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Evaluation of spatial Bayesian models – two computational methods. (English) Zbl 0847.62020

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Summary: Integrating a posterior function with respect to its parameters is required to compare the goodness-of-fit among Bayesian models which may have distinct priors or likelihoods. This paper is concerned with two integration methods for very high dimensional functions, using a Markovian Monte Carlo simulation or a Gaussian approximation. Numerical applications include analyses of spatial data in epidemiology and seismology.

MSC:

62F15 Bayesian inference
65C99 Probabilistic methods, stochastic differential equations
62H11 Directional data; spatial statistics
65D10 Numerical smoothing, curve fitting
65C05 Monte Carlo methods
62M30 Inference from spatial processes

Keywords:

ABIC; B-spline; Gibbs distribution; normalizing constants; spatial heterogeneity; hyperparameters; Metropolis procedure; penalized log-likelihood; point processes; potential function; thinning operation; likelihoods; integration methods; high dimensional functions; Markovian Monte Carlo simulation; Gaussian approximation; epidemiology; seismology

Full Text: DOI

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