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The role of the disorder range and electronic energy in the graphene nanoribbons perfect transmission LEANDRO LIMA, FELIPE PINHEIRO, RODRIGO CAPAZ, Universidade Federal do Rio de Janeiro, CAIO LEWENKOPF, Universidade Federal Fluminense, EDUARDO MUCCIOLO, University of Central Florida — Numerical calculations based on the recursive Green's function method in the tight-binding approximation are performed to calculate the dimensionless conductance g in disordered graphene nanoribbons with Gaussian scatterers. The influence of the transition from short- to long-ranged disorder on g is studied as well as its effects on the formation of a perfectly conducting channel. We also investigate the dependence of electronic energy on the perfectly conducting channel. We propose and calculate a backscattering estimate in order to establish the connection between the perfectly conducting channel (with g = 1) and the amount of intervalley scattering.

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