PHASE TRANSITION FOR A SYSTEM OF ACTIVATED RANDOM WALKS

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Resumen

On the d-dimensional lattice, we consider a system with two types of particles (A and B), which is governed by the following rules. Particles of type A perform independent, continuous time simple random walks until they turn into B-particles, which happen at rate r. While at state B particles do not move at all, simply waiting to be 'awakened' by some walker of type A. More precisely, whenever two or more particles share a site they all turn into A-type immediately. In this talk we will comment on a recent work, proving that for any dimensions, this system gets adsorbed if the initial configuration has low enough density. We will give a brief overview of the proof, which shows that for such low densities the particles organize themselves into hierarchical cities of B-particles, reaching a stable configuration. This settles the conjectured phase transition for this model.

This talk is based in a joint work with Vladas Sidoravicius.