# Iterative algorithm for active vibration control of flexible beam

## Abstract

This paper presents the development of dynamic model of a flexible beam structure using finite difference method. A Simple Proportional (P) control scheme is applied to suppress vibration at the tip of the flexible beam. The performance of P controller is studied by gradually increasing manually the proportional gain until significant attenuation of the vibration is observed. Then the controller is further extended to self-tune the proportional gain by using an intelligent mechanism known as Proportional Iterative Learning Algorithms (P-type ILA). The robustness of both controllers in suppressing the vibration is investigated by changing the beam's physical parameter, applying disturbance at different segments and amplitudes respectively. The simulation results clearly revealed the effectiveness and robustness of a self-tuning proportional control over conventional P control scheme as active vibration control of a flexible beam.