



INTERDISCIPLINARY CENTRE FOR
ADVANCED MATERIALS SIMULATION

ICAMS Special Seminar:

Tuesday, July 10th, 3:00 p.m.

New ICAMS Building Universitatstr. 90a, Room 0.08

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“Dynamics of grain-boundary motion studied by in-situ electron microscopy and molecular dynamics simulations”

In this talk we will describe the results of molecular-dynamics simulations examining processes related to the shrinking of island grains in Au thin films. The island grains investigated in this work are bounded by $\langle 110 \rangle$ tilt grain boundaries with 90 degree misorientations, but varying grain boundary inclinations. Our interest in this system is motivated by parallel experimental investigations of the dynamics of the same type of island grains in mazed-bicrystal thin films, using in-situ electron-microscopy. We focus in this talk on analyses of the simulation results designed to probe the magnitudes of the grain-boundary stiffnesses and mobilities underlying the rate of grain shrinkage derived in the simulations. In addition, we analyze the variations in these properties with grain-boundary inclination, and discuss the relationship between these anisotropies and the dynamic shape of the island grains. Comparison with experimental observations obtained by in-situ microscopy will also be presented.
