
THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Geometric Functional Analysis and Probability Seminar

Room 261 ,Ziskind Building
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Random Walk approach to spectral statistics in random Bernoulli matrices

Abstract:

Random Bernoulli matrices (in which the matrix elements are chosen independently from plus or minus 1 with equal probability) are intimately connected to the adjacency matrices of random graphs and share many spectral properties. In the limit of large matrix dimension the distribution of eigenvalues from such matrices resembles that from matrices in which the elements are chosen randomly from a Gaussian distribution - the question is why? We take a dynamical approach to this problem, which is achieved by initiating a discrete random walk process over the space of matrices. Previously we have used this idea to analyse the corresponding eigenvalue motion but I will discuss some recent developments which involve the adaptation of Stein's method to this context.