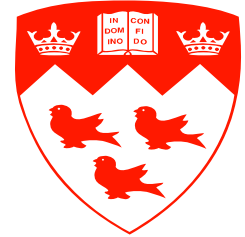


# Applied Mathematics



## McGill Applied Mathematics Seminar Series

Monday 22 September 2003

Dr Markus Riedle  
Humboldt University, Berlin

**Title:** “Affine stochastic differential equations  
with finite and infinite delay”

**Time:** 2:35 pm      **Room:** Burnside 1205

*Coffee and refreshments will be served after the seminar*

**Abstract:** Stochastic differential equations with finite delay have been intensively studied in the last years and fundamental results on the behaviour of their solutions were derived. But albeit deterministic equations with infinite delay are often encountered in applications, e.g. viscoelasticity and population dynamics, only a few work has so far been devoted to stochastic differential equations with infinite delay.

In this talk we introduce affine stochastic differential equations with both finite and infinite delay. After we have explained some differences between the solutions of the underlying deterministic differential equations with finite and infinite delay we present consequences of these differences for stochastic equations with infinite delay.

Treating equations with infinite delay often requires more sophisticated methods and techniques as the finite delay case. But on the other hand there exists a subclass of equations with infinite delay which can be reduced to ordinary differential equations without delay. We consider in detail the stochastic equations in this subclass. Moreover we establish that various linear hereditary models can be described by equations in this subclass.



The shower problem