent tubes.