Oberseminar Mathematische Stochastik

Mittwoch, 30. November 2016, 17:00 Uhr, SRZ 117

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On joint distribution of algebraic numbers

Abstract:
For non-negative integers k, l such that $k + 2l \leq n$ and a Borel subset $B \subset R^k \times C^l$ denote by $\Phi_{k,l}(Q, B)$ the number of ordered $(k+l)$-tuples in B of conjugate algebraic numbers of degree n and weighted l_p-norm at most Q. We show that there exists a limit

$$\lim_{Q\to\infty} \frac{\Phi_{k,l}(Q, B)}{Q^{n+1}}$$

and find it exact value in terms of the mixed correlation functions of some family of random polynomials. The special cases are the naïve height (corresp. the uniform coefficients), the length (corresp. the exponential coefficietns), the Eucledian norm (corresp. the Kac polynomials), and the Bombieri norm (corresp. the elliptic polynomials).

Based on the joint work with Friedrich Götze and Denis Koleda.