

Large time asymptotics for evolution equations with mean field couplings

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Abstract : This lecture is devoted to the characterization of convergence rates in some simple equations with mean field nonlinear couplings, like the Keller-Segel and Nernst-Planck systems, Cucker-Smale type models, and the Vlasov-Poisson-Fokker-Planck equation. The key point is the use of Lyapunov functionals adapted to the nonlinear version of the model to produce a functional framework adapted to the asymptotic regime and the corresponding spectral analysis.