

EIGENVALUES OF RANDOM CMV MATRICES WITH DECAYING COEFFICIENTS

Rostyslav Kozhan

Department of Mathematics, University of California, Los Angeles

We present a certain non-normal sub-unitary ensemble of random matrices (namely, CMV matrices with decaying coefficients restricted to a finite box) for which we are able to explicitly compute the density of eigenvalues:

$$\propto \prod_{j,k=1}^n |1 - z_j \bar{z}_k|^{\frac{\beta}{2}-1} \prod_{j < k} |z_j - z_k|^2 dz_1 \dots dz_n$$

with z_1, \dots, z_n in the complex unit disk. In particular for $\beta = 2$ this coincides with the eigenvalues of a unitary matrix (chosen at random according to the Haar measure) with one row and column removed. We also investigate perturbations of this result, which amounts to computing the asymptotic distribution of zeros of random orthogonal polynomials on the unit circle. Joint work with Rowan Killip.