

Optical and photoelectrical properties and band structure of single crystals of solid solutions of the system $(\text{CdS})_{3x}-(\text{In}_2\text{S}_3)_{1-x}$

**Radautsan S. I., Syrbu N. N., Tezlevan V. E., Sherban K. F.,
 Strumban E. E.**

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Abstract

The spectra of edge absorption, photoconductivity, and reflectivity of single crystals of solid solutions on the basis of CdIn_2S_4 have been studied. The values of E_g , the character of transitions responsible for E_g , the energy of phonons taking part in the indirect transitions of In_2S_3 are determined. A number of values for the interband energy gaps are determined from the photoconductivity and reflection spectra. As a result of a complex investigation the band structure of CdIn_2S_4 has been specified and a band structure model for In_2S_3 proposed.