

Séminaire de Probabilités et Statistique

Mardi 03 Décembre à 14h00

Laboratoire Dieudonné
Salle de conférence - LJAD

Sylvain Le Corff

Telecom Sud Paris

Pseudo Marginal Sequential Monte Carlo algorithms for general state spaces

This talk considers the problem of estimating posterior distributions in general state space models, i.e. in missing data models where the latent state is assumed to be a Markov chain. It sets the focus on situations where the transition density of the hidden Markov chain or the conditional likelihood of the observations given the latent state cannot be evaluated pointwise. The consistency and asymptotic normality of a pseudo marginal online algorithm to estimate smoothed expectations of additive functionals when these quantities are replaced by unbiased estimators are established. A recursive maximum likelihood estimation procedure is also introduced by combining this online algorithm with an estimation of the gradient of the filtering distributions, also known as the tangent filters, when the model is driven by unknown parameters. The performance of this estimator is assessed in the case of a partially observed stochastic differential equations.