

Aspects of colloids at interfaces: 2d-gravity, anomalous diffusion and Casimir effect

Prof. Dr. Martin Oettel (Universität Tübingen)

Micrometer-sized particles trapped at fluid interfaces may serve as model systems for different physical phenomena. Effective capillary interactions are of two-dimensional, gravitational type but with a tunable cutoff and structure formation involving many particles crucially depends on this cutoff. The coupling of restricted particle motion in 2D and 3D hydrodynamic flow in the fluid phases leads to genuinely anomalous diffusion. Finally, thermal fluctuations of the interface may lead to a new class of Casimir interactions between pairs of particles.