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Title : Nonequilibrium Phase Transitions in Asymmetrically Coupled Directed Percolation Systems

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ABSTRACT : We investigate critical properties of nonequilibrium absorbing phase transitions in a coupled two-species particle system. The two species are coupled asymmetrically so that it may model epidemic spreading processes in the presence of reactive immunating agents. The model is studied on the one-dimensional lattice, small-world networks, and scale-free networks, and interesting critical and multicritical behaviors are presented. Multi-species generalization is also discussed.