

EXCITONS AND EXCITONIC MOLECULES
IN MIXED $\text{Zn}(\text{P}_{1-x}\text{As}_x)_2$ CRYSTALS
WITH LOW SUBSTITUTION LEVELS

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Low-temperature absorption, reflection, and photoluminescence spectra of mixed $\text{Zn}(\text{P}_{1-x}\text{As}_x)_2$ crystals are studied at $x = 0, 0,01, 0,02, 0,03$, and $0,05$. We have found that the energy gap and the Rydbergs of excitonic B , C , and A series decrease monotonically with increase of x . The spectral half-width of the absorption lines $n = 1$ of B and A series increases monotonically with x . Emission lines of excitonic molecules are observed in the photoluminescence spectra of $\text{Zn}(\text{P}_{1-x}\text{As}_x)_2$ crystals. The binding energy of a molecule increases with x , that is due to a decrease of the ratio of the effective masses of an electron and a hole.