

Experimental evidence of electronic Raman scattering in individual double-walled carbon nanotubes

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Electronic Raman scattering (ERS) previously observed in metallic [1] and semiconducting [2] individual single-walled carbon nanotubes (CNTs) and their small bundles [3, 4] has been registered in individual double-walled CNTs for the first time allowing one to obtain additional information on peculiarities of their electronic structure. All individual double-walled CNTs were carefully examined by a combination [5] of such experimental methods as electron diffraction, high resolution transmission electron microscopy, Rayleigh and Raman scattering spectroscopies at different excitation wavelengths. In a number of structure-identified double-walled CNTs good ERS signal has been obtained and analyzed.

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