Abstract Submitted
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Effects of Strain on Island Morphology and Size Distribution in Submonolayer Island Growth[1] G. NANDIPATI, J.G. AMAR, University of Toledo — We have carried out kinetic Monte Carlo simulations of submonolayer heteroepitaxial growth using a model in which the strain energy is approximated by a long-range $1/r^3$ interaction. For the case of irreversible growth with rapid island relaxation due to edge-diffusion we find that the island-shape changes from square to rectangular in the presence of sufficient strain. However, in this case fluctuations play an important role and the scaled island-size distribution is only weakly affected by strain. General scaling forms for the island-width and island-length distributions are also derived. Simulation results for a reversible model of Cu/Ni(001) growth, for which an interesting shape transition has been experimentally observed, are also presented and compared with experiments.

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