universität wien

Fakultät für Mathematik

Mathematisches Kolloquium

Mittwoch, 27.Juni 2018, 11:30 Uhr
Sky Lounge

EINLADUNG

Tomasso de Fernex
(University of Utah)

"A simplicity criterion for normal isolated singularities"

"A simplicity criterion for normal isolated singularities"

Abstract:
Let X be a complex variety defined in C^n by the vanishing of one (or more) holomorphic functions f(z_1,...z_n)=0, and let P be a point of X. Assume that X is smooth (i.e., a manifold) in a punctured neighborhood of P; X is however allowed to be singular at P, so that this point is an isolated singularity of X. The intersection of X with the boundary of a small ball in C^n centered at P is a real hypersurface in X and is called the link of P. It is natural to ask how much information the link carries about the singularity; for instance, the link of a smooth point is a sphere, and one can ask whether the converse is true. Work of Mumford and Brieskorn has shown that this is the case for normal surface singularities but not in higher dimensions. Recently, McLean asked whether more structure on the link may provide a way to characterize smooth points. In this talk, I will give a general introduction to this circle of questions and discuss how CR geometry can be used to distinguish smooth points from their links. The proof relies on a partial solution to the complex Plateau problem, which is a complex analytic analogue of the classical Plateau problem of Lagrange.

Herwig Hauser
Christian Krattenthaler