Abstract Submitted
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Evolution of patterned step structure on vicinal Si(111) surface during high temperature annealing[1] HUNG-CHIH KAN, Department of Physics, University of Maryland, College Park, TAESOON KWON, RAYMOND PHANEUF, Department of Materials Science and Engineering, University of Maryland, College Park — We present the results of numerical simulations of the evolution of patterned step structures on vicinal Si(111) surfaces during high temperature annealing, which presumably drives the surface far away from equilibrium. We use a mesoscopic model [1] to describe the motion of individual steps under the effects of sublimation, step stiffness (line tension), and step-step interaction. The qualitative consistency between our simulation and experiment [2] suggest that thermodynamic driving force, such as the step-stiffness and step-step interaction dominate the evolution of the step structure during high temperature annealing. [1] J. D. Weeks, D.-J. Lui, and H.-C. Jeong, in Dynamics of Crystal Surfaces and Interfaces, edited by P. M. Duxbury and T.J. Pence (Plenum Press, New York and London 1997), pp. 199-216 [2] T. Kwon, H-C. Kan, R. J. Phaneuf, Appl. Phys. Lett. **88**, 071914 (2006) .

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