

Abstract Submitted  
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**Charge Capacity of Piezoelectric Membrane Wings<sup>1</sup>** MATTHEW GRYBAS, J. PAUL HUBNER, The University of Alabama — Micro air vehicles (MAVs) have small wings often fabricated with flexible frames and membranes. These membranes flex and vibrate. Piezoelectric films have the ability to convert induced stress or strain into electrical energy. Thus, it is of interest to investigate if piezoelectric films can be used as a structural member of an MAV wing and generate both lift and energy through passive vibrations. Both a shaker test and a wind tunnel test have been conducted to characterize and assess energy production and aerodynamic characteristics including lift, drag and efficiency. The piezoelectric film has been successful as a lifting surface and produces a measurable charge.

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