

## STRUCTURAL INSTABILITY OF A BIOCHEMICAL PROCESS

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### S u m m a r y

By the example of a mathematical model of a biochemical process, the structural instability of dynamical systems is studied by calculating the full spectrum of Lyapunov indices with the use of the generalized Benettin algorithm. For the reliability of the results obtained, the higher Lyapunov index determined with the orthogonalization of perturbation vectors by the Gram–Schmidt method is compared with that determined with the overdetermination of only the norm of a perturbation vector. Specific features of these methods and the comparison of their efficiencies for a multidimensional phase space are presented. A scenario of the formation of strange attractors at a change of the dissipation parameter is studied. The main regularities and the mechanism of formation of a deterministic chaos due to the appearance of a fold or a funnel, which leads to the uncertainty of the evolution of a biosystem, are determined.