Abstract Submitted
for the DFD16 Meeting of
The American Physical Society

A bioinspired modular aquatic robot PHANINDRA TALLAPRAGADA, BEAU POLLARD, Mechanical Engineering, Clemson University — Several bio inspired swimming robots exist which seek to emulate the morphology of fish and the flapping motion of the tail and fins or other appendages and body of aquatic creatures. The locomotion of such robots and the aquatic animals that they seek to emulate is determined to a large degree by the changes in the shape of the body, which produce periodic changes in the momentum of the body and the creation and interaction of the vorticity field in the fluid with the body. We demonstrate an underactuated robot which swims due to the periodic changes in the angular momentum of the robot effected by the motion of an internal rotor. The robot is modular, unactuated tail like segments can be easily added to the robot. These segments modulate the interaction of the body with the fluid to produce a variety of passive shape changes that can allow the robot to swim in different modes.

Phanindra Tallapragada
Mechanical Engineering, Clemson University

Date submitted: 01 Aug 2016 Electronic form version 1.4