雙動力驅動車輛之動力系統研製

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摘 要

全球暖化對動植物所造成的問題不斷擴大，石油等能源日益缺少也造成價格持續攀升，如何有效遏止汽車排放廢氣且減少石油的使用量便成為一項重要的課題。近年來國際間相繼出現省能且低汙染的複合電動車(Hybrid Electric Vehicle，HEV)，這類環保概念車輛結合內燃機之優點與電動馬達的特性，有機會一躍成為未來汽車科技的主流。

本論文發展一種雙動力驅動車輛的動力系統，搭配電力控制系統、磷酸鋰鐵電池充電系統及主控制器管理系統，可使雙動力驅動車輛的兩種動力源達到有效的平衡。在電控系統中，使用數位訊號處理器(DSP)做為各元件訊號溝通與處理整個系統的完整運作。

本論文將此動力系統應用於一並聯複合動力驅動系統，藉馬達定子端之電壓及電流，偵測轉子所在位置，以完成估測轉速及提供換向訊號，再以此轉速估測值建立閉迴路之轉速控制系統。本論文也在研究中順利完成實驗平台的建構，藉由實測之結果驗證此動力系統與雙動力驅動車輛之整合功能與成效。

關鍵詞 : 複合電動車、動力系統、磷酸鋰鐵電池、數位訊號處理器

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