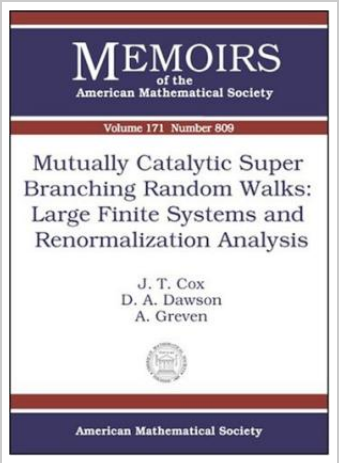

Mutually Catalytic Super Branching Random Walks: Large Finite Systems and Renormalization Analysis (Paperback)

By J. T. Cox, Donald Andrew Dawson, Andreas Greven

American Mathematical Society, United States, 2004. Paperback. Condition: New. Language: English . Brand New Book. We study features of the longtime behavior and the spatial continuum limit for the diffusion limit of the following particle model. Consider populations consisting of two types of particles located on sites labeled by a countable group. The populations of each of the types evolve as follows: each particle performs a random walk and dies or splits in two with probability $ frac $ and the branching rates of a particle of each type at a site x at time t is proportional to the size of the population at x at time t of the other type. The diffusion limit of small mass, large number of initial particles is a pair of two coupled countable collections of interacting diffusions, the mutually catalytic super branching random walk.Consider now increasing sequences of finite subsets of sites and define the corresponding finite versions of the process. We study the evolution of these large finite spatial systems in size-dependent time scales and compare them with the behavior of the infinite systems, which amounts to establishing the so-called finite system scheme. A dichotomy is known between transient and recurrent...

Reviews

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