Numerical Studies of the Robustness the SRPF and DRPF Algorithms for the Control of Chaos when System Parameters Drift[1] KJELL SCHRODER, THOMAS OLSEN, RICHARD WIENER, Pacific University, Forest Grove, OR — Recursive Proportional Feedback (RPF)[2] is an algorithm for the control of chaotic systems of great utility and ease of use. Control coefficients are determined from pre- control sampling of the system dynamics. We have adapted this method, in the spirit of the Extended Time-Delay Autosynchronization (ET-DAS) method[3], to seek minimal change from each previous value. The two methods so derived, Simple Recursive Proportional Feedback (SRPF) and Doubly Recursive Proportional Feedback (DRPF) have been studied in numerical simulations to determine their robustness when system parameters, other than that used for feedback, drift over time. We present evidence of the range over which each algorithm displays robustness against drift.

[2]Rollins textitet al, Phys. Rev. E **47**, R780 (1993).
[3]Scolar *et al*, Phys. Rev. E **50**, 3245 (1994).

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