

1090-60-223

Yong Han*, 307D Wilhelm Hall, Ames Laboratory - USDOE, Iowa State University, Ames, IA 50011, and **Selena M. Russell, Patricia A. Thiel** and **James W. Evans**. *Fluctuations and 1D decay during coarsening in 2D anisotropic systems*. Preliminary report.

Coarsening of arrays of 2D islands on surfaces is driven by differing 2D equilibrium vapor pressures of islands. Smaller islands with larger edge curvatures have higher vapor pressures and decay by transferring atoms to larger islands. In a 1D system, islands do not have curvature, so atom transfer is a random stochastic process. We describe a 2D system where both surface diffusion and (rectangular) island shapes are strongly anisotropic. Here, there is coarsening with narrower islands exhibiting 1D decay maintaining constant width. Behavior is described by atomistic modeling which accurately captures both the thermodynamics and edge diffusion kinetics of the system. “Atom-tracking” KMC simulations elucidate the transfer of atoms between islands and reveal significant fluctuations in the coarsening process. (Received March 01, 2013)