

The Para- and Ortho-Phases of High-Density Excitons in Cu_2O

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Abstract

The quasiequilibrium state of the two-component non-linear ortho-para-exciton gas is investigated. The concentration shifts of the exciton levels are taken into account at high densities of quasiparticles. Three exciton phases appear at any value of the chemical potential, due to the effect of optical bistability: the para-phase, the ortho-phase and the mixed ortho-para-phase. It is pointed out that Bose-Einstein condensation (BEC) in the para- and ortho-phase is possible, in spite of the fact that the initial level of ortho-excitons is situated higher on the energetic scale than the initial level of para-excitons.