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Kinetics of (2×4)→(3×1(6)) structural changes on GaAs(001) surfaces during the UHV annealing

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Highlights

- The transition of GaAs(001) surface from state $\alpha(2\times4)$ into state (3×1(6)) is a complex process involving two transitions, $\alpha(2\times4)\rightarrow DO$ and $DO\rightarrow(3\times1(6))$.
- The transitions $\alpha(2\times4)\rightarrow DO$ and $DO\rightarrow(3\times1(6))$ feature a fixed number of domains over the whole transition process.
- Activation energies of respectively 3.44 ± 0.08 eV and 3.73 ± 0.09 eV were obtained for these transitions.
- The procedure for precise determination of GaAs(001) surface temperature using the features of the $\alpha(2\times4)\rightarrow DO$ transition process kinetic was proposed.

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