

Abstract Submitted
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Spin-polarized field emission from nanotubes¹ JOSEPH DRISCOLL, BRANDON COOK, SERGIY BUBIN, KALMAN VARGA, Vanderbilt University Department of Physics and Astronomy — Time-dependent density functional theory has been used to calculate the spin-polarized field emission from carbon nanotubes with and without Fe adsorbates (atoms and clusters). Using our previously-developed approach [1], the electronic wave function was propagated in real time. Complex absorbing potentials have been employed to avoid artificial reflections from the boundaries and to allow long time simulations. It was observed that various adsorbates cause the separation of density into spin-polarized regions. The calculations predict that carbon nanotubes with various adsorbates can be used as spin-polarized current sources.

[1] J. A. Driscoll and K. Varga, Phys. Rev. B 80, 245431 (2009).

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