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Monte Carlo Studies of Phase Separation in Compressible 2-dim Ising Models S.J. MITCHELL, D.P. LANDAU, Center for Simulational Physics, University of Georgia — Using high resolution Monte Carlo simulations, we study time-dependent domain growth in compressible 2-dim ferromagnetic ($s = 1/2$) Ising models with continuous spin positions and spin-exchange moves [1]. Spins interact with slightly modified Lennard-Jones potentials, and we consider a model with no lattice mismatch and one with 4% mismatch. For comparison, we repeat calculations for the rigid Ising model [2]. For all models, large systems (512^2) and long times (10^6 MCS) are examined over multiple runs, and the growth exponent is measured in the asymptotic scaling regime. For the rigid model and the compressible model with no lattice mismatch, the growth exponent is consistent with the theoretically expected value of 1/3 [1] for Model B type growth. However, we find that non-zero lattice mismatch has a significant and unexpected effect on the growth behavior.

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Steven Mitchell
Center for Simulational Physics, University of Georgia

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