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Kyle L. Golenbiewski*, kyle@math.utk.edu, and **Tim P. Schulze**. *A Kinetic Monte Carlo model for grain boundary migration driven by curvature*. Preliminary report.

The mechanism and dynamics of grain boundary migration has gained considerable attention in the past decade. In this time, continuum models such as phase-field and level set models have become increasingly attractive in terms of their application to grain growth. Furthermore, significant progress has been made from an atomistic approach via molecular-dynamics (MD) models. While MD simulations have been shown to capture many important details of the microscopic dynamics of grain boundary migration, their limitations lend to their inability to accurately capture rates of shrinkage. We propose a Kinetic Monte Carlo (KMC) model that is shown not only to capture many of the same dynamical features, but that also accurately captures the timescale over which the process takes place. Comparisons with MD simulations are discussed, as well as the future goal of this project. (Received August 17, 2015)