

# SEMINAR

**October 9, 2014 at 3:30pm**

**Sidney Smith Hall, Room 1083**

**\*Refreshments will be served at 3:15pm\***

## **Band Width Selection for High Dimensional Covariance Matrix Estimation**

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The banding estimator of Bickel and Levina (2008a) and its tapering version of Cai, Zhang and Zhou (2010) are important high dimensional covariance estimators. Both estimators require a band width parameter. We propose a band width selector for the banding estimator by minimizing an empirical estimate of the expected squared Frobenius norms of the estimation error matrix.

The ratio consistency of the band width selector is established. We provide a lower bound for the coverage probability of the underlying band width being contained in an interval around the band width estimate. Extensions to the band width selection for the tapering estimator and threshold level selection for the thresholding covariance estimator are made. Numerical simulations and a case study on sonar spectrum data are conducted to demonstrate the proposed approaches.