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**Optimal Flight of a Symmetric Flapping Wing** LIONEL ROSELLINI, AML, Courant Inst. New York Univ., JUN ZHANG, Dept. of Physics and Courant Inst. NYU — We study the unidirectional locomotion that results from symmetry-breaking of fluid response to a wing that is flapped vertically. We seek the optimal parameters of such locomotion. In particular, we investigate (1) at what flapping amplitude the forward flight speed is highest (minimum Strouhal number), and (2) at what amplitude the flapping wing has the lowest threshold to forward flight. We discuss other factors affecting the forward flight performance, such as the chord of the wing and its flexibility.

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