

Abstract Submitted  
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**Aerodynamics of Dragonfly in Hover: Force measurements and PIV results** XINYAN DENG, ZHENG HU, University of Delaware — We used a pair of dynamically scaled robotic dragonfly model wings to investigate the aerodynamic effects of wing-wing interaction in dragonflies. We follow the wing kinematics of real dragonflies in hover, while systematically varied the phase difference between the forewing and hindwing. Instantaneous aerodynamic forces and torques were measured on both wings, while flow visualization and PIV results were obtained. The results show that, in hovering flight, wing-wing interaction causes force reduction for both wings at most of the phase angle differences except around 0 degree (when the wings are beating in-phase).

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