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Effects of periodic scatter potential on the Landau quantization and ballistic transport of electrons in graphene PAULA FEKETE, Department of Physics and Nuclear Engineering, US Military Academy at West Point, GODFREY GUMBS, Department of Physics and Astronomy, Hunter College at the City University of New York, DANHONG HUANG, Air Force Research Laboratory, Kirtland Air Force Base — The energy spectrum of graphene is calculated in the presence of a perpendicular magnetic field as well as a two-dimensional square array of scatterers. The potential modulation is simulated by a cosine function whose amplitude and period may be varied. This permits investigation of the effect that variation of the strength of and spacing between scattering centers has on the ballistic transport. We include both K and K' valleys as well as sublattices A and B to compute the four-component wave function. Additionally, based on our eigenenergy spectrum calculations, we determine the electron density of states for this system.

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