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Response of Swimming Paramecia to *in situ* changes in their apparent weight[1] ILYONG JUNG, HARRY MICKALIDE, JAMES M. VALLES, JR., Brown University — There is a class of marine micro-organisms that are small enough that low Reynold's number hydrodynamics dictates their swimming mechanics and large enough that the force of gravity exerts a noticeable influence on their motion. Experiments on populations of paramecia suggest that they exert a greater propulsion when swimming against gravity. This negative gravi-kinesis is surprising because it suggests that they sense their tiny apparent weight of about 80 pN. To understand this response in more detail, we are investigating how individual paramecia caudatum change their swimming speed and helical trajectories in response to changes in their apparent weight. We vary the apparent weight with the technique of Magnetic Force Buoyancy Variation employing a high field resistive magnet at the National High Magnetic Field Laboratory. We will present analysis of the swimming for apparent weight changes as large as a factor of 8.

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