Seminari de Geometria Algebraica 2016-2017

Divendres 17 de març a les 15:00, aula T2 FMI–UB

http://www.ub.edu/sga/

Bounding the degrees of a minimal μ-basis for a rational surface parametrization

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In this talk we shall present the concept of a μ-basis for a rational surface parametrization, which is an active field of research. Although for curves the concept of μ-bases is a well understood object, in the case of surfaces it is not. For instance, it is not clear how the degrees of the elements of a μ-basis for a parametrized surface behave.

The main purpose of this talk will be the presentation of a new result where we can bound the degrees of a μ-basis in terms of the input parametrization:

- For an arbitrary rational surface parametrization

$$P(s,t) = (a_1(s,t), a_2(s,t), a_3(s,t), a_4(s,t)) \in \mathbb{F}[s,t]^4$$

  over an infinite field $\mathbb{F}$, we show the existence of a μ-basis with polynomials bounded in degree by $O(d^{33})$, where

$$d = \max(\deg(a_1), \deg(a_2), \deg(a_3), \deg(a_4)).$$

  Also, under additional conditions we can get tighter bounds.