

Abstract Submitted
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The effect of morphologically representative corrugation on hovering insect flight JEFFREY FEASTER, FRANCINE BATTAGLIA, JAVID BAYANDOR, University at Buffalo — The present work explores the influence of morphologically representative wing corrugation in three-dimensional symmetric hovering. The kinematics are applied to a processed μCT scan of a *Bombus pennsylvanicus* and compared with a wing utilizing the same planform but a flat, rectangular cross-section. The *Bombus pennsylvanicus* wing used in the present study was captured in Virginia, killed with Ethyl acetate dying with wings extended with the fore and hind wings connected by the wing humuli. The aerodynamics resulting from geometric differences between the true wing and flat plate are quantified using C_L and C_D , and qualified using slices of vorticity and pressure. Three-dimensional flow structures are visualized using vorticity magnitude and streamlines. The present analysis is to begin to determine and understand the effects of insect wing venation on aerodynamic performance and further, to better understand the effects of assuming a simplified cross-sectional geometry.

Jeffrey Feaster
University at Buffalo

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