



## **FUZZY ROBUST TRACKING FOR A CLASS OF NONLINEAR SYSTEMS-APPLICATION TO THE CHEN'S CHAOTIC ATTRACTOR**

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**ABSTRACT**—In this paper, the problem of forcing a nonlinear system to track a desired reference in the presence of uncertainties in the system's parameter values is addressed for a class of nonlinear systems which can be described by a Takagi-Sugeno Fuzzy model. This approach is obtained by properly combining the theory of robust regulation and the Takagi-Sugeno modeling. By a suitable design of local robust controllers for each linear subsystem, it is shown that the aggregated controller guarantees asymptotic tracking even in the presence of variations on the parameters of each linear subsystems and in the membership functions.

**Key Words:** Robust output regulation, Takagi-Sugeno Fuzzy model, Chen Chaotic System