

Abstract Submitted  
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**Electronic Properties of Carbon Nanotubes within an Ionic Shell**

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We report the effect on the electrical characteristics of two types of carbon nanotubes caused by the attachment of a uniformly non-conducting charged shell held at a fixed distance above the surface of the nanotube. We find that, depending on the chirality of the nanotube, the strain on the lattice causes the dispersion relationships to change resulting in a modification of the band structures which can induce either a metal-insulator transition or a change in the conductance of the nanotube. From these results, we speculate on the use of carbon nanotubes surrounded by an ionic shell as a model for a new type of sensitive detector of various ionic species.

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