

## **Active vibration control of flexible beam system using proportional control scheme in finite difference simulation platform**

### **Abstract**

This paper presents the development of dynamic model of flexible beam structure using finite difference method. The simulated model is validated by comparing the resonance modes with the theoretical values. Simple proportional control scheme is used as active vibration control (AVC) algorithm for the system. Simulation study of the control system is done by gradually increasing the proportional gain until it reaches the optimum value. The effectiveness of this control scheme is observed based on its capability to suppress unwanted vibration of the beam. The attenuation of the beam is validated through time and frequency responses. The effect of proportional gain on the dynamic behavior of the actuator is also reported. Simulation is done using LabVIEW graphical programming environment. Results of the study clearly reveal the effectiveness of proportional control scheme in reducing the vibration of the beam.

**Keywords;** Active vibration control; Finite difference method; Flexible beam; Partial differential equation; Proportional control

