

USF NEXUS INITIATIVE 2018 AWARD RECIPIENT

David Murphy

Sea Butterfly Swimming: Bio-Inspiration for Aquatic Micro Aerial Vehicles

Sea butterflies are tiny marine snails in which the foot has been modified into a pair of “wings.” These zooplankters flap their “wings” to “fly” through the water in the same way that insects fly through the air. This similarity raises the possibility that the physical principles underlying sea butterfly swimming could be used to design a robotic vehicle that could effectively operate in both air and water. In order to explore these principles, we are measuring the swimming kinematics and lift generation mechanisms of a variety of sea butterfly species at the Bermuda Institute of Ocean Science (BIOS) using high speed imaging and flow measurement techniques.

Partnerships:

Amy Maas, Ph.D.

Bermuda Institute of Ocean Sciences (St. George’s, Bermuda)



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