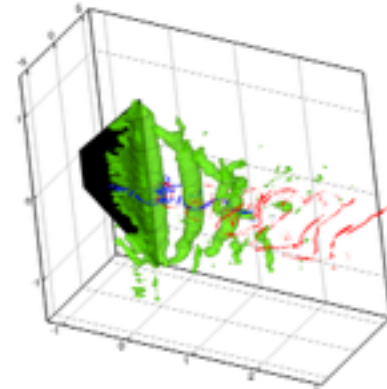




**SYRACUSE
UNIVERSITY**
**ENGINEERING
& COMPUTER
SCIENCE**

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 Office of Naval Research (ONR) for her work on “Lagrangian methods in unsteady propulsion: characterizing vortex wake structure and force production.” This funding comes from ONR’s Biologically Inspired Underwater Propulsion Program, and Green and her research group will receive over \$650,000 during the three year period.

Green specializes in the area of fundamental Fluid Dynamics, specifically vortex dynamics and bio-inspired propulsion. As part of this grant, she will use novel analysis techniques to detect the formation and evolution of vortices that are generated when fin-like surfaces are oscillated in water. In the case of aquatic locomotion, this flapping produces forward thrust while simultaneously creating a chain of vortices in its wake. Green will use the ONR funding to develop experiments that incorporate new equipment to measure force directly on the flapping surfaces, as well as to synchronize those measurements with visualizations of the vortex wake. Her research will inform efficient design and control strategies for a range of underwater vehicle applications.



Visualization of the analysis on a trapezoidal panel - the model of caudal fin flapping.