

Abstract Submitted
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Effects of shadowing in oblique incidence epitaxial growth¹ J.G. AMAR, Y. SHIM, V. BOROVNIKOV, University of Toledo — The results of kinetic Monte Carlo simulations of a simplified model of oblique incidence epitaxial growth on a metal fcc(100) surface are presented. Results for the effects of shadowing on the mound morphology, surface roughness, and nanoscale pattern formation as a function of the angle of incidence θ relative to the surface normal as well as the azimuthal angle ϕ relative to the high-symmetry direction are presented. In good agreement with experiment, we find that shadowing has little effect for deposition angles up to approximately 55° . However, for higher angles there is a significant effect. In particular, the formation of ripples perpendicular to the incident beam is found at $\theta \simeq 78^\circ$ while at even higher angles the formation of ripples parallel to the incident beam is observed. The coarsening behavior of the resulting ripple structures is also studied. Results are also presented for azimuthal angles away from the high-symmetry directions.

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