Seminari de Geometria Algebraica 2009/2010 (UB-UPC)
Divendres 4 de juny a les 15 h. a l'aula B1 FM-UB
http://atlas.mat.ub.es/sga

Around the singularities of rational curves

Laurent Busé

INRIA Sophia Antipolis

Given a birational parameterization of a curve C, we will show in this talk that some informations about its singularities can be extracted from a simple matrix coming from elimination theory (typically, a Sylvester matrix).
In a first part, we will focus on the case of plane curves for which the geometry is very rich. We will describe some explicit adjoint pencils in terms of determinants and provide some generators of the Blow-up algebras associated to the parameterization of C. We will also give a complete factorization of the invariant factors of this simple matrix. This is a joint work with Carlos D'Andrea.
In a second part, we will explore the case of a rational curve in a projective space of arbitrary dimension. We will explain how to build a simple matrix with the expected properties. Then, we will consider the invariant factors of such a matrix and give some basic properties. However, a full description of these invariant factors in terms of the singularities of the curve does not seem to be known.
