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Electronic transport across a Carbon nanotube Heterojunction: Experimental observations of high temperature Coulomb Charging and level spacing. BHUPESH CHANDRA, YANG WU, MENINDER PUREWAL, MINGYUAN HUANG, HUGEN YAN, LIMIN HUANG, STEPHEN BRIEN, TONY HEINZ, PHILIP KIM, JAMES HONE, Columbia University — We present electrical transport measurements of individual a single-wall carbon nanotube in which the chiral indices (n, m) are not fixed along the nanotube length. These kinds of structures are known to show strong rectifying behavior in current voltage characteristics. At low temperatures the device essentially behaves like a quantum dot with very high charging energy and level-spacing. These features can be seen till 70K also, making it a high temperature single electron transistor.

Bhupesh Chandra
Columbia University

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