

时变线性系统同时强镇定控制器设计

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Controllers design of simultaneously strong stabilization for two linear time-varying systems

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摘要

在套代数框架下,应用素分解的方法,设计能同时强镇定两个时变线性系统的稳定控制器,并给出了所有控制器的参数化.应用该控制器参数化,对某类同时鲁棒强镇定问题进行研究,给出了两个时变线性系统可被同时强鲁棒镇定的充分条件.针对所得的控制器设计结果给出了数值例子,数值结果表明了该设计是有效和可行的.

关键词: 套代数, 同时镇定, 素分解, 控制器, 时变线性系统

Abstract:

By using the coprime factorization theory, a stable controller is designed in the framework of nest algebras. The parametrization of all simultaneously stable controller is provided. By using the parametrization, the problem of simultaneously robust stabilization is studied, and the sufficient condition is given for the robust stabilization. Finally, a numerical example is given to explain the parametrization of the controllers, and numerical results show that the designed method is practical and effective.

Key words: nest algebra simultaneous stabilization coprime factorizations controllers time-varying linear systems

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