

Active Vibration Damping of Aluminum Beam Using Piezoelectric Actuator

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Abstract. This paper deals with the active vibration control of an aluminum beam using a piezoelectric actuator. The cantilever beam was excited to resonance vibration by one piezoelectric actuator placed near the fixed support. The second piezoelectric actuator placed on the beam was used for active vibration suppression. The beam's free end displacement was measured using a triangulation laser sensor. The active vibration control was implemented in LabVIEW software using a DAQ device. The operation of the designed control system (using a PID and fuzzy control theory) for damping free as well as forced vibration of the cantilever beam was finally evaluated.