

A mean-field limit for sedimentation of particles with inertia

Abstract: In this talk we investigate systems of particles immersed in a fluid and subject to gravitation. The particles interact with each other through the fluid in a very implicit way. In the mean-field limit and for asymptotically vanishing inertia, a mesoscopic description in form of the transport-Stokes equation, can be derived. The result relies on the approximation of the dynamics by a much more explicit system in combination with a new general mean-field result in terms of p -Wasserstein distances, and the coercivity of the particle forces with respect to the particle velocities. This is based on joint work with Richard Höfer (Regensburg).