



DYNAMICAL SYSTEMS SEMINAR

Limit cycles for piecewise smooth differential equations

Ricardo Miranda Martins

IMECC-unicamp

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Abstract. In this talk we will present the fundamentals of Filippov systems, with focus on the existence of periodic orbits. We study the existence of limit cycles in families of piecewise smooth differential equations having the unit circle as discontinuity region. We consider families presenting singularities of center or saddle type, visible or invisible, as well as the case without singularities. We establish an upper bound for the number of limit cycles and give examples showing that the maximum number of limit cycles can be reached. We also discuss the existence of homoclinic cycles for such differential equations in the saddle-center case.

This is a joint work with Mayara Caldas (Unicamp).