Séminaire d'algèbre, topologie et géométrie
Jeudi 9 novembre à 14h
Salle I

Yairon Cid-Ruiz

Barcelone

A D-module approach on the equations of the Rees algebra

Let $I \subset R = F[x_1, x_2]$ be a height two ideal minimally generated by three homogeneous polynomials of the same degree d, where F is a field of characteristic zero. We use the theory of D-modules to deduce information about the defining equations of the Rees algebra of I. Let K be the kernel of the canonical map $\alpha : Sym(I) \longrightarrow Rees(I)$ from the symmetric algebra of I onto the Rees algebra of I. We prove that K can be described as the solution set of a system of differential equations, that the whole bigraded structure of K is characterized by the integral roots of certain b-functions, and that certain de Rham cohomology groups can give partial information about K.