

Periodic orbits and cusp-fold singularity in 3D piecewise smooth vector fields.

Angie Tatiana Suárez Romero

Co-Advisor: Rodrigo D. Euzébio.

This talk aims to present a local approach to study the trajectories of a family of piecewise smooth vector fields with one discontinuity surface, a system in three dimensional with a structure known as the fold-cusp singularity. We also provide some intuition of the behavior of piecewise smooth vector fields far from the fold-cusp.

References

- [2] A.F. FILIPPOV Differential equations with discontinuous right-hand sides. *Mathematics and its Applications (Soviet Series)*, Kluwer Academic Publishers-Dordrecht, (1988).
- [1] GOMIDE, O. M. L. AND TEIXEIRA, M. A., *On structural stability of 3D Filippov systems: a semi-local approach*, *Mathematische Zeitschrift*, vol. **294**, 419–449, (2020).