

Seminari de Geometria Algebraica 2007/2008 (UB-UPC)
Dijous 24 d'abril de 10:00 a 12:00 a l'aula 007 FME (UPC)
<http://atlas.mat.ub.es/sga>

Growth of degrees of polynomial maps of \mathbb{C}^2 and dynamics IV

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General abstract

Suppose one is given a dominant polynomial map $F : \mathbb{C}^2 \rightarrow \mathbb{C}^2$. Its degree $\deg(F)$ then determines its general behavior F near infinity.

When interested in the dynamics of F , one is naturally lead to study the sequence $\deg(F^n)$ and try to control it when n tends to infinity. The general aim of this mini-course is to describe in details this sequence following my recent work in collaboration with S. Boucksom and M. Jonsson. In particular we shall show that the sequence $\deg(F^n)^{1/n}$ admits a limit (called the asymptotic degree) which is always a quadratic integer; and that $\deg(F^n)$ satisfies a finite linear recurrence relation with integer coefficients. These results are the building blocks for a finer dynamical analysis of the map F .

Talk 4: Valuations and Nef Weil divisors

We relate the previous two techniques by showing that the intersection theory on the space X introduced before can be translated into the valuation space V and yields a kind of potential theory analogous to the one on a Riemann surface. This surprising interpretation finally leads to a fine understanding of the action of a polynomial map on V and to a full understanding of the growth of degrees.
