DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

<u>Seminar</u>

Professor Anyue CHEN

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will give a talk

entitled

ABSORBING AND ERGODIC PROPERTIES OF THE GENERAL KOLMOGOROV PROCESSES

<u>Abstract</u>

In this talk, I'll address the general Kolmogorov processes with finitely many instantaneous states which are generalization of the models first raised by Kolmogorov. For such models, significantly different from stable cases, there exists a challenging question regarding existence and uniqueness we need to answer before investigating the properties of the corresponding processes. We therefore first give an elegant existence criterion which is very easy to be checked. We then show that there always exists only one honest Kolmogorov process under the existence condition. We then turn to consider two different types of Kolmogorov processes: the absorbing one and the non-absorbing one. For the former, we focus on discussing the extinction behavior. We show that the extinction probability is always one and the closed form for the mean extinction times is obtained. For the latter, we concentrate on discussing ergodic properties. We show that the non-absorbing Kolmogorov process is always recurrent and an easy checking necessary and sufficient condition regarding positive recurrence is obtained. We then provide a closed form for the equilibrium distribution when the positive recurrence conditions are satisfied. The important properties regarding symmetry and reversibility for Kolmogorov processes are also tackled and well answered. A couple of examples are provided to illustrate our conclusions.

on

Friday, April 17, 2015

(Refreshments will be served from 2:15 p.m. <u>outside Room 301 Run Run Shaw Building</u>)

2:30 p.m. – 3:30 p.m.

at

Room 301, Run Run Shaw Building

<u>Visitors Please Note</u> that the University has limited parking space. If you are driving please call the Department at 3917 2466 for parking arrangement.

All interested are welcome