



Seminario de Álgebra, Geometría algebraica y Singularidades
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Logarithmic models for analytic foliations in dimension two

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A logarithmic model of a germ of a complex (or real) analytic foliation at $(\mathbb{C}^2, 0)$ (or $(\mathbb{R}^2, 0)$) is a germ of logarithmic 1-form

$$\eta = \sum_{i=1}^k \lambda_i \frac{df_i}{f_i},$$

where $\lambda_i \in \mathbb{C}^*$ ($\lambda_i \in \mathbb{R}^*$) and f_i are irreducible germs of complex (real) analytic functions, defining a germ of foliation \mathcal{L} with some prescribed data:

- the structure of dicritical components in its reduction of singularities;
- some invariant analytic curves (separatrices);
- Camacho-Sad indices (with respect to these separatrices).

We prove, in an axiomatic way, the possibility of construction of logarithmic models, generalizing (and systematizing) results by N. Corral, F. Cano and F. Sanz. This allows us to produce (real and complex) meromorphic functions, with prescribed indetermination structure and sets of zeroes and poles. In the real case, we can build meromorphic functions whose level sets have a pre-established Bendixson's sectorial decomposition (in hyperbolic, elliptic and parabolic sectors).

Joint work with Jane Bretas (CEFET-MG).

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