



A NEW FUZZY GAIN SCHEDULING SCHEME FOR THE PID CONTROLLERS

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ABSTRACT—In this paper, a new fuzzy gain scheduling scheme for the PID controller have been proposed. Fuzzy IF-THEN rules are used on-line to adjust the parameters of the PID controller based on the system error and its derivative. In terms of settling time, one percent peak overshoot and the integral of the time multiplied by the absolute error, the simulation results clearly indicate that the performance of the proposed scheme is better than the Ziegler-Nichols PID controller [1] and the fuzzy gain scheduling scheme of PID controller [2]. For illustration and comparison, numerical examples, using third and fourth order plants, are presented.

Key Words: Fuzzy gain scheduling scheme, Ziegler-Nichols, PID controller, rule of thumb, membership function