

DIONISIOS MARGETIS

University of Maryland

A multiscale perspective of homoepitaxial relaxation

In homoepitaxy, crystal surface structures are grown or decay (relax) on a substrate of the same material. Their evolution involves several length and time scales, from the atomistic to the continuum. In this talk, I will discuss recent progress, and open challenges, in connecting three scales for surface relaxation:

- (i) atomistic scale, in the context of a kinetic Monte Carlo method for the hopping of atoms;
- (ii) nanoscale, in terms of the Burton-Cabrera-Frank model for the motion of line defects;
- and (iii) macroscale, in terms of continuum evolution equations for the surface height.