عنوان مقاله:

Independent Design of Multivariable Controllers for A ۲۴-Tray Separating Mixture of Methanol and Water

محل انتشار:

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خلاصه مقاله:

Most industrial processes are characterized with large uncertainties. To deal with these kinds of processes and achieve fast and accurate control in a stable fashion, the multiple-model control methods have been demonstrated to be very effective. It is difficult to build the precise mathematic model of the object and to accurately control the object with the traditional control methods. This paper applies H∞ robust control strategies to a ۲۴-tray separating a mixture of methanol and water. The idea has favorable controls on control targets (rise time, settling time, overshoot and undershoot, the interaction between input and output) and help on stability of the system output. Then in order to show that the proposed controller affords a good robust performance consistently we have implemented four controllers.Performance analysis of the Hinfinityrobust controller, Model Predictive Control (MPC), conventional PID controller and also LQG/LTR has been done using MATLAB. The comparison of various time domain parameters was done to prove that the H∞ robust controller has best time characteristics and in face with uncertainties has better reacts as compared to other controllers. Beside this, MPC controller has satisfied result in robust stability.

کلمات کلیدی:

Control targets, en, H∞ robust controller, LQG/LTR controller, Decoupling, Uncertainty

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