

INFLUENCE OF SELF-CONSISTENT
ELECTRON-DEFORMATION INTERACTION
ON ELECTRON STATES LOCALIZED
AT AN EDGE DISLOCATION

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S u m m a r y

In the framework of the model of self-consistent electron-deformation interaction in a single-band semiconductor, the influence of the conduction electron concentration n_0 on the energy levels of an electron localized at an edge dislocation has been investigated. The energy of the localized level in lightly doped semiconductors ($n_0 \leq 10^{17} \text{ cm}^{-3}$) has been shown to shift monotonously towards lower values as n_0 grows and to possess a nonmonotonous character in heavily doped semiconductors ($10^{17} \text{ cm}^{-3} \leq n_0 \leq 10^{19} \text{ cm}^{-3}$). The probability for an electron to be near the edge dislocation nucleus has been found to increase by about 15% as the conduction electron concentration grows within the interval $10^{17} \text{ cm}^{-3} \leq n_0 \leq 10^{19} \text{ cm}^{-3}$.