

Fluctuations and large deviations in non-equilibrium systems

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The exact solutions of simple models allow one to obtain the large deviation functions of density profiles and of the current through simple systems in contact with two reservoirs at different densities.

These simple models show that non-equilibrium systems have a number of properties which contrast with equilibrium systems: phase transitions in one dimension,

non local free energy functional, non-Gaussian density fluctuations. They also allow to test more recent approaches such as the macroscopic fluctuation theory, which can be applied to more general diffusive systems.

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