For favour of posting

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Departmental Seminar


# Dr. Weichi WU

Department of Mathematics and Institute of Statistics
Ruhr University Bochum
Germany


will give a talk

entitled

# CHANGE POINT ANALYSIS IN NON-STATIONARY PROCESSES - A MASS EXCESS APPROACH


### Abstract

This paper considers the problem of testing if a sequence of means $(\mu_t)_{t=1,\ldots,n}$ of a non-stationary time series $(X_t)_{t=1,\ldots,n}$ is stable in the sense that the difference of the means $\mu_1$ and $\mu_t$ between the initial time $t = 1$ and any other time is smaller than a given threshold, that is $|\mu_1 - \mu_t| \leq c$ for all $t = 1, \ldots, n$. A test for hypotheses of this type is developed using a bias corrected monotone rearranged local estimator and asymptotic normality of the corresponding test statistic is established. As the asymptotic variance depends on the location of the critical roots of the equation $|\mu_1 - \mu_t| = c$ a new bootstrap procedure is proposed to obtain critical values and its consistency is established. As a consequence we are able to quantitatively describe relevant deviations of a non-stationary sequence from its initial value. The results are illustrated by means of a simulation study and by analyzing data examples.


on

**Thursday, March 8, 2018**

***(Refreshments will be served from 3:45 p.m. outside Room 301 Run Run Shaw Building)***

**4:00 p.m. – 5:00 p.m.**

at

**Room 301, Run Run Shaw Building**

**Visitors Please Note 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