

Synchronization of Modified Chua's Circuit with $x|x|$ Function

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Abstract: This paper considers the chaos synchronization of the modified Chua's circuit with $x|x|$ function. We firstly show that a couple of the modified Chua systems with different parameters and initial conditions can be synchronized using active control when the values of parameters both in drive system and response system are known beforehand. Furthermore, based on Lyapunov stability theory we propose an adaptive active control approach to make the states of two identical Chua systems with unknown constant parameters asymptotically synchronized. Moreover the designed controller is independent of those unknown parameters. Numerical simulations are given to validate the proposed synchronization approach.

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Key words: chaos synchronization, modified Chua's circuit, active control, adaptive active control

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