

Coarse-grained colloidal dynamics: confinement, free energy and information

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Within this seminar I describe three scenarios in which, by means of coarse-graining, insight into the dynamics of diverse systems can be obtained. First, I will introduce simple analytical models that capture the stationary flux of diverse systems such as electrolytes and colloids across porous media. Second, I will show that these model can be used to extract the equilibrium free energy profile and the (inhomogeneous) transport coefficient from non-equilibrium steady state simulations. Finally, I will show that the non-equilibrium patterns formed by spinning disks at fluid interfaces are well captured by the entropy associated to the nearest-neighbor probability distribution.

