YFX1560

Analysis of Dynamical Systems

Variant 7

Part 1: Glycolysis¹

Analyse 2-D system.

$$\begin{cases} \dot{x} = -x + ay + x^2 y, \\ \dot{y} = b - ay - x^2 y, \end{cases}$$

where a and b are constants.

Parameter	Value
a	0.08
b	0.6

Part 2: Simplest dissipative flow

Determine whether the following 3-D system represents a strange attractor or not.

$$\ddot{x} + A\ddot{x} - \dot{x}^2 + x = 0,$$

where constant A = 2.017.

¹Some aspects of the dynamics of this system are discussed during the lectures.