Simulation of Growth Shape of Stressed/Strained 2D Monolayer Island NAIYANG MA, FENG LIU, University of Utah — Growth shape of a 2D monolayer island is determined by the competition between thermodynamics (governing the equilibrium shape) and kinetics. The island boundary propagates via two fundamental mechanisms: one from deposition flux driving island growth and the other from edge diffusion along island periphery equilibrating island shape. We develop a model to directly simulate the growth a stressed/strained 2D island, including the elastic contribution to the island boundary chemical potential calculated from continuum theory. A front tracking algorithm is used to define the positions of island boundary and a cubic spline fitting is used to remove the shape discontinuity. A series of simulations are conducted to reveal the physical conditions governing the equilibrium vs. the non- equilibrium growth shape in terms of competition between the rate of deposition vs. the rate of edge diffusion. *** This work is supported by DOE and NSF.**

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