

Abstract: "Diffusive limits for stochastic kinetic equations"

In this talk, we consider kinetic equations containing random terms. The kinetic models contain a small parameter and it is well known that, after scaling, when this parameter goes to zero the limit problem is a diffusion equation in the PDE sense, i.e. a parabolic equation of second order. A smooth noise is added, accounting for external perturbation. It scales also with the small parameter. It is expected that the limit equation is then a stochastic parabolic equation where the noise is in Stratonovitch form.

Our aim is to justify in this way several SPDEs commonly used.

We first treat linear equations with multiplicative noise. Then show how to extend the methods to nonlinear equations or to the more physical case of a random forcing term.

The results have been obtained jointly with S. De Moor and J. Vovelle.