Title:

The discontinuous matching of two globally asymptotically stable crossing piecewise smooth systems in the plane

Abstract:

A differential system in the plane is globally asymptotically stable if it has an equilibrium point *p* and all orbits of the system tend to *p* in forward time. The problem of determining the basin of attraction of an equilibrium point is one of the main problems in the qualitative theory of differential equations. In this talk I will prove that planar crossing piecewise smooth systems with two zones formed by two globally asymptotically stable differential systems sharing the same equilibrium point localized in the separation line are not necessarily globally asymptotically stable. This is a study in collaboration with D.C. Braga, F.S. Dias and J. Llibre.