Donor impurity-related photoionization cross-section in parabolic quantum wires: Effects of intense laser field and applied electric field

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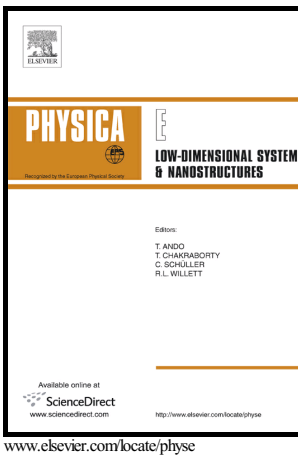

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Abstract

Within the effective mass approximation, the effects of the electric and intense laser fields on the binding energy and the photoionization cross-section of shallow-donor impurities in GaAs/GaAlAs parabolic quantum wires are investigated theoretically by using a variational method. The numerical results show that the electric and intense laser fields lead to significant changes in the binding energy and photoionization cross-section.

Keyword: Parabolic quantum wires; Impurity; Photoionization.

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