عنوان مقاله:

Fuzzy Sliding Mode Control Approach for Nonlinear Chemical Processes

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خلاصه مقاله:

Sliding Mode Control method is one of the robust nonlinear control methods which has been widely used to control nonlinear systems with uncertainty. Despite its inherent capability to handle uncertainties, it suffers from the fact that it is a model based nonlinear technique. Hence, in order to apply this method in a nonlinear control, one should have the exact model of system. Fuzzy Sliding Mode Control (FSMC) as a robust and intelligent nonlinear control technique is proposed to control processes with severe nonlinearity and unknown models. The performance of the proposed method has been evaluated for both SISO and MIMO nonlinear systems through its application for two severely nonlinear processes frequently used as benchmarks of nonlinear process control. The evaluation shows that despite its lack of dependence on the process model, the proposed method performs almost similar to conventional sliding mode control which utilizes all the information exists in the mathematical model of the process.

کلمات کلیدی:

Sliding mode control; Fuzzy logic control; Non-minimum phase System, Nonlinear Control

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