

Nanoscale Materials Morphology using a Focused Ion Beam

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Abstract:

Ripple formation on silicon caused by irradiation with a focused ion beam can create features on the nanometer scale. A phenomenon where a rippled regime nucleates throughout the irradiated area is explored. A model has existed for some time to explain the formation of ripples from ion irradiation. However, there is disagreement between theory and experiment; while theory predicts linear instability at all incident angles, experiments show many cases of flat surfaces under irradiation. Ripple nucleation is a transitional case in which a surface is stable until some perturbation is made.