

This theoretical thesis presents detailed study of negatively charged excitons - trions - confined in single quantum well in presence of perpendicular magnetic field. Complex valence band of GaAs/GaAlAs compound is described within Luttinger Hamiltonian framework. Singlet and triplet states of negative trion are introduced. Advanced theoretical analysis of Zeeman effect for different states of trion is performed. Landau gauge of magnetic field and unusual wavefunctions basis is chosen and its accuracy is tested. Evolution of ground state energy and photoluminescence spectra with magnetic field is evaluated for different values of Landé g-factors. Probability of occurrence of electrons with respect to the hole position and their spatial correlation function are investigated.