

# Existence and non-existence of Puiseux first integrals

Ana Livia Rodero<sup>1</sup>

In this presentation we show a criteria for the existence and non-existence of Puiseux first integrals for planar vector fields. Using the developed technique, we present some examples of planar vector fields having a monodromic singularity that do not have a Puiseux first integral. In particular, we show a degenerate center family that do not admit a Puiseux first integral.

The presented results are part of a work in progress, developed jointly with Prof. Isaac A. García and Prof. Jaume Giné.

<sup>1</sup> ICMC/USP, São Carlos - SP, 13566-590, Brazil, ana.rodero@icmc.usp.br  
Ana Livia Rodero is supported by the grants 2023/05686-0 and 2021/12630-5, São Paulo Research Foundation (FAPESP).