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Domain Structure Universality in Coarsening BENJAMIN VOLLMAYR-LEE, Bucknell University, ANDREW RUTENBERG, Dalhousie University, SOHEI YASUDA, Bucknell University — Coarsening systems ubiquitously exhibit power law growth $L \sim t^{\alpha}$ with self-similiar domain morphology, and much progress has been made in mapping out universality classes of the growth exponent α. It has been commonly argued that these universality classes should apply as well to the scaled domain structure, but recent evidence has appeared to the contrary. In particular, surface tension anisotropy has been found numerically and by exact solutions in the dilute limit to modify the domain morphology and structure factor, while leaving growth exponents unchanged. Thus the universality classes of the domain morphology remains an open question. We present a conjecture that the morpology universality is a consequence of the asymptotic trajectories of the topological defects, and then map out the universality classes that follow. Our prediction, in the case of scalar, conserved order parameter coarsening, is that the domain structures depend on surface tension anisotropy and mobility asymmetry, but nothing more. To test this prediction we have conducted extensive simulations of coarsening with mobility asymmetry and have demonstrated its influence on the scaled domain structure.

Benjamin Vollmayr-Lee
Bucknell University

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