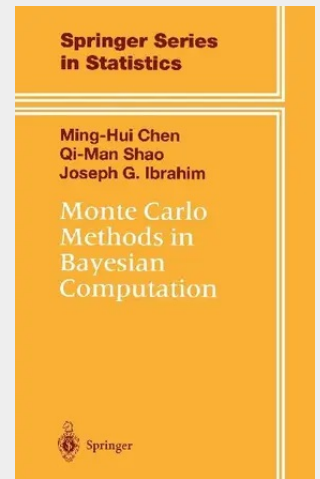


## Monte Carlo Methods in Bayesian Computation

Sampling from the posterior distribution and computing posterior quantities of interest using Markov chain Monte Carlo (MCMC) samples are two major challenges involved in advanced Bayesian computation. This book examines each of these issues in detail and focuses heavily on computing various posterior quantities of interest from a given MCMC sample. Several topics are addressed, including techniques for MCMC sampling, Monte Carlo (MC) methods for estimation of posterior summaries, improving simulation accuracy, marginal posterior density estimation, estimation of normalizing constants, constrained parameter problems, Highest Posterior Density (HPD) interval calculations, computation of posterior modes, and posterior computations for proportional hazards models and Dirichlet process models. Also extensive discussion is given for computations involving model comparisons, including both nested and nonnested models. Marginal likelihood methods, ratios of normalizing constants, Bayes factors, the Savage-Dickey density ratio, Stochastic Search Variable Selection (SSVS), Bayesian Model Averaging (BMA), the reverse jump algorithm, and model adequacy using predictive and latent residual approaches are also discussed. The book presents an equal mixture of theory and real applications.

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