MFC智慧型貼片應用於蜂巢三明治平板的噪音控制

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摘 要

對於有效增加結構噪音損失方面的研究已有許多已完成文獻報告，其中使用的控制方法有包含許多種，主要可以為注重在主動式控制、被動式控制和混合式控制。由現有的研究中得知如何將平板振動控制效果達到最佳化，如何控制低頻噪音穿透損失值達到最好的效果，如何找出平板振動對於噪音增減之影響，以及有無電磁激振器影響共振的頻率，低頻喇叭供給的能量是否能穩
定，一直都是從事噪音控制和結構振動的學者所注重的領域。

本論文的目的是使用MFC壓電致動器作為振動控制元件，使用簡單且有效的速度回饋控制，並且用理論分析與實驗得知MFC主動的控制效率。執行項目包括：⑴利用多組的MFC壓電致動器黏貼於蜂巢三明治複材平板上，並用MFC壓電致動器當成致動器，用掃頻方式去驗證不同位置的MFC，對於蜂巢三明治複材平板受到激振呈現各個模態的敏感度及頻率響應；⑵完成蜂巢三明治複材平板結構對於主動式單模態速度回饋控制實驗分析；⑶利用主動式單模態速度回饋控制來達到輻射噪音控制實驗分析

關鍵詞 : 噪音穿透損失、速度回饋控制、輻射噪音

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