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McKean-Vlasov equations driven by fractional Brownian motion. Preliminary report.

We shall discuss a class of abstract infinite dimensional McKean-Vlasov stochastic evolution equations driven by a fractional Brownian motion. Such equations arise naturally in the mathematical modeling of nonlinear diffusions and systems of interacting particles. The work presented extends and generalizes recent work by Anh & Greksch, Ahmed, and others.

Results governing the existence, uniqueness, and continuous dependence of mild solutions, as well as various convergence results, will be discussed. Examples of initial-boundary value problems and stochastic partial differential equations will be provided to illustrate the applicability of the abstract theory to concrete situations. (Received July 15, 2007)