新型並聯式複合電動系統之動態模擬與控制之研究

呂哲權、黃國修 ; 蔡耀文

E-mail: 9511370@mail.dyu.edu.tw

摘 要

本論文主要在研究新型並聯式複合電動系統之動態模擬與控制器設計。本系統包含自行創新的動力整合分配機構，當輸入之動力源為電動馬達或內燃機所傳遞來之動力，可單獨作動其任一動力源；兩輸入之動力源亦可由動力整合分配機構調配成較大之動力源輸出，其輸出之能量會適時加大到路面所需之牽引力。 在動態模擬方面，利用Matlab/Simulink來做整個新型並聯式複合電動系統之動態方程式之建模，也設計此系統之模糊邏輯控制器，並完成此新型複合電動系統之動態模擬與分析。 經由動態模擬與能量管理策略，得知此模糊邏輯控制器，可適切調整馬達與內燃機兩個動力源，內燃機於各種行駛狀態下都能維持於最佳運轉區域，各動力源之切換亦可達到良好之運作，減少不必要動力損失。本文之研究結果顯示已完成一組低油耗、低污染，而且高效能之新型並聯複合電動系統。

關鍵詞 : 並聯式複合電動系統 ; 動力整合分配機構 ; 模糊邏輯控制 ; 能量管理策略 ; 動態模擬

目錄

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