

**September 9<sup>th</sup>, 2019**  
**KAP 414**  
**2:00 P.M. – 3:00 P.M.**

**Professor Leonard Wong**  
(University of Toronto)

**“Capital Distribution of Equity Market  
and its Statistical Modeling”**

**Abstract:** The capital distribution of an equity market refers to the (ranked) weights of the market index (e.g. S&P500), and its diversity measures the degree of concentration of these weights. It was shown empirically that the relative returns of actively managed institutional large cap strategies correlate strongly with the change in market diversity. We review these facts and give a mathematical explanation using the framework of stochastic portfolio theory. In the second part of the talk we present an on-going attempt to model statistically the capital distribution. After discussing the data, we introduce the Aitchison geometry on the unit simplex and report empirical results of a simplicial principal component analysis. In particular, we show that the evolution of the market capital distribution can be effectively described by a low-dimensional process. Based on joint work with Heng Kan.