

Abstract Submitted
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Electrical Resistance of Double-Wall Carbon Nanotubes with Determined Chiral Indices LETIAN LIN, University of North Carolina at Chapel Hill, Curriculum in Applied Sciences and Engineering, TAORAN CUI, LU-CHANG QIN, SEAN WASHBURN, University of North Carolina at Chapel Hill, Department of Physics and Astronomy — The properties of carbon nanotubes (CNT), especially single-wall nanotubes (SWNT) and double-wall nanotubes (DWNT), are profoundly sensitive to the atomic structure described by its chirality. CNTs connected to sub-micron electrodes were suspended for transmission electron microscope (TEM) study. We determined the chiral indices of each individual CNT via its nano beam electron diffraction patterns and measured its electrical resistance by the four-probe method at room temperature. We studied the factor of different combinations of semiconducting/metallic shells on the electrical characterizations of DWNTs. The electrical properties were compared between DWNTs and SWNTs and the result show that the electrical transport of a DWNT is dominated by the chiral indices of outer shell.

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