



FUZZY PID CONTROL VIA MODIFIED TAKAGI-SUGENO RULES

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ABSTRACT—We present a novel simplest fuzzy PID controller using a modified Takagi – Sugeno (TS) rule base. Mathematical model of the controller is derived and analyzed. The unique features of the controller are: (i) the consequent part of the rule base is closely related to the rule base of Mamdani type controller, and (ii) the proportional, integral and derivative gains vary as the output of the system under control varies. Two illustrative examples are included, and demonstrated how the proposed controller outperforms its linear counterpart.

Key Words: Fuzzy control, Mamdani model, PID control, Takagi-Sugeno model