

Abstract Submitted
for the DFD17 Meeting of
The American Physical Society

Fluid-mediated stability and speed-increase for heaving hydrofoils swimming side-by-side JOEL NEWBOLT, JUN ZHANG, LEIF RISTROPH, New York Univ NYU — As an example of collective motion in active swimmers we study the fluid-mediated interaction between two heaving hydrofoils that swim with a fixed transverse separation (between the heaving mid-heights) but are free to independently choose their forward swimming speeds and positions. Experiments reveal that out-of-phase foils are attracted to a side-by-side configuration which also increases the swimming speed of the pair (up to 59% faster for our parameters), while in-phase foils are repelled from this configuration. Because this type of swimming is qualitatively similar to that of fish and birds this interaction could be important to schooling and flocking.

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Date submitted: 01 Aug 2017

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