Abstract: "Master equation for mean-field games"

Mean field games are part of large population stochastic control. The point is to describe asymptotic Nash equilibria within a large (asymptotically infinite) population of controlled players interacting one with another in a mean-field way. The purpose of the talk is to make rigorous the notion of master equation. The master equation is a PDE built on the space of measures. It encapsulates all the necessary information to describe an equilibrium. Part of talk will be dedicated to the construction of a solution, based on the analysis of the flow of a suitable forward-backward SDE system. To conclude, I will show how to use the master equation to justify the passage from a finite population to an infinite one.