Statistical Sciences
UNIVERSITY OF TORONTO

SEMINAR

November 17, 2016 at 3:30pm

Refreshments will be provided at 3:15pm

Sidney Smith Hall, Room 2108

Speaker: Mark Anthony Caruana, University of Malta

Host: Andrey Feuerverger

Parameter Estimation for Lévy Processes

Lévy processes are a family of stochastic processes which, unlike Wiener processes, also have the ability to cater for jumps. This property led to a steep rise of interest in the study of these processes, in part fueled by the fact that their applications in finance as well as in other fields are far-reaching. As a result, parameter estimation for these processes has attracted much attention and is still being studied.

Statistical inference for Lévy processes has been studied within parametric as well as nonparametric settings. Although in recent years the latter setting has been given much prominence, the former still offers scope for study. Furthermore, the numerical problems associated with the actual computation of parameter estimates have not been given exhaustive attention. In particular, through a reformulation of the integrated squared error estimator (ISEE), we shall present a method of estimation that has recently been devised. This method uses the properties of the real and imaginary parts of the characteristic function to reduce the computational problems triggered by the oscillatory nature of its empirical version. Finally, this method is compared to other methods of estimation found in literature.