



# Johns Hopkins University Chapter

PRESENTS

## Unmanned Aerial Vehicle (UAV) Swarms

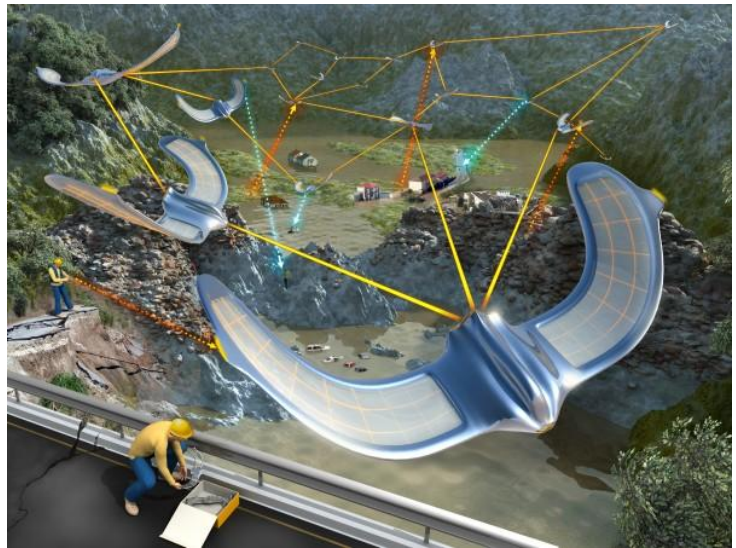
A talk by Jay Moore (JHU Applied Physics Lab)

**DATE:** Tuesday,  
November 8<sup>th</sup>, 2011

**TIME:** 5:00 - 6:00 pm

**LOCATION:** Gilman 50, JHU  
Homewood Campus

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### Abstract

The recent proliferation of small unmanned aerial vehicles (UAVs) is bringing on-the-spot sensor coverage to many small teams of emergency response, law enforcement, and military personnel. However, the task of controlling all of these vehicles demands considerable training and distracts the attention of operators who need to remain keenly focused on the dangers of their immediate surroundings. This talk will present work at The Johns Hopkins Applied Physics Lab on swarming multi-vehicle control systems that allow operators to control a large collection of vehicles by assigning high-level objectives to the swarm as a whole. Using stigmergic potential fields, a completely decentralized process inspired by both insect colonies and charged particles, the vehicles in the swarm collaborate to fulfill the operators' tasking. A particular strength of this approach is its robust response to changing conditions, such as temporary loss of communications or vehicles joining and leaving the swarm.

### About the Speaker

Jay Moore is a researcher at The Johns Hopkins Applied Physics Laboratory. His research interests include autonomous multi-vehicle control systems and sensor data fusion for small unmanned vehicles. He has also served as the UAV payload manager for BAI Aerosystems in Easton, MD, and as a systems engineer for the Predator and Reaper UAVs at General Atomics Aeronautical Systems in San Diego, CA. He holds Master's degrees in both Aeronautical Engineering and Computer Science from MIT and Johns Hopkins, respectively.