

论文与报告

基于状态观测器的非线性相似组合大系统的镇定设计

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摘要

研究了由非线性相似子系统经时变非线性互联而成的非线性组合大系统. 首先, 设计出该组合大系统的状态观测器, 然后, 给出一种基于此观测器所得的估计状态使整个大系统镇定的控制器设计方案, 其结果表明相似结构能简化组合大系统的分析与设计. 最后, 将所得结论应用于轴盘传动系统, 仿真结果表明所得方法的有效性.

关键词 [相似组合大系统](#) [状态观测器](#) [镇定](#)

分类号

Observer-Based Stabilization for Nonlinear Composite Systems with Similarity

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Abstract

This paper studies nonlinear composite large-scale systems with similarity, which contain time-varying interconnections. First, a kind of observer is presented for the systems. Then, the observer-based controllers which are used to stabilize the large-scale systems are designed. It shows that similar structure can simplify the analysis and design of systems. Finally, the conclusion is applied to a disk-shaft system and the simulation shows that our method is effective.

Key words [Composite large-scale systems with similarity](#) [state observer](#) [stabilization](#)

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