ILLINOIS INSTITUTE OF TECHNOLOGY

Mechanical, Materials And Aerospace Engineering Department

MMAE SEMINAR

WEDNESDAY, February 22, 2006
E-1 BUILDING – CRAWFORD AUDITORIUM
3:30 – 4:30 PM

Micro and Nano Unmanned Aerial Vehicles

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Developments in miniaturization techniques in microelectronics, aerodynamics, propulsion and avionics enable the building of flying machines of 25 cm span and less, and weights of less than 0.5 Kg that will perform a variety of tasks.

This change of scale enables using physical phenomena new to aeronautical systems, together with the exclusion of well-known principles of design. As a result, radical changes in aerodynamic design and propulsion systems are required, resulting in new shapes and functions, compared to classical aircraft, and even existing UAV's.

A detailed description of three ongoing projects at Technion is presented. These are:

- An innovative nano-UAV (0.5 cm span, 10 mg total weight) based on Stokes flow principles
- A 25 cm fixed wing Biplane with 1N payload.
- A Cyclogyro concept vehicle of 45cm diameter, combining lift and thrust production by using Darrieus type rotors.