Mini-cours : Dynamical degrees of birational transformations of surfaces

The dynamical degree $\lambda(f)$ of a birational transformation f of a surface measures the exponential growth of the formula that define the iterates of f. It allows to study the complexity of the dynamic of f. For instance, over the field of complex number, the number $\log(\lambda(f))$ gives a upper bound for the topological entropy. The number $\lambda(f)$ is an algebraic integer of a special kind: a Pisot or Salem number. Its value gives informations on the transformation, for instance on the fact that it is conjugate or not to an automorphism of a projective surface. More generally, I will try to explain in this mini-course how a precise information on the dynamical degree allows to understand the geometry of the transformation, for instance its conjugacy class or its centraliser in the group of all birational transformations.

References:

-J. Diller and C. Favre, Dynamics of bimeromorphic maps of surfaces, Amer. J. Math. 123 (2001), no. 6, 1135–1169

-J. Blanc and S. Cantat, Dynamical degrees of birational transformations of projective surfaces. J. Amer. Math. Soc. 29 (2016), no. 2, 415–471.

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