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Interference effects in electronic transport in mesoscopic graphene LINGLI WANG, University of California, Riverside, VICTOR A. GOPAR, Universidad de Zaragoza, Spain, SHAN-WEN TSAI, University of California, Riverside — Graphene consists of a monolayer of carbon atoms arranged in a honeycomb lattice and has been intensively studied due to its fascinating physical properties. We study transport in mesoscopic graphene systems, in particular, conductance oscillations due to interference of the Dirac electrons in phase-coherent transport. Green's functions are calculated in the tight-binding model via T-matrix formalism, and the conductance is then obtained using the Landauer-Büttiker formalism. We consider a measurement set-up consisting of two STM tips, as well as transport from a contact and a STM tip. Regular Bloch oscillations are obtained, as well as richer structures when different types of isolated impurities are considered.

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