Séminaire d'algèbre, topologie et géométrie
Jeudi 24 mai à 14h
Salle I

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On automorphism groups of quasi-affine varieties

Automorphism groups of open varieties have always attracted a lot of attention, but the nature of these groups is still not well-known. For example the group of automorphisms of $\mathbb{K}^n$ is understood only in the case $n = 2$ (and $n = 1$, of course). Let Y be an open variety. It is natural to ask when the group $Aut(Y)$ of automorphisms of Y is finite.

Iitaka proved that $Aut(Y)$ is finite if Y has a maximal logarithmic Kodaira dimension. Here, we focus on the group of automorphisms of an affine or, more generally, quasi-affine variety over an algebraically closed field of characteristic zero. (Let us recall that a quasi-affine variety is an open subvariety of some affine variety). We prove the following theorem :

Let X be a quasi-affine variety over an algebraically closed field of characteristic zero. If the automorphism group $Aut(X)$ is infinite, then X is uniruled, i.e., X is covered by rational curves. Additionally we prove, that for every finite group G and every natural number k, there exists a smooth non-uniruled affine variety X_G such that $Aut(X_G) = G$.

The presentation will be given as a usual talk with chalk on a blackboard.