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Low temperature electron transport measurements of dielectrophoretically assembled single wall carbon nanotube PAUL STOKES, LIWEI LIU, SAIFUL KHONDAKER, Nanoscience Technology Center and Department of Physics University of Central Florida — Dielectrophoretic (DEP) assembly of carbon nanotube (CNT) has attracted tremendous interests because of its usefulness in assembling CNT at selected positions in nanoelectronic circuits with high yield. Although DEP technique has been used to fabricate nanoelectronic devices, the effect of contact resistance and nanotube buckling at the electrode-substrate interface has not been examined. Here, we present electronic transport measurements of DEP assembled single wall carbon nanotubes from room temperature to 1.5 K to examine the contact resistance and nanotube buckling. The nanotubes were suspended in dimethylformamide (DMF) and assembled between gold or palladium electrodes by the application of an AC electric field. A fundamental understanding of the contact resistance and buckling behavior will lead to improved designing of DEP assembled devices.

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