

عنوان مقاله:

Robust Control of an Industrial Boiler System Using H ∞ Technique

محل انتشار:

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خلاصه مقاله:

In this paper a linear time invariant (LTI) model of a boiler system is considered in which the input variables are feedwater, fuel and attemperator spray mass rates. To achieve a good performance of the utility boiler, dynamic variables such as drum pressure, steam temperature and water level of drum must be controlled. However the dynamic model of boiler may associate with uncertainties. After representation of uncertain dynamic system in general control configuration and modeling the parametric uncertainties, nominal performance, robust stability and robust performance are analyzed by the concept of structured singular value m . Using an algorithm for m -analysis and applying an inversed-base controller, robust stability and nominal performance can be guaranteed but robust performance is not satisfied. Finally, an optimal robust controller is designed based on am -synthesis with DK-iteration algorithm. By applying this controller, desired time responses of output variables are achieved. Results indicate the .robust performance of system against model uncertainties

کلمات کلیدی:

Boiler System, Robust Control, Model Uncertainties, Synthesis, Optimal robust Controller

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