FEATURES OF ELECTRON-MAGNON INTERACTION IN FERROMAGNETIC SEMICONDUCTORS IN A FIELD OF COHERENT LIGHT BEAMS

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9.7 cm

In present work the influence of coherent light beams (CLB) on the electron-magnon interaction in ferromagnetic semiconductors is investigated. The wave function and quasi-energy of conduction electrons are calculated. A new approach for construction the kinetic equations for electrons and magnons that in a correct way takes into account the effect of CLB field that influences the electron-magnon interaction in crystalline phase is presented.

In is shown that the conduction electrons are under influence of a force that is associated with the pressure of CLB. It is shown that in a field of CLB, conduction electrons in ferromagnetic semiconductors simultaneously takes part in two oscillations. Namely, they oscillate with the frequency ω in the field of CLB and in additional, it carry out a forced oscillation with the frequency $\omega_z << \omega$ (ω is the CLB frequency) inside a one-dimensional potential well that is induced in the ferromagnetic semiconductor by CLB.

13.4 cm

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