

Hybrid Projective Synchronization in Non-identical Hyperchaotic Financial Systems via Active Control

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ABSTRACT

In this paper, the active control method is used to investigate the hybrid phase synchronization between chaotic and hyperchaotic systems. The hybrid projective hybrid synchronization scheme among more than one non-identical chaotic and hyperchaotic systems via adaptive control method. The presented approach finds the global asymptotic stability and identifies the unknown parameters based on Lyapunov stability theory, the sufficient conditions for achieving the hybrid phase synchronization of two chaotic systems are derived. It is noted that many synchronization strategies, for instance, chaotic control problems, hybrid synchronization, projective synchronization, etc. turn into particular cases of hybrid synchronization. It is discovered that the active control approach is efficient and successful in achieving hybrid phase chaos synchronization of the same and non-identical chaotic and hyperchaotic systems. The proposed scheme is applicable to secure communication and information processing. Finally, numerical simulations are performed to demonstrate the effectively and correctness of the considered technique by using MATLAB.

Keywords: Active control; hybrid synchronization; hyperchaotic systems

How to Cite

Vikash and K. Alam, "Hybrid Projective Synchronization in Non-identical Hyperchaotic Financial Systems via Active Control", *AJIR Abstracts*, pp. 54–54, Feb. 2024.

