Seminari de Geometria Algebraica 2013/2014 (UB-UPC) Dijous 5 de desembre a les 15 hs, aula B2 FM–UB http://www.ub.edu/sga/

Polynomials bounded on semialgebraic sets

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We will discuss some properties of polynomials bounded on a given semialgebraic subset of \mathbb{R}^n . We will show how to constructively check boundedness on any semialgebraic subset of the real plane. We achieve this by decomposing the set into connected components at infinity and then showing how to construct an explicit family of curves such that a polynomial f is bounded on the set if and only if f is bounded on a generic member of this family. We will also discuss checking boundedness on certain subsets of \mathbb{R}^n via an appropriate reduction of dimensions. If time allows, we will show as well how bifurcation values of a bivariate polynomial g affect the change of algebra of polynomials bounded on a semialgebraic given by the inequality g < c where c is a real parameter.