

EINLADUNG

zum Vortrag von

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über

Mechanisms of dynamic arrest at low packing fraction: Cluster Phases, Gels and Yukawa Glasses in charged colloid-polymer mixtures

am

Dienstag, dem 11. Oktober 2005, um 17.30 Uhr
im Großen Hörsaal des Instituts für Experimentalphysik der Universität Wien
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

Abstract:

The mechanisms of formation of disordered arrested states at low packing fraction are receiving a significant attention in the soft-matter community. Gelation, glass formation, phase separation followed by vitrification, are some of the proposed candidates for explaining the slowing-down of the dynamics over several order of magnitude. In the talk I will discuss possible routes to kinetic arrest in charged colloid-polymer mixtures, presenting results based on a numerical study of a simple interaction potential composed of a short-range attraction due to the depletion interactions complemented by a screened Coulomb repulsion. Varying the parameters in the model potential, and the competition between attractive and repulsive part, the system shows an equilibrium cluster phase or an arrested state. The aggregation between colloidal particles produces clusters whose shape changes from spherical to almost one-dimensional. Dynamic arrested states in these systems can be generated or by approaching a glass transition driven by the cluster-cluster repulsive potential or by gelation induced by the percolation of the clusters. Recent experimental results are also reviewed.