



Exciton–phonon luminescence and Raman scattering in CuGaS₂ crystals

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Abstract

Photoluminescence and resonance Raman scattering spectra of CuGaS₂ crystals are investigated at low temperature (10K) under the excitation with the radiation from a spectral interval obtained by passing the radiation of an incandescent or xenon lamp through a monochromator. The thermalized luminescence of the Γ_4 and Γ_5 excitons was revealed under the excitation by an interval of photon energies higher than the energy of the ground state of long-wavelength Γ_4 excitons ($\omega_T(\Gamma_4)+1E_{LO}^1$). The energy conversion between the polariton modes in luminescence and resonance Raman scattering spectra is considered.