E1-04 An experimental study of chaos synchronization in Chua's circuit

M K Jayananda, C L Ranatunga
(*Dept. of Physics, Univ. of Sri Jayewardenepura, Nugegoda*)

The behaviour of two Chua's circuits synchronized *via* a one way buffer was studied experimentally. Measurements were made by a computer using a two channel ADC interface. The behaviour of the response system immediately after the drive signal was connected and disconnected, was studied with the aid of a computer controlled analogue switch constructed using a 4051 CMOS 8 channel analogue multiplexer / demultiplexer IC.

The effect of the change of response system parameters and the effect of external noise on the degree of synchronization were found to be very small. When the drive signal was connected, the response system took upto about 1 ms to synchronize with the drive system. When disconnected, it stayed synchronized upto about 300 s. The technique used to study the behaviour of the circuit during this time interval will also be useful in studying the behaviour of chaotic circuits under different initial conditions experimentally.

This is normally studied in computer simulations only.

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