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Transport in Carbon Nanotube Junctions[1] K.H. KHOO, JAMES R. CHELIKOWSKY, University of Texas at Austin — There is growing interest in the use of carbon nanotube thin films as transparent electrical conductors and thin-film transistors owing to their high optical transmittance, low sheet resistivity, and ease of fabrication. [1,2] A major contribution to the sheet resistivity originates at nanotube junctions, as electrical contact is typically poor between adjacent nanotubes. It is thus important to characterize carbon nanotube junctions in order to understand the conduction properties of nanotube thin films. To this end, we have performed *ab initio* density functional theory calculations to investigate the structural, electronic and transport properties of carbon nanotube junctions as a function of nanotube chirality and contact geometry

[1] Z. Wu *et al.*, Science **305**, 1273 (2004)
[2] E. S. Snow, J. P. Novak, P. M. Campbell, and D. Park, Appl. Phys. Lett. **82**, 2145 (2003).

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