

Large deviations in resetting Brownian motions

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After a brief introduction to large deviations, I will focus on one dimensional resetting Brownian motions, first on a single particle and then on a gas of many particles. I will show that for a single particle, while the position distribution of a resetting Brownian motion approaches a stationary form at long times, the relaxation to this stationary state is unusual: it is described by a large deviation function that undergoes a second order dynamical phase transition. The same rate function also shows up in the distribution of the maximum up to time t of a set of independent resetting Brownian motions with a distributed initial positions. I will discuss the difference between the 'quenched' and 'annealed' initial positions and how they affect the statistics of the maximum.