Study of dynamic model and simulation of a motorcycle with CVT system = CVT摩托車動態模擬之研究

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摘 要

此論文研究單缸，四行程，岐管噴射汽油引擎之動態建模與控制系統。摩托車引擎的模擬與控制是非常重要，因為在燃油效率，減少廢氣排放量及電力提供方面可透過控制系統得到較佳的結果。 在此，以MATLAB and SIMULINK 7.0軟體開發動態，控制屬性之引擎和機車的模型，且此模型之模擬結果亦呈現出來。同時，亦開發引擎的回饋控制數學模型及展現並驗證控制下的模擬結果。此回饋控制模型使用比例，積分及微分控制邏輯，而其最佳的控制參數值可由MATLAB內建之最佳化軟體求得，而這些最佳的控制參數值於本文中亦利用參數變化加以驗證。 本文所開發之數學模型亦可用來作為其它引擎控制器的開發工具，更進一步地亦可用來探討其它引擎及摩托車的穩態及暫態行為。

關鍵詞 : 模擬，四缸，火星塞點火，岐管噴射，PID控制器，引擎

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