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Dynamic analysis and chaos synchronization of the fractional-order complex Lorenz system

Ajit K. Singh

Department of Mathematical Sciences, Indian Institute of Technology (BHU), Varanasi – 221005, India

Abstract: Nowadays, the fractional differential calculus has beenapplied to the study of dynamic systems. Chaos has beenobserved in many fractional-order systems, so when afractional-order system is chaotic and how to synchronizethe fractional-order chaotic systems have been two veryimportant problems. In the present manuscript, the author studied the complex Lorenz system which a fractional-order system may exhibit a chaoticbehavior could only be analyzed by simulation results.This paper applies the stability theory of fractional-ordersystems in their dynamic analysis and obtains some usefulconclusions. When it comes to the synchronizationproblems, active control method has been studied.

Keywords: Chaos synchronization, Complex chaotic system, Fractional derivative, Fractional-order complex Lorenz system, Active control method.

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