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综合飞行/推进控制系统的特征值灵敏度分析和设计

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THE EIGENVALUE SENSITIVITY ANALYSIS AND DESIGN FOR INTEGRATED FLIGHT/PROPULSION CONTROL SYSTEMS

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摘要

在综合飞行/推进控制系统中,子系统之间的相互作用对飞机的稳定性、控制和性能具有直接的影响。本文应用特征值灵敏度分析法研究耦合系数的大小对系统稳定性的影响;应用增益灵敏度分析,进行减状态反馈次优设计,仿真结果表明设计合理,方法可行。

关键词：　综合控制系统　飞行控制　推进控制　特征值灵敏度　增益灵敏度

Abstract：

In this paper, sensitivity approaches are taken to analyse and design an integrated flight/propulsion control system where the interaction between subsystems directly affects the stability property and handling performances of the aircraft. The eigenvalue sensitivity approach is employed to study the effect of coupling parameters on system stability and gain sensitivity approach is used to direct the reduced states feedback sub-optimal control system design. Simulation results shew that the integrated flight/propulsion control system designed by sensitivity approaches is of good performance.

Keywords： integrated control systems   flight control   propulsion control   eigenvalue sensitivity   gain sensitivity

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