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Domain Structure Universality in the Asymmetric Cahn-Hilliard Equation BENJAMIN VOLLMAYR-LEE, Bucknell University, ANDREW RUTENBERG, Dalhousie University, SOHEI YASUDA, Bucknell University — The Cahn-Hilliard equation, which describes phase separation dynamics with a locally conserved order parameter, is symmetric under interchange of the two equilibrium phases. We consider variations of the Cahn-Hilliard equation in which this symmetry is broken, either by introducing a concentration-dependent asymmetric mobility, or by modifying the double-well potential. We then simulate these modified systems to determine the influence of asymmetry on the domain structure. This study is motivated by our conjecture that the asymptotic, late time domain structure is determined by the asymptotic dynamics of domain walls. Analysis of the domain wall dynamics, in turn, predicts that mobility asymmetry should affect the domain structure and correlations but that the potential well asymmetry should not. A comparison to the simulation results will be presented.

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