



"Soft-Matter Seminar"

Transport of colloids in a two-component solution driven by a thermal gradient

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Abstract

In this seminar, I will report an experimental and theoretical study on a thermally induced transport of colloids in a dilute polymer solution. A local heating by a focused laser drives the colloids towards the hot region, resulting in the trapping of the colloids irrespective of their own thermophoretic properties in the absence of polymers. Experimental measurements revealed a massive amplification of the trapped colloid density with the polymer concentration. We attribute its origin as a migration of colloids driven by a non-uniform polymer distribution which is sustained by the polymer's thermophoresis. In the seminar, I will first revisit a hydrodynamic theory of diffusiophoresis, starting from a general argument on a particle transport in a viscous fluid. I will then show that our experimental findings are quantitatively explained by those hydrodynamic analysis.

Montag, den 26.04.2010
16:00 Uhr
Raum PH 3343

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