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Strain Dependence of Microscopic Parameters for Growth of Ag on Ag(100) CHRISTIAN RATSCH, UCLA — Many technologically relevant system have strain (due a lattice mismatch between different materials), and such strain is often the driving force behind the formation and self-organization of quantum dots and other nano-scale structures. It is therefore of paramount importance to understand and to be able to model growth of strained system. Some previous studies have discussed the strain dependence of adatom diffusion for a number of systems. In this talk, we will present density-functional theory calculations that examine the effect of strain on a number of microscopic growth parameters, such as diffusion, dissociation of small islands, detachment of adatoms from islands, and diffusion of adatoms along island edges. We will use growth of Ag on Ag(100) as our model system. We will then illustrate in growth simulations that employ the level-set technique how such strain dependence of microscopic parameters affects the ordering during growth.

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