

The Biexciton Influence on Bose-Einstein Condensation of Orthoexcitons in Cu_2O

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Abstract

The influence of the biexcitons formed from two orthoexcitons on the Bose-Einstein condensation (BEC) of orthoexcitons and the possibility of the BEC of biexcitons is studied theoretically. It is shown that the existence of biexcitons in Cu_2O crystal leads to a considerable difficulty for the observation of the BEC of orthoexcitons. The lineshape of the net gain of biexciton transition in Cu_2O crystal is calculated. The obtained line is characterized by a strongly marked asymmetric form with a gentle sloping long-wave tail and a sharp peak which is peculiar to BEC of biexcitons.