

Abstract Submitted  
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**Investigation of Deformations regarding THUNDER Actuators.<sup>1</sup>**

PAUL HARRIS, CSU San Bernardino — A new type of piezoelectric composite actuator called THUNDER, which was originally developed by NASA, has potential applications in micro robotics, aeronautics, and hydraulics. The manufactured process produces internal stresses with accompanying structural deformation. It is the goal of this research to characterize these deformations. Detailed measurements were taken with a laser micrometer on several different types of actuators. Several functional forms were used in an attempt to fit the data. The data was best fit by a circular segment function. We also used a transcendental equation to be able to compare to other single point published values. We found the range of curvature to be between  $4.97 \times 10^3 \text{mm}^{-1}$  and  $1.29 \times 10^2 \text{mm}^{-1}$ . Preliminary experimental results of voltage induced deformations will be presented.

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