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Parallelization of Single Chain MCMC with Applications in Spatial Statistics

Markov Chain Monte Carlo methods are a popular way to sample from complex distributions. Parallel computing is often used to run multiple chains to get samples faster. However, in spatial statistics, we occasionally have chains with long burn-in and poor mixing, so parallelizing a single chain might be better. When there are a large number of dependent parameters, this is non-trivial. We will explore possible ways of using a message passing interface (MPI) framework to do this parallelization.