**Critical behavior and Griffiths effects in the disordered contact process** THOMAS VOJTA, MARK DICKISON, Department of Physics, University of Missouri-Rolla — We study the nonequilibrium phase transition in the one-dimensional contact process with quenched spatial disorder by means of large-scale Monte-Carlo simulations for times up to $10^9$ and system sizes up to $10^7$ sites. In agreement with recent predictions of an infinite-randomness fixed point, our simulations demonstrate activated (exponential) dynamical scaling at the critical point. The critical behavior turns out to be universal, even for weak disorder. However, the approach to this asymptotic behavior is extremely slow, with crossover times of the order of $10^4$ or larger. In the Griffiths region between the clean and the dirty critical points, we find power-law dynamical behavior with continuously varying exponents. We discuss the generality of our findings and relate them to a broader theory of rare region effects at phase transitions with quenched disorder.

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