Analysis of Dynamical Systems

Variant 16

Part 1: Bonhoeffer-Van der Pol oscillator

Analyse 2-D system.

$$\begin{cases} \dot{x} = x - \dfrac{x^3}{3} - y + A_0, \\ \dot{y} = c\,(x + a - by), \end{cases}$$

where A_0, a, b, and c are constants.

Parameter	version **16.1**	version **16.2**
a	0.7	0.7
b	0.8	0.8
c	0.1	0.1
A_0	0.6	0.3

Part 2: Sprott O, chaotic flow

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

$$\begin{cases} \dot{x} = y, \\ \dot{y} = x - z, \\ \dot{z} = x + xz + 2.7\,y. \end{cases}$$