

# Synchronization analysis chaos of fractional derivatives chaotic satellite systems via feedback active control methods

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## Abstract

In this research article, a new fractional derivative chaotic satellite system is presented. Nature of different fractional derivative (order) satellite systems with phase portrait analysis versus parameters are analysed through utilization of the fractional calculus in computational simulation. Phase portrait analysis of fractional derivatives of the different satellite systems is drawn and tabled with various parameters values. In new fractional derivative satellite systems, chaos is existed in less than 3D (dimensional) satellite systems. The results are validated by the different tools:- equilibrium points, dissipative, Lyapunov exponents and bifurcation diagrams. Feedback and active control techniques for controlling chaos synchronization of new fractional derivative satellite systems are achieved.

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