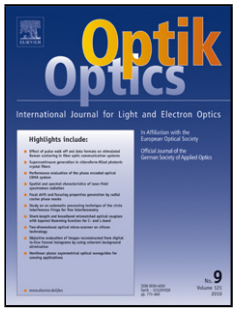

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A novel chaotic system with heart–shaped equilibrium and its circuital implementation

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Abstract

For the past five years there has been much attention to systems with uncountable equilibria. This work introduces a new system with an infinite number of equilibrium points. It is worth noting that equilibrium points, which located on a heart–shaped curve, lead the presence of hidden attractors in the system. By using phase portraits, bifurcation diagram, maximal Lyapunov exponents, dynamics of the system have been investigated. Moreover, an electronic implementation is proposed to illustrate the feasibility of the theoretical system.

Keywords: Chaos, Equilibrium, Heart–shaped, Hidden attractor, Electronic circuit

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