Title: Infinite dimensional McKean-Vlasov processes. Application to fluid dynamics models

Abstract: I will discuss a natural generalization of McKean-Vlasov (McV) processes to infinite dimensional state spaces where the classical global Lipschitz condition may not hold in general. As an application, I will introduced an idealized Atmosphere-Ocean model that rests upon Hasselmann's paradigm for stochastic climate models where stochasticity is incorporated into the fast moving atmospheric component of an idealized coupled model by means of stochastic Lie transport, while the slow moving ocean model remains deterministic. In the MKV version of the model, the drift velocity of the stochastic vector field is replaced by its expected value. This is based on paper [1]. [1] D. Crisan, D. D. Holm, P. Korn, An Implementation of Hasselmann's Paradigm for Stochastic Climate Modelling based on Stochastic Lie Transport.