

# Efficiency Bounds and Concentration Inequalities for Adaptive Samplers

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Markov chain Monte Carlo (MCMC) is a ubiquitous tool for estimating integrals over complicated probability distributions. In practice, the performance of MCMC algorithms depends heavily on a large number of tuning parameters that can be difficult to select. This problem is sometimes solved by using 'adaptive' MCMC methods to learn parameters on the fly. Although these methods are popular, very little is known about the properties of estimates that they produce. In this talk, I present new finite-time error bounds and concentration inequalities for a popular class of adaptive algorithms, the equi-energy (EE) sampler. These ideas are also used to provide the first proofs that the EE sampler can be more efficient than its non-adaptive competitors.

**Thursday  
January 30th,  
2014  
at 3:30pm**

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**Sidney Smith  
Hall, Room  
1074**

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***Refreshments  
will be served  
at 3:15pm***