

Abstract Submitted
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Wing Flapping by a Tiny Parasitoid Wasp EVAN WILLIAMS, DAVID MURPHY, Univ of South Florida — Tiny insects such as thrips and parasitoid wasps are important agricultural pests and also serve as bio-control agents for other insect pests. The flight of these insects may be important in their dispersal across agricultural fields, but their flight capabilities and aerodynamics are not well understood. These mm-scale insects flap their wings at beat frequencies of several hundred Hz and use unsteady aerodynamic interactions between the wings (e.g. the clap-and-fling maneuver) to generate lift in order to fly, but the aerodynamics of such low Reynolds number flapping is not well studied. Here we investigate the flapping behavior of the parasitoid wasp *Trichogramma minutum* which we have observed to flap its wings using the clap-and-fling maneuver while at rest on a surface. This behavior may actively draw odorants to the insect and thus enhance olfactory navigation. The wasp has a body length of approximately 0.46 mm and teardrop-shaped fringed wings with length and maximum chord width of 0.43 mm and 0.22 mm, respectively. We provide visualization of this behavior using an ultra-high speed brightfield microscopy system and describe efforts to measure the flow fields generated by *Trichogramma* wing flapping while at rest on a surface and while flying.

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