Molecular Dynamics Study of Brownian Motion

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Colloidal suspensions is described the apparent random motion and mutually independent degrees of freedom. For this reasons, it is important to investigate the dynamics of particles in diffusion limitation. If the colloidal system is dilute enough, the role of hydrodynamic interactions is able to neglect. The motion of interacting particles is simulated using Brownian dynamics. We show behavior of colloids involved a Langevin Dynamics approach in the canonical or NVT (constant number of particles, N, constant volume, V, and constant temperature, T) ensemble. And, we used delta-correlated stationary Gaussian process with zero-mean due to solve the random function. Motion of colloids is characterized by mean-square particle displacement (MSD) and the long-time diffusion coefficient (D).