11th ALGA Meeting

Maresias, São Paulo, from 10/16 to 10/22.

Speaker: Hamid Hassanzadeh (UFPE, Brazil)

Title: Plane Cremona maps: saturation, regularity and fat ideals

Abstract: One studies plane Cremona maps from the point of view of the underlying base ideal, focusing on the algebraic and homological properties of the latter. The leitmotiv driving a substantial portion of the work is the relation between the base ideal and its saturation. As a preliminary one deals with the homological features of arbitrary codimension 2 homogeneous ideals in a polynomial ring in three variables over a field which are generated by three forms of the same degree. The results become sharp when the saturation is not generated in low degrees, a condition to be given a precise meaning. A good deal of the content relates the base ideal of a rational map to a few additional "companion" ideals, such as the integral closure, the -fat ideal and a seemingly novel ideal defined in terms of valuations. The overall goal is a homological classification of low degree plane Cremona maps according to the respective homaloidal types.