

Active vibration control using pole placement method of a flexible plate structure optimised by genetic algorithm

ABSTRACT

Active vibration control (AVC) of flexible structure has given remarkable attention in recent years due to its importance in engineering applications. This research investigates the application of system identification to model a dynamic system of flexible plate structure for active vibration control purpose. A second order ARX model optimised by genetic algorithm (GA) is employed to represent the dynamical system and then feedback controller using pole placement method is exploited to stabilise the system and attenuate the disturbance vibration. The result indicates that pole placement method has capability to ensure the stability of the system while suppressing the disturbance vibration of flexible plate system.

Keyword: Active vibration control; Flexible structure; Pole placement; System identification