

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
BERKELEY-STANFORD JOINT COLLOQUIUM

4:00 p.m., Tuesday, Apr 12, 2005
Room 60, Evans Hall, Berkeley

Art B. Owen

Department of Statistics
Stanford University

Quasi-Monte Carlo for Markov Chain Monte Carlo

Abstract:

There has been considerable progress recently in developing improvements to Monte Carlo methods. Quasi-Monte Carlo (QMC) methods improve MC accuracy by using a more balanced sampling. Markov chain Monte Carlo (MCMC) widens the applicability of MC to problems where we cannot sample IID from the desired distribution. The published intersection between these two methods is conspicuously small. We show that some but not all QMC points give rise to consistent estimates in Metropolis-Hastings algorithms, including the Gibbs sampler. The suitable points are completely uniformly distributed (CUD). In some numerical examples, variance reduction factors seen range from just over 2 to just over 240.

This is joint work with Seth D. Tribble