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## SEMINÁRIO DE ANÁLISE E EQUAÇÕES DIFERENCIAIS

Dia 2 de Fevereiro (quinta-feira), às 14h30, sala 6.2.33

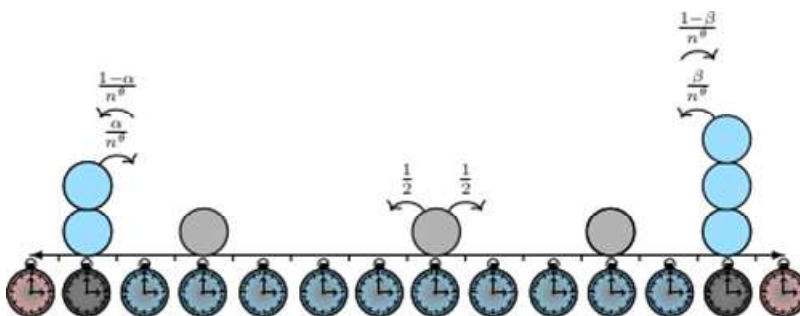
# Phase transition for the heat equation with boundary conditions

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**Resumo/Abstract:** In this talk I will present a toy model for the heat conduction, which consists of a stochastic dynamics in contact with stochastic reservoirs.

In this model, particles evolve on the set of sites  $\{1, 2, \dots, N - 1\}$  to which we call the bulk, according to the following dynamics. Each particle waits a random clock, which is exponentially distributed, and after a ring of the clock it jumps to one of its nearest neighbours with probability  $1/2$ . At the reservoirs, particles can enter or leave the system at a rate which is slower with respect to the rates in the bulk. The parameter that rules the boundary rates is  $\theta \in \mathbb{R}$ .



The main purpose of the talk is to analyse the macroscopic PDE's governing the space-time evolution of the density of particles for each regime of  $\theta$  and to discuss recent results for the case in which particles can give long jumps.

Joint work with C. Bernardin (U. Nice) and B. Oviedo (U. Nice).

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