

Abstract Submitted
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A Study of a Mechanical Swimming Dolphin LILLY FANG, DANIEL MAASS, MEGAN LEFTWICH, ALEXANDER SMITS, Princeton University — A one-third scale dolphin model was constructed to investigate dolphin swimming hydrodynamics. Design and construction of the model were achieved using body coordinate data from the common dolphin (*Delphinus delphis*) to ensure geometric similarity. The front two-thirds of the model are rigid and stationary, while an external mechanism drives the rear third. This motion mimics the kinematics of dolphin swimming. Planar laser induced fluorescence (PLIF) and particle image velocimetry (PIV) are used to study the hydrodynamics of the wake and to develop a vortex skeleton model.

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