SEMINARIO
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Sectorial decomposition of plane diffeomorphisms and topological consequences

Abstract: In this talk we propose a decomposition of the dynamics of analytic non center-focus diffeomorphisms of $(\mathbb{R}^2, 0)$ into parabolic, elliptic and hyperbolic sectors. Dumortier, Rodrigues and Roussarie have already studied this problem for C^∞ diffeomorphisms fulfilling a Lojasiewicz inequality [1], which in particular implies that fixed points are isolated. In our work, assuming only analyticity conditions, we provide different proofs and extend the result to diffeomorphisms with curves of fixed points.

In the isolated fixed point situation, we prove that this decomposition is finitely determined. We also study the relation among the weak topological class of the diffeomorphism, the Poincaré index of isolated fixed points and the sectorial decomposition. This is a joint work with Lorena López-Hernanz, Javier Ribón and Fernando Sanz.

[1] Dumortier, F., Rodrigues, P. R., Roussarie, R. H., Germs of diffeomorphisms in the plane, Lecture Notes in Mathematics, Vol. 902, Springer-Verlag, Berlin/New York, 1981.

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