16/2021

INSPEM'S ONLINE WEEKLY SEMINAR

DATE : 7 MAY 2021 (FRIDAY) | TIME : 3.15 PM (MALAYSIA) - 10.15 AM (IRAQ)
MEDIUM : VIDEO CONFERENCE (ZOOM)

Meeting ID: 960 1464 7762
Passcode: 788910

Dr. Hayder Natiq

Lecturer
Information Technology Collage,
Imam Ja'afar Al-Sadiq University, IRAQ

INSPEM Class of 2019

Topic : Recent advances in Continuous and Discrete chaotic systems

ABSTRACT

Further investigations in nonlinear dynamical systems have contributed to the development and understanding of numerous scientific phenomena. In particular, chaotic models as nonlinear systems have been derived from rules for describing complex behaviors. For instance, the Lorenz model is the 3D chaotic system proposed to represent the atmospheric convection, and the logistic map is the 1D discrete-time chaotic model proposed to describe the population growth. Although chaotic systems are deterministic, which indicates that the whole future path of the system is uniquely governed by its initial condition, it is impossible to predict its long-term behavior. Besides, the multistability behaviors in chaotic systems are an exceedingly interesting phenomenon. Therefore, these interesting systems have attracted considerable interest, especially in cryptographic applications. However, the analysis of equilibrium points of chaotic systems has contributed to better understand their dynamics and for determining their attractor type. In general, there are two major types of chaotic attractors: the first type is called self-excited, and the second type is called hidden. The self-excited attractors can be found in chaotic systems that have a basin of attraction intersected with an unstable equilibrium. Meanwhile, hidden attractors can be found in systems with a line of equilibria, curves of equilibria, no equilibria, or infinite number of equilibria.

#UNSDG