



ЛАБОРАТОРИЯ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ

Tuesday, 7 February 2017, at 15.30

Room 310

Kalinina E.A.

Using algebraic methods for analysis of complex systems

(Materials of Doctoral Thesis)

In the thesis problems concerning behavior of complex systems depending on parameters are considered. The following algorithms are presented: constructing necessary and sufficient conditions of stability and D-stability for a real polynomial with coefficients polynomially dependent on parameters varying in a box; finding all values of a parameter such that a matrix with elements linearly dependent on the parameter has a multiple eigenvalue; finding all common eigenvalues of two matrices; line graph recognizing and constructing its root graph; calculating the solution of an initial value problem for a system of ODE with minimum total error (i.e., the sum of the truncation error and rounding errors) in the floating-point arithmetic.