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Brownian Fluctuation in Shear Flow

The movement of a Brownian particle can be explained as an interaction of stochastic and hydrodynamic drag forces. Because of their long history, the properties of the movement in thermal equilibrium are understood very well. But the Brownian movement in a driven system is still not investigated so precisely. Our approach is to study the Brownian movement in shear flow. Theory and computational simulations show that the fluctuations in the gradient and in the flow directions are correlated and in principle it should be possible to reduce the amount of the non equilibrium stochastic force. In an experimental setup optical tweezers are used to fix a $2\mu\text{m}$ fluorescent particle in a two dimensional Hagen Poiseuille flow. Our data show clearly an influence of the shear flow on the fluctuation dynamics but the resolution is still too low to quantify the amount of non equilibrium fluctuations.

Dienstag, 09. Januar 2007, 14 Uhr c.t.
Gebäude E2 6 (38), Seminarraum 4.18

Alle Interessenten sind herzlich eingeladen.

Die Sprecher des Graduiertenkollegs
Manfred Lücke und Ludger Santen

**Strukturbildung und Transport
in komplexen Systemen**