

# Non-equilibrium dynamics of colloidal films under shear

Prof. Sabine Klapp

Colloidal films play an important role in the design of new nanomaterials and in the area of nanorheology. Moreover, they are ideal model systems to study the behavior of soft-condensed matter under spatial confinement. In the present talk I discuss recent results concerning the non-equilibrium dynamics of colloidal films subject to shear flow. We have studied such films using particle-based computer simulations and simple analytical models. Our results reveal a rich non-equilibrium behaviour including transitions between different dynamical states (characterized by different microscopic configurations), instabilities and hysteresis. We also discuss how one can "select" between different states by a feedback control scheme involving the average shear stress.