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DEPARTMENT OF STATISTICS AND BIOSTATISTICS
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Seminar

Speaker: **Professor Vladimir Koltchinskii**
School of Mathematics
Georgia Tech

Title: **Spectral projectors of sample covariance: asymptotics and concentration**

Time: **3:20 – 4:20pm, Wednesday, November 12, 2014**

Place: **552 Hill Center**

Abstract

Recent moment bounds and concentration inequalities for sample covariance operators based on a sample of n i.i.d. Gaussian random variables taking values in an infinite dimensional space will be discussed. These bounds show that the size of the operator norm of the deviation of sample covariance from the true covariance is controlled by two parameters: the operator norm of the true covariance and its so called "effective rank". We will also discuss asymptotic and concentration results for spectral projectors of sample covariance in the case when the "effective rank" is large, but it is smaller than the sample size. They include, in particular, asymptotic normality of bilinear forms of empirical spectral projectors and of squared Hilbert--Schmidt norms of their deviations from the spectral projectors of the true covariance.

Most of the results are based on a joint work with Karim Lounici

**** Refreshments will be served @2:50pm in Room 502 Hill Center ****