

Abstract Submitted
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Local density of states and scanning tunneling currents in graphene LING YANG, University of California, Riverside, NUNO PERES, University of Minho, Portugal, SHAN-WEN TSAI, University of California, Riverside — Graphene consists of an atom-thick layer of carbon atoms arranged in a honeycomb lattice, and its low-energy electronic excitations are well described as massless Dirac fermions with spin half and an additional pseudospin degree of freedom. We study local properties of graphene with isolated impurities (diagonal and non-diagonal impurity potential) such as the local electronic spectra and real-space and k-space local density of state (LDOS) maps. Using a multimode description for an scanning tunneling microscope (STM) tip, we calculate STM currents and find that strong resonances in the LDOS at finite energies lead to the presence of steps in the STM current and suppression of the Fano factor. [Ref: N. M. R. Peres, L. Yang, and S.-W. Tsai, New J. Phys. 11, 095007, (2009)]

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