**Pattering of Heteroepitaxial Overlayers from Nano to Micron Scales** FABIO IUNES SANCHES, KEN ELDER, Oakland University, GIULIA ROSSI, PEKKA KANERVA, Aalto University School of Science, SEE-CHENN YING, Brown University, ENZO GRANATO, Instituto Nacional de Pesquisas Espaciais, CRISTIAN V. ACHIM, TAPIO ALA-NISSILA, Aalto University School of Science — Thin heteroepitaxial overlayers have been proposed as templates to generate stable, self-organized nanostructures at large length scales, with a variety of important technological applications. However, modeling strain-driven self-organization is a formidable challenge due to different length scales involved. In this talk a method for predicting the patterning of ultra thin films on micron length scales with atomic resolution will be presented. The model is used to make quantitative predictions for the type of superstructures (stripes, honeycomb, triangular) and length scale of pattern formation of two metal/metal systems, Cu on Ru(0001) and Cu on Pd(111). The findings are in excellent agreement with existing experiments and call for future experimental investigations of such systems.

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