Speaker

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Seminar

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Title

Correlation functions in the Abelian Sandpile Model

Abstract

The Abelian Sandpile Model (ASM) is an example of so called self-organized criticality. Roughly speaking this statement means that ASM has two important properties. First, it is critical, that is the system may change unrestrictedly under a small perturbation. Second, it is self-organazed which means that starting from arbitrary initial state we obtain the same result after a while.

In this talk I am going to define ASM as a Markov chain and to demonstrate the self-organized critical nature of its stationary measure. The main goal of the talk is to get the height probabilities and correlation functions what turns out to be important in the light of conformal field theory. At the same time we will see the relations between ASM and some other models like spanning trees, dimmers and loop-erased random walk.

For better understanding of the talk it would be useful to be familiar with basic notions of Markov chains.