

Entropic forces

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The overlap of excluded volumes around dissolved colloidal particles induce effective interactions between them. Since such effective interactions arise even for systems consisting of particles which act as purely hard bodies, they lead to the so-called entropic forces between them. With sufficient care such colloidal suspensions can be prepared experimentally. Density functional theory allows one to compute entropic forces accurately which can be compared with simulation or experimental data. Near walls entropic forces lead to structure formation of large colloidal particles triggered by excluded small particles. This structure formation is investigated near planar walls, near curved surfaces, at corners, and in wedges. Anisotropic colloidal particles experience in addition entropic torques which may play an important role for key-lock mechanisms occurring in biological systems.