

EXCITON-PHONON
INTERACTION AND EXCITON
ENERGY IN SEMICONDUCTOR NANOFILMS

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S u m m a r y

The Bethe variational method has been used to estimate the binding energy of the exciton ground state in a flat semiconductor nanofilm. The Green's function method has been applied to study the dependence of the exciton energy on the film thickness taking the exciton-phonon interaction into account at a temperature of 0 K. Calculations were executed in the framework of the rectangular finite-depth quantum well model and making use of $\text{Al}_{0.3}\text{Ga}_{0.7}\text{As}/\text{GaAs}/\text{Al}_{0.3}\text{Ga}_{0.7}\text{As}$ and $\text{CdS}/\text{HgS}/\text{CdS}$ nanofilms as examples.