

ANALYSIS OF DYNAMICAL SYSTEMS

Variant 8

Part 1: Van der Pol oscillator¹

Analyse 2-D system.

$$\ddot{x} - b(1 - x^2)\dot{x} + x = 0,$$

where b is a constants.

Parameter	version 8.1	version 8.2
b	5	1

Part 2: Sprott B, chaotic flow

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

$$\begin{cases} \dot{x} = yz, \\ \dot{y} = x - y, \\ \dot{z} = 1 - xy. \end{cases}$$

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