

Dynamical fluctuations of a hard sphere gas

Thierry Bodineau

Since the seminal work of Lanford, it is known that the hard sphere gas density converges, in the low density limit, towards a solution of the Boltzmann equation. We are going to review several results showing that the fluctuations of the gas around the solution of the Boltzmann equation are described by the fluctuating Boltzmann equation for short times. At equilibrium, this result can be extended to long times. In this way, the fluctuating Fourier and Stokes equations can be also derived in a hydrodynamic scaling. This talk is based on joint works with I. Gallagher, L. Saint-Raymond, S. Simonella.

