



Statistical Sciences  
UNIVERSITY OF TORONTO

## SEMINAR

January 21, 2016 at 1:00pm

*\*Refreshments will be provided\**

Sidney Smith Hall, Room 2128

Speaker: Stanislav Volgushev, Cornell University

Host: Jamie Stafford

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### *Quantile-based Spectral Analysis*

This talk focuses on a novel method for the frequency domain analysis of a strictly stationary time series. We define a "new" spectrum as the Fourier transform of the differences between copulas of the pairs with different lags and the independence copula. This object is called copula spectral density kernel and allows to separate marginal and serial aspects of a time series. The copula spectral density kernel is substantially more informative than the "classical" spectral density obtained from the auto-covariances. In particular, it provides a complete description of the copulas of pairs with arbitrary lag. We introduce a way to estimate copula spectral density kernels, describe the distributional properties of the proposed estimator, and comment on several extensions.