Abstract Submitted
for the DFD11 Meeting of
The American Physical Society

Investigations of the Response of Swimming Paramecia to Variations in their Apparent Weight[1] JAMES VALLES, ILYONG JUNG, Brown University, KARINE GUEVORKIAN, Curie Institute, HARRY MICKALIDE, MICHAEL WAGMAN, Brown University — There is a set of micro-organisms that are small enough that they swim at low Reynolds number and large enough that gravity exerts an influence on their behavior Many protists, like paramecia, for example, exhibit negative gravi-taxis by orienting their swimming upward and negative gravi-kinesis by increasing their propulsion when swimming against their apparent weight. It is not clear whether these responses to a very weak force (about 100 pN) are active or passive. We have developed a technique, Magnetic Force Buoyancy Variation, which enables us to vary the apparent weight of the swimmers in situ. We will describe experiments on paramecia conducted at the National High Magnetic Field Laboratory. In particular, we will describe how increasing the apparent weight induces paramecia to accumulate at upper surfaces. A simple force model suggests that this accumulation is a passive response.

[1]Supported by NSF-PHY0750360 and a grant to the NHMFL, NSF DMR-0654118.

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Date submitted: 05 Aug 2011 Electronic form version 1.4