Seminar of Probability and Stochastic Process

Tuesday, 28th June, from 14h15
MA A3 31, EPFL, Ecublens

Dr. Pierre Monmarché
Université de Neuchâtel

Mean Field Hamiltonian particles and the Vlasov-Fokker-Planck equation.

Abstract:

Consider N Hamiltonian particles in an external potential with a mean field interaction (i.e. each particle is equally influenced by all the others at once). As N go to infinity, two given particles are less and less correlated (this is the propagation of chaos phenomenon), and the density probability of a given particle converges to the solution of a non-linear PDE, the Vlasov-Fokker-Planck (VFP) equation.

When the external potential is convex, we prove the rate of convergence to equilibrium in large time for the whole cloud of particles does not, in fact, depend on N, which yields: first, a rate of convergence for the VFP equation, and second, uniform in time propagation of chaos estimates.

Date of last change: Thu, 2 May 2016 10:08:37, by Carlo Ciccarella