ICTS Seminar

Title : Driven tracers in narrow channels

Speaker : Julien Cividini, Weizmann Institute of Science, Israel

Date : Wednesday, February 1, 2017

Time : 11:00 AM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Steady state properties of a driven tracer moving in a narrow two dimensional (2D) channel of quiescent medium are investigated. In general, the tracer drives the system out of equilibrium, perturbs the density and pressure fields, and gives the bath particles a nonzero average velocity, creating a current in the channel. Three different complementary models are considered. We start by studying a one-dimensional SSEP with a tracer, for which the velocity of the tracer and the density profile can be obtained analytically. We then attempt to map the 1D SSEP to a more realistic model of hard-core particles in a channel. After comparing both systems, we move on to a two-dimensional SSEP. This gives us acces to the two-dimensional structure of the density field around the tracer. In the 2D SSEP we also measure the local pressure and compare it to the local equilibrium prediction.