



Im Rahmen der

AG Komplexe Analysis

laden wir zu folgendem Vortrag ein:

Transfinite diameter, Chebyshev constants and capacities (Prof. Vyacheslav Zakharyuta, Sabancı University, Turkey)

am **Dienstag, den 12.02.2013, um 14 Uhr c.t. in Raum G.15.25.**

Abstract: One of the fundamental results in geometric complex analysis is the classical result of the first quarter of 20th century (Fekete, Szegő) which says that *for any compact set $K \subset \mathbb{C}$ the transfinite diameter Fekete $d(K)$, the Chebyshev constant $\tau(K)$ and the capacity $c(K)$ coincide*, although they are defined from very different points of view.

For a compact set K in \mathbb{C}^n , the transfinite diameter was introduced by F. Leja in 1959: $d(K) := \limsup_{s \rightarrow \infty} d_s(K)$, where $d_s(K)$ is s -diameter, defined through extremal Vandermondians, like in the one-variable case. He posed a problem whether there exists the usual limit in his definition, as it was already proved by Fekete for the case $n = 1$. This problem has been solved positively by the speaker in 1975, it was shown also that the *Fekete-Leja transfinite diameter* coincides with the *principal Chebyshev constant*, which is expressed as a continual geometric mean of *directional Chebyshev constants*.

In my talk I give a survey of results on the characteristics of sets for several complex variables (Schiffer, Siciak, Bloom, Bos, Levenberg, Calvi, Nivoche, Zeriahi, Rumely, Lau, Varley, Berman, Boucksom, Nystrom et al), inspired by the above results. It will be represented some new general approach to the transfinite diameter and Chebyshev constants. Also we discuss some new results about inner characteristics of domains in \mathbb{C}^n relative to a point $a \in D$, which are natural generalizations of the conformal radius for a simply connected plane domain. In particular, inner transfinite diameter of D relative to a point a is expressed via extremal Wronskians at the point a , which is new even in the one-dimensional case.

Some unsolved problems will be discussed.

Alle Interessenten sind herzlich eingeladen!

gez. Prof. N. Shcherbina