

The Limiting Distribution of iid Matrices  
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**Abstract:** Let  $A$  be an  $n$  by  $n$  matrix with iid  $\text{Ber}(d/n)$  entries. We show that the empirical measure of the eigenvalues converges, in probability, to a deterministic distribution. The proof involves incrementally exposing the randomness of the underlying matrix and studying the evolution of the singular values. The talk will focus on the simpler model case where we give a substantially simplified proof of the sparse circular law of Rudelson and Tikhomirov.

- Moment Method assumptions, applicability
- Convergence of distributions of spectra of sparse iid  $n \times n$  matrices
- Circular Law
- Nilpotent matrix  $\begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$
- Stability of spectra
- whp - with high probability
- matrix (?) has support
- Moment condition
- (Minimal, maximal) Singular Value
- Normal to matrix, column