

## **Economics Seminar, Indian Statistical Institute, New Delhi.**

**SPEAKER:** Michael Carter, Visiting Faculty, ISI Delhi

**TITLE:** Quasi Monte Carlo simulation in finance

**TIME:** 2:30-4:00 P.M.

**DAY & DATE:** Tuesday, 17<sup>th</sup> November 2009

**PLACE:** Seminar Room 2, New Building

### **Abstract:**

Classical Monte Carlo simulation starts with pseudo-random sequences of numbers generated by computer. Recently, low discrepancy or quasi-random sequences have been proposed as a substitute for pseudo-random sequences. Called quasi-Monte Carlo simulation, it has been found to give superior performance in many cases, especially in financial derivative valuation.

The seminar will outline the number-theoretic basis of quasi-random sequences, and then explain the construction of one particular sequence, the Sobol sequence, which appears to perform especially well in financial applications. We will present various criteria for evaluating different sequences. These will show that the performance of a Sobol sequence depends on the choice of initial values - we will discuss some criteria for choosing these values. We will conclude by comparing pseudo-random and quasi-random simulation as applied to valuation of an Asian option. The seminar is self-contained - no background in finance will be assumed.

The seminar presentation will highlight the conceptual issues raised in the accompanying paper "A toolbox for quasi-random simulation" – it will not discuss details of implementation.

<http://www.isid.ac.in/~pu/seminar.html>