

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Short range steering effect in off-normal incidence epitaxial growth on dense steps on Cu(001): a molecular dynamics study¹ FRITS RABBERING, HERBERT WORMEESTER, BENE POELSEMA, Solid State Physics, MESA+ Research Institute, University of Twente The Netherlands, OLEG TRUSHIN, Institute of Microelectronics and Informatics RAS, Yaroslavl Russia, ABDELKADER KARA, TALAT S. RAHMAN, Department of Physics, Kansas State University — Analysis of high-resolution LEED data of 40 ML Cu on Cu(001) at various polar deposition angles led to the conclusion that attractive forces between the surface and the incoming particles have a dramatic steering effect on the trajectory of the particle such that incoming particles are attracted towards protruding structures leading to increased roughness and changes in morphology for glancing incidence. In connection with these results, we have carried out molecular dynamics simulations to examine in particular the influence of two important parameters: the polar angle and the velocity of the incident particles. Using a uniform grid of incident particles, we find a surplus of particles at the top of the step which increases dramatically as the polar angle is increased from normal to glancing incidence. We also find a novel shadowing effect which is expected to impact growth patterns. Details, including the influence of the incident energy will be presented in the context of the on going experiments.

¹Work supported by an NSF grant ITR-0428826 and by the Stichting Fundamenteel Onderzoek der Materie (FOM) of the Netherlands

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Date submitted: 01 Dec 2004

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