

# TOWARDS THE ANALYTIC CLASSIFICATION OF PLANE CURVE SINGULARITIES

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**Abstract:** One of the most important challenges in pure mathematics is the classification problem for objects and a better understanding of their properties. The classification problem of algebraic curve singularities is an exciting example. The topological classification problem of such singularities goes back to the thirties. The analytical classification, in this context, is still an open problem in the general case. Recently, A. Hefez and M. Escudeiro have obtained a good analytical classification of algebraic curve singularities in the one branch case. The main tool used in their work was the set of values of the module of Kähler differentials associated to the singularity. In this talk, we present the set of values of Kähler differentials in the case of several branches. In this context, this is a new analytical invariant which is sharper than the Tjurina number. Furthermore, we give a way to get the Tjurina number from the data of this set of values, the intersection number of the branches and the Tjurina number of each branch.