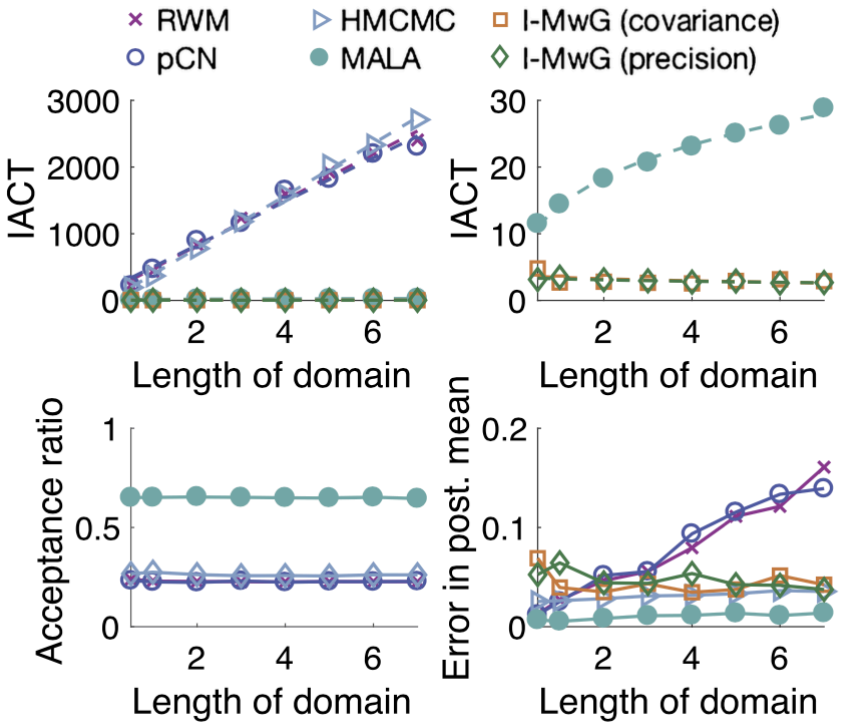
NUS National University of Singapore | Department of Mathematics
Faculty of Science

Research Highlight: Monte Carlo algorithm for large spatial models

Work of Assistant Professor TONG Xin

In this work, we investigate how to do Markov Chain Monte Carlo (MCMC) on high dimensional distributions from large spatial models. While classical methods like Metropolis-Hasting will degenerate, they can be fixed by integration with Gibbs sampling procedures. We investigate the theoretical convergence rate of such MCMC in linear inverse problem settings and demonstrate that they can also be applied to nonlinear models.



References:

M. Morzfeld, X. T. Tong, Y. Marzouk. Localization for MCMC: sampling high-dimensional posterior distributions with local structure, J. Comp. Physics, 2019, Vol 380, 1-28