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Optimal swimming at low Reynolds number DANIEL TAM, A.E. HOSOI, Massachusetts Institute of Technology, HATSOPOULOS MICROFLUIDS LABORATORY TEAM — A vast majority of living organisms exist at micrometric scales. Many of them are able to propel themselves by beating flagella in a variety of different patterns. This study focuses on optimal flagellar swimming motions at low Reynolds number. We seek to optimize both the geometry of the swimmer and the kinematics of the flagellar beat pattern. A number of configurations are investigated including uniflagellate and biflagellate organisms. Results from our model are compared with existing data from biological microorganisms.

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