

Discontinuous vector fields: regularization and versality

Daniel Panazzolo ¹,

¹ Université de Haute-Alsace.

A classic procedure for defining the solutions curves of a discontinuous vector X (let's say locally integrable) consists of constructing a sequence of approximations by smooth fields via the convolution product $X_\varepsilon = X * f_\varepsilon$, where f_ε is a ε -mollifier (positive and smooth function with support in the ball of radius ε). The dynamics of X_ε may depend on the choice of f_ε . In this lecture, we will discuss a geometric approach to construct a versal regularization of X , whose dynamic contains (modulo topological equivalence) all possible regularizations.

References

- [1] Panazzolo, Daniel; da Silva, Paulo R. *Regularization of discontinuous foliations: blowing up and sliding conditions via Fenichel theory*. J. Differential Equations 263 (2017), no. 12, 8362–8390.