LUMINESCENCE OF BROMIDE CADMIUM CRYSTALS

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S u m m a r y

The study of influence of natural deterioration, temperature, heat treatment, and ultraviolet radiation on the spectral composition of luminescence and spectrum of capture levels in the temperature range of 80 – 295 K of bromide cadmium crystals under X-ray excitation and under N_2-laser exposition is carried out. On the basis of the obtained results and luminescence properties of crystals $CdBr_2 : Cd$, $CdBr : CdI_2$, the bands with peaks near 385 and 345 nm are attributed to radiative relaxation of singlet triplet self-trapped excitons. The luminescence of these crystals with a peak at 490 nm is connected with excitons localized on the noncontrolled iodine dopant. It is assumed that luminescence of $CdBr_2$ with a peak in the region of 640 – 650 nm is caused by radiation annihilation of two-haloid excitons localized near vacancies of bromide ions, which create the associates with ions of iodine and interstitial atoms of cadmium. The peak in the region of 173 K that is basically observed on the curves of thermostimulated luminescence (TSL) of bromide cadmium under X-ray excitation is attributed to thermally induced decay of hole centers of the V_k-type $(BrI)^-$. TSL of bromide cadmium crystals in the range of temperatures 235 – 275 K is connected with electron capture centers.