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Im Rahmen der

AG Komplexe Analysis

laden wir zu folgenden beiden Vorträgen ein:

The Loewner theory in higher dimension

und

The open mapping theorem at the boundary in higher dimension (Prof. Filippo Bracci, Università di Roma "Tor Vergata")

am **Freitag, den 06.12.2013, um 16 Uhr c.t. in Raum G.15.25**.

Abstract for *The Loewner theory in higher dimension*: The classical Loewner theory, introduced in 1923 by Ch. Loewner, and later developed independently by the Russian school of P. P. Kufarev and by Ch. Pommerenke, is nowadays a basic tool in geometric function theory and extremal problems. For instance, de Branges' solution to the Bieberbach conjecture relies much on Loewner theory. In 2000 Oded Schramm introduced a stochastical version of the Loewner ODE, known as SLE, which allowed to prove many results deep results in probability, complex analysis and physics. In higher dimension the theory was initially developed by Pfalzgraff, Poreda, Graham, Kohr, Hamada, who found partial results resembling the one dimensional case. Recently, the speaker together with M. Contreras and S. Diaz-Madrigal proposed a general Loewner theory which works well also on complete hyperbolic manifolds, and in a series of papers together with Arosio, Hamada, Kohr, E. F. Wold, it was proved that, despites many differences and still basic open problems (such as the embedding problem of the characterization of support points), the higher dimensional theory is quite satisfactory. The aim of this talk is to give a general panorama of Loewner theory, starting from the original Loewner construction, up to the new theory on manifolds, related results and open problems.

Abstract for *The open mapping theorem at the boundary in higher dimension*: Given a holomorphic self-map f of the unit disc, a quantitative interpretation of the classical Julia–Wolff–Carathéodory theorem, gives the following "boundary open mapping theorem": let p, q be points on the boundary of the unit disc. Assume $f(p) = q$ (in the sense of radial limit), and assume p is "regular" for f, that is, the ratio between the distance of f from the boundary along a sequence converging to p and the distance of such a sequence from the boundary is bounded. Then every angle centered at q is eventually contained in the local image of f at p. The "qualitative" form of the Julia–Wolff–Carathéodory theorem has been generalized to higher dimension by Rudin (for the unit ball) and Abate (for strongly pseudoconvex domains). In this talk I will discuss the "quantitative" version of such a result, a joint work with J. E. Fornæss. Namely, if f is a holomorphic map from a strongly pseudoconvex domain D to another strongly pseudoconvex domain D' such that it maps a boundary point p into a boundary point q (in the sense of radial limit), p is "regular" for f and the Jacobian of f is bounded from below along non-tangential normal directions to p, then every cone (or more generally every set which is Kobayashi asymptotic to a cone) in D' with vertex at q is eventually contained in the local image of f at p.

Alle Interessenten sind herzlich eingeladen!

gez. Prof. N. Shcherbina