SEMINARIO

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Solutions of quasianalytic equations

Abstract: I will present new techniques to solve equations $G(x,y) = 0$, where $G(x,y) = G(x_1,\ldots,x_n,y)$ is a function in a given quasianalytic class (for example, a quasianalytic Denjoy-Carleman class). Several important questions on quasianalytic functions, concerning division, factorization, Weierstrass preparation, etc., fall into the framework of this problem (or are closely related). No previous knowledge on quasianalytic functions is necessary.

In the first part of the talk, I will give a brief overview on quasianlytic functions, focusing on the difference with analytic functions. Next, I will present a technique of "quasianalytic extension" (based on resolution of singularities) and the following result: if $G(x,y) = 0$ has a formal power series solution $y = H(x)$ at some point a, then H is the Taylor expansion at a of a quasianalytic solution $y = h(x)$, where $h(x)$ is allowed to have a certain controlled loss of regularity, depending on G.

Este seminario es parte de la sesión 98 del Seminario Iberoamericano de Matemáticas

Aula A118, Facultad de Ciencias
Jueves 23 de Febrero de 2017 (18:30)
Organiza: G.I.R. ECSING