Simulation of an epidemic model with vector transmission ADRI-
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DICKMAN, Universidade Federal de Minas Gerais — We study a lattice model for
vector-mediated transmission of a disease in a population consisting of two species,
A and B, which contract the disease from one another. Individuals of species A are
sedentary, while those of species B (the vector) diffuse in space. Examples of such
diseases are malaria, dengue fever, and Pierce's disease in vineyards. The model ex-
hibits a phase transition between an absorbing (infection free) phase and an active
one as parameters such as infection rates and vector density are varied. We study
the static and dynamic critical behavior of the model using initial spreading, initial
decay, and quasistationary simulations. Simulations are checked against mean-field
analysis. Although phase transitions to an absorbing state fall generically in the di-
rected percolation universality class, this appears not to be the case for the present
model.

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