

Séminaire d'algèbre, topologie et géométrie

Jeudi 14 juin à 14h

Salle I

Wojciech Kucharz

Cracovie

Rational representation of real functions

Let X be an irreducible smooth real algebraic variety of dimension at least 2 and let $f : U \rightarrow \mathbb{R}$ be a function defined on a connected open subset $U \subset X(\mathbb{R})$. Assume that for every irreducible smooth real algebraic curve $C \subset X$, for which $C(\mathbb{R})$ is the boundary of a disc embedded in U , the restriction $f|_{C(\mathbb{R})}$ is continuous and has a rational representation. Then f has a rational representation. This talk is based on the joint work with K. Kurdyka, in which we refine some recent results obtained in collaboration with J. Kollár. The novelty is that existence of rational representation is tested on a much smaller and more rigid class of curves. We also consider the case where U is not necessarily connected and test rationality on subvarieties of dimension greater than 1. For semialgebraic functions our results hold under slightly weaker assumptions.