

Mathematical Methods for Ecology and Industrial Management



Seminar

Tuesday, November 10, 2015, 12h00
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Duality for Particle Gibbs samplers

Particle Markov chain Monte Carlo models are a class of Monte Carlo models that developed recently and has spread immediately among practitioners because they allow to solve simulation and filtering problems for the trajectories of highly non linear stochastic models with possibly unknown parameters. This intrinsic trajectorial feature of PMCMC models connect them to the project “Mathematical Methods for Ecology and Industrial Management” aiming at determining the inputs for a given system in order to make the outputs follow some desired trajectory -it should allow to take into consideration various problems (Bayesian estimation of unknown parameters, simulation of the distribution of trajectories knowing noisy observations...). The talk will survey PMCMC models, and especially Particle Gibbs samplers, presenting recent results on the combinatorial structure of the models, their convergence properties, their use for trajectorial problems and a new duality property. Based on joint work with P. del Moral and R. Kohn (Annales Henri Poincaré - Probability, to appear).