

Topology of spaces of valuations and geometry of singularities

Ana Belén De Felipe¹

Given an algebraic variety X defined over a field k , the space of all valuations of the field of rational functions of X extending the trivial valuation on k is a projective limit of algebraic varieties. This space had an important role in the program of Zariski for the proof of the existence of resolution of singularities.

In this talk we will consider the subspace $RZ(X, x)$ consisting of those valuations which are centered in a given closed point x of X and we will focus on the topology of this space. In particular we will concentrate on the relation between its homeomorphism type and the local geometry of X at x . We will characterize this homeomorphism type for regular points and normal surface singularities. This will be done by studying the relation between $RZ(X, x)$ and the normalized non-Archimedean link of x in X coming from the point of view of Berkovich geometry.

¹Universidad de La Laguna / BCAM
adefelipe@bcamath.org