

Abstract Submitted
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Raman Spectroscopy of isolated Double Wall Carbon Nanotubes (DWNT)¹ FEDERICO VILLALPANDO-PAEZ, ALFONSO REINA CECCO, Massachusetts Institute of Technology, DAISUKE SHIMAMOTO, Shinshu University, Japan, ANTONIO G. SOUZA FILHO, Universidade Federal do Ceara, Brazil, HYUNGBIN SON, Massachusetts Institute of Technology, YOONG A. KIM, ENDO MORINOBU, Shinshu University, Japan, MAURICIO TERRONES, Instituto Potosino de Investigacion Cientifica y Tecnologica, Mexico, MILDRED DRESSELHAUS, Massachusetts Institute of Technology — We have developed a method to perform Raman spectroscopy on isolated double wall carbon nanotubes (DWNT). By identifying isolated DWNTs and obtaining their Raman spectra using different laser lines, we are able to find DWNTs whose inner and outer walls are in resonance with the same laser line or with more than one laser lines ranging from 514nm to 785nm. The inner and outer walls of a DWNT can be metallic (M) or semiconducting (S) and each of the four possible configurations (M/M, M/S, S/S, S/M) has different electronic properties. The obtained Raman spectra show simplified radial breathing mode (RBM), G and G' line shapes that allow us to study the inter layer interactions and make comparisons to previous experiments on DWNT bundles and double layer graphene.

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Federico Villalpando
Massachusetts Institute of Technology

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