

# Thesis & Graduate Seminar

## Speaker

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**Monday, January 22, 2018  
1pm, HH-3017**

## **Time series and state space model with $\alpha$ -stable error and generalized extreme value marginals**

### **Abstract:**

State space model is widely used on studying two dependent variables, especially when one is unobservable. In this talk, we present the estimation of time series and the state space model with the  $\alpha$ -stable error and the generalized extreme value (GEV) marginals and the model filtering.

For the time series with the  $\alpha$ -stable error and Fréchet marginals, some recursively estimation methods are applied. For the state space model with the  $\alpha$ -stable error and GEV marginals, the recursively regression method is used to estimate the GEV parameters and the moments estimation, autoregressive moving average model, regression model are applied to estimate the stable parameters.

Model filtering, including Kalman filtering, sequential importance sampling, auxiliary particle filtering and plain linearization and the estimation of the hidden state are considered after the estimation. At last, a small sample sized real data of air pollutants in New York are used to fit the time series and the state space model.