

定速行駛車輛負載對樑結構之動態反應

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摘要

在樑結構行駛中的車輛之振動在機械和土木工程中非常重要。本研究在探討車輛行駛中樑結構之振動分析。應用Euler-Bernoulli樑理論推導出等速行駛中之車輛和簡支樑之運動方程式。並建立具有懸吊彈簧和阻尼之1/4車輛模型。首先，計算出樑結構系統之特徵解(自然頻率)，並求的樑結構系統之自由響應。其次，利用模型擴展理論得到動態響應方程式，在計算車輛行駛中之位移對於樑結構之變化關係求出方程式解。最後，分析計算求出微分方程式之數據，另外再用MATLAB模擬分析出數值結果，將數據結果和分析結果進行比較。

關鍵詞：特徵值、分析方法、模態函數

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