

Title: The geometry of sums of powers decompositions

Abstract: Write the polynomial xyz as a sum of cubes of polynomials. This problem is an example of sum of powers decomposition. It looks like a purely algebraic problem, but is it? Probably it is not: to solve the problem one has to look at set of points in the plane which lie in the intersection of two conic curves. The aim of this project is to expose the interplay between algebra and geometry. This will be done by covering the required background and by investigating basic (new and old) examples.