

[1]张艳华,张登成,张久星,等.内装式空射运载火箭与载机分离过程的纵向飞行品质研究[J].弹箭与制导学报,2011,6:190-192.

ZHANG Yanhua,ZHANG Dengcheng,ZHANG Jiuxing,et al.The Study on Longitudinal Flight Quality during Separation of Built in Air launched Launch Vehicle from Launch Aircraft[J].,2011,6:190-192.

[点击复制](#)

内装式空射运载火箭与载机分离过程的纵向飞行

[导航/NAVIGATE](#)

[本期目录/Table of Contents](#)

[下一篇/Next Article](#)

[上一篇/Previous Article](#)

[工具/TOOLS](#)

[引用本文的文章/References](#)

[下载 PDF/Download PDF\(412KB\)](#)

[立即打印本文/Print Now](#)

[统计/STATISTICS](#)

[摘要浏览/Viewed](#)

全文下载/Downloads 225

评论/Comments 96

[RSS](#) [XML](#)

《弹箭与制导学报》[ISSN:1673-9728/CN:61-1234/TJ] 期数: 2011年第6期 页码: 190-192 栏目: 相关技术 出版日期: 2011-12-25

Title: The Study on Longitudinal Flight Quality during Separation of Built in Air launched Launch Vehicle from Launch Aircraft

作者: 张艳华^{1, 2}; 张登成¹; 张久星¹; 朱和铨¹

1 空军工程大学工程学院, 西安710038; 2 西北工业大学航空学院, 西安710072

Author(s): ZHANG Yanhua^{1, 2}; ZHANG Dengcheng¹; ZHANG Jiuxing¹; ZHU Hequan¹

1 The Engineering Institute, Air Force Engineering University, Xi'an 710038, China; 2 School of Aeronautics, Northwestern Polytechnical University, Xi'an 710072, China

关键词: 运载火箭; 重心; 状态方程; 飞行品质

Keywords: launch vehicle; center of gravity; state equation; flight quality

分类号: V475

DOI: -

文献标识码: A

摘要: 为了掌握空中发射运载火箭分离过程中载机的纵向飞行品质, 基于载机重心位置的变化特点, 建立了纵向无量纲的线化小扰动状态方程, 利用时域分析的方法对长、短周期模态特性进行了数值模拟, 对照飞行品质规范与准则确定了飞行品质等级。结果表明随着运载火箭向后移动, 短周期模态的飞行品质由等级¹下降到等级²; 长周期模态仅满足等级³要求。可见分离过程严重影响了载机的飞行品质, 需要进一步采取措施提高载机的飞行品质 and 安全性。

Abstract: In order to know the longitudinal flight quality of a launch aircraft during launch vehicle's separation, according to the change of aircraft's center of gravity, the longitudinal small perturbation state equations were built, and the time domain method was applied to the simulation of long and short cycle modes, then the grade of flight quality was given according to criterion. The results show that the flight quality of short mode degrades from grade one to grade two, long mode only satisfies grade three during launch vehicle's separation. Obviously, the separation has serious effect on flight quality and it is necessary to improve flight quality and safety in the future.

参考文献/REFERENCES

[1]李易,唐硕,许志.内装式空中发射运载火箭重力出舱运动分析[J].飞行力学,2009(6):62-65.

[2]张登成,阎杰,张久星.内装式空射运载火箭与载机分离研究[J].弹箭与制导学报,2009,29(5):158-161.

[3]顾诵芬, 解思适·飞机总体设计[M]·北京: 北京航空航天大学出版社, 2001.

[4]陈廷楠·飞机飞行性能品质与控制[M]·北京: 国防工业出版社, 2007.

[5]MIL-STD-1797 (USAF), Flying qualities of piloted vehicles[S]

备注/Memo: 收稿日期: 2011-01-21 作者简介: 张艳华(1979-), 女, 内蒙赤峰人, 讲师, 硕士, 研究方向: 飞行力学和飞行仿真

更新日期/Last Update: 2011-12-25