

Asymptotic distribution of the zeros of orthogonal polynomials and logarithmic potential theory

Jacques Faraut

Stieltjes considers a system of n electric charges moving freely on a line and submitted to an external field. The minimum of the electrostatic energy of the system is attained at the points whose coordinates are zeros of a certain classical orthogonal polynomial p_n of degree n . As a result, the asymptotic distribution of the zeros of a sequence of classical orthogonal polynomials p_n can be obtained by using logarithmic potential theory. Similar methods are used in random matrix theory for studying the statistical distribution of the eigenvalues.

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