系统科学与数学 1982 2 (2): 095-108 ISSN: 1000-0577 CN: 11-2019/O1

论文

分布参数与集中参数耦合系统的极点配置问题

王康宁

收稿日期 修回日期 网络版发布日期 接受日期

摘要 设 H 是可分的 Hilbert 空间,A 是空间 H 中的线性算子,b∈H 是非零元.考察空间H中的一阶发展方程描述的控制系统(dx)/(dt)=Ax+bu(t),x(0)=x_0,(1)这里 u(t) 是控制量,是一数值函数.考察反馈控制律u(t)=〈x(t),g〉,(2)这里 g∈H 是非零元,〈·,·〉是 H 上的内积.

关键词

分类号

ON THE POLE ASSIGNMENT FOR THE DISTRIBUTED PARAMETER SYSTEM COUPLED WITH LUMPED PARAMETER SYSTEM

WANG KANGNING

Abstract In an engineering control system it is of great importance that the control object is desc-ribed by a distributed parameter system while the controller is governed by a lumped parametersystem.The physical measurement quantities of a distributed parameter system are fed to thecontroller,in which the control signal is produced and transmitted to the actuator.The latterrealizes the feedback control for the system.Since the controller is usually described by anordinary differential equation,we must study the pole assignment for the distributed parametersystem coupled with a lumped parameter one.When the placement of controller for the distri-buted parameter system is known,we choose appropriate placement of the observator for thedistributed parameter system,such that the closed loop system,which is the distributed param-eter system coupled with a lumped parameter one,possesses assignable poles.That is to say theoperator of the dosed loop system possesses assignable point spectra.In this paper,we havegiven the solution of the problem and the constructive expression of the solution.

Key words

DOI:

通讯作者