

1030-37-153

Claire M Postlethwaite* (c-postlethwaite@northwestern.edu), 2145 Sheridan Road,
Evanston, IL 60208, and **Mary Silber**. *Feedback control of unstable patterns and periodic orbits*.

It is often the case that the desired output from a system (be it an experimental or numerical system) is a periodic orbit or pattern which is unstable. In 1992 Pyragus introduced a method of time-delayed feedback control which can be used to stabilize such unstable solutions. This method has attracted much attention, as it has the advantages of being both non-invasive, and also requiring only a knowledge of the period of the orbit a priori. An extension of the Pyragus method to spatially extended systems includes a spatially shifted term, which can act like a coupling term between nodes in a network.

I will present results on two examples. The first example involves stabilizing unstable periodic orbits resulting from a subcritical Hopf bifurcation, and the second is the stabilization of traveling wave solutions to the complex Ginzburg–Landau equation. (Received July 30, 2007)