

Anomalous scaling of dynamical large deviations

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I will present recent work with Daniel Nickelsen (NITheP Stellenbosch) on the fluctuations of time-integrated observables of Markov processes characterized by a large deviation principle in which the speed grows sub-linearly with the integration time. I will show with a specific example that such an 'anomalous' scaling of large deviations can arise in Markov processes as simple as the Langevin equation, which challenges previous works and assumptions about its relation with long-range correlations. I will describe the mechanism underlying this scaling using path integrals and will discuss many open questions that it raises in connection with nonequilibrium processes and methods (analytical and numerical) for calculating large deviations.

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