Morphology of Self-Assembled InSb/GaAs Quantum Dots on Ge Substrate

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ABSTRACT

In this work, we report on the growth of self-assembled InSb/GaAs quantum dots (QDs) on (001) Ge substrate by molecular beam epitaxy. Due to the polar/non-polar nature of GaAs grown on Ge, antiphase domains are formed. Effects of the domain and QD growth temperature on the morphology of realized QDs are presented. InSb QDs are mostly formed at the antiphase-domain boundaries (APBs). The QD size, shape and density are varied with the QD growth temperature. These free-standing QDs have irregular lens and stripe-shapes with $\{10n\}$ side facets according to the analysis of atomic force microscopy images. InSb QDs is formed at the APBs, where two orthogonal GaAs surfaces are met.

Keywords

สำเนาถูกต้อง

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