

Abstract Submitted  
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**Aerodynamics of Dragonfly in Forward Flight: Force measurements and PIV results** ZHENG HU, XINYAN DENG, 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 forward flight, 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 forward flight, wing-wing interaction always enhances the aerodynamic forces on the forewing through an upwash brought by the hindwing, while reduces the forces on the hindwing through a downwash brought by the forewing.

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