Thermoluminescence behavior of KClXBr1−X: in mixed crystals exposed to gamma radiation

ABSTRACT

In-doped KClXBr1ī X (X=1, 0.75, 0.5, 0.25 and 0) mixed crystal has been grown by the Czochralski method. The segregation coefficient of In was studied by the inductively coupled plasma atomic emission spectrometry (ICP-OES). The crystal structure has been determined using X-ray diffraction (XRD) analysis. The thermoluminescence (TL) characterization of KClXBr1ī X mixed crystals, exposed to gamma radiation has been performed. The results show the introduction of the dopants ions induced changes in the TL glow curve structure. The TL results suggest that doped KClXBr1ī X mixed crystal has good potential active dosimeter applications for gamma ray irradiation.

Keyword: A1. Mixed crystal; A1. Thermoluminescence; B1. Indium; B1. KBr1ī XClX