

Symbolic powers and differential operators

Eloísa Grifo, The University of Virginia, Charlottesville VA – 22904

Abstract

Given an ideal I in a polynomial ring, its n -th symbolic power consists of the functions that vanish up to order n at each point in the variety defined by I , which can be described via differential operators. However, this description fails in mixed characteristic. In this talk, we will introduce symbolic powers, discuss the classical Zariski-Nagata theorem, and explain why the usual differential powers are not always enough to describe symbolic powers – and how to fix that. This is joint work with Alessandro De Stefani and Jack Jeffries.

Keywords: polynomial ring, symbolic power, differential operator, Zariski-Nagata theorem, p -derivations.