Nonequilibrium phase transitions in a model of ecological and evolutionary dynamics[1] SKYE TACKKETT, Missouri University of Science and Technology, HATEM BARGHATHI, University of Vermont, THOMAS VOJTA, Missouri University of Science and Technology — We employ large-scale Monte-Carlo simulations to study the extinction transition in a model describing the ecological and evolutionary dynamics of biopopulations. In the case of a neutral, time-independent fitness landscape, the extinction transition falls into the well-known directed percolation universality class. Temporal disorder (representing, for example, climate fluctuations) drastically changes the transition and leads to an exotic infinite-noise critical point. It is characterized by anomalously large fluctuations of the population size and logarithmically slow dynamics.

Thomas Vojta
Missouri University of Science and Technology

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