STANFORD PROBABILITY SEMINAR

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Monday, 28 November 2005
4:15pm (Refreshments at 4pm in the 1st Floor Lounge)
Sequoia Hall, Room 200

A Reversible Growth Model on the Homogeneous Tree: Some Results and Open Questions

Abstract. A modified contact process on the homogeneous tree is considered. The modification is to the death rate: an occupied site becomes vacant at rate one if the number of occupied neighbors is at most one. This modification leads to a growth model that is reversible, off the empty set, provided that the initial set of occupied sites is connected. Reversibility admits tools for studying the survival properties of the system not available in a nonreversible situation. The main result is that there is exactly one phase transition and the value of the birth parameter at which the phase transition occurs is explicitly computed. In this talk, we demonstrate how reversibility is exploited to identify the exact location of the phase transition and discuss some directions for further investigation.