

**The Hong Kong Polytechnic University  
Department of Applied Mathematics**

**Seminar**

**Dynamical regime changes**

**By**

**Prof. Xueqin Wang  
University of Science and Technology of China**

**Abstract**

With the proliferation of data throughout many fields comes the challenge of detecting abrupt changes in time series that feature complex measured variables that may not be Euclidean in nature. We introduce a method for consistently estimating the number of change-points and identifying their locations in time series that are valued in Metric spaces. We further demonstrate that the estimated change points converge at an optimal rate of  $O_p(1/T)$ . Analysis of a real dataset and extensive simulations show that our method outperforms state-of-the-art methods, particularly when data are non-Euclidean or covariance structures vary over time.

**Biography**

Xueqin Wang is a Chair professor of Statistics at the Department of Statistics and Finance, School of Management, University of Science and Technology of China (USTC). He earned his bachelor's degree in mathematics from Nankai University in 1997 and his Ph.D. in statistics from Binghamton University in 2003. He held academic positions at Sun Yat-sen University, Yale School of Public Health, and the University of Mississippi before joining USTC in March 2020. He was awarded the New Century Excellent Talent Program of the Chinese Ministry of Education in 2012, the Excellent Young Scholar Award in 2013, and The Changjiang Scholars Program in 2021. As a highly active member of the statistics community, he serves as an associate editor for several renowned journals, including the Journal of the American Statistical Association - Applications and Case Studies and Statistics and Its Interface. In addition, he has published over 100 research papers and monographs on the theory and applications of statistical methods in various disciplines, such as epidemiology, genetics, and mental health.

**Date: 18 August 2023 (Friday)**

**Time: 15:00-16:00 (Hong Kong Standard Time GMT +8)**

**Venue: HJ305**

**Speaker: Prof. Xueqin Wang, University of Science and Technology of China**

**Host: Dr. Ting Li, The Hong Kong Polytechnic University**

**\*\*\* ALL ARE WELCOME \*\*\***