SPECIAL STATISTICS SEMINAR
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Testing for Parameter Changes in Stationary Time Series

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Since its introduction in the 1950s, Change-Point Analysis has become an important tool with which one can investigate the structural behaviour of certain stochastic processes.

In this talk, we derive limit theorems for a time series $\{X_t\}$ depending on a (J-dimensional) parameter vector θ for the hypothesis of no change. While in the literature a general parameter case is missing, we present a new framework using results of Lee, Ha, Na and Na (2002). Our test statistic will be constructed on suitable estimators $\hat{\theta}$ of θ. Finding a decomposition of the test statistic into a sum of martingale differences and negligible terms, useful asymptotic results can be given.

In a second part, two examples will be discussed. We show that this method applies successfully both to times series following an RCA model and linear processes.

Finally, we deal shortly with a generalization to weighted versions of the previous limit theorems.

Wednesday February 28; 3:14 p.m.–4:05 p.m.; JWB 208