

Rational representation of real functions

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Abstract. I will report on a joint work with Krzysztof Kurdyka. Let X be an irreducible smooth real algebraic variety of dimension at least 2 and let $f:U \rightarrow \mathbf{R}$ be a function defined on a connected open subset U of the set of real points $X(\mathbf{R})$ of X . Assume that for every irreducible smooth real algebraic curve C in X , for which $C(\mathbf{R})$ is the boundary of a disc embedded in U , the restriction of $f|_{C(\mathbf{R})}$ is continuous and has a rational representation. Then f has a rational representation. This is a refinement of our work with János Kollár (2018). The novelty is that existence of rational representation is tested on a much smaller and more rigid class of curves.