Investigating the effect of disorder on density of states of graphene nano-ribbons

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Abstract
In the present paper, we calculate the effect of disorder on the density of states and localization of eigenstates of zigzag and armchair nano-ribbons. Both Anderson disorder model and quantum percolation are considered. The eigenstates of the disordered Hamiltonian is calculated in a tight-binding approximation and the localization of eigenstates are characterized using the inverse participation ratio (IPR). Based on IPR data, the transport properties in the presence of disorder is discussed.

Keywords: graphene nano-ribbons, disordered systems, density of states, inverse participation ratio

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