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标题: Electronic states and intraband terahertz optical transitions in InGaAs quantum rods

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摘要: Strain-dependent eight-band k center dot p method is used to analyze the electronic structure and intraband optical transitions in self-assembled InGaAs quantum rods in the terahertz range. The calculation of absorption spectra for the growth-and in-plane-polarized radiation shows some similarities to those of quantum well and single quantum dot structures, augmented with contribution from transitions between the dot and quantum well states. The influence of rod height on the electronic structure and the intraband absorption spectra is also investigated. It is found that the energy of maximal terahertz absorption can be tailored by the rod height for both in-plane and in-growth polarized radiation. (C) 2012 American Institute of Physics. [<http://dx.doi.org/10.1063/1.3692069>]

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