

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, February 29, 2000
Sequoia Hall Rm. 200
(Cookies at 3:45 p.m. in 1st Floor Lounge)

Christiane Lemieux
Department of Statistics
Stanford University

Variance Reduction via Lattice Rules

Quasi-Monte Carlo methods are designed to improve upon the Monte Carlo method for multidimensional numerical integration by replacing the i.i.d. sample by a more regularly distributed point set. Lattice rules are one family of quasi-Monte Carlo methods, proposed by Korobov in 1959. In this talk, we study how randomized lattice rules can be used to construct efficient estimators for problems where simulation is typically used. We are mainly interested in studying the variance of these estimators, and in proposing selection criteria for lattice rules that pay attention to the low-dimensional structure of the lattice.

Joint work with Pierre L'Ecuyer, Departement IRO, Universite de Montreal, (Computer Science and Operations Research Department)