



Active control technique of fractional-order chaotic complex systems

Gamal M. Mahmoud, Mansour E. Ahmed, and Tarek M. Abed-Elhameed

Abstract:

Several kinds of synchronization of fractional-order chaotic complex systems are challenging research topics of current interest since they appear in many applications in applied sciences. Our main goal in this paper is to introduce the definition of modified projective combination-combination synchronization (MPCCS) of some fractional-order chaotic complex systems. We show that our systems are chaotic by calculating their Lyapunov exponents. The fractional Lyapunov dimension of the chaotic solutions of these systems is computed. A scheme is introduced to calculate MPCCS of four different (or identical) chaotic complex systems using the active control technique. Special cases of this type, which are projective and anti C-C synchronization, are discussed. Some figures are plotted to show that MPCCS is achieved and its errors approach zero.

Published In:

Eur. Phys. J. Plus , Vol. 131- No. 200 , NULL