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Piezoelectric and electromechanical coupling constants for $\text{Ga}_x\text{In}_{1-x}\text{Sb}$ semiconducting alloys

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ABSTRACT

The compositional dependence of piezoelectric stress and strain constants and electromechanical coupling coefficient of $\text{Ga}_x\text{In}_{1-x}\text{Sb}$ have been investigated. The calculations were performed using a pseudopotential approach combined with the **Adachi model** where different concepts of ionicity are considered. Our results are compared with the available data and found to be in good accord with each other. Our findings show that as the Ga content varies, the piezoelectric and related constants and transport properties of the alloy system of interest are significantly affected.

KEYWORDS: Collective effects, response characteristics, piezoelectricity, electromechanical coupling constant, $\text{Ga}_x\text{In}_{1-x}\text{Sb}$

Additional information

Disclosure statement

No potential conflict of interest was reported by the author.





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