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Resistance of individual long suspended carbon nanotubes with known atomic structures MITSUHIDE TAKEKOSHI, VIKRAM DESHPANDE, YUHEI MIYAUCHI, ZHENGYI ZHANG, CHENGUANG LU, TONY HEINZ, JAMES HONE, PHILIP KIM, Columbia University — We present electrical transport measurement on long individually suspended carbon nanotubes. Single walled carbon nanotubes (SWNTs) are grown by a chemical vapor deposition method across a slit made on silicon oxide/silicon substrate with pre-patterned platinum electrodes. Rayleigh spectroscopy allows us to determine atomic structure indices of individual SWNTs that connect the electrodes across the slit. We investigate the temperature dependent resistance of metallic SWNTs. The relation between electron-phonon interaction in SWNTs in the connection of the atomic structure will be discussed.

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