

A Novel Strange Attractor with a Stretched Loop

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The paper introduces a new 3D strange attractor topologically different from any other known chaotic attractors. The intentionally constructed model of three autonomous first-order differential equations derives from the coupling-induced complexity of the well-known Lotka-Volterra oscillator. The chaotic attractor exhibiting a double scroll bridged by a loop mutates to a single scroll with a very stretched loop by the variation of one parameter. Analysis of the global behavior of the new low dimensional dissipative dynamical model and its range of periodic and a-periodic oscillations are presented.

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