

4. Thermodynamics of trajectories of the 1D-Ising model

Ernesto S. Loscar and J.P. Garrahan

Universidad Nacional de La Plata, Argentina

We present a numerical study of the one-dimensional Ising model with Glauber dynamics where we apply the large deviations formalism [1] to study the properties of ensembles of trajectories. We confirm the dynamical ferromagnetic transition which has been theoretically predicted recently at zero magnetic field [2]. The transition can be understood with finite size scaling theory taking the observational time as the size of the system. In this way we have measured the exponents of the transition which are compared with those belonging to the 2D-Ising universality class. Also, we have extended the phase diagram of [2] by considering the case of a non-zero external magnetic field. We discuss general implications of our results for the relation between thermodynamic and dynamic phase structure.

[1] J. P. Garrahan, R. L. Jack, V. Lecomte, E. Pitard, K. van Duijvendijk, and F. van Wijland, *Phys. Rev. Lett.* 98, 195702 (2007).

[2] Robert L Jack and Peter Sollich, *Prog. Theor. Phys. Supp.* 184, 304 (2010)