

EFFECT OF LOCAL STRAIN ON OPTICAL
PROPERTIES OF $\text{Ga}_x\text{In}_{1-x}\text{P}$

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S u m m a r y

The electronic band structure of solid solution $\text{Ga}_x\text{In}_{1-x}\text{P}$ is calculated by the local model pseudopotential method accounting for a mismatch of the lattice constants. The resulting local strain of the lattice is taken into account in the calculations of effective masses and deformation potentials as well as in the dependence of the energy gap on composition x of the solid solution. The obtained crossover point x_c explains satisfactorily the corresponding experimental dependence. It is shown that calculations, which include a local strain in $\text{Ga}_x\text{In}_{1-x}\text{P}$ alloys, allow one to explain their fundamental optical properties, in particular, the refraction coefficient.