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Energy Band Structure of the Tetragonal Crystals ZnP_2 and CdP_2

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Abstract

The anisotropic spectra of edge absorption, photoconductivity, emission, and reflectivity of the tetragonal ZnP_2 and CdP_2 crystals have been experimentally investigated in the range 1 to 12.5 eV. The selection rules for interband transitions, the points of zero slope, and the dispersion relations at general points of the Brillouin zone have been derived by group-theoretical methods. From an analysis of the experimental and theoretical data conceivable energy band models of the tetragonal ZnP_2 and CdP_2 crystals are proposed.