

Abstract Submitted
for the DFD19 Meeting of
The American Physical Society

Multi-rotor Unmanned Aerial Vehicle (UAV) performance under shear flow¹ NINGSHAN WANG, ALEKSANDAR DZODIC , DOM DIDOMINIC III, AMIT SANYAL, MARK GLAUSER, Syracuse University — Several multi-rotor UAV test flights under shear flow turbulence are carried out. This research targets evaluating the flight performance of the multi-rotor UAV when exposed to shear flow. The UAV deployed with different types of control schemes is exposed to shear flow with different shear rates and freestream velocities to gain its performance under a variety of conditions. Characterization of the shear flow field is evaluated by an array of total pressure scanners to measure the shear rate and free stream velocity spatially. The flight performance data is achieved through the Inertial Measurement Unit (IMU) integrated inside the UAV controller.

¹The authors are grateful to the support from Syracuse University and Dr. Mark Glauser for this research.

Ningshan Wang
Syracuse University

Date submitted: 31 Jul 2019

Electronic form version 1.4