

# ANALYSIS OF DYNAMICAL SYSTEMS

## Variant 7

### Part 1: Glycolysis<sup>1</sup>

Analyse 2-D system.

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

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.

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

where constant  $A = 2.017$ .

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<sup>1</sup>Some aspects of the dynamics of this system are discussed during the lectures.