短文

一类时滞线性系统的变结构控制

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摘要
研究一类状态变量具有时滞的线性系统的变结构控制问题, 指出传统的切换函数在时滞系统中应当是一个切换泛函, 给出了在系统谱能控条件下具有稳定滑动模态的切换泛函的设计方法. 并利用趋近律设计了相应的变结构控制器. 得到了一般时滞系统能够变换为所需要的时滞系统的条件.
关键词   时滞系统   变结构控制   切换泛函   滑动模态
分类号

Variable Structure Control for a Class of Time-Lag Linear Systems

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Abstract
The variable structure control for a class of linear systems with delays in state variables is studied in this paper. It is shown that switching functional should be used for variable structure control systems with delays occuring in state variables, while it is well known that switching function is usually used for systems in which there is no delays in states or in control. The design method for the switching functional which leads to stable sliding modes is presented if the system is spectrally controllable. The variable structure controller is obtained by the use of asymptotic law. The sufficient and necessary condition for the existence of the transformation which can be used to transform a general time-lag linear system into the class of systems discussed in this paper is given.
Key words   Time-lag systems   variable structure control   switching functional   sliding modes

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