



SYRACUSE UNIVERSITY ENGINEERING & COMPUTER SCIENCE

Melissa A. Green, assistant professor in the Syracuse University College of Engineering and Computer Science, was a recipient of a three-year grant from the Air Force Office of Scientific Research (AFOSR) for her work on “Using Lagrangian coherent structures to characterize vortex shedding on bluff bodies in cross-flow.”

The funding comes from the Air Force’s Young Investigator Research Program (YIP), which is open to scientists and engineers at research institutions across the United States who received Ph.D. or equivalent degrees in the last five years and who show exceptional ability and promise for conducting basic research. The program seeks to foster creative basic research in science and engineering; enhance early career development of outstanding young investigators; and increase opportunities for the young investigators to recognize the Air Force mission and the related challenges in science and engineering.

The AFOSR awarded approximately \$15.5 million in grants to 42 scientists and engineers through YIP.

Green specializes in the area of fundamental Fluid Dynamics, specifically vortex dynamics. As part of this grant, she will use novel techniques to detect the formation and shedding of vortices from non-streamlined structures. Vortex shedding often accompanies flow separation, a fluid dynamic phenomena associated with higher drag and oscillating forces, which cause problems with efficiency, structural fatigue, and aerodynamic noise. Green’s research will inform future vehicle design and control strategies to mitigate these effects across a range of engineering applications.



Dye flow visualization of vortices rolling up downstream of a cylinder. The dye is illuminated by a green planar laser sheet.