DYNAMICS OF DILUTE GASES AT EQUILIBRIUM: FROM THE ATOMISTIC DESCRIPTION TO FLUCTUATING HYDRODYNAMICS

ISABELLE GALLAGHER

We consider the low density limit of a deterministic system of particles. Lanford's theorem in 1974 states that the empirical distribution converges in law to the solution to the Boltzmann equation, for short times. Recently, the fluctuation field has been shown to converge to a Gaussian process, and this convergence holds for arbitrarily long times if the gas is at equilibrium. In this talk we will explain the main ideas of the proof, and show how linear fluctuating hydrodynamics can be derived from this model at equilibrium.

This is a joint work with Thierry Bodineau, Laure Saint-Raymond and Sergio Simonella.