The smallest eigenvalue distribution of incomplete Laguerre Unitary Ensemble.

Consider the Thinning procedure consists of removing every eigenvalue independently with probability \( n_k \). Such model can be referred as Laguerre Unitary Ensemble. Its k-correlation functions are expressed in terms of Christofol-Darboux kernel of Laguerre orthogonal polynomials.

\[
K_n(\lambda_1, \ldots, \lambda_k) = \sum_{n=0}^{\infty} \left( \begin{array}{c} n+k-1 \cr n \end{array} \right) \prod_{j=1}^{k} \lambda_j^{n+k-1} e^{-\lambda_j}.
\]

The Moyal determinant is acting in \( L^2(0,1) \) with the kernel

\[
K_m(\lambda, \mu) = \phi(\lambda) \mu(\lambda) - \phi(\mu) \lambda(\mu)
\]

where \( \phi(\lambda) = J_2(\sqrt{\lambda}) \), \( \lambda(\mu) = \frac{1}{2} \sqrt{\lambda^2 + \mu^2} \).

**Theorem.** [2] \[
\lim_{n \to \infty} \frac{\lambda_{2n}(\gamma)}{4n} = \left( \frac{\gamma}{2} \right)^{1/3} \left( 1 + o(1) \right), \quad \gamma \to 0,
\]

\[
\lim_{n \to \infty} \frac{\lambda_{2n+1}(\gamma)}{4n} = \left( \frac{\gamma}{2} \right)^{1/3} \left( 1 + o(1) \right), \quad \gamma \to \infty.
\]

The case of complete spectrum was resolved in [4].

**REFERENCES**