

The long-range sandpiles in the torus: mean behaviour and scaling limits

Leandro Chiarini

IMPA, TU Delft

Abstract:

In 1987 Bak et al. introduced the first sandpile model as an example of a model that displays a phenomenon called self-organized criticality. This model is a “nearest-neighbours diffusion process” with a discrete amount of particles. However, in 2009, Levine and Peres introduced the divisible sandpile as a continuous mass counterpart and made a conjecture about its scaling limits. Recently, Cipriani et al. confirmed this conjecture, which leads to the so-called Bilaplacian Field. In this work, we discuss the scaling limits of similar objects with a long-range diffusion, which results in a non-local dependence on the final distribution.