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# Non-equilibrium fluctuations for the simple symmetric exclusion process with a slow bond

## Abstract

The simple symmetric exclusion process with a slow bond in one dimension is an interacting particle system that can be described as follows: particles perform one-dimensional independent simple random walks subject to
(i) two particles never occupy the same site at the same time;
(ii) the jump rate over any fixed edge is 1, except over the edge connecting 0 to 1, here the jump rate is $\alpha/n$, where $\alpha$ is a positive constant and $n$ is a parameter that will be send to infinity. In this talk I consider the case in which the above process starts out of equilibrium and I will discuss its fluctuations around its mean. It turns out that at large scales they can be described by a generalised Ornstein-Uhlenbeck process, which formally is given by a linear SPDE. This is joint work with Tertuliano Franco, Patrícia Gonçalves, Adriana Neumann and Mariana Tavares.