Synchronous periodic orbits of PWS networks: theoretical and numerical aspects for asymptotic stability.

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We consider synchronous solutions of networks of piecewise smooth oscillators. The asymptotic stability of synchronous solutions is highly desirable but it is still an open problem how to ascertain it for networks of piecewise smooth oscillators. Two main difficulties must be overcome: i) The fundamental matrix solution is not unique in general; ii) The large dimension of the problem requires efficient numerical techniques. In this talk we address both issues and we extend the Master Stability Function algorithm of Pecora and Carroll to networks of piecewise smooth oscillators.

References

[1] L. M. Pecora, T.L. Carroll, *Master Stability Functions for Synchronized Coupled Systems*, Physical Review Letters, 80 (10) (1998), pp. 2109–2112.

[2] L. Dieci, C. Elia, *Master Stability Function for piecewise smooth Filippov networks*, Submitted.