

Seminari de Geometria Algebraica 2008/2009 (UB-UPC)

Divendres 30 de gener a les 15h. a l'aula B5

<http://atlas.mat.ub.es/sga>

Toric Osculation and Sparse Factorization of Polynomials

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I will introduce the classical problem of absolute factorization of multivariate rational polynomials. For sparse polynomials with many zero coefficients, toric geometry comes into the picture and brings us to the following osculating problem. Let X be a toric completion of the complex plane, with boundary the toric divisor $D_1 + \dots + D_r$. Can we find explicit criteria which ensure the existence of an algebraic curve C of X with prescribed k_i -jets on each D_i ? This is a line bundle extension problem that I will solve using cohomological considerations and residue currents. Our result gives a new deterministic algorithm for absolute factorization which takes in account the Newton polytope information and theoretically improves the Chèze-Galligo-Rupprecht algorithm.
