



航空学报 » 1986, Vol. 7 » Issue (1) :80-90 DOI:

论文

最新目录 | 下期目录 | 过刊浏览 | 高级检索

<< ◀ 前一篇 | 后一篇 ▶ >>

### 飞机侧向参数自适应控制增稳系统的设计与研究

肖顺达, 章卫国

西北工业大学

### DESIGN AND RESEARCH OF AIRCRAFT PARAMETER-ADAPTIVE LATERAL COMMAND AUGMENTATION SYSTEMS

Xiao Shunda and Zhang Weiguo

Northwestern Polytechnical University

摘要

参考文献

相关文章

Download: PDF (562KB) HTML 0KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 本文主要为某超音速喷气机设计了侧向控制增稳系统的参数自适应方案,并作了数字仿真研究。目的就是应用自适应控制原理,保证飞机即使在侧向参数发生较大变化且受到外界扰动的条件下仍具有良好的飞行品质。文中对方案的确定、增益初值的选取、控制规律的选择、自适应算法的选定以及确定方程中待辨参数的个数等问题作了分析。对飞机作定高、定速和定高、变速(减速)飞行时进行协调转弯的情况作了研究。当飞机受到随机侧风或常值侧风扰动时,也作了同上研究,并进行了对比。此外,对飞机侧向参数自适应控制增稳系统的微机实现问题作了研究,并对微机系统的设计方案进行了论证。采用Z8000型微机对滚动通道的自适应控制算法进行了试算,结果验证了其计算精度可以满足自适应侧向控制增稳系统的要求。

关键词:

Abstract: A scheme of parameter-adaptive command augmentation system (CAS) is designed for supersonic-jet's lateral motions. Its digital simulation is also investigated. The purpose of the work is to provide the airplane with superior handling quality against rapid variation of the aircraft's lateral parameters and affection of external disturbances. The paper deals with the behaviors of the designed CAS during constant altitude coordinated turns both at constant speed and at decreasing speed, and under stochastic side-gust disturbances as well. The time responses of the aircraft with the designed CAS are compared with those of the free aircraft under the above conditions. It is shown that the version of the adaptive CAS is superior in anti-disturbance and adaptability to time-varying parameters. The microcomputer implementation of the parameter-adaptive lateral CAS and the choice of the microcomputer are also considered.

Keywords:

Received 1984-12-30;

引用本文:

肖顺达;章卫国. 飞机侧向参数自适应控制增稳系统的设计与研究[J]. 航空学报, 1986, 7(1): 80-90.DOI:

Xiao Shunda and Zhang Weiguo . DESIGN AND RESEARCH OF AIRCRAFT PARAMETER-ADAPTIVE LATERAL COMMAND AUGMENTATION SYSTEMS[J]. Acta Aeronautica et Astronautica Sinica, 1986, 7(1): 80-90.DOI:

#### Service

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ Email Alert
- ▶ RSS

作者相关文章