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TASEP on a Cycle and Bethe Ansatz

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Abstract

TASEP is a model describing the dynamics of a system of interacting particles. It is usually defined on the infinite integer lattice but here we are interested in the periodic cycle for the following reasons. 1) When the cycle is large enough, locally it looks like the infinite integer lattice. 2) The system size is finite, the TASEP dynamics is a finite-dimensional Markov process and one may diagonalize its infinitesimal operator to study its long-time behavior.

In this talk, we will introduce the model, present the idea of Bethe Ansatz and explain how the diagonalization can be made possible. A few comments on the asymptotic analysis will be mentioned as well. It is a joint work with Axel Saenz.