

Abstract Submitted  
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**Vortex wakes of a flapping foil in a flowing soap film** TEIS SCHNIPPER, ANDERS ANDERSEN, TOMAS BOHR, Dept. of Physics and Center for Fluid Dynamics, Technical University of Denmark — We present an experimental study of an oscillating, symmetric foil in a vertically flowing soap film. By varying frequency and amplitude of the oscillation we explore and visualize a variety of wake structures, including von Kármán wake, reverse von Kármán wake, 2P wake, and 2P+2S wake. We characterize the transition from the von Kármán wake (drag) to the reverse von Kármán wake (thrust) and discuss the results in relation to fish swimming. We visualize the time evolution of the vortex shedding in detail, identify the origins of the vortices comprising the wake, and propose a simple model to account for the transition from von Kármán like wakes to more exotic wake structures.

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