燃料處理系統最佳化控制系統設計

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摘 要

本文利用線性高斯二次和迴路轉移函數回歸(LQG/LTR)控制架構，建立一個燃料處理系統(Fuel processing system, FPS)的最佳控制系統，其中包含前饋控制器及狀態迴授控制器，此系統是針對一個以天然氣和大氣中的氧氣為燃料經由觸媒部分氧化反應器(CPO)，重組後所得到的合成氣體經由純化後，將所產生的氫氣供給質子交換膜燃料電池(PEMFC)堆。此控制系統經由Matlb/Simulink製作成為數學模組，進行動態模擬以及分析系統效能。模擬結果顯示補償系統在時域與頻域都有良好的性能響應。

關鍵詞 : 燃料處理系統 ; 觸媒不完全氧化反應器 ; 質子交換膜燃料池 ; Matlab/Simulink

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