Title:
Covariance Matrix Estimation for High-Dimensional Time Series

Speaker:
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Time & Place:
Wednesday, April 9, 2014, 4:00-5:00pm
Room 140 Bardeen
(Cookies & Coffee @ 3:30 in Rm 1210 MSC)

Abstract:
I will consider estimation of covariance matrices and their inverses (a.k.a. precision matrices) for high-dimensional stationary and locally strictly stationary time series. In the latter case the covariance matrices evolve smoothly in time, thus forming a covariance matrix function. Using the functional dependence measure of Wu (2005), we obtain the rate of convergence for the thresholded estimate and illustrate how the dependence affects the rate of convergence. Asymptotic properties are also obtained for the precision matrix estimate which is based on the graphical Lasso principle. Our theory substantially generalizes earlier ones by allowing dependence, by allowing non-stationarity and by relaxing the associated moment conditions.