

## MAE Faculty Candidate

# Computational Study of Unsteady Low Reynolds Number Aerodynamics for Micro Air Vehicles

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Micro Air Vehicles (MAVs) are small scale, light weight, and autonomous flying machines that can perform missions such as surveillance, target tracking or biochemical sensing in confined or dangerous areas. There is a growing interest in the MAV research because of its military and civilian applications. However, due to its small size and low flight speed, MAV typically operates at low Reynolds numbers from  $10^3$  to  $10^5$ . At such low Reynolds numbers, MAV's performance is profoundly affected by laminar-to-turbulent transition and unsteady aerodynamics. And many outstanding issues remain unresolved in the low Reynolds number aerodynamics. In this talk we will discuss two topics involved in the MAV research. The first one is the fluid and structure interaction between a flexible membrane wing and viscous flows. The second one is the flapping wing study at transitional flow regions. The numerical methods and major observations will be presented.

Friday, April 11<sup>th</sup>, 2008  
206 Furnas Hall  
2:30 – 3:30 pm