

Abstract Submitted
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Local density of states and scanning tunneling currents in graphene¹ LING YANG, University of California, Riverside, N.M.R. PERES, University of Minho, SHAN-WEN TSAI, University of California, Riverside — Graphene consists of an atom-thick layer of carbon atoms arranged in a honeycomb lattice and has been intensively studied due to its fascinating properties. We calculate the local density of states in graphene with different chemical substitution impurities, such as boron and nitrogen atoms, as well as for vacancies. We give exact analytical expressions for the local density of states for the whole energy range including energies beyond the Dirac cone approximation. The momentum maps of the local density of states for different impurities and discussion of their interpretation are given. We also present exact analytical calculations of scanning tunneling currents in locally disordered graphene using a multimode description of the microscope. [N. M. R. Peres, L. Yang, and S. - W. Tsai, New J. Phys. **11**, 095007(2009)]

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