



## MEASUREMENT AND ACTUATION OF VIBRATION IN TEXTILE COMPOSITES USING PIEZOELECTRIC MATERIALS

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### ABSTRACT

A composite/piezoelectric system has been developed to measure and actuate vibration of cantilever beams using surface laminated and embedded piezoceramic coupons. Different sizes and configurations of delaminations were introduced at the piezoelectric-composite interphase and the effects of these delaminations on the sensing and actuation of vibration within the system were observed. Results obtained show that the size and configuration of delamination significantly affect the value of natural frequencies measured with discrete delamination giving lower values than distributed delaminations. Large delaminations result in lower measured natural frequency. Effective actuation of vibration in the host structure was also observed.

**Keywords:** Actuator, composite, delamination, piezoelectric, sensor, textile

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