

# Local Analytic Representatives in the Understanding of Invariants of Analytic Foliations by Curves

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In the talk we will address the problem of the geometrical understanding of the analytical classification of foliations in neighborhoods of the origin in the complex plane. For this sake, we will have to consider pairs of differential equations; namely, in the domains to consider, there will be two foliations of different types with which we will help to give coordinate systems in certain regions. In the places where such foliations are tangent, such a coordinate system cannot be defined in the same way, however, like a hidden treasure, the places of tangencies (tangency curves) will provide fundamental information for the required classification. The first question then is to know when (and how), given a foliation, it is possible to associate to it a pair in such a way that their curves of tangency provide enough analytical information about the invariants of analytical classification of both foliations. In the talk we will focus on this question using simple local analytical representatives (models) and normalizing transformations. If time allows, a schematic idea of the relationship between these analytic classification invariants will be given.

The talk is based on a work in collaboration with Jessica Jaurez Rosas and Sergei Voronin.