Reciprocal motion at low Reynolds numbers ERIC LAUGA, RE-NAUD TROUILLOUD, TONY YU, ANETTE HOSOI, MIT — At low Reynolds numbers, the equations of motion are time-reversible. Consequently, if the periodic motion of a solid body is symmetric in time (so called reciprocal motion), the body - on average - will not move. One way to overcome this constraint is to use non-reciprocal motion, as do the flagella of swimming microorganisms. Another way is to allow the body to be flexible. In this talk, we will discuss a third possibility: the reciprocal motion of a solid body can lead to net motion if the surrounding environment is able to deform in response to the motion of the body. We will present simple scalings and a macro-scale experiment to support this idea.

Eric Lauga
MIT

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