

Experimental evaluation of active vibration control of a flexible plate using proportional gain controller

ABSTRACT

Active Vibration Control (AVC) is well known nowadays as an optimum technique in vibration suppression of flexible structures. Due to the complexity of the dynamics system of flexible structures, vibration control process is quite a challenge. In this paper, the vibration control of flexible plate using classical proportional feedback gain controller method is studied, experimentally. The AVC-P controller design is implemented to a full clamped flexible plate system to evaluate its vibration attenuation performance. The system's dynamic model considering the collocated placement of the sensor and actuator is derived within the LabVIEW environment. The first five frequencies of vibration mode were obtained. The result indicated that the AVC-P controller propose possessed the ability to attenuate vibration of the flexible structure.

Keyword: Active vibration control; Flexible plate; Piezoelectric actuator