

Matusinski, *Transserial trajectories of planar vector fields*

In the context of a 3-dimensional real analytic vector field at a singular point, Cano, Moussu and Sanz introduced and studied the notion of integral pencils of trajectories at that point in order to obtain informations on the possible dynamical behaviours. We extend this approach on the formal side, taking advantage of the computability of transseries (grid-based, in the sense of Ecalle – van der Hoeven) when solving differential equations. More precisely, for a real formal planar vector fields at 0, we introduce a notion of transserial trajectories and provide an explicit description of all the possible transserial pencils. This is meant to be a first step toward the same sort of description in dimension 3.

Joint work in progress with Olivier Le Gal, Daniel Panazzolo and Fernando Sanz.