

abstract

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Topic:

Speaker:

Affiliation:

Date:

Time/Room:

The condition number of a matrix is at the heart of numerical linear algebra. In the 1940s von-Neumann and Goldstine, motivated by the problem of inverting, posed the following question:

(1) What is the condition number of a random matrix ?

During the years, this question was raised again and again, by various researchers (Smale, Demmel etc). About ten years ago, motivated by "Smoothed Analysis", Spielman and Teng raised a more general question:

(2) What is the condition number of a randomly perturbed matrix ?

In this talk, I am going to first survey recent progresses concerning these questions, with many new open questions. Next, I will focus on a recent result with Tao, which gives the exact distribution for (1), extending an earlier work (for the Gaussian case) of Edelman and answering a question of Spielman and Teng.