Boğaziçi Math Seminar

From Random Polynomials to Complex Geometry

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Abstract:

Random polynomials provide a classical setting in which one can study how random algebraic objects behave in the large degree limit. A basic question is how their zeros are distributed in the complex plane. Although the zeros depend on the random coefficients, it turns out that their normalized distribution often converges to a deterministic limit. The aim of this talk is to explain how this question extends naturally to complex geometry, where polynomials are replaced by holomorphic sections of line bundles. I will discuss our recent results on random holomorphic sections associated with sequences of positive line bundles over compact Kähler manifolds, whose normalized curvature forms converge to a prescribed Kähler form. Specifically, I will focus on equidistribution of zeros, variance estimates, and central limit theorems for linear statistics of zeros. If time permits, I will also mention related results on the mass distribution of random sections.

Date : Wednesday, June 17, 2026
Time: 13:30
Place: TB 130, Boğaziçi University