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Finite Element Based Simulation of Piezoelectric Materials for Vibration Suppression

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ABSTRACT

Excerpt

This research concerns active vibration suppression of composite cantilever beam configuration consisting of aluminum face sheets and a core composed of honeycomb Aluminum panels by using piezoelectric smart materials as actuators. MSC/MARC can be utilized in the numerical simulation of active feedback control for the purpose of vibration suppression of structural systems. The Positive Position Feedback (PPF) control algorithm is coupled with an MSC/MARC dynamical structural model. The transient response of the beam with and without the active control is examined. The MSC/MARC solution is found to be in good agreement with experimental values from previous work.

Abstract
Keywords
1. Introduction
2. Finite Element Method
3. Sandwich Beam
4. Control Design
5. Implementation and Results
6. Conclusion
References

Topics: Piezoelectric materials, Simulation, Finite element analysis, Vibration suppression

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