

The Tuning Method of the PID Controller to the Underdamped Systems

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ABSTRACT

In this work, it is proposed the method for tuning the PID controller to the second order underdamped systems. The method was developed based on the maximum stability degree criterion and there are obtained the analytical expressions, that permits to calculate the tuning parameters according to the values of the damping ratio, natural frequency and transfer coefficient, that can be determinate from the experimental curve of the open loop system. To demonstrate the efficiency of proposed method the computer simulation was performed.