HARVARD UNIVERSITY
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Mathematical Picture Language Seminar

Tuesday, May 3

9:30 a.m. Boston time

Nonasymptotic random matrix theory

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Abstract: Suppose we are given a random matrix with an essentially arbitrary pattern of entry means and variances, dependencies, and distributions. What can we say about its spectrum? It may appear hopeless that anything useful can be proved at this level of generality, which lies far outside the scope of classical random matrix theory. The aim of my talk is to describe the basic ingredients of a new theory that provides sharp nonasymptotic information on the spectrum in an extremely general setting. This is made possible by an unexpected phenomenon: under surprisingly minimal assumptions, the spectrum of an arbitrarily structured random matrix is accurately captured by that of an associated deterministic operator that arises from free probability theory. (Based on joint works with Afonso Bandeira, March Boedihardjo, and Tatiana Brailovskaya.)

Zoom QR Code & Link:
https://harvard.zoom.us/j/77928335?pwd=MitXVm1pYUlJVzZqT3lwV2pCT1ZUQT09

https://mathpicture.fas.harvard.edu/seminar