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### **Abstract**

Nowadays, non-linear dynamical systems have become a hot topic among researchers.

/"Discovered by Henri Poincare, chaos is a complex phenomenon found in most non-linear dynamical systems, describing the sensitive dependence of the system's evolution on the initial conditions. There are various methods to determine whether a system is chaotic or not; some of them are by plotting Lyapunov exponents, phase portraits, Poincare surface of section, bifurcation diagram, etc

In recent times, fractional calculus can be utilized as an essential mathematical tool for modeling natural practical systems. Despite a few physical phenomena with the properties of heredity, extended memory, viscoelasticity, or diffusion. FO chaotic systems are modeled higher precisely than classical integer order systems. The dynamic behaviors of various real systems have been explained by fractional differential equations, such as kinetic equations, viscoelastic systems, and dynamo theory.

To understand the behavior of non-linear systems and to stabilize their control, Pecora and Carroll established the idea of synchronization. Under synchronization trajectories of coupled systems evolve together in a usual pattern. Based on different control techniques such as adaptive backstepping, linear and nonlinear feedback synchronization, active control, sliding mode control, adaptive sliding mode technique, and time delay feedback, researchers have developed many synchronization schemes such as complete and anti synchronization, phase and anti-phase synchronization, projective and hybrid function projective synchronization, generalized synchronization.