

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Rare region effects at a non-equilibrium phase transition** MARK DICKISON, University of Missouri-Rolla, THOMAS VOJTA — We study the nonequilibrium phase transition in a contact process with extended quenched defects by means of Monte-Carlo simulations. We find that the spatial disorder correlations dramatically increase the effects of the impurities. As a result, the sharp phase transition is completely destroyed by smearing. This is caused by effects similar to but stronger than the usual Griffiths phenomena, viz., rare strongly coupled spatial regions can undergo the phase transition independently from the bulk system. We determine both the stationary density in the vicinity of the smeared transition and its time evolution, and we compare the simulation results to a recent theory based on extremal statistics.

Thomas Vojta  
University of Missouri-Rolla

Date submitted: 01 Dec 2004

Electronic form version 1.4