

Abstract Submitted
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Three-dimensional Potts systems with magnetic friction¹ LINJUN LI, MICHEL PLEIMLING, Virginia Tech — Using extensive Monte Carlo simulations we study the properties of the non-equilibrium phase transition encountered in driven three-dimensional Potts systems with magnetic friction. Our system consists of two three-dimensional blocks, coupled through boundary spins, that move along their boundaries with a constant relative velocity. Changing the number of states in the system from two (Ising case) to nine states, we find different scenarios for the surface behavior depending on whether the bulk transition is continuous or discontinuous. In order to fully assess the properties of this non-equilibrium phase transition, we vary systematically the strength of the coupling between the two blocks as well as the value of the relative velocity. For strong couplings between the blocks the phase transition is found to be strongly anisotropic.

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Michel Pleimling
Virginia Tech

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