

线性时滞系统的时滞相关稳定性分析

郑敏(1), 费敏锐(1), 费树岷(2)

(1)上海大学机电工程与自动化学院, 上海 200072; (2)东南大学自动化学院, 南京 210096.

收稿日期 2007-2-21 修回日期 网络版发布日期 2009-6-8 接受日期

摘要 对于存在状态时滞的线性时滞系统,分为固定时滞及时变时滞两种情形,基于Lyapunov-Krasovskii理论分析稳定性,通过时滞划分,得到以LMI形式给出的一种保守性小的渐近稳定性条件,且能够处理任意变化的变时滞问题.实例表明只需粗略划分就能大大提高保守性能,为了兼顾计算负担, α 取较小数值即可.并且LMI中的决策变量少,形式简洁.

关键词 [固定时滞及时变时滞,时滞系统,线性矩阵不等式,时滞依赖条件.](#)

分类号 [34K20](#)

Delay-Dependent Stability Analysis for Linear Time Delay System

ZHENG Min(1), FEI Minrui(1), FEI Shumin(2)

(1)College of Mechatronics Engineering and Automation, Shanghai University, Shanghai 200072; (2)Department of Automation, Southeast University, Nanjing 210096.

Abstract This paper is concerned with the stability of linear time delay systems. Both constant delay and time-varying delay cases are considered. The criteria of stability is derived by using the Lyapunov-Krasovskii theory and is formulated as feasibility problems of Linear Matrix Equalities. Numerical examples show that the performance will be improved notably even by coarse fractioning.

Key words [Constant delay and time-varying delay](#) [time delay systems](#) [LMI](#) [delay-dependent conditions.](#)

DOI:

通讯作者

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(323KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [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](#)

相关信息

▶ [本刊中 包含](#)

[“固定时滞及时变时滞,时滞系统,线性矩阵不等式,时滞依赖条件.” 的相关文章](#)

▶ [本文作者相关文章](#)

- [郑敏](#)
- [费敏锐](#)
- [费树岷](#)