

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>

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## 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.

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