

27th Rencontres ITZYKSON : Fluctuations far from Equilibrium



Contribution ID: 3

Type: **not specified**

Olivier BÉNICHOU - Generalized density profiles in single-file systems

Thursday, June 1, 2023 10:15 AM (45 minutes)

Single-file transport, where particles diffuse in narrow channels while not overtaking each other, is a fundamental model for the tracer subdiffusion observed in confined systems, such as zeolites or carbon nanotubes. This anomalous behavior originates from strong bath-tracer correlations in 1D, which have however remained elusive, because they involve an infinite hierarchy of equations.

For the Symmetric Exclusion Process, a paradigmatic model of single-file diffusion, this hierarchy of equations can in fact be broken, and the bath-tracer correlations satisfy a closed equation, which can be solved. I will suggest that this equation appears as a novel tool for interacting particle systems, since it also applies to out-of-equilibrium situations, other observables and other representative single-file systems.

Presenter: BÉNICHOU, Olivier (Sorbonne Université)