



Performance Evaluation of Synchronization of Chua's System Under Different Memductance

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Abstract: Practical implementation of synchronization schemes is important for secure communication. With many systems available, simple systems with varying differences will prove pertinent in user identification and inter-operability of communicating units. The implementation of Chua's circuit with different memristors is a potential candidate for the realization of such units. In this paper, a general control function for the synchronization of two Chua's circuits with similar or dissimilar memristors was developed. Three different memristor circuits were considered in this paper. Numerical simulation of the proposed control function was carried out and the performance of different memristors in the similar and dissimilar configuration was considered.

Keywords: *memristor; active control; Chua's circuit; synchronization.*

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1 Introduction

The application of chaotic systems in secure communications has led to the development of several synchronization schemes. Initially, synchronization of chaotic systems was between two identical systems [1] before it was extended from two different chaotic systems to the increased and reduced order synchronization between two systems [2], increased and reduced order between three or more systems [3, 4], synchronization of fractional order systems [5], delay differential equations, discrete chaotic systems, and electronic realization [6].

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