

RANDOM MATRIX LAWS AND JACOBI OPERATORS

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The four big asymptotic level density laws of Random Matrix Theory are the semicircle, the Marchenko-Pastur, the McKay, and the Wachter Laws. They correspond to the equilibrium measures for Hermite, Laguerre, Gegenbauer, and Jacobi Polynomials. The associated Jacobi matrix is Toeplitz except for first row and first column. We explore properties of these big laws, and apply the Toeplitz nature in an algorithm for the moment problem. In the second part of this talk, we consider multivariate polynomials orthogonal with respect to the product of scalar weights with the Vandermonde to the beta repulsion term.

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