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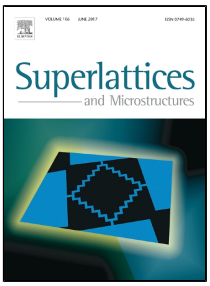

Electronic structures of uncapped In(Ga)As nanoislands grown on GaAs(001) pit-patterned substrate

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Highlights

1. The In(Ga)As nanoislands in pit are modeled based on experimental observations.
2. The shallow pit introduces red-shift to interband transition in InAs nanoisland.
3. The composition profiles are obtained by optimizing free energy or strain energy.
4. The Indium segregation modifies the localization of electron and heavy-hole.
5. The strain relaxations induced by pit and composition profiles are demonstrated.