Brownian fluctuations of a non-confining potential

Pedro B. Melo [(a)], Pedro V. Paraguassú [(a)], Eduardo S. Nascimento [(a)], Welles A. M. Morgado [(a)]
[(a)] Pontifícia Universidade Católica do Rio de Janeiro, Brazil

In stochastic regimes, the analysis of quantities such as the potential energy of a mesoscopic system such as a Brownian particle may lead to interesting behavior. By means of path integral formalism, we study the potential energy fluctuations of a brownian particle under the action of a potential that has two regimes, a confining regime and a non-confining regime. We compare the fluctuations of both potentials and characterize the differences and similarities between them.