

Students' Annual Webinar

Effect of initial conditions on current fluctuations in active particles

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We will discuss the effect of initial conditions on current fluctuations in interacting and non-interacting models of active particles in one dimension. The quantity of interest is the total number of particles passing into the half-infinite line up to time t . We will consider a lattice model of run and tumble particles (RTP) with hard-core interactions for the interacting case. We will focus on quenched uniform initial conditions for both the density and magnetisation fields and derive expressions for the cumulants of the density current using macroscopic fluctuation theory (MFT). For the non-interacting case, we will use a continuum model of RTP and analyse the problem exactly using single-particle propagators. Here, we will focus on the effect of annealed and quenched initial conditions in the current fluctuations.

Friday, Mar 3rd 2023

11:00 AM

Seminar Hall, TIFR-H