Pierre-Emmanuel Jabin

(Université du Maryland)

Propagation of chaos for large systems of interacting particles

Jeudi 06 Décembre 2018 17h00-18h00
Université Paris Diderot,
Bâtiment Sophie Germain,
salle 2015 (2e étage)

This talk will introduce and explain some classical and more recent results on the mean field limit and propagation of chaos for systems of many particles, leading to Vlasov, McKean-Vlasov or macroscopic equations such as the vorticity formulation for the 2d Euler or Navier-Stokes systems.

Large systems of interacting particles are very complex but also interplay with a large set of applications, from cosmology to the biosciences. Particles can actually represent a wide range of objects: galaxies in some cosmological models, ions or electrons in plasmas, bacteria or cells in biosciences, «agents» in economics or social sciences.

A classical way of reducing the complexity of those large systems is through the derivation of appropriate limit equations, in particular with the so-called mean field limits.