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Low-energy magnetoabsorption spectra of graphite JEI WANG, MIN FA LIN — The low-energy magnetoabsorption spectra of bulk graphite are investigated by the Peierls-coupling tight-binding method. According to the depicted wave functions, the Landau levels are divided into two groups when the fingerprints of the wave functions are under consideration. These Landau levels lead to some band-edge states along $K-H$ direction. The main contribution to absorption peaks originates from the states in the vicinity of the H and K points. The absorption frequencies of Landau peaks exhibit the $\sqrt{B}$ dependence at the H point while those of states at K point show B dependence. The square-root divergent peaks due to the additional k_z-dependent energy dispersion are much different from the case of few-layer graphene. We derive regular frequency-dependent absorption rates and composite field-dependent frequencies in this work. The relationship between the magneto-optical properties and electronic structures are explored. The selection rules can be reasonably explained by the characteristics of the wave functions.

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