

DOI: <https://doi.org/10.15407/technd2020.05.010>

MULTIOBJECTIVE SYNTHESIS OF TWO DEGREE OF FREEDOM NONLINEAR ROBUST CONTROL BY DISCRETE CONTINUOUS PLANT

Journal	Tekhnichna elektrodynamika
Publisher	Institute of Electrodynamics National Academy of Science of Ukraine
ISSN	1607-7970 (print), 2218-1903 (online)
Issue	No 5, 2020 (September/October)
Pages	10 - 14

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Abstract

The method of accuracy improving and uncertain plant parameters sensitivity reducing based on multiobjective synthesis of two degree of freedom nonlinear robust control by discrete-continuous plant is developed. Synthesis of nonlinear robust regulators and nonlinear robust observers reduces to Hamilton-Jacobi-Isaacs equations solution. The robust control target vector is choiced by multicriterion nonlinear programming problem solution in which the objective function vectors is direct indexes performance vector that are presented to the system in various modes of its operation. The robust control target vector calculated by synthesized nonlinear robust control system modeling for various modes of system operation with different input signals and for various plant parameters values. The dynamic characteristics modeling end experimental researching results of a synthesized nonlinear electromechanical servo system for system operation various modes with different input signals and for plant parameters various values are given. References 8, figure 1.

Key words: discrete-continuous plant, nonlinear robust control, dynamic characteristics simulation and experimental researches.

Received: 15.02.2020

Accepted: 21.04.2020

Published: 25.08.2020

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