

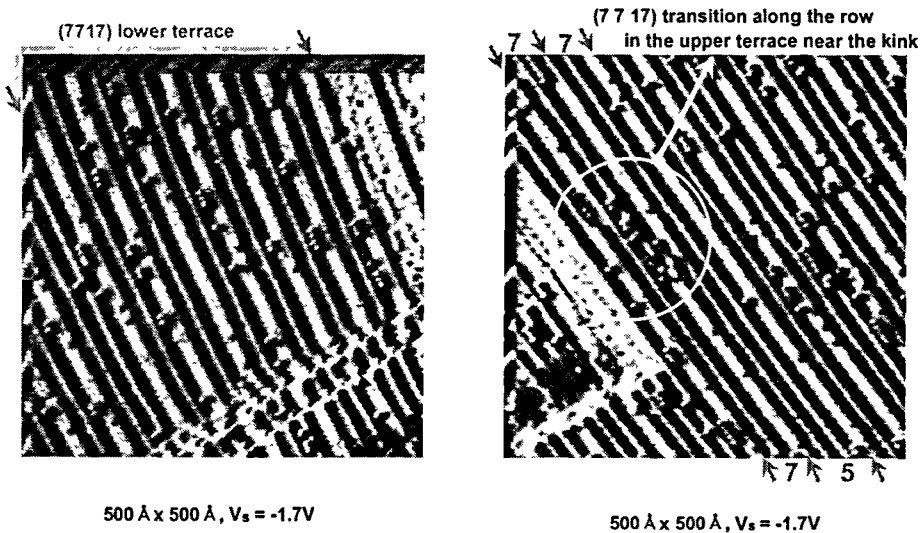
[S-02]

Conversion of reconstruction induced by anisotropic surface stress

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One of the planar and high-index Si(7 7 17) has been detected from the specific sites of Si(5 5 12). The high-index Si(7 7 17) consists of one (337) unit with a tetramer row and one (225) unit with ad-dimers. It has been concluded that the origin of the wide (7 7 17) domain parasitic on (5 5 12) surface is due to the anisotropic surface stress of the (337) unit with a dimer row. That is, along the dimer row, the tensile stress exists, and the compressive stress exists perpendicular to the dimer row. Therefore if the compressive stresses perpendicular to the dimer row are supplied by steps, kink, concave surface or facets, this (337) unit with a dimer row can be removed easily from (5 5 12) surface resulting in (7 7 17) domains in the range where these stresses affect.



Examples of (7 7 17) domain near the kink*