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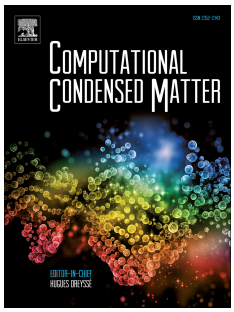

Mechanical properties of AlP_xSb_{1-x} semiconductor alloys under the effect of temperature and pressure

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Mechanical properties of AlP_xSb_{1-x} semiconductor alloys under the effect of temperature and pressure

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Abstract

Using the empirical pseudo-potential method (EPM) combined with the virtual crystal approximation (VCA) included the compositional disorder effect, some of optoelectronic and mechanical properties of AlP_xSb_{1-x} ternary alloys under the effect of pressure and temperature have been studied. Our results for the energy band gaps, refractive index, dielectric constants, elastic constants and some related parameters like elastic moduli, Poisson's ratio, bond stretching and bond bending force constants, internal strain parameter, linear compressibility, Cauchy ratio and anisotropy factor are successfully calculated for different values of temperature and pressure. A good agreement is noticed between our results and the available experimental and theoretical published data.

Keywords: Mechanical properties; AlP_xSb_{1-x}; Composition, Pressure; Temperature

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