

Abstract Submitted  
for the DFD12 Meeting of  
The American Physical Society

**Numerical Simulations of the Urban-Type Boundary Layer Experiment**<sup>1</sup> SRIHARSHA KANDALA, DIETMAR REMPFER, MONNIER BRUNO, CANDACE WARK, Illinois Institute of Technology, Chicago — Due to their small size, limited power and relatively low speeds compared to the magnitude of typical velocity fluctuations in the atmospheric boundary layer, MAVs are highly susceptible to gusts encountered in complex urban environments. As such, an understanding of the spatial and temporal characteristics of these flow fields can play an important role in the design of these MAVs. In this talk, we present the results of numerical simulation of an urban-type boundary layer described in the talk by Monnier, Wark *et al.* Specsolve, a parallel spectral element solver, is used for these simulations. POD is used to generate a low dimensional representation of the velocity field from the simulation data. Gust statistics and various structures relevant to MAV navigation are presented. These results are compared with SPIV data from the experiment.

<sup>1</sup>This work was supported by AFOSR FA9550-11-1-0056.

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Date submitted: 01 Aug 2012

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