QUAN ZHOU, Texas A&M University
Mixing of local Metropolis-Hastings algorithms for variable selection

Yang et al. (2016) proved that the symmetric random walk Metropolis-Hastings algorithm for Bayesian variable selection is rapidly mixing under mild high-dimensional assumptions. In this work, we introduce a novel Metropolis-Hastings algorithm, which still proposes new states via add-delete-swap moves but has a much faster mixing time independent of the number of covariates. The key idea is to use a locally informed proposal scheme with bounded weights. Motivated by the theoretical analysis of our algorithm, we further propose a method called "two-stage drift condition" for studying convergence rates of Markov chains on general state spaces. Joint work with J. Yang, D. Vats, G. Roberts and J. Rosenthal.