İSTANBUL ANALYSIS SEMINARS

ON TRANSFINITE DIAMETER IN $\mathbb{C}^n$ AND ON ALGEBRAIC MANIFOLDS

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Abstract: So-called directional Chebyshev constants for a given compactum $K \subset \mathbb{C}^n$ were introduced by Z. in *Math Sbornik USSR* (1975) as limits of the least deviations of monic polynomials with leading exponents taken along subsequences in the lattice $\mathbb{Z}_+^n$. It was established the *principal Chebyshev constant*, defined as a continual geometric average of directional ones and proved that the transfinite diameter Fekete-Leja $d(K)$ coincides with $\tau(K)$, which can be considered as a multivariate version of the classical result of Fekete (1923). My goal is to treat these results in the light of the recent results from David A. Cox and Sione Ma'u's manuscript "Transfinite diameter on complex algebraic varieties," (arXiv:1410.6962v1 [math.AG] 25 Oct 2014), based essentially on methods developed in my paper (1975) and methods from the computational algebraic geometry, as well. Another approach to the transfinite diameter and Chebyshev constants on algebraic varieties will be discussed, based on Djakov-Mityagin's article "The structure of polynomial ideals in the algebra of entire functions," *Studia Math.* **68** (1980), no. 1, 87–104, and modified methods from Z. (1975). Some problems will be suggested.

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