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Influence ofcorrection factor on nearest neighbour hopping parameter in energy dispersion relationofGraphene nanoribbon

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ABSTRACT

We investigated on energy dispersion relation (E-KR) of graphene nanoribbon (GNR) considering its two prototypical shapes named as armchair GNR (AGNR) and zigzag GNR (ZGNR) but specially of AGNR in nearest neighbor interactions.Two parts $\frac{\Delta}{2}$ *and* $(\hbar\gamma_s)^2$*of E-KR relation have different characteristics independently expresses their importance. A correction factor* Δ_{γ_1} *is used for hopping between two edge carbon atoms to count edge relaxation. Influence of this factor on hopping parameter exemplifies the edge bond relaxation effect in AGNR and ZGNR.*

Keywords: Energy dispersion relation, graphene nanoribbon, nearest neighbor interactions, ballistic performance, correction factor, edge relaxation.