

Michigan Math Club

Thursday at 4pm in **East Hall 1324**



Discrete Random Matrices

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The spectral theory of continuous random matrix models (e.g. real or complex gaussian random matrices) has been well studied, and very precise information on the distribution of eigenvalues and singular values is now known. But many of the results rely quite heavily on the special algebraic properties of the matrix ensemble (e.g. the invariance properties with respect to the orthogonal or unitary group). As such, the results do not easily extend to discrete random matrix models, such as the Bernoulli model of matrices with random ± 1 signs as entries. Recently, however, tools from additive combinatorics and elementary linear algebra have been applied to establish several results for such discrete ensembles, such as the circular law for the distribution of eigenvalues, and also explicit asymptotic distributions for the least singular values of such matrices. We survey some of these developments in this talk.

