

**CENTER FOR FLUID MECHANICS
AND
THE FLUIDS, THERMAL AND CHEMICAL PROCESSES GROUP
OF
THE DIVISION OF ENGINEERING
SEMINAR SERIES**

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Maneuverability and Stability of Flying Insects

The history of the science behind insect flight is littered with debunked myths. We now know that flapping wings and not gas-filled “air-cells” keep insects aloft, that no insect is capable of supersonic flight, and that aerodynamic theory predicts bumblebees can indeed fly. Such myths arise from the scarcity of reliable flight measurements, and I’ll introduce table-top experimental and lap-top analytical techniques that give insect flight data of unprecedented quantity and quality. Flight data on the common fruit fly reveals the biology and physics that underlie fundamental questions: How do insects use the flapping motions of their wings to orchestrate flight maneuvers? How do flying insects keep stable, up-right, and on-course? The actual solutions to insect flight maneuverability and stability are more marvelous than myths we might dream up.

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