

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Random fields at an absorbing state transition HATEM BARGHATHI, THOMAS VOJTA, Department of Physics, Missouri University of Science and Technology, Rolla, MO 65409 — We investigate a nonequilibrium phase transition in the presence of disorder that locally breaks the symmetry between two equivalent absorbing states. Such “random-field” disorder is known to have dramatic effects on equilibrium phase transitions; in low dimensions it can completely destroy the phase transition. In contrast, we demonstrate that the absorbing state transition of the one-dimensional generalized contact process persists in the presence of random fields. However, the dynamics in the inactive phase becomes ultraslow. We illustrate our theory by means of large-scale Monte-Carlo simulations.

Hatem Barghathi
Dept of Physics, Missouri University of Science and Technology,
Rolla, MO 65409

Date submitted: 09 Nov 2011

Electronic form version 1.4