

## **Robust and Reliable Control in Decentralized Singularly-perturbed Systems**

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### Abstract

Robust control investigation and reliable control investigation are performed in his research for decentralized singularly-perturbed systems [1]. Due to the systems are controlled by using reduced-order control scheme, robustness of the system should be necessarily concerned. A procedure of a robust control test will be developed to find the robustness bound of the systems. A reliability goal for a decentralized system is the stabilization of the plant by a controller in each control channel, such that the system can tolerate control channel failures [2]. The results of the research shows the system that has a certain structure with certain conditions will be a reliable control system.

Key words: Control System; Reliability; Singularly-Perturbed System

# 分散式奇異擾動系統之強健及可靠性控制

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## 摘要

在這篇研究中，分散式奇異擾動系統之強健及可靠性控制被加以研究和討論。因為此系統由減階控制器控制，系統的強健性必須被加以考量。一種強健控制的測試方法亦被發展出來，系統之強健界線亦可由此法找出。可靠性在於分散式奇異擾動系統是指在每個控制端的控制器可穩定受控系統，且使得受控系統可忍受任意控制端的失效。這篇研究的結果顯現出只要符合特一架構的控制系統加上一定的條件，此系統將會是一個可靠性的控制系統。

關鍵字: 控制系統; 可靠度; 奇異擾動系統