

Abstract Submitted
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A Simple Method to Measure Nematodes' Propulsive Thrust and the Nematode Ratchet.¹ HAIM BAU, JINZHOU YUAN, DAVID RAIZEN, University of Pennsylvania — Since the propulsive thrust of micro organisms provides a more sensitive indicator of the animal's health and response to drugs than motility, a simple, high throughput, direct measurement of the thrust is desired. Taking advantage of the nematode *C. elegans* being heavier than water, we devised a simple method to determine the propulsive thrust of the animals by monitoring their velocity when swimming along an inclined plane. We find that the swimming velocity is a linear function of the sin of the inclination angle. This method allows us to determine, among other things, the animals' propulsive thrust as a function of genotype, drugs, and age. Furthermore, taking advantage of the animals' inability to swim over a stiff incline, we constructed a sawteeth ratchet-like track that restricts the animals to swim in a predetermined direction.

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