Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Growth instability in Cu multilayer films due to fast edge/corner diffusion Y. SHIM, JACQUES G. AMAR, The University of Toledo — The instability observed in Cu/Cu (100) epitaxial growth [Ernst et al, Phys. Rev. Lett. 72, 112 (1994)] is studied by using a recently proposed parallel algorithm for kinetic Monte Carlo (KMC) simulations with realistic parameters obtained from effective medium theory. The parallel algorithm allows us to simulate longer time scales which are not easily accessible by a serial Monte Carlo simulation. Unlike the proposed mechanism for the change in the value of the growth exponent from 0.26 to 0.56 with increasing temperature from 160 K to 200 K, simulation results show that an enhancement of edge and corner diffusion with temperature is responsible for the change during the low temperature growth. A similar parallel simulation study using parameters obtained from embedded atom methods is also presented.

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Date submitted: 06 Dec 2004 Electronic form version 1.4