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# 航空发动机控制系统性能恢复设计:H_∞/PR

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# PERFORMANCE RECOVERY DESIGN OF AERO ENGINE CONTROL SYSTEM: H ∞ /PR

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**摘要** 对于航空发动机这样一类状态及输出矩阵存在摄动的系统，提出了一种直接根据性能指标作为恢复的目标的性能恢复理论设计方法。首先进行具有稳定及性能鲁棒性的状态反馈的H∞控制设计，然后通过设计一个状态观测器使得上述状态反馈控制的特性得以恢复。

**关键词：** H_∞控制 全状态反馈 性能恢复 性能鲁棒性

Abstract： To a class of plant,when the state and output matrixes are both perturbed,a methodology is proposed to design a dynamic output feedback controller based on the full order state observer.When considering the perturbation of the state matrix,via H ∞ control theory,a state feedback controller is designed to make the control system be of performance robustness.That is to design a state feedback matrix so that the H ∞ norm of the transfer function from w to z will be less than a specified value.To the perturbed plants,a full order state observer is designed to ensure that the performance of the full state feedback control system is recovered.The objective is to design an observer matrix so that the H ∞ norm of the closed loop transfer function be less than the same specified value in designing the state feed back controller.In this paper,the problem to design an observer matrix is simplified to be a standard H ∞ state feedback control problem under an assumption.

Keywords： H ∞ contr ol full state feedback performance recover y per formance robustness

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