短文

系统的增速依赖于不可测状态非线性系统全局输出反馈渐近镇定

尚芳, 刘允刚, 张承慧

1. 山东大学控制科学与工程学院 济南 250061

摘要
研究了一类非线性增长速度依赖于不可测状态且有稳定零动态非线性系统的全局输出反馈渐近稳定控制问题. 因所研究的系统隐含有零动态, 所以首先定义了一系列新的线性变换, 从而成功地分离出原系统的零动态, 得到了便于输出反馈设计的新系统. 然后给出了变换后系统的较为简洁的输出反馈控制设计过程, 并且, 闭环系统的渐近稳定性可由所导出矩阵的正定性来保证. 最后, 仿真算例验证了文中理论结果的正确性.

关键词　非线性系统　线性变换　输出反馈　全局渐近稳定

分类号　TP273

Globally Asymptotical Output-feedback Stabilization for Nonlinear Systems with Unmeasured States Dependent Growth

SHANG Fang, LIU Yun-Gang, ZHANG Cheng-Hui

1. School of Control Science and Engineering, Shandong University, Jinan 250061

Abstract
In this paper, the globally asymptotical output-feedback stabilization problem is investigated for a class of nonlinear systems with unmeasured states dependent growth and stable zero-dynamics. Because of the existence of zero-dynamics, a series of novel linear transformations are first defined to successfully separate the zero-dynamics from the original system, and the new system is thus derived which is convenient for the output-feedback design. Then, a simple design procedure is given for the output-feedback control of the transformed system. Besides, the globally asymptotical stability of the closed-loop system can be guaranteed by the positive definiteness of the derived matrix. Finally, a simulation example is given to illustrate the correctness of the theoretical results.

Key words　Nonlinear system　linear transformation　output-feedback　globally asymptotical stabilization

通讯作者　刘允刚 lygfr@sdu.edu.cn

作者个人主页　尚芳; 刘允刚; 张承慧

扩展功能

本文信息
- Supporting info
- PDF(513KB)
- [HTML全文](0KB)
- 参考文献[PDF]
- 参考文献

服务与反馈
- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- 复制索引
- Email Alert
- 文章反馈
- 浏览反馈信息

相关信息
- 本刊中 包含"非线性系统"的 相关文章

本文作者相关文章
· 尚芳
· 刘允刚
· 张承慧