Qu, Yang; **Xu, Lin**; **Fang, Xiaoke**; **Wang, Jianhui**; **Gu, Shusheng**
A new approach to heat exchanger control based on model control. (English) Zbl 1100.93517
Int. J. Inf. Syst. Sci. 2, No. 1, 31-41 (2006).

Summary: Heat exchangers are widely used in air conditioning and ventilation. They are important equipments to obtain certain temperature and comfortable environment. When air conditioning works in transient process, the heat exchangers need to be controlled to adapt the change. Strict process requirement ensures objective fluid with shortest dynamic adjustment time and with minimum controlled variable wave. The common control method in heat exchanger, PID feedback control, can not produce high control quality because of time delay and over-adjustment. So a new approach is presented here to overcome above shortage. A mathematics model is investigated to provide adjustment parameter, then a model-control method is put forward by introducing the feed-forward controller. Experiments are done to study model control method, considering the inlet flow rate or temperature disturbance occurs, or these two parameters change simultaneously.

MSC:

93C95 Application models in control theory
35B37 PDE in connection with control problems (MSC2000)
49N90 Applications of optimal control and differential games
60G40 Stopping times; optimal stopping problems; gambling theory

Full Text: Link