



**The Hong Kong Polytechnic University
Department of Applied Mathematics**

**Seminar
On**

**High-dimensional challenges for
computational mathematics**

by

**Prof. Ian H. Sloan
The Hong Kong Polytechnic University
University of New South Wales**

Abstract

Richard Bellmann coined the phrase "the curse of dimensionality" to describe the extraordinarily rapid increase in the difficulty of most problems as the number of variables increases. A typical problem is numerical multiple integration. It is clear that the cost of every integration formula of product type rises exponentially with the number of dimensions. Nevertheless, problems with hundreds or even thousands of variables do arise, and are now being tackled successfully. In this talk I will touch briefly on recent advances in understanding and constructing high dimensional integration rules, but much of the focus will be on applications, in diverse fields such as mathematical finance, linear models in statistics, and flow through porous media. A general theme is that high-dimensional problems present an enduring challenge for numerical analysis.

Date : 10 October, 2008 (Friday)
Time : 3:00 – 4:00 p.m.
Venue : Departmenal Conference Room HJ610
The Hong Kong Polytechnic University

***** ALL ARE WELCOME *****