

For favour of posting

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Seminar

Professor David R. McDonald

Department of Mathematics
University of Ottawa
CANADA

will give a talk

entitled

**RARE EVENTS IN A POLLING SYSTEM:
ZIGZAGS & SPIRALS**

Abstract

We consider a model there is only one server that moves between two stations. Jobs arrive at the upstream station according to a Poisson process with rate λ . They are served sequentially at rate μ_1 when the server is present) and then join the queue at the downstream station where they are served at rate μ_2 (when the server is present). Upon service at the downstream station jobs leave the system. The server works at one station until that station's queue is empty and then moves to the other station and so on. The system is stable if $\lambda / \mu_1 + \lambda / \mu_2 < 1$ but one would like to know the probability the downstream station builds up to a high level ℓ and also by which path. We show the path of such a large deviation from the origin zigzags back and forth as the server alternates between emptying the two stations but in a losing battle. Each time the server returns to a station it is longer than before! To analyze the system, we consider an approximate time reversal that starts at the rare event. We can also give the asymptotics of the probability of this rare event as $\ell \rightarrow \infty$.

on

Wednesday, August 31, 2011

2:00 p.m. – 3:00 p.m.

at

**Room 524, Meng Wah Complex
(behind the Chong Yuet Ming Amenities Centre)**

Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 2859 2466 for parking arrangement.

All interested are welcome