

Summary of Math 705 meeting on Feb. 13, 2013 (Week 5) by Haining Ren.

Radoslav demonstrated on a computer how to sample random matrices under the conditions of the semi circle law. The resulting pictures (histograms of the distribution of the eigenvalues) suggest the following question: when is it true that

$$\lim_{N \rightarrow \infty} P(\sup_x |F_N(x) - F(x)| > \epsilon) = 0$$

for all  $\epsilon > 0$ , where

$$F_N(x) = \frac{1}{N} \sum_{k=1}^N 1(\lambda_k^N \leq x),$$

and  $F = F(x)$  is the cdf of the semi-circle law?