

Abstract Submitted
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Interacting dimer rows on Si(001): Reconstructed Si(001)¹ ARIEF BUDIMAN, University of Calgary — A continuum model involving elastic interactions of dimer rows on a two-dimensional surface is presented. It produces a logarithmic stress-domain interaction energy from the obtained partition function. Using dimer rows as the building blocks of a reconstructed surface thus generalizes Alerhand and Marchenko models of the stress-domain interaction on terraces, which have been previously used to predict step-height transition on reconstructed Si(001). The double-layer step phase is determined to be more stable than the single-layer step phase for typical temperatures and miscut angles. A mixed phase region in the temperature-versus-miscut-angle phase diagram is found.

¹NSERC

Arief Budiman
University of Calgary

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