

The Method for Synthesis the PI and PID Algorithms to the Model of Object with Inertia Second Order

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Abstract

In this paper was developed an efficient procedure for tuning the PI and PID algorithms to the model of object with inertia second order with known parameters, that has two poles allocated in the left half of the complex plane. It was designed the algorithm based on the maximum stability degree method with iterations for tuning the PI and PID controllers and for comparison of the obtained results was proposed to use the pole-zero allocation method. To verify the obtained results, it was done the computer simulation of the automatic control system with PI and PID controllers in MATLAB and there were analyzed the performance of the automatic control system. The advantages of the maximum stability degree method were highlighted through reduced graphical and analytical calculations and minimal time, which lead to simplification of tuning procedure the PI and PID controllers to these model of objects.